Board of Trustees

Quarterly Meeting

February 19-20, 2020

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01) Agenda

QUARTERLY MEETING OF THE BOARD OF TRUSTEES
February 19-20, 2020

David Rose Board Room
Michael J Burns Building
801 W. 10th St., Suite B, Juneau, AK 99801

Day 1 Webinar Access (click link to join webinar)
Join via WebEx and enjoy the ability to listen on your computer and follow presentations:
https://apfc.webex.com/apfc/onstage/g.php?MTID=ec2c34477cb45eb22dcfbfe665dc8e57f
Event Password: 02192020

Day 2 Webinar Access (click link to join webinar)
Join via WebEx and enjoy the ability to listen on your computer and follow presentations:
https://apfc.webex.com/apfc/onstage/g.php?MTID=e5d236fafb29979abdbf618e3808c4ce6
Event Password: 02202020

Teleconference Option
If you are unable to join in-person or via webinar, please contact us at (907) 796-1500 to receive a teleconference number.

AGENDA

WEDNESDAY, FEBRUARY 19, 2020

8:30 a.m. CALL TO ORDER

ROLL CALL (Action)

APPROVAL OF AGENDA (Action)

APPROVAL OF MINUTES (Action)
- December 3-4, 2019

SCHEDULED APPEARANCES AND PUBLIC PARTICIPATION

8:45 a.m. CHIEF EXECUTIVE OFFICER'S REPORTS (Information/Standard Reports)
- Pending Board Matters, Trustee Education Report, Disclosure Report, Staff Summary Report, Investment Guidelines Update
- Communications Report
- Financial Report
- History & Projections
- Investment Management Fee Report
- FY20 Budget Update

09:00 a.m. INVESTMENT ADVISOR COMMENTS

09:15 a.m. CIO REPORT
Marcus Frampton, Chief Investment Officer

09:35 a.m. AUDIT RFP UPDATE (Action)
Val Mertz, Chief Financial Officer

10:00 a.m. RISK OVERVIEW (Information)
Sebastian Vadakumcherry, Chief Risk Officer

10:45 a.m. BREAK

11:00 a.m.	CAPITAL MARKET OVERVIEW (Information) Greg Allen, Callan LLC Steve Center, Callan LLC
12:00 p.m.	BREAK / LUNCH
12:30 p.m.	ASSET CLASS OVERVIEW (Information) Marcus Frampton, Chief Investment Officer Steve Center, Callan LLC
2:00 p.m.	ALTERNATIVES, ASSET CLASS UPDATE Steve Moseley, Director of Alternatives
3:00 p.m.	Break
3:15 p.m.	REAL ESTATE, ASSET CLASS UPDATE Rose Duran, Director of Real Estate Tim Andreyka, Senior Portfolio Manager RCLCO Real Estate Advisors
4:15 p.m.	INVESTMENT ADVISOR REAL ESTATE PRESENTATION Timothy Walsh, Investment Advisor
5:15 p.m.	*RECESS FOR THE DAY*

THURSDAY, FEBRUARY 20, 2020

8:00 a.m.	*MEETING RECONVENES*
8:05 a.m.	ASSET ALLOCATION & INVESTMENT POLICY (Information) Marcus Frampton, Chief Investment Officer Sebastian Vadakumcherry, Chief Risk Officer
9:35 p.m.	GOVERNANCE CHARTER & BYLAWS (Action) Chris Poag, General Counsel
10:35 a.m.	BREAK
10:50 a.m.	UPDATE ON INTERNSHIP PROGRAM Angela Rodell, CEO
11:30 a.m.	PRESENTATION Senate President Cathy Giessel Speaker of the House Bryce Edgmon
12:00 p.m.	LUNCH
12:30 p.m.	EARNINGS RESERVE ACCOUNT MODEL (Information) Marcus Frampton, Chief Investment Officer Greg Allen, Callan LLC
2:30 p.m.	BREAK
3:00 p.m.	EARNINGS RESERVE ACCOUNT OPTIONS & RECOMMENDATIONS (Action) Angela Rodell, Chief Executive Officer Chris Poag, General Counsel
4:00 p.m.	ADVISOR COMMENTS (Information)
4:30 p.m.	OTHER MATTERS Angela Rodell, Chief Executive Officer
5:00 p.m.	TRUSTEE COMMENTS FUTURE AGENDA ITEMS
5:30 p.m.	ADJOURNMENT

02) Approval of Minutes

Approval of Minutes Memo

APFC ALASKA PERMANENT FUND CORPORATION
801 W 10TH SUITE 302 | JUNEAU, AK 99801
907.796.1500 | apfc.org

SUBJECT: Approval of Minutes ACTION: __X__

DATE: February 19, 2020 INFORMATION:

BACKGROUND:

Staff reviewed the following Board of Trustees meeting summary minutes, draft copies are attached for your approval.

- December 3-4, 2019 Quarterly Meeting

RECOMMENDATION:

Approval of the summary minutes of the Board of Trustees meetings listed above.

Minutes: December 3-4, 2019

ALASKA PERMANENT FUND CORPORATION

QUARTERLY MEETING OF THE BOARD OF TRUSTEES

December 3-4, 2019
9:00 a.m.

Location of Meeting:
Pike's Waterfront Lodge
1859 Hoselton Road
Fairbanks, Alaska 99709

SUMMARY MINUTES

Trustees Present: Craig Richards, Chair
William G. Moran
Marty Rutherford
Corri A. Feige (via telephone)
Mike Barnhill

Investment Advisor: Timothy Walsh

Staff Present: Angela Rodell, CEO
Marcus Frampton, CIO
Chris Poag, General Counsel
Maggie Meiners
Paulyn Swanson
Steve Center
Timothy Andreyka
Sebastian Vadakumcherry
Rose Duran
Chad Brown
Chris LaValle

Invited Participants and Others Present:
Gregory Allen, Callan Associates
Steven Center, Callan Associates
Taylor Mammen, RCLCO
Ben Maslan, RCLCO
Mike Tobin, Public Comment

PROCEEDINGS

December 3, 2019 – 9:00 a.m.

CHAIR RICHARDS called to order the Alaska Permanent Fund Corporation Quarterly Meeting in Fairbanks, Alaska. He began with the roll call, and there was a quorum.

APPROVAL OF AGENDA

The MOTION WAS APPROVED with UNANIMOUS CONSENT.

APPROVAL OF MINUTES (September 25-26, 2019)

CHAIR RICHARDS stated that there were two things on the minutes. He continued that the format was shortened and asked if there is a form of the full meetings that is preserved.

CEO RODELL replied that a full transcript is preserved. She explained that it is maintained in the corporate records and is available to the public upon request.

The MOTION WAS APPROVED with UNANIMOUS CONSENT.

SCHEDULED APPEARANCES AND PUBLIC PARTICIPATION

CHAIR RICHARDS began with Public Comment and recognized Mike Tobin, who was on-line.

MR. TOBIN stated that he lives in Juneau, is a member of 350 Juneau Climate Action for Alaska, and is a retired physician. He explained the meaning of 350 as being attributed to the 350 parts per million danger level of carbon dioxide in the atmosphere. Currently, that is at 415 parts per million, about 55 points above that danger level. He continued that this meant that the vast majority of fossil fuels need to stay in the ground as a rapid transition to renewable energy and low carbon is made. He added that climate-related risk in the sector in the future includes loss of revenue from regulatory and policy changes to reduce greenhouse gas emissions from the numerous lawsuits against fossil fuel companies and from declining income from oil and gas assets as demand declines and clean energy technology is deployed. Ongoing climate-risk assessment has been repeatedly advocated for to include all asset classes of the Fund. The 350 also asks that the trustees understand the additional complexity of their fiduciary duty in this extraordinary time and to begin divesting from fossil fuel companies.

CHAIR RICHARDS thanked Mr. Tobin for his comment and asked for anyone else that would like to make a comment. There being none, he closed public comment and moved to the Chief Executive Officer's Report.

CHIEF EXECUTIVE OFFICER'S REPORT

CEO RODELL highlighted her trip to Shanghai and participation in the PPI meetings there. She explained that PPI is an organization the Fund has been a member of for about five years, and that it was helpful to be in Shanghai to understand the dynamics on the ground of some of the

things that are happening. She had an opportunity to meet with one of the founders of Alibaba, along with the head of business strategy for Huawei. She stated that it is important, as China becomes more integral to some of the indices the Fund is investing in, to have due diligence in our understanding of what is happening. She reminded the trustees of the Callan Institute training from January 27th to the 29th. Registration is opened, and if any trustees are interested in going to San Francisco to attend the national conference, to let Maggie know. She continued that PPI is having a winter roundtable in Rancho Palos Verdes. The asset owners from, basically, the Pacific Rim do a great job of delving into issues. It is all under Chatham House Rules; no reporters allowed. It is a closed-door, networking, information-sharing event. She stated that the last memo, Changes to Investment Guidelines, will be talked about in greater detail during the CIO report; but a new in-house, internally managed strategy for value index has been adopted. She continued that there were two departures out of Finance, and there will be some reorganization to the Finance team shortly. She added that there had been no feedback from the Administration on Fiscal Year '21 budget requests.

TRUSTEE BARNHILL stated that the statutory deadline for the Governor to release the budget is December 15th. There have been indications that the current goal is sometime before Friday, the 13th.

CHIEF INVESTMENT OFFICER'S REPORT

MR. FRAMPTON began with a report on investment actions for the quarter ending September 30, 2019, and moved on to a discussion on some activity on private income with two funds in the quarter committed; LBC, a middle-market, direct-lending fund; Crestline Opportunity Fund, an opportunistic credit fund. He then talked about the four co-investments done in private income in the quarter.

CHAIR RICHARDS asked about the request for action and if it was publicly noticed in a way to meet all of the notice requirements.

CEO RODELL stated that the agenda did not show the action, and the agenda was not amended to include it at the beginning of the meeting. She continued that the question is to waive the 10 percent concentration limit to any one manager for six months until July 1st.

MR. POAG believed that the packet included Mr. Frampton's presentation where it is cued up to the Board as a specific topic, and the Board would be voting on that. He stated that it required a four-person vote and a quorum, but because it is in the Board packet, it is covered, and the policy does allow for one docket. He asked if it appeared in the request.

MR. FRAMPTON replied no, and that it would be followed up on. He moved to the discussion of cash overlay positioning and began with the asset allocation portfolio. The primary role of this portfolio is liquidity for the Total Fund and the cash. It is, overall, a 5 percent target allocation of the Fund at a little over $3 billion, and an overall benchmark of 60 percent Total

Fund/40 percent Treasury bills. He went through the four rationales: total fund risk vs. benchmark; cautious tactical positioning; higher cash funding needs; inefficient means to achieve market exposure.

CEO RODELL stated that a new five-year plan with the investment policy and asset allocation will be adopted in May. She continued that Mr. Frampton would be making a number of recommendations for each asset allocation and recommended that the overlay program can be revoked, or we can take the action of revoking it at that time. She added that it can continue six months when the global action on asset allocation will be taken, and she thinks that should solve the issue at that time.

MR. FRAMPTON moved to the Alaska Emerging Manager Program Update and then continued to the Alaska Investment Policy. He stated that he had not included the in-state emerging manager program because the capital has not been drawn yet. Those are commitments; not invested capital. He continued that he would benefit from some dialogue with the Board, maybe staff in conjunction with the Board, to go through some of these potential strategies.

CHAIR RICHARDS asked if the Board would think about one or two trustees working with Mr. Frampton and the rest of the staff to analyze whether the goals are realistic, and if not, what should the goals be.

TRUSTEE BARNHILL, MR. WALSH and CHAIR RICHARDS volunteered.

ADVISOR COMMENTS

MS. MEINERS stated that Jerry Mitchell was on the line.

CHAIR RICHARDS recognized Mr. Mitchell, and asked for any comments.

MR. MITCHELL greeted everyone and stated that he was sorry for not being there in person. He continued that he had been associated with the Permanent Fund as an advisor for almost 20 years and had witnessed a lot of change and continuity. The most obvious and recognizable change has been in the assets entrusted to the Fund management, which has grown mightily. The Fund is far bigger and far more complex than when he first joined which presents its own set of challenges. The second big change has been the growth and quality of the staff. It is more professional, credentialed, more sophisticated, experienced, and more talented than ever. He stated that the greatest continuity has been in the Board. It is and always has been committed to Alaska and Alaskans. It has always been dedicated and has taught, over the years, what a good trustee means. He thanked them for the privilege of serving as an advisor to the Fund, and wishes all good fortune and success in the years ahead.

CHAIR RICHARDS thanked Mr. Mitchell for the many years of service. He asked Trustee Moran for any comments.

TRUSTEE MORAN thanked Mr. Mitchell for his valuable contribution to the Fund and hoped that, if he is still serving with the ARM board, to stop in and say hello.

CHAIR RICHARDS also thanked Mr. Mitchell and wished him good luck. He recognized Tim Walsh.

MR. WALSH stated that when he interviewed four years ago, Trustee Moran had asked if internally managed equities in Juneau could be done, and it looks like it is working. He continued that it is harder, especially when starting, and applauded the Board, staff and everyone for the operational part. The trustee paper was really well done and well written.

CAPITAL MARKET OVERVIEW

MR. CENTER stated that the capital markets are done on a quarterly basis, with projections on an annual basis. The Permanent Fund meetings are on a quarterly basis and generate the basis on a look-back calendar quarter. He continued that it was an interesting quarter and the U.S. market remains strong; the labor market looks good; and employment remains good. There was an uptick in wage inflation, but that has not pushed through actual inflation. Outside of the U.S., there are a lot of question marks: slow growth in China; prolonged Brexit discussions with no end in sight; employment in Europe has slowed quite a bit. Additionally, the yield curve invert, which is a sign of an upcoming recession, has lasted a good portion of this year. He welcomed Commissioner Barnhill to the Board and reminded all that Callan is the investment consultant for the Permanent Fund, and are always here as a resource and to answer questions. He pointed out the Periodic Table of Investment Returns which showed where there has been strong performance over each calendar period over the last nine years. He stated that it is a clear way to show that investing solely in a single asset class will lead to volatility. It makes sense to diversify and is a graphical way to show the importance of diversification. He then moved to a discussion of the overall market environment for the quarter, and then continued to discussing the U.S. economy. The record lows of unemployment mean that, for all intents and purposes, the U.S. market has really reached full employment. This translated to a wage inflation which is something to keep an eye out for. He moved to nonrevolving debt which includes auto loans, student loans, which is higher than ever historically, and could be a sign that the next crisis could come from consumers rather than some kind of corporation crisis. He moved to the trade war between the U.S. and China, the implementation of tariffs, and pointed out how important trade is to China and other areas of Europe versus the United States. He added that, overall, the U.S. economy has handled the tariffs fairly well, although there was an impact on agriculture. He continued his presentation talking about other areas of the market beginning with equities and then moved to volatility which drove a lot of the factor-based returns for the quarter and the trailing year. The trade war and no-deal Brexit fears turned nonU.S. markets negative, and he went over some historical data on global equity valuations. He ended his presentation with information on the upcoming Callan National Conference in January.

CHAIR RICHARDS called a break.

(Break.)

ASSET CLASS OVERVIEW

MR. CENTER stated that last quarter was the time that Callan's performance presentation was combined with an overview by staff, and he began with Total Fund performance and Total Fund performance relative to peers, along with attribution. He then moved on to asset class performance, discussed equity and fixed income, and private market performance. The total plan asset allocation is well diversified across all major asset classes. He talked about the standard deviation measures for the Total Fund over trailing periods. This is one of those charts where being lower on the chart is good. The Permanent Fund is in the bottom quartile for standard deviation in all but the 10-year period, and well below median relative to peers in all time periods shown. This means that the overall program has exhibited less risk than most other large public funds. The long-term target for the Permanent Fund is a Sharpe ratio north of 0.5. Over all time periods shown, the Permanent Fund has met that goal even over the 20 years with a Sharpe ratio of 0.53. He then explained the Fund's Performance Scorecard. The Fund over the short term has outperformed the blend of its performance in passive indices. In the medium term it outperformed the median peer; and over the long term has outperformed CPI plus 5, and has met the goal of having a Sharpe ratio above 0.5. Mr. Center moved to the APFC Public Equity Structure and explained through the large-cap and small-cap equities and then nonU.S. equities. He stated that that portfolio included dedicated emerging market equities, developed market equities, and the global program. He stated that the international equity program lagged the benchmark for the quarter by about 60 basis points. Over the three- and five-year periods, the portfolio outperformed the benchmark and did rank below median over most time periods. He continued that this is due to that emerging market equity allocation.

MR. FRAMPTON stated that a lot of ground has been covered, but what has not been covered is the continuing shift to a focus on incentive-based fees, and we are transitioning managers over from a flat basis-point fee to high-single-digits management fee and then an incentive fee based on performance versus the index.

MR. CENTER went through some of the underlying performance of the fixed-income-plus portfolio starting with the U.S. fixed income aggregate portfolio and how it was managed.

MR. FRAMPTON wrapped up and stated that the REITs portfolio is one of the underweights. There are also a couple initiatives being worked on with a big focus on getting the best yield we can out of the cash portfolio. He continued that repo has not been invested in in a long time. That is a market that has had some blips where a real nice return can be made on any given day. He moved on and talked about performance in terms of the different time periods and then moved to real estate.

MR. CENTER continued with infrastructure and the income opportunities portfolio. Overall performance was about 2 percent of a lag in its benchmark. Long-term performance has been strong relative to this benchmark it had over the last three years and the last five years. A very strong absolute performance. He stated that the absolute return portfolio has performed well over the last quarter, year, and three years.

MR. FRAMPTON stated that the objective is to earn a return commensurate with the Fund's return objective; and in fairness, we have come short of that. A 5 percent net has been earned since inception on the new program, but with a very low volatility and a zero beta. He then talked about the hedge funds.

MR. CENTER moved to private equity and the special opportunities portfolio. There is about 60 percent invested in private equity, and 40 percent invested in special opportunities. He stated that, overall, it is very diversified.

MR. FRAMPTON stated that there was a lot of change in the underlying asset allocation. In fairness, the exposures to the benchmark have not be mirrored, so the fiscal year-to-date number is driven by the cash drag.

MR. CENTER stated that, overall, the Fund ended the quarter at just over $66 billion in assets and is structured very well. It continues to be well positioned for future performance.

CHAIR RICHARDS thanked them both and called a break for lunch.

(Break.)

CHAIR RICHARDS reconvened the meeting and stated that Chris Poag, counsel for the Permanent Fund, would give a quick background on the issue about public noticing on the investment policy.

MR. POAG stated that the Open Meetings Act applies to the entire meeting and has a requirement of reasonable public notice. This means that the Permanent Fund has to announce when and where they will meet and the agenda items that will be discussed. The Board has a long history of providing details, an overview of each agenda item and whether it is for information or will require Board action. He continued that before lunch a possible amendment to the investment policy was discussed. The Chair noticed that the agenda did not include an express acknowledgement that the agenda item was going to take place. The case law in this area is very simple: "The more complex and more important the issue is, the more detailed the notice has to be." But it did not provide any clear answers. He recommended to go back to the agenda, modify it so that the asset allocation can be taken up tomorrow, as well as a temporary exception to the investment policy, and call it an action item. He added that it created another issue, but this is a newly discovered investment opportunity that just came to the investment

committee's attention on November 22nd. He stated that the failure to include it on the agenda today was an unintentional oversight. He continued that the deadline is January 1, and there is a time pressure to make the decision now or take a pass on it.

CHAIR RICHARDS asked for a motion to amend the agenda.

> **MOTION:** A motion to amend the agenda to redo asset allocation and turn it into an action item that would allow an amendment of the investment policy related to investments and hedge funds was made by TRUSTEE BARNHILL; seconded by TRUSTEE MORAN.

TRUSTEE RUTHERFORD asked where on the agenda this would occur.

CHAIR RICHARDS replied that it is currently on the agenda for 8:05 a.m. tomorrow.

The MOTION WAS APPROVED with UNANIMOUS CONSENT.

CHAIR RICHARDS moved to Risk Overview.

RISK OVERVIEW

MR. VADAKUMCHERRY stated that there are two sections to the risk part. The first part will be about risk appetite, and the second part will be about the regular subjects that are submitted to the Board. He continued that most important is whenever performance measure is talked about, both parts, return and risk, are needed. He added that the same return can be achieved with different levels of risk, and the smarter investor tries to achieve that return with the lowest risk possible. He stated that he would focus on the quantitative aspects in this presentation. There are qualitative risks like legal risks, operational risks, reputational risks, which will not be touched on. He quantified the allowable amount quantum of risk that could be taken. There is a proposal to define risk appetite in terms of a risk tolerance portfolio, or a reference portfolio, and this is the portfolio to be in risk terms, not in return terms. There are three criteria for this: volatility; drawdown; and liquidity. He proposed defining the portfolio in terms of a standard, straightforward, conventional equity/bond portfolio on the public market side. It will have a 75 percent equity and 25 percent bond split. That will be the risk tolerance portfolio. The equity would be represented by the MSCI ACWI, and the 25 percent bond portion will be split into three parts. That will form the risk tolerance portfolio. Additionally proposed, are two liquidity levels, which is a minimum 55 percent of the Fund to be liquid fund assets clearly defined as publicly listed equities and investment-grade-rated bonds, plus all the cash equivalents. The liquidity pool will have investment-grade bonds with less than 18 months of maturity and cash equivalents. He continued explaining and supporting this model.

CEO RODELL explained that this is not about the ERA depletion risk but is the Fund, the corpus depletion risk; an endowment construct.

MR. VADAKUMCHERRY stated that the proposal is to measure the numbers over the next 12-month period; reporting against the concept. He explained that most institutions go through a 12-month period to adopt a risk appetite because it is a very fundamental decision to have to make. He continued that the Aladdin system will be used when the problems with the system are ironed out. This is to make sure that this is a robust platform that can be used as a tool. Thirdly, if this is adopted, 75/25, the limit terms are there. The current asset allocation is just under that risk-appetite level. He highlighted that this is a very challenging exercise, but we should do it. It is fundamental to what is being done, and he does believe that in the long-term, institutions that face that challenge, at least go through the process, try to articulate it, will be the most successful ones.

CEO RODELL thanked Mr. Vadakumcherry for doing all of this work on appetite and putting these questions up front, because it is important to think about.

REAL ESTATE, ASSET CLASS UPDATE

MS. DURAN began by thanking Jim Parise for his great job in stepping in for Mr. Frampton and also for filling in for every asset class. She spent a good amount of time going through the various investment approaches that are used in the industry by peers and the APFC. She highlighted that there is no singular approach to investing in real estate, and she looked at a combination of approaches given the strategies, markets and production that is being sought. She pointed out that there is a movement in the market to more direct investing, and that has been the Fund's orientation. She stated that it is important that regardless of the approach, given where the market cycle is today, it impacts pricing and basically affects all investors in the same way. She continued that Trustee Rutherford had asked about whether there was a lack of deal flow, and she stated that there is no lack of deal flow in the marketplace. It is pretty solid and robust. She went through the building blocks of investing in real estate, starting with risk profile, and then reviewed the portfolio considerations and then the current initiatives.

CHAIR RICHARDS stated that he was hoping to get out of the presentation about what went wrong and how will it be fixed.

MS. DURAN replied that the portfolio mix is completely out of whack and this is what went wrong. It is way off on industrial and multifamily, especially following the sale of the Simpson Housing portfolio. The Strategic Plan approved in 2016 by the Board looked at actually adding those type of investments realized to get at scale, and direct investment and larger-sized investments; a group or portfolio of properties. She stated RCLCO was hired in the last year and a half, and we have been working with them closely. They will present and share where they are in the screening process, and they have looked at approximately 100 different companies. She continued that within the next six months is to target a multifamily company investment along with some joint-venture partnerships aside from that. The plan is to buy a company and then fill in with joint venture investments that will fill out the map. What went wrong is that the mix is off. There are overweight underperforming sectors, retail, and underweight in the best-

performing sectors, multifamily and industrial. The only way to fix that is to execute; basically, go in the marketplace and buy. She moved to the core and core-plus strategies. She looked at the risk profile, and real estate has always been a conservatively managed portfolio. Recently started was introducing more risk and doing these noncore. Core is an asset that is dominant, has dominant locations, fully constructed, has low vacancies, has diversified rent rolls with credit tenancy, typically staggered lease rolls, and low leverage. Those are the low-returning investments. She also clarified that under Core Strategies there will probably be some commingled funds, basically the same idea mentioned in terms of using REITs but would not be for long-term execution to remain in that commingled fund investment because it is not as efficient. She noted that all investment structures have been identified as permissible, and she discussed the current tactical plan. She summarized that the real estate program is implemented using a strategic foundation and multiple investment structures that are used, and we make these tactical considerations annually. She stated that recent performance hasn't been good, but she does not believe that it means that the direct investment approach to investing should be abandoned. She continued that it does highlight the current market cycle, and the need to maintain discipline. She added that patience is key. She mentioned that RCLCO will present next.

CHAIR RICHARDS called a break.

(Break.)

CHAIR RICHARDS called the meeting back on record and welcomed RCLCO.

REAL ESTATE STRATEGIES-RCLCO

MR. MAMMEN stated that he was here with his colleague, Ben Maslan, both from RCLCO; specifically, from the Institutional Advisory Services practice. He explained that RCLCO is a broad-based real estate consultancy with offices nationally in the United States. There are three practices: real estate economic consulting to a wide range of client types; a management consulting practice, which works with a wide range of real estate entities in developing strategies and how to implement them; and an institutional advisory practice group which works with large-scale investors to help develop real estate strategies and implement those through manager selection, asset management services and so on. He stated that the Alaska Permanent Fund is a relatively new client, and they were officially hired about 18 months ago. A strategic review was started about a year ago, completed last March, and presented to staff about that time. They assisted at numerous property-level analyses to help understand supply, demand, and to help make some leasing decisions. He continued that they launched a couple of significant searches for real estate operating company partners on behalf of the Alaska Permanent Fund in multifamily and industrial. He replied to the question of what went wrong and what led to challenging performance over the past year was the missing piece of multifamily and industrial, which have been the primary drivers of performance in the benchmark. He was asked the question of what led to a situation in which it was even possible to dispose of the majority of the

multifamily portfolio in such a short period of time. He replied that is something that RCLCO can provide services that help staff identify those potential concentration challenges that are leading to maybe outsized performance but essentially some challenging situations that can move the needle in the portfolio to too great of a degree. Also, the human capital constraints make it more of a challenge to fix the situation once it occurs which is faced by pretty much every institutional investor in the United States. It is a very large portfolio and the staff is limited. He stated that there are multiple ways to address that, and we are trying to help Alaska with a hybrid approach where they can leverage other investment managers to watch the overall portfolio so staff in Juneau can really focus on the big strategic questions and issues in this portfolio and come up with solutions to address it.

CHAIR RICHARDS asked how many folks with RCLCO are working the Permanent Fund account.

MR. MAMMEN replied that firm-wide there are 80 people. Within the Institutional Advisory Services Group there are 21 people; and across the firm, probably 10 people have worked on Alaska Permanent Fund-related matters. He stated that it is essentially a full-time job for Mr. Maslan and one other team member. Also, the entire firm is leveraged to answer the specific questions that come out. He asked Mr. Maslan to continue.

MR. MASLAN provided facts on the different structures and options that the Permanent Fund can use to invest in real estate, and he went through the highlights. He stated that Ms. Duran mentioned the conviction of the staff to continue to invest directly. There are benefits that the direct investment, joint ventures approach offer, including separate accounts/investments in real estate operating companies, not buying the asset without an operating partner to manage the daily responsibilities.

MR. MAMMEN stated that a lot of time was spent trying to parse what went wrong for real estate portfolios during the last downturn. Some portfolios among institutional investors fared better than others. Those that fared poorly did so for one of three reasons or a combination of all three. Either they were over-leveraged, particularly in certain parts of the portfolio. He continued that the second, related to leverage, is structure, essentially where there is a misalignment of interests between the general partner and the limited partner. The third is concentration. All of these could be better mitigated through having more control over the portfolio through direct structures.

TRUSTEE BARNHILL asked which of those three issues are seen in the Fund's portfolio.

MR. MAMMEN replied that it would be the concentration issue. The other two are really not issues at all. He stated that at risk in this portfolio would be asset concentration and manager concentration; and staff is aware of that. He continued that there are a lot of options and now is the time to take advantage of these options through recapitalizing certain assets through finding additional partners.

MR. MASLAN stated that three assets underperformed recently and, therefore, moved the entire portfolio: the two European malls and 299 Park. An ideal goal for the Permanent Fund should be to have a portfolio that is sufficiently diversified that three assets underperforming do not move the needle in any way, and there are other assets that continue to carry the weight of the overall portfolio.

MR. MAMMEN stated that their views do not differ significantly from what Ms. Duran shared. It is recognized that no one can predict the timing or magnitude of a change in the cycle, but there are signs that have a direct impact that are paid attention to. He went through a few of the things that could be done to ensure that assets that are under threat are pruned. He continued that they are highly selective when making office investments, and they think that where there are opportunities to sell, they should be sold.

MR. MASLAN provided an update on manager search and stated that they are looking for both property types under two structures: One is to establish a programmatic joint venture with an operator; and two is to potentially invest in an operating company itself. The process is to cast as wide a net as possible in terms of who is available. That led to an initial screen of 100 or so for each of the property types. This was narrowed down to a real short list of managers that fit the bill for both structures. A recommendation will be provided to staff, and then we will proceed towards diligence and negotiation of terms with the goal of being completed by the end of this year.

MR. MAMMEN stated that they are focused on laying the strategic groundwork and foundation to get back to the portfolio allocation as quickly and as effectively as possible.

CHAIR RICHARDS asked for any questions, and thanked them for their presentation. He stated that next on the agenda is the strategic plan. He asked to move it to tomorrow after the discussion about the earnings reserve and legislative strategy, and to move the investment advisor up to now. He asked for a motion.

> **MOTION:** A motion to move the investment advisor discussion to now and swap its place with the strategic plan discussion was made by TRUSTEE RUTHERFORD; seconded by TRUSTEE BARNHILL.
>
> The MOTION WAS APPROVED with UNANIMOUS CONSENT.

CHAIR RICHARDS recognized CEO Rodell.

CEO RODELL stated that this was an information item for the Board. She continued that Jerry Mitchell's contract closes January 1, 2020, which creates an opportunity to add a third investment advisor. In the past, the Permanent Fund Board had chosen not to have all three investment advisors, and at times have had two or even one. Staff would like feedback on

whether the Board had interest in a particular background or skill set to bring to the table. Then the process will start with the hope to have candidates come to the February or May Board meetings, depending on the process.

CHAIR RICHARDS and the trustees decided to put the process on hold and see how everything is in a couple of meetings.

CEO RODELL thanked all for the feedback. She moved to incentive compensation and stated that the Board had been working on compensation for the Fund. She stated that feedback was received this year, and the Governor would consider it. The Board debated it extensively, and it was included in the budget, but chose not to take action on the actual policy. The challenge is that when people ask how the budget number was arrived at and how it would work there is no formal Board-adopted policy that can be referred to. She asked that the Board adopt a formal incentive compensation structure. Whether or not it gets funded every year will be up for debate because it is not a statutory funding requirement of any kind. She asked that this be kept on the agenda so a formal policy to speak from and defend incentive comp can be had.

> **MOTION:** A motion to adopt the incentive compensation plan, recognizing that without support of the Governor's office this is not going to be a legislative priority, was made by TRUSTEE MORAN; seconded by TRUSTEE RUTHERFORD.
>
> *A roll call vote was called: TRUSTEE MORAN, yes; TRUSTEE BARNHILL, no; CHAIR RICHARDS, yes; TRUSTEE FEIGE, yes; TRUSTEE RUTHERFORD, yes. The MOTION was APPROVED.*

CUSTODY CONTRACT RENEWAL

MR. LAVALLE stated that he has been within the Permanent Fund for 18 years, is senior accountant, and leads the public markets team in Finance. He continued that it is his job to convince the Board that staying with the Bank of New York Mellon as custodian for the next 10 years is in the best interest of the Permanent Fund. He went over the timeline with the Bank of New York Mellon, which began in 1992. In 2009 they merged with Mellon Financial. The Board is being asked for a 10-year renewal and because of the nature of these services, there is no requirement for a bid process. He explained that a great amount of time and effort has gone into building this strong working relationship, and efficient processes have been built over time that are essential to the operations of the Corporation. He went through the details of the relationship about all of the positive experiences with the Bank of New York Mellon. He stated that it is his recommendation to renew the contract for custody services and the securities lending agreement with Bank of New York Mellon for a period of ten years with the best possible terms.

> **MOTION:** A motion to grant the executive director authority to renew the contract for custody services with the securities lending agreement with Bank of New York Mellon for a period of ten years with the best possible terms was made by TRUSTEE BARNHILL; seconded by TRUSTEE RUTHERFORD.

After a roll call vote, the MOTION was unanimously APPROVED. (MORAN; RUTHERFORD; FEIGE; RICHARDS; BARNHILL)

CHAIR RICHARDS recessed the meeting.

(Alaska Permanent Fund Corporation Quarterly Board Meeting was recessed at 5:37 p.m.)

December 4, 2019 – 8:30 a.m.

CHAIR RICHARDS called the Alaska Permanent Fund Corporation Quarterly Meeting back to order, and began with the strategic plan, which is an action item.

STRATEGIC PLAN

MR. FRAMPTON began with the policy exemption. He reminded all that there is a constraint on a 10 percent limit per individual hedge fund investment in the absolute return portfolio. The target allocation for hedge funds under the preexisting investment policies is going from 5 percent to 6 percent on July 1. He stated that Millennium Partners is an investment we would like to add, and it is a well-regarded firm.

MR. ALLEN stated that firm is highly regarded. It has been closed forever and then reopens periodically. There are temporary opportunities to add capital to that.

MR. FRAMPTON stated that some capacity is being made available that will not be available July 1, and we would like to be able to make that additional investment.

CHAIR RICHARDS asked for any questions. There being none, he moved to the motion.

> **MOTION:** A motion to amend the absolute return concerned authorized investment policy to provide an exception as described in the document by the Chief Investment Officer. That exemption is to not comply with the 10 percent limitation and, in this case, take the 12 percent, was made by TRUSTEE BARNHILL.
>
> TRUSTEE RUTHERFORD added a friendly amendment for the purposes of allowing the Fund to invest in the Millennium Partners opening, which is scheduled for January 2020, which will result in a 2 percent overrun of the policy for the purposes between January 1 and July 1.
>
> TRUSTEE BARNHILL accepted the friendly amendment, and TRUSTEE MORAN seconded the motion.
>
> *After the ROLL CALL, the MOTION was unanimously APPROVED (MORAN; RUTHERFORD; FEIGE; RICHARDS; BARNHILL)*

REVIEW OF ASSET ALLOCATION AND TEMPORARY INVESTMENT POLICY EXCEPTION

MR. FRAMPTON stated that at the last Board meeting a fairly comprehensive review of asset allocation was done, and this next presentation is a review of that. He continued that he and Callan will collaborate on a follow-up presentation for February, and it will be thoughtful and comprehensive and not just a repeat of the last presentation. He moved on and talked about the

real estate portfolio role in asset allocation and provided some of his perspectives on the portfolio in performance, continuing with the real estate theme of the meeting. He stated that the role of the real estate portfolio is broadly accepted in the investment community. It is recognized as an asset class that provides some inflation protection that over long periods of time reflect the value of the currency. In terms of the return, which is outlined in the investment policy, it is intended to provide a return between that of the fixed income allocation and the equity allocation. It has characteristics of fixed income because it has the current income, if done correctly, and has an equity element because of the residual value of property when the leases roll off. He continued that there was an outstanding performance in the financial crisis, and, in the last five years, the real estate portfolio has outperformed the global stocks.

MR. ALLEN asked what triggered the bad numbers, and if the valuation was overstated.

MR. FRAMPTON explained that four bad investment decisions were made; two of them were the two malls in the U.K., 299 Park and Simpson Housing. He stated that there is a need to look forward, address the overweight to retail, and the appraisal policy was changed. He summarized the investment activity after the divestiture of Simpson Housing, and it has been two years, and we have deployed $950 million. There has been a fair amount of activity, and we will present a pacing at the end that is comfortable and realistic in the market.

CHAIR RICHARDS stated that Mr. Frampton is presenting a proposal that is not particularly aggressive, but has been done in a way that makes some sense, and they do not want to buy a bunch of properties when valuations are high. He asked Mr. Walsh and Callan for their opinions about this pace of spending, and the approach to solve what appears to be a problem.

MR. WALSH stated that in the new investment advisor agreement, the advisors are to write a paper once a year for oversight for the Board. He suggested diving a bit deeper into real estate in that it would be helpful to the staff and the Board.

TRUSTEE BARNHILL asked if the suggestion is in sticking with a staff of this size that the focus should be more on commingled funds.

MR. WALSH replied yes.

MR. ALLEN agreed and stated that in looking at funds that are doing direct real estate investing, they are typically characterized by a large staff. He continued that the alternative is to outsource all that management to the real estate manager. He added that commingled funds is one way to go.

CHAIR RICHARDS observed that for the first time since being a trustee, he is really concerned. He was not convinced that as strong a direct strategy is had with staff and the team, this may not necessarily be the right approach. He thinks that this should come again to the next meeting and to really think about if this is the right pacing schedule. He added the need for some hard conversations about whether the team is the right people to have this strong of a direct strategy when this underallocated sector is out of balance.

TRUSTEE RUTHERFORD stated concern about the direct investment issue and the small staff compared to the work associated with direct investing, but not about the pacing.

CHAIR RICHARDS restated the need to do real estate again next quarter; look at the allocations, the returns, and how the variation from the benchmark reduces.

EARNINGS RESERVE ACCOUNT MODEL

MR. ALLEN stated that his goal is that this is an educational thing to get everyone's mind wrapped around the whole issue of the earnings reserve account, the principal, unrealized gains, realized gains, accounting concepts, and how those intersect with the POMV spending model that is currently in operation. Then what happens when it gets to the limits when the capital markets are really bad, and what happens to the whole system. He began with talking about statutory net income and then the earnings reserve in principal. After discussion, he went through what he thought was important. The earnings reserve account is obviously in conflict with a pure endowment model. The smaller the ERA balance, the more likely the Fund will not be able to support the POMV spending rule. If the objective is just to insulate the Fund and allow it to do a good job investing, a bigger ERA balance is helpful because there will be pressure to do things differently if the ERA is zero. That would not be healthy from a total return investing standpoint.

TRUSTEE MORAN stated some concern of the Board overstepping its bounds a bit. He continued that it is an appointed Board that has a lot of turnover. He thought that they are within the mandate to provide recommendations, advice and counsel when asked to, but was not sure about taking real firm positions on that. We are just supposed to manage the funds. He noted that he had always been more inclined to spend more of the Board's time helping manage the Fund and preserve it for current and future generations. The people that were elected to spend the money are the ones that should make some of these decisions; although he is in favor of providing information to help in that function.

TRUSTEE FEIGE stated that there was not enough clarity for her to say that she would specifically support a constitutional amendment, but agreed to the need to put out a recommendation stressing great caution to the Legislature and informing on possible implications and the impact it will have on the POMV.

CHAIR RICHARDS called a break.

(Break.)

EARNINGS RESERVE ACCOUNT RESOLUTION & LEGISLATIVE STRATEGY

CHAIR RICHARDS called the meeting back on the record and stated that the next agenda item is the legislative strategy continuation of the technical discussion on the earnings reserve. In the past, the Board has made a recommendation for a strategy change for all inflation-proofing. He asked if that was still in the recommendations, legislative policy.

MS. SWANSON stated that something was brought forward to the Board in the past as part of the legislative strategy. It is not part of the current recommendation, but could be brought back forward. She added that staff was still waiting on getting some clarifications.

CHAIR RICHARDS asked Mr. Poag for an update.

MR. POAG stated that the concept that was discussed at one point in time was redefining the definition of net income so that every year realized losses offset by the impacts of inflation

would result in the ERA transfer being less than the amount needed to keep the principal harmless from the impacts of inflation. That is sort of an automatic inflation-proofing so that the money would not move to the ERA and then need to be moved back via an appropriation to the principal. He continued, that is an interpretation of state law, a statutory change. There was a need to make sure that the Department of Law thought that was consistent with the Wielechowski decision in whether or not it would require an appropriation or it could be done automatically as part of the net-income calculation. He did not have a final answer and would be happy to go back and ask if the question could be revisited the analysis refreshed, and provide advice so that it would support pursuing legislation should the Board so desire.

CHAIR RICHARDS stated that he would like to know the answer and discuss it at the next Board meeting at the beginning of the session.

MS. SWANSON began her presentation with an outline meant to stimulate conversation and get input from the Board on what the legislative strategy should be going into the legislative session which will start January 21, 2020. She stated that the debate about how the earnings will be used will continue to be front and center. She continued that there will be focus on the structure of the Fund and the rules-based withdrawal process to make sure there is sustainability into the future. The Board and staff are important participants in that evolving dialogue, and she went through some objectives, strategies, messages and tactics as a starting point for the Board to provide input that can be refined. The message needs to be very strong and concise. There needs to be an emphasis and support to APFC's mission, efficiency and value. APFC is a talented investment firm that embodies the resiliency, integrity, and pioneer spirit of Alaska. APFC manages the Alaska Permanent Fund, one of Alaska's primary sources of renewable revenue. It is important for people to understand that the APFC is there to manage the money on behalf of the State of Alaska. As stewards of the Fund, the team is skilled and has the efficiency to ensure providing this benefit for future resources of Alaska. There is a need to be a revenue-generator; not a cost center. She moved to the four legislative objectives: first is to continue to educate the stakeholders on the structure of the Fund and set that foundation; second is the earnings reserve account, to make sure there are adequate resources for APFC moving forward and that the management investment of the Fund is optimized; and last, to make sure to get HB139 passed, which is the procurement streamlining bill which gives an exemption for the work for investment-related procurement services. She continued with the strategies and messages to accompany the strategies, stressing the importance of this dialogue.

CHAIR RICHARDS thanked Ms. Swanson and moved to the Trustee Paper.

TRUSTEE PAPER

CHAIR RICHARDS stated that the Board voted to fund the Trustee Paper. He explained that an RFP went out this summer, and we received a few responses. Malan Rietveld is the individual who won the RFP process. He has been working with the committee on doing a draft Trustee Paper. That draft, which still needs some editing, addresses the role of sovereign wealth funds throughout the world and the different ways they work; and some lessons can be learned that are applicable to Alaska. There will be a vote to adopt the paper in the form it is here, realizing that the committee will do some edits. He asked the Board to approve the form, and it will be circulated to all before the final version gets distributed. He added that if there are any irreconcilable concerns, it will come back for Board approval.

MOTION: A motion to publish the Trust Paper Volume IX as written was made by TRUSTEE MORAN; seconded by TRUSTEE BARNHILL.

After the ROLL CALL, The MOTION was unanimously APPROVED (MORAN; RUTHERFORD; FEIGE; RICHARDS; BARNHILL)

CHAIR RICHARDS called a lunch break.

(Lunch break.)

AUDIT RFP

CEO RODELL stated that this is not an action item required by the Board, but is one of the Board's responsibilities. She asked Chris LaValle to walk through the plan for the Audit RFP process.

MR. LaVALLE began with a thank you from staff to Trustees Rutherford, Moran, and Feige for their time and service on the Audit Committee. He stated that the current five-year contract with KPMG expires at the end of February, and it does have to go up for an RFP review. Under State procurement rules, it is required that the details of responses remain only known to the Evaluation Committee until a notice of intent has been awarded or issued. Therefore, the Board's opportunity for input and influence on this process is now, during this presentation, before the RFP is actually released. He went through the timeline that began at this meeting. Once the RFP is released, in about a week and a half, authors will have about a month to get proposals back. Then the Evaluation Committee will have almost three weeks to review those proposals. After the notice of intent is awarded, there is a 10-day protest period. Items that can be protested are the content of the RFP itself and/or the award or proposed award of the contract. At the next Board meeting at the end of February is where there will be a chance to consider the winning author and give approval. He explained the scope of the work; the professional qualifications; understanding the work to be performed; the value-add component; cost proposal; the score weightings which all add to 100 percent. He stated that no action is required, but feedback is needed.

CHAIR RICHARDS stated that everyone is on board with this proposal.

STRATEGIC PLAN

CEO RODELL stated that the governance documents require undertaking a five-year plan. The current five-year plan is set to expire in FY21. An offsite workshop was done in August and was attended by 15 employees representing every division, department within the Corporation. She continued that the Board packet has both a red-line and a clean version. The clean version adopts all of the red-line changes. The Board reviewed the strategic plan that staff generated at its September meeting.

CHAIR RICHARDS stated that in terms of substance, there were two things. The first was to edit the language but not necessarily the intent of the section, around the discussion that reflected the conversation at the last Board meeting about how to approach the Legislature. He continued that if this language is kept, it will need to be changed throughout to read "During the 31st Legislature." The only other substantive change is about putting emphasis on getting an Anchorage office opened in the next year to aid efforts on recruiting. He added that the approach in this strategic plan is taking a year to develop the plan.

TRUSTEE RUTHERFORD stated that it is critical to determine what function the office would have and the value it brings to it.

CHAIR RICHARDS asked for a motion.

> **MOTION:** A motion to adopt the Strategic Plan was made by TRUSTEE MORAN; seconded by TRUSTEE RUTHERFORD.
>
> *After the ROLL CALL, The MOTION was unanimously APPROVED (MORAN; RUTHERFORD; FEIGE; RICHARDS; BARNHILL)*

CHAIR RICHARDS asked for Mr. Walsh's comments.

ADVISOR COMMENTS

MR. WALSH stated that his comments would be brief. He plugged the Board on the compensation issues and the office discussion. It is a people business. The assets walk out the door every day. He talked about real estate and thought there may be a problem with the process, and the governance is sort of lacking. He applauded Marcus Frampton for getting this straightened out for the next fiscal year, moving REITs back to where they belong, in real estate. He stated that people in public funds sometimes do things just because they have been doing it for the last 20 or 30 years. He continued that eight or nine years ago he was a CIO in New Jersey. That fund is slightly larger than the Permanent Fund, and because of some legacy issues, union issues, bureaucracy issues, about a third of the employees were based on active public equities and were 100 percent active. He was reluctant to make the change because the numbers were that good. The next CIO did not make the change. The latest CIO finally shut down the whole operation. The idea for doing this paper is to maybe see what other options are out there; some that may complement and some that may make some changes. He thanked all.

CHAIR RICHARDS asked CEO Rodell for any other matters.

CEO RODELL stated that she had lots of notes for the next Board meeting, which has a packed agenda coming in February. She continued that the Board had requested doing a deep dive on asset class and asked that real estate come back again in February. She suggested that the next meeting covers absolute return and private credit, those income opportunities, unless the Board had any other suggestions.

CHAIR RICHARDS replied that whatever is thought to be timely based on decisions and what is going on. He moved on to trustee comments, and recognized Trustee Barnhill.

TRUSTEE COMMENTS

TRUSTEE BARNHILL stated that it has been a deep honor and thrill to serve with all and he really appreciated the good conversation. He expressed his appreciation to the Board members for their public service, to the staff and to the director, because what is happening right here is historic. We are in the process of transitioning the State of Alaska, the first U.S. state to call it a partial endowment state. That has never been done and that is exciting. Thank you.

TRUSTEE RUTHERFORD stated that it was a really good meeting. She thanked staff for structuring it so well and putting it together in this environment. She appreciated the

conversation and thanked all for the hard work.

TRUSTEE MORAN asked Trustee Barnhill, if this does prove to be temporary, if he would consider an investment adviser RFP on a short-term basis in working through some of this. He stated that it is fun having meetings in these different areas, but it is still really difficult to get attendance.

CEO RODELL asked the trustees if they had specific locations within Kenai to hold that meeting, to let Maggie know.

TRUSTEE FEIGE thanked all for accommodating her by WebEx for this meeting while she recuperates. She thanked CEO Rodell and staff for an extremely informative meeting, and Chair Richards for managing the deadline and getting it all done. She echoed everyone's comments for Trustee Barnhill's participation and his experience and the history he brought to the discussions, which has been extremely valuable.

CHAIR RICHARDS echoed what everyone else has said and that it is a lot of work for staff to get everything together. The hard work is observable and appreciated, and he thanked them. He also thanked Callan for putting together their presentation, developing the economic models and doing the analysis. He added that it was great to have Mike Barnhill, and appreciated his valuable and deep knowledge of the State system. There is a need to go into Executive Session, and he asked for a motion.

> **MOTION:** A motion to go into Executive Session for the purpose of the executive director's personnel review was made by TRUSTEE RUTHERFORD; seconded by TRUSTEE BARNHILL.
>
> *There being no objection, the MOTION was APPROVED.*

(Executive Session from 1:24 p.m. until 2:39 p.m.)

CHAIR RICHARDS called the meeting back into regular session and stated that while in Executive Session the committee discussed only matters specifically related to the call of the Executive Session, which was the personnel duty of the executive director, and took no action. He adjourned the meeting.

(Alaska Permanent Fund Corporation Quarterly Board Meeting adjourned at 2:39 p.m.)

03) Chief Executive Officer's Reports

Pending Board Matters

APFC ALASKA PERMANENT FUND CORPORATION
801 W 10TH SUITE 302 | JUNEAU, AK 99801
907.796.1500 | apfc.org

SUBJECT: Pending Board Matters ACTION:

DATE: February 19, 2020 INFORMATION: __X__

BY	TASK	CAPTURED	TARGET	COMPLETED
Frampton	Asset Allocation	9/18	12/19	X
Rodell	Investment Advisor Charter	2/19	12/19	X
Rodell	Strategic Plan Update	9/18	12/19	X
Vadakumcherry	Risk Appetite Assessment	10/18	02/20	
Rodell/Brown	Internship Program	5/18	5/20	
Frampton/ Vadakumcherry	Investment Policy	5/19	5/20	
Rodell / Brown	Anchorage Office Plan	12/19	09/20	

Trustee Education Report

APFC ALASKA PERMANENT FUND CORPORATION
801 W 10TH SUITE 302 | JUNEAU, AK 99801
907.796.1500 | apfc.org

SUBJECT: Trustee Education ACTION: _____

DATE: February 19, 2019 INFORMATION: _____X_____

BACKGROUND:

APFC Board of Trustees Charters and Governance Policies
The Board of Trustees of the APFC has established a Trustee Education Policy with the following objectives:

- To ensure that the members of the Board have access to the knowledge and information necessary for them to fulfill their fiduciary duties as trustees of the Alaska Permanent Fund; and
- To assist them in becoming well informed in all matters pertaining generally to the management of a large institutional fund, both public and private, and more specifically to the management and investments of the APFC.

In accordance with the Trustee Education Policy, the following is a list of conferences and seminars that Trustees may wish to attend.

TRAINING OPPORTUNITY	TOPIC	LOCATION	DATES
KPMG / NACD	Quarterly Audit Committee Webcast Series	Webinar	March 19, 2020 June 18, 2020 September 10, 2020
Callan Institute	Regional Workshops	San Francisco, CA Chicago, IL Atlanta, GA Portland, OR	June 23, 2020 June 25, 2020 October 27, 2020 October 29, 2020
Pacific Pensions & Investments	Summer Roundtables Winter Roundtables	Vancouver, Canada TBD	July 15-17, 2020 February 24-26, 2021

Disclosure Report

APFC ALASKA PERMANENT FUND CORPORATION
801 W 10TH SUITE 302 | JUNEAU, AK 99801
907.796.1500 | apfc.org

Memo

To: Craig Richards, Chair
Governance Committee

Through: Angela Rodell
Executive Director

From: Chad Brown
HR Manager

Date: February 19, 2020

Re: APFC Financial Disclosures

As required by AS 37.13.110(b) and Alaska Permanent Fund Corporation policy relating to personal investments conduct and reporting, trustees and staff must disclose certain financial interests. Below is a list of disclosures for transactions made by trustees and staff, covering a period of October 1 – December 31, 2019.

October 2019			
Name	**Position Title**	**Disclosure Type**	**Received**
Norix Mangual-Arbelo	Accountant	Individual Transaction	11/21/2019
Angela Rodell	Chief Executive Officer	Individual Transaction	11/22/2019
Alex Smith	Accountant	Individual Transaction	12/1/2019

November 2019			
Name	**Position Title**	**Disclosure Type**	**Received**
Norix Mangual-Arbelo	Accountant	Individual Transaction	1/20/2020
Larissa Murray	IT Specialist	Initial Disclosure	11/18/2019
Alex Smith	Accountant	Individual Transaction	12/17/2019

December 2019			
Name	**Position Title**	**Disclosure Type**	**Received**
Norix Mangual-Arbelo	Accountant	Individual Transaction	1/21/2020
Angela Rodell	Chief Executive Officer	Individual Transaction	12/19/2019
Alex Smith	Accountant	Individual Transaction	1/14/2020

All disclosures have been reviewed by the Executive Director or me, in our capacity as compliance officers. All disclosures were in compliance with policy requirements. Disclosures will be filed in the appropriate personnel file and copies will be placed behind the corporate minutes of the next meeting.

If you have any questions, please call me at 796-1541.

Staff Summary Report

APFC ALASKA PERMANENT FUND CORPORATION
801 W 10TH SUITE 302 | JUNEAU, AK 99801
907.796.1500 | apfc.org

Memo

To: Board of Trustees

From: Angela Rodell
Chief Executive Officer

Date: February 19, 2020

Re: Travel, Training, and Diligence Summary Report

Background:

This report includes APFC staff completed travel for the period August 1 – December 31, 2019. The travel report is presented to the Board of Trustees for review at each board meeting as required by APFC Resolution 04-10.

Due Diligence Summary:

Department	Number of Meetings Held	
	In Person	Telephonically
Executives (5)	16	34
Fixed Income (5)	15	9
Public Equity (3)	19	33
Infrastructure & Private Credit (3)	41	126
Real Estate (4)	31	78
Private Equity (4)	179	166
Asset Allocation (1)	8	7

Travel Summary:

Budget-to-Actual Report: July 1, 2019 through December 31, 2019
*The following can be found in full in the Section 07: FY20 Budget Report

CORPORATE OPERATIONS	BOARD-AUTHORIZED BUDGET	EXPENDITURES	BUDGET REMAINAING
Travel	$929,000	$294,332	$634,668
Staff	$671,877	$210,135	$461,743
Trustees	$45,623	$14,206	$31,417
Moving/Non-Employee	$211,500	$69,991	$141,509

TRAVELER	PURPOSE	DATES OF TRAVEL		LOCATION
LaPierre	Investment Opportunity	10/03/19	10/06/19	Los Angeles, CA
Razzaque	Manager Meetings	10/05/19	10/12/19	London, UK
Skuratovskaya	Conference	10/12/19	10/19/19	Baltimore, NYC, Boston

TRAVELER	PURPOSE	DATES OF TRAVEL		LOCATION
Alexander	Annual General Meeting	10/14/19	10/17/19	Washington, DC
Moseley	Annual General Meeting	10/14/19	10/30/19	London, UK; New York, NY; Philadelphia, PA
Andreyka	Conference	10/14/19	10/19/19	Washington, DC
Mertz	Annual General Meeting	10/14/19	10/17/19	New York, NY
Duran	Conference	10/15/19	10/19/19	Washington, DC
Kim	Annual General Meeting	10/15/19	11/11/19	New York, NY; Boston, MA
Swanson	Conference	10/16/19	10/23/19	San Diego
Rodell	Manager Meetings	10/18/19	10/31/19	NYC, NY Boston, MA
Balovich	Conference	10/19/19	10/25/19	Orlando, FL
Martinez	Manager Meetings	10/19/19	10/24/19	San Francisco, CA
Alexander	Conference	10/21/19	10/25/19	New York, NY; Houston, TX
Rahn	Conference	10/21/19	10/31/19	Philadelphia, PA; Los Angeles, CA
LaPierre	Annual General Meeting	10/21/19	10/27/19	London, UK
Brimberry	Conference	10/21/19	10/26/19	Philadelphia, PA; Boston, MA
Ramirez	Conference	10/22/19	10/27/19	Houston, TX
Frampton	Conference	11/01/19	11/07/19	New York, NY
Ramirez	Annual General Meeting	11/01/19	11/11/19	Boston, MA; New York, NY
Moseley	Annual General Meeting	11/01/19	11/12/19	New York, NY
LaPierre	Conference	11/04/19	11/21/19	New York, NY
Razzaque	Manager Meetings	11/04/19	11/07/19	Chicago, IL
Rodell	Conference	11/05/19	11/13/19	Shanghai, Hong Kong China
Diouf	Conference	11/10/19	11/15/19	New York, NY
Ramirez	Annual General Meeting	11/12/19	11/14/19	Toronto, Canada
Speegle	Training	11/12/19	11/18/19	Pittsburgh, PA; Boston, MA
Mallinger	Training	11/12/19	11/18/19	Pittsburgh, PA; Boston, MA
Poag	Training	11/17/19	11/21/19	Anchorage, AK
Alexander	Annual General Meeting	11/17/19	11/20/19	Dallas, TX
Frampton	Training	11/17/19	11/21/19	Anchorage, AK
Parise	Training	11/17/19	11/21/19	Anchorage, AK
Rodell	Training	11/17/19	11/22/19	Anchorage, AK
Mertz	Training	11/17/19	11/21/19	Anchorage, AK
Race	Training	11/17/19	11/21/19	Anchorage, AK
Duran	Training	11/17/19	11/21/19	Anchorage, AK
Moseley	Training	11/17/19	11/21/19	Anchorage, AK
Balovich	Training	11/17/19	11/22/19	Anchorage, AK
Vadakumcherry	Training	11/17/19	11/22/19	Anchorage, AK
Andreyka	Property Inspections	11/17/19	11/23/19	Lihue & Kahului, HI
Rime	Property Inspections	11/17/19	11/23/19	Lihue & Kahului, HI
Swanson	Conference	11/18/19	11/25/19	Columbus Ohio
Martinez	Manager Meetings	11/19/19	11/24/19	New York, NY

TRAVELER	PURPOSE	DATES OF TRAVEL		LOCATION
Mallinger	Training	11/21/19	11/24/19	Anchorage, AK
Moseley	Manager Meetings	11/26/19	12/08/19	New York, NY
Kim	Investment Opportunity	11/27/19	01/01/20	Los Angeles & San Francisco, CA
Rahn	Training	11/29/19	12/07/19	New York, NY
Vadakumcherry	APFC Board Meeting/Audit Committee	11/30/19	12/04/19	Fairbanks, AK
Meiners	APFC Board Meeting/Audit Committee	12/02/19	12/07/19	Fairbanks, AK
Rodell	APFC Board Meeting/Audit Committee	12/02/19	12/04/19	Fairbanks, AK
Alexander	Annual General Meeting	12/02/19	12/07/19	New York, NY
LaValle	APFC Board Meeting/Audit Committee	12/02/19	12/04/19	Fairbanks, AK
Frampton	APFC Board Meeting/Audit Committee	12/02/19	12/05/19	Fairbanks, AK
Duran	APFC Board Meeting/Audit Committee	12/02/19	12/04/19	Fairbanks, AK
Andreyka	APFC Board Meeting/Audit Committee	12/02/19	12/04/19	Fairbanks, AK
Swanson	APFC Board Meeting/Audit Committee	12/02/19	12/04/19	Fairbanks, AK
Moran	APFC Board Meeting/Audit Committee	12/02/19	12/05/19	Fairbanks, AK
Richards	APFC Board Meeting/Audit Committee	12/02/19	12/04/19	Fairbanks, AK
Rutherford	APFC Board Meeting/Audit Committee	12/02/19	12/04/19	Fairbanks, AK
Calhoon	APFC Board Meeting/Audit Committee	12/02/19	12/08/19	Fairbanks, AK
Poag	APFC Board Meeting/Audit Committee	12/04/19	12/04/19	Fairbanks, AK
Brown	APFC Board Meeting/Audit Committee	12/04/19	12/04/19	Fairbanks, AK
Frampton	Conference	12/06/19	12/15/19	New York, NY
Price	Training	12/06/19	12/08/19	Seattle, WA
Martinez	Training	12/06/19	12/08/19	Anchorage, AK
O'Day	Conference	12/09/19	12/15/19	New York, NY
Razzaque	Manager Meetings	12/11/19	12/18/19	Laguna Beach, CA; San Francisco, CA
Duran	Property Inspections	12/16/19	12/20/19	Los Angeles, CA
Andreyka	Property Inspections	12/16/19	12/20/19	Los Angeles, CA
Martinez	Manager Meetings	12/16/19	12/20/19	Boston, MA
Frampton	Property Inspections	12/17/19	12/19/19	Los Angeles, CA
Smith, K	Training	12/26/19	12/29/19	Seattle, AK

ALASKA PERMANENT FUND CORPORATION

	EMPLOYEE	DEPT	TRAINING TYPE*	VENDOR	COURSE TITLE	CLASS HOURS	CITY	ST
1	Danielle Graham	HR	Seminar/Conference	Pyor Learning Solutions	HR for Anyone w/ Newly Assigned HR Responsibilities	6.5	Juneau	AK
2	Paulyn Swanson	Comms	Conference	PRSA International	Videos for Social Media Workshop and Communications Presentations /Workshops	4 days	San Diego	CA
3	Chad Brown	HR	Personal Training	SHRM / Comcast NBCUniversal	Veterans at Work Certificate Program	10.0	Juneau	AK
4	Danielle Graham	HR	Conference/Online	BambooHR	Virtual HR Summit	5.0	Juneau	AK
5	Moctar Diouf	INV	OTT/CS	CFA Institute	Equity Research and Valuations	2.5 Days	New York	NY
6	Jacki Mallinger	FIN	Exam	AICPA	CPA Exam - FAR Section	1 day	Anchorage	AK
7	Jacki Mallinger	FIN	OTT/CS	BNY Mellon	NEXEN Client Education and Training	1 day	Pittsburgh	PA
8	Norix Mangual	FIN	Online	CAIA	Fundamentals of Alternative Investments	10	Juneau	AK
9	Valerie Mertz	FIN	Online	Sequoia CPE	The Impact of Mark-to-Market Accounting	5.0	Juneau	AK
10	Valerie Mertz	FIN	Online	Sequoia CPE	Accounting During the Financial Crisis	2.0	Juneau	AK
11	Valerie Mertz	FIN	Online	Western CPE	Real-World Ethics for Alaska CPAs	4.0	Juneau	AK
12	Valerie Mertz	FIN	Online	Sequoia CPE	Fraud Prevention	5.0	Juneau	AK
13	Adrien Speegle	FIN	OTT/CS	BNY Mellon	NEXEN Client Education and Training	1 day	Pittsburgh	PA
14	Adrien Speegle	FIN	Online	CAIA	Fundamentals of Alternative Investments	8.0	Juneau	AK

CS - Conferences & Seminars
LT - Local Training
OTT - Out of Town Training
OL - Online

4) Communications Report

SUBJECT: Communications ACTION:

DATE: 2/19/2020 INFORMATION: X

Presentations – Discussions – Speaking Engagements - Interviews
Angela Rodell, Chief Executive Officer
Craig Richards, Board of Trustees Chair

December 2019
- AR– Interview: Charles Murphy, News of the North

January 2020
- AR – Presentation, House Finance Budget Subcommittee, AK Legislature
- AR – Presentation, Senate Finance Committee, AK Legislature
- AR – Presentation, House Finance Committee, AK Legislature
- CR – Discussion on Inflation Proofing, Commonwealth North Fiscal Policy Group

February 2020
- AR – Interview, Korean TV

Communications Projects

Crisis Communications Workshop/Planning
Working with the C-Suite and our Communications' consultant to develop a matrix of potential crisis scenarios, how we would/should respond, what message we would need, and to which audience, among other critical details. This work will provide our APFC team with an established process/plan in place in the event of a crisis.

Newspaper Insert
- ✓ Completed, distributed statewide, and now available on our website for download.

Financial statements are incorporated in the layout and fulfill the statutory requirement of AS 37.13.170 - Reports and Publications "The annual income statement and balance sheet of the fund shall be published in at least one newspaper in each judicial district."

Trustees' Paper Volume 9, 2020
- ✓ Completed, the publication has been shared with members of the Legislature and is available for download on our website.

Legislative Dates - Second Session of the 31st Alaska State Legislature
Constitutional Session Limit is 121 Days - May 20, 2020
Statutory Session Limit is 90 days - April 19, 2020

Legislative Priorities

Educate stakeholders on the structure, governance, and essential elements (royalties, inflation proofing, adherence to rules-based deposits and withdrawals) of the Fund to set the foundation for informed policy decisions.

- 28 Meetings: SFIN, HFIN, Senate Leadership, House Leadership, Juneau Delegation
- Committee Hearings: SFIN, HFIN, HFIN Budget Subcommittee
- Publications: Annual Report, Newspaper Insert, Trustees' Paper – Volume 9
- APFC.ORG

Attain passage of HB 139, procurement streamlining, to provide an additional tool for internal due diligence work on investment-related services.

- Single Committee Referral: SFIN

Secure **resources** to ensure that APFC has the necessary support to optimize our ability to manage and invest the Fund.

- HFIN Budget Subcommittee Presentation on Jan 29
- SFIN Committee Presentation and HFIN Committee Presentation on Jan 31

APFC Operating Budget FY21

- Merit and Retention Adjustments $720.6
- (Staff Compensation Plan $2,820.2 - not in Gov's proposed budget)
- Real Estate Manager Position $257.5 - salary, benefits, support
- Operational Reductions ($1,097.9) travel, IT consulting, contractual
- Investment Management Fees ($21,098.) eCIO program & fees

APFC Appropriations FY21	Authorized FY2020	BOT Proposed FY2021	GOV Proposed FY2021	House FY2021	Senate FY2021	Conference Committee FY2021	Enacted FY2021
Operating Allocation	**$17,800,400**	**$20,500,857**	**$17,680,700**				
Personal Services	$11,861,200	$15,659,502	$12,839,400				
Travel	$929,000	$700,000	$700,000				
Services	$4,174,900	$3,404,405	$3,404,400				
Commodities	$435,300	$336,950	$336,900				
Capital Outlay	$400,000	$400,000	$400,000				
Investment Mgmt Allocation	**$150,498,700**	**$129,400,638**	**$129,400,600**				
Total Appropriation	**$168,299,100**	**$149,901,495**	**$147,081,300**				

Fund Appropriations FY 21	Authorized	BOT Proposed	GOV Proposed	House	Senate	Conference Committee	Enacted
	FY2020	FY2021	FY2021	FY2021	FY2021	FY2021	FY2021
POMV	**$2,933,084,121**	**$3,091,492,924**	**$3,091,492,927**				
Royalties - Constitutional	***$329,200,000***	***$276,300,000***	***$276,300,000***				
Royalties - Statutory	***$71,300,000***	***$67,900,000***	***$67,900,000***				
Inflation Proofing	***$943,000***	***$1,064,000,000***	**$0**				
Alaska Capital Income Fund	***$27,000,000***	***$30,000,000***	***$30,000,000***				
Special Approp	**$4,000,000,000**	**$0**	**$0**				

italics - estimated

5) Financials

Financial Report Memo

APFC ALASKA PERMANENT FUND CORPORATION
801 W 10TH SUITE 302 | JUNEAU, AK 99801
907.796.1500 | apfc.org

SUBJECT: FY20 Year-to-Date Financial Update ACTION: _____

DATE: February 19, 2020 INFORMATION: X

KEY TAKEAWAYS:

- Total return for the second quarter of FY20 of 4.07%, resulting in year-to-date total return of 5.38%
- Accounting net income year-to-date of $3.4 billion, $2.8 billion for the second quarter
- Realized (statutory) net income year-to-date of $2.1 billion, $1.1 billion for the second quarter
- Assets under management as of December 31st of $67.0 billion, an increase of $682 million for the year
- Year-to-date commitment for inflation proofing of $638 million
- $2.1 billion transferred to the General Fund year-to-date in accordance with SB26; $833 million remaining to be transferred
- $175 million of mineral deposits transferred in during the half of the fiscal year
- Committed Earnings Reserve balances of $3.1 billion for FY21 General Fund Transfers and $4 billion to principal

Financial results for the second quarter of FY20 were much stronger than that of the first quarter. Overall, the portfolio gained $2.4 billion in value since the end of September. The biggest contributor was the public equity portfolio which recovered more than $2.2 billion in value during the quarter. All other asset classes except for currency experienced moderate gains during the second quarter.

Net assets increased by $682 million year-to-date through December. This is a result of net income of $3,440 million and $175 million in mineral royalty deposits offset by the recognition of the FY20 liability to the State of Alaska General Fund in the amount of $2,933 million. Corporate operating expenses and other appropriations year-to-date totaled $59 million.

One transfer to the General Fund was made during the second quarter of FY20 in the amount of $600 million. This brings the total transfers year-to-date to $2.1 billion. Staff is in communication with the cash managers at the Department of Revenue to ensure that the remaining $833 million remains invested in the Fund as long as possible, while being available to meet the liquidity needs of the State.

The RFP process for the external financial audit is underway. An update will be provided on the first day of the meeting.

Financial Report

ALASKA PERMANENT FUND CORPORATION

Financial Report
December 31, 2019

Fiscal Year 2020 Net Assets

Balances through December 31, 2019 *(in millions)*

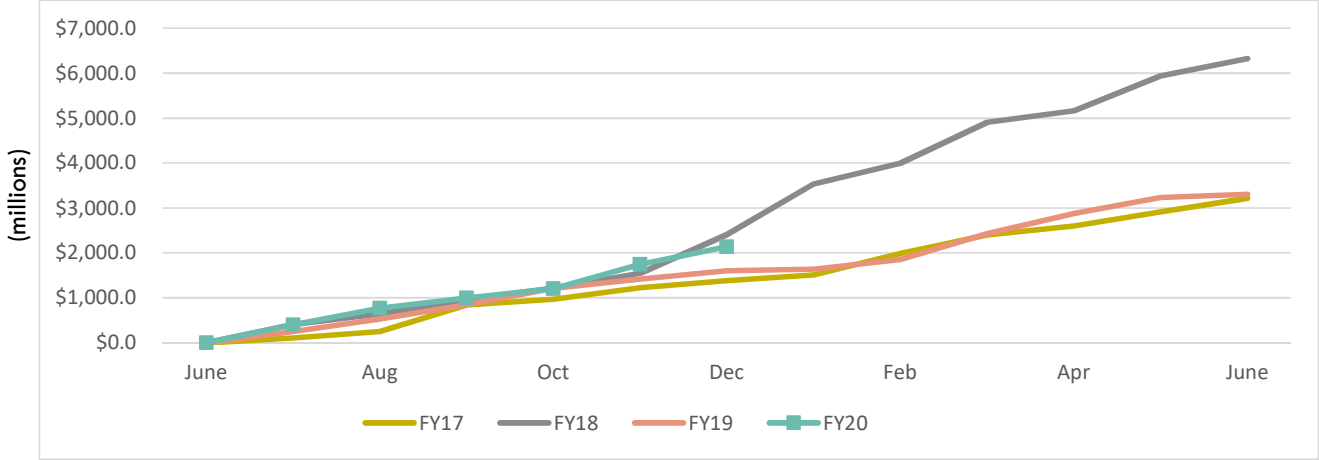
Total assets	$	68,393.5
Less liabilities		(1,411.5)
Net assets		66,982.0
Fund Balances:		
Non-spendable		
Permanent Fund corpus—contributions and appropriations		41,717.1
Not in spendable form—unrealized appreciation on invested assets		7,315.2
Total non-spendable fund balance		49,032.3
Committed		
General Fund Commitment		3,091.5
Commitment to Principal		4,000.0
Current FY inflation proofing		638.3
Current FY AK Capital Income Fund		14.0
Committed fund balance		7,743.8
Assigned for future appropriations		
Realized earnings		7,528.0
Unrealized appreciation on invested assets		2,677.9
Total assigned fund balance		10,205.9
Total fund balances	$	66,982.0

Fiscal Year 2020 Income

For the six months ending December 31, 2019 *(in millions)*

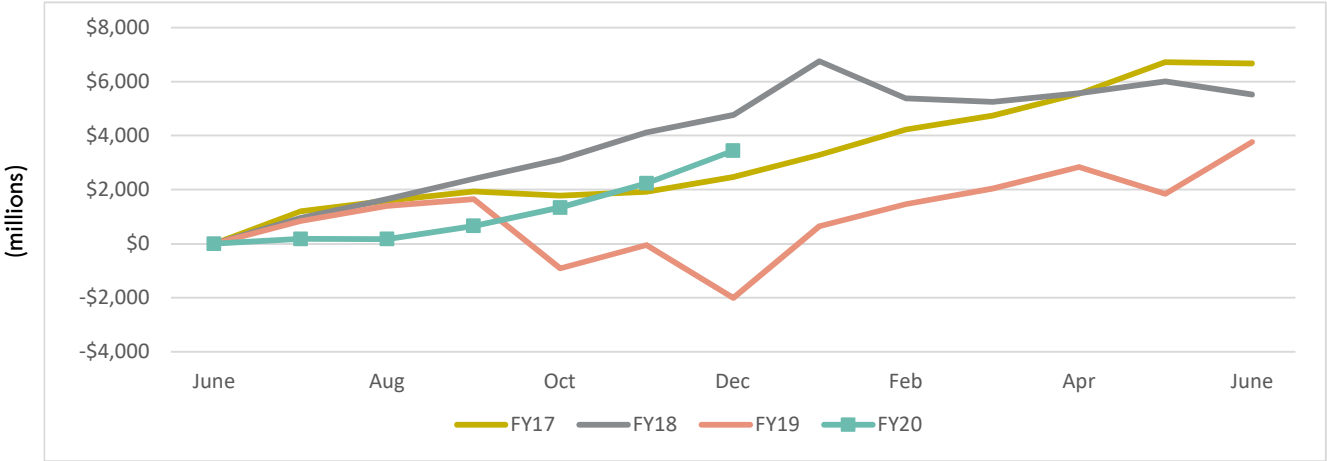
Statutory (Realized) Net Income		
Interest, dividends, real estate, and other income	$	733.3
Realized gains on the sale of invested assets		1,476.4
Less operating expenses/legislative appropriations		(59.4)
Less Alaska Capital Income Fund committed realized earnings		(14.0)
Statutory net income		2,136.3
GAAP (Accounting) Net Income		
Statutory net income		2,136.3
Unrealized gain on invested assets		1,289.6
Alaska Capital Income Fund committed realized earnings		14.0
Accounting net income	$	3,439.9

Statutory Net Income, Fiscal Years 2017 - 2020



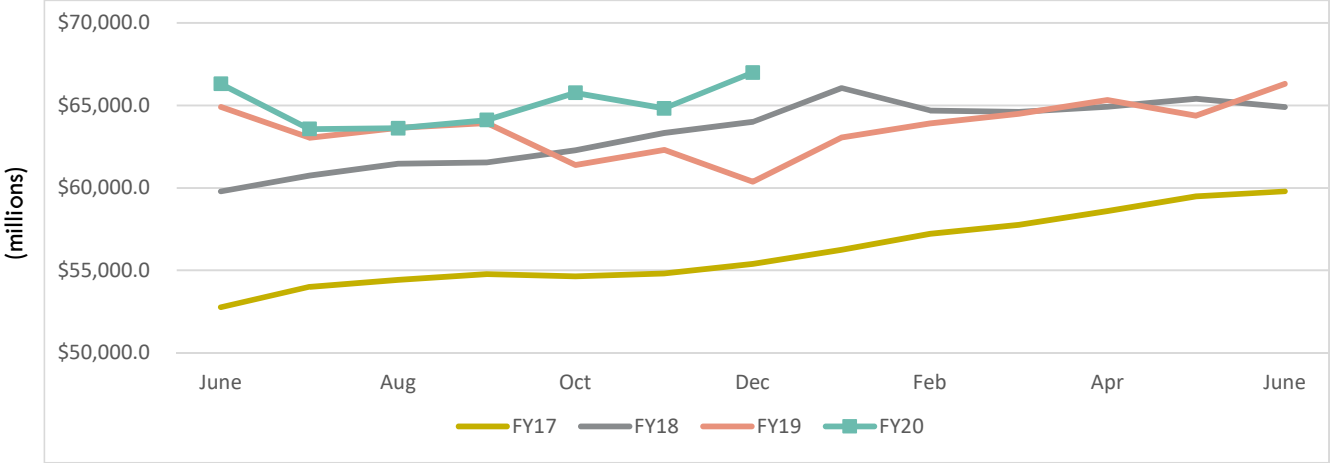
• Comprised of receipts from interest on fixed income, real estate rentals, stock dividends, and all realized gains and losses on the sales of invested assets, less AK Capital Income Fund committed amounts and operating expenses.
• FY17 statutory net income was $3,214.2 million.
• FY18 statutory net income was $6,324.4 million.
• FY19 statutory net income was $3,305.1 million.
• FY20 statutory net income through December 31st was $2,136.3 million.

GAAP Accounting Net Income (Loss), Fiscal Years 2017 - 2020



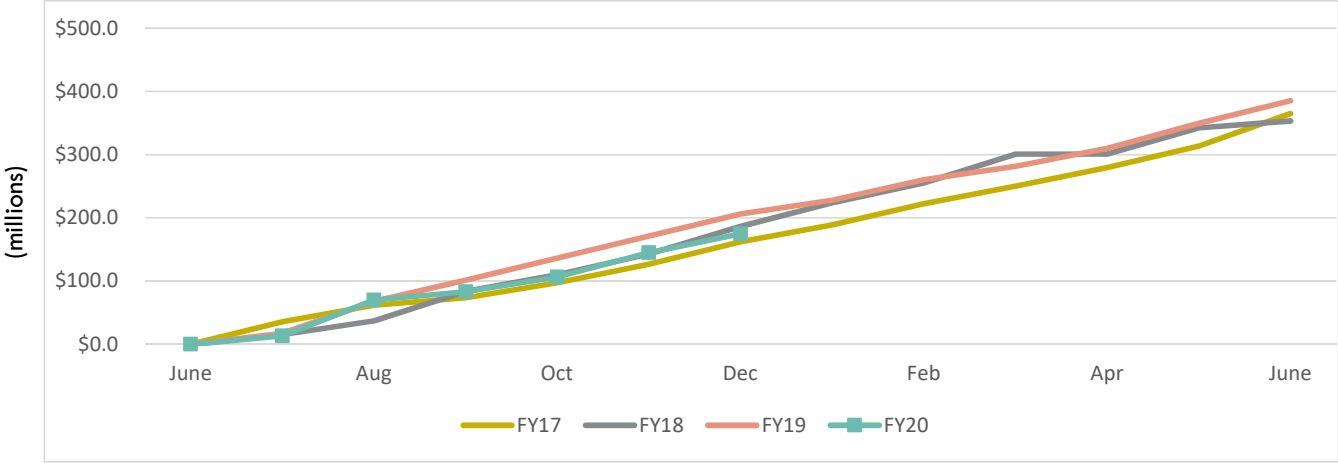
• Accounting net income is the same as statutory net income, except it includes unrealized gains and losses.
• Accounting net income for FY17 was $6,675.6 million.
• Accounting net income for FY18 was $5,525.5 million.
• Accounting net income for FY19 was $3,765.8 million.
• Accounting net income through December 31st was $3,439.9 million.

Market Value of Fund Net Assets, Fiscal Years 2017 - 2020



• FY17 net assets as of June 2017 were $59.8 billion, basically unchanged from the FY16 ending balance.
• FY18 net assets as of June 2018 were $64.9 billion, an increase of $5.1 billion over the FY17 ending balance.
• FY19 net assets as of June 2019 were $66.3 billion, an increase of $1.4 billion over the FY18 ending balance.
• FY20 net assets as of December 31, 2019 were $67.0 billion, an increase of $700 million from the FY19 ending balance.

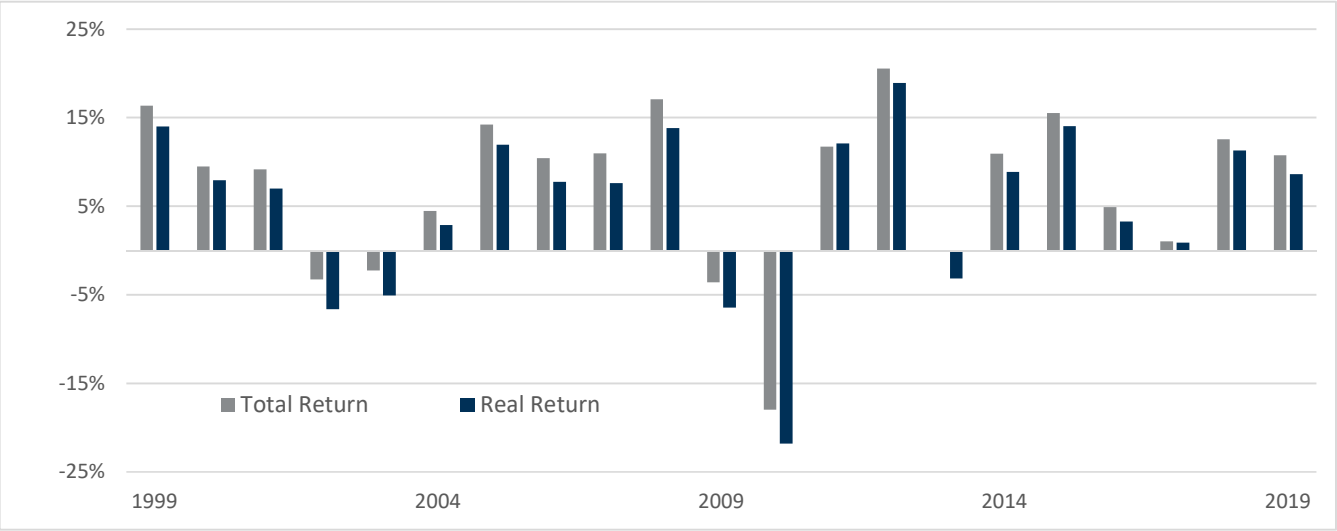
Dedicated Mineral Revenues, Fiscal Years 2017 - 2020



• FY17 mineral revenue was $364.9 million.
• FY18 mineral revenue was $353.1 million.
• FY19 mineral revenue was $385.2 million.
• FY20 mineral revenue as of December 31, 2019 was $174.9 million.

Alaska Permanent Fund Historical Returns, Fiscal Years 1999 - 2019

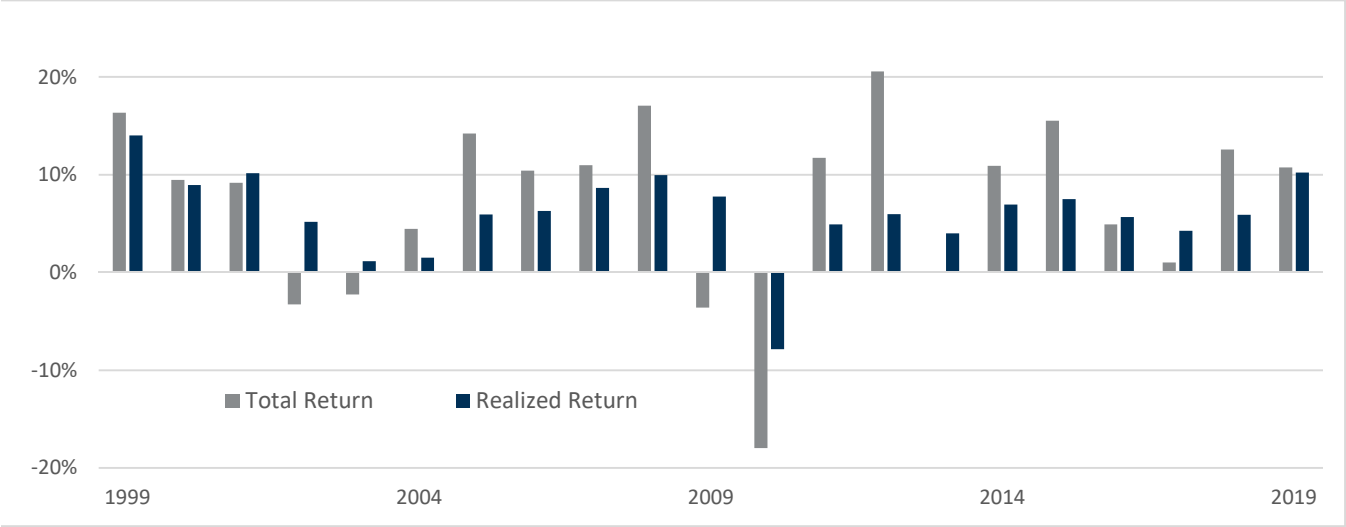
Total return minus inflation equals real return



- Total return annualized over 35 years is 8.75%
- Real return annualized over 35 years is 6.52%

Alaska Permanent Fund Historical Returns, Fiscal Year 1999 - 2019

Total return minus unrealized gains/losses equals realized return



- Total return annualized over 35 years is 8.75%
- Realized return annualized over 35 years is 9.90%

Cash Flow Report

APFC ALASKA PERMANENT FUND CORPORATION

Board of Trustees - APFC Transfers - October 1 to December 31

Type of Transfer	October	November	December	Total
Public Equities	(1,178,312)	(1,486,100,320)	(1,036,957)	(1,488,315,589)
Fixed Income Plus	(310,041)	(883,040)	128,567	(1,064,513)
Private Equity & Special Opportunities	106,038,112	45,220,789	81,310,939	232,569,839
Real Estate	(7,284,905)	(4,404,332)	5,665,947	(6,023,291)
Infrastructure & Private Income	(42,684,179)	(24,587,190)	29,942,292	(37,329,077)
Absolute Return	298,202,452	(5,839,345)	186,865,718	479,228,826
Asset Allocation	(680,000,000)	1,422,293,980	(343,257,155)	399,036,826
Operating Cash	(259,975,599)	77,769,498	71,502,161	(110,703,940)
Net Transfers	**(587,192,472)**	**23,470,040**	**31,121,513**	**(532,600,919)**

APFC ALASKA PERMANENT FUND CORPORATION

Board of Trustees - APFC Transfers - October 2019

Description	Operating Cash	Public Equities	Fixed Income Plus	Pvt. Equity & Spec. Opps.	Real Estate	Infr. & Pvt. Income	Absolute Return	Asset Allocation	Net
State of Alaska & Administrative									
Mineral revenue	25,708,926								25,708,926
AIM STIF interest	633,045								633,045
Commission recapture proceeds	14,639								14,639
Securities Lending income	163,217								163,217
Class action proceeds	5,268								5,268
Transfer to SOA General Fund	(300,000,000)								(300,000,000)
Corporate expenses	(313,717,567)								(313,717,567)
Public Equities									
APF Tactical Tilts	156,763,998	(156,763,998)							-
APF Tac Tilts Cash	(81,763,998)	81,763,998							-
APF Domestic EQ	(75,000,000)	75,000,000							-
Public Equity Sec Lending	1,178,312	(1,178,312)							-
Fixed Income Plus									
APF Fixed Income - Aggregate	169,584		(169,584)						-
SSGA Listed Infrastructure	29,000,000		(29,000,000)						-
SSGA REITs	93,000,000		(93,000,000)						-
APF Fixed Income Plus Cash	(122,000,000)		122,000,000						-
Fixed Income Sec Lending	140,456		(140,456)						-
Private Equity & Special Opportunities									
Private Equity distributions	55,613,930			(55,613,930)					-
Private Equity capital calls	(96,822,274)			96,822,274					-
Special Opportunities distributions	18,924,695			(18,924,695)					-
Special Opportunities capital calls	(83,754,463)			83,754,463					-
Real Estate									
Direct Real Estate distributions	7,091,830				(7,091,830)				-
Direct Real Estate capital calls	(315)				315				-
Real Estate Coinvestment distributions	193,390				(193,390)				-
Infrastructure & Private Income									
Infrastructure distributions	33,097,759					(33,097,759)			-
Infrastructure capital calls	(8,066,869)					8,066,869			-
Private Credit distributions	56,460,313					(56,460,313)			-
Private Credit capital calls	(21,254,208)					21,254,208			-
Private Income capital calls	(17,552,816)					17,552,816			-
Absolute Return									
Absolute Return distributions	2,596,699						(2,596,699)		-
Absolute Return capital calls	(300,799,151)						300,799,151		-
Asset Allocation, Other									
APF Allocation Cash	680,000,000							(680,000,000)	-
Net Transfers - October	(259,975,599)	(1,178,312)	(310,041)	106,038,112	(7,284,905)	(42,684,179)	298,202,452	(680,000,000)	(587,192,472)

APFC ALASKA PERMANENT FUND CORPORATION

Board of Trustees - APFC Transfers - November 2019

Description	Operating Cash	Public Equities	Fixed Income Plus	Pvt. Equity & Spec. Opps.	Real Estate	Infr. & Pvt. Income	Absolute Return	Asset Allocation	Net
State of Alaska & Administrative									
Mineral revenue	29,831,255								29,831,255
AIM STIF interest	569,037								569,037
Commission Recapture proceeds	6,741								6,741
Securities Lending income	189,808								189,808
Class Action proceeds	35,371								35,371
Corporate expenses	(7,162,172)								(7,162,172)
Public Equities									
Mellon MSCI World ex-USA	200,000,000	(200,000,000)							-
Acadian Asset Mgmt	100,000,000	(100,000,000)							-
JP Morgan Int'l Large Cap	100,000,000	(100,000,000)							-
AQR Global Equity	150,000,000	(150,000,000)							-
Lazard Asset Management	150,000,000	(150,000,000)							-
McKinley Capital Management	39,865,278	(39,865,278)							-
APF Tactical Tilts	19,715,340	(19,715,340)							-
APF Global Equities	10,134,722	(10,134,722)							-
APF Tac Tilts Cash	142,284,660	(142,284,660)							-
Mellon S&P 500	550,000,000	(550,000,000)							-
CastleArk - Large Cap	50,000,000	(50,000,000)							-
APF Domestic EQ	(27,000,000)	27,000,000							-
Securities Lending	1,100,320	(1,100,320)							-
Fixed Income Plus									
APF Fixed Income - Aggregate	699,238		(699,238)						-
Fixed Income Sec Lending	183,802		(183,802)						-
Private Equity & Special Opportunities									
Private Equity distributions	18,273,412			(18,273,412)					-
Private Equity capital calls	(55,484,859)			55,484,859					-
Special Opportunities distributions	14,815,489			(14,815,489)					-
Special Opportunities capital calls	(22,824,831)			22,824,831					-
Real Estate									
Direct Real Estate distributions	6,739,657				(6,739,657)				-
Direct Real Estate capital calls	(2,613,685)				2,613,685				-
Real Estate Coinvestment distributions	278,360				(278,360)				-
Infrastructure & Private Income									
Infrastructure distributions	81,705,880					(81,705,880)			-
Infrastructure capital calls	(20,811,310)					20,811,310			-
Private Credit distributions	7,002,319					(7,002,319)			-
Private Credit capital calls	(30,422,347)					30,422,347			-
Private Income distributions	3,474,958					(3,474,958)			-
Private Income capital calls	(16,362,310)					16,362,310			-
Absolute Return									
Absolute Return distributions	5,839,345						(5,839,345)		-
Asset Allocation, Other									
APF NISA Overlay	11,167,117							(11,167,117)	-
APF Allocation Cash	(1,460,000,000)							1,460,000,000	-
Goldman Sachs ECIO redemption	10,528,507							(10,528,507)	-
Bridgewater ECIO redemption	16,010,396							(16,010,396)	-
Net Transfers - November	77,769,498	(1,486,100,320)	(883,040)	45,220,789	(4,404,332)	(24,587,190)	(5,839,345)	1,422,293,980	23,470,040

ALASKA PERMANENT FUND CORPORATION

Board of Trustees - APFC Transfers - December 2019

Description	Operating Cash	Public Equities	Fixed Income Plus	Pvt. Equity & Spec. Opps.	Real Estate	Infr. & Pvt. Income	Absolute Return	Asset Allocation	Net
State of Alaska & Administrative									
Mineral revenue	40,530,130								40,530,130
AIM STIF interest	1,159,803								1,159,803
Commission Recapture proceeds	27,584								27,584
Securities Lending income	106,458								106,458
Class Action proceeds	21,876								21,876
Corporate expenses	(10,724,338)								(10,724,338)
Public Equities									
SSGA International	7,338	(7,338)							-
APF Tactical Tilts	(176,670,786)	176,670,786							-
APF Tac Tilts Cash	119,120,786	(119,120,786)							-
APF SPDR Momentum	106,890,000	(106,890,000)							-
APF Domestic EQ	(49,340,000)	49,340,000							-
Public Equity Sec Lending	1,029,619	(1,029,619)							-
Fixed Income Plus									
APF Fixed Income - Aggregate	(257,715)		257,715						-
Rogge Global Partners	67,224,000		(67,224,000)						-
Rogge Global Partners CNY	(67,224,000)		67,224,000						-
APF TIPS	(100,000,000)		100,000,000						-
SSGA REITs	(79,000,000)		79,000,000						-
APF Fixed Income Plus Cash	179,000,000		(179,000,000)						-
Fixed Income Sec Lending	129,148		(129,148)						-
Private Equity & Special Opportunities									
Private Equity distributions	34,807,748			(34,807,748)					-
Private Equity capital calls	(92,050,512)			92,050,512					-
Special Opportunities distributions	29,621,088			(29,621,088)					-
Special Opportunities capital calls	(53,689,264)			53,689,264					-
Real Estate									
Direct Real Estate distributions	8,881,246				(8,881,246)				-
Direct Real Estate capital calls	(3,690,215)				3,690,215				-
Special Opportunities distributions	628,262				(628,262)				-
Real Estate Coinvestment capital calls	(11,485,240)				11,485,240				-
Infrastructure & Private Income									
Infrastructure distributions	47,719,702					(47,719,702)			-
Infrastructure capital calls	(62,448,751)					62,448,751			-
Private Credit distributions	35,140,614					(35,140,614)			-
Private Credit capital calls	(34,174,462)					34,174,462			-
Private Income capital calls	(16,179,395)					16,179,395			-
Absolute Return									
Absolute Return distributions	2,694,790						(2,694,790)		-
Absolute Return capital calls	(189,560,508)						189,560,508		-
Asset Allocation, Other									
APF NISA Overlay	(6,742,845)							6,742,845	-
APF Allocation Cash	350,000,000							(350,000,000)	-
Net Transfers - December	71,502,161	(1,036,957)	128,567	81,310,939	5,665,947	29,942,292	186,865,718	(343,257,155)	31,121,513

History & Projections

ALASKA PERMANENT FUND
FUND FINANCIAL HISTORY & PROJECTIONS
as of December 31, 2019

ALASKA PERMANENT FUND CORPORATION

Projections extend ten years, and are based on best available information ($ in millions)

		Nonspendable Fund Balance - Principal						Assigned Fund Balance - Earnings Reserve									TOTAL FUND
									Distributions				Unrealized				
	FY	FY-Begin Contrib. Balance	Dedicated[1] State Revenues	Inflation Proofing & Special Approp.	FY-End Balance Contributions	Unrealized Gain (Loss) FY-End Balance	FY-End Non-spendable Balance	Acct. Net Income[2]	Div/POMV Transfer[9]	Inflation Prfg & Spec Approp.	ACIF	FY-End Balance Realized	Gain (Loss) FY-End Balance	FY-End Assigned Balance	FY	FY-End Balance
	77-10	0	11,868	19,756	31,624	421	32,045	47,635	18,385	16,458	421	1,194	16	1,210	77-10	33,255
	11	31,624	887	533	33,044	4,788	37,833	6,812	801	533	13[5]	2,016	292	2,308	11	40,141
	12	33,044	915	1,073	35,033	3,220	38,253	(100)	605	1,073	17	1,905	175	2,081	12	40,333
	13	35,033	840	743	36,615	4,184	40,800	4,314	604	743	30	3,487	567	4,054	13	44,854
	14	36,615	779	546	37,941	7,062	45,002	6,848	1,235	546	32	5,237	975	6,212	14	51,214
	15	37,941	600	624	39,165	6,473	45,638	2,384	1,373	624	24	6,147	1,016	7,163	15	52,801
	16	39,165	284	0	39,449	4,750	44,199	398	696[7]	0[8]	18	7,649	921	8,571	16	52,770
	17	39,449	365	0	39,814	7,155	46,969	6,676	0	0[8]	25	10,863	1,952	12,816	17	59,785
	18	39,814	353	0	40,167	5,863	46,030	5,526	726	0[8]	43	16,461	2,403	18,864	18	64,894
	19	40,167	385	989	41,541	6,278	47,820	3,766	2,723	989	22	16,053	2,426	18,481	19	66,300
Lo	20	41,541	387	4,641[10]	46,569	3,948	50,517	(516)	2,933	4,641[10]	22	11,706	992	12,700	20	63,217
Mid	20	41,541	387	4,641[10]	46,569	6,890	53,459	4,121	2,933	4,641[10]	28	12,532	1,854	14,389	20	67,847
Hi	20	41,541	387	4,641[10]	46,569	9,775	56,344	8,907	2,933	4,641[10]	34	13,456	2,825	16,855	20	73,200
	21	46,569	344	1,056	47,969	6,899	54,868	4,471	3,091	1,056	30	12,826	1,845	14,673	21	69,541
	22	47,969	337	1,087	49,393	6,900	56,293	4,584	3,095	1,087	30	13,199	1,844	15,045	22	71,337
	23	49,393	324	1,119	50,835	6,911	57,746	4,698	3,262	1,119	30	13,486	1,833	15,321	23	73,067
	24	50,835	326	1,151	52,313	6,925	59,238	4,809	3,378	1,151	30	13,736	1,818	15,556	24	74,794
	25	52,313	350	1,185	53,847	6,941	60,789	4,922	3,460	1,185	30	13,984	1,803	15,789	25	76,577
	26	53,847	381	1,220	55,448	6,958	62,407	5,039	3,545	1,220	30	14,229	1,786	16,017	26	78,423
	27	55,448	425	1,257	57,131	6,977	64,107	5,161	3,632	1,257	30	14,471	1,767	16,241	27	80,348
	28	57,131	466	1,296	58,892	6,996	65,888	5,288	3,721	1,296	30	14,713	1,748	16,463	28	82,351
	29	58,892	507	1,336	60,735	7,004	67,739	5,553	3,811	1,336	30	15,089	1,740	16,832	29	84,571
	Cumulative Totals Proj. for FY20-FY29		3,846	15,348				48,647	33,928	15,348	295					

Assumptions:		Total Return	- Inflation	= Total Real Return		Statutory Return
Lo	FY20	-0.52%	1.53%	-2.05%	Lo	5.27%
Mid	FY20[3]	6.61%	1.53%	5.08%	Mid	6.55%
Hi	FY20	13.97%	1.53%	12.44%	Hi	7.98%
	FY21-FY29[4]	7.00%	2.25%	4.75%		7.00%

Notes related to financial history and projections:

(1) Dedicated State Revenues in current and future fiscal years are based on the Fall 2018 Department of Revenue forecast.

(2) Accounting net income is based on United States Generally Accepted Accounting Principles (GAAP).

(3) Current year returns and inflation are based on 2019 Callan capital market assumptions. Actual results will vary.

(4) Future returns are based on 2019 Callan capital market assumptions and median expected returns (the mid case). Actual results will vary.

(5) During FY 2009, the ACIF realized losses of $33.3 million, which are excluded from statutory net income, and are included in the ending unreserved balance as a deficit account. During FY 2010 and FY 2011, the ACIF had realized income of $20.8 and $25.3 million, which is excluded from statutory net income, and served to reduce the FY 2009 deficit.

(6) The statutory inflation calculation for FY 2010 was -.36%; therefore, there was no inflation proofing transfer during FY 2010.

(7) The dividend transfer reported for FY16 was paid out in dividends during FY17.

(8) There was no appropriation for inflation proofing in FY16, FY17 and FY18.

(9) Per AS 37.13.140, beginning in FY19, transfers are based on a percent of market value (POMV) calculation and are to the General Fund. In previous years, transfers were based on an earnings calculation and were to the Dividend Fund.

(10) In FY20, an additional $4 billion was appropriated from the ERA to principal. The intent of the legislation is to forward fund inflation proofing.

(11) All transfers out of the Earnings Reserve are subject to Legislative appropriation

FY20 POMV Distribution (actual)[11]		
Ending Fund Value (ex Am Hess)		
FY18	$	64,469.9
FY17		59,360.8
FY16		52,345.1
FY15		52,376.1
FY14		50,789.5
Average Value	$	55,868.3
Statutory Distribution	$	2,933.1

FY20 Statutory Dividend Transfer (actual)[11]		
Statutory Net Income		
FY19	$	3,305.0
FY18		6,324.4
FY17		3,214.2
FY16		2,198.0
FY15		2,907.0
Avail for Dist (21%)	$	3,769.2
Statutory Trnsfr Amt	$	1,884.6

FY21 POMV Distribution (actual)[11]		
Ending Fund Value (ex Am Hess)		
FY19	$	65,875.8
FY18		64,469.9
FY17		59,360.8
FY16		52,345.1
FY15		52,376.1
Average Value	$	58,885.5
Statutory Distribution	$	3,091.5

FY21 Statutory Dividend Transfer (projected)		
Statutory Net Income		
FY20	$	4,054.0
FY19		3,305.0
FY18		6,324.4
FY17		3,214.2
FY16		2,198.0
Avail for Dist (21%)	$	4,010.1
Statutory Trnsfr Amt	$	2,005.0

Income Year-to-Date as of December 31, 2019

FY20 Statutory Net Income		
Interest, dividends, real estate & other incom	$	733.3
Realized gains (losses) on the sale of assets		1,476.4
Less operating expenses		(59.4)
Less AK Capital Inc. Fund realized earnings		(14.0)
	$	2,136.3

FY20 Accounting (GAAP) Net Income		
Statutory net income (loss)	$	2,136.3
Unrealized gains (losses) on invested assets		1,289.6
AK Capital Income Fund realized earnings		14.0
	$	3,439.9

Fees & Expense Report

ALASKA PERMANENT FUND CORPORATION

FYTD 2020 Fees & Expenses by Funding Source

Report Date	**December 31, 2019**
Total Fund Balance	**67,544,886,691**
YTD Change in Fund Balance (Net of Transfers)	**2,635,250,000**

Investment Management Fees

	Paid From Investments	Paid from Investment Management Allocation	Paid from Operations Allocation	Total
Public Equity	633,000	24,916,000	913,000	26,462,000
Fixed Income Plus	0	7,714,000	1,943,000	9,657,000
Absolute Return	26,221,000	312,000	330,000	26,863,000
Asset Allocation*	2,134,000	543,000	0	2,677,000
Private Equity & Special Opps	57,324,000	10,029,000	1,392,000	68,745,000
Infrastructure & Private Income	34,984,000	894,000	989,000	36,867,000
Real Estate	16,590,000	774,000	1,279,000	18,643,000
Total Mgmt Fees by Source	**137,886,000**	**45,182,000**	**6,846,000**	**189,914,000**
Basis Points	**20**	**7**	**1**	**28**

Profit Sharing/Performance

	Paid From Investments	Paid from Investment Management Allocation	Paid from Operations Allocation	Total
Public Equity	0	0	0	0
Fixed Income Plus	0	0	0	0
Absolute Return	17,436,000	0	0	17,436,000
Asset Allocation	0	0	0	0
Private Equity & Special Opps	73,101,000	0	0	73,101,000
Infrastructure & Private Income	61,873,000	0	0	61,873,000
Real Estate	0	0	0	0
	152,410,000	0	0	152,410,000

*Operating expenses related to Asset Allocation are spread across the other asset classes.

FY20 Budget Report

ALASKA PERMANENT FUND CORPORATION

Budget-to-Actual Report: July 1 through December 31, 2019

Corporate Operations	Board-authorized Budget	Expenditures	Remaining Budget
Personal Services	$ 11,861,201	$ 5,204,469	$ 6,656,732
Staff	11,843,781	5,194,787	6,648,994
Board: Honoraria	17,420	9,682	7,738
Travel	929,000	294,332	634,668
Staff	671,877	210,135	461,742
Trustees	45,623	14,206	31,417
Moving/Non-Employee	211,500	69,991	141,509
Contractual Services	4,174,899	1,185,562	2,989,337
Audit, Legal, Consulting	435,683	84,102	351,581
Public Communications	146,500	79,550	66,950
Board Support and Meetings	56,350	65,607	(9,257)
Information Technology	2,361,564	257,403	2,104,161
HR and Recruitment	62,824	43,701	19,123
Training/Education	186,620	38,302	148,318
Office Support	925,358	616,897	308,461
Commodities	435,300	70,046	365,254
Equipment	400,000	23,863	376,137
Corporate Operations Total	**$ 17,800,400**	**$ 6,778,272**	**$ 11,022,128**
Investment Management			
Investment Systems	$ 5,300,415	$ 4,703,025	$ 597,390
Investment Due Diligence	7,178,200	2,886,148	4,292,052
Custody Fees	1,500,000	625,155	874,845
Investment Manager Fees	136,520,085	40,624,900	95,895,185
Public Equities	82,493,617	24,438,476	58,055,141
Fixed Income	13,116,245	6,389,268	6,726,977
Alternative Assets	40,910,223	9,797,157	31,113,066
Investment Management Total	**$ 150,498,700**	**$ 48,839,229**	**$ 101,659,471**
Legislative Appropriation	**$ 8,848,200**	**$ 7,792,162**	**$ 1,056,038**
Capital Project: Renovation	**$ 4,050,000**	**$ 3,434,257**	**$ 615,743**
Total Appropriation	**$ 181,197,300**	**$ 66,843,920**	**$ 114,353,380**

8) Chief Investment Officer's Report

APFC

ALASKA PERMANENT
FUND CORPORATION

CIO Report

Marcus Frampton, Chief Investment Officer

February 19-20, 2020

1. Updates & Priorities

Updates & Priorities

- Investment Department Personnel
- Public Markets
- Private Markets & Alternatives
- Investment Policy
- Fund Asset Allocation
- Total Fund & ERA Modeling Exercise
- Real Estate Updates from Last Board Meeting
  - Focus on execution with respect to existing portfolio and programs
  - Strategic dialogue with Real Estate consultant (RCLCO) around alternatives
  - Programmatic JV opportunities
  - REOC partnership opportunities
  - Open-ended fund searches
  - Real Estate Investment Trust (REIT) Strategy
  - Real Asset Completion Portfolio

2. Report on Investment Actions for Quarter Ending December 31, 2019

Investment Actions
Quarter Ending December 31, 2019

Public Equity

- In order to maintain the Fund's exposure to Public Equities at the target weight of 37%, Staff redeemed $1,485 million during the quarter:
  - $550 million from MCM S&P 500
  - $200 million from MCM World ex-US
  - $150 million from Lazard Global
  - $150 million from AQR Global
  - $100 million from Acadian International Value
  - $100 million from JP Morgan International Growth
  - $50 million from McKinley Global
  - $50 million from CastleArk US Growth
  - $135 million from APFC In-House Tactical
- In December 2019, APFC Staff added $100 million to the internally managed APFC Domestic Value Strategy; the source of capital came from partial redemption ($100 million) from APFC SPDR Momentum ETF

Absolute Return

New Investments/Commitments in Fiscal Q2

- $300 million to Samlyn Capital
- $50 million to Dorsal Capital (additional subscription)
- $80 million to Millennium Management (additional subscription)
- $58 million to Elliott Associates (additional subscription)

Total: $488 million

Investment Actions (continued)
Quarter Ending December 31, 2019

Private Income

Fund Commitments Closed in Fiscal Q2

- $75 million to LBC V (private credit)
- $75 million to Peppertree VIII (infrastructure)
- $40 million to HPS Mezzanine 2019 (private credit)
- $75 million to Sprott Resource Lending II (income opportunities)

Total: $265 million

Direct Investments and Co-Investments Closed in Fiscal Q2

- $17 million to Omnicare (alongside Permira Adivsors)
- $30 million to Pegasus Optimization (alongside EQT Infrastructure)

Total: $47 million

Private Equity & Special Opps

Fund Commitments Closed in Fiscal Q2

- $40 million to ARA Fund I
- $30 million to Advent Latin America VII
- $100 million to Crestline Advisory II
- $45 million to Charlesbank Technology Opps
- $103 million to KPS V & Mid-Cap
- $70 million to Green Equity VIII and Jade Fund
- $65 million to TA Select Opps
- $15 million to Insight XI
- $20 million to Fortissimo V
- $21 million to North Edge III
- $50 million to Clearlake VI
- $20 million to Altitude Life Sciences Ventures Side Fund II
- $19 million to Incline V

Total: $598 million

Direct Investments and Co-Investments Closed in Fiscal Q2

- $30 million in Vir Bio (follow-on investment)
- $25 million in Cogen
- $10 million in DoiT
- $100 million in Capital Constellation (unfunded follow-on)
- $6 million in Foundation Health (follow-on investment)

Total: $171 million

Investment Actions (continued)
Quarter Ending December 31, 2019

Total Fund Cash

- State Transfers
  - 10/3 transferred $300 mm from ERA to State's General Fund
  - 10/15 transferred $300 mm from ERA to State's General Fund
  - As of January 31, 2020, APFC has transferred $2,550 million with $383 million remaining for FY 2020
- Funded $668 million net of distributions across private market markets investments
- $94 million received in the quarter from DNR royalty proceeds

3. Active Equity Manager Scorecard

Performance – Net-of-Fee Annualized Excess Returns over an 8 year period

External Managers Excess Returns

Year	Fee	Gross of Fee	Net of Fee	Net USD Value	**Average Annual Net of Fee**
2019	0.28%	0.58%	0.30%	+62.7mm	**0.28% (8 yrs)**
2018	0.27%	-0.80%	-1.07%	-216.4mm	**0.28% (7 yrs)**
2017	0.28%	1.51%	1.23%	+253.2mm	**0.51% (6 yrs)**
2016	0.26%	-0.17%	-0.44%	-71.8mm	**0.36% (5 yrs)**
2015	0.25%	0.97%	0.72%	+120.0mm	**0.56% (4 yrs)**
2014	0.22%	-0.12%	-0.34%	-57.8mm	**0.51% (3 yrs)**
2013	0.24%	1.50%	1.26%	+195.6mm	**0.93% (2yrs)**
2012	0.25%	0.84%	0.60%	+75.1mm	
Average Annualized	**0.26%**	**0.55%**	**0.28%**		
Cummulative Net Value-Add (8 yrs)				**$360,780,561**	

9) Audit RFP Update

Audit RFP Update Memo

ALASKA PERMANENT FUND CORPORATION

SUBJECT:	Audit RFP Update	ACTION:	X
DATE:	February 19, 2020	INFORMATION:	

BACKGROUND:

APFC has a five-year contract in place with KPMG for external financial audit services which will expire on February 28, 2020.

At the December board meeting, staff presented a draft of the request for proposal and outlined the RFP process.

STATUS:

The RFP was issued on December 16th. Responsive proposals were received from KPMG, Crowe and Eide Bailly by the deadline of January 17th.

The proposals were scored by the evaluation committee, consisting of Chris LaVallee, Valeria Buschfort, Jacki Mallinger, Sara Race and Maggie Meiners.

Of the three firms, KPMG's proposal received the highest score. The notice of intent to award was issued to KPMG on February 10th. The 10-day protest period ends on February 21st.

RECOMMENDATION:

Staff is requesting board approval of the following motion:

To approve the appointment of KPMG as the Alaska Permanent Fund Corporation's independent financial auditor and authorize staff to enter into a contract for a period of five years with three one-year renewal options, subject to satisfactory negotiation of terms.

Presentation: Audit RFP Update

APFC

ALASKA PERMANENT
FUND CORPORATION

Audit RFP Update

February 19, 2020

Audit RFP Timeline

Draft RFP	November 29
Board Feedback	December 3 - 4
Finalize RFP	December 13
Release RFP	December 16
Proposals Due	January 17
Evaluation Period	January 20 - February 7
Notice of Intent to Award	February 10
End of Protest Period	February 21
Board Consideration/Approval	February 19
Contract Negotiation	March 2 - 13
Contract Begins	March 16

Proposals

15 Firms Contacted Directly

Three Responses Received:

- KPMG
- Crowe
- Eide Bailly

Evaluation Committee

Chris LaVallee, Senior Portfolio Accountant (Public)

Valeria Buschfort, Senior Portfolio Accountant (Private)

Jacki Mallinger, Portfolio Accountant II

Sara Race, Administrative Operations Manager

Maggie Meiners, Executive Assistant & Board Liaison

Score Weighting

Organization Experience & Qualifications	25%
Qualifications & Experience of Personnel	25%
Understanding of Work to be Performed	10%
Value Add	10%
Cost	20%
Alaskan Offeror's Preference	10%
	100%

Notice of Intent to Award

Issued to KPMG

February 10

Protest period ends

February 21

Questions?
Proposed Motion in Memo

10) Risk Overview

Risk Overview Memo

APFC ALASKA PERMANENT FUND CORPORATION
801 W 10TH SUITE 302 | JUNEAU, AK 99801
907.796.1500 | apfc.org

SUBJECT: Risk Overview ACTION: ____

DATE: February 3, 2020 INFORMATION: ___X_

BACKGROUND:

The Risk Report provides an overview of historical and forward-looking measures of risk for the Total Fund and its underlying asset classes.

STATUS:

The Risk Overview is in two parts:

- **Part 1**: compares current risk levels to the ***proposed*** Risk Tolerance Portfolio (RTP); compares the proposed 2025 asset allocation risk levels to RTP; highlights risks with increased private asset allocations, both in terms of investment risk as well as in terms of operational risks and resource adequacy.

- **Part 2**: includes some of the key measures of the Risk for the fund. The APFC's key risk measures include Value at Risk (VaR) on a standalone and relative-to-benchmark basis, tracking error, statistics that measure realized volatility and Sharpe Ratios, asset class and factor contributions to risk and risk scenarios. It also covers Geographic, Currency, and Liquidity risks for the Total Fund.

Presentation: Risk Overview

APFC

ALASKA PERMANENT
FUND CORPORATION

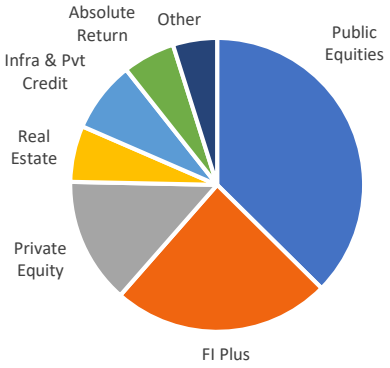
Risk Overview

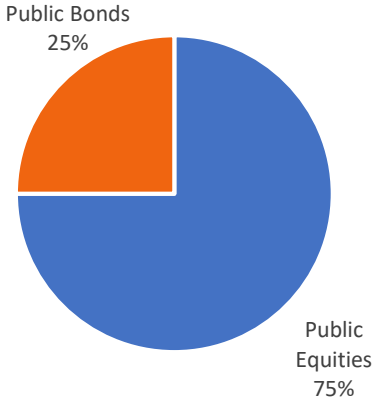
February 19, 2020

Part 1:
Changing Risk Profile

Risk Appetite: how it works *[refresh from previous BOT meeting]*

Risk of Actual Portfolio < **Risk of RTP***





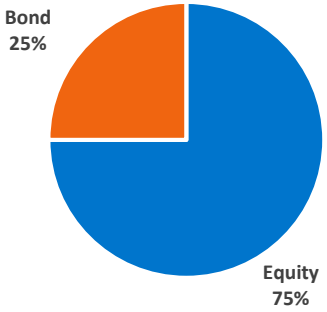
The actual APFC portfolio can have any type and mix of asset classes subject to:

- ✓ Drawdowns <= that of RTP*, when the same 3 drawdown stresses are applied
  - Drawdown-1: estimated drawdown applying '2007 credit crisis'
  - Drawdown-2: estimated drawdown applying '2008 crash' stress
  - Drawdown-3: estimated drawdown applying '2008/9 recession'
- ✓ VaR (volatility) <= that of RTP*
- ✓ Liquid Assets >= 55% of NAV
- ✓ Liquidity Pool >= 2% of NAV

* RTP: Risk Tolerance Portfolio

RTP: thresholds *[refresh from previous BOT meeting]*

Asset Mix



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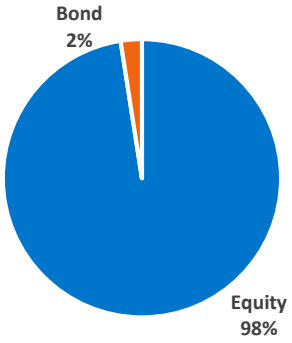
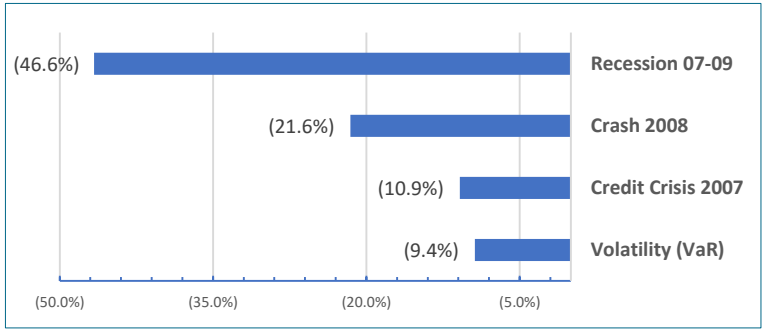
Risk (VaR) Mix



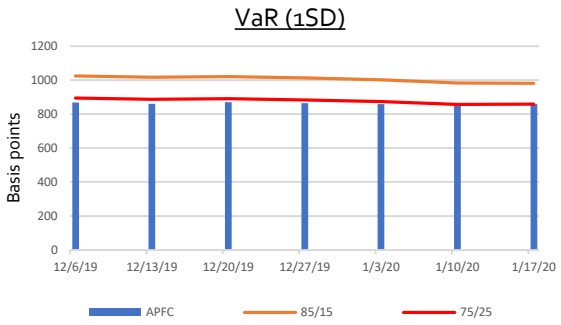
The estimated drawdown and volatility levels for the RTP, as computed by BlackRock Aladdin, are provided below

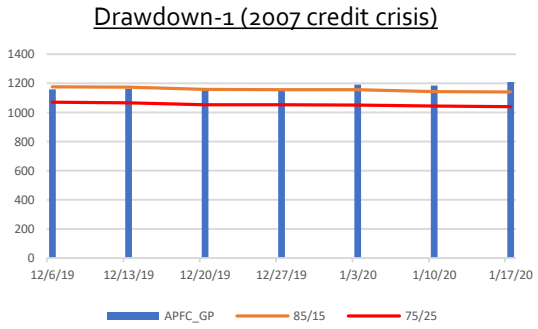


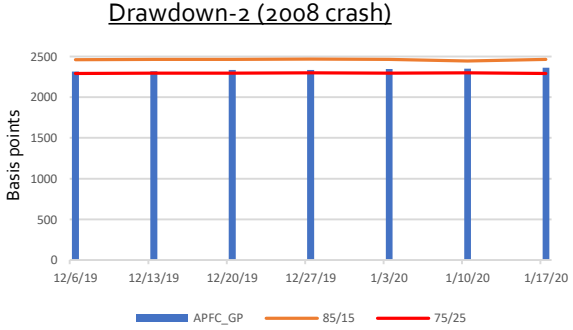
Based on 9/30/19 MV of Fund of $66.1 bn	In $ billions
Volatility (VaR)	(6.2)
Credit Crisis 2007	(7.2)
Crash 2008	(14.3)
Recession 07-09	(30.8)

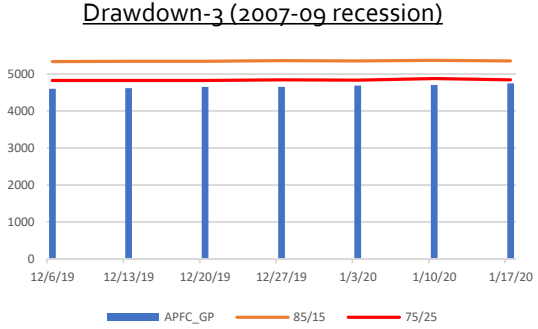
Note: the drawdown and VaR quantum are not absolute static numbers, they are dynamic and would vary based on market data of computation date

Risk Appetite: Actual vs. Risk Tolerance Portfolio (RTP)







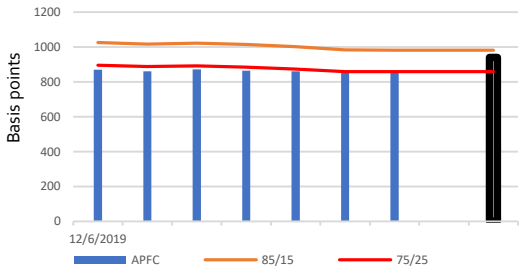


The actual APFC portfolio was measured against the 75/25 RTP (the 85/15 level is also shown) weekly over the 7 weeks since previous BOT, for the following metrics:

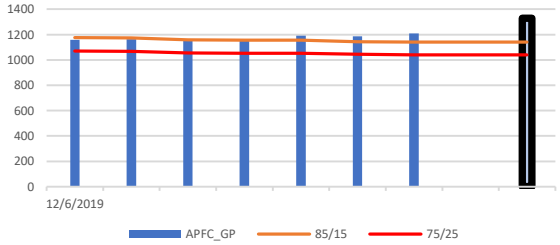
- **VaR:** APFC portfolio was within the 75/25 RTP for all 7 times
- **Drawdown-1:** APFC portfolio exceeded 75/25 RTP for all 7 times (and exceeded even the 85/15 level in 5 times)
- **Drawdown-2:** APFC portfolio exceeded 75/25 RTP for all 7 times (but was within 85/15)
- **Drawdown-3:** APFC was within 75/25 RTP for all 7 times

Risk Appetite: 2025 projection (Vs.) RTP

VaR (1SD)

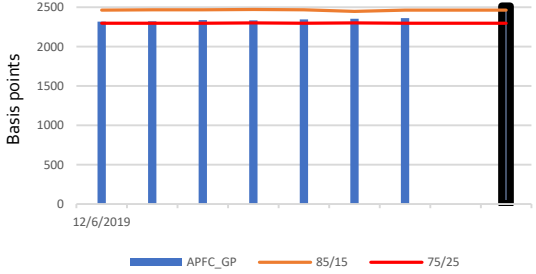


Drawdown-1 (2007 credit crisis)

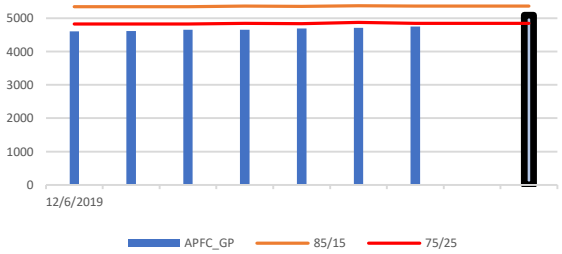


Projected 2025 APFC

Drawdown-2 (2008 crash)



Drawdown-3 (2007-09 recession)

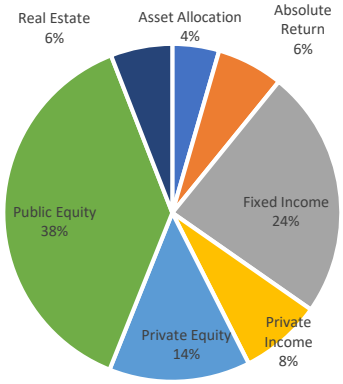


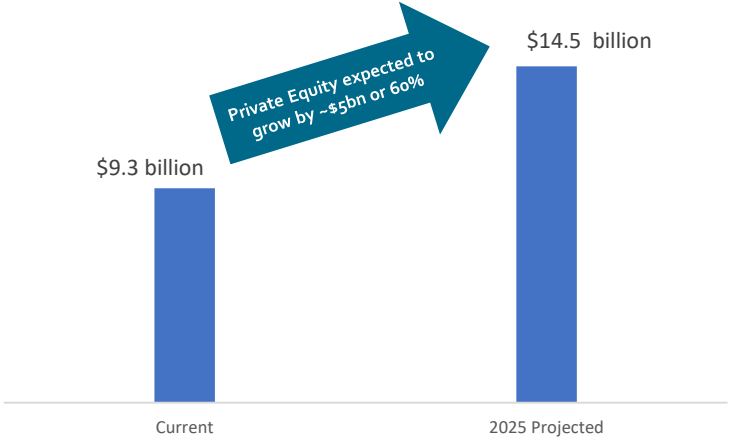
The '*projected 2025*' APFC portfolio was measured against the 75/25 RTP (the 85/15 level is also shown), for the following metrics:

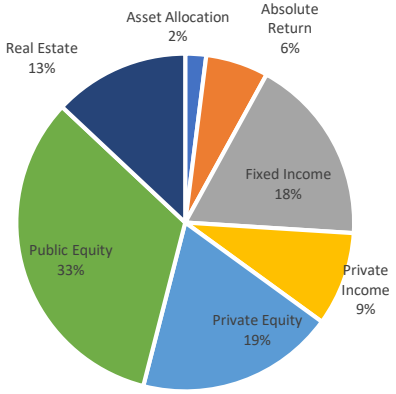
- **VaR**: 'Projected 2025' APFC portfolio VaR exceeded 75/25 RTP, and was almost equal to 85/15 level.
- **Drawdown-1:** 'Projected 2025' APFC portfolio exceeded 75/25 RTP, and exceeded the 85/15 level as well
- **Drawdown-2:** 'Projected 2025' APFC portfolio exceeded 75/25 RTP, and exceeded the 85/15 level as well
- **Drawdown-3:** 'Projected 2025' APFC portfolio exceeded 75/25 RTP, and was almost equal to 85/15 level.

Asset Allocation Changes: projected 2025 risk levels

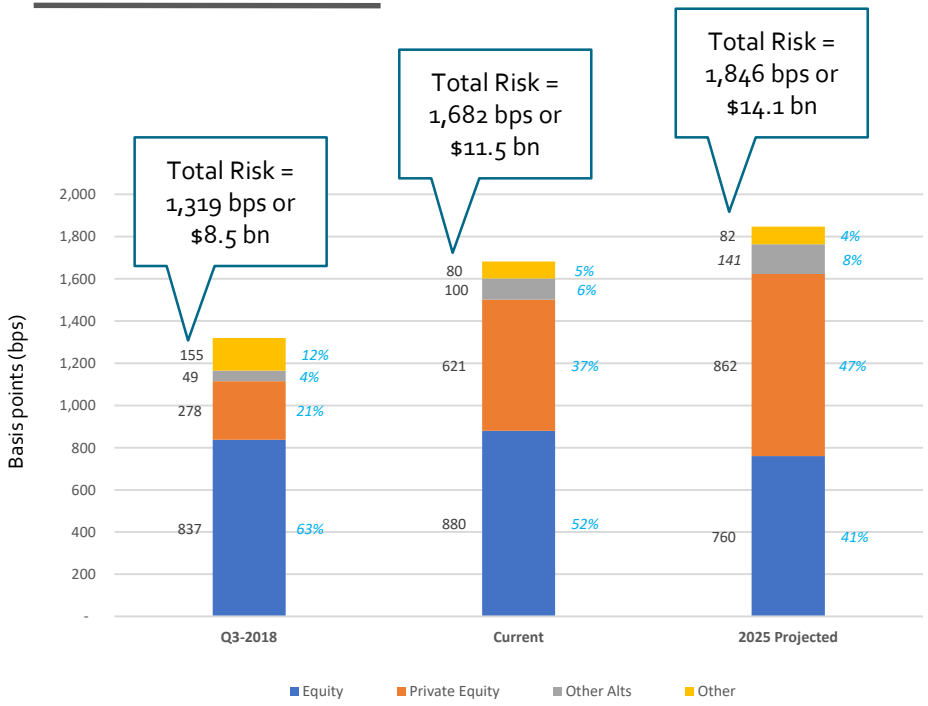
- In risk terms, a significant change in the proposed 5-year asset allocation is the 5% increase to Private Equity (i.e. an ~40% increase in the asset class proportion and an almost 60% increase in $ terms, assuming LT target returns for fund)
- The other key changes include: increased real estate and lower public equity allocations







.....Impact on investment Risk numbers



Risk (VaR) 1 year, 97.5% cl
In basis points [the %s in blue reflect proportions]

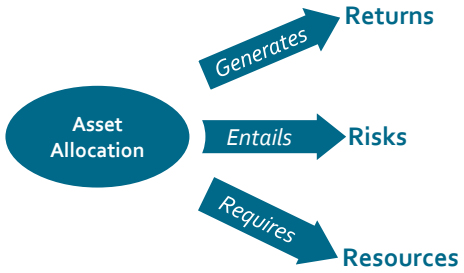
98

- Over the next 5 years, risk (VaR) is expected to increase by ~23% in $terms
- Most of the increase in risk is driven by increased allocation to private equity
- Private equity contribution to total risk is expected to increase from the current 37% to 47%, replacing public equities as the largest component of the risk pie
- Besides VaR, private equity is inherently less liquid than public equity.

.....operational & other risks

- The private equity portfolio's projected expansion is significant. The combined Private Equity & Private Income allocation is projected to be just under 30% of the total Fund.
- In addition, the Real Estate portfolio is expected to reach its target allocation of 12%, almost doubling from current levels.
- Besides quantitative investment risks, the significant expansion in these **private asset portfolios** potentially entail material **operational risks**:
  - **HR risks**: retention and expansion of talent (*investment, analytics and support functions*)
  - **System risks**: adequate & appropriate systems and data to record, analyze and monitor
  - **Process risks**: strengthen investment, divestment and monitoring process
- Existing resources / infrastructure seem barely adequate for current levels of such activity
- Proactive enhancement of infrastructure is essential for successful expansion of private assets portfolios

Asset Allocation: has multi-dimensional implications



- Asset allocation should <u>not</u> be driven solely by Return considerations. Return is just one of the aspects
- Risk (appetite) should be the other key driver
- Besides investment/financial risk, operational risks should be considered:
  - Adequacy of Resources (operational risk) should be a key sub-consideration. Aspirations and Capabilities should be aligned
  - Capability requirements, and consequently infrastructure costs, vary based on asset class type, in addition to volume, size and dispersion – a $1 private asset investment requires a different (possibly higher) resource requirement compared to $1 public equity investment
  - Budgetary constraints are likely to conflict with asset allocation aspirations – an appropriate balance should be achieved
  - Importantly, the appetite for operational risk should be de minimis: i.e. ***the tolerance for loss resulting from inadequate or failed internal processes, people and systems should be very low***

Key Takeaways

- Asset allocation should not be driven solely by Return considerations. Return is just one of the aspects. Risk (appetite) should be the other key driver

Investment Risks are projected to increase:

- The current risk levels are at or just above the 75/25 RTP levels.
- The planned 2025 asset allocation is expected to take risk levels well above the 75/25 level and even over the 85/15 level

Operational risks should be also considered:

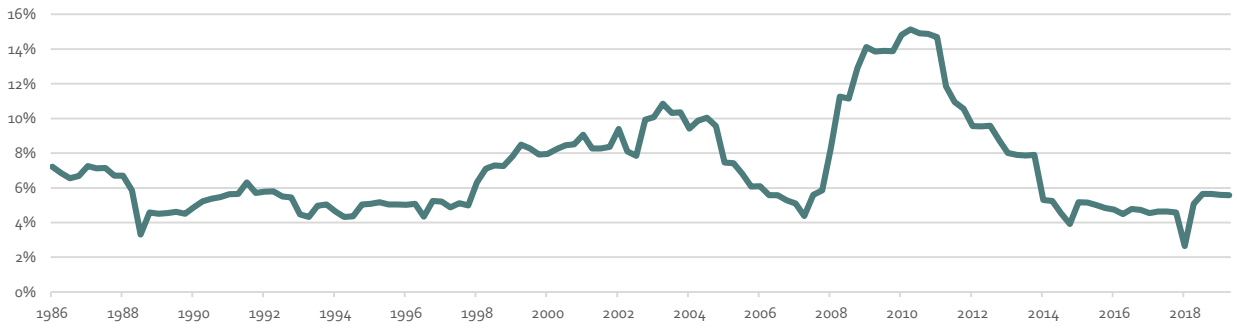
- Adequacy of Resources (operational risk) should be a key sub-consideration. Aspirations and Capabilities should be aligned
- Current infrastructure and capability set seem grossly inadequate for planned asset allocation (expansion of private assets)
- Budgetary constraints are likely to conflict with asset allocation aspirations – an appropriate balance should be achieved
- ***For APFC, appetite for loss resulting from inadequate or failed internal processes, people and systems (operational risk) should be very low – operational risk is not the intended driver of returns***

Part 2:
Key Risk Metrics

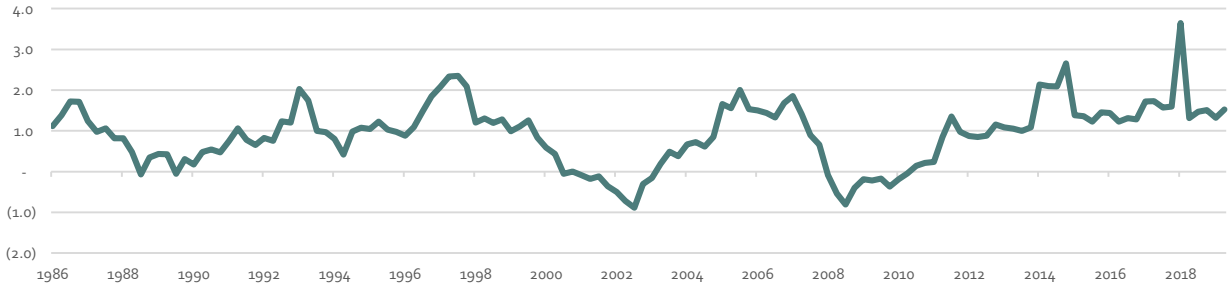
As of December 31, 2019

Total Fund: Realized Volatility & Sharpe Ratio

Realized Fund Volatility



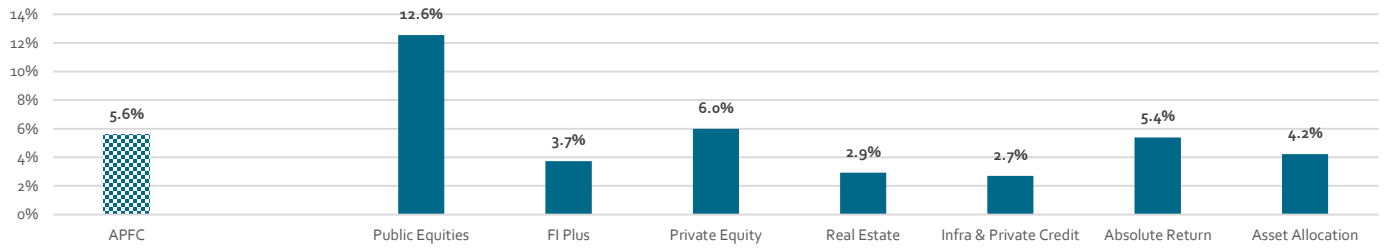
Realized Fund Sharpe Ratio



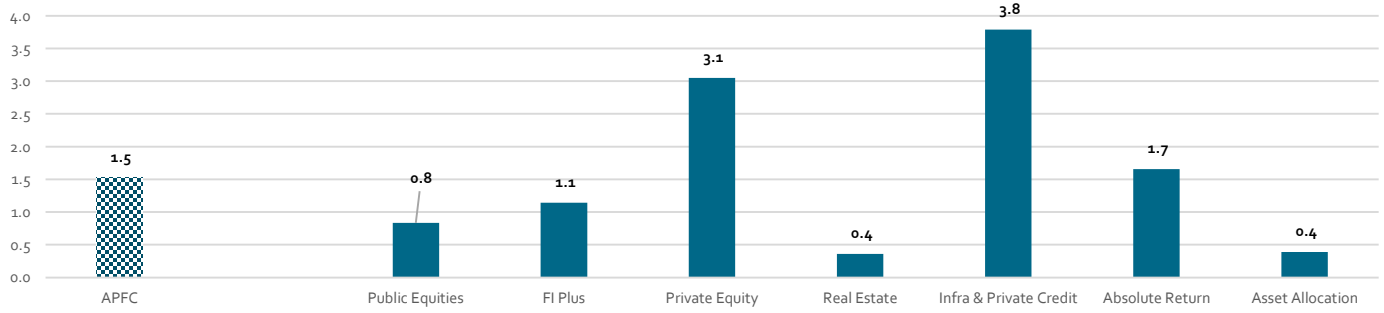
Volatility (standard deviation) and Sharpe ratio have been computed based on rolling 3 year quarterly returns for the Total Fund

Fund & Constituents: Volatility and Sharpe Ratio as of Dec. 31, 2019

Volatility

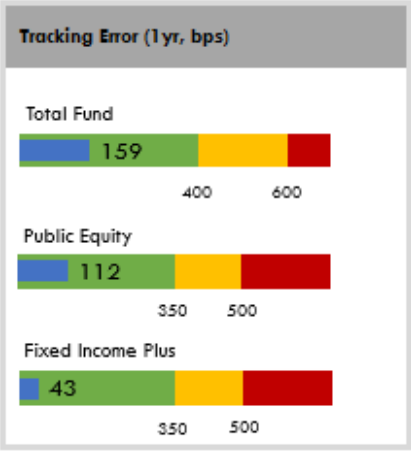


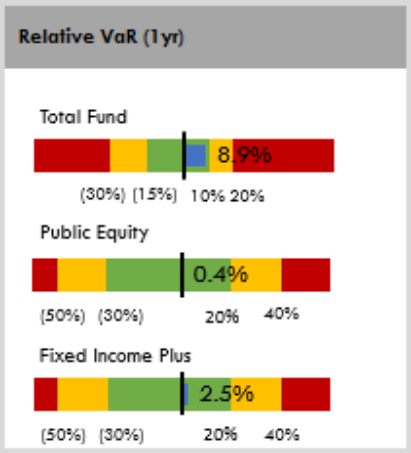
Sharpe Ratio



Volatility (standard deviation) and Sharpe ratio have been computed based on historical 3 year quarterly returns, as of December 31, 2019

Tracking Error and VaR: (Vs) Limits

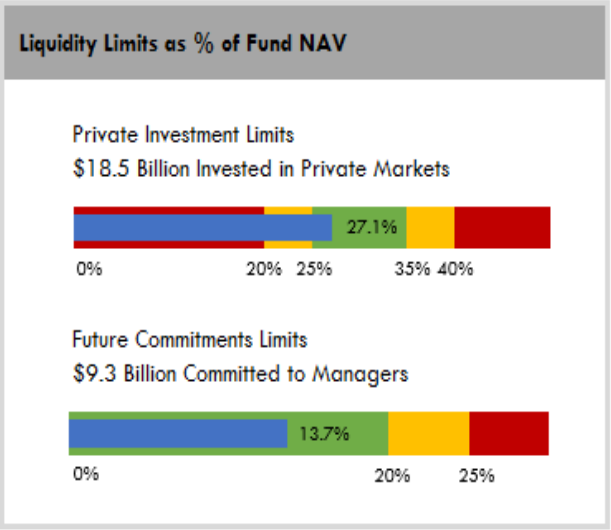




- Tracking error is an indicator of performance relative to benchmark
- It represents the deviation of portfolio returns from benchmark returns
- It is directionally agnostic and does not indicate over or underperformance

- VaR is an estimate of value decline, based on a 97.5% confidence level and 1 year holding period
- The above chart reflects the Relative VaR of the portfolio versus respective benchmark

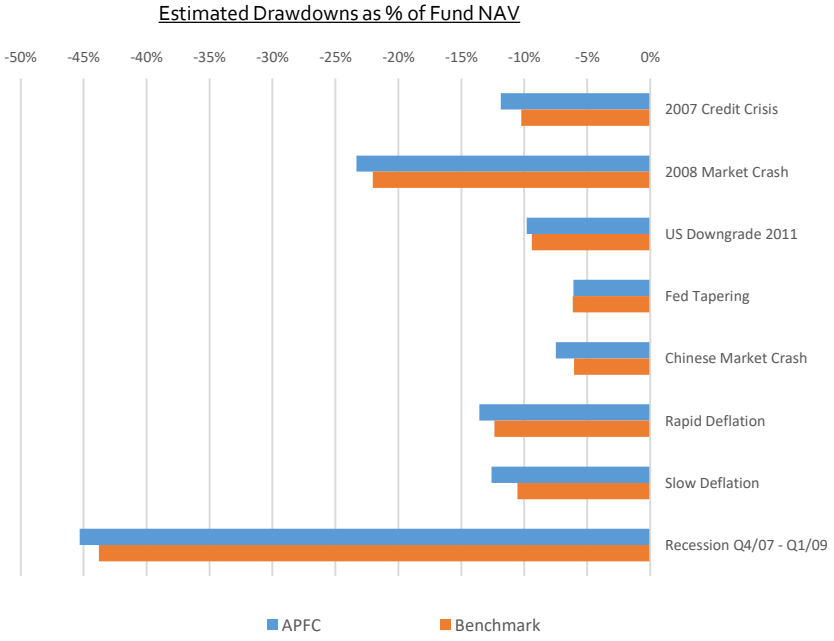
Liquidity Limits: Private Assets



- Private Investments include Private Equity, Infrastructure & Private Income, and Real Estate portfolios
- Both investments made and future commitments were within the stipulated limits

Tail Risk: Current portfolio during extreme events

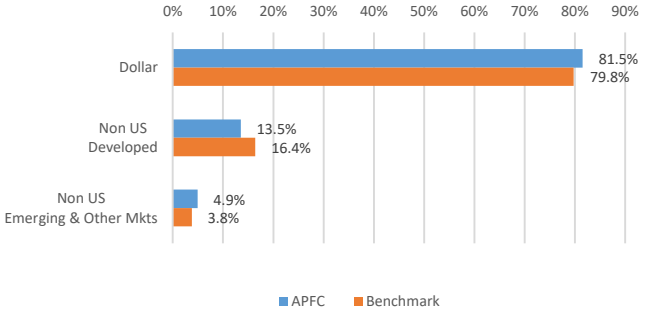
Scenario	Definition
2007 Credit Crisis	Credit & liquidity crisis stemming from a severe slowdown in the housing market causing significant widening of credit spreads, higher implied volatility.
2008 Market Crash	S&P 500 down 20% (2000 bps).
US Downgrade 2011	The period starts with 50% chance US downgrade indication from S&P standards and ends with Operational Twist announcement from the Fed
Fed Tapering Talk 2013	Equity & bond markets sold off. EM suffered badly due to hot money flight back to U.S.
Chinese Market Crash	Chinese stock market crash beginning with the popping of the stock market bubble on June 12, 2015.
Rapid Deflation	Oil down 60% (6000 bps); ST Inflation down 350 bps; Mortgage spreads tighten 25 bps.
Slow Deflation	LT deflation down 200 bps; LT Treasury Rates down 100 bps; Mortgage spreads tighten 25 bps.
Recession Q4/07-Q1/09	Recent recessionary period starting Dec3, 2007 and ending March9, 2009



The estimated drawdowns for the fund exceed that of the benchmark in almost all scenarios

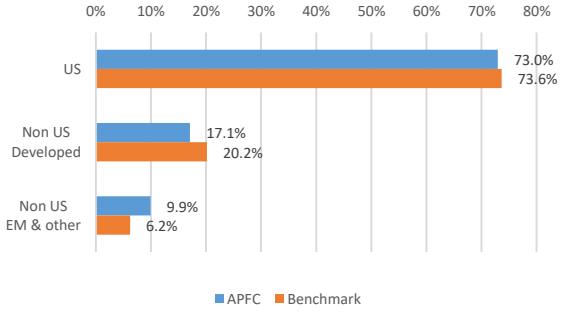
Currency & Geography: breakdowns

Currency breakdown



Currency Name	Exposure ($, millions)
Euro	3,071
Japanese Yen	1,658
British Pound	1,372
Hong Kong Dollar	1,105
Canadian Dollar	696
Sub-Total	**7,902 (11.6% of NAV)**
Total Non-US DM Exposure	**9,225 (13.5% of NAV)**

Country breakdown



Country Name	Exposure ($, millions)
China	1,406
South Korea	430
India	423
Taiwan	396
Brazil	334
Sub-Total	**2,989 (4.4% of NAV)**
Total EM & Other Exposure	**6,755 (9.9% of NAV)**

ALASKA PERMANENT FUND CORPORATION

Daily Dashboard - December 31, 2019

NAV : $ 68,235,007,519

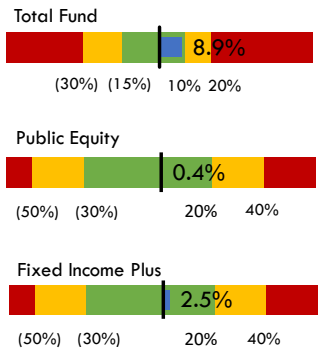
Performance (%) *

Asset Class	MTD	FYTD	CYTD	1 Year
Total Fund	1.67	5.27	15.33	15.33
Public Equity**	3.85	9.39	26.35	26.35
Fixed Income Plus	0.74	3.90	13.70	13.70
PE & Special Opps	0.05	1.94	8.32	8.32
Real Estate	0.47	2.13	0.51	0.51
Inf. & Private Income	0.42	3.00	7.72	7.72
Absolute Return	0.00	1.49	3.76	3.76
Asset Allocation**	0.15	1.41	7.52	7.52

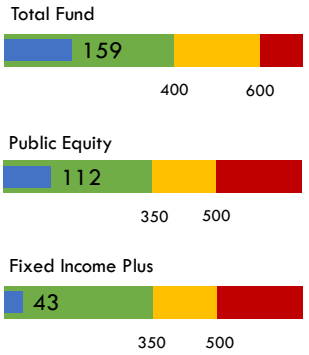
Asset Allocation*

	NAV (m)	NAV	Target	Compliance	Over/Under
Total Fund	68,235,008				
Public Equity**	25,688,157	37.6%	37%		0.6%
Fixed Income Plus	16,188,095	23.7%	20%		3.7%
PE & Special Opps	9,190,005	13.5%	13%		0.5%
Real Estate	4,000,476	5.9%	12%		-6.1%
Inf. & Private Income	5,325,581	7.8%	8%		-0.2%
Absolute Return	4,333,695	6.4%	5%		1.4%
Asset Allocation**	3,508,999	5.1%	5%		0.1%

Relative VaR (1yr)



Tracking Error (1yr, bps)



Investment Objectives

	NAV	Target	Compliance	Over/Under
Growth	62.6%	60%		2.6%
Income	37.4%	40%		-2.6%
Tradable	66.5%	65%		1.5%
Illiquid	33.5%	35%		-1.5%

Private Investments Limits

	NAV	Target	Compliance	Over/Under
Private Assets	27.1%	30.0%		-2.9%

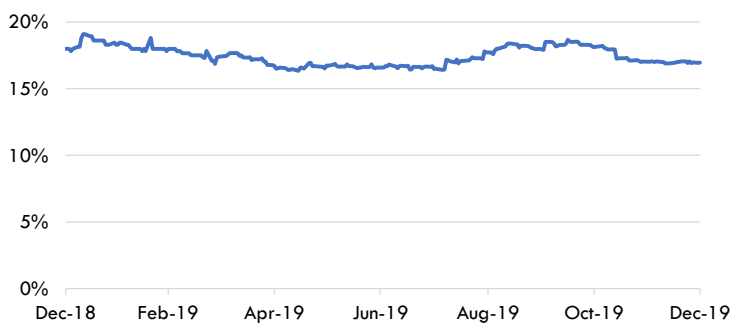
Cash in Asset Allocation asset class

	NAV	Benchmark Weight	Over/Under
Cash	4.1%	2.0%	2.1%

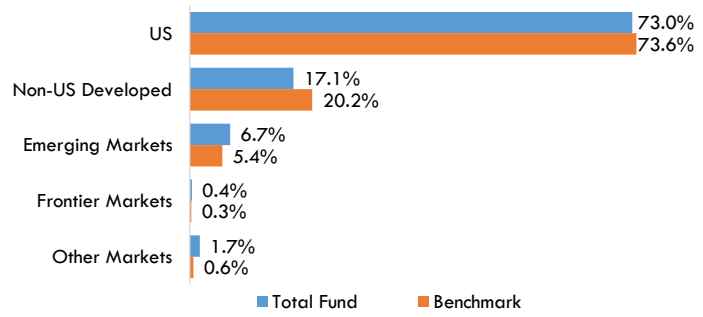
Economic Indicator ($) ***

	12/31/19	12/30/19
VIX	13.78	14.82
U.S. Dollar/Euro	1.12	1.12
Credit Index OAS	0.90	0.91
Crude Oil (WTI)	61.06	61.68
10-Year Treasury Yield	1.92	1.88
30-Year Treasury Yield	2.39	2.33
S&P 500	3,230.78	3,221.29

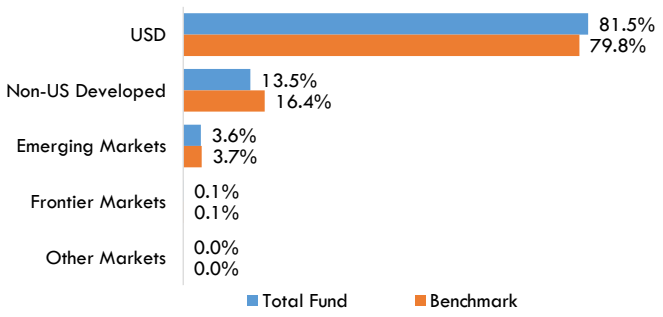
VaR (1yr, 97.5%) as a % of Total Fund NAV



Country Exposures



Currency Exposures



* Performance returns and Asset Allocation valuations are obtained from custodian.

** FX Overlay is not included in any asset class for performance but included in Asset Allocation asset class for asset allocation and net asset value (NAV).

*** Economic indicator data is obtained from Bloomberg.

11) Capital Market Overview

Callan

February 19, 2020

Alaska Permanent Fund Corporation

4th Quarter 2019
Capital Markets Review

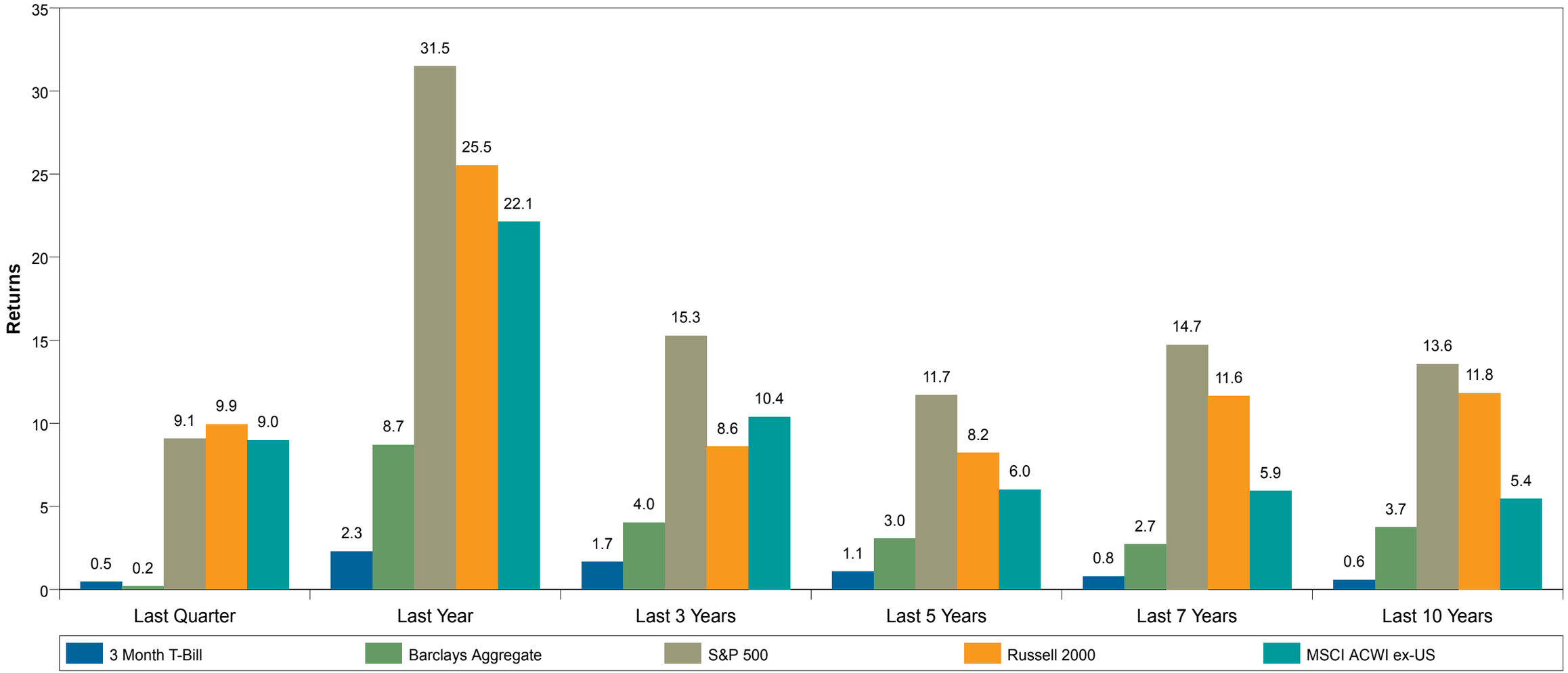
Greg Allen
CEO and Chief Research Officer

Steven Center, CFA
Senior Vice President

Chris Park, CFA
Assistant Vice President

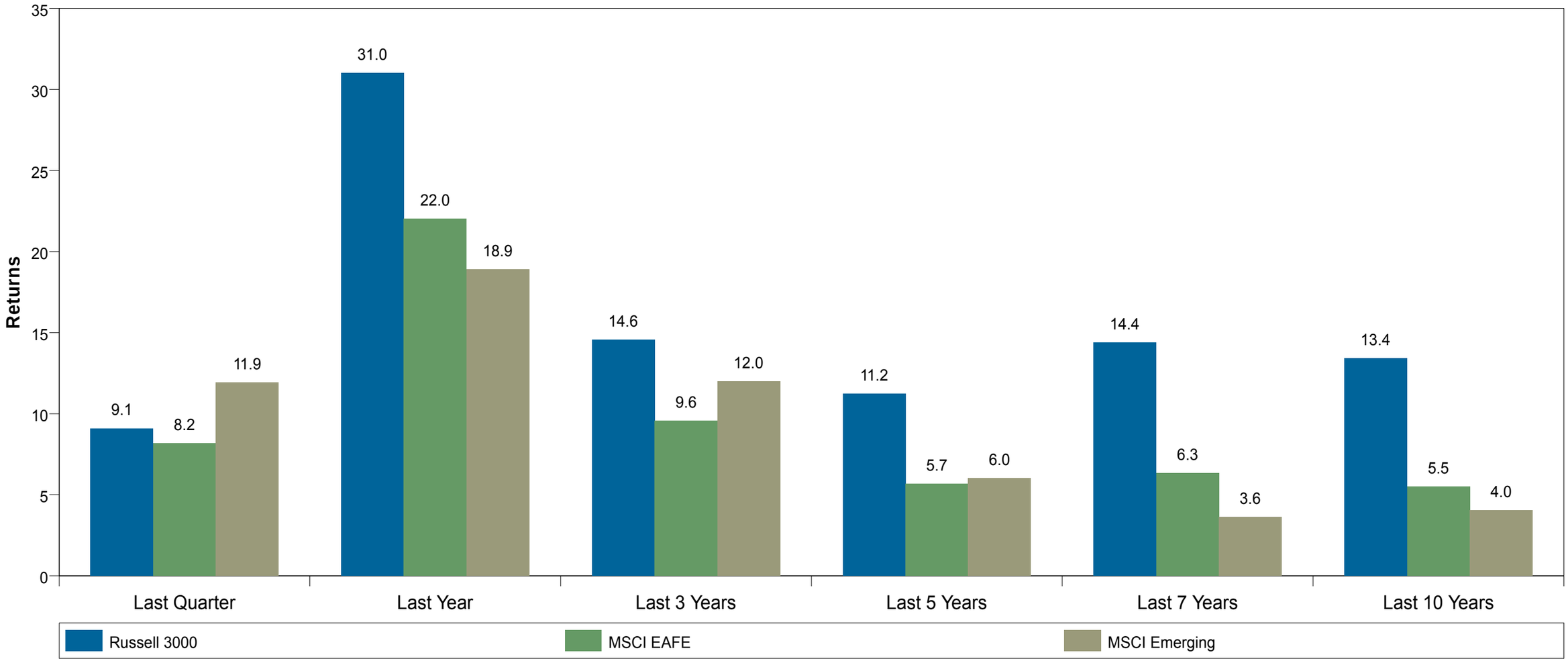
Broad Capital Market Performance

Periods Ended December 31, 2019



Public Equity Capital Market Performance

Periods Ended December 31, 2019



Callan Periodic Table of Investment Returns

Returns for Key Indices

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
MSCI ACWI ex USA SC 25.20%	Bloomberg Barclays Aggregate 7.84%	MSCI ACWI ex USA SC 18.52%	Russell 1000 33.11%	S&P 500 13.69%	MSCI ACWI ex USA SC 2.60%	Bloomberg Barclays Corp High Yield 17.13%	MSCI Emerging Markets 37.28%	Bloomberg Barclays Aggregate 0.01%	S&P 500 31.49%
MSCI Emerging Markets 18.88%	Bloomberg Barclays Corp High Yield 4.98%	MSCI Emerging Markets 18.23%	S&P 500 32.39%	Russell 1000 13.24%	S&P 500 1.38%	Russell 1000 12.05%	MSCI ACWI ex USA SC 31.65%	Bloomberg Barclays Corp High Yield -2.08%	Russell 1000 31.43%
Russell 1000 16.10%	Bloomberg Barclays Global Agg ex US 4.36%	Russell 1000 16.42%	MSCI World ex USA 21.02%	Bloomberg Barclays Aggregate 5.97%	Russell 1000 0.92%	S&P 500 11.96%	MSCI World ex USA 24.21%	Bloomberg Barclays Global Agg ex US -2.15%	MSCI World ex USA 22.49%
Bloomberg Barclays Corp High Yield 15.12%	S&P 500 2.11%	MSCI World ex USA 16.41%	MSCI ACWI ex USA SC 19.73%	Bloomberg Barclays Corp High Yield 2.45%	Bloomberg Barclays Aggregate 0.55%	MSCI Emerging Markets 11.19%	S&P 500 21.83%	S&P 500 -4.38%	MSCI ACWI ex USA SC 22.42%
S&P 500 15.06%	Russell 1000 1.50%	S&P 500 16.00%	Bloomberg Barclays Corp High Yield 7.44%	MSCI Emerging Markets -2.19%	MSCI World ex USA -3.04%	MSCI ACWI ex USA SC 3.91%	Russell 1000 21.69%	Russell 1000 -4.78%	MSCI Emerging Markets 18.44%
MSCI World ex USA 8.95%	MSCI World ex USA -12.21%	Bloomberg Barclays Corp High Yield 15.81%	Bloomberg Barclays Aggregate -2.02%	Bloomberg Barclays Global Agg ex US -3.09%	Bloomberg Barclays Corp High Yield -4.47%	MSCI World ex USA 2.75%	Bloomberg Barclays Global Agg ex US 10.51%	MSCI World ex USA -14.09%	Bloomberg Barclays Corp High Yield 14.32%
Bloomberg Barclays Aggregate 6.54%	MSCI Emerging Markets -18.42%	Bloomberg Barclays Aggregate 4.21%	MSCI Emerging Markets -2.60%	MSCI ACWI ex USA SC -4.03%	Bloomberg Barclays Global Agg ex US -6.02%	Bloomberg Barclays Aggregate 2.65%	Bloomberg Barclays Corp High Yield 7.50%	MSCI Emerging Markets -14.57%	Bloomberg Barclays Aggregate 8.72%
Bloomberg Barclays Global Agg ex US 4.95%	MSCI ACWI ex USA SC -18.50%	Bloomberg Barclays Global Agg ex US 4.09%	Bloomberg Barclays Global Agg ex US -3.08%	MSCI World ex USA -4.32%	MSCI Emerging Markets -14.92%	Bloomberg Barclays Global Agg ex US 1.49%	Bloomberg Barclays Aggregate 3.54%	MSCI ACWI ex USA SC -18.20%	Bloomberg Barclays Global Agg ex US 5.09%

Source: Bloomberg Barclays, FTSE Russell, MSCI, Standard & Poor's

Market Environment

Does Strong 2019 Spell Problems for 2020 and Beyond?

Equity markets around the globe surged in Q4, and closed the year with outsized returns.

- S&P up 31.5%, World ex USA up 22.5%, even Emerging Markets up 18.4%. One-year results look particularly strong thanks to the sharp drop in Q4 2018—lower starting point.
- Fed rate cuts, solid corporate fundamentals, and even lower unemployment propelled U.S. equity markets in Q4.
- Prospect of a trade deal helped boost global ex-U.S. markets.
- Economic weakness, trade concerns remain for developed ex-U.S. and EM equities.

Fixed income markets enjoyed an "outlier" year.

- Aggregate up 8.7%, contrary to all forecasts
- Investment grade credit the strongest performer in the U.S.; long credit up 22.4%
- Yield curve shifted lower across maturities; inverted from 90-day to 10-year in April, then from 2- to 10-year in August, but ended the year no longer inverted.

Returns for Periods ended December 31, 2019

	1 Quarter	1 Year	5 Years	10 Years	25 Years
U.S. Equity					
Russell 3000	9.10	31.02	11.24	13.42	10.21
S&P 500	9.07	31.49	11.70	13.56	10.22
Russell 2000	9.94	25.52	8.23	11.83	9.35
Global ex-U.S. Equity					
MSCI World ex USA	7.86	22.49	5.42	5.32	5.31
MSCI Emerging Markets	11.84	18.44	5.61	3.68	--
MSCI ACWI ex USA Small Cap	11.01	22.42	7.04	6.92	5.93
Fixed Income					
Bloomberg Barclays Aggregate	0.18	8.72	3.05	3.75	5.56
90-day T-Bill	0.46	2.28	1.07	0.58	2.47
Bloomberg Barclays Long Gov/Credit	-1.12	19.59	5.42	7.59	7.90
Bloomberg Barclays Global Agg ex-US	0.67	5.09	1.62	1.50	4.38
Real Estate					
NCREIF Property	1.55	6.42	8.25	10.17	9.34
FTSE Nareit Equity	-0.76	26.00	7.21	11.94	10.64
Alternatives					
CS Hedge Fund	2.44	9.31	2.65	4.25	7.84
Cambridge Private Equity*	0.90	9.50	12.37	13.75	15.30
Bloomberg Commodity	4.42	7.69	-3.92	-4.73	1.70
Gold Spot Price	3.41	18.87	5.16	3.34	5.66
Inflation - CPI-U	0.08	2.29	1.82	1.75	2.18

*Cambridge PE data are available through September 30, 2019.

Source: Callan

US Economy Overview

Gross Domestic Product (GDP) and Inflation (CPI, PPI)

Central bank policy front and center

- The Fed was alone on a path to normalize interest rates, with nine rate hikes in two years.
- Fed reversed course in January. Rates held constant through Q2; rates cut twice in Q3, and once more in Q4, but the Fed signaled no more rate cuts in 2020.

Rest of the global economy is slowing, but U.S. remains strong; labor market very tight, reaching the limits of full employment.

- Solid Q1 GDP growth (3.2%) moderated in Q2 (2.0%), but held up surprisingly well in Q3 (2.1%) and again in Q4 (2.1%), despite slowing global growth and trade uncertainty; growth totaled 2.3% for the year.
- Slower growth seemed inevitable after the impact of 2018 fiscal stimulus faded and full impact of nine rate hikes fed through the economy; Fed pivot has reduced probability of recession in 2020 substantially.
- Policy reversal simultaneously stoked fears of coming slowdown and fed a rally in bonds, which enjoyed an “outlier” year in 2019.

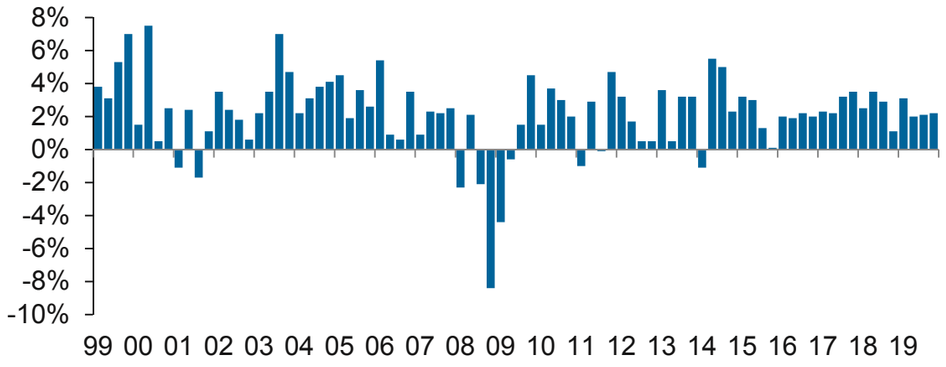
Slowdown in Europe and China weighing on global growth

- Euro zone unemployment has dropped, but economic growth stalled (GDP below 1.5%).
- China has suffered through a dramatic slowdown in growth: industrial output, retail sales, implied GDP. Resolution of trade uncertainty crucial to resumption of growth—far more important to China than the U.S.

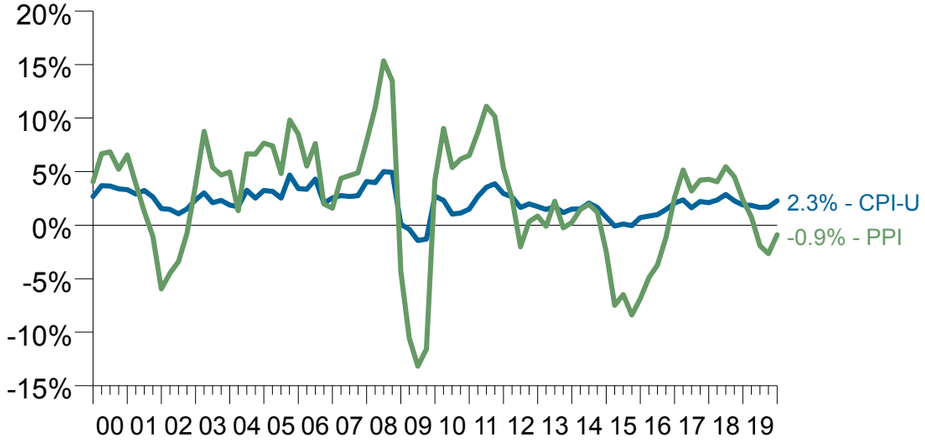
Inflation stuck below 2% in U.S.; even weaker overseas

- Wage pressures in U.S. have yet to translate into headline inflation; low inflation gave the Fed cover to cut rates.

Quarterly Real GDP Growth



Inflation Year-Over-Year



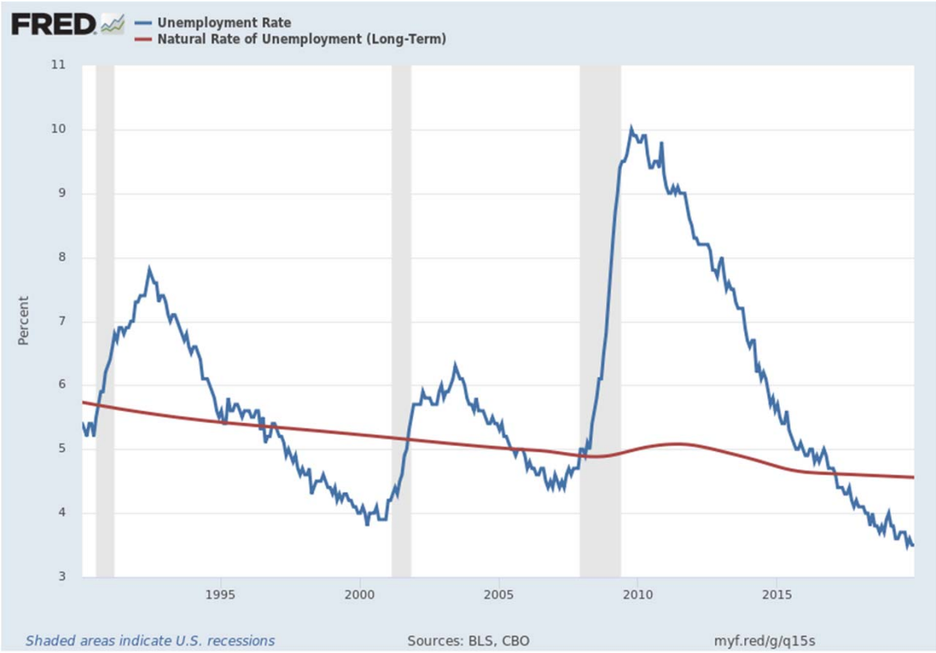
Sources: Bureau of Labor Statistics, Bloomberg, Callan LLC

When Will Inflation Catch Fire? The Job Market Squeeze on Policy

10 years of persistent monetary and fiscal stimulus has caught up to global growth

Discouraged Workers—Not in Labor Force

Actual and Natural Rates of Unemployment (%)



Discouraged worker effect has been pervasive since the Global Financial Crisis

- Gradual, persistent growth has finally coaxed workers back from the sidelines, erasing the slack in the job market.

U.S. unemployment rate has reached a generational low:

- Hit a new low at 3.5% in December 2019
- Well below the long-term natural rate of unemployment

Source: Federal Reserve, U.S. Department of Labor

Broad-Based Inflation Measures Still Benign in the U.S.

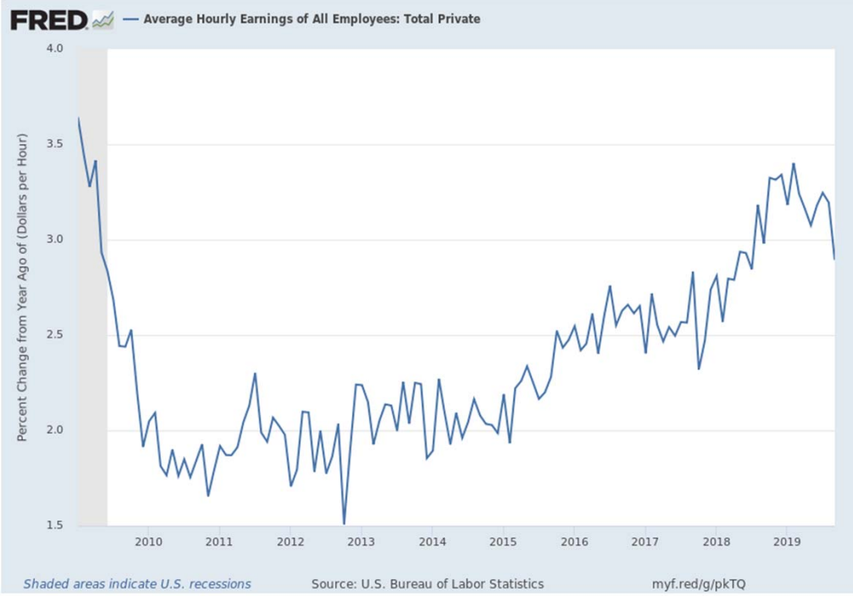
Expectations have fallen again and are low relative to long-term history

10-Year Breakeven Inflation Rate

U.S. breakeven rate recovered somewhat in Q4 2019, after plunging in Q2 and Q3.

- Breakeven rate (TIPS vs nominal Treasury yields) had recovered with oil prices, but expectations weakened as the Fed changed its policy stance.

U.S. Average Hourly Earnings, %Year-over-Year



Wage growth broke through the 3% barrier in the second half of 2018, and continued at this rate through August 2019, dipping below 3.0% in September and Q4.

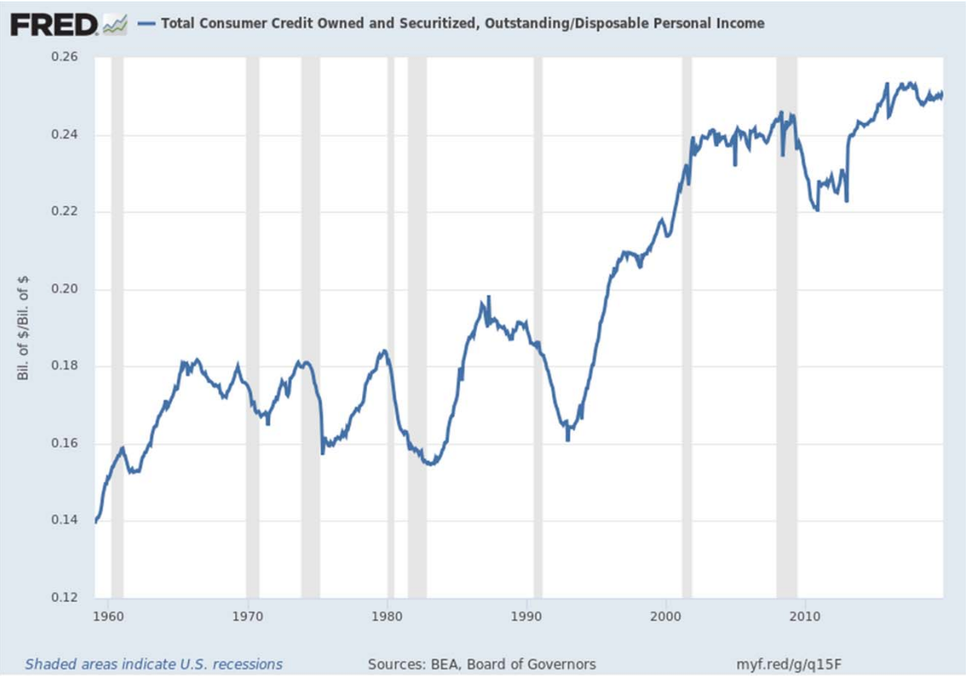
- Steady rise of 2017 has been shrugged off.
- Tight labor markets finally pushing up wages; good news for workers and consumer spending

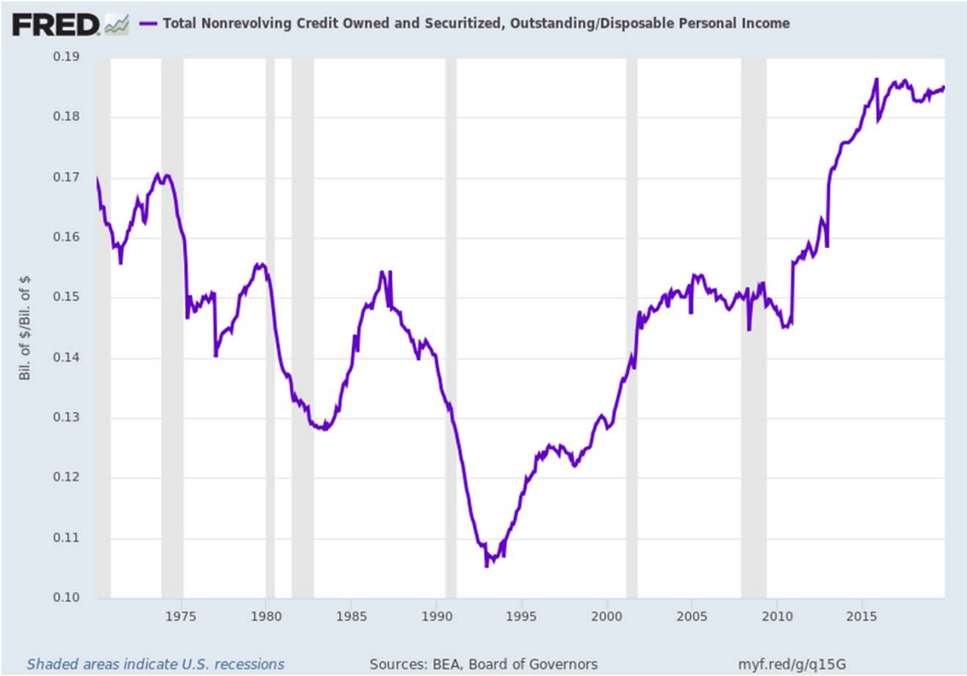
However, wage pressure yet to show as headline inflation

Sources: Federal Reserve, U.S. Department of Labor

Consumer Borrowing Reaching New Heights

Leverage has fueled consumption growth to a historical peak





Consumer credit (ex-mortgages) as a percentage of disposable income has leveled off since 2017, after climbing sharply during the previous five years.

- Credit exposures well above the pre-GFC peak, at an all-time high
- Suggests vulnerability to deleveraging

The increase since 2010 stems from non-revolving debt, mostly student and auto loans

- The ratio of non-revolving debt to disposable income reached a plateau in 2017, and has held steady through Q4 2019, albeit at an all-time high.
- Another sign of potential vulnerability to deleveraging

Source: Federal Reserve

Trade Matters, but More to U.S. Trading Partners

Exports, imports, and trade-to-GDP ratio in 2018

Trade and trade policy dominate headlines in 2019, but impact of trade in the U.S. is far lower than in Europe and many other developed markets

- Trade-to-GDP ratio is the sum of exports and imports as a % of GDP. Exports and imports include both goods and services.
- Trade has become a larger component of U.S. GDP over time.
  - U.S. exports have gradually risen from 7% in 1985 to 12.1% in 2018, while imports rose from 9% to 15%.
  - Trade activity now involves 27.1% of U.S. GDP.
- By comparison, trade accounts for 38.2% of China GDP, and well over half of GDP in Europe and Mexico.

	Exports (% of GDP)	Imports (% of GDP)	Trade-to-GDP Ratio
Germany	47.0%	40.2%	87.2%
Mexico	39.2%	41.1%	80.3%
Canada	31.8%	33.9%	65.7%
France	31.3%	32.1%	63.4%
U.K.	29.9%	31.4%	61.3%
Italy	31.8%	29.3%	61.1%
Russia	30.7%	20.8%	51.5%
China	19.5%	18.7%	38.2%
Japan	17.8%	16.8%	34.6%
U.S.	12.1%	15.0%	27.1%

Source: World Bank

Trade War With China

Substantial impact on trade, but small impact on U.S. GDP

Trade in both directions with China has fallen by 15-20%.

We import much more from China than export; therefore the decline in both directions has actually shrunken the bilateral trade deficit.

However, our deficit with other countries has risen as we reconfigured our supply chains.

Cumulative impact on U.S. GDP growth through Q2 2020 will be less than 1%.

Tariffs have shifted U.S. supply patterns substantially.

Vietnam and Taiwan saw the largest gain in import shares.

U.S. Trade with China (% change year-over-year)

U.S. Imports by Country (% change year-over-year)

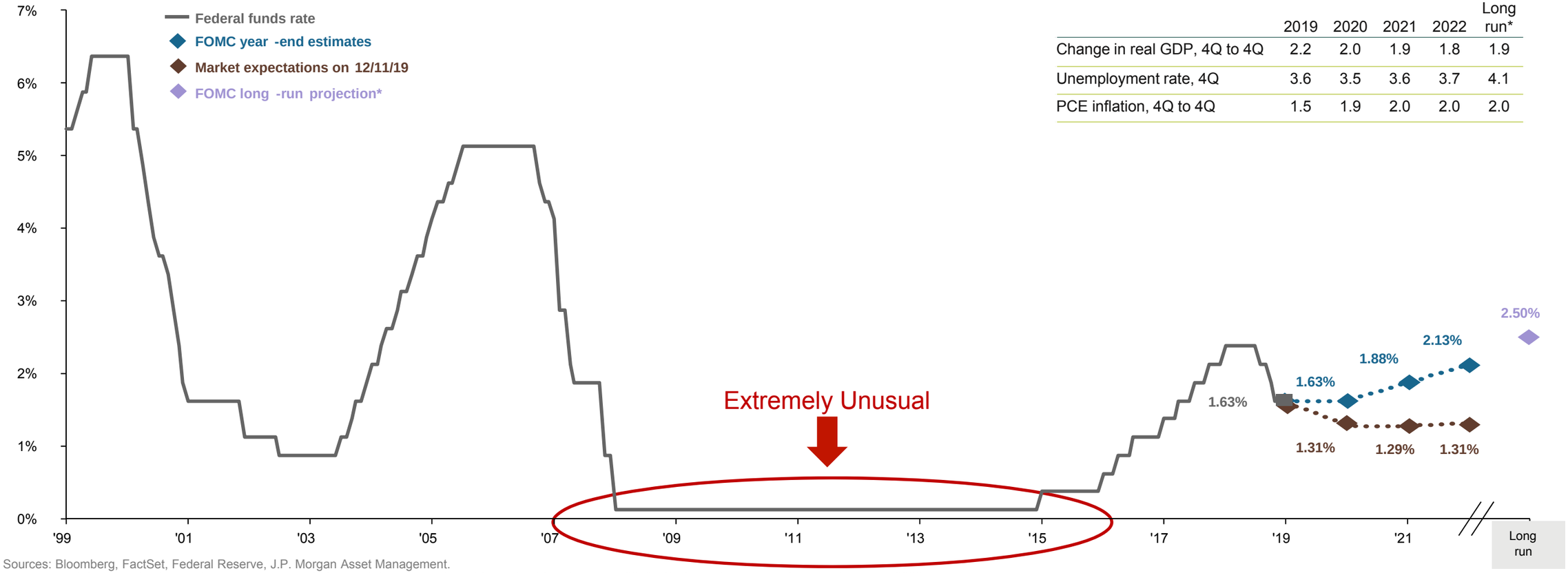
Sources: Capital Economics; Refinitiv; U.S. Trade Representative

Fed Policy Reversal Upended Fixed Income Market Expectations

Fed halted interest rate increases in January 2019; cut twice in Q3 and once in Q4 2019

Federal Funds Rate Expectations

FOMC and market expectations for the fed funds rate



FOMC December 2019 Forecasts (percent)

	2019	2020	2021	2022	Long run*
Change in real GDP, 4Q to 4Q	2.2	2.0	1.9	1.8	1.9
Unemployment rate, 4Q	3.6	3.5	3.6	3.7	4.1
PCE inflation, 4Q to 4Q	1.5	1.9	2.0	2.0	2.0

Sources: Bloomberg, FactSet, Federal Reserve, J.P. Morgan Asset Management.
Market expectations are the federal funds rates priced into the fed futures market as of the date of the December 2019 FOMC meeting and are through December 2022.
*Long run projections are the rates of growth, unemployment, and inflation to which a policymaker expects the economy to converge over the next five to six years in absence of further shocks and under appropriate monetary policy.
Guide to the Markets – U.S. Data are as of December 18, 2019.

Inverted Yield Curve Points to Recession, a Normal Part of the Economic Cycle

Built into the 10-year forecast

Timing of recession following yield curve inversion is long and variable—6 to 18 months

Ten-year fell below cash in Q2, but maintained spread over 2-year until August (circled in chart); inversion ended in October.

Consensus expectation for U.S. recession in 2020 now unlikely.

Typical economic impact:

- *Slowing job growth, layoffs*
- *Wages and income*
- *Consumer confidence*
- *Housing market*
- *Capital spending*

Only housing market and business investment are showing signs of slowdown

Stock market reaction is usually sharp and early

- *Recession fears spurred Q4 2018 market decline; snap back in 2019 is a response to Fed policy shift*

Bond market benefited greatly from falling rates in 2019, but:

- *Sharp rise in government debt from 2018 tax cut; impact exacerbated by recession (hits tax receipts)*

Treasury Yield Curve Inverts, Then Recovers

Source: Bloomberg

U.S. Stock Markets Renew Surge Through Q4 2019

New record for the S&P 500 reached in Q4 2019.

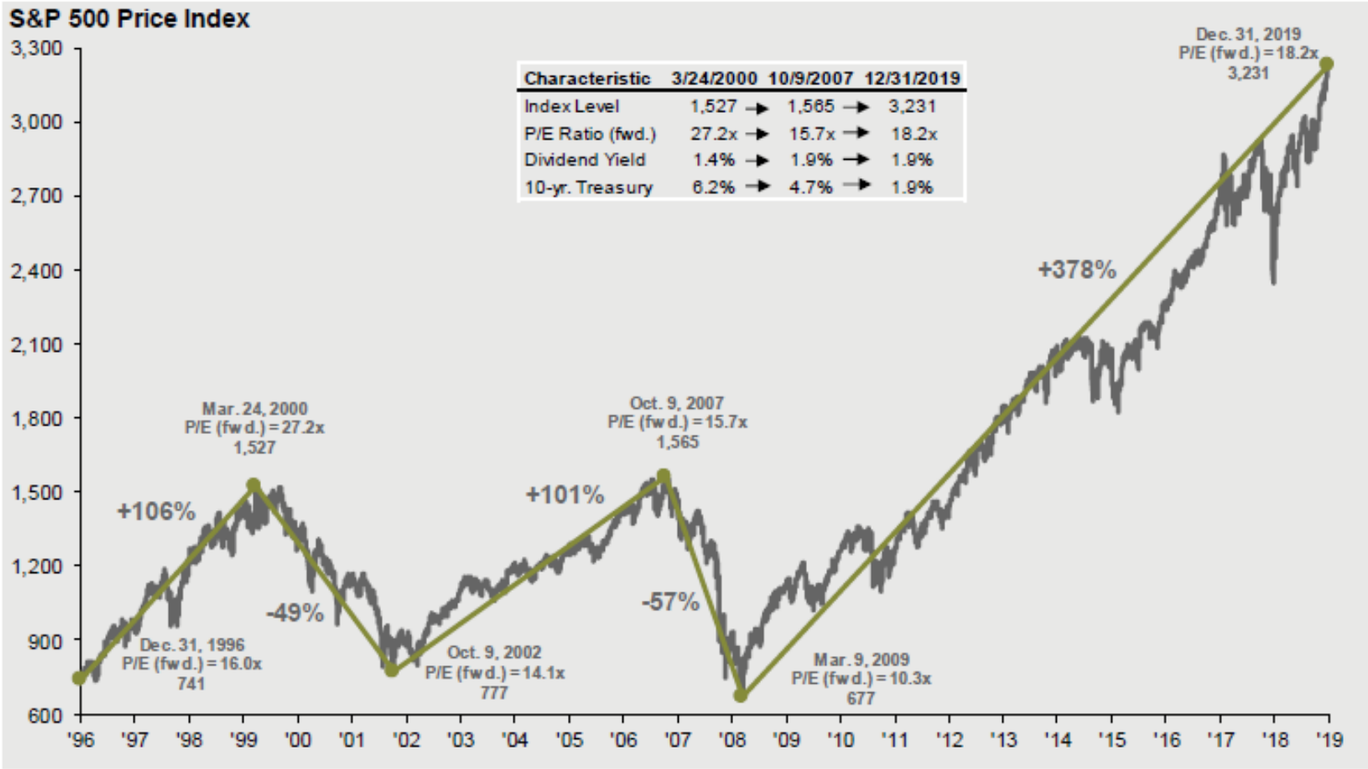
- 9% gain in Q4, after slowing to 1.7% in Q3; 31.5% total return for 2019.

Forward valuation jumped to 18.2 in Q4, well above its 25-year average (16.2).

- Still nowhere near the peak set in 2000.

Yield on 10-year Treasury inched back to the level of the dividend yield on stocks.

- Prior to GFC, Treasury yield typically exceeded that of the stock dividend; two yields were very close for eight years following GFC.
- Gap began to widen with Fed tightening in 2017, but narrowed again in Q2 with reversal of Fed policy.
- Vastly different relationship between stock and bond yields in 2000 and 2007.



Source: Compustat, FactSet, Federal Reserve, Standard & Poor's, J.P. Morgan Asset Management.
Dividend yield is calculated as consensus estimates of dividends for the next 12 months, divided by most recent price, as provided by Compustat.
Forward price to earnings ratio is a bottom-up calculation based on the most recent S&P 500 Index price, divided by consensus estimates for earnings in the next 12 months (NTM), and is provided by FactSet Market Aggregates. Returns are cumulative and based on S&P 500 Index price movement only, and do not include the reinvestment of dividends. Past performance is not indicative of future returns.
Guide to the Markets – U.S. Data are as of December 31, 2019.

Source: J.P. Morgan Asset Management.

U.S. Equity Performance

Fourth Quarter 2019

Shift away from defensive sectors toward cyclicals

- Utilities, Real Estate, and Staples took a back seat to cyclically oriented sectors during the fourth quarter.

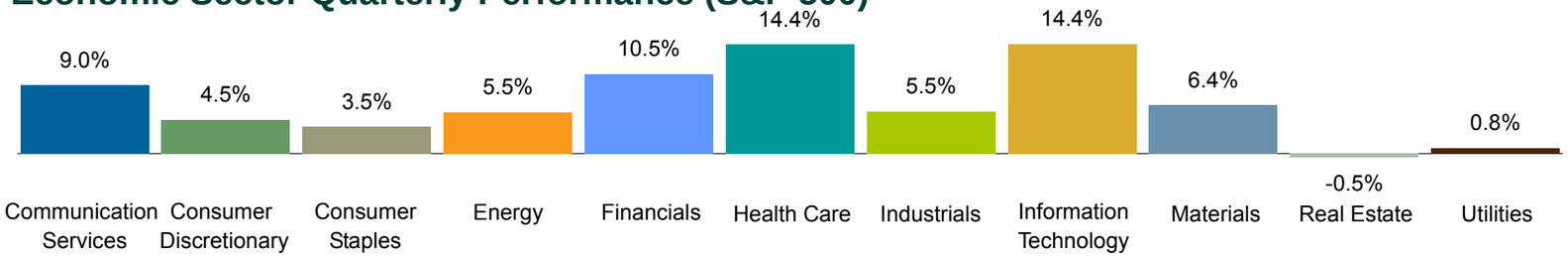
Small caps outpaced large for quarter but lagged on year.

- Heightened new drug approvals and M&A activity within Health Care's biotech and pharma industries propelled small caps.
- While small cap prevailed in the fourth quarter, large caps led for the third straight year, owing much of the gains to the Tech sector (+50.3%) and Communication Services (+32.7%).

Growth vs. value

- Growth continued its dominance over value during the quarter across the market cap spectrum, closing out a decade-long trend supported by a low-rate environment.

Economic Sector Quarterly Performance (S&P 500)



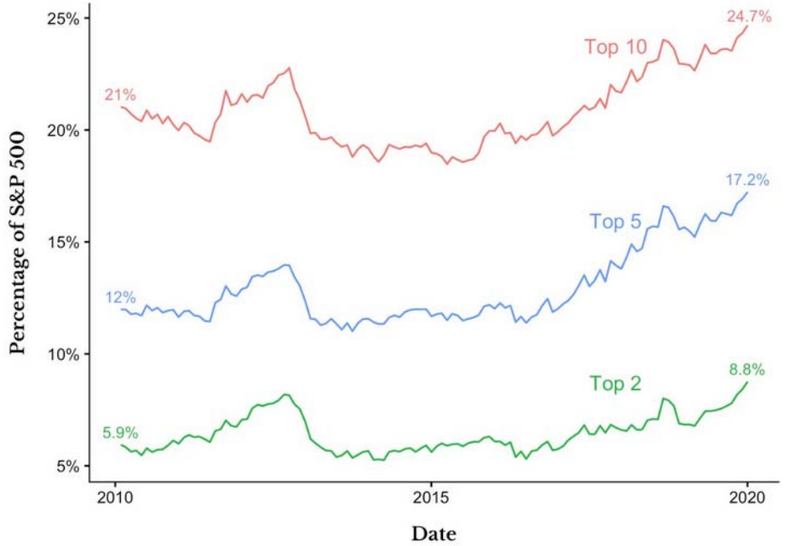
Sources: FTSE Russell, Standard & Poor's

U.S. Equity: Quarterly Returns

U.S. Equity: One-Year Returns

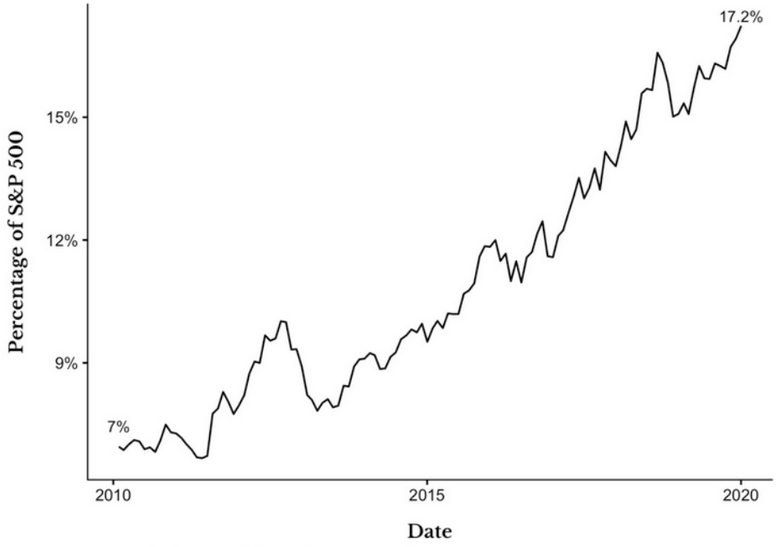
Index Concentration

Share of Largest Companies in the S&P 500



Source: YCharts, 2010-2019 (OfDollarsAndData.com)

FAAMG Stocks Percent Share of the S&P 500



Source: YCharts, 2010-2019 (OfDollarsAndData.com)

- FAANG + Microsoft contribution to return in 2019: 25% (S&P 500); 40% (R1000 Growth)
- Information Technology had a 50% return for 2019 and accounted for 31% of the S&P 500 Index return for the calendar year.
- The IT sector is trading at approximately 22 times forward earnings estimates, up from 15.7x a year ago.
- The disproportionate increased index weighting continues to grow as passive and price-indifferent strategies and vehicles gain investor capital and interest.
- While there are good fundamental reasons for Technology leadership, the recent six-month spike may be driven by a “herd” mentality and may have created an overbought environment.

Source: MSCI, Bloomberg, Callan

Global ex-U.S. Equity Performance

Fourth Quarter 2019

Trade war de-escalation and Brexit clarity turned global ex-U.S. markets positive.

- The “phase one” trade deal triggered a “risk-on” market environment.
- The Conservative Party gained command of Parliament in December, adding further clarity to the Brexit withdrawal plan and sparking the pound to rally.
- China soared 14.7% with easing trade tensions and expected fiscal and monetary stimulus packages in 2020.

Trade-related sectors prevailed.

- Technology, specifically within Asia, fueled the market as trade tensions receded.
- Factor performance favored risk, including beta and volatility, reflecting risk-on market environment.

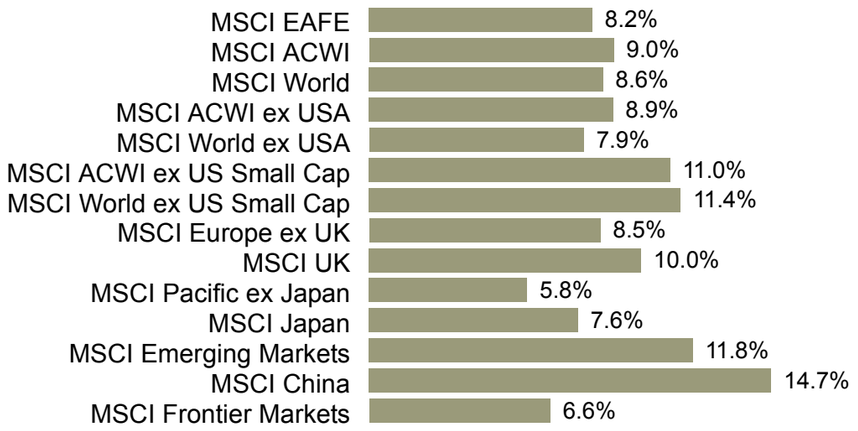
U.S. dollar vs. other developed and emerging market currencies

- Major developed and emerging market currencies declined vs. the dollar as optimism replaced market anxiety as the phase one trade deal neared.

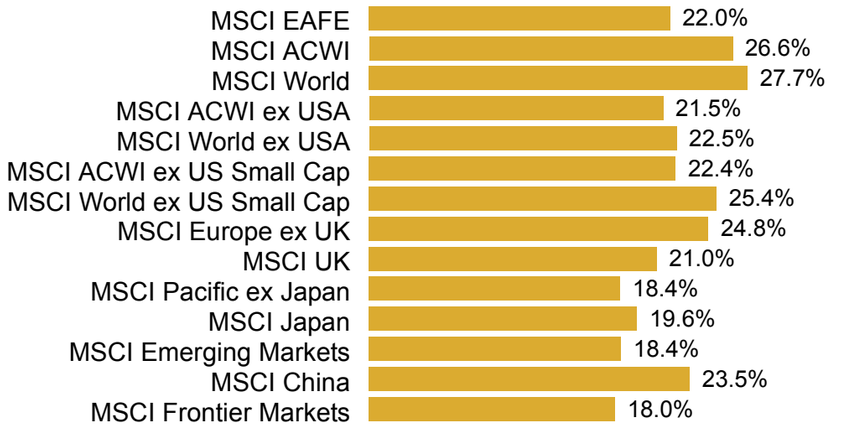
Growth vs. value

- Growth continued to outperform value within markets and capitalizations, supported by Technology and Health Care.

Global Equity: Quarterly Returns



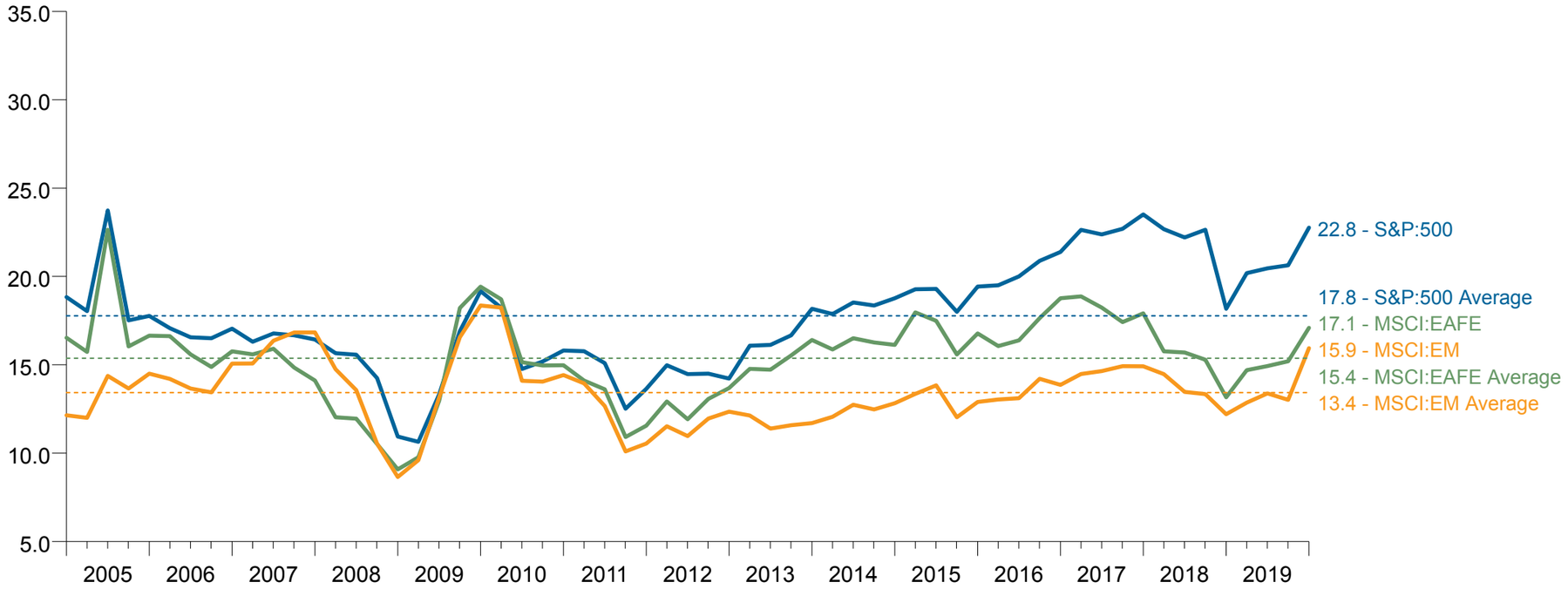
Global Equity: Annual Returns



Source: MSCI

Global Equity Valuations—Historical Data

Price/Earnings Ratio (exc neg) for 15 Years ended December 31, 2019

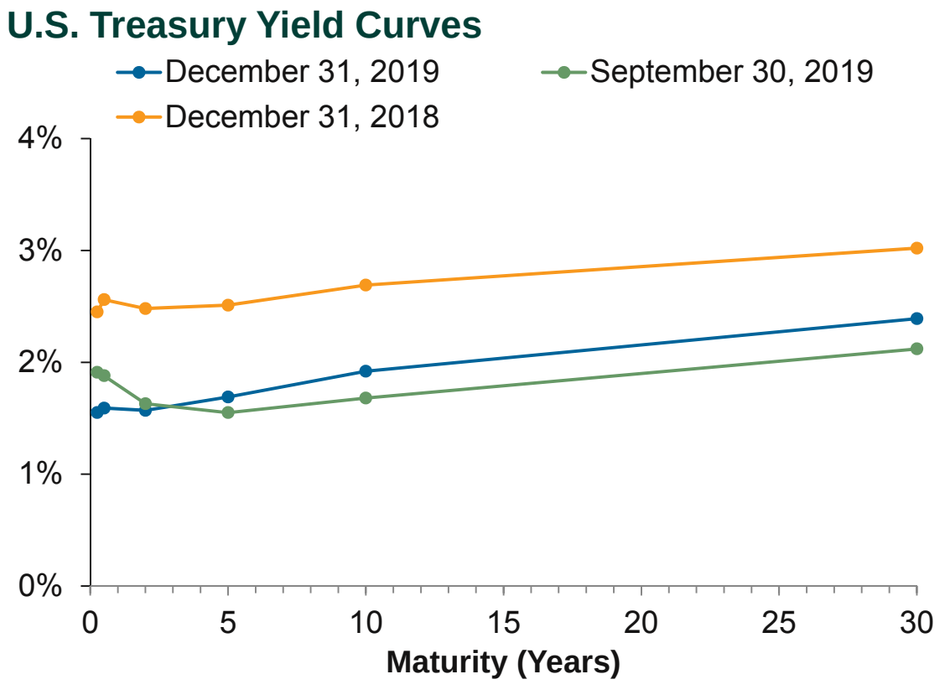


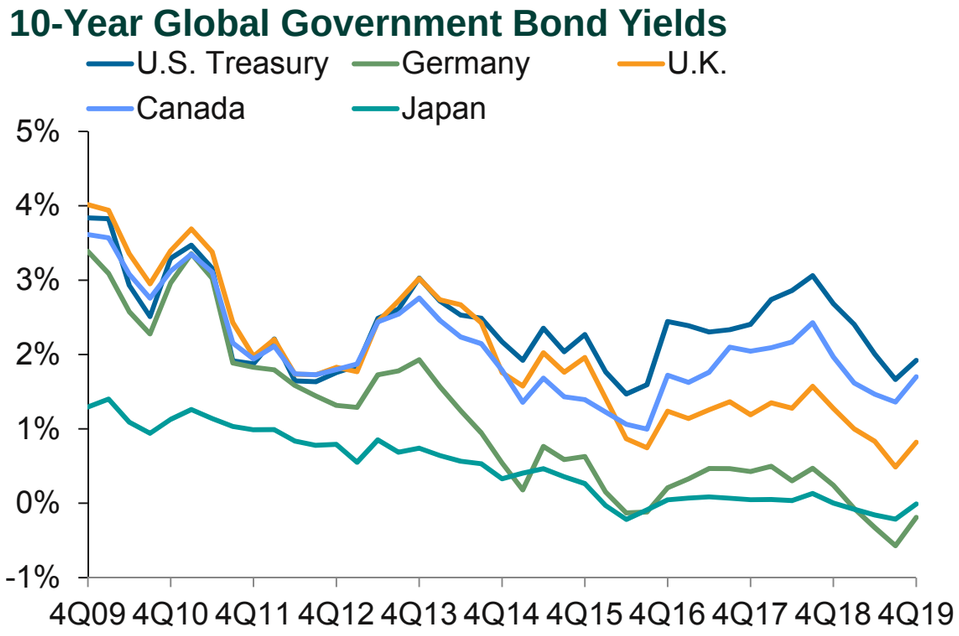
U.S. equity valuations plummeted in 4Q2018 to their historical average, but popped back up in 2019.

- U.S. remains higher than developed ex-U.S. and emerging market equity valuations relative to the 15-year average for each index.
- Despite reasonable relative valuations, both political and economic risks remain in global ex-U.S. markets.

Sources: MSCI, Standard & Poor's, Callan

Yield Curve Flattens While Global Rates Diverge





In 2019, Treasury yield curve has inverted from 90-day T-bill through the 10-year T-note.

- Yields have fallen more than 100 bps on the long end from one year ago.
- Inverted yield curve has presaged most recessions in past 70 years.
- Yield curve inverted from 2- to 10-year notes in August, but has wavered through the end of September.

U.S. yields diverged further in 2017 as monetary policies fell out of sync.

- U.S. tightened for two years while euro zone waited.
- U.S. has now paused and has reversed course with three rate cuts in 2019, two in Q3 and one in Q4.
- Euro zone will skip tightening entirely in this cycle; U.S. spread remains very wide.

Source: Bloomberg

U.S. Fixed Income Performance

Fourth Quarter 2019

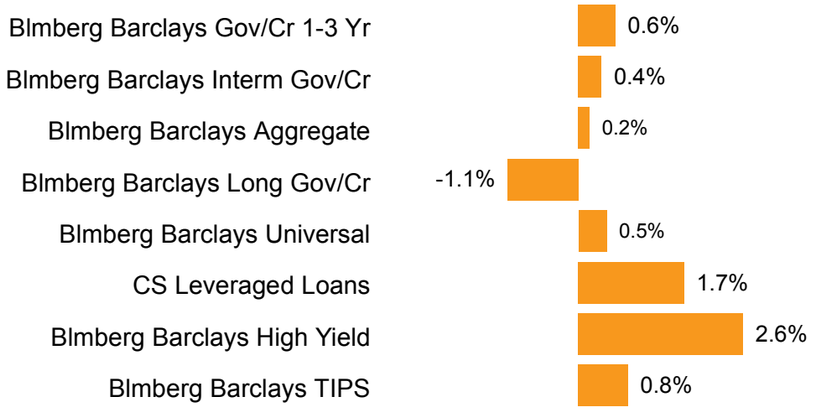
The yield curve steepened on stronger growth expectations.

- Treasuries declined 0.8% with the steepening yield curve, with yields falling on short end and rising modestly on intermediate to long end of the curve on stronger economic growth expectations.
- Spread between the 2-year and 10-year Treasuries remained positive, ending the year at 34 bps.
- Long Treasuries fell (-4.1%) as the 30-year yield rose 27 bps to end the year at 2.39% as investors favored risk assets.
- TIPS outperformed nominal Treasuries as inflation expectations rose; 10-year breakeven spread was 1.77% as of quarter-end, up from 1.53% as of Sept. 30.

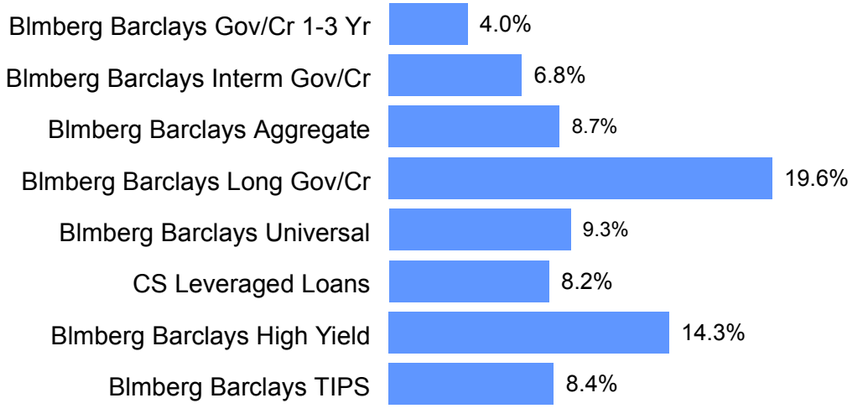
Corporate bonds rally across credit ratings spectrum.

- IG corporate spreads narrowed and posted best results within BB US Aggregate amid risk-on market; BBB-rated corporates (+1.7%) outperformed single A or higher (+0.7%), indicating investor willingness to extend risk down the credit spectrum.
- Below-investment grade CCC-rated corporates (+3.7%) outperformed BB-rated corporates (+2.5%), as the risk-on market sentiment spurred demand for lower-rated securities.
- Spreads across credit quality buckets tightened in the fourth quarter, as the market anticipated improvement in credit fundamentals.

U.S. Fixed Income: Quarterly Returns



U.S. Fixed Income: Annual Returns



Sources: Bloomberg Barclays, Credit Suisse

Global Fixed Income Performance

Fourth Quarter 2019

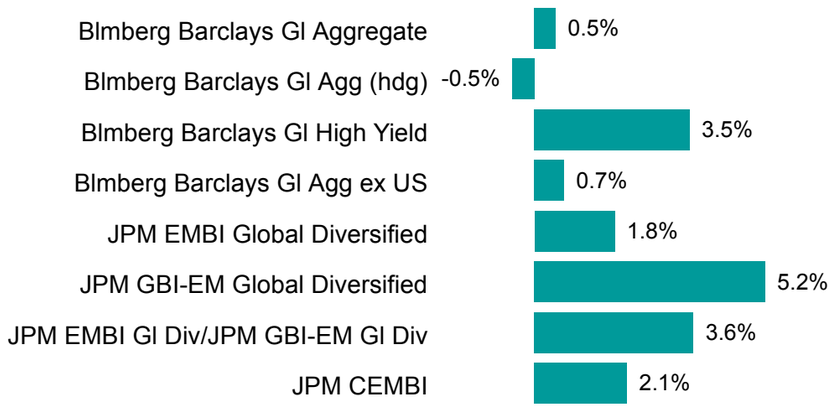
Developed sovereign bond yields rose modestly.

- Developed market sovereign bond yields rose modestly in the quarter as global financial conditions improved but ended year lower. ECB kept deposit rate steady at December meeting; negative-yielding debt totaled less than $12 trillion, down from $17 trillion in the third quarter.
- U.S. dollar depreciated versus the euro, Australian dollar, and British pound during the quarter, but had a modest gain versus Japanese yen as global economies played catch-up to the U.S.

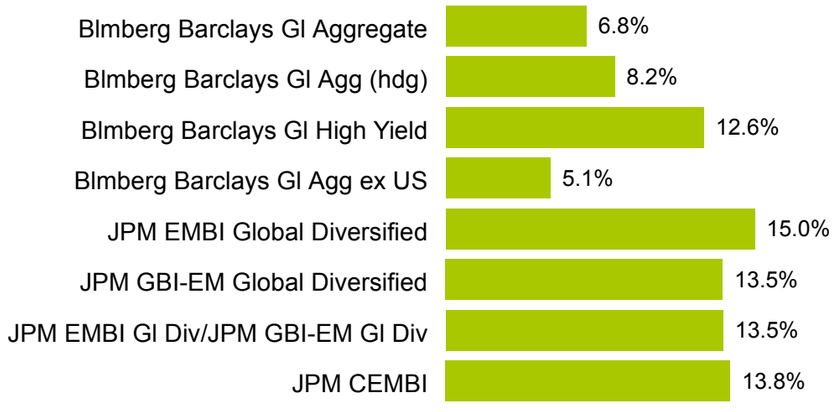
Emerging markets benefited from risk-on sentiment.

- EM debt benefited from dovish global central banks and a risk-on environment.
- Within the dollar-denominated benchmark, Lebanon (-29.4%) was an outlier as the debt-to-GDP ratio continued to swell and anti-government protests persisted; Argentina rallied (+20.8%) to end the year down 23.6% as a new president was inaugurated.
- Returns in the local debt benchmark were largely positive, with only Chile (-6.2%) and the Dominican Republic (-0.7%) posting negative returns. Russia (+10.0%) and South Africa (+10.2%) were top performers.

Global Fixed Income: Quarterly Returns



Global Fixed Income: Annual Returns



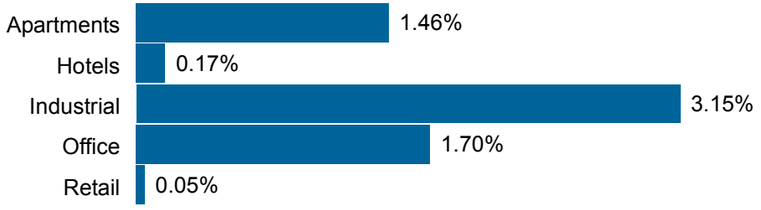
Sources: Bloomberg Barclays, J.PMorgan

Real Estate Market

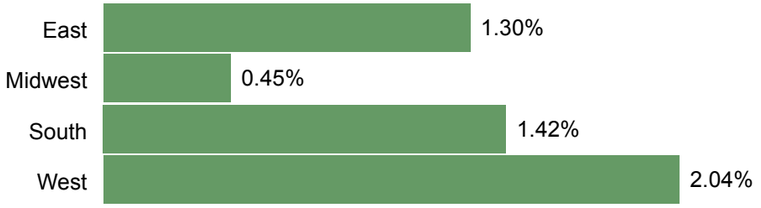
Fourth Quarter 2019

U.S. Private Real Assets	Last Quarter	Year to Date	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 15 Years
Real Estate ODCE Style	1.56	5.79	5.79	6.82	8.42	10.53	6.76
NFI-ODCE (value weight net)	1.27	4.39	4.39	6.13	7.98	10.39	6.73
NCREIF Property	1.55	6.42	6.42	6.70	8.25	10.17	8.34
NCREIF Farmland	0.97	3.41	3.41	5.44	6.73	10.86	13.28
NCREIF Timberland	-0.04	1.30	1.30	2.71	3.13	4.45	6.55
Public Real Estate							
Global Real Estate Style	2.84	24.94	24.94	10.29	7.23	9.92	7.21
EPRA/NAREIT Developed	1.75	21.91	21.91	8.28	5.56	8.37	--
Global ex-U.S. Real Estate Style	6.82	24.98	24.98	12.26	6.99	8.43	7.05
EPRA/NAREIT Developed ex US	5.68	21.75	21.75	11.49	6.46	7.38	6.10
U.S. REIT Style	-0.05	28.33	28.33	9.23	7.91	12.64	8.62
NAREIT Equity REITs	-0.76	26.00	26.00	8.14	7.21	11.94	7.94

Sector Quarterly Returns by Property Type



Sector Quarterly Returns by Region



Returns continue to moderate

- U.S. core real estate returns continue to be driven by income, with limited appreciation this late in the cycle.
- Returns coming from net operating income (NOI) growth rather than further cap rate compression
- Industrial real estate keeps outperforming other property types.
- Retail continues to show signs of depreciation.
- Defensive posturing and disciplined asset acquisitions are key.

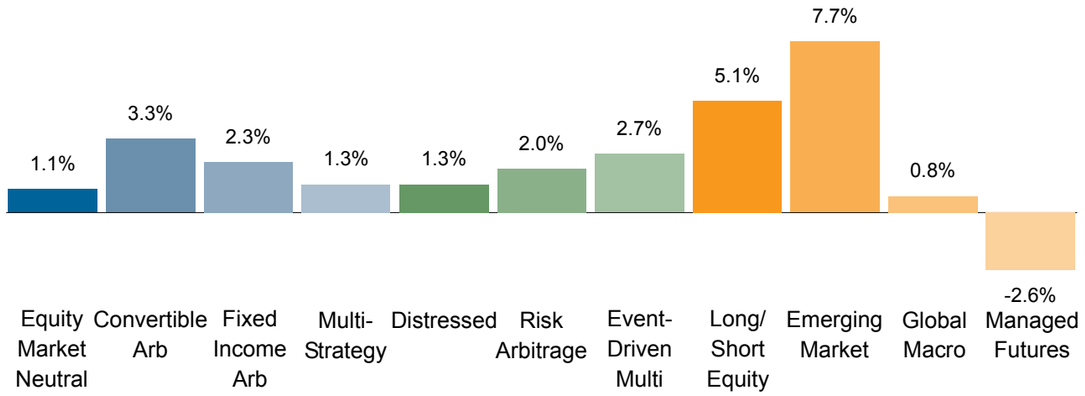
Sources: Callan, FTSE Russell, NAREIT, NCREIF

Hedge Fund Performance

Party like it's 1999 … or not

- Hedge funds participated more cautiously in the fourth quarter risk-on market, as expected.
- Portfolios with exposure to EM and long-short equity fared much better than those emphasizing equity market neutral or macro strategies.
- Long/Short Equity (+5.1%) rode the wave of market beta, but alpha was more sporadic, leaving little extra risk-adjusted return.
- Equity Market Neutral (+1.1%) barely clawed back its recent September loss, with stocks lacking dispersion to create trading opportunities.
- Distressed (+1.3%) continued to struggle with chronically weak credits like energy, finishing the year as CS HFI's weakest performer (+1.4%), just below Equity Market Neutral (+1.6%).
- Managed Futures fell 2.6%, as bond rates reversed their downward trend, but finished 2019 with a solid 9% gain.

CS Hedge Fund Strategy Returns (quarter ended December 31, 2019)



Callan Hedge FOFs Style Group Returns (quarter ended December 31, 2019)

	Callan Abs Rtn Hedge FoF	Callan Core Diversif FoF	Callan Long/Short Eq FoF
10th Percentile	3.1	4.3	6.2
25th Percentile	2.4	3.2	5.3
Median	2.0	2.5	4.2
75th Percentile	0.8	1.4	2.5
90th Percentile	-0.1	1.1	1.3
CS Hedge Fund Index	2.4	2.4	2.4
HFRI Fund of Funds	3.0	3.0	3.0
T-Bills + 5%	1.7	1.7	1.7

Sources: Callan, Credit Suisse

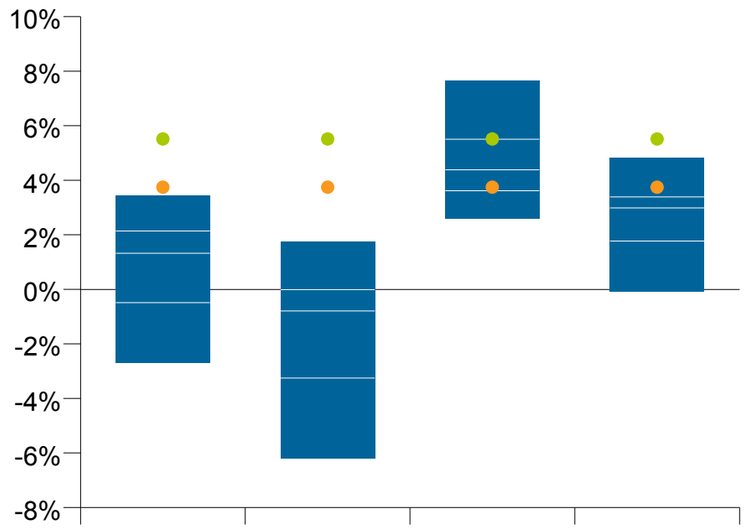
MAC Performance

Long-Biased MACs rebound while Risk Parity settles down

- Multi-asset class (MAC) performance varied depending on net market exposures.
- Last quarter's 5.5% return of the 60% MSCI ACWI and 40% Bloomberg Aggregate benchmark is a tough hurdle to beat.
- Long-Biased MACs benefited from their typically heavy equity exposure, particularly EM.
- HFR Risk Parity Index targeting 10% volatility was moderately positive (+2.7%), reflecting strong stock gains partially offset by tepid bonds.
- Eurekahedge Multi-Factor Risk Premia Index gained 3.7% based on solid returns from carry trades in risk-on markets offset by a reversal of last year's downward yield trend.
- Absolute Return traded flat without its higher-quality asset bias benefiting from the quarter's less discriminating risk-on market.

Sources: Callan

Callan Multi-Asset Class (MAC) Style Group Returns (quarter ended December 31, 2019)



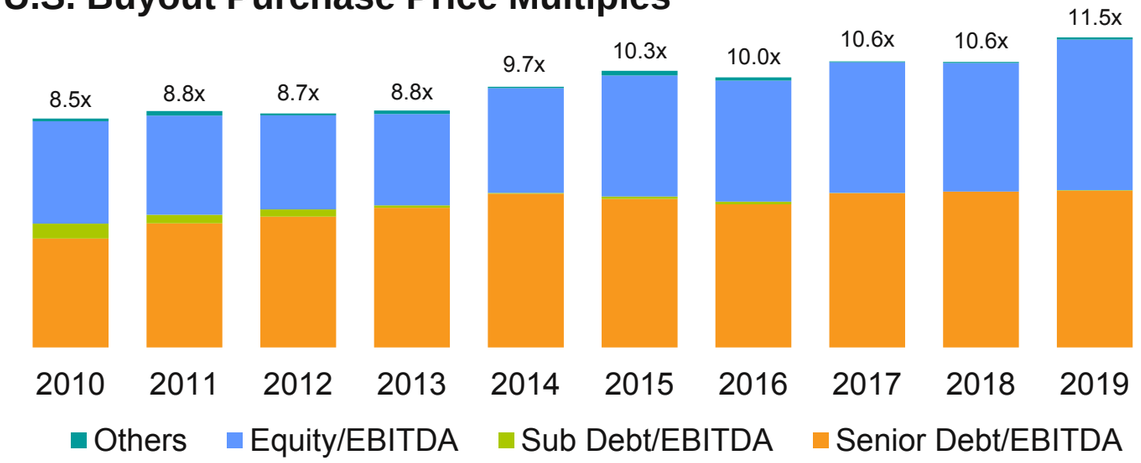
	Callan MAC Absolute Rtn	Callan MAC Risk Premia	Callan MAC Long Biased	Callan MAC Risk Parity
10th Percentile	3.5	1.7	7.7	4.8
25th Percentile	2.1	0.0	5.5	3.4
Median	1.3	-0.8	4.4	3.0
75th Percentile	-0.5	-3.3	3.6	1.8
90th Percentile	-2.7	-6.2	2.6	-0.1
60% Equity/40% Fixed*	5.5	5.5	5.5	5.5
Eurekahedge MAC RP (5%v)	3.7	3.7	3.7	3.7

Private Equity Company Valuations and Leverage

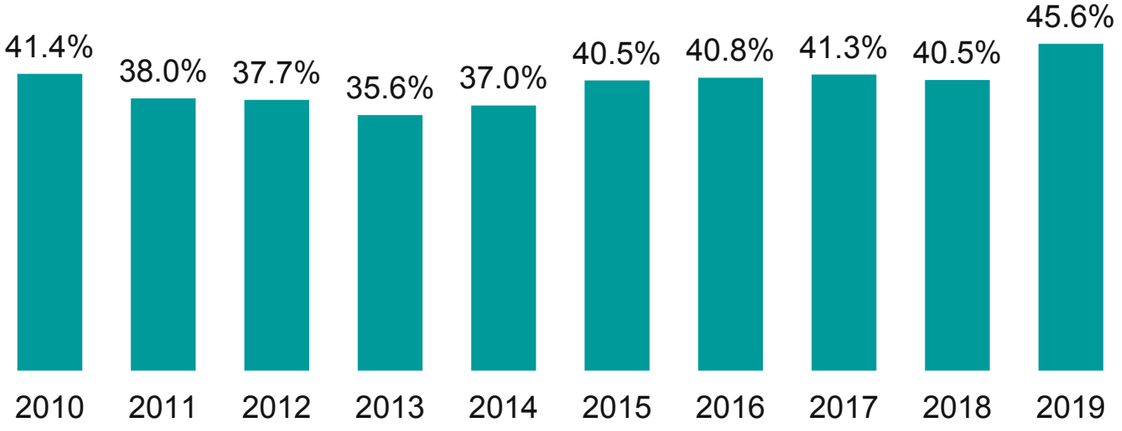
Record Purchase Prices

- 2019 purchase prices jumped to a record-setting 11.5x.
- Such high multiples increase the execution risk of recent transactions, making it more difficult to achieve private equity-like returns.

U.S. Buyout Purchase Price Multiples



% Equity Contribution in U.S. Buyout Deals

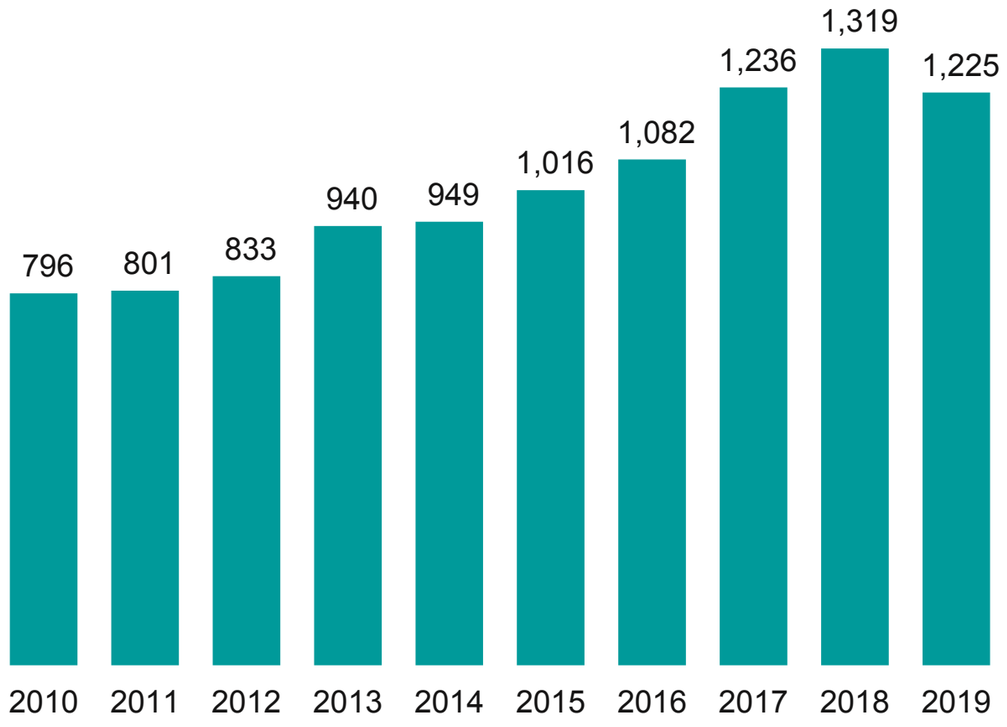


Source: S&P LCD

Private Equity Dry Powder Falls

- Dry powder peaked in 2018 at over $1.3 trillion, while 2019 saw it drop slightly.
- Downward trend appears to be starting in 2019; GPs have been able to deploy capital despite high valuations.
- On a longer-term basis, dry powder still significantly higher than 10 years ago
- PE managers raising larger and larger funds, leading to increased amounts of capital to deploy

Dry Powder ($billions)
Cumulative as of Year End



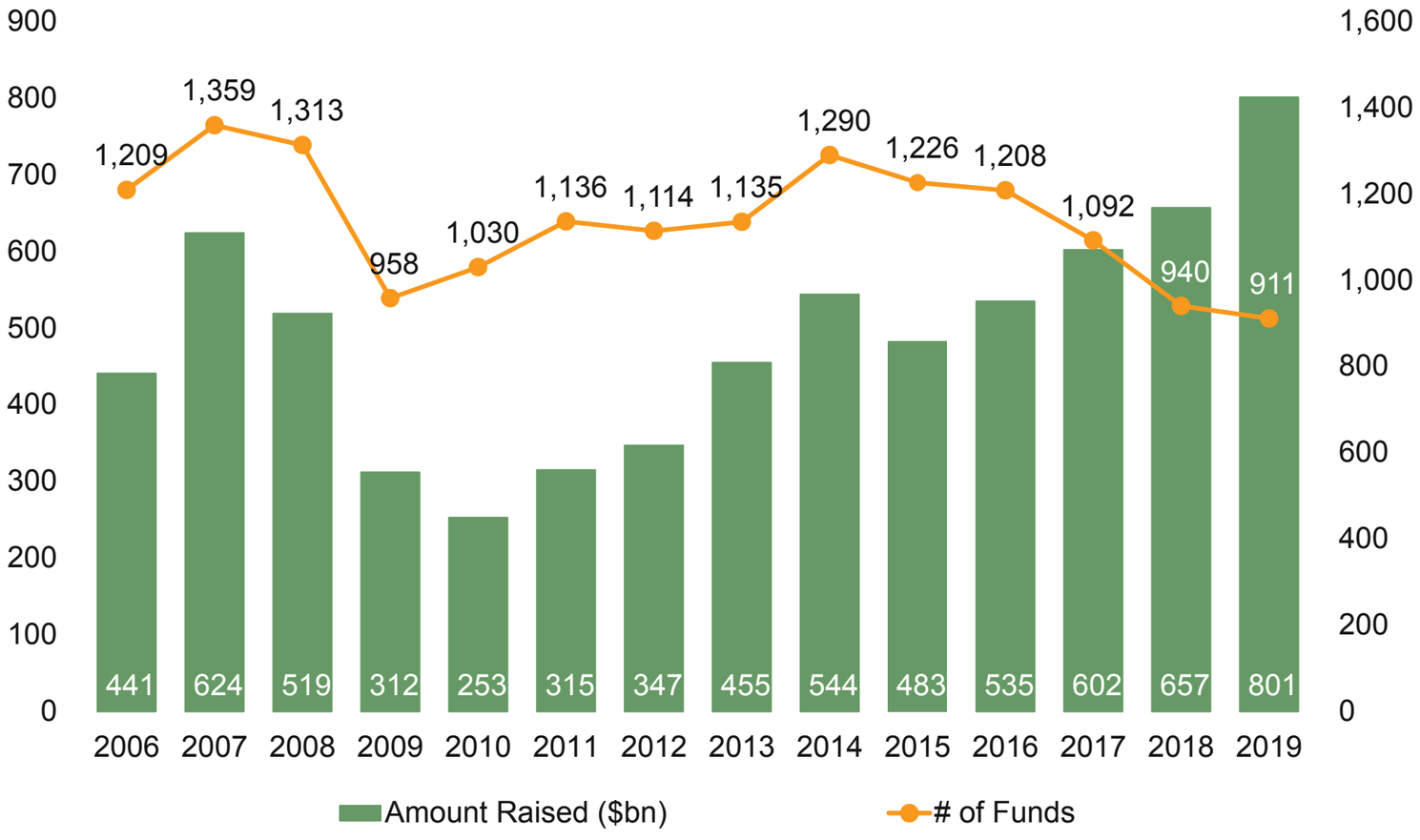
Source: Pitchbook; global, includes private equity and private debt

Global Fundraising

Boom continues

- Spike in 2019 fundraising is a reflection of a booming private equity industry
- Capital raised in 2019 significantly surpassed capital raised pre-GFC
- Today's fundraising market has become much more concentrated with fewer, but much larger, funds
- Average fund size continues to increase: in 2019, average tops $879 million, over 2x average fund size from 15 years ago

Funds Holding Final Closes by Year



Source: Pitchbook

Callan

Callan 2020
Capital Markets Expectations

Why Make Capital Market Assumptions?

Guiding objectives and process

- **The cornerstone of a prudent process is a long-term strategic investment plan, and capital market assumptions are key elements.**
  - Reasonable return and risk expectations for the appropriate time horizon
  - Callan's expectations represent our best thinking regarding the long-term (10-year) outlook, recognizing our median projections represent the midpoint of a range, rather than a specific number
  - Callan's expectations need to be readily defensible both for individual asset classes and for total portfolios
  - We are conscious of the level of change suggested in strategic allocations for long-term investors: defined benefit plan sponsors, foundations, endowments, trusts, defined contribution participants, families, and individuals
- **Callan's assumptions are informed by current market conditions but not built directly from them.**
  - Balance recent, immediate performance and valuation against long-term equilibrium expectations

Setting Capital Market Assumptions in an Uncertain Environment

- **Market volatility since September 2018 is important, but we question how much it should impact a 10-year outlook used to guide strategic investment policy.**
  - The equity market peaked in September 2018, then plummeted through December, but surged through all of 2019.
  - Interest rates rose through Q3 2018, then retreated sharply in the Q4 market decline, anticipating trouble that did not materialize.
  - Over-reliance on data at a specific starting date assigns current valuations an outsized impact on a 10-year forecast.
  - Long-term forecast should not be moving month to month; this suggests a level of precision and market timing that is not practical.
  - One can argue that we have pulled future returns forward from the next couple of years for both stocks and bonds in 2019.
- **Rhetoric aside, results from 2019 may be revealing compelling changes in expectations for the capital markets, particularly the bond market. The Fed has reversed course on interest rate policy, and has subtly but importantly altered its remit to include supporting the expansion.**

Economic Outlook

Role of economic variables

- **GDP and inflation**
  - GDP forecasts provide a very rough estimate of future earnings growth.
  - Inflation forecasts provide an approximate path for short-term yields.
  - Inflation is added to the real return forecasts for equity and fixed income.
- **GDP forecasts**
  - 2% to 2.5% for the U.S.
  - 1.5% to 2.0% for developed ex-U.S. markets
  - 4% to 5% for emerging markets
  - All forecasts are below long-term averages.
  - Path to longer-term growth will include cycles with recessions.
- **Inflation forecasts**
  - 2% to 2.5% for the U.S.
  - 1.75% to 2.25% for developed ex-U.S. markets
  - 2.5% to 3.5% for emerging markets

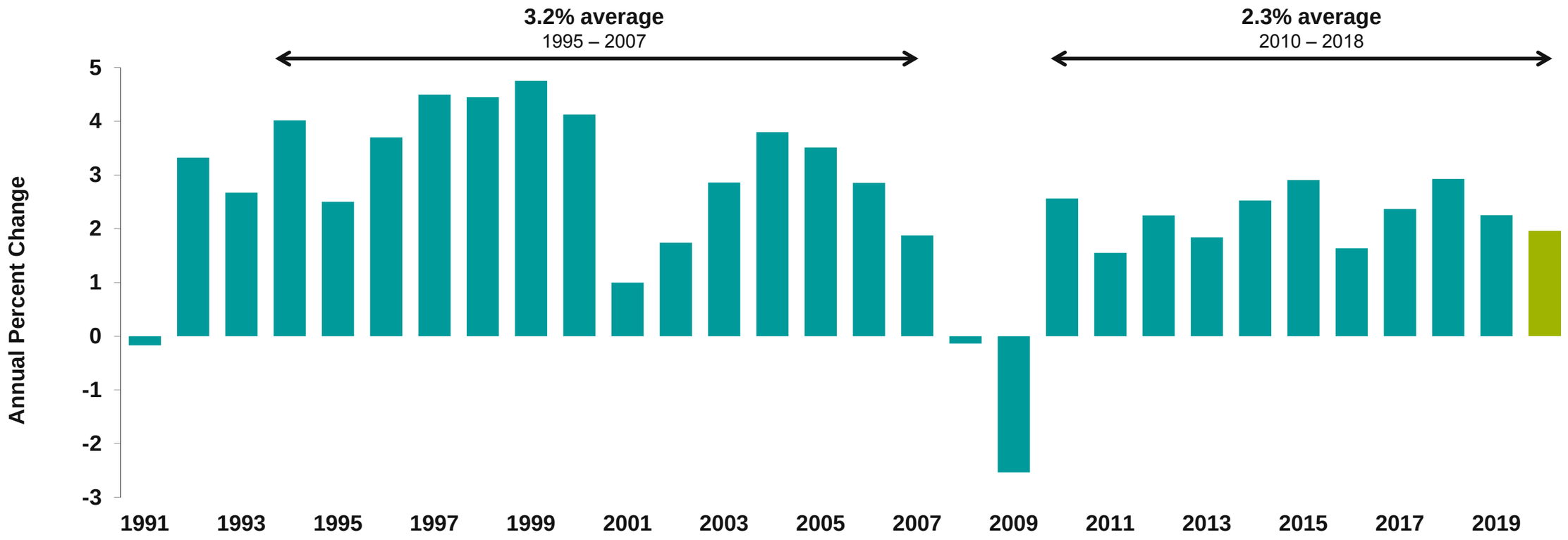
Economic Outlook

Has the nature of the economic cycle changed?

- **Role of the Central Bank**
  - Inflation and unemployment the classic mandate
  - Sustain the current expansion—universally adopted, quantitative easing genie is out of the bottle
  - Fed keys on inflation—as long as inflation is quiet, no rate hikes, no matter how hot the economy runs
  - Strong support for equity investing
- **Inflation**
  - Constantly surprised to the downside
  - Dominant source of inflation—shifting to services
  - Far less cyclical, less prone to influence of commodities and super-cycles
  - Trade and productivity growth abroad has enabled developed countries to import deflationary pressures.
  - Is the Phillips curve irrelevant (once again)?
- **Dampened Economic Cycles**
  - *"This time, it's different?"* Dangerous words
  - Inventory and cyclicality of production revolutionized
  - Advance of the service economy
  - Get used to it: "Growth Recession"
  - Steady stream of recent analysis: the worst has already passed, world GDP growth has already bottomed out. Did we blink and miss something? Actual recession may be replaced by slowdown in growth without GDP decline.

U.S. GDP Growth on a Slower Trajectory

Real GDP growth



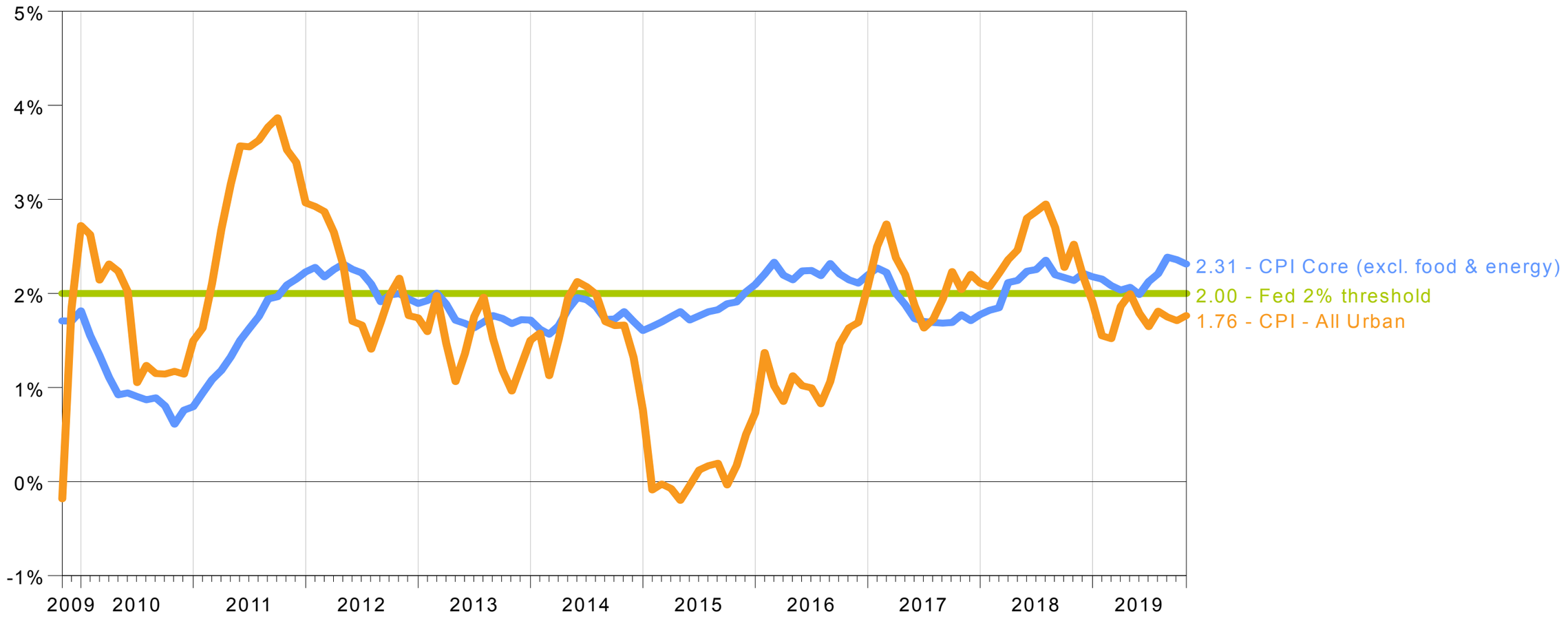
*2020 Forecast: IHS Markit

Source: IHS Markit

Inflation Concerns Subside Once Again

Subdued inflation gives Fed room to keep interest rates low

Headline CPI Measures of Inflation (percent change versus year-ago)

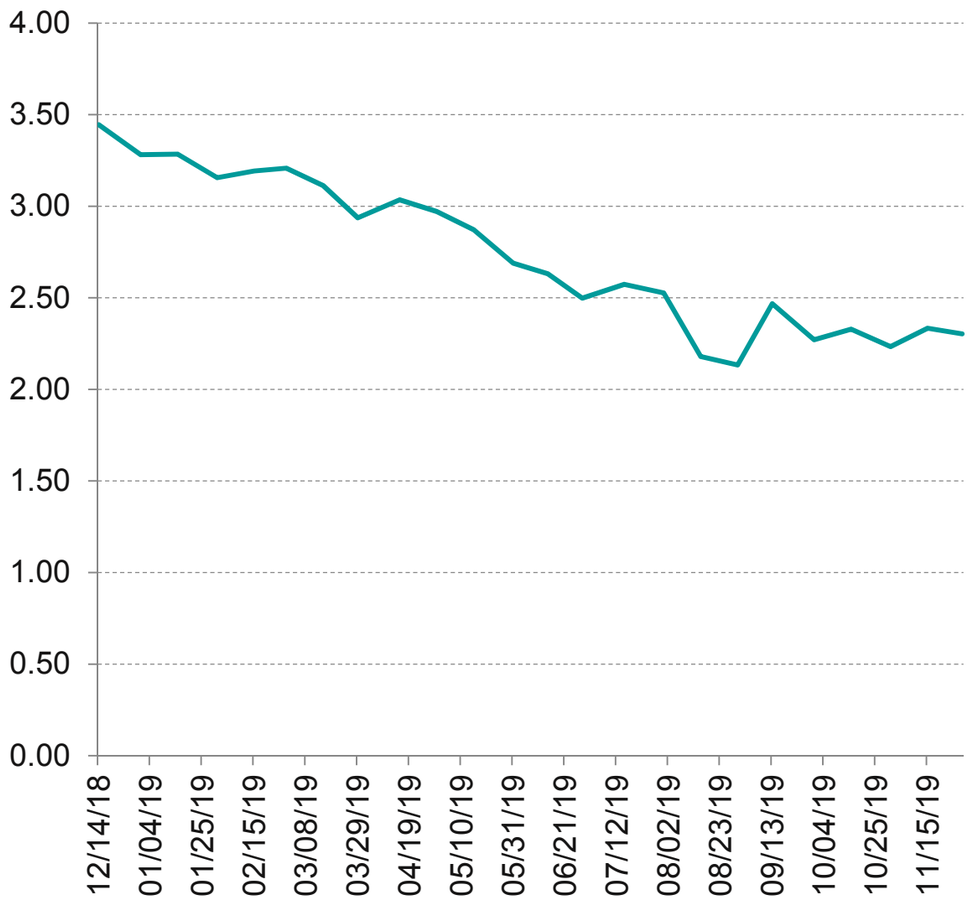


Source: Bureau of Labor Statistics, Callan

What Changed for Bonds in 2019

- **The Fed entered 2019 with a tightening bias but quickly reversed course given deteriorating business sentiment, slowing GDP, and trade war fears.**
  - At the start of 2019, 75 basis points of additional rate hikes were priced into the market for the year.
  - Fed policy pivoted dramatically, with 75 basis points of rate cuts over the course of the year.
  - The Fed's current near-term stance is neutral, with no changes in the base rate priced into the market for 2020.
- **The Fed policy shift coupled with the macroeconomic backdrop resulted in a marked reduction of bond yields over the course of the past year.**

Barclays Aggregate Yield to Maturity



Source: Bureau of Labor Statistics, Callan

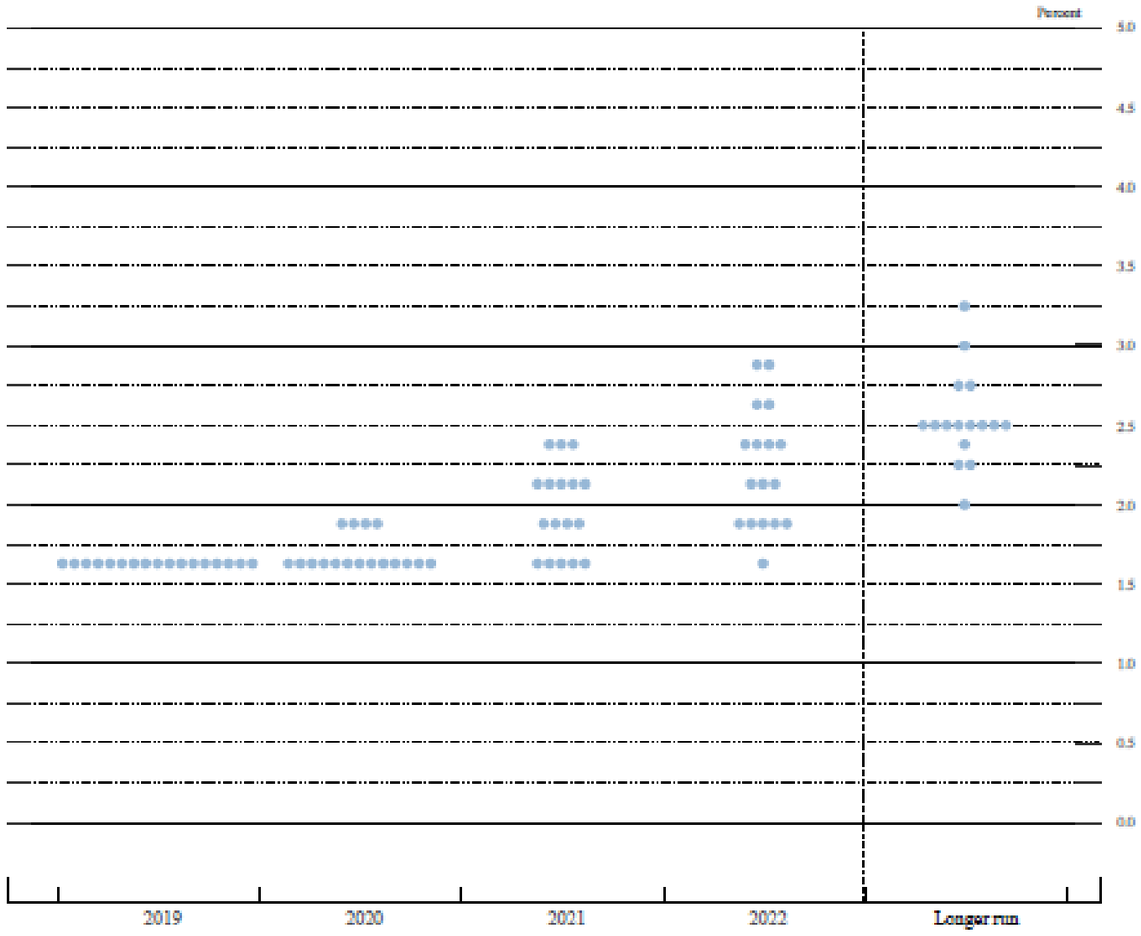
Fed Paused in Q1 2019 After 9 Hikes; Two Cuts in Q3, One in Q4

Fed projections now more in line with market expectations

- **Fed paused on rate hikes through June, cut 25 bps in July and again in September and October, then held the line in December.**
  - Members of the FOMC are divided on the Fed's future actions.
  - Rate pause and cuts represents a shift from the traditional Fed policy of focusing on price stabilization and employment; Fed has now fully articulated market growth and stability as a goal.
  - The Fed stated further rate hikes will be "data-driven," but strong economic results have been used to justify the pause: "…a downturn must be coming…"
- **Median of December 2019 projections (2.4%) signals no more rate hikes.**
  - September median is the same as June, and down from 2.9% projected in December 2018.
  - Longer term, median expectation is settled around 2.6%.

Federal Reserve Dot Plot— December 2019

FOMC participants' assessments of appropriate monetary policy: Midpoint of target range or target level for the federal funds rate

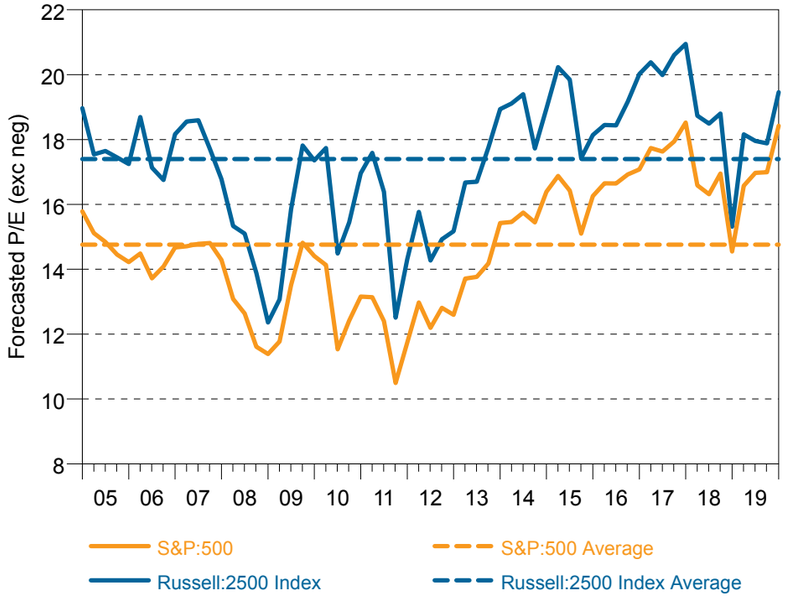


Source: Bureau of Labor Statistics, Callan

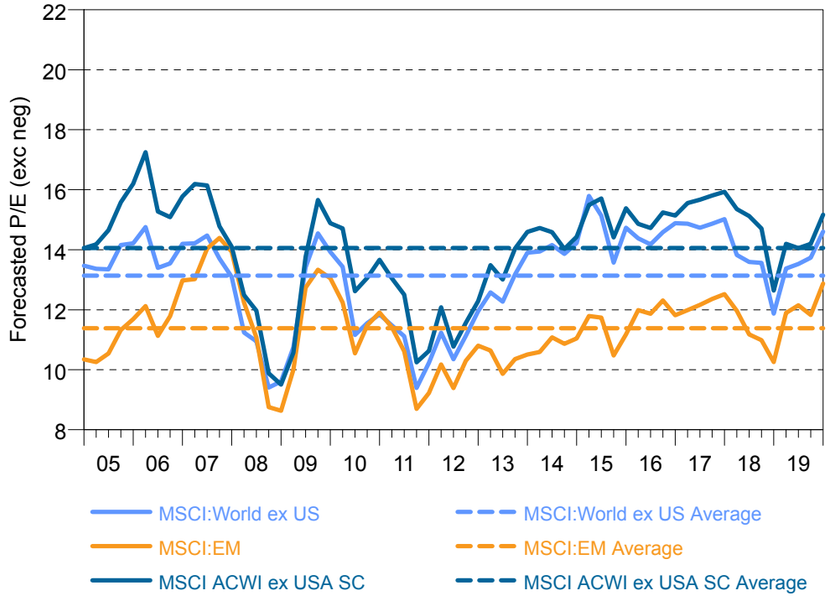
U.S. and Global ex-U.S. Equity Valuations

Back above their long-term average

Forecasted P/E (exc neg)
for 15 Years Ended December 31, 2019



Forecasted P/E (exc neg)
for 15 Years Ended December 31, 2019



- **Both U.S. and global ex-U.S. equity valuations are close to 9/30/18 and long-term historical averages. Does not indicate any valuation adjustment is warranted for 2020 CMAs**
  - U.S. equity valuations slightly above historical averages
  - Global ex-U.S. equity valuations slightly above historical averages
  - U.S. remains higher than developed ex-U.S. and emerging market equity valuations

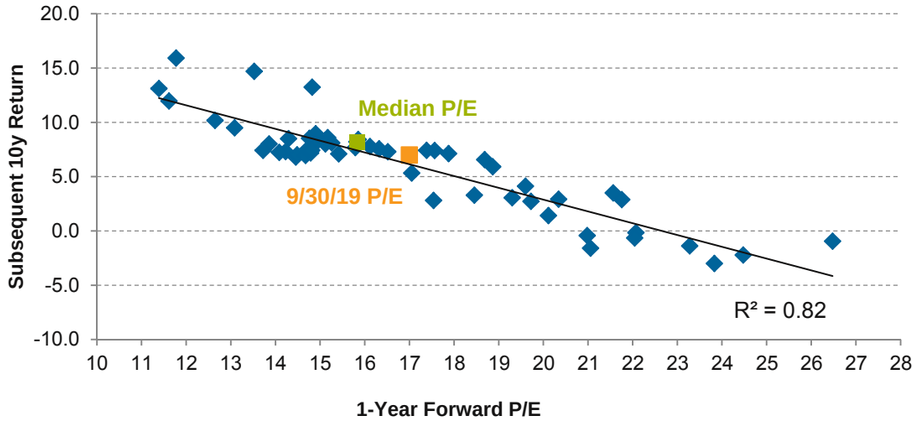
S&P 500 Valuations

- Other non-earnings based valuation metrics also indicate current valuations are close to long-term averages.
- A 7.0% 10-year U.S. large cap assumption at the current 9/30/19 valuation is consistent with history (shown to the right).
- While the current valuation is slightly higher than the historical average, there are many more extreme cases in just the past 23 years.

Valuation measure	Description	Latest	25-year average	Std. Dev. Over-/under-valued
P/E	Forward P/E	16.82x	16.22x	0.19
CAPE	Shiller's P/E	29.66	27.08	0.42
Div. Yield	Dividend yield	2.05%	2.10%	0.13
P/B	Price to book	3.11	2.95	0.22
P/CF	Price to cash flow	12.23	10.63	0.86
EY Spread	EY minus Baa yield	2.06%	-0.06%	-1.08

Forward P/E and Subsequent 10-year Annualized Returns

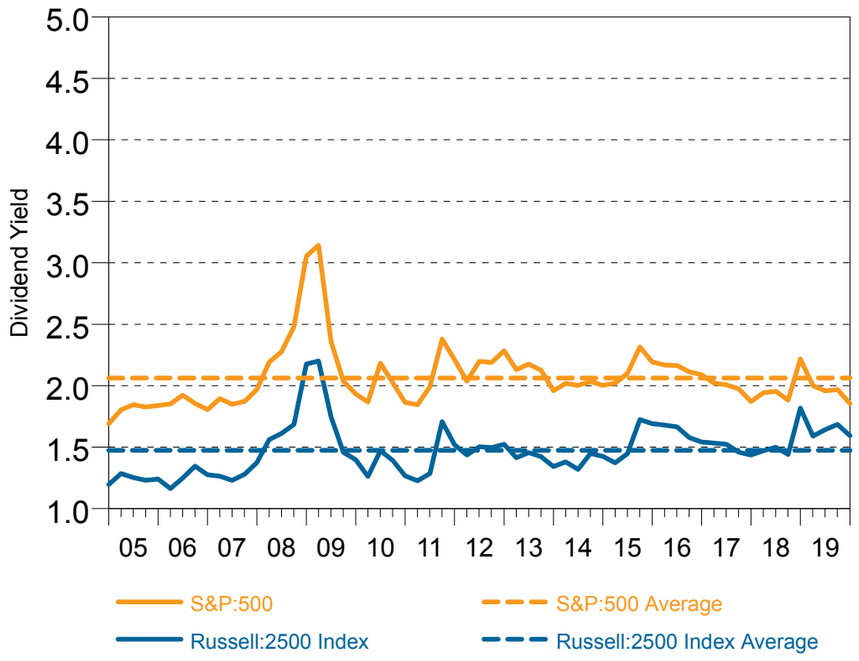
(S&P 500: 1996-2019)



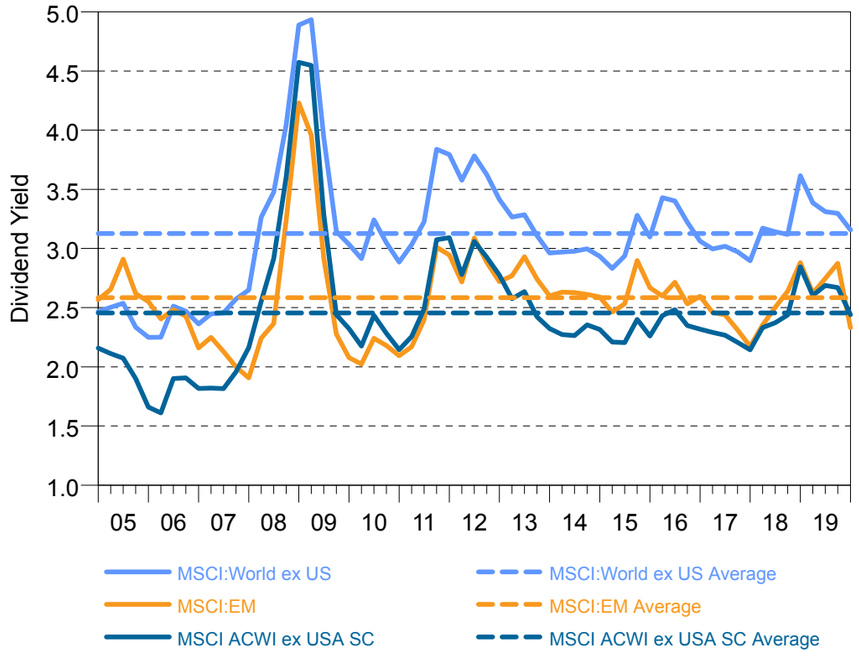
Source: Bureau of Labor Statistics, Callan

U.S. and Global ex-U.S. Dividend Yields

Dividend Yield
for 15 Years Ended December 31, 2019



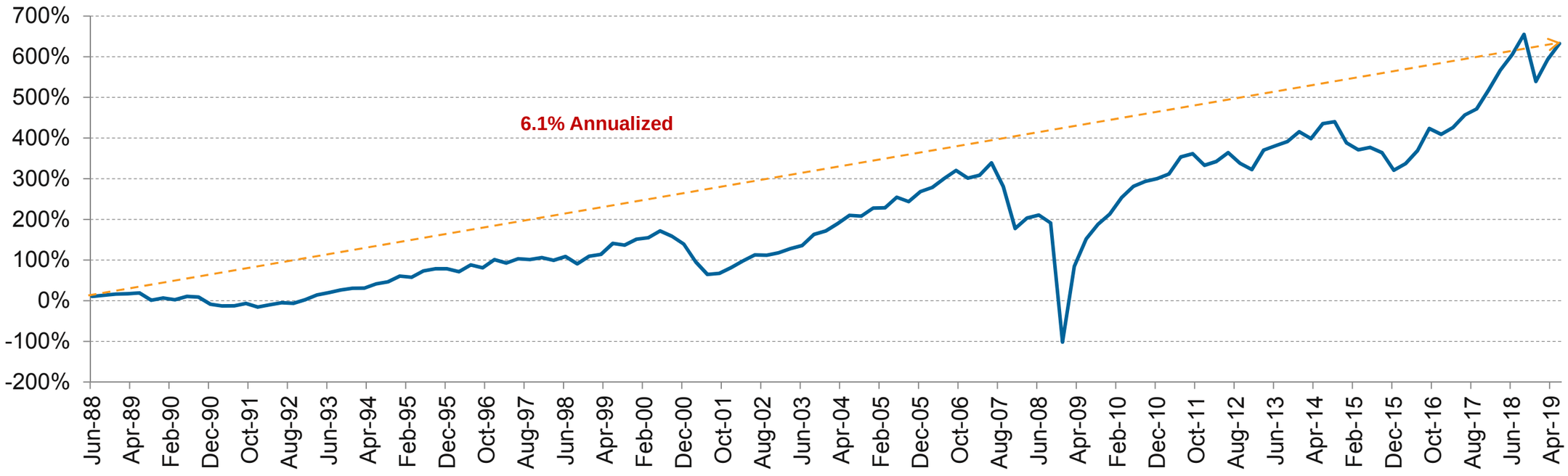
Dividend Yield
for 15 Years Ended December 31, 2019



- Both U.S. and global ex-U.S. equity dividend yields are close to 9/30/18 and long-term historical averages, supporting current dividend yield forecast retained for 2020 Capital Market Assumptions.
- Dividend yields are consistently higher in global ex-U.S. equity markets.

S&P 500 EPS Growth

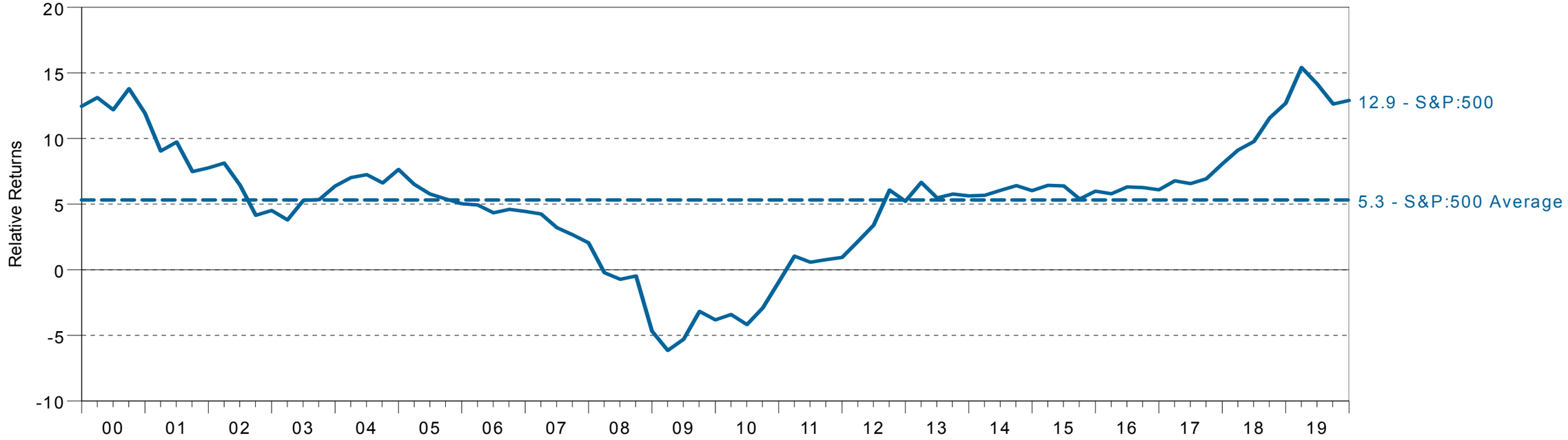
S&P 500: Cumulative EPS Growth (Nominal)



- EPS growth of the S&P 500 has been roughly 6% annualized over the past three decades.
- May overstate true growth in corporate profits due to net buyback activity
- Orange line represents long term trend

Equity Risk Premium: S&P 500 vs. T-bills

Rolling 40 Quarter Relative Returns Relative To 3 Month T-Bill for 20 Years Ended December 31, 2019



- Over the very long term, the equity risk premium (ERP) vs. cash is around 6%.
- Callan equity projection is at T-bills + 4.75%, a conservative estimate relative to long-term history.
- Over the past 30 years ERP vs. cash is lower, around 5%.
- Cash at 2.25%; ERP at 5% = Equity Return of 7.25%

2020 Capital Market Assumptions

- **Subdued expectations across the range of capital markets**
  - Over the next 10 years, we forecast annual GDP growth of 2% to 2.5% for the U.S., 1.5% to 2% for developed ex-U.S. markets, and 4% to 5% for emerging markets. Embedded in all of these economic forecasts is the expectation that the path to this longer-term growth will include cycles with recessions.
  - For broad U.S. equity, we assume an annualized return of 7.15% with a standard deviation (or risk) of 18.1%; for global ex-U.S. equity a return of 7.25% (risk: 20.5%).
  - For core U.S. fixed income we assume a return of 2.75% (risk: 3.75%).
- **The intent of Callan's Capital Market Assumptions is long-term strategic planning**
  - We have gradually ratcheted down our expectations over recent years to reflect a lower growth environment with lower expected returns. However, we only change our forecasts when we believe asset class prospects have materially changed.
  - Callan reduced fixed income expectations 100 bps for the broad U.S. market, reflecting the Fed pivot in 2019, and expectations for 2020 and beyond.
  - Callan maintained equity expectations unchanged. With the change in Fed policy, lower interest rate projections and reduction in fixed income return expectations, we have raised the equity risk premium 100 bps from our capital market projections set in 2019.
  - We believe the rationale for our long-term assumptions set a year ago; we confirm our belief that a 10-year S&P 500 equity forecast of 4.75% in annualized real terms is solid. This forecast is somewhat lower than the index's longer-horizon performance and reflects more subdued prospects for U.S. economic growth relative to history.

2020 Callan Capital Market Assumptions

Risk and return: 2020–2029

Asset Class	Index	PROJECTED RETURN 1-Year Arithmetic	PROJECTED RETURN 10-Year Geometric*	PROJECTED RETURN Real	PROJECTED RISK Standard Deviation	Projected Yield
Equities						
Broad U.S. Equity	Russell 3000	8.55%	7.15%	4.90%	18.10%	2.00%
Large Cap U.S. Equity	S&P 500	8.35%	7.00%	4.75%	17.70%	2.10%
Small Cap U.S. Equity	Russell 2500	9.25%	7.25%	5.00%	21.20%	1.55%
Global ex-U.S. Equity	MSCI ACWI ex USA	9.10%	7.25%	5.00%	20.50%	3.10%
Developed ex-U.S. Equity	MSCI World ex USA	8.70%	7.00%	4.75%	19.70%	3.25%
Emerging Market Equity	MSCI Emerging Markets	10.25%	7.25%	5.00%	25.70%	2.65%
Fixed Income						
Short Duration Gov't/Credit	Bloomberg Barclays 1-3 Yr G/C	2.70%	2.70%	0.45%	2.10%	2.85%
Core U.S. Fixed	Bloomberg Barclays Aggregate	2.80%	2.75%	0.50%	3.75%	3.40%
Long Government	Bloomberg Barclays Long Gov	2.55%	1.80%	-0.45%	12.50%	3.40%
Long Credit	Bloomberg Barclays Long Cred	3.75%	3.25%	1.00%	10.50%	5.05%
Long Government/Credit	Bloomberg Barclays Long G/C	3.25%	2.75%	0.50%	10.60%	4.45%
TIPS	Bloomberg Barclays TIPS	2.50%	2.40%	0.15%	5.05%	3.15%
High Yield	Bloomberg Barclays High Yield	5.10%	4.65%	2.40%	10.25%	7.30%
Global ex-U.S. Fixed	Bloomberg Barclays Glbl Agg xUSD	1.30%	0.90%	-1.35%	9.20%	2.05%
Emerging Market Sovereign Debt	EMBI Global Diversified	4.70%	4.35%	2.10%	9.50%	6.70%
Other						
Core Real Estate	NCREIF ODCE	7.05%	6.25%	4.00%	14.00%	4.75%
Private Equity	Cambridge Private Equity	12.00%	8.50%	6.25%	27.80%	0.00%
Hedge Funds	Callan Hedge FOF Database	5.25%	5.00%	2.75%	8.70%	0.00%
Commodities	Bloomberg Commodity	4.50%	2.75%	0.50%	18.00%	2.25%
Cash Equivalents	90-day T-bill	2.25%	2.25%	0.00%	0.90%	2.25%
Inflation	CPI-U		2.25%		1.50%	

Note that return projections for public markets assume index returns with no premium for active management.

- Geometric returns are derived from arithmetic returns and the associated risk (standard deviation); Projected yields represent the expected 10-year average
  Source: Callan

2020 Callan Capital Market Assumptions

Correlation: 2020 - 2029

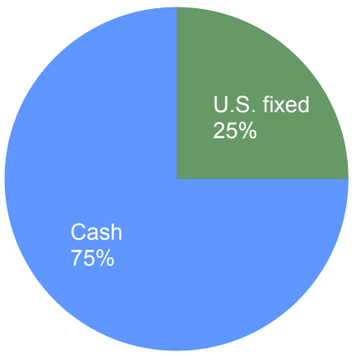
	Lg Cap	Sm/Mid	Dev ex-US	Em Market Eq	Sht Dur	Core Fix	Long Gov	Long Credit	TIPS	Hi Yield	Global ex-US Fixed	EMD	Core Real Estate	Private Equity	Hedge Funds	Comm	Cash Equiv	Inflation
Large Cap U.S. Eq	1.000																	
Small/Mid Cap U.S. Eq	0.915	1.000																
Dev. ex-U.S. Eq	0.765	0.775	1.000															
Emerging Market Eq	0.775	0.765	0.845	1.000														
Short Duration	-0.040	-0.065	-0.050	-0.080	1.000													
Core U.S. Fixed	-0.100	-0.125	-0.105	-0.140	0.845	1.000												
Long Government	-0.100	-0.125	-0.110	-0.170	0.770	0.900	1.000											
Long Credit	0.300	0.275	0.230	0.230	0.640	0.840	0.750	1.000										
TIPS	-0.040	-0.075	-0.050	-0.085	0.555	0.640	0.530	0.480	1.000									
High Yield	0.600	0.585	0.570	0.560	-0.030	0.030	-0.100	0.400	0.055	1.000								
Global ex-U.S. Fixed	0.010	0.000	0.050	0.100	0.495	0.530	0.470	0.540	0.400	0.120	1.000							
EM Sovereign Debt	0.530	0.515	0.515	0.545	0.050	0.110	-0.010	0.350	0.180	0.600	0.010	1.000						
Core Real Estate	0.695	0.665	0.660	0.625	-0.005	-0.035	-0.045	0.320	0.000	0.455	-0.050	0.360	1.000					
Private Equity	0.830	0.805	0.795	0.765	-0.160	-0.185	-0.250	0.190	-0.135	0.525	0.060	0.425	0.600	1.000				
Hedge Funds	0.775	0.750	0.745	0.720	0.055	0.100	0.120	0.390	0.085	0.560	-0.050	0.540	0.525	0.635	1.000			
Commodities	0.220	0.210	0.205	0.200	-0.195	-0.100	-0.030	-0.045	0.120	0.100	0.150	0.190	0.200	0.180	0.210	1.000		
Cash Equivalents	-0.030	-0.045	-0.030	-0.065	0.300	0.100	0.040	-0.100	0.120	-0.110	0.000	-0.070	-0.060	0.000	-0.070	0.070	1.000	
Inflation	-0.020	0.020	0.000	0.030	-0.205	-0.280	-0.250	-0.250	0.100	0.070	-0.100	0.000	0.100	0.060	0.200	0.400	0.000	1.000

- Relationships between asset classes are as important as standard deviation
- To determine portfolio mixes, Callan employs mean-variance optimization
- Return, standard deviation, and correlation determine the composition of efficient asset mixes

Source: Callan

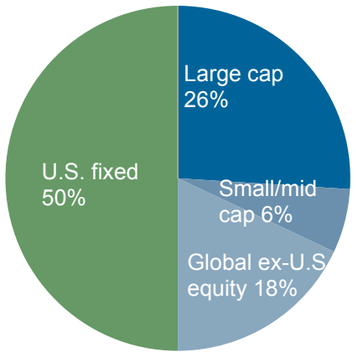
7.5% Expected Returns Over Past 30+ Years

Increasing Complexity



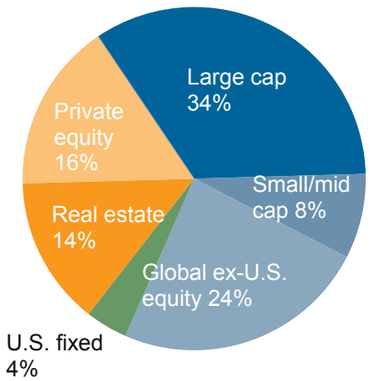
1989

Return: **7.5%**
Risk: **3.1%**



2004

Return: **7.5%**
Risk: **8.9%**



2019

Return: **7.5%**
Risk: **17.2%**

Increasing Risk

In 1989, our expectations for cash and broad U.S. fixed income were 6.80% and 9.35%, respectively.

Growth assets were not required to earn a 7.5% expected return.

15 years later, an investor would have needed half of the portfolio in public equities to achieve a 7.5% expected return, nearly tripling the portfolio volatility of 1989.

Today an investor is required to include 96% in growth assets to earn a 7.5% expected return at almost 5x the volatility compared to 1989.

Source: Callan

Callan

Callan Update

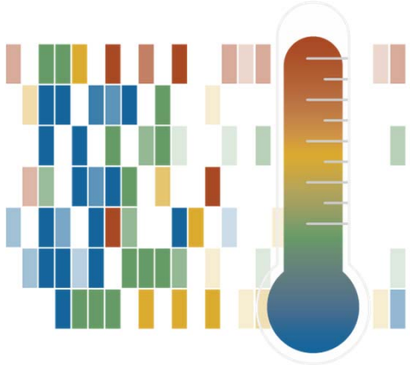
Published Research Highlights from 4Q19

Callan's 2019 Investment Management Fee Study

Long-Dated Private Equity Funds: More Illiquidity Please

Gold: Real Asset, Risk Mitigator, or Pet Rock?

Real Estate Indicators: Too Hot to Touch or Cool Enough to Handle?



Recent Blog Posts

What You Need to Know About the SECURE Act

James Veneruso

ESG: What the Future May Hold

Mike Stellato

10 Questions to Address When Evaluating Infrastructure Managers

Jan Mende

Additional Reading

Private Equity Trends quarterly newsletter
Active vs. Passive quarterly charts
Capital Market Review quarterly newsletter
Monthly Updates to the Periodic Table
Market Pulse Flipbook quarterly markets update
Real Assets Reporter quarterly newsletter

Callan Institute Events

Upcoming Conferences, Workshops, and Webinars

"Callan College"

These sessions provide institutional investors across the industry with basic- to intermediate-level instruction.

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San Francisco, April 21–22, 2020
Chicago, July 21-22, 2020
Chicago, October 13-14, 2020

Introduction to Alternative Investments

San Francisco, June 16, 2020
Chicago, November 3, 2020

All sessions qualify for continuing education credits

Register at callan.com/callan-institute-events

"The Introduction to Alternative Investments sessions are a great opportunity for investors of all types to get a thorough introduction to alternative investments and meet the Callan team."

Pete Keliuotis
Executive Vice President

2020 DC Trends Webinar

February 20, 2020, at 9:30 am (PST)

During this webinar, Callan experts Jamie McAllister and Greg Ungerman will offer key insights from our *DC Trends Survey.* They will discuss in detail the SECURE Act, retirement income solutions, and plan leakage as well as other key findings. They will be joined by an industry specialist, Marla Kreindler, a partner at Morgan Lewis.

Regional Workshops

San Francisco, June 23, 2020
Chicago, June 25, 2020
Atlanta, October 27, 2020
Portland, October 29, 2020

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Visit our website for On-Demand webinar options at https://www.callan.com/on-demand-webinars/

Our most recent webinar covered Callan's Capital Market Assumptions.

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12) Asset Class Overview

February 19, 2020

Alaska Permanent Fund Corporation

4th Quarter 2019
Performance Review

Marcus Frampton, CFA, CAIA, FRM
Chief Investment Officer

Greg Allen
CEO and Chief Research Officer

Steven Center, CFA
Senior Vice President

Agenda

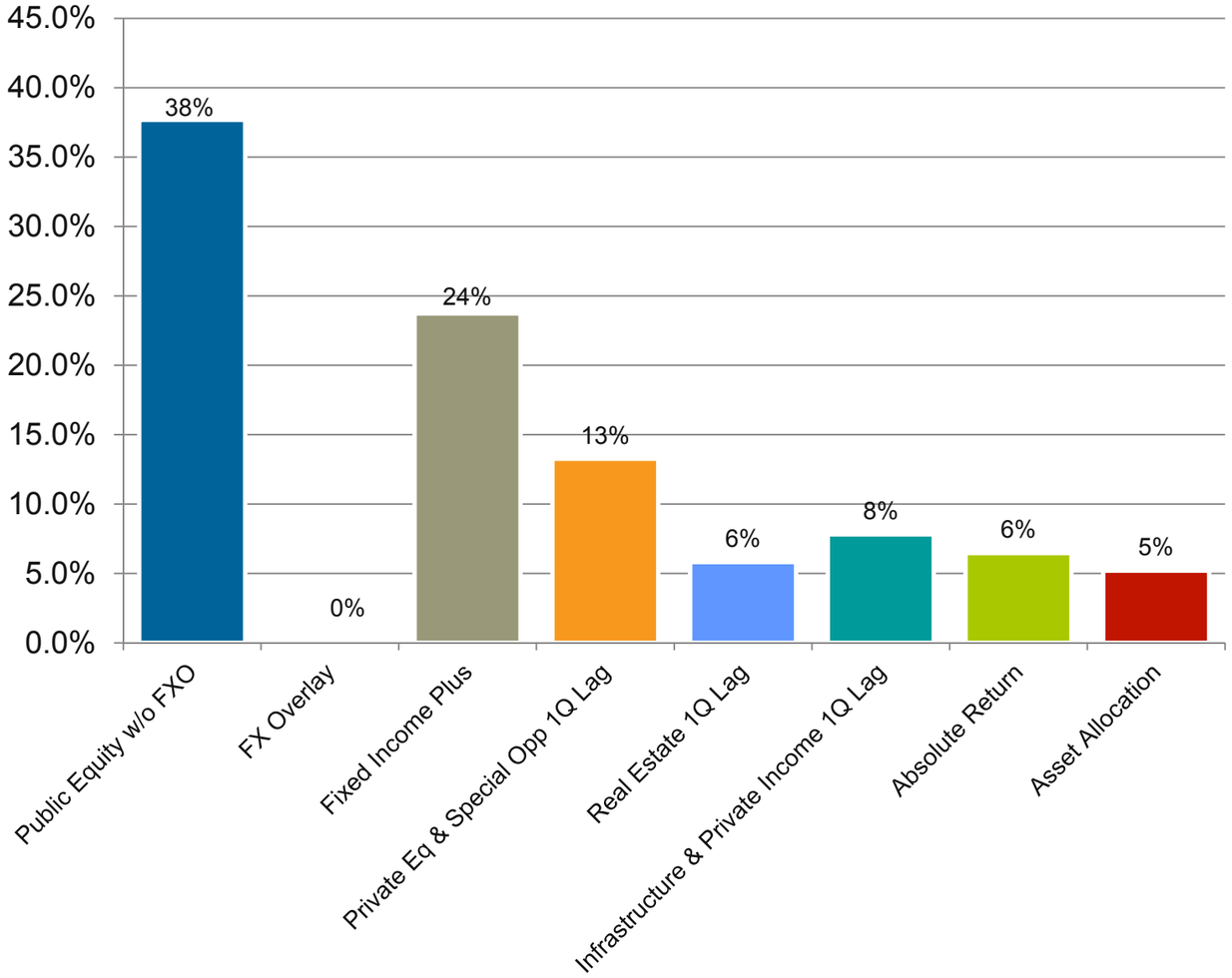
- Total Fund Asset Allocation and Performance
- Asset Class Structure and Performance

Total Fund
Asset Allocation and Performance

Total Fund Asset Allocation

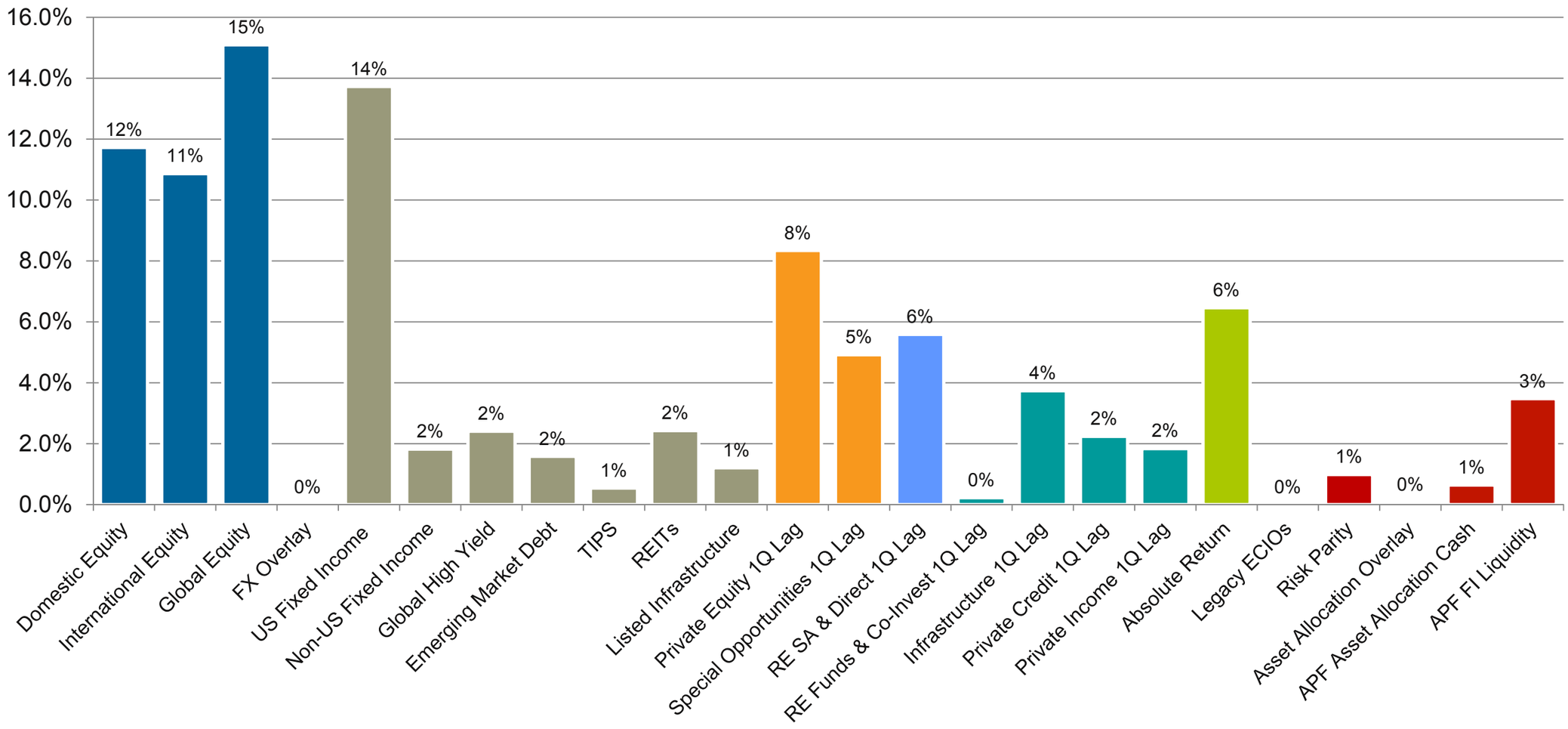
As of December 31, 2019

- APFC portfolio is well diversified across all major asset classes employed by institutional investors.
- Using institutional standard asset class definitions, the portfolio is currently allocated 38% to public equity, 24% to fixed income, and 38% to alternative investments.
- Compared to allocations in the third quarter, this reflects a slight increase in public equity and a decrease in alternatives.
- Alternatives include private equity, special opportunities, real estate, private infrastructure, private credit, private income, absolute return, and asset allocation.
- Private Equity & Special Opportunities, Real Estate, and Infrastructure & Private Income are reported on a one-quarter lag.
- ~$1.8M remained in FX Overlay program as of 12/31.



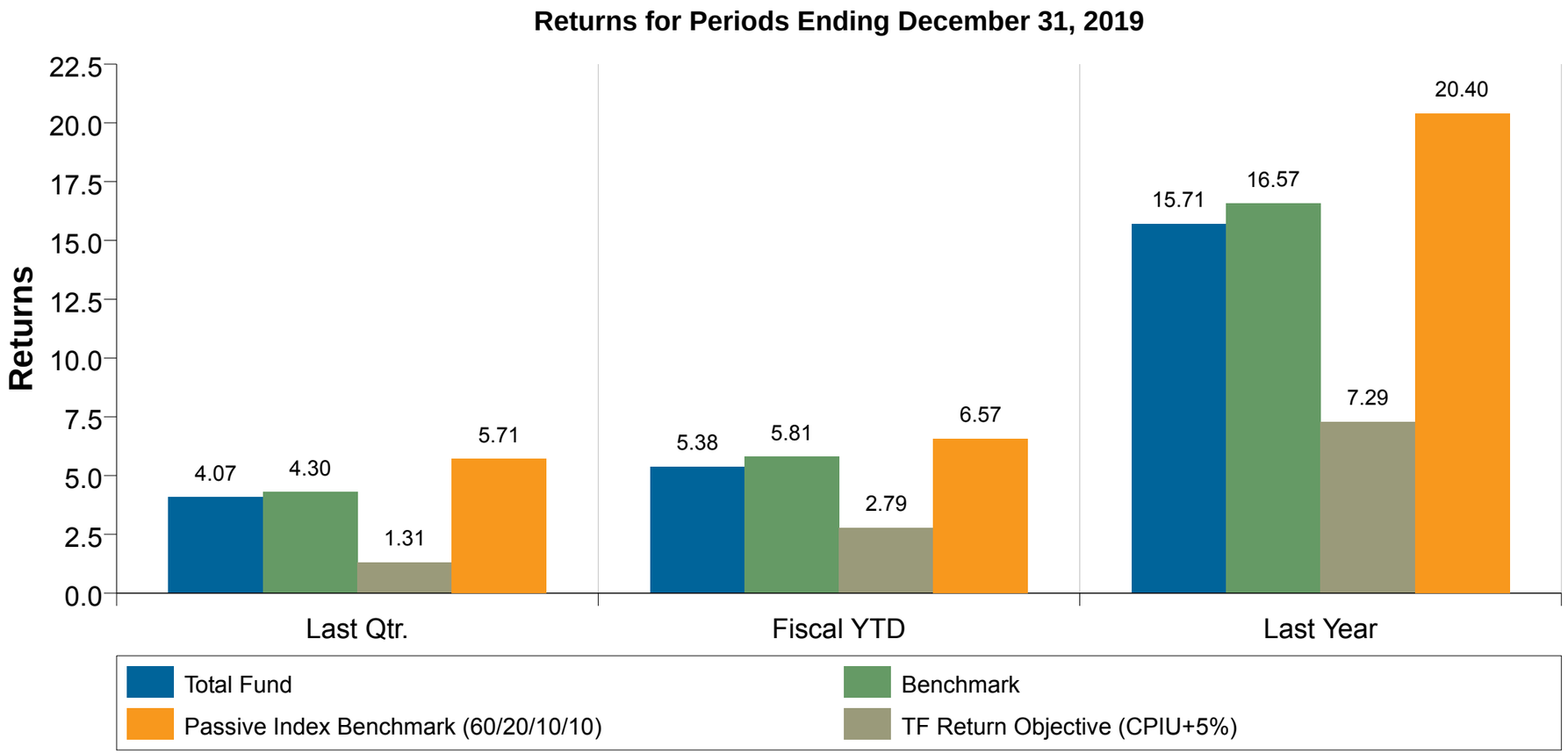
Total Fund Asset Allocation

As of December 31, 2019



APFC Total Fund Cumulative Returns

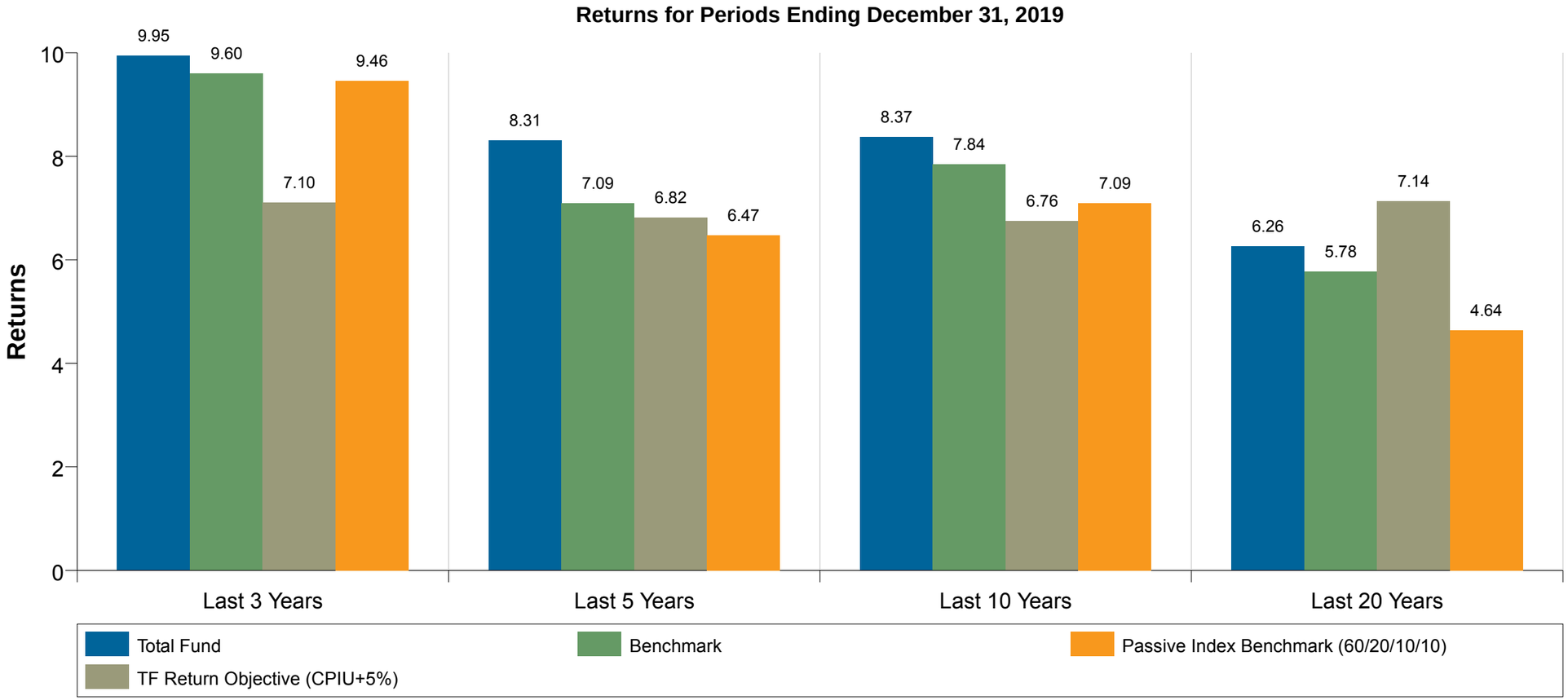
Total Fund versus Total Fund Targets



- Benchmark (FY19-FY20) = 38.0% MSCI ACWI IMI, 1.1% 90 Day T-Bills, 1.1% BB US TIPS, 5.5% BB Agg, 5.5% BB Corp IG, 2.2% BB Global Treasury ex-US Hedged, 0.55% JPM EMBI Global Diversified, 0.55% JPM GBI-EM Global Diversified TR, 2.2% BB US High Yield 2% Issuer Cap, 2.0% S&P Global REIT, 1.1% S&P Global Listed Infrastructure, 12% Cambridge PE (lagged), 11% NCREIF Total Index (lagged), 4.2% FTSE Developed Core Infrastructure (lagged), 2.8% BB US High Yield 2% Issuer Cap (lagged), 5% HFRI Total HFOF Universe (weighted), 2% 90 Day T-Bills, and 3% Performance Benchmark (rounded to nearest tenth).

APFC Total Fund Cumulative Returns

Total Fund versus Total Fund Targets



- Benchmark (FY19-FY20) = 38.0% MSCI ACWI IMI, 1.1% 90 Day T-Bills, 1.1% BB US TIPS, 5.5% BB Agg, 5.5% BB Corp IG, 2.2% BB Global Treasury ex-US Hedged, 0.55% JPM EMBI Global Diversified, 0.55% JPM GBI-EM Global Diversified TR, 2.2% BB US High Yield 2% Issuer Cap, 2.0% S&P Global REIT, 1.1% S&P Global Listed Infrastructure, 12% Cambridge PE (lagged), 11% NCREIF Total Index (lagged), 4.2% FTSE Developed Core Infrastructure (lagged), 2.8% BB US High Yield 2% Issuer Cap (lagged), 5% HFRI Total HFOF Universe (weighted), 2% 90 Day T-Bills, and 3% Performance Benchmark (rounded to nearest tenth).

APFC Total Fund Attribution

For One Quarter Ended December 31, 2019

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Public Equity + FXO	37%	37%	9.66%	9.05%	0.22%	0.02%	0.24%
Fixed Income Plus	24%	20%	1.35%	1.02%	0.08%	(0.13%)	(0.05%)
Real Estate	6%	12%	0.64%	1.41%	(0.05%)	0.17%	0.13%
Infrastructure & Priv Inc	8%	8%	2.06%	2.40%	(0.03%)	0.00%	(0.02%)
Absolute Return	6%	5%	2.24%	3.50%	(0.08%)	(0.01%)	(0.09%)
Private Eq & Special Opp	14%	13%	(1.36%)	0.90%	(0.32%)	(0.02%)	(0.34%)
Asset Allocation	5%	5%	0.83%	2.75%	(0.09%)	0.00%	(0.09%)
Total			**4.07% =**	**4.30% +**	**(0.27%) +**	**0.04%**	**(0.23%)**

- In the fourth quarter, the Total Fund underperformed the Performance Benchmark by 0.2%.
- Manager performance within Private Equity & Special Opportunities and asset allocation effects in Fixed Income Plus were the primary contributors to relative underperformance.
- In aggregate, active management subtracted 27 basis points from relative performance, while deviations from the Policy Target added 4 basis points.

APFC Total Fund Attribution

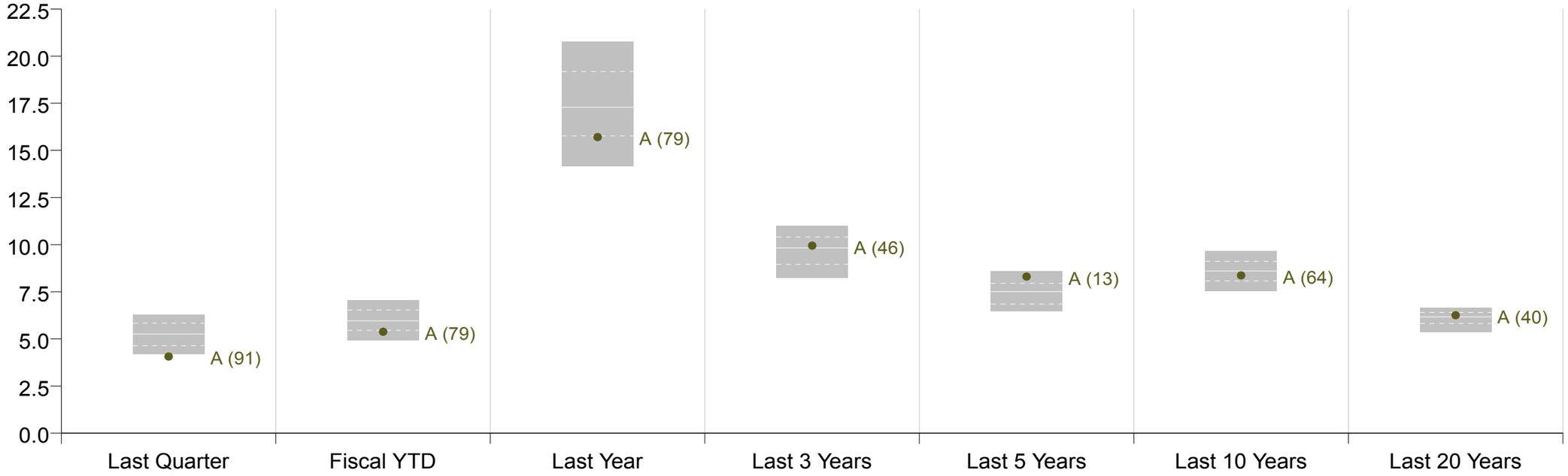
For One Year Ended December 31, 2019

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Public Equity + FXO	38%	37%	26.53%	26.35%	0.07%	(0.03%)	0.04%
Fixed Income Plus	24%	21%	13.70%	12.79%	0.22%	(0.15%)	0.07%
Real Estate	6%	11%	0.78%	6.24%	(0.37%)	0.53%	0.16%
Infrastructure & Priv Inc	8%	7%	7.14%	12.79%	(0.51%)	(0.03%)	(0.54%)
Absolute Return	6%	5%	5.93%	10.38%	(0.28%)	(0.05%)	(0.33%)
Private Eq & Special Opp	13%	13%	8.98%	9.50%	(0.09%)	(0.10%)	(0.19%)
Asset Allocation	5%	5%	9.03%	10.68%	(0.07%)	(0.01%)	(0.08%)
Total			**15.71%**	**= 16.57%**	**+ (1.03%)**	**+ 0.16%**	**(0.87%)**

- For the one year period ended December 31, 2019, the Total Fund underperformed the Performance Benchmark by 0.9%.
- Manager underperformance in Real Estate, Infrastructure & Private Income, and Absolute Return were the primary contributors to negative relative return. The underweight to Real Estate contributed to performance.
- In aggregate, active management detracted 103 basis points and asset allocation decisions added 16 basis points in relative performance.

APFC Total Fund Relative to Callan's Large Public Fund Database

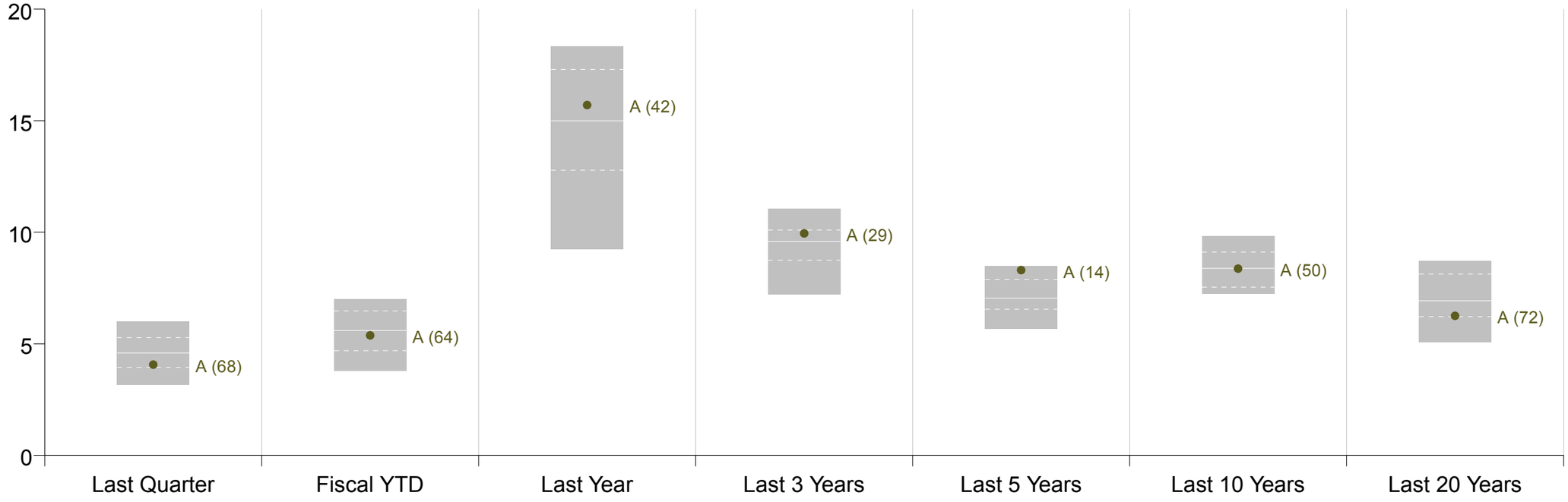
Returns for Periods Ended December 31, 2019
Group: Callan Public Fund Sponsor - Large (>1B)



	Last Quarter	Fiscal YTD	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 20 Years
10th Percentile	6.28	7.04	20.76	11.01	8.58	9.66	6.65
25th Percentile	5.83	6.54	19.18	10.40	7.95	9.12	6.41
Median	5.26	5.96	17.28	9.83	7.52	8.60	6.17
75th Percentile	4.64	5.45	15.77	8.96	6.86	8.07	5.83
90th Percentile	4.20	4.92	14.17	8.25	6.46	7.52	5.37
Member Count	92	92	92	92	92	86	73
Total Fund ● A	4.07	5.38	15.71	9.95	8.31	8.37	6.26

APFC Total Fund Relative to Callan's Large Endowment / Foundation Database

Returns for Periods Ended December 31, 2019
Group: Callan Endow/Foundation - Large (>1B)

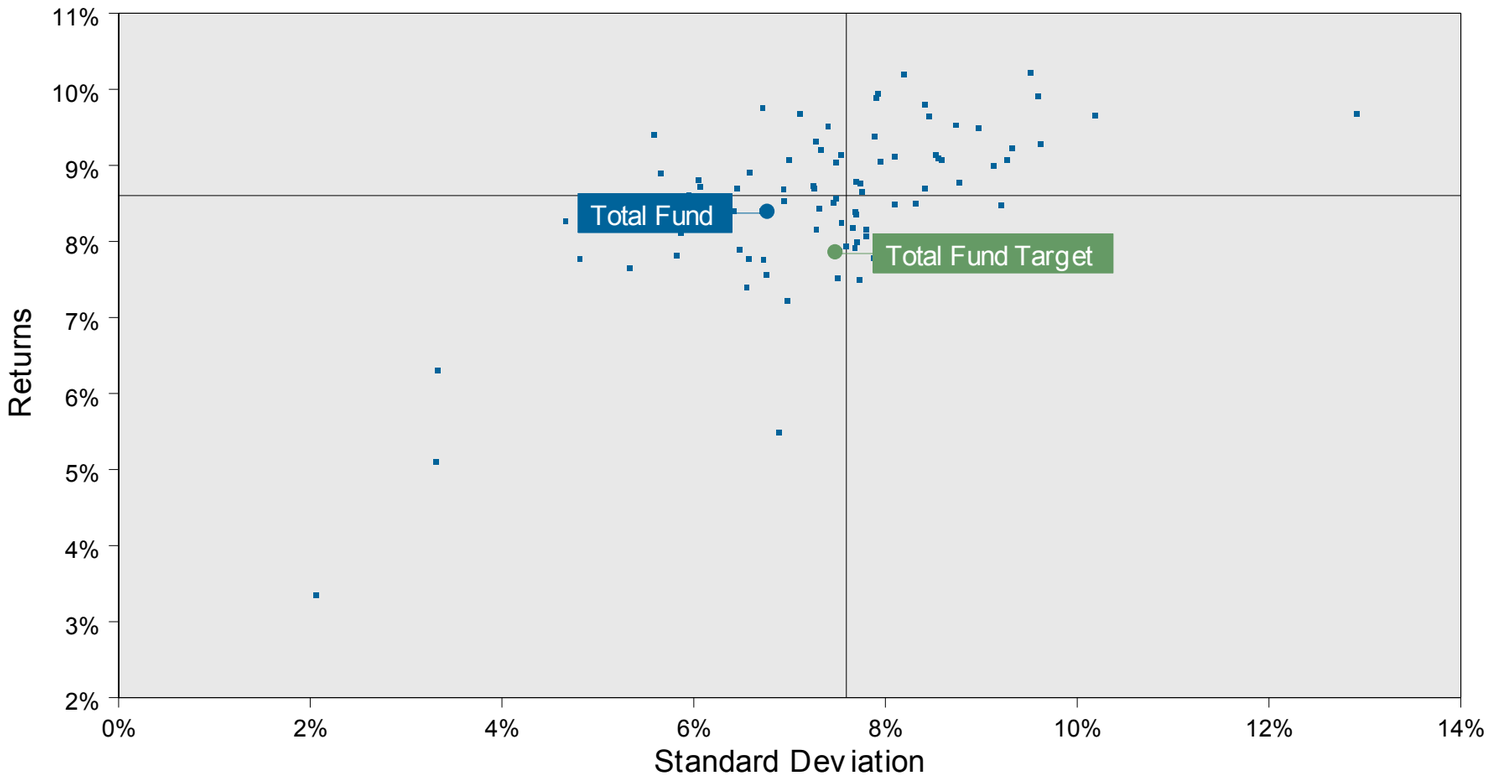


	Last Quarter	Fiscal YTD	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 20 Years
10th Percentile	6.00	7.00	18.32	11.05	8.50	9.83	8.72
25th Percentile	5.28	6.48	17.30	10.10	7.88	9.12	8.13
Median	4.59	5.60	15.00	9.59	7.04	8.38	6.93
75th Percentile	3.94	4.70	12.78	8.75	6.55	7.54	6.22
90th Percentile	3.16	3.80	9.24	7.22	5.69	7.24	5.08
Member Count	37	37	37	37	37	36	25
Total Fund ● A	4.07	5.38	15.71	9.95	8.31	8.37	6.26

APFC Total Fund Return versus Standard Deviation

Relative to Callan's Large Public Fund Database

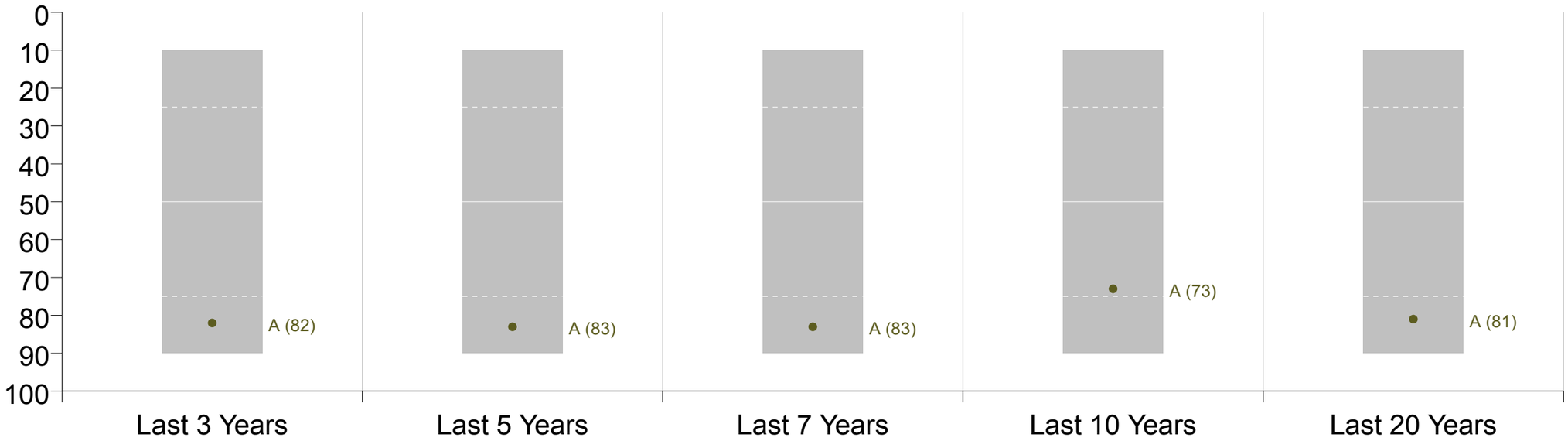
Ten Year Annualized Risk vs Return



Squares represent membership of the Callan Public Fund Spons - Large (>1B)

APFC Total Fund Standard Deviation Relative to Callan's Large Public Fund Database

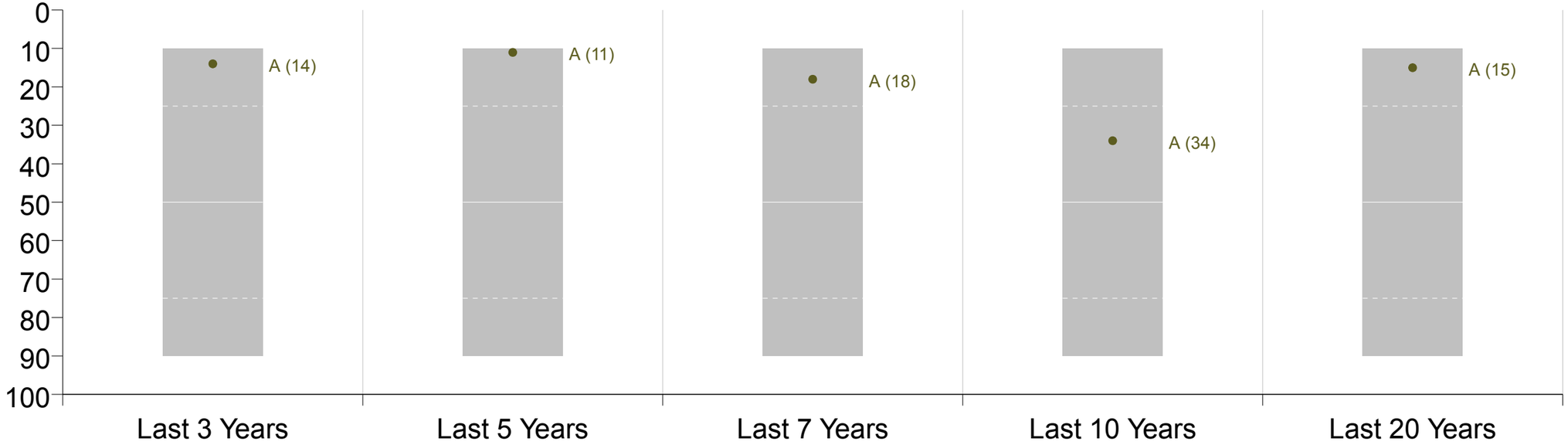
Standard Deviation for Periods Ended December 31, 2019
Group: Callan Public Fund Sponsor - Large (>1B)



	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years	Last 20 Years
10th Percentile	9.03	8.07	7.41	9.25	10.81
25th Percentile	8.04	7.23	6.65	8.19	10.37
Median	7.00	6.50	6.12	7.59	9.93
75th Percentile	6.29	5.87	5.53	6.66	9.06
90th Percentile	5.08	4.64	4.34	5.87	8.46
Member Count	92	92	89	86	73
Total Fund ● A	5.81	5.54	5.22	6.78	8.77

APFC Total Fund Sharpe Ratio Relative to Callan's Large Public Fund Database

Sharpe Ratio for Periods Ended December 31, 2019
Group: Callan Public Fund Sponsor - Large (>1B)



	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years	Last 20 Years
10th Percentile	1.46	1.34	1.57	1.32	0.56
25th Percentile	1.28	1.13	1.42	1.19	0.49
Median	1.12	0.98	1.24	1.05	0.45
75th Percentile	0.97	0.84	1.10	0.96	0.41
90th Percentile	0.89	0.76	0.99	0.91	0.38
Member Count	92	92	89	86	73
Total Fund • A	1.42	1.31	1.48	1.15	0.51

APFC Total Fund Performance Scorecard

As of December 31, 2019

Time Horizon	Objective	APFC	Benchmark	Percentile[1]
Short-Term (1-Year Return)	Outperform 50/50 Blend of Performance and Passive Indexes	15.7%	18.5%	92%
Medium-Term (3-Year Return)	Outperform Peers	10.0%	9.8%	46%
Long-Term (5-Year Return & Sharpe Ratio)	Outperform CPI + 5%	8.3%	6.8%	23%
	Sharpe Ratio > 0.5	1.31	1.07	32%
			Average Long-Term Percentile	28%
			Average Percentile Ranking Among the Three Objectives	49%

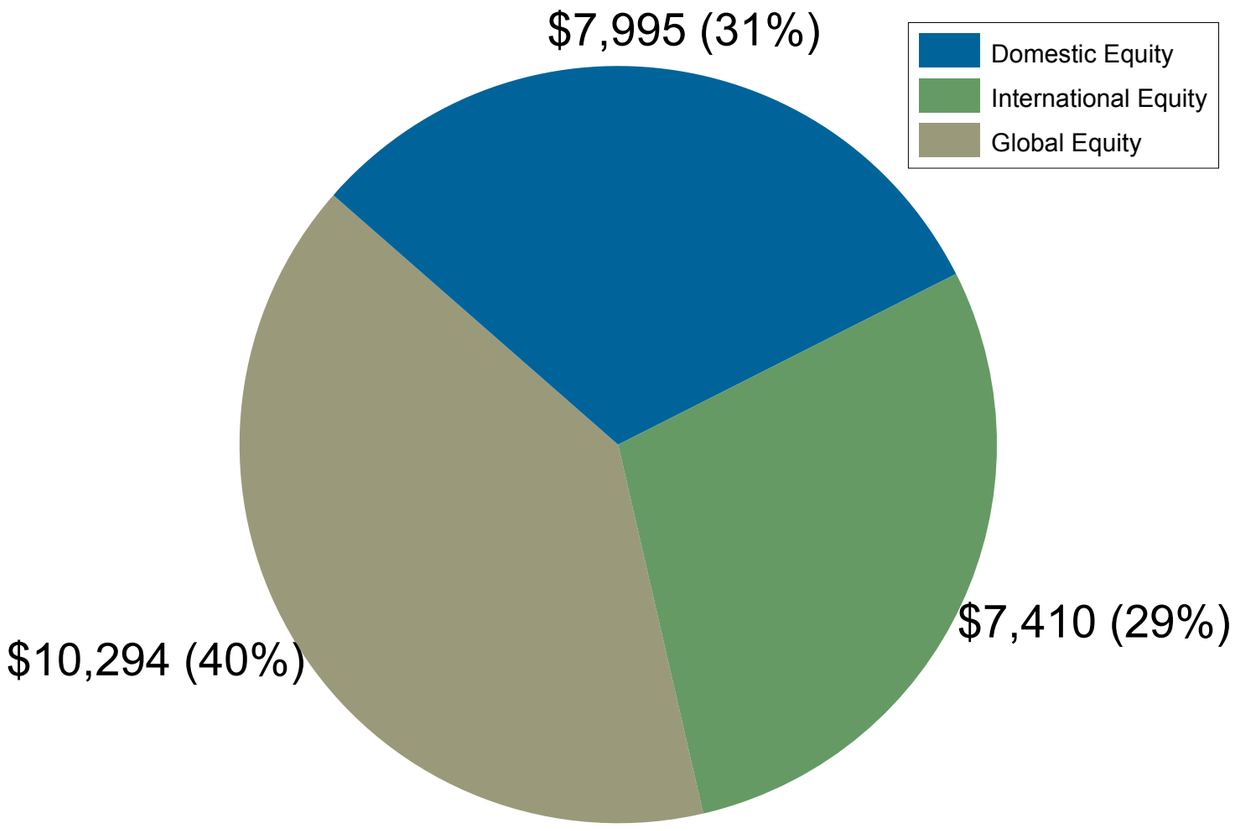
[1]Callan's Large Public Fund Peer Group is used for percentile rank purposes for the Medium-Term. Short- and Long-Term percentiles are implied per guidelines.

Asset Classes
Structure and Performance

APFC Public Equity Structure

As of December 31, 2019

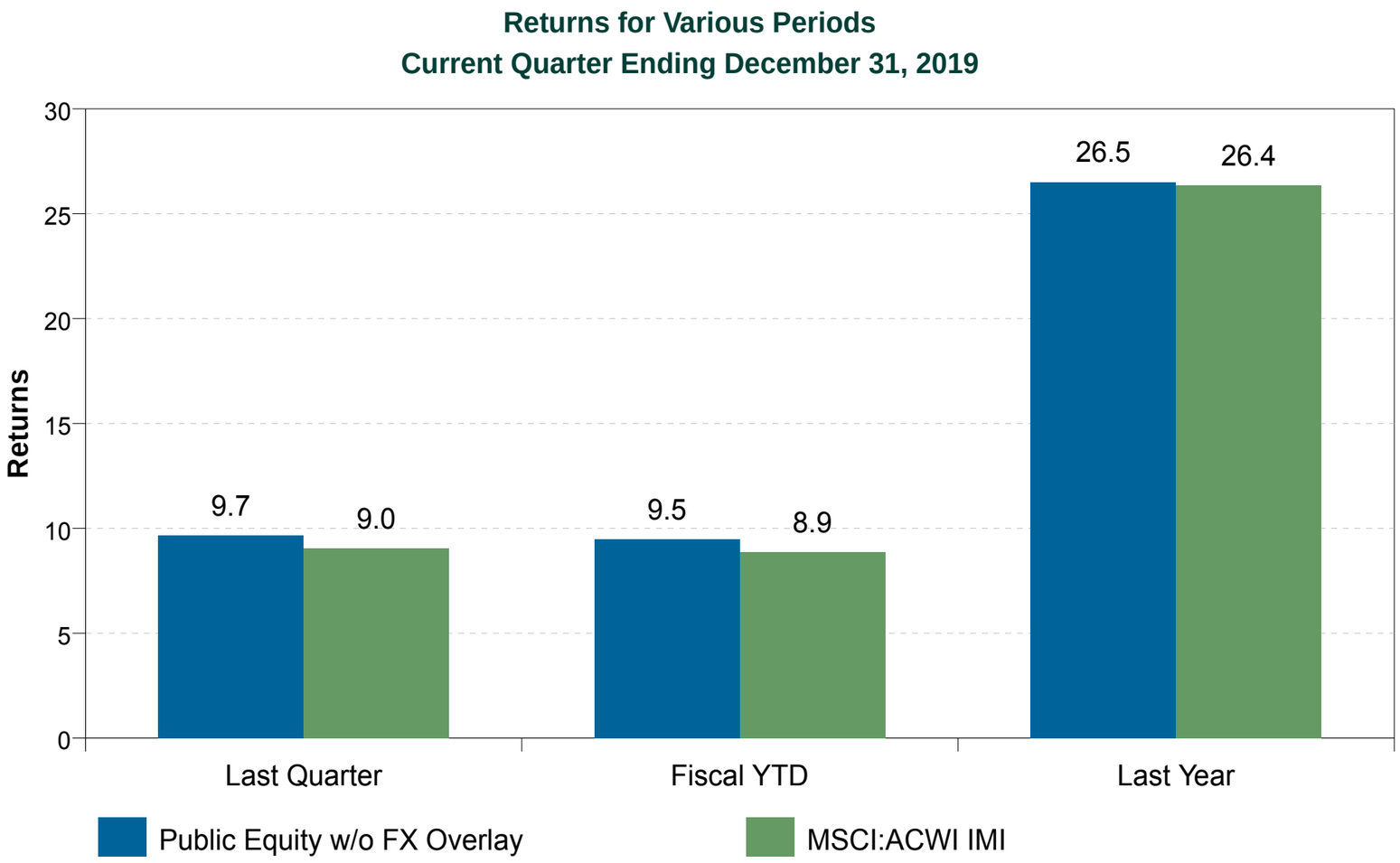
- APFC Public Equity portfolio has a weighting of roughly 54% in US equity, and 46% in non-US equity.
- The MSCI ACWI IMI benchmark has a weighting of roughly 55% in US equity, and 45% in non-US equity.
- The median allocation to US equity across public equity portfolios in Callan's Large Public Fund Sponsor database is roughly 60%.



APFC Public Equity vs. MSCI ACWI-IMI

Periods Ended December 31, 2019

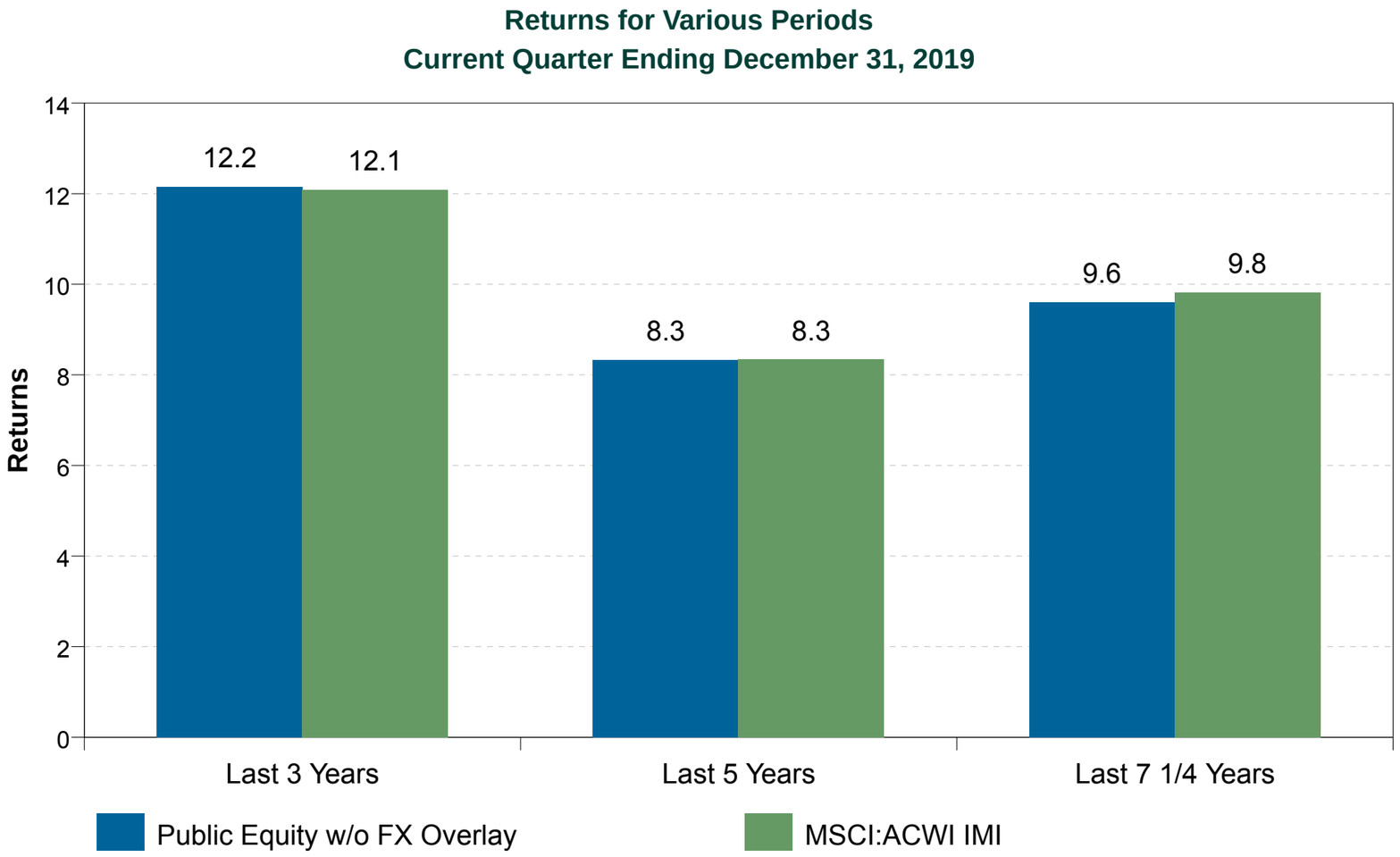
- APFC Public Equity portfolio outperformed the MSCI ACWI IMI index for the recent quarter and was slightly ahead over the trailing one-year period.
- Domestic and International Equity composites ended ahead their respective benchmarks in the latest quarter; Global Equity lagged and ended behind its benchmark. Over the one-year period International and Global Equity outperformed, while domestic Equity fell short of its benchmark



APFC Public Equities Performance vs. MSCI ACWI-IMI

Periods Ended December 31, 2019

- APFC Public Equity portfolio continued to track the index in both the intermediate- and long-term periods.
- Overall, the portfolio is well diversified across regions, countries, and underlying strategies.

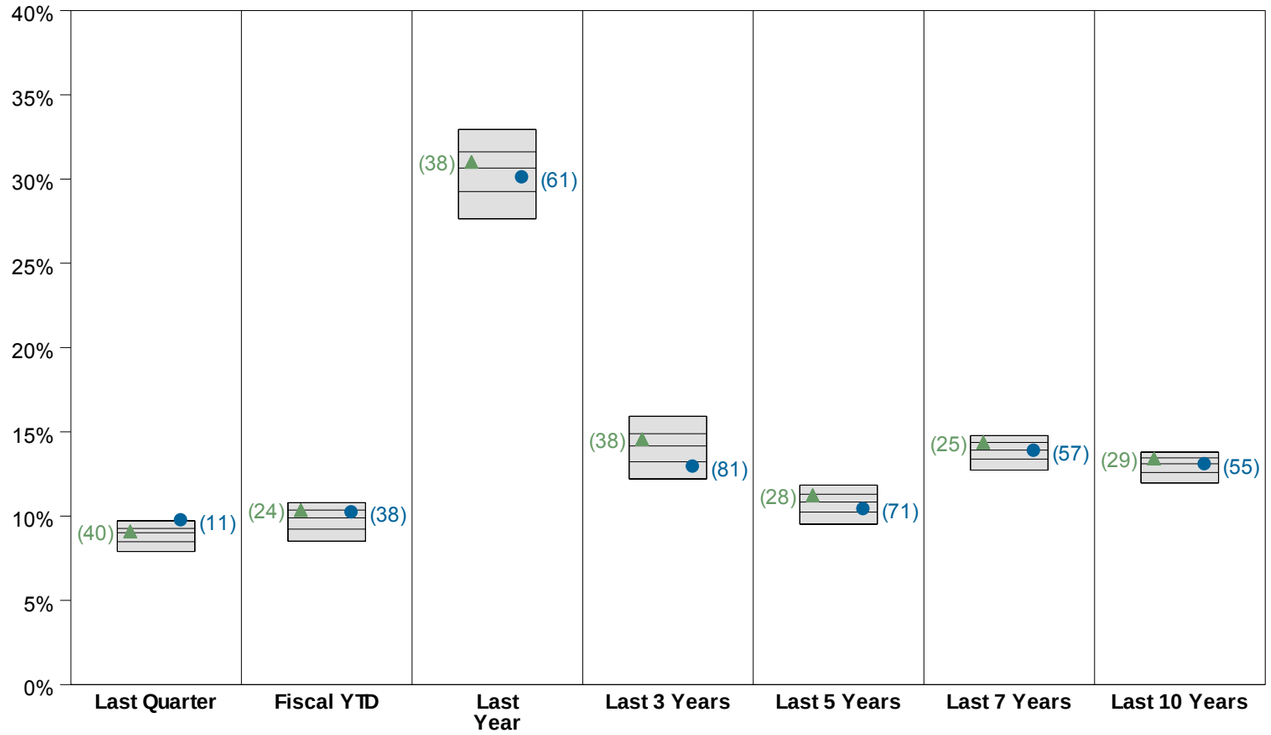


APFC US Equity Performance vs. Fund Sponsor US Equity

Periods Ended December 31, 2019

- The universe is comprised of total domestic equity portfolios of large institutional investors in Callan's Fund Sponsor Database.
- APFC US Equity portfolio ended the recent quarter ahead of its benchmark, but lagged over long term periods.
- When compared to US Equity portfolios of other large institutional investors, APFC's US Equity composite ranks below median in the short-, intermediate-, and long-term time periods shown.

Performance vs Fund Spnsor - Domestic Equity (Gross)



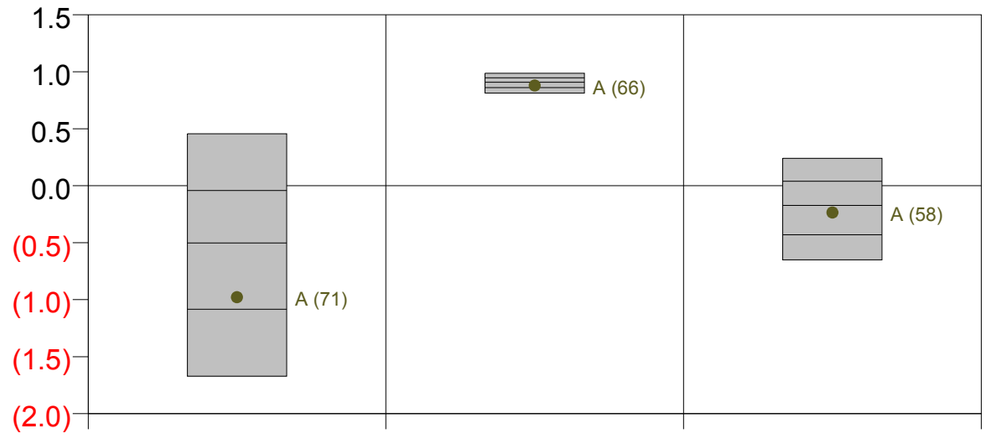
	Last Quarter	Fiscal YTD	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years
10th Percentile	9.72	10.80	32.94	15.93	11.84	14.78	13.79
25th Percentile	9.27	10.36	31.61	14.88	11.30	14.37	13.46
Median	9.01	9.90	30.64	14.17	10.84	13.92	13.10
75th Percentile	8.48	9.23	29.26	13.23	10.24	13.38	12.59
90th Percentile	7.91	8.52	27.64	12.20	9.53	12.73	11.96
Domestic Equity ●	9.69	10.17	30.04	12.88	10.37	13.82	13.02
Russell 3000 Index ▲	9.10	10.37	31.02	14.57	11.24	14.38	13.42

APFC US Equity Portfolio Risk Adjusted Return Rankings

Ten Years Ended December 31, 2019

- The universe is comprised of total domestic equity portfolios of large institutional investors in Callan's Fund Sponsor Domestic Equity Database.
- For the trailing ten-year period, APFC portfolio ranked in the third quartile for all risk adjusted return measures.
  - Alpha measures contribution to performance – portfolio's return above index adjusted for risk.
  - Sharpe Ratio represents return gained per unit of risk taken (return/risk).
  - Excess Return Ratio measures alpha (return above benchmark) divided by tracking error (risk versus benchmark).

Risk Adjusted Return Measures vs Russell 3000 Index
Rankings Against Fund Sponsor Domestic Equity Database



	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	0.46	0.99	0.24
25th Percentile	(0.04)	0.95	0.04
Median	(0.50)	0.91	(0.17)
75th Percentile	(1.08)	0.86	(0.43)
90th Percentile	(1.67)	0.81	(0.65)
Domestic Equity ● A	(0.98)	0.88	(0.23)

Capitalization and Style Allocation: US Equity

As of December 31, 2019

- Highlighted cells indicate largest biases relative to the Russell 3000 index.
- Growth outperformed value in the fourth quarter while large cap stocks underperformed small cap.
- APFC's active U.S. Growth managers struggled to keep pace with their benchmarks while U.S. Value managers generally outperformed during the quarter.
- Small and mid cap overweights relative to the index are common in actively managed US equity portfolios.

Style Exposure Matrix
Holdings as of December 31, 2019

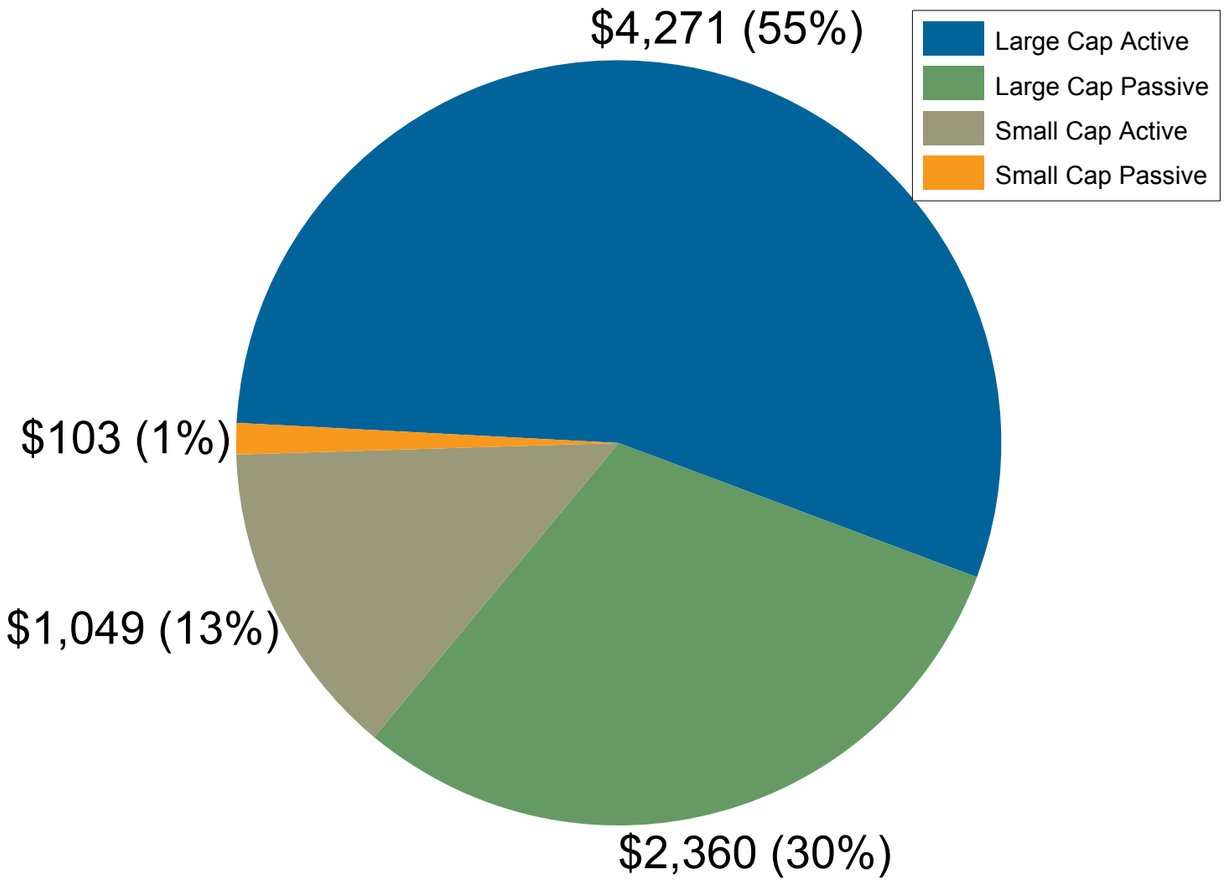
	Value	Core	Growth	Total
Large	17.2% (108) 23.0% (106)	12.0% (89) 20.6% (85)	23.7% (115) 33.1% (107)	52.9% (312) 76.8% (298)
Mid	13.1% (172) 4.7% (170)	11.1% (189) 5.1% (189)	7.2% (224) 6.4% (237)	31.4% (585) 16.2% (596)
Small	5.3% (187) 1.7% (324)	6.2% (236) 2.6% (498)	3.7% (162) 2.0% (372)	15.2% (585) 6.3% (1194)
Micro	0.2% (27) 0.3% (313)	0.2% (22) 0.3% (385)	0.1% (14) 0.2% (197)	0.5% (63) 0.7% (895)
Total	35.8% (494) 29.7% (913)	29.5% (536) 28.6% (1157)	34.7% (515) 41.7% (913)	100.0% (1545) 100.0% (2983)

APFC Portfolio **Russell 3000 Index**

APFC US Equity Structure

As of December 31, 2019

- US equity portfolio is roughly 68% actively managed and 32% passive (or quasi-passive).
- Roughly 64% of the large cap allocation is actively managed while 91% of the small cap allocation is actively managed.

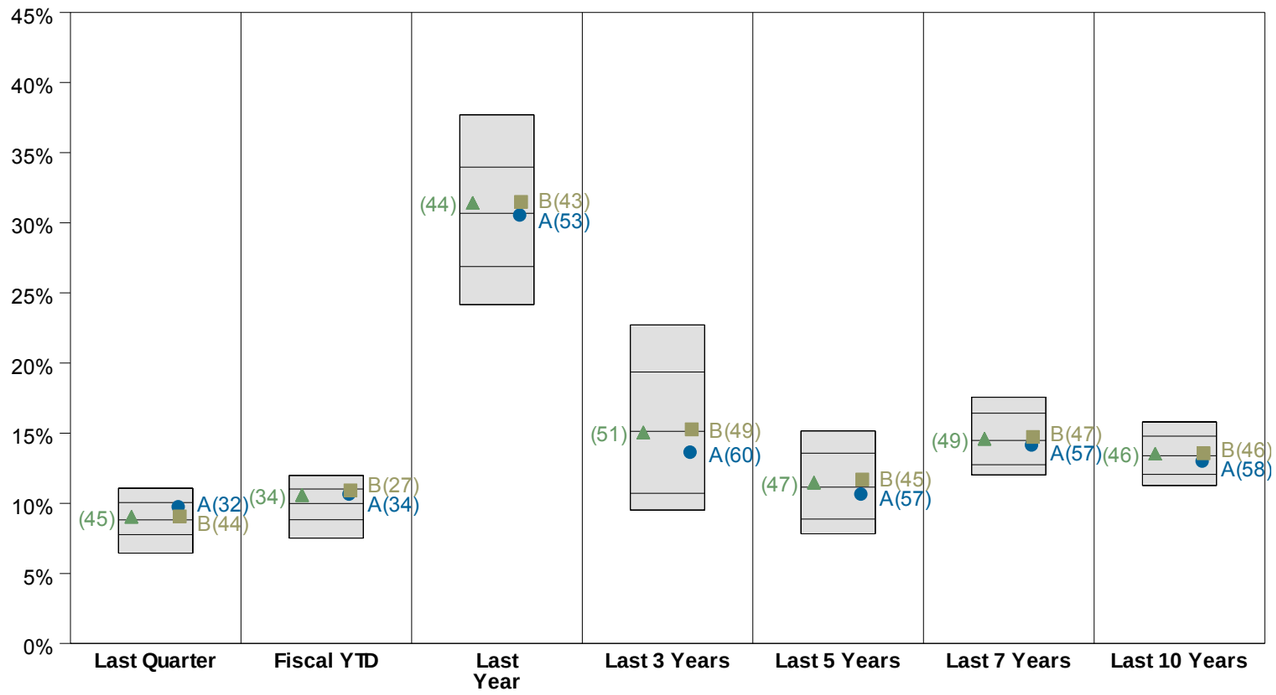


APFC Large Cap Equity Relative to Large Cap Universe

Periods Ended December 31, 2019

- APFC's Large Cap portfolio exceeded its benchmark in the fourth quarter.
- For most of the remaining time periods shown, the portfolio trailed its benchmark and ranked below median within the large cap universe.
- Large cap composite has a small/mid cap size bias relative to the index, which was additive to performance during the quarter.

Performance vs Callan Large Capitalization (Gross)



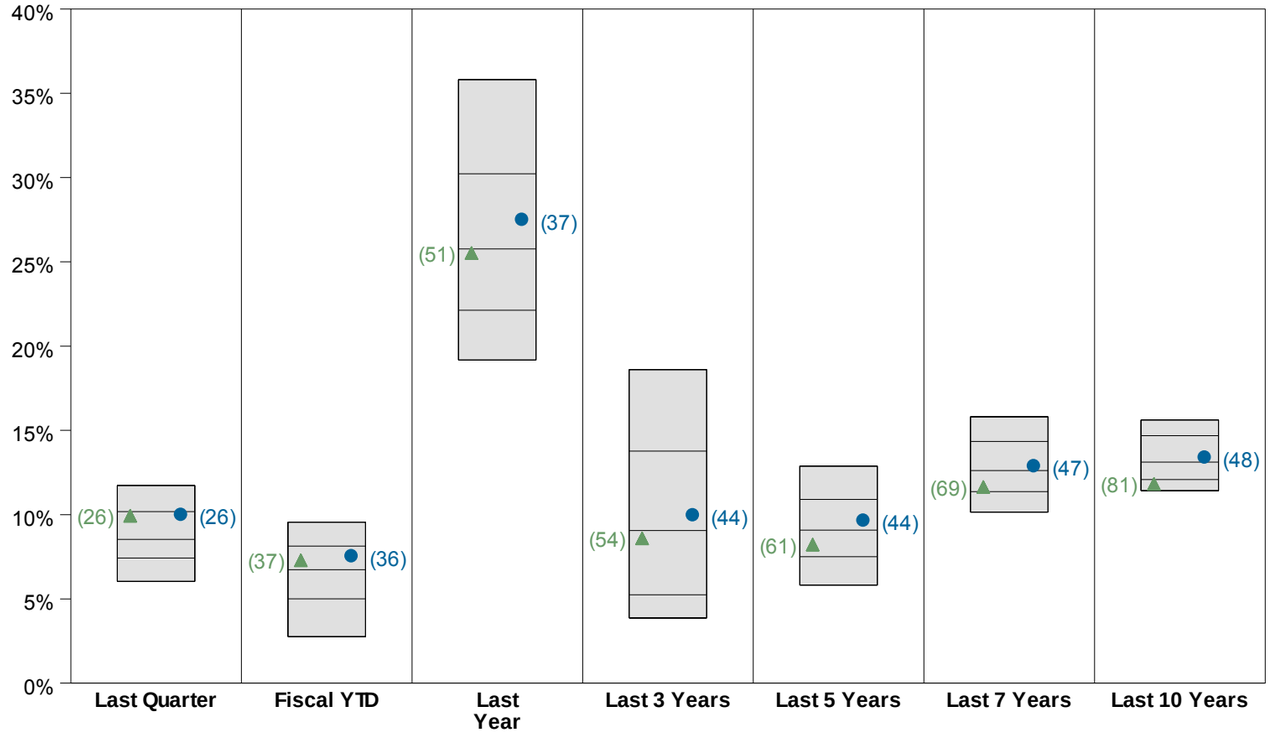
		Last Quarter	Fiscal YTD	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years
10th Percentile		11.07	11.98	37.69	22.73	15.16	17.56	15.80
25th Percentile		10.05	11.02	33.97	19.37	13.57	16.42	14.78
Median		8.82	9.99	30.68	15.13	11.15	14.48	13.39
75th Percentile		7.77	8.83	26.88	10.71	8.87	12.75	12.06
90th Percentile		6.45	7.51	24.16	9.51	7.82	12.02	11.27
Large Cap Equity	● A	9.65	10.56	30.44	13.54	10.56	14.05	12.90
Standard & Poor's 500	■ B	9.07	10.92	31.49	15.27	11.70	14.73	13.56
Russell 1000 Index	▲	9.04	10.59	31.43	15.05	11.48	14.60	13.54

APFC Small Cap Equity Relative to Small Cap Universe

Periods Ended December 31, 2019

- APFC small cap portfolio was in line with the index and above the small cap universe median over the latest quarter.
- APFC small cap equity portfolio has a higher market capitalization bias and a growth tilt when compared to the Russell 2000 Index. Both biases, the overweight to mid caps in lieu of small caps and the growth style, added to relative performance.

Performance vs Callan Small Capitalization (Gross)

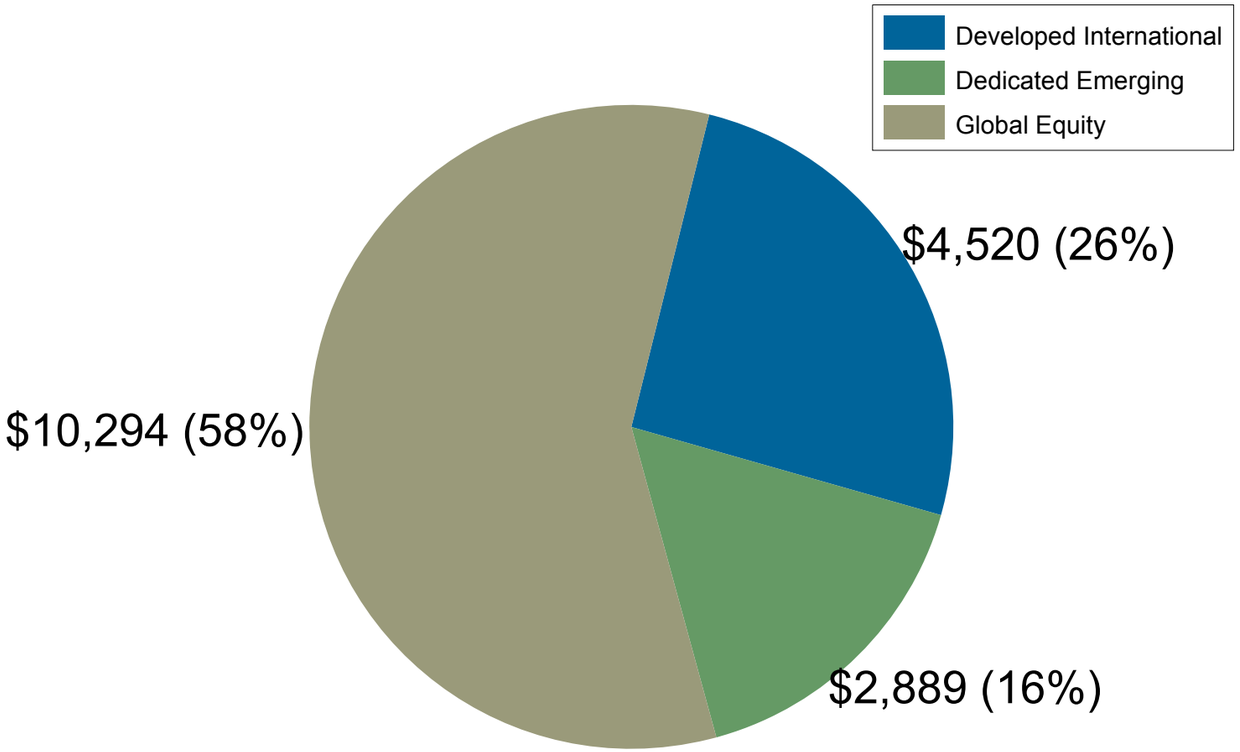


	Last Quarter	Fiscal YTD	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years
10th Percentile	11.74	9.55	35.81	18.61	12.88	15.81	15.61
25th Percentile	10.18	8.14	30.22	13.77	10.91	14.35	14.69
Median	8.53	6.73	25.76	9.05	9.08	12.61	13.12
75th Percentile	7.42	5.01	22.13	5.25	7.50	11.36	12.08
90th Percentile	6.04	2.76	19.18	3.86	5.82	10.15	11.43
Small Cap Equity ●	9.93	7.48	27.43	9.91	9.59	12.82	13.34
Russell 2000 Index ▲	9.94	7.30	25.52	8.59	8.23	11.65	11.83

APFC Non-US Equity Structure

As of December 31, 2019

- Portfolio is divided between global, non-US, and emerging markets mandates.
- Both global and non-US equity managers invest in emerging markets.
- Global managers invest in US markets as part of their mandate.

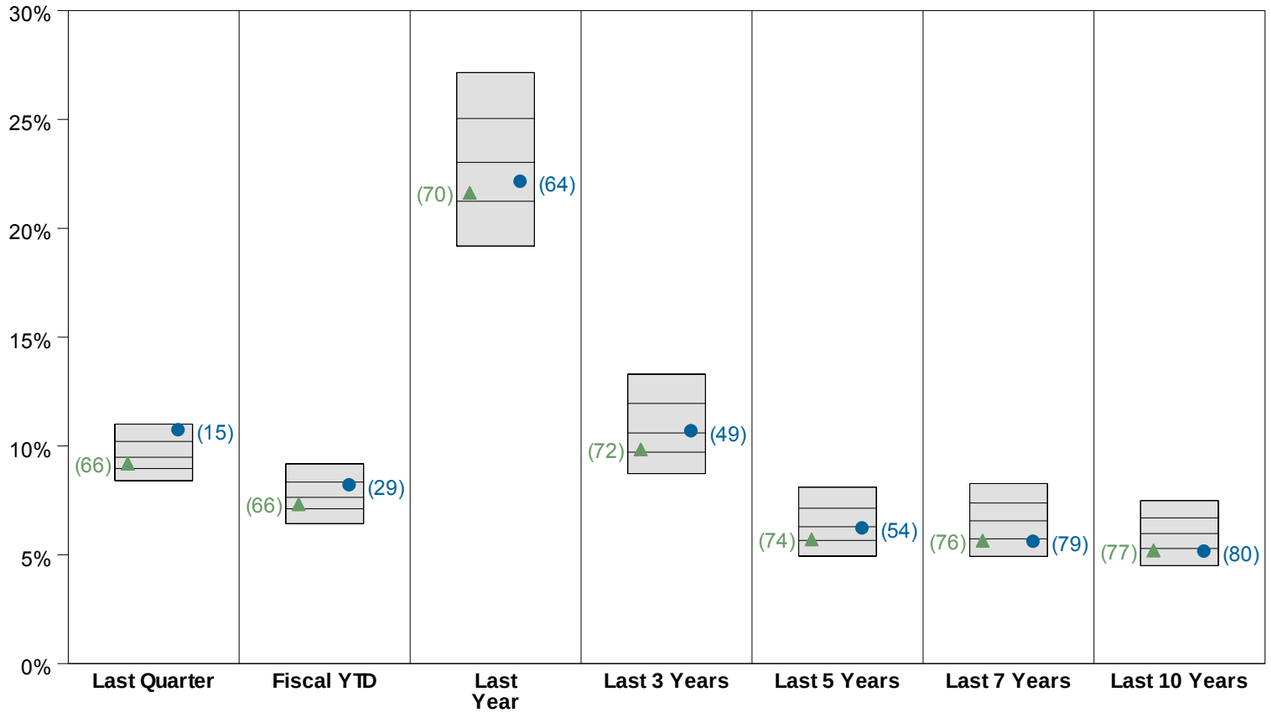


APFC International Equity Relative to Fund Sponsor Universe

Periods Ended December 31, 2019

- International Equity ended the quarter ahead of the benchmark 1.48%.
- Over the intermediate term 3- and 5-year periods, the portfolio outperformed while underperforming over the longer term 7- and 10-year periods.
- Relative to other fund sponsor portfolios, International Equity ranked below median for most standard performance periods.

Performance vs Fund Spnsor - International Equity (Gross)



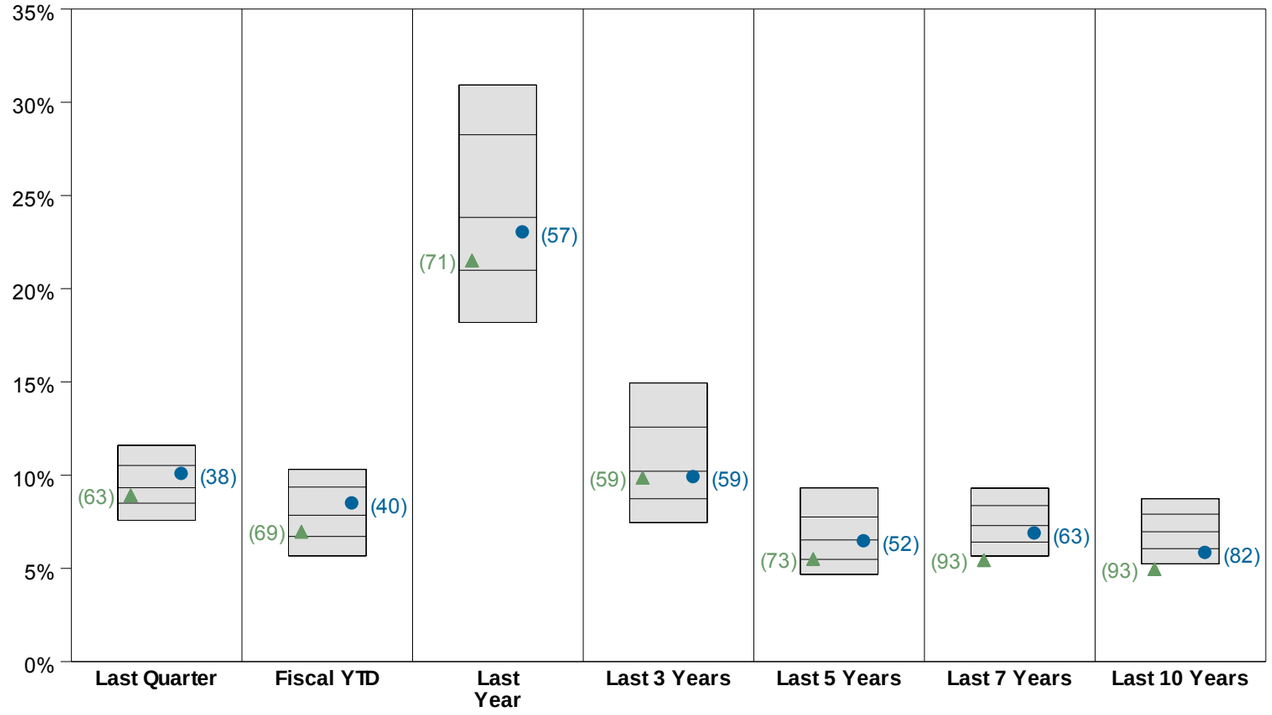
	Last Quarter	Fiscal YTD	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years
10th Percentile	11.01	9.18	27.16	13.30	8.11	8.28	7.49
25th Percentile	10.22	8.34	25.05	11.95	7.14	7.38	6.70
Median	9.48	7.64	23.03	10.60	6.30	6.56	5.98
75th Percentile	8.97	7.12	21.24	9.72	5.66	5.74	5.29
90th Percentile	8.40	6.43	19.19	8.74	4.94	4.93	4.51
International Equity ●	10.68	8.15	22.09	10.63	6.17	5.56	5.10
MSCI ACWI ex US IMI ▲	9.20	7.33	21.63	9.84	5.71	5.65	5.21

APFC Int'l Developed Equity Relative to Non-US Equity Universe

Periods December 31, 2019

- The International Developed portfolio rose 10.0% versus the benchmark return of 8.9% in the fourth quarter. The portfolio continued to show strong long-term relative performance.
- The portfolio sits below the peer group median for most time periods.

Performance vs Callan Non-US Equity (Gross)



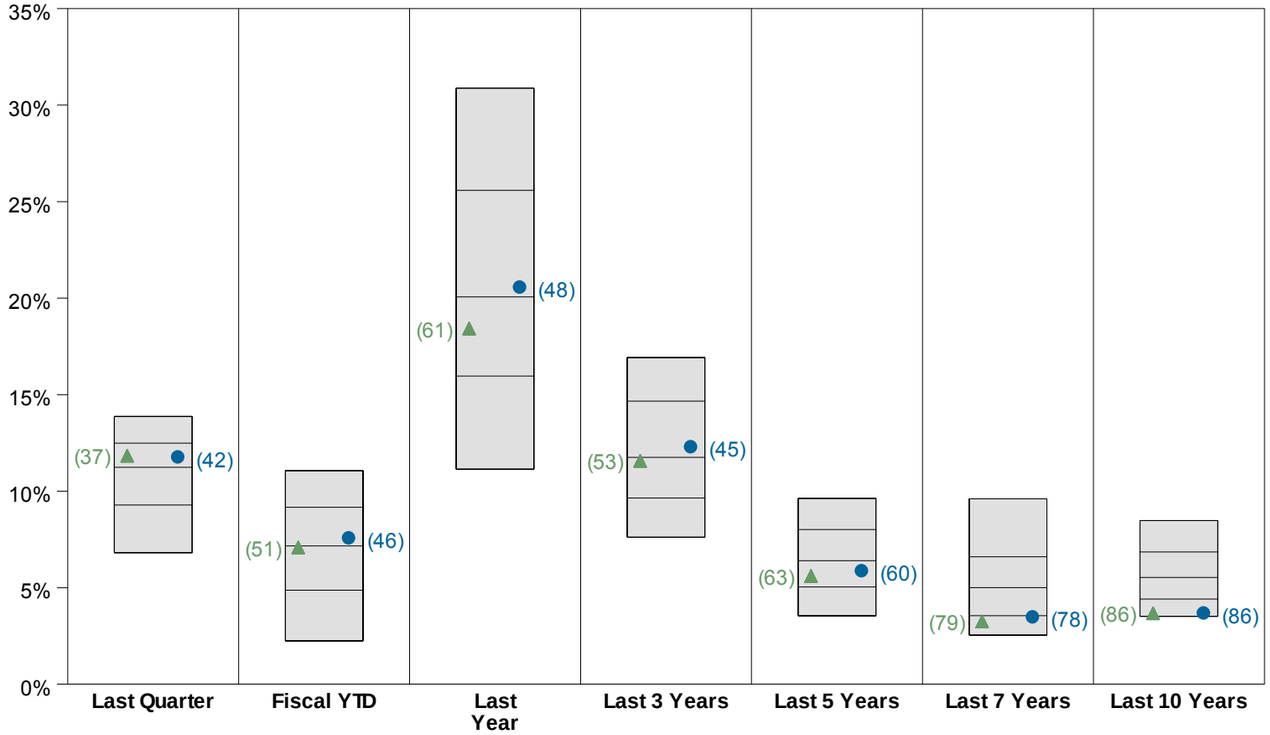
	Last Quarter	Fiscal YTD	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years
10th Percentile	11.61	10.31	30.93	14.95	9.32	9.31	8.74
25th Percentile	10.52	9.37	28.26	12.58	7.76	8.37	7.91
Median	9.32	7.85	23.83	10.22	6.52	7.30	6.96
75th Percentile	8.50	6.72	20.99	8.74	5.48	6.41	6.06
90th Percentile	7.58	5.67	18.18	7.46	4.68	5.66	5.25
International Developed ●	10.02	8.43	22.97	9.84	6.41	6.82	5.78
MSCI ACWI ex US ▲	8.92	6.96	21.51	9.87	5.51	5.44	4.97

APFC Emerging Markets Equity Relative to EM Universe

Periods December 31, 2019

- APFC Emerging Markets Equity portfolio fell behind its benchmark for the fourth quarter and outperformed the benchmark over most time periods except the 10 year period.
- Over the short-term, the portfolio sits above the median while over longer-term periods ranks below the median.

Performance vs Emerging Markets Equity DB (Gross)



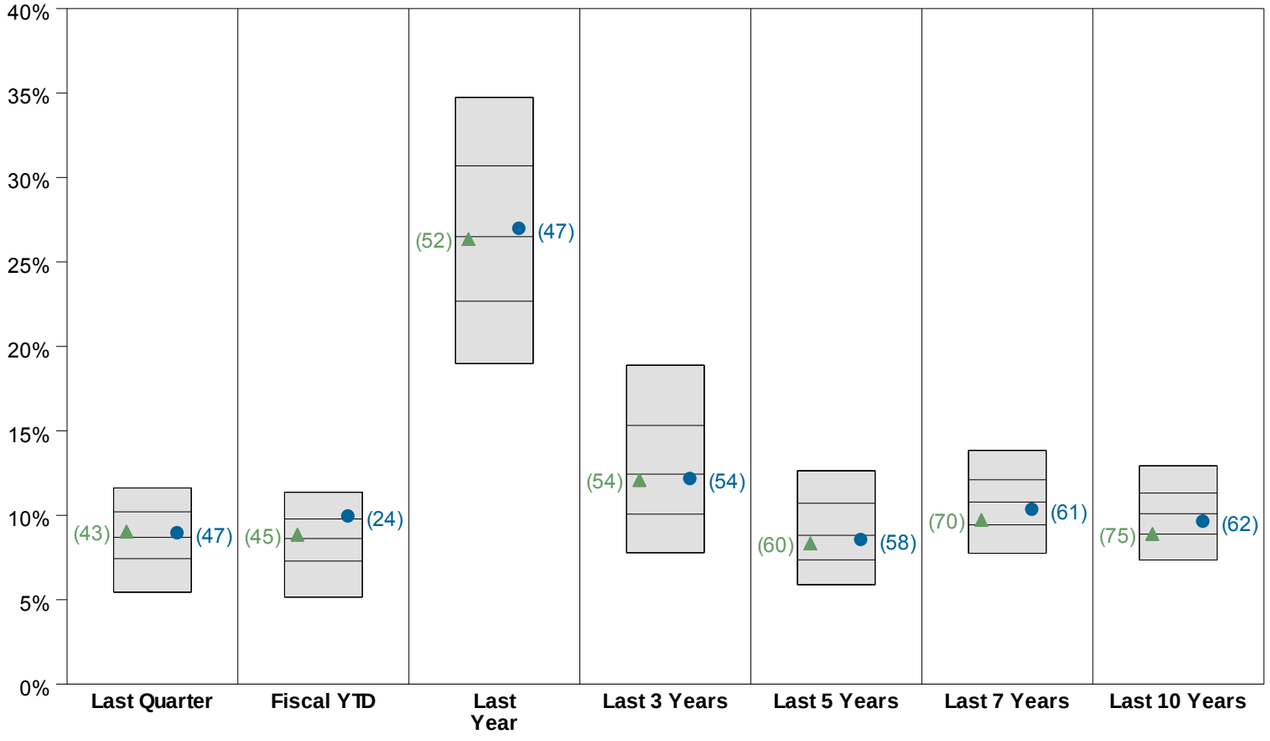
	Last Quarter	Fiscal YTD	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years
10th Percentile	13.87	11.06	30.88	16.93	9.62	9.60	8.48
25th Percentile	12.49	9.17	25.58	14.66	8.01	6.61	6.86
Median	11.24	7.16	20.06	11.75	6.40	5.00	5.53
75th Percentile	9.29	4.87	15.96	9.65	5.04	3.56	4.41
90th Percentile	6.81	2.24	11.14	7.61	3.54	2.54	3.51
Emerging Markets ●	11.70	7.51	20.49	12.23	5.80	3.41	3.62
MSCI EM ▲	11.84	7.09	18.44	11.58	5.61	3.26	3.68

APFC Global Equity Relative to Global Universe

Periods Ended December 31, 2019

- APFC Global Equity portfolio slightly underperformed its benchmark in the fourth quarter. Longer term performance exceeded the benchmark over most periods.
- The portfolio ranked just below median for most longer-term time periods.
- Performance from the APFC Tactical Tilts portfolio positively impacted performance over the quarter, fiscal year, and year.

Performance vs Global Equity Database (Gross)

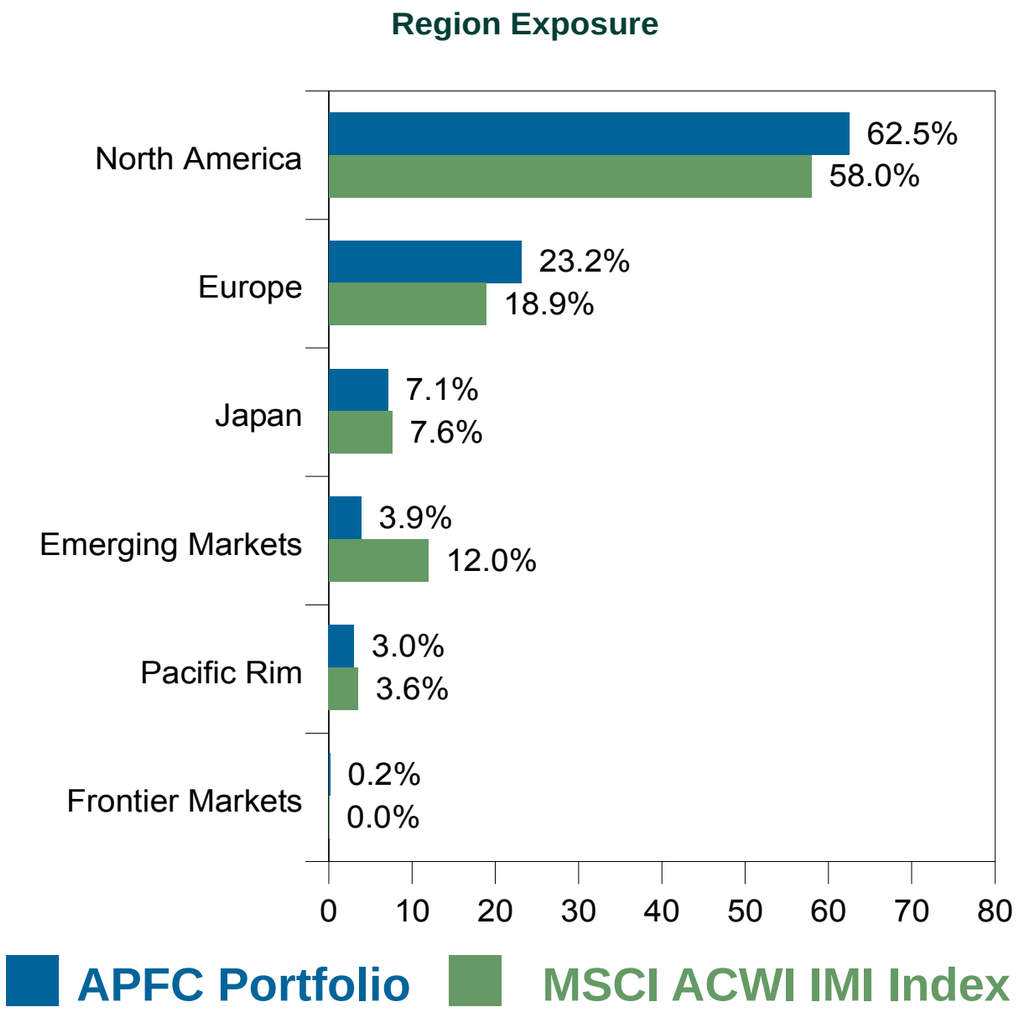


	Last Quarter	Fiscal YTD	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years
10th Percentile	11.62	11.36	34.74	18.89	12.63	13.84	12.93
25th Percentile	10.20	9.79	30.69	15.32	10.72	12.10	11.32
Median	8.69	8.62	26.49	12.43	8.82	10.79	10.09
75th Percentile	7.43	7.29	22.68	10.06	7.36	9.43	8.88
90th Percentile	5.45	5.15	18.98	7.78	5.89	7.75	7.36
Global Equity ●	8.87	9.88	26.90	12.09	8.48	10.27	9.57
MSCI ACWI IMI ▲	9.05	8.85	26.35	12.09	8.34	9.73	8.91

APFC Global Equity Portfolio Region Exposure

As of December 31, 2019

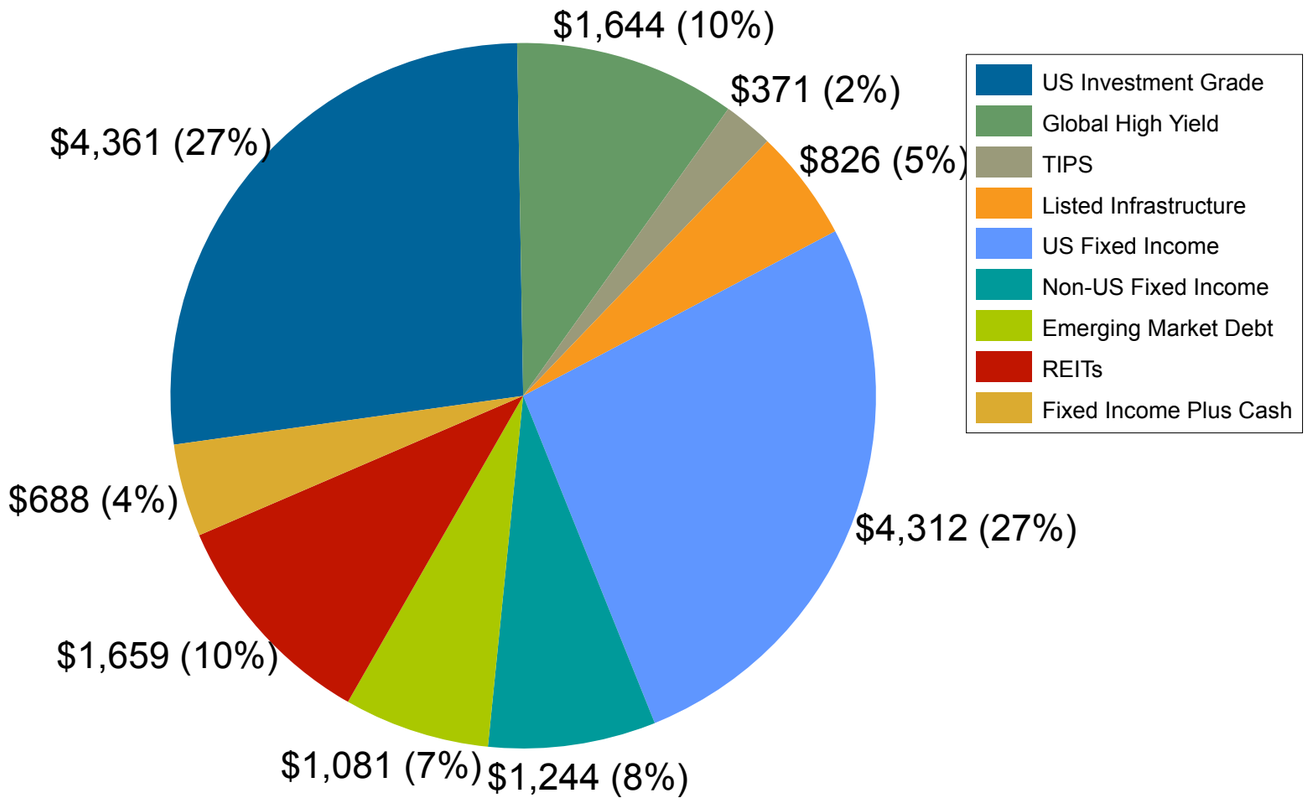
- The APFC global equity portfolio continued to be underweight Emerging Markets, Japan, and the Pacific Rim relative to its benchmark.
- The portfolio had corresponding relative overweighs to North America and Europe.
- This positioning and broad based regional gains drove quarterly results.



APFC Fixed Income Plus Structure

As of December 31, 2019

- 65% of the fixed income plus portfolio is managed internally, including allocations within Fixed Income Plus Cash, US Fixed Income Aggregate, US Investment Grade Corporate, Non-US Fixed Income, and TIPS.
- External mandates are focused in specialty areas including Non-US Fixed Income, Global High Yield, Emerging Market Debt, REITs, and Listed Infrastructure.

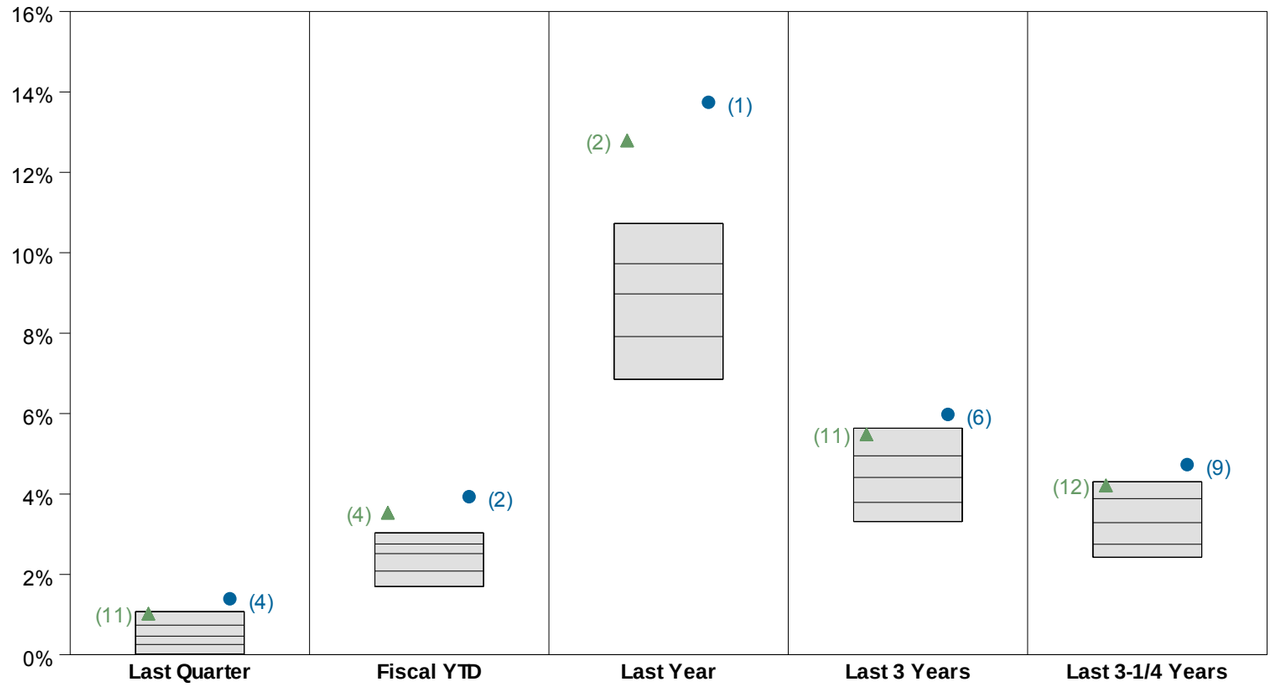


Fixed Income Plus Relative to Public Fixed Income Funds

Periods Ended December 31, 2019

- APFC Fixed Income Plus portfolio led its benchmark and landed in the top quartile when compared to its peers for all time periods shown.
- Since Inception, 3 ¼ years ago, the portfolio maintained a solid lead over both the index and the median manager.

Performance vs Public Fund - Domestic Fixed (Gross)



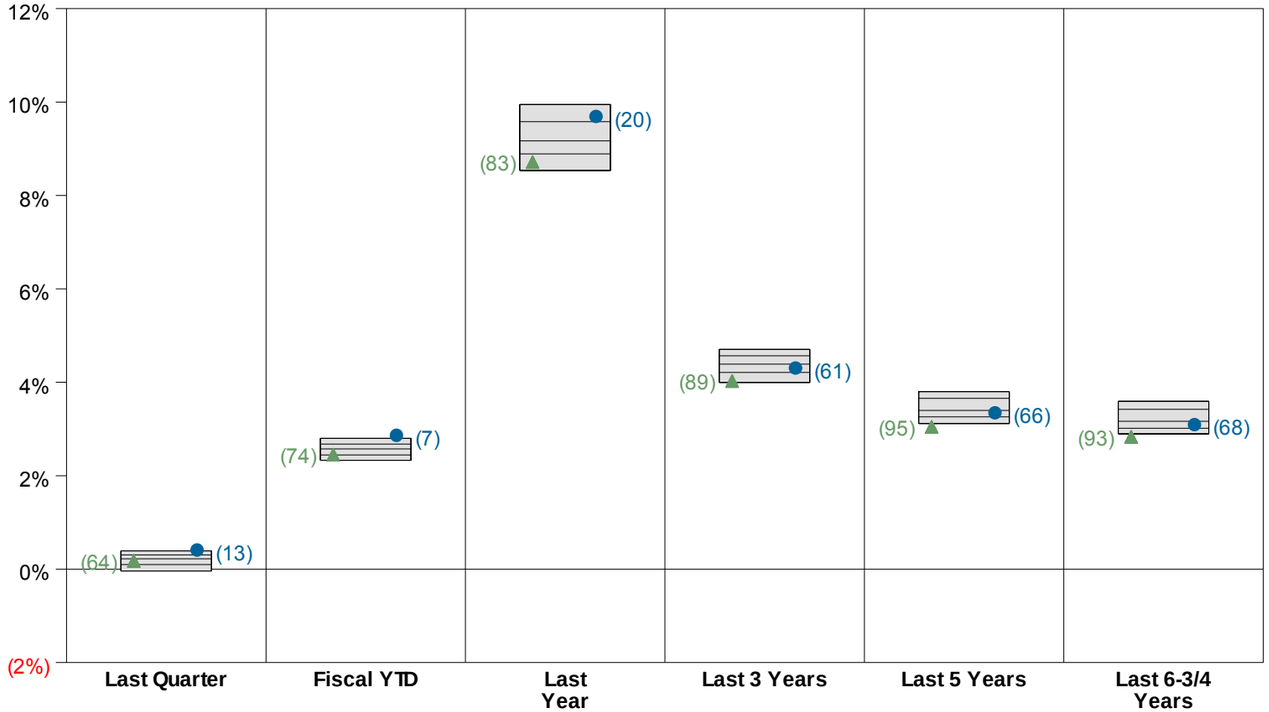
	Last Quarter	Fiscal YTD	Last Year	Last 3 Years	Last 3-1/4 Years
10th Percentile	1.08	3.03	10.73	5.64	4.30
25th Percentile	0.74	2.76	9.72	4.95	3.88
Median	0.46	2.52	8.98	4.41	3.29
75th Percentile	0.25	2.08	7.91	3.79	2.75
90th Percentile	0.01	1.70	6.85	3.31	2.43
Fixed Income Plus ●	1.35	3.90	13.70	5.94	4.69
Fixed Income Plus Benchmark ▲	1.02	3.53	12.79	5.48	4.22

US Fixed Income Aggregate Relative to Core Bond Funds

Periods Ended December 31, 2019

- APFC US Fixed Income Aggregate portfolio was ahead of the Bloomberg Aggregate Index for all time periods exhibited.
- The US Fixed Income composite ended the quarter above median for the quarter, and 1-year periods. The longer term 3-, 5- and 6 ¾-year periods continued to rank below median.

Performance vs Callan Core Bond Fixed Income (Gross)



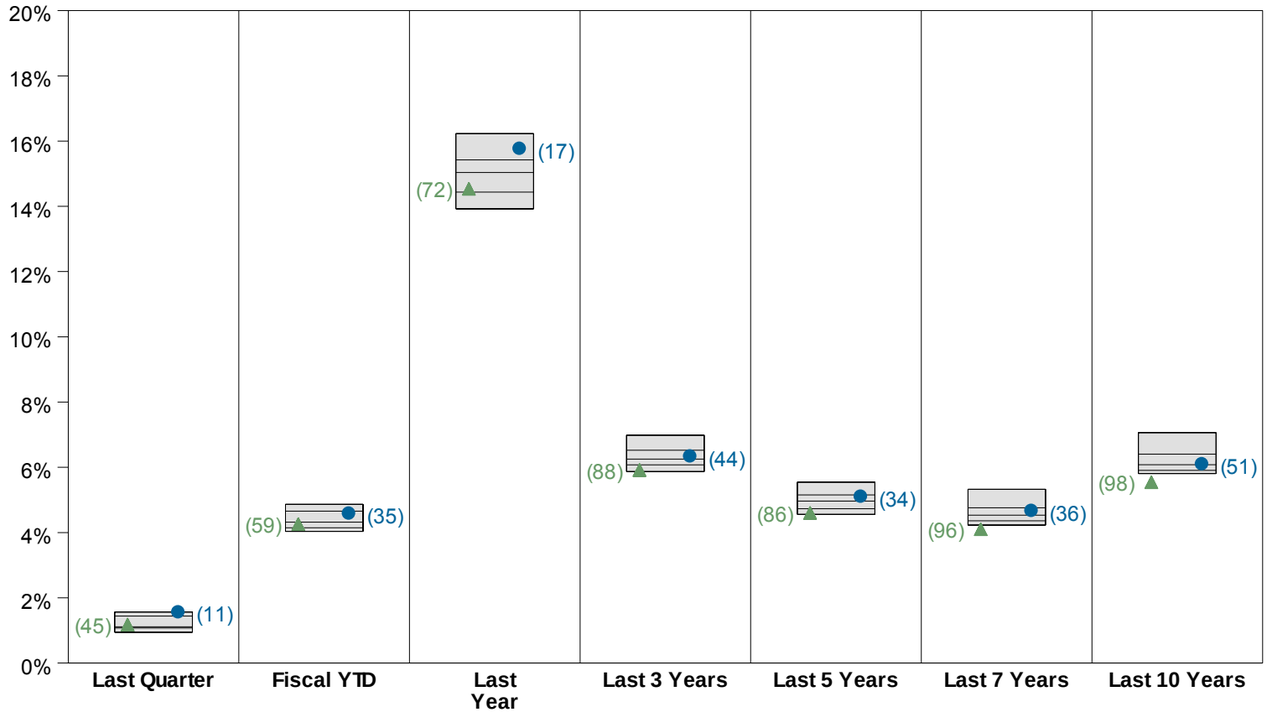
	Last Quarter	Fiscal YTD	Last Year	Last 3 Years	Last 5 Years	Last 6-3/4 Years
10th Percentile	0.39	2.80	9.95	4.71	3.80	3.59
25th Percentile	0.31	2.68	9.58	4.57	3.66	3.42
Median	0.22	2.57	9.17	4.39	3.40	3.17
75th Percentile	0.10	2.44	8.89	4.21	3.26	3.02
90th Percentile	(0.04)	2.33	8.53	4.00	3.12	2.90
US Fixed Income Aggregate ●	0.38	2.83	9.66	4.27	3.31	3.06
Blmbg Aggregate ▲	0.18	2.45	8.72	4.03	3.05	2.84

US Investment Grade Corp Relative to Investment Grade Funds

Periods Ended December 31, 2019

- APFC US Investment Grade Corporate outperformed its benchmark for the quarter and all other standard periods.
- The Investment Grade Corporate composite ranked above median for all periods except the 10-year where the portfolio ranked near median.

Performance vs Callan Investment Grade Credit Fixed Inc (Gross)



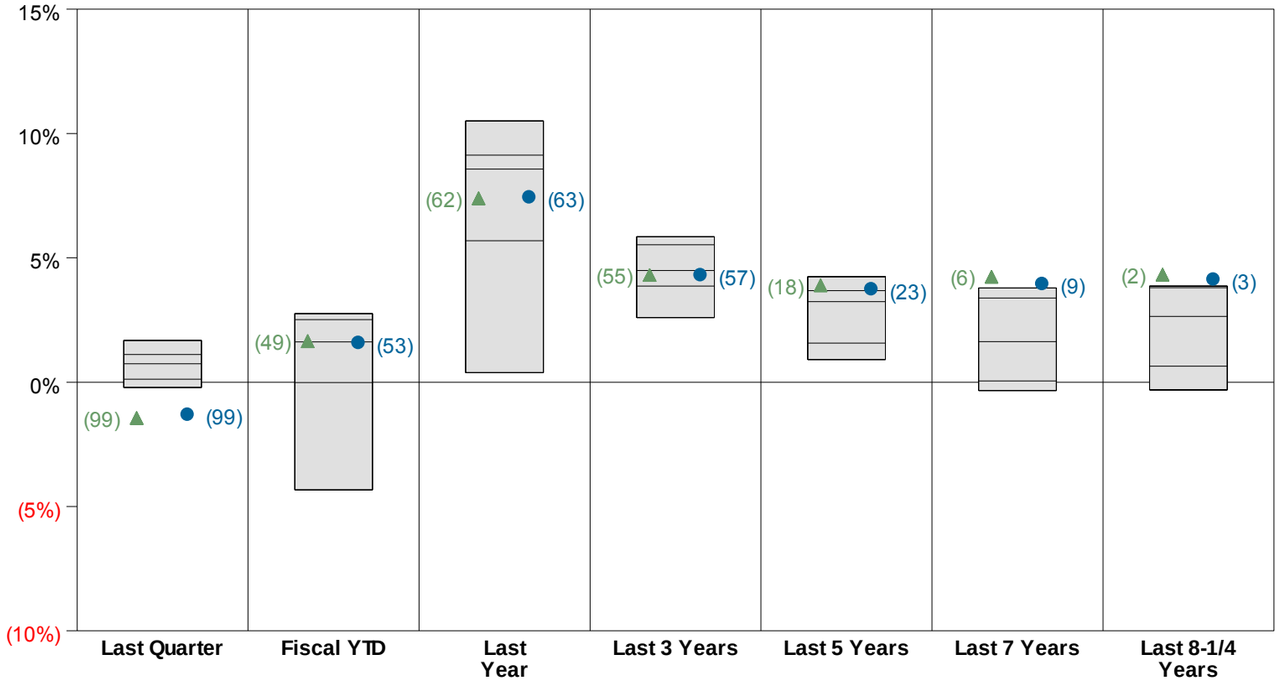
	Last Quarter	Fiscal YTD	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years
10th Percentile	1.57	4.87	16.23	6.98	5.54	5.33	7.06
25th Percentile	1.44	4.66	15.42	6.53	5.15	4.76	6.41
Median	1.11	4.32	15.04	6.25	4.97	4.53	6.08
75th Percentile	1.07	4.15	14.43	6.08	4.73	4.36	5.91
90th Percentile	0.95	4.04	13.92	5.87	4.56	4.23	5.81
US Investment Grade Corporate ●	1.53	4.55	15.73	6.31	5.07	4.64	6.07
Blmbg Corporate ▲	1.18	4.27	14.54	5.92	4.60	4.10	5.54

Non-U.S. Fixed Income Relative to International Fixed Income Funds

Periods Ended December 31, 2019

- The APFC Non-U.S. Fixed Income portfolio fell less than the benchmark in the fourth quarter. The portfolio ended behind the benchmark over all other reported periods.
- Compared to peers, the portfolio ranked in the top quartile over longer term 5-, 7-, and 8 ¼-year periods.
- The composite included allocations to Rogge Asset and an In House Global Gov't Bonds mandate.

Performance vs Public Fund - International Fixed (Gross)



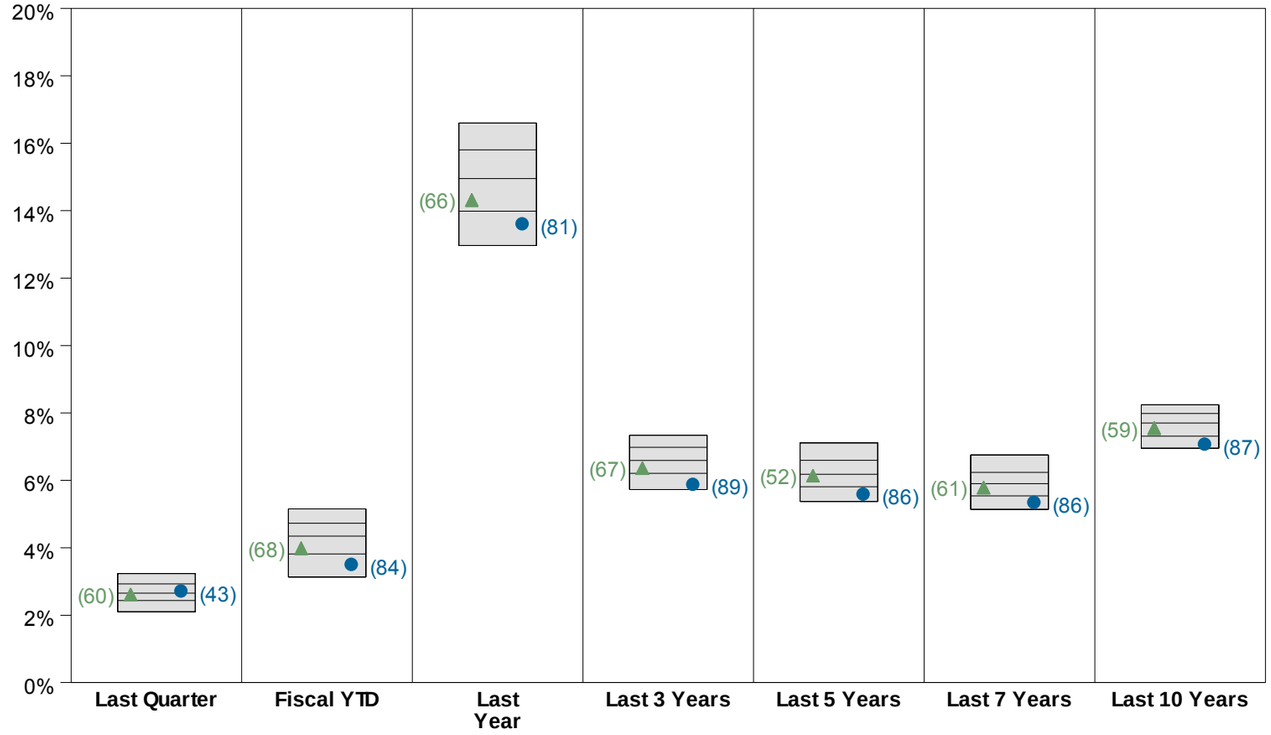
	Last Quarter	Fiscal YTD	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 8-1/4 Years
10th Percentile	1.68	2.76	10.50	5.85	4.24	3.79	3.86
25th Percentile	1.11	2.52	9.13	5.53	3.68	3.39	3.80
Median	0.74	1.62	8.57	4.49	3.24	1.63	2.64
75th Percentile	0.12	(0.01)	5.69	3.86	1.57	0.05	0.64
90th Percentile	(0.22)	(4.33)	0.38	2.60	0.91	(0.34)	(0.31)
Non US Fixed Income ●	(1.35)	1.53	7.39	4.26	3.70	3.91	4.09
BC Global Treasury ex-US ▲	(1.44)	1.65	7.40	4.31	3.90	4.24	4.32

Global High Yield Relative to High Yield Funds

Periods Ended December 31, 2019

- APFC Global High Yield portfolio ended ahead of its benchmark in the fourth quarter.
- The portfolio ranked below median for most reported periods.
- The composite included allocations to Oaktree, Capital Guardian, and an iShares ETF.

Performance vs Callan High Yield Fixed Income (Gross)



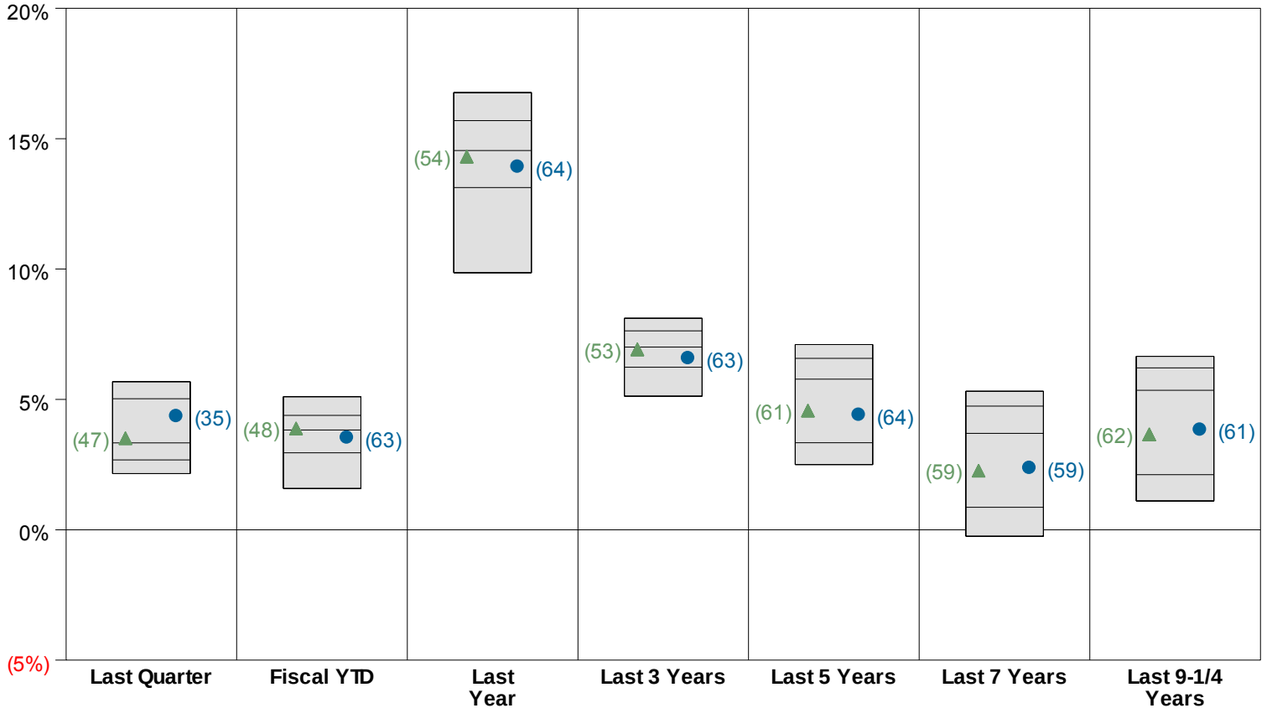
	Last Quarter	Fiscal YTD	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years
10th Percentile	3.24	5.16	16.60	7.34	7.11	6.75	8.24
25th Percentile	2.93	4.73	15.80	6.98	6.59	6.24	7.99
Median	2.65	4.35	14.95	6.59	6.18	5.90	7.70
75th Percentile	2.43	3.82	13.99	6.21	5.81	5.54	7.31
90th Percentile	2.10	3.13	12.97	5.73	5.37	5.14	6.95
Global High Yield ●	2.67	3.46	13.56	5.84	5.55	5.31	7.03
Blmbg HY 2% Iss Cap ▲	2.61	3.98	14.32	6.36	6.14	5.79	7.55

Emerging Market Debt Relative to EMD Funds

Periods Ended December 31, 2019

- APFC Emerging Market Debt portfolio flipped into positive returns in the fourth quarter outperforming the benchmark. Challenged over the short- and intermediate-term, the portfolio continued to outperform over longer term 7-year and since inception periods.
- Relative to peers, the portfolio ranked in the third quartile over all periods exhibited except the recent quarter.
- This was the first full quarter of performance for Investec, PGIM, Payden & Rygel, and Colshester – all of whom outperformed.

Performance vs Emerging Debt Database (Gross)



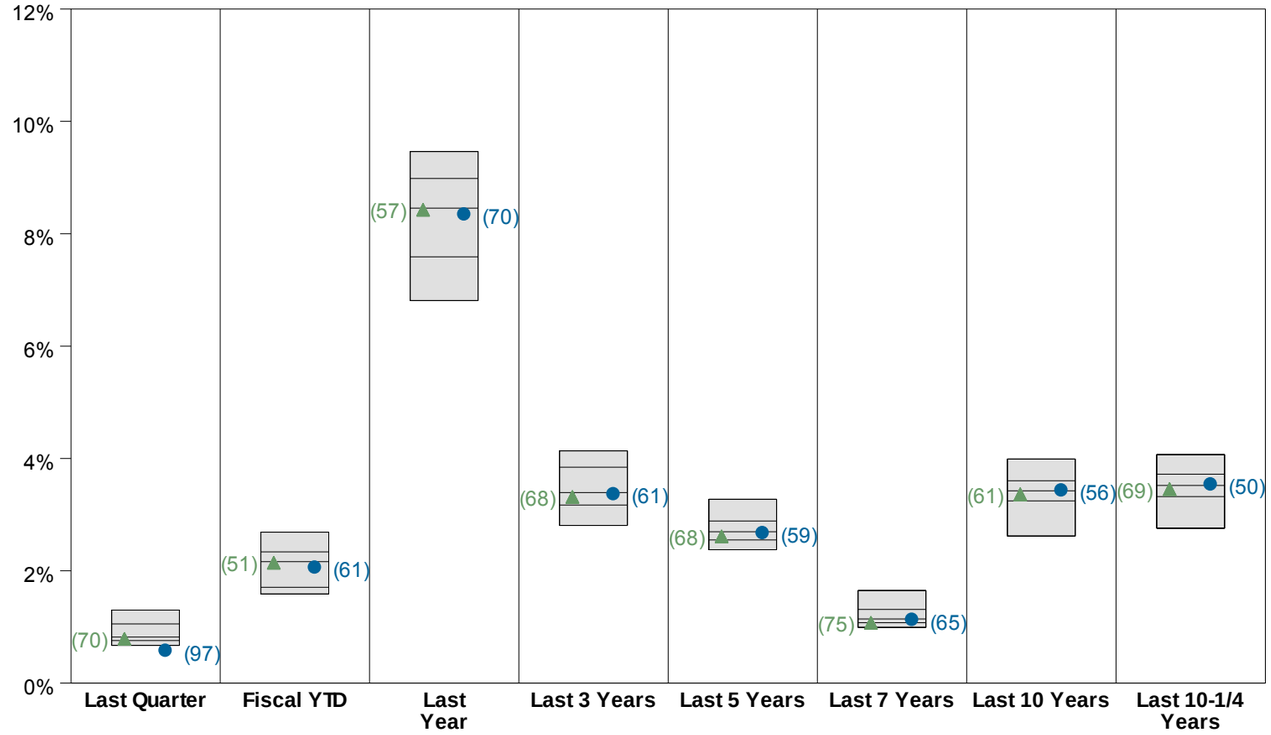
	Last Quarter	Fiscal YTD	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 9-1/4 Years
10th Percentile	5.67	5.10	16.77	8.11	7.10	5.32	6.65
25th Percentile	5.02	4.39	15.69	7.63	6.58	4.74	6.21
Median	3.34	3.83	14.54	7.01	5.78	3.70	5.35
75th Percentile	2.68	2.95	13.13	6.23	3.34	0.86	2.11
90th Percentile	2.15	1.58	9.86	5.12	2.50	(0.25)	1.10
Emerging Market Debt ●	4.32	3.51	13.89	6.55	4.37	2.34	3.81
EMD Benchmark ▲	3.51	3.89	14.31	6.92	4.57	2.27	3.66

TIPS Relative to Callan's Inflation Linked Bonds database

Periods Ended December 31, 2019

- APFC TIPS portfolio underperformed the Bloomberg US TIPS Index over the quarter, but tracked the benchmark over most other time periods shown.
- TIPS composite ranked in the bottom half of Callan's Inflation Linked Bonds peer universe over all time periods measured, though the universe distribution is narrow.
- The TIPS allocation includes APCM and an In House TIPS portfolio.

Performance vs Callan Inflation Linked Bonds (Gross)



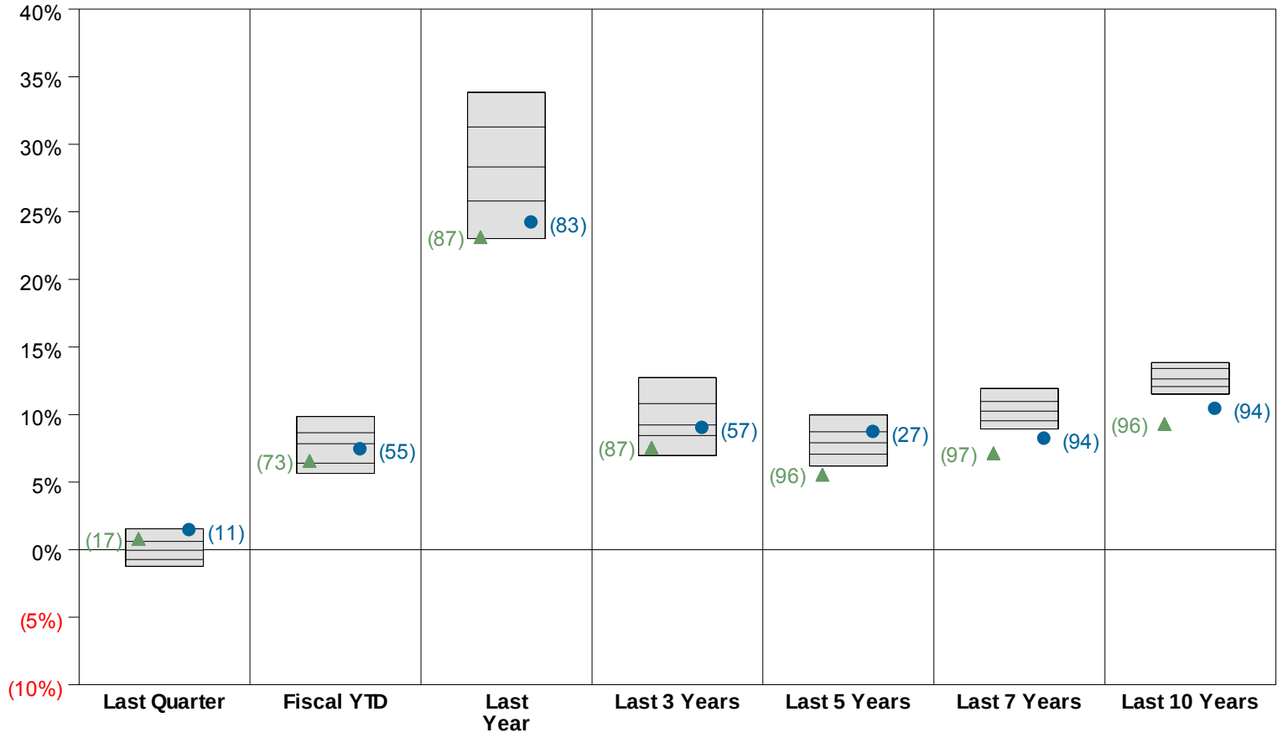
	Last Quarter	Fiscal YTD	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years	Last 10-1/4 Years
10th Percentile	1.30	2.69	9.46	4.14	3.27	1.65	3.99	4.07
25th Percentile	1.05	2.34	8.98	3.85	2.89	1.31	3.60	3.72
Median	0.82	2.16	8.46	3.39	2.70	1.14	3.42	3.52
75th Percentile	0.76	1.71	7.59	3.17	2.55	1.08	3.24	3.32
90th Percentile	0.67	1.59	6.81	2.81	2.38	0.99	2.62	2.76
APF TIPS ●	0.56	2.04	8.33	3.35	2.66	1.11	3.41	3.52
Blmbg:TIPS ▲	0.79	2.15	8.43	3.32	2.62	1.08	3.36	3.46

REITs Performance Relative to Callan's REITs database

Periods Ended December 31, 2019

- APFC REITs portfolio has done notably well versus its benchmark in absolute and relative terms over the time periods shown.
- The REITs composite ranked below median for most time periods, with the exception of the quarter and 5-year periods.
- The REITs allocation includes AEW Global and SSGA.

Performance vs Callan Real Estate REIT (Gross)



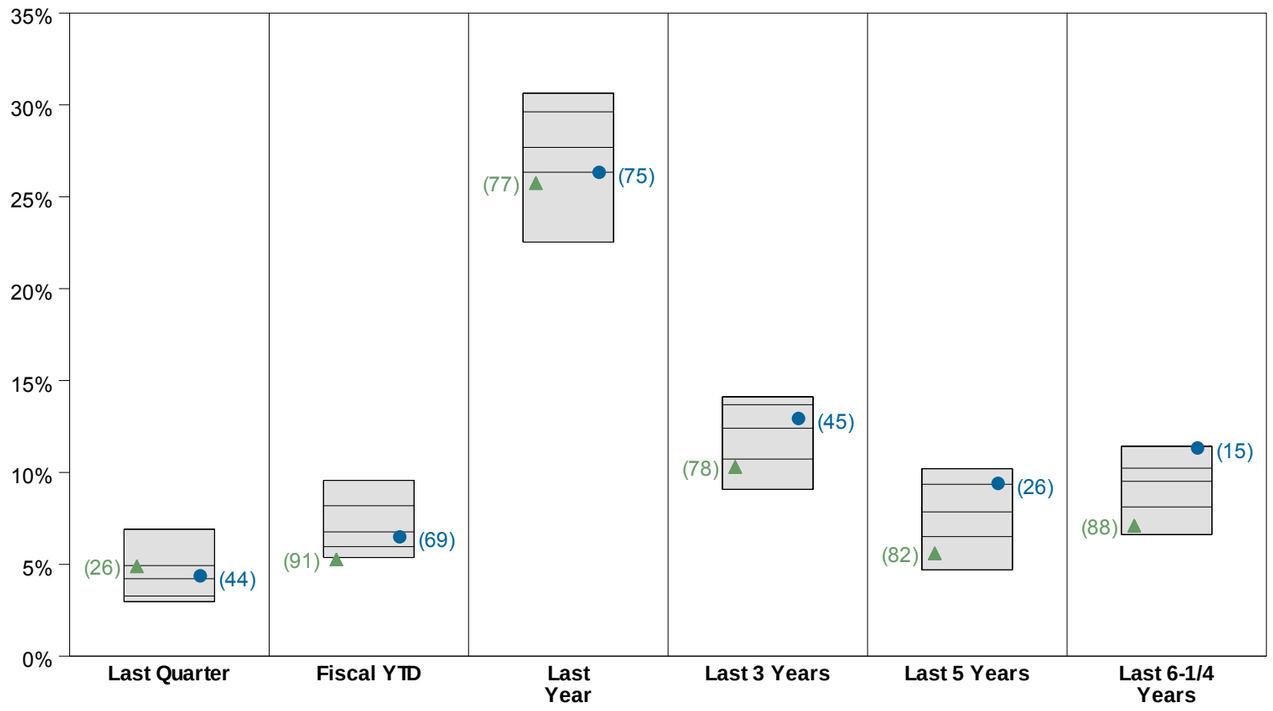
	Last Quarter	Fiscal YTD	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years
10th Percentile	1.54	9.85	33.85	12.74	9.97	11.93	13.84
25th Percentile	0.61	8.65	31.28	10.80	8.72	10.98	13.42
Median	(0.05)	7.84	28.33	9.23	7.91	10.25	12.64
75th Percentile	(0.73)	6.40	25.80	8.44	7.07	9.54	12.07
90th Percentile	(1.23)	5.65	23.01	6.96	6.19	8.93	11.51
REITs ●	1.38	7.36	24.14	8.94	8.64	8.14	10.35
S&P Global REIT ▲	0.80	6.57	23.12	7.55	5.55	7.13	9.31

Listed Infrastructure Relative to Listed Infrastructure Funds

Periods Ended December 31, 2019

- The Listed Infrastructure portfolio ended behind benchmark for the quarter, but showed strong performance and above median ranks over 3-, 5-, and since inception periods.
- The Listed Infrastructure composite includes Lazard, Cohen & Steers, and SSGA.

Performance vs Callan Publicly Listed Infrastructure (Gross)

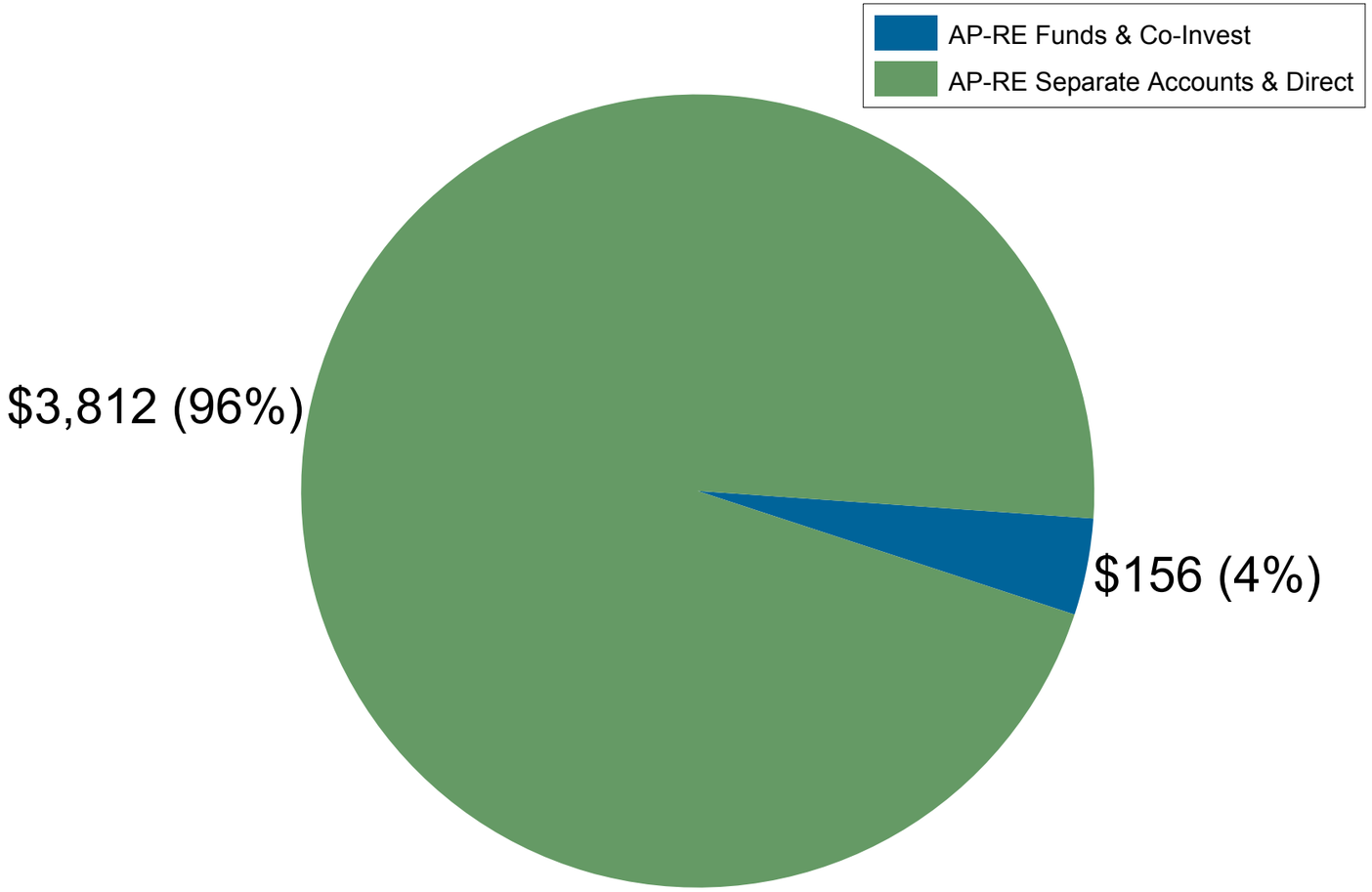


	Last Quarter	Fiscal YTD	Last Year	Last 3 Years	Last 5 Years	Last 6-1/4 Years
10th Percentile	6.91	9.57	30.64	14.12	10.21	11.42
25th Percentile	4.94	8.20	29.62	13.69	9.36	10.23
Median	4.22	6.77	27.69	12.41	7.86	9.52
75th Percentile	3.27	5.97	26.34	10.73	6.51	8.13
90th Percentile	2.98	5.37	22.54	9.08	4.70	6.61
Listed Infrastructure ●	4.29	6.41	26.24	12.86	9.31	11.24
S&P Global Infrastructure ▲	4.90	5.27	25.75	10.30	5.61	7.11

APFC Real Estate Structure *(1Q LAG)*

As of December 31, 2019

- 96% of the structure was invested in Separate Accounts and Direct Real Estate portfolios.
  - RE Separate Accounts & Direct was completely comprised of Direct Real Estate.
  - 6% of the Direct allocation was invested internationally (CBRE Europe and LaSalle UK).
- 4% of the structure was invested in Real Estate Funds and Co-Investment portfolios (HIG Europe, Harbert Europe, Heitman Capital, Brookfield Strategic).

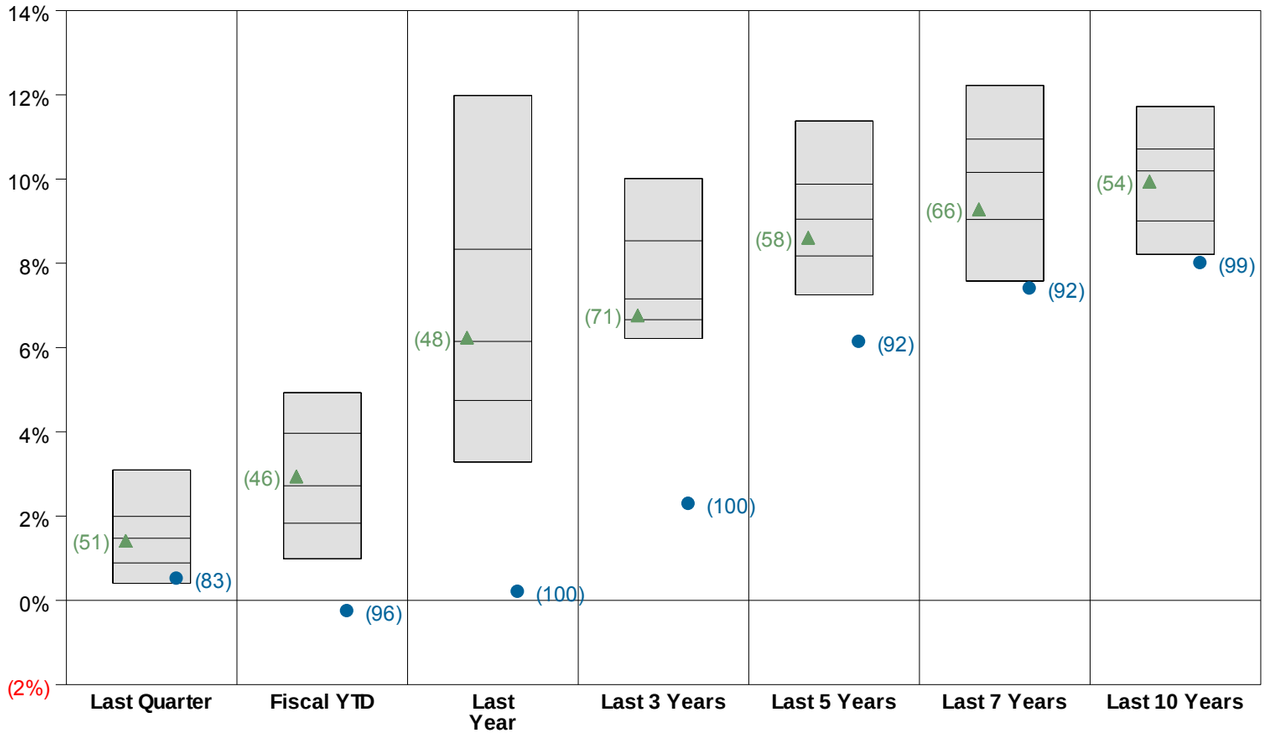


Real Estate Relative to Callan's Total Real Estate Database *(1Q LAG)*

Periods Ended December 31, 2019

- APFC Real Estate portfolio performance is shown net of fees for all investments.
- The real estate portfolio lagged behind its benchmark and ranked below the peer group median over all standard reporting periods.

Performance vs Public Fund - Real Estate (Gross)

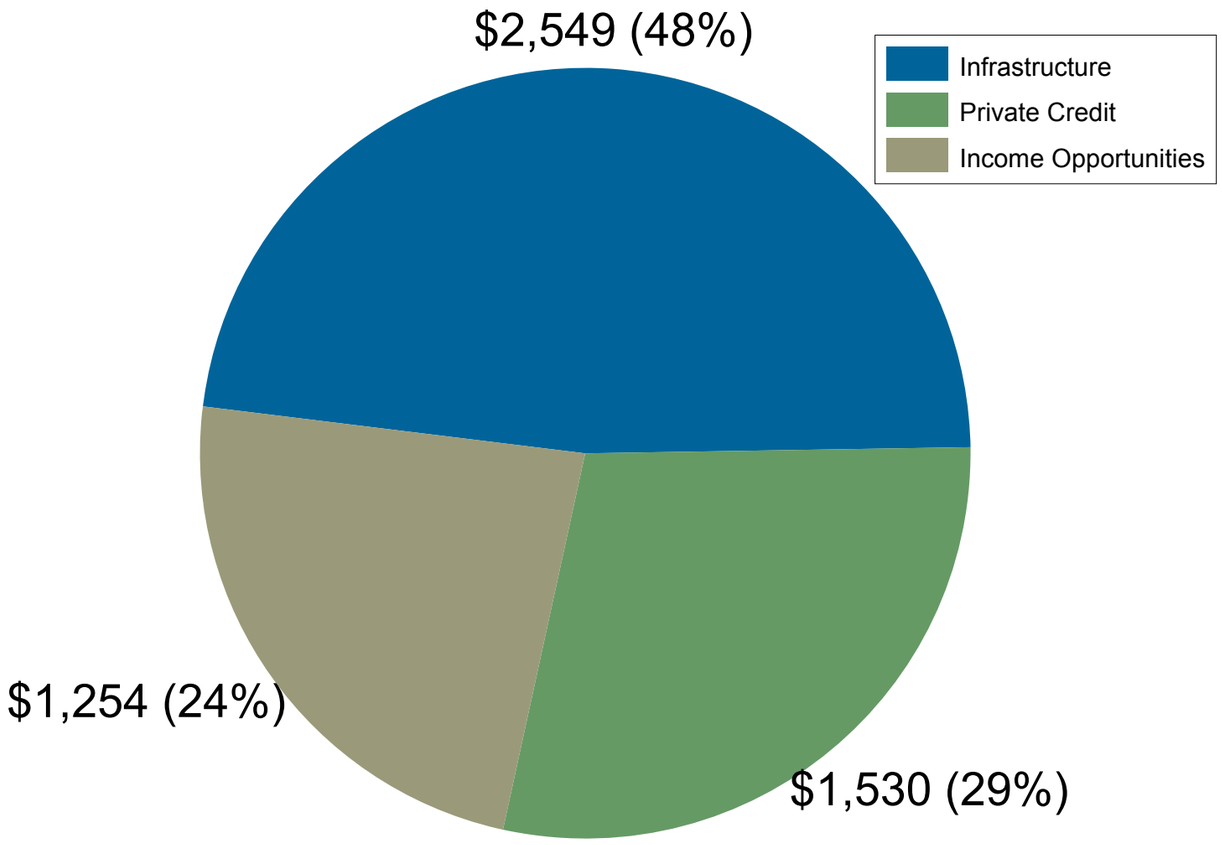


	Last Quarter	Fiscal YTD	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years
10th Percentile	3.09	4.93	11.98	10.01	11.38	12.22	11.72
25th Percentile	2.00	3.96	8.34	8.54	9.88	10.95	10.72
Median	1.47	2.72	6.14	7.16	9.05	10.16	10.19
75th Percentile	0.89	1.83	4.75	6.66	8.17	9.04	9.00
90th Percentile	0.40	0.99	3.28	6.22	7.25	7.58	8.21
Real Estate (NOF) ●	0.49	(0.28)	0.18	2.27	6.11	7.38	7.98
APFC Target ▲	1.41	2.94	6.24	6.76	8.61	9.28	9.94

APFC Infrastructure and Private Income Structure *(1Q LAG)*

As of December 31, 2019

- 48% of the structure is invested in infrastructure funds, which includes a diversified portfolio of infrastructure, energy, and generation assets.
- 29% of the structure was invested in private credit mandates including mezzanine debt, opportunistic credit, and direct lending strategies.
- 24% of the structure was invested in income opportunities including structured credit, alternative credit, AH4R2, and timber.



Infrastructure and Income Opportunities Performance *(1Q LAG)*

As of December 31, 2019

	Last Quarter	FYTD	Last Year	Last 3 Years	Last 5 Years
Infrastructure and Income Opportunities	2.06	3.14	7.14	11.95	11.63
60% FTSE Dev Core Infr / 40% BC US Corp HY 2%	2.40	5.42	12.79	9.34	7.30

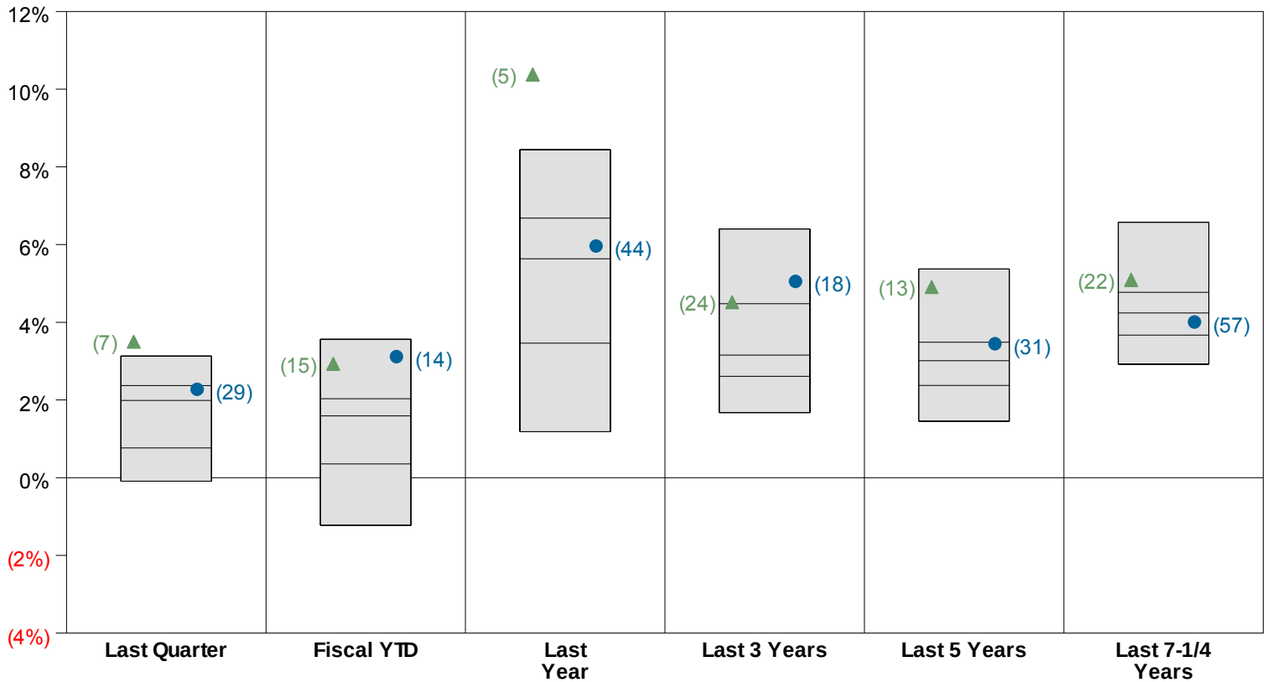
- APFC's Infrastructure and Income Opportunities composite trailed the benchmark (60% FTSE Developed Core Infrastructure and 40% BC US Corp HY 2%) in the prior quarter and one year period, but remained ahead over the 3- and 5-year periods.
- Infrastructure and Private Credit composites trailed their respective benchmarks for the quarter and trailing one year period; Income Opportunities outperformed over the quarter, but similarly lagged over the one year period. Infrastructure and Private Credit outperformed over the 3- and 5-year periods; Income Opportunities underperformed.

Absolute Return Portfolio Relative to HFOF Universe

Periods Ended December 31, 2019

- The Absolute Return portfolio fell short of its benchmark over the quarter and one year period.
- The portfolio ranked above median for most observed time periods and near median over the 7 ¼ year period.

Performance vs Callan Absolute Rtn Hedge Fund of Funds (Net)

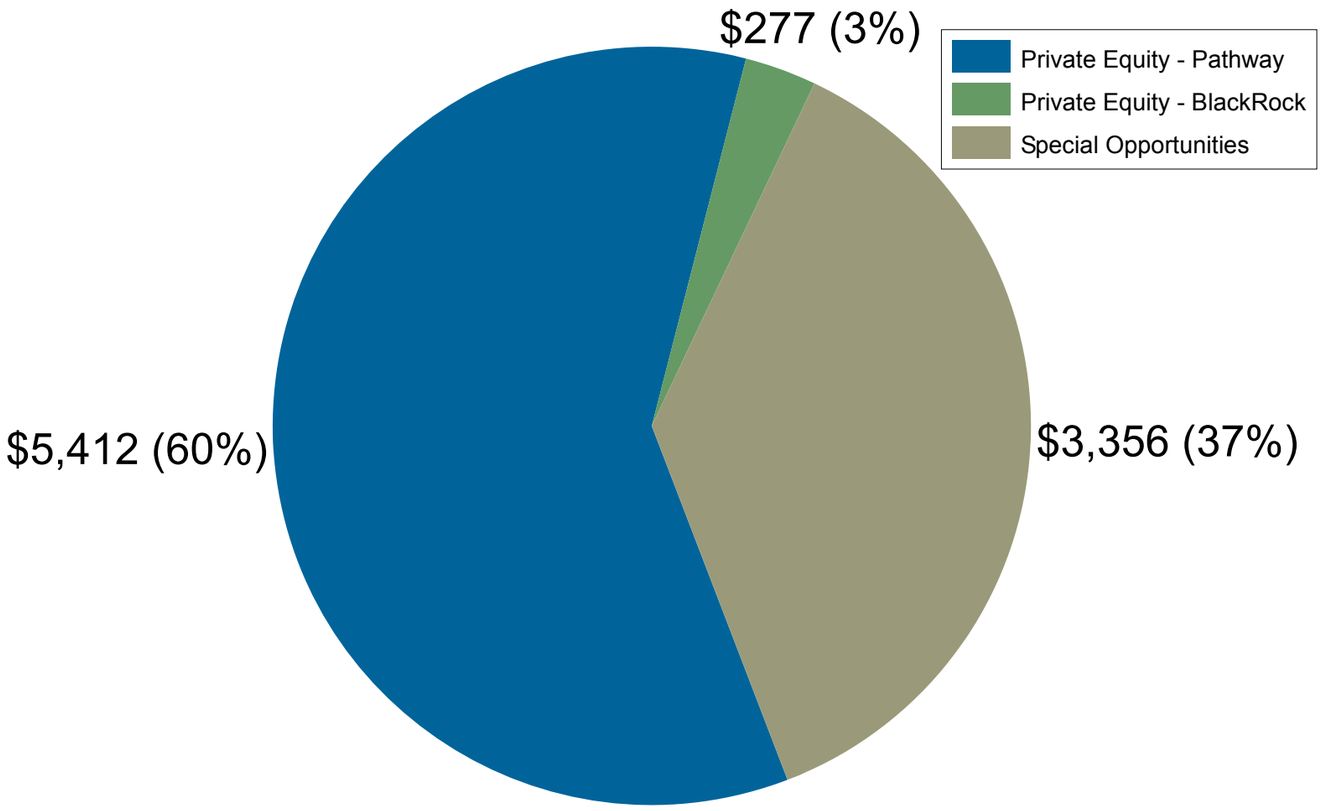


	Last Quarter	Fiscal YTD	Last Year	Last 3 Years	Last 5 Years	Last 7-1/4 Years
10th Percentile	3.13	3.56	8.44	6.40	5.37	6.57
25th Percentile	2.37	2.03	6.68	4.48	3.49	4.77
Median	1.99	1.59	5.63	3.16	3.01	4.24
75th Percentile	0.77	0.36	3.46	2.61	2.37	3.67
90th Percentile	(0.09)	(1.23)	1.18	1.67	1.45	2.92
Absolute Return (net) ●	2.24	3.07	5.93	5.02	3.41	3.97
Absolute Return Benchmark ▲	3.50	2.93	10.38	4.52	4.91	5.09

APFC Private Equity and Special Opportunities Structure *(1Q LAG)*

As of December 31, 2019

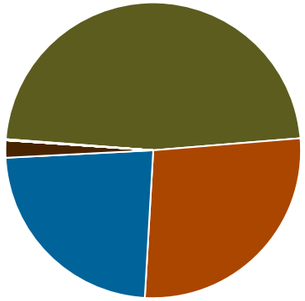
- 60% of the structure was invested in private equity.
- The legacy HarbourVest investments were transferred to Pathway for oversight management.
- The Pathway portfolio also includes direct investments overseen by Pathway.
- 37% of the structure was invested in special opportunities.



Private Equity Portfolio Positioning *(1Q LAG)*

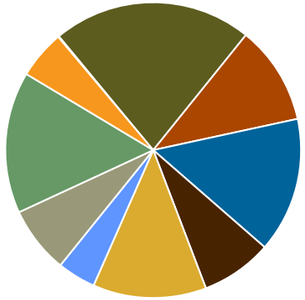
As of September 30, 2019 – *December Data Not Yet Available*

- APFC's Total Private Equity Portfolio continued to be well-diversified by strategy, geography, and industry.
- Buyouts, Venture Capital and Special Situations remained the largest strategy allocations.
- The largest non-U.S. geographic exposure was Europe. The largest industry exposure was in Technology.



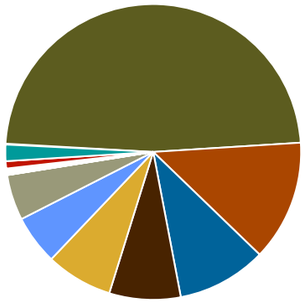
Strategy Mix by Net Asset Value

Buyout	47.48%
Venture/Growth Capital	27.22%
Special Situations	23.29%
Distressed/Restructuring	1.93%
Secondary Interest	0.04%
Mezzanine	0.07%



Geographic Mix by Net Asset Value

West/Pacific Northwest	21.81%
Mid-West	10.83%
North Atlantic	14.77%
Southeast	7.84%
Southwest/Rockies	12.35%
Mid-Atlantic	4.23%
Asia/Pacific	7.33%
Europe	15.53%
Other	5.28%



Industry Mix by Net Asset Value

Technology	48.11%
Consumer Discretionary	13.21%
Health Care	9.80%
Financial	7.82%
Industrials	7.25%
Energy	5.42%
Communication Services	5.02%
Utilities	0.33%
Consumer Staples	0.37%
Materials	0.79%
Other/Misc	1.77%

APFC Private Equity and Special Opportunities Performance *(1Q LAG)*

As of December 31, 2019

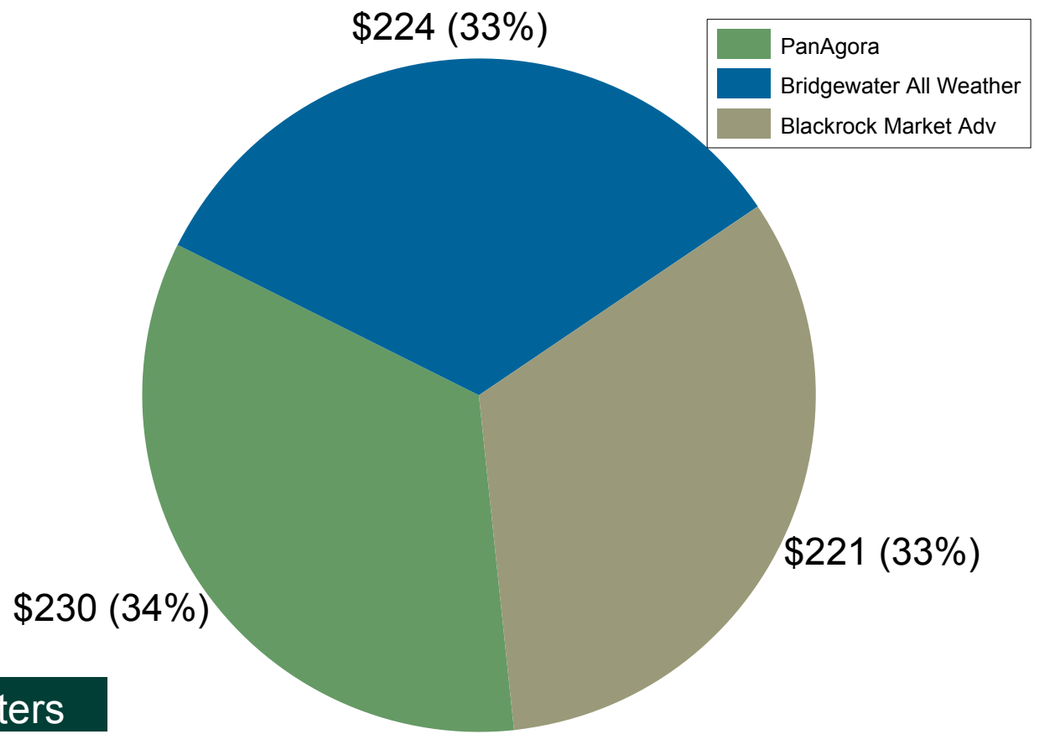
	Last Quarter	FYTD	Last Year	Last 3 Years	Last 5 Years
Private Equity and Special Opportunities	-1.36	2.83	8.98	19.81	21.83
Cambridge Private Equity	0.90	5.25	9.50	14.21	12.36

- APFC's Private Equity and Special Opportunities composite lagged behind the Cambridge Private Equity benchmark in the prior quarter and one year periods, but continued to outperform over the 3-, and 5-year.
- In the last reported quarter, Private Equity was up 1.7% and Special Opportunities was down 6.5%.

APFC Risk Parity Structure and Performance

As of December 31, 2019

- Roughly $675 million distributed across three mandates.
- Multi asset class portfolios, limited use of illiquid assets. Leverage is used to amplify the impact of asset classes and/or strategies in an effort to optimize performance vis-à-vis overall portfolio risk.
- All managers underperformed the risk parity benchmark in their third full quarter of performance; two of the three managers outperformed over the since inception period.



	Last Quarter	Last 3 Quarters
PanAgora	-0.22	10.45
Bridgewater All Weather	2.99	9.28
BlackRock Market Adv	3.07	10.58
HFR Risk Parity Vol 12 Inst'l Idx	4.24	10.31

Closing Remarks

- Total Fund ended the fourth quarter of 2019 with $68.2 billion in assets, increasing 4.1% for the quarter. For the year ended December 31, the Fund was rose by 15.7%. The trailing year performance placed the Total Fund below median relative to other large public funds, but above median relative to large endowments/foundations.
- For the quarter and trailing year, the Total Fund underperformed the Passive Index and Performance Benchmarks, but was ahead of the CPIU+5% return target. However, for the trailing 3-, 5- and 10-years, the Total Fund was ahead of all three targets.
- The Public Equity portfolio was ahead of its index during the quarter. Domestic and International Equity strategies contributed to outperformance while Global Equity detracted.
- The Fixed Income Plus portfolio exceeded its benchmark in the fourth quarter. All sub-strategies outperformed on a relative basis.
- The strategies in the Alternatives portfolio were mostly negative on a relative basis for the quarter, however, Private Equity and Income Opportunities were two bright spots where the portfolio outperformed.
- Prudent asset allocation with appropriate levels of diversification and a long-term perspective remain Callan's recommended course.

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13) Asset Class Update: Alternatives

Alternatives Memo

APFC ALASKA PERMANENT FUND CORPORATION
801 W 10TH SUITE 302 | JUNEAU, AK 99801
907.796.1500 | apfc.org

SUBJECT: APFC Alternative Investments Asset Class Update

ACTION: _____

DATE: February 19, 2020

INFORMATION: X

BACKGROUND:

Alternative Investments includes Private Equity (including venture capital), Special Opportunities, Absolute Return, Private Credit, and Infrastructure. The presentation provides updates on investment performance and competitive landscape.

STATUS:

At this meeting staff will present some of the key characteristics of the Alternative Investment portfolios including, as context, overall market developments and outlook. Staff will highlight key strengths and challenges facing the Alternatives team and will discuss strategic considerations and potential solutions.

Presentation: Alternatives

APFC

ALASKA PERMANENT
FUND CORPORATION

Private Markets and Alternative Investments

Portfolio Update | February 19, 2020

APFC

ALASKA PERMANENT
FUND CORPORATION

Private Income and Absolute Return

Portfolio Update | February 19, 2020

Summary Performance

Time Weighted Returns and Exposures as a % of Total Fund (per Callan)

($ in millions)	NAV	Allocation Current	Allocation Target	QTD	CYTD	1 Year	3 Year	5 Year
Absolute Return Portfolio	**$4,359**	**6.4%**	**5.0%**	**2.2%**	**3.1%**	**5.9%**	**5.0%**	**3.4%**
HFRI FOF Index				***3.5%***	***2.9%***	***10.4%***	***4.5%***	***4.9%***
Private Infrastructure	$2,494	3.6%		1.5%	1.9%	7.4%	15.1%	16.5%
FTSE Infrastructure Index				*3.1%*	*6.5%*	*17.2%*	*11.5%*	*8.5%*
Private Credit	$1,542	2.3%		1.1%	3.0%	4.5%	7.6%	6.4%
Bloomberg US High Yield Index				*2.6%*	*3.9%*	*6.4%*	*6.1%*	*5.4%*
Income Opportunities	$1,318	1.9%		4.4%	6.2%	9.3%	5.0%	6.7%
Blended Benchmark [1]				*2.4%*	*5.4%*	*12.8%*	*9.3%*	*7.3%*
Private Income Portfolio	**$5,353**	**7.8%**	**8.0%**	**2.1%**	**3.1%**	**7.1%**	**11.9%**	**11.6%**
Blended Benchmark [1]				***2.4%***	***5.4%***	***12.8%***	***9.3%***	***7.3%***

Source: Callan official performance reports. Private Income NAVs and performance as of June 30, 2019. Absolute Return NAV and performance as of September 30, 2019.

[1] Blended Benchmark is 60% FTSE Infrastructure Index and 40% Bloomberg US High Yield Index

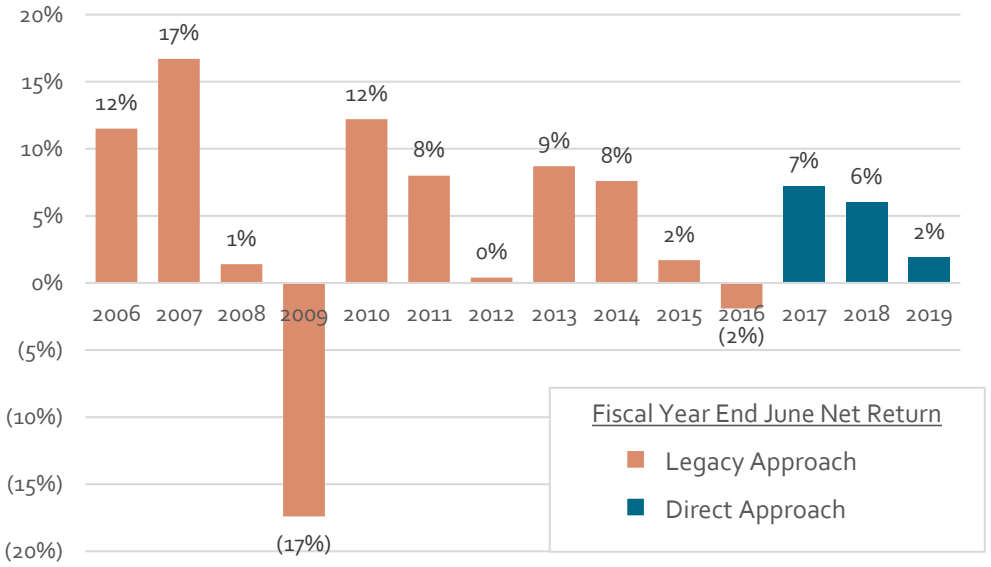
Absolute Return

Absolute Return

Target allocation and diversification reached within three years of rebuild

- Since the first investment in August 2016, APFC has built a $3.9 billion portfolio of 19 managers, $306 million remains between two of the fund-of-funds
- This portfolio aims to provide the Fund defensive investments with accretive returns, and with significantly better liquidity than other alternative investments
- Returns are measured against two benchmarks
  - Absolute: CPI + 5.00%
  - Relative: HFRI Total HFOF Universe

Performance of Absolute Return Portfolio Over Time



Note: All returns per Callan year-end monthly performance report.

Absolute Return

Divergence between outlook and objectives

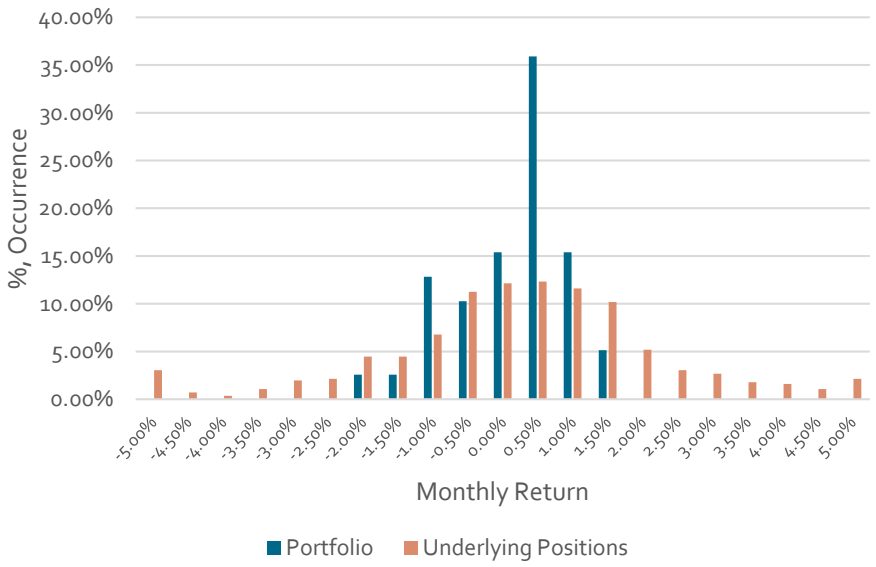
Through-the- Cycle Expectations

10-Year Projections	*r*	*σ*
Callan	5.05%	9.15%
CPI	2.25%	1.50%
APFC Objective	7.25%	<12.00%

Risks to Meeting Objectives

- Lower ex-post volatility limiting returns
- Overpaying for non-accretive strategies
- Leverage used by mangers can lead to significant losses if not properly managed

Distribution of monthly returns



Absolute Return

Performance and portfolio composition

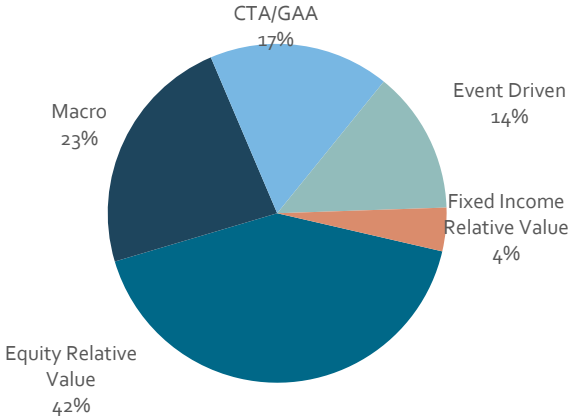
Portfolio Performance

($ in millions)	NAV Dec-19	Return 4Q19	FYTD	SI	FY19	FY18
Fund-of-Funds	$306	-3.8%	-2.4%	3.4%	-4.4%	-1.1%
Crestline	$273	-4.1%	1.4%	4.8%	-5.2%	-2.2%
Mariner	$54	-2.3%	1.2%	4.0%	0.3%	3.5%
Direct Portfolio	$3,923	3.1%	3.9%	4.9%	3.0%	1.5%
Absolute Return	$4,229	2.6%	3.4%	5.8%	2.2%	1.2%

Source: APFC manager statements and investment staff calculations.
Note: December NAV and performance figures may utilize preliminary estimates where finalized numbers not yet available; performance figures calculated as NAV-weighted geometric mean over applicable timeframe

Direct Portfolio Overview

Strategy Mix



Portfolio Statistics

Ann. Return	4.90%
Volatility	2.83%
Sharpe	1.19
Corr to S&P	0.17
Corr to Agg	-0.09
Corr to HFRI	0.31

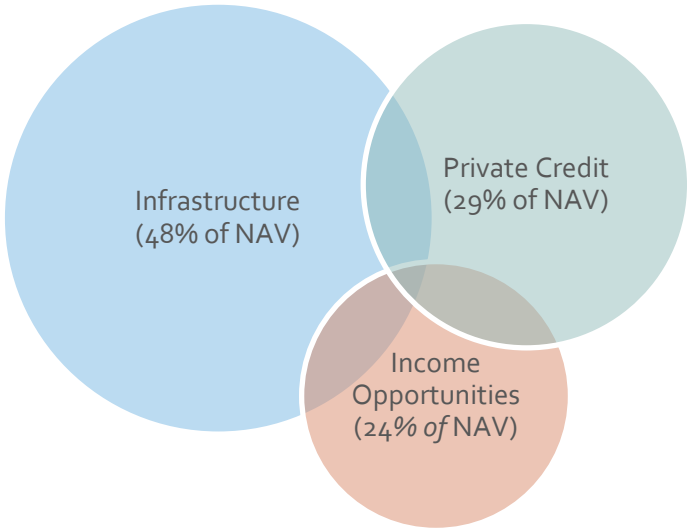
Note: Since inception date of July 1, 2016, to match beginning of FY17 and beginning of in-house strategy

Private Income

Overview of Private Income

Current income, capital appreciation, and downside protection

- In the quarter ending December 31, 2016, APFC began reporting on Private Income as a composite
  - Objective: Generate a return between the expected return for public equity and fixed income that is comprised of an attractive level of current income and capital appreciation
  - Returns are measured against the following benchmarks
    - Absolute: CPI + 5.00%
    - Relative: 60% FTSE Developed Core Infrastructure and 40% Bloomberg US High Yield (with a 2% Issuer Cap)
- Private Income trades the liquidity of public markets for an incremental return and trades the higher risk/return potential of private equity for a lower risk/return profile
- New investments are now 100% discretionary and include a mixture of fund investments, co-investments, and direct investments



Private Infrastructure

Mandate

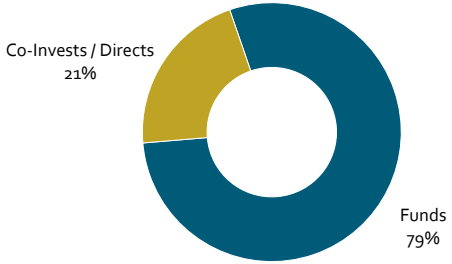
To invest in long-lived assets and companies that exhibit contractual or inflation protection characteristics, while safeguarding principal

Return Objectives

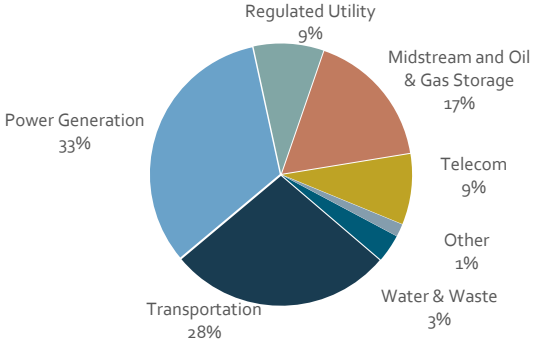
Returns are measured against two benchmarks

- Absolute: CPI + 5.00%
- Relative: FTSE Developed Core Infra Index

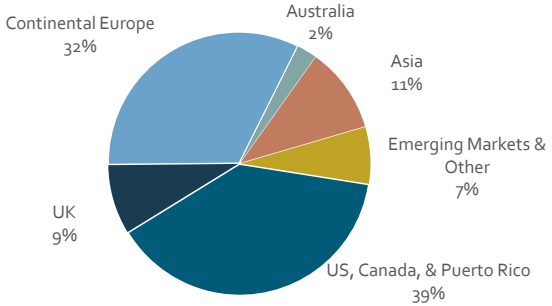
Structure Mix



Sector Mix



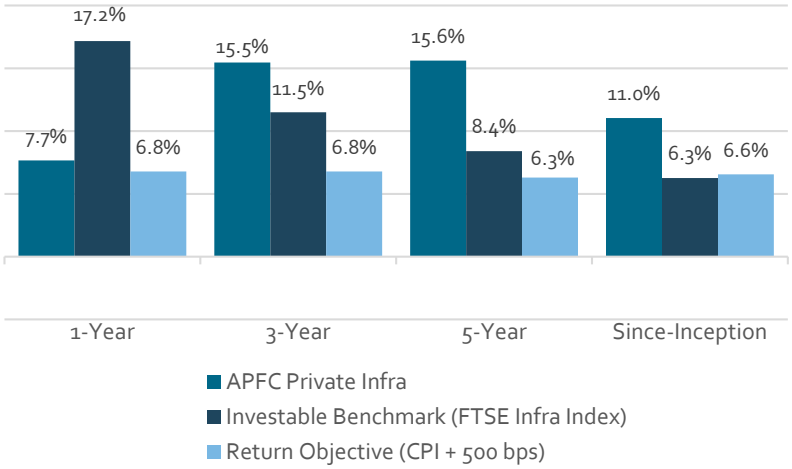
Geographic Mix



Private Infrastructure

Overview of Performance and Benchmark Comparison

Horizon IRR's @ September 30 Marks



Note: Returns are as of September 30, 2019 NAVs as calculated by APFC Staff and Pathway Capital. APFC portfolio returns are calculated on a money-weighted (IRR) basis as opposed to Callan's returns which are reported on a time weighted basis.

Since Inception Portfolio Performance

($ in millions)	Capital Committed	Capital Called	Capital Dist.	Current Value	Net IRR	MOIC
Fund Investments	$4,750	$2,779	$2,310	$2,013	10.8%	1.56x
Co-Investments	$492	$445	$65	$537	15.3%	1.35x
Listed Infrastructure*	$300	$300	$397	$0	10.6%	1.32x
Total Infrastructure	**$5,541**	**$3,524**	**$2,773**	**$2,550**	**11.0%**	**1.51x**

*Note: Listed infrastructure was included in this portfolio from September 2013 to September 2016.

Private Infrastructure

Outlook

Through-the- Cycle Expectations

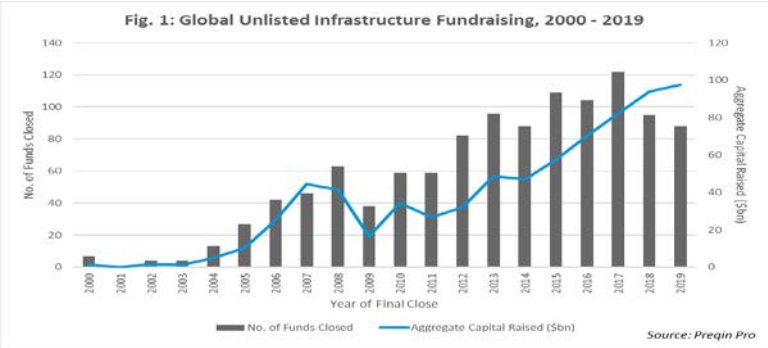
10-Year Projections	*r*	*σ*	*yield*
Callan	5.75%	13.00%	5.00%
CPI	2.25%	1.50%	n/a
APFC Objective	7.25%	n/a	n/a

Risks to Meeting Objectives

- Current high valuations make entry difficult
- Potential market downturn could result in downward pressure on valuations and limited exit options
- Operationally intensive assets are subject to risk of mismanagement

Current Market Outlook

- Fundraising and deal flow has slowed but remains healthy
- Expected low GDP growth rates, trade uncertainty, and public market sentiment are proving to be headwinds for the sector
- Underlying fundamentals, strong performance, and continued investor demand lend support to the asset class



Private Credit

Striving to achieve private market yield premium

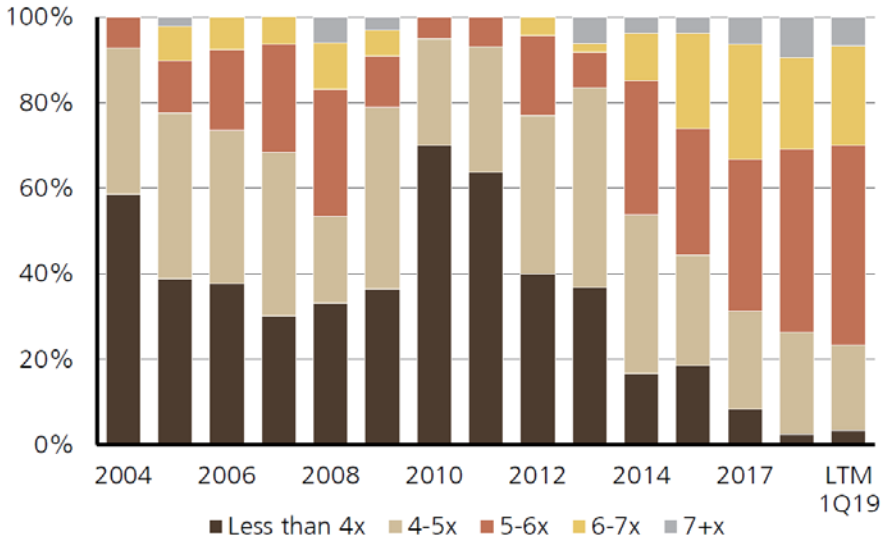
Through-the- Cycle Expectations

10-Year Projections	*r*	*σ*	*yield*
Callan	5.75%	16.50%	6.25%
CPI	2.25%	1.50%	n/a
APFC Objective	7.25%	n/a	n/a

Risks to Meeting Objectives

- Defaults and losses on underlying loans
- Increased competition leading to a compression in spread to public markets
- Inability to refinance/exit loans due to a widespread flight of capital

Distribution of Leverage Ratios for Middle Market

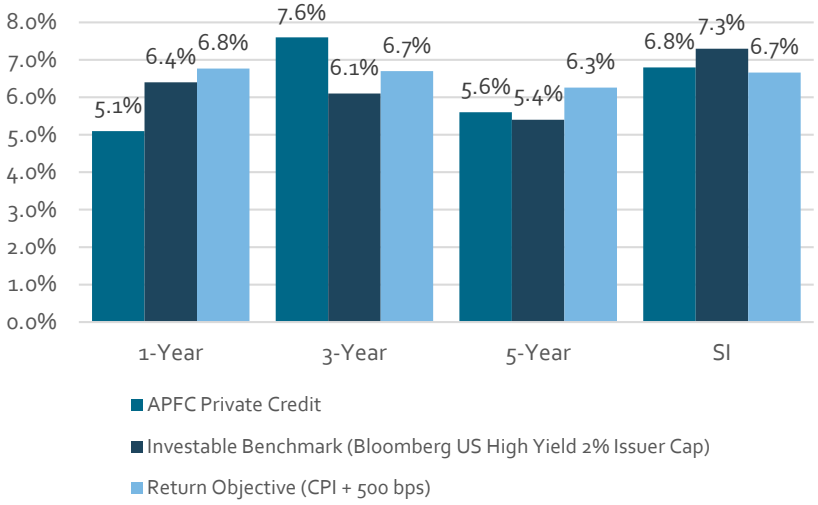


Source: S&P LCD, UBS

Private Credit

Performance and benchmark comparison

Horizon IRR's @ September 30 Marks



Note: Returns are as of September 30, 2019 NAVs, as calculated by APFC Staff and Pathway Capital. APFC returns are calculated on a money-weighted (IRR) basis as opposed to Callan's returns which are time-weighted.

Since Inception Performance

($ in millions)	Capital Called	Capital Dist.	Current Value	Net IRR	MOIC
Legacy Fund-of-Funds	$1,145	$1,157	$375	5.5%	1.3x
Direct Lending	$303	$97	$232	9.4%	1.1x
Distressed	$650	$351	$411	7.4%	1.2x
Opportunistic	$348	$105	$307	11.6%	1.2x
Specialty Finance	$103	$53	$62	12.9%	1.1x
Subordinated	$550	$569	$144	10.1%	1.3x
Total Private Credit	**$3,098**	**$2,331**	**$1,532**	**6.8%**	**1.2x**
12 months ago	*$2,211*	*$1,680*	*$1,172*	*6.9%*	*1.3x*

Income Opportunities

Concentrated portfolio with defensive positioning

- With the formation of Private Income, the Income Opportunities portfolio was seeded with a joint venture to purchase and lease high-end single family homes
- This portfolio recognizes that the dynamic nature of global markets will create attractive income generating, opportunities outside of the traditional Infrastructure and Private Credit definitions
- Returns are to be accretive to the Private Income portfolio and are therefore measured against the same benchmarks

Through-the- Cycle Expectations

10-Year Projections	*r*	*σ*	*yield*
Callan	5.75%	14.50%	5.50%
CPI	2.25%	1.50%	n/a
APFC Objective	7.25%	n/a	n/a

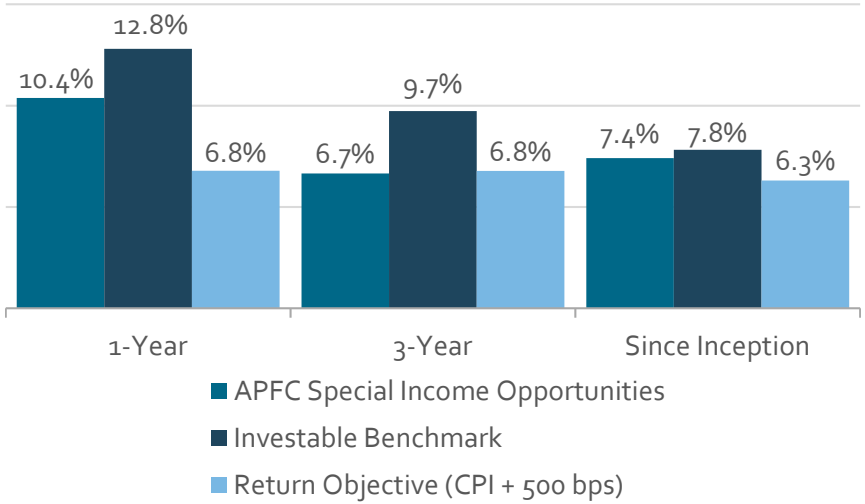
Risks to Meeting Objectives

- Low return potential on unlevered, defensive assets
- Lack of ADAC diversification during build
- Concentrated, existing commitments will drive performance

Income Opportunities

Performance and benchmark comparison

Horizon IRR's @ September 30 Marks



Note: Investable Benchmark is 60% FTSE Developed Core Infrastructure and 40% Bloomberg U.S. High Yield 2% Issuer Cap. Returns are as of September 30, 2019 NAVs as calculated by APFC Staff and Pathway Capital. APFC returns are calculated on a money-weighted (IRR) basis as opposed to Callan's returns which are time-weighted.

Since Inception Performance

($ in millions)	Vintage Year	Capital Called	Capital Dist.	Current Value	Net IRR	MOIC
American Homes for Rent II	2013	$162	$40	$157	5.0%	1.2x
Athyrium Opportunities Fund III	2016	$17	$4	$14	3.1%	1.0x
Twin Creeks Timber	2016	$113	$34	$78	(0.5%)	1.0x
Generate Capital	2017	$110	$7	$158	26.9%	1.5x
BroadRiver III	2017	$16	$0	$16	(0.4%)	1.0x
ADAC High Yield	2018	$601	$0	$666	7.9%	1.1x
ADAC Co-Invest	2018	$121	$3	$124	8.2%	1.1x
Activate Capital	2018	$35	$0	$35	1.6%	1.0x
Total Income Opportunities		**$1,185**	**$88**	**$1,257**	**7.4%**	**1.1x**
12 months ago		*$943*	*$39*	*$953*	*4.9%*	*1.1x*

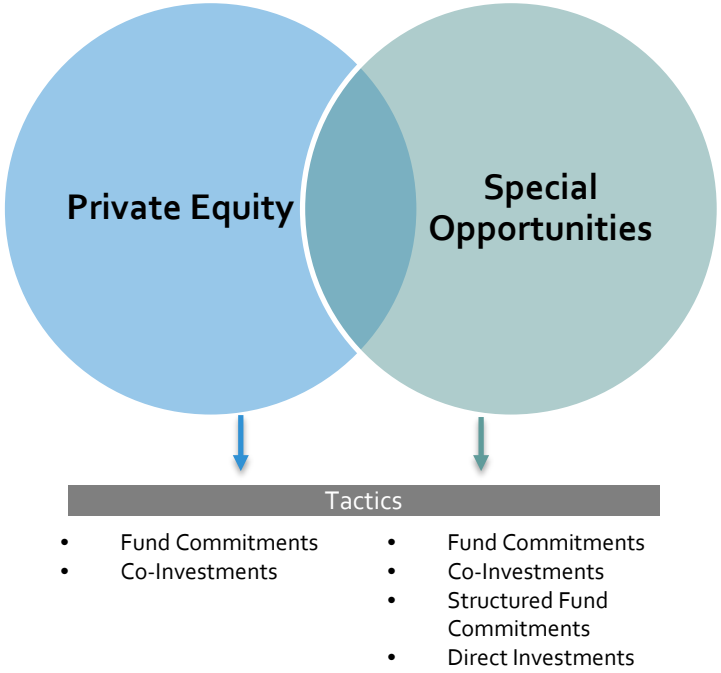
APFC

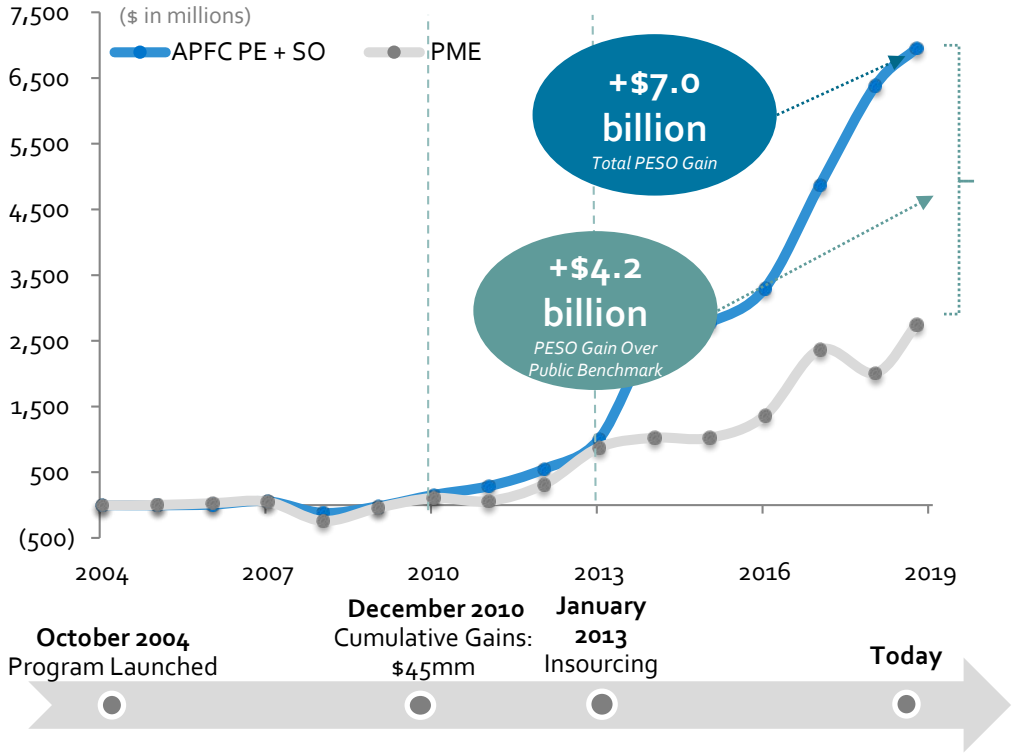
ALASKA PERMANENT
FUND CORPORATION

Private Equity and Special Opportunities

Portfolio Update | February 19, 2020

PESO Mandate, Tactics + Performance





Sources: Pathway Capital Management and Burgiss as of 30-September-2019.
Notes: All returns net of management fees and carry.
PME = Public Market Equivalent; benchmark assumes combined portfolio cash flows are invested in, or distributed from, a public index fund (60% Russell 3000/40% MSCI EAFE).

Complementary Activities

Complementary **Portfolios**…

($ in millions)	Commitments[1]		5-year Return[1] (annualized)
Portfolio	**FY2020**	**Cumulative**	
Private Equity	$904	$11,454	19.5%
Special Opportunities	$391	$5,286	35.2%
Combined PE + SpecOpps	$1,294	$16,740	21.8%

($ in millions)	Commitments[1]		Since Inception Returns[1]		
Tactic	**FY2020**	**Cumulative**	**IRR**	**Multiple**	**Gain**
Fund Commitments	$1,199	$15,126	13.0%	1.5x	$4,945
Direct/ Co-Investments	$95	$1,615	53.6%	2.4x	$2,010

…and **Tactics**

(1) Commitments include closings through 12/31/2019; returns calculated as of 9/30/2019.

Source: Callan

Portfolio Role + Expected Net Returns

Costs

- Market risk
- Leverage
- Illiquidity

Benefits

- Absolute Return
- Diversification
- Market Knowledge
- Specificity

Expected returns over market cycle	Projected Annualized	
	Net Return	Standard Deviation
Callan	8.5%	28%
Horizon CMA Survey	9.0%	22%
APFC	12.3%	22%

Obstacles:
- Market Beta
- Execution Risk
- Inadequate Resources

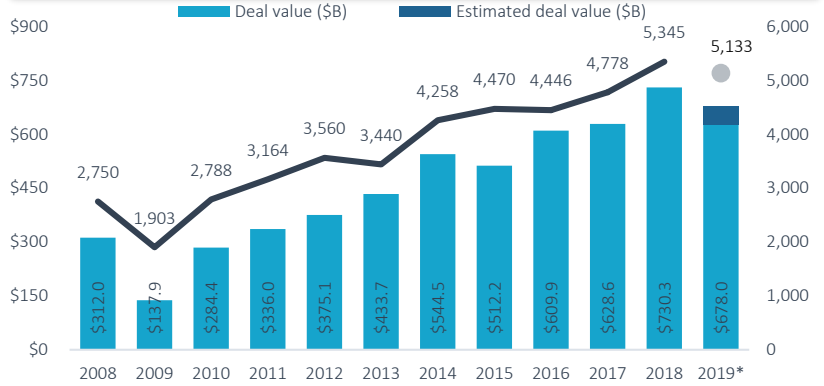
Benchmarks:
Private: Cambridge
Private: Peer Rankings
Public: 60/40

Market Update + Outlook

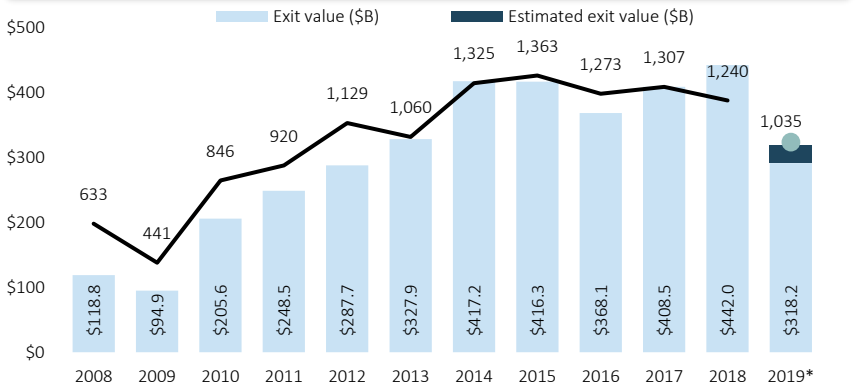
Purchase price multiples and fundraising velocity requires continued caution and agility

Industry Forces	
	- Continuing, massive inflows
	- Asset class convergence
	- Longer holds; increasingly direct
	- Evolving LPs

U.S. M&A activity continues to be robust…



…although exit activity began to decelerate in 2019.



Source: Pitchbook as of Q4 2019; *Annualized

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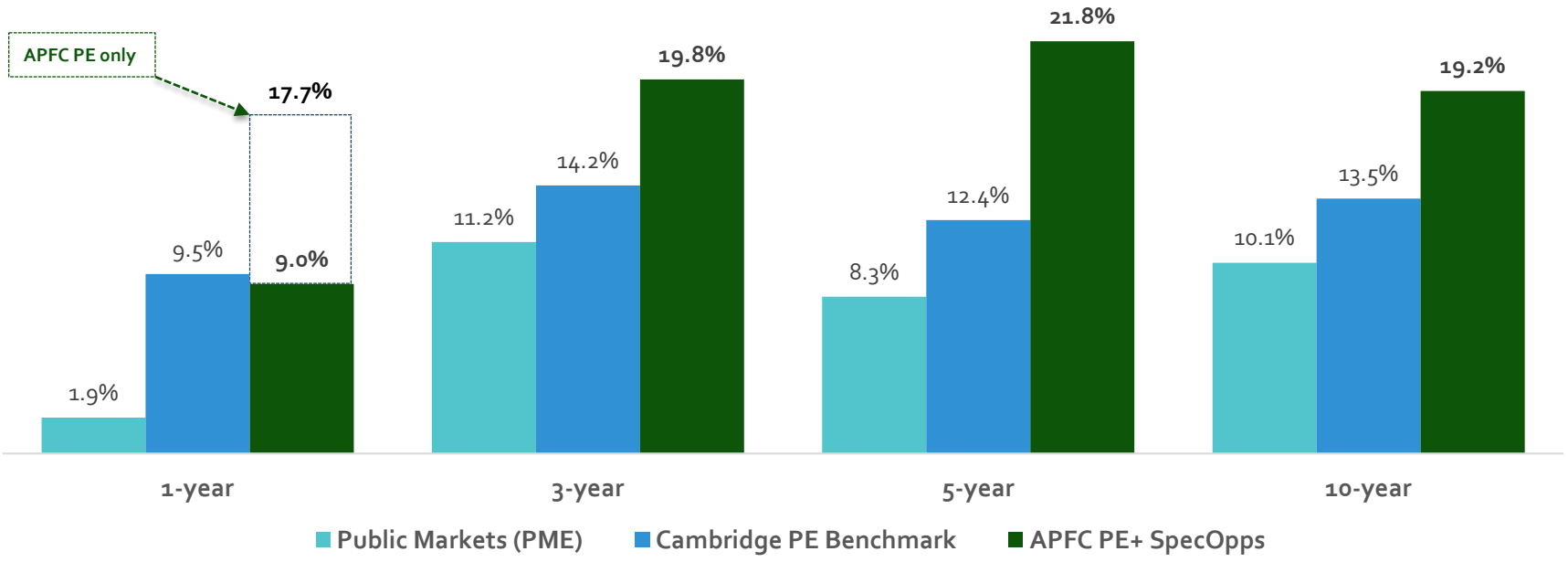
Portfolio Performance (net of fees and carry)

APFC Private Equity and Special Opportunities portfolios have outperformed public market and industry benchmarks



Source: IRR calculations and underlying cash flows for Public Benchmark and PE Median as reported by Pathway Capital Management and Burgiss as of 30-September-2019
SOURCES: Callan and Pathway Capital Management

Note: All returns net of management fees and carry.

Portfolio Performance (through 9/30/2019)

Private Equity and Special Opportunities							
($mm, at 9/30/2019)	NAV		Historical Returns*				
Portfolio	Market Value	% of APF	1 Year	3 Years Annualized	5 Years Annualized	10 Years Annualized	Since Inception Gains
Private Equity	$5,702	8.6%	17.7%	22.8%	19.5%	18.2%	$4,636
Special Opportunites	$3,321	5.0%	-3.4%	15.2%	35.2%	NA	$2,318
PE + Spec Opps	$9,023	13.7%	9.0%	19.8%	21.8%	18.8%	$6,954
Cambridge Benchmark			*9.5%*	*14.2%*	*12.4%*	*13.5%*	

Source: Callan
* All returns net of management fees and carry.

Critical Success Factors for APFC in Alternative Investments

We know what it takes for APFC to sustain leadership in Alternative Investments

Currently executing

- **Leverage relationships for sourcing and due diligence**
- **Leverage advisors and consultants**
- **Steady pacing; disciplined choice and consistent process**
- **Build counter-cyclical, lower correlation strategies + assets**
- **Favor contractual returns and asset coverage**
- **Selectively realize gains**

Resource constrained

- **Recruit and retain experienced investment talent**
- **Invest in portfolio monitoring and analytics systems**
- **Invest in market intel and analytics systems**
- **Establish office outside AK as forward operating base**

Note: blue text denotes cyclical emphasis

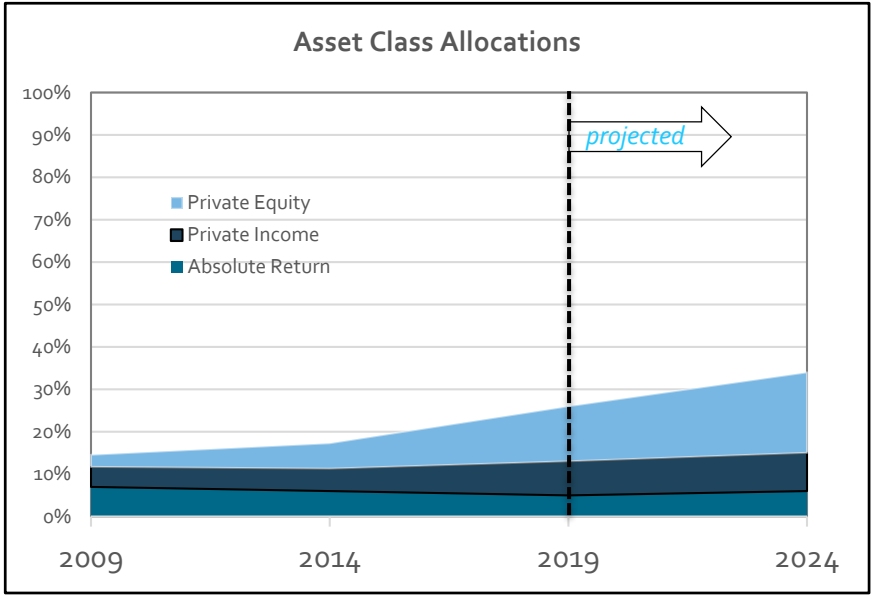
APFC

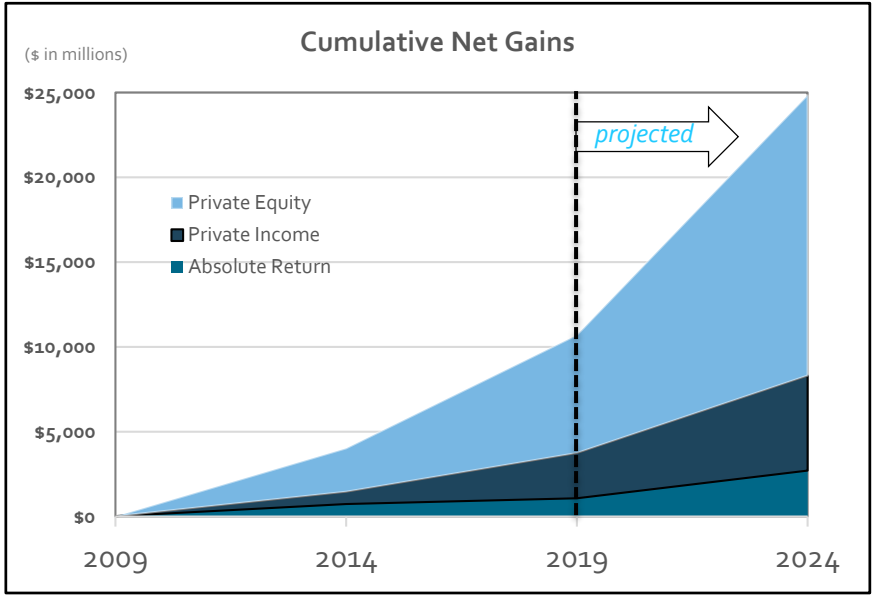
ALASKA PERMANENT
FUND CORPORATION

Private Markets and Alternative Investments

Strategic Considerations | February 19, 2020

Alternative Investments are increasingly important to APFC and Alaska





Sources: APFC Quarterly Reports; asset allocation plan

Innovation and performance have built and reinforced APFC credibility

PitchBook

PRODUCTS SOLUTIONS DATA NEWS & ANALYSIS ABOU

Alaska Permanent Fund Corporation

We view Alaska Permanent Fund as one of the savviest SWFs in the world. The $65.3 billion fund is financed by oil & gas revenue for the benefit of future generations of Alaskans. Despite being less than one tenth the size of ADIA, the fund is just as sophisticated, if not more so.

Critical risk: investment resources have fallen behind

Private Equity International

Private Equity International Awards 2019

Americas Category

Limited partner of the year

- Alaska Permanent Fund - Alaska Permanent Fund Corp committed $1.25 billion to 26 funds and deployed $348 million across 10 co-investments during the last 12 months, while its existing $8.7 billion portfolio generated a 19.18 percent net annualised return as of 30 June.
- California State Teachers' Retirement System - The $242 billion California State Teachers' Retirement System committed a whopping $5.5 billion to private equity just in the first half of 2019. It alo restructured its private equity portfolio to make room for opportunistic, long-term strategies, special mandates and multi-strategies.
- Canada Pension Plan Investment Board - The C$410 billion ($303 billion; €274) billion pension increased its North American footprint with the opening of its San Francisco office. Earlier in the year it announced a venture capital funds programme to support the other tech-related initiatives of the pension system and backed the $11 billion acquisition of HR software company Ultimate Software.
- Teacher Retirement System of Texas - The $152 billion Teacher Retirement System of Texas focused significantly on its co-investment programme this year and almost 28 percent of its $4.2 billion commitment to private equity was to co-investments. TRS is also busy recruiting for its PE team and expects to double it in the next five years, mainly to lift the load on co-investments.

Other (please specify)

	PE AUM[1] *(USD in billions)*	PE Investment Staff [2]	AUM / FTE	CIO Annual Comp[1]
CalSTRS	$21.7bn	29.0	$0.75	$1,000k
CPP	$76.1bn	155.0	$0.5bn	$3,500
Texas TRS	$23.0bn	20.0	$1.1bn	NA
APFC	$9.5bn	3.5	$2.7bn	$357k

(1) Latest available reported private equity AUM, excluding interim reporting.
(2) Estimated FTEs. Note that TRS announced plans to grow to 35 PE FTEs in 3 years and CalSTRS announced plans to grow to similar size in 5 years. Includes investment staff only.

Sources: Publicly reported estimates

Recent developments

- At least two members of alternatives team have received employment offers at ~2.5x-3.5x current compensation
  - Departure of Senior Portfolio Manager in Private Credit and Absolute Return
  - Offers of employment by APFC to qualified candidates have been rejected
- Potential strategic partners have made unsolicited proposals to partially outsource and invest in APFC's alternative asset investment business
  - Strategic alternatives have not been pursued and explored

A Joint Venture Could Offer Solutions…

- Delivers resources necessary to perform for Alaska
- Maintains management and process continuity
  - Seeds a new Alaskan industry
- Lower cost than outsourcing
  - Partial privatization
- Ongoing APFC equity participation in new entity
- Customized and appropriate governance and controls for APFC

…and Would Require Careful Consideration.

- JV partner -- characteristics and implications for APFC
  - Ownership, governance, board composition, preferred terms, unique requirements
- What strategies to include (and when)
- Team composition and transitions
- Execution timetable and cost implications
- Investment Management Agreement
- Consent requirements and constituent engagement

14) Asset Class Update: Real Estate

Real Estate Memo

APFC ALASKA PERMANENT FUND CORPORATION
801 W 10TH SUITE 302 | JUNEAU, AK 99801
907.796.1500 | apfc.org

SUBJECT: APFC Real Estate Asset Class Update

ACTION: _____

DATE: February 19, 2020

INFORMATION: X

BACKGROUND:

The Real Estate presentation provides portfolio updates and investment performance analysis.

STATUS:

At this meeting, staff will present key elements of the Real Estate portfolio. Staff will also compare performance of, and provide updates on, portfolio components.

Presentation: Real Estate

APFC

ALASKA PERMANENT
FUND CORPORATION

Real Estate

February 19, 2020

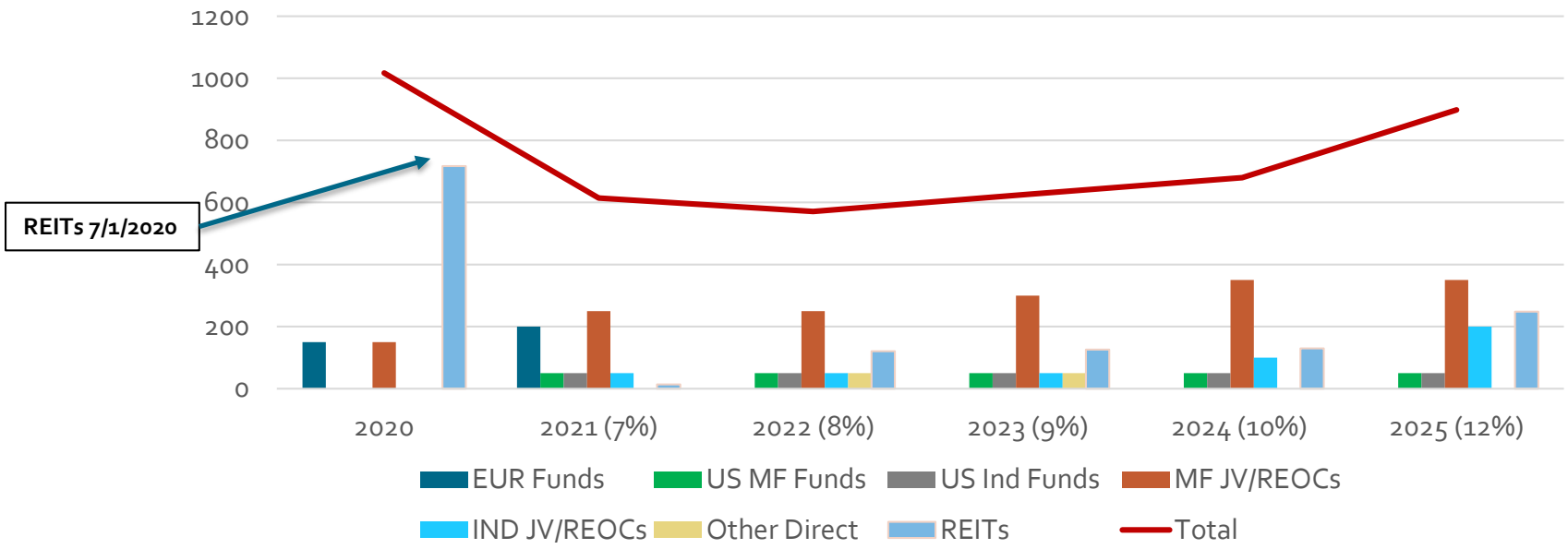
Real Estate Portfolio Update

- CIO developing a Real Assets Completion Portfolio to manage underweight in Real Estate until we gear up our investments
- Investment plan for Real Estate incorporates new proposed asset allocation targets of 7%-12% for FY2021-2025.
- Short list of programmatic JV Partners identified for Industrial and Multi-family investments
- Conducting open-ended commingled fund searches for: Multifamily and Industrial property types
- Working with AEW to develop a customized REIT product with focus on Specialty Sectors highlighting Multifamily and Industrial subtypes

Real Estate Investment Plan 2020-2025

- Proposed asset allocation model presented tomorrow resets targets for real estate at achievable levels for FY2021-2025
- REITs moved from Fixed Income back to Real Estate
- Investment plan contemplates mix of European closed end funds, US open-ended commingled Funds, Programmatic JV/REOCs opportunities, along with REITs, and other direct investments
- Deployment focused on multifamily and industrial property types to correct portfolio imbalance

Real Estate Investment Plan FY2020-FY2025



SWOT

STRENGTHS

- Size
- Patient capital
- Network of Professionals
- Quality assets
- Durable cash flow
- Geographical diversification

OPPORTUNITIES

- Developable sites
- Redevelopment of existing assets
- Not capital constrained
- Positioned to act quickly to market shifts

WEAKNESSES

- Overweight to underperforming property types
- Underweight to top performing property types
- Short term heavy capital requirement on retail assets

THREATS

- Pricing risk
- Near term threat of recession
- Secular shifts in the use of RE
- Too much dry powder industry wide

Direct Investing

What do we mean by Direct Investing?

- Invest through Separate Account Managers, JV Partnerships, REOCs

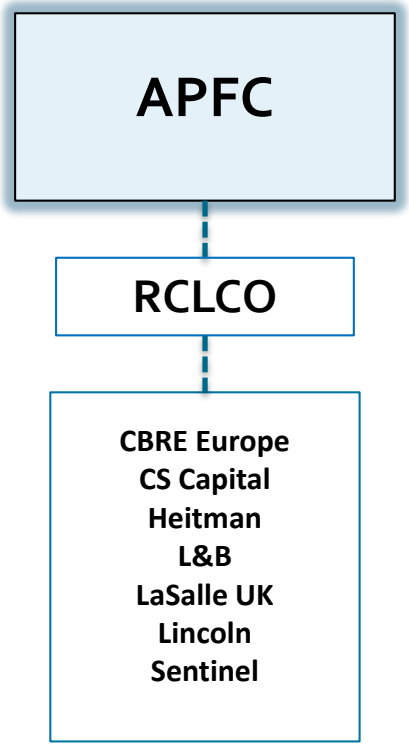
Acquisitions:

- APFC Annual Tactical Plans define the parameters for targeted investments
- All real estate investments require an Independent Third Party Fiduciary to underwrite deals

Asset Management:

- Annual Business Plan, including leasing strategy and capital requirements, approved by APFC
- Only exceptions to business plans require subsequent APFC review and approval
- Review quarterly performance and all variances
- Site visits
- Annual Hold/Sell Analysis

APFC Real Estate Professionals



- Portfolio Management (19)
- Asset Management (43)
- Development and Construction (11)
- Research & Marketing (19)
- Acquisitions (20)
- On-Site Property Management & Leasing (123)

TOTAL: 235

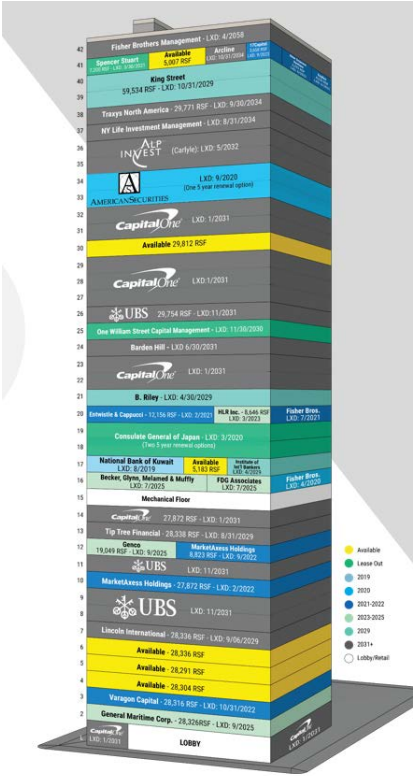
APFC Staff: 4
Advisors: 7
JV Partners: 5

Multifamily Highlight: Workforce Housing

- Defined as Class B and C multifamily properties with few amenities
- Workforce housing targets households making 60-120% AMI ($35,000-$75,000)
- Roughly 120,000 Class B and C units are annually removed from inventory
- Little new development
- Workforce housing has outperformed the overall multifamily market in recent years
- Investing in workforce housing can be a defensive

299 Park Avenue – New York

1,183,734 SF Class A Office Building -- Heitman



Background

- The APFC purchased a 49.5% interest in the 1.2 million SF building in 2011
- In 2013 UBS which occupied approx. 50% of the building announces its intention to vacate their space
- The majority of UBS space has since been released on a long term to prominent financial firms – including a 120K lease to UBS at above market rates through 2031
- Current leased occupancy is above 90% with the finalization of recent leases

Asset Strength

- Prestigious Park Avenue address between 48th and 49th Streets and counting, Waldorf-Astoria and Grand Central as neighbors with direct underground access to the train station
- Located within the amenity rich Plaza District submarket of Midtown Manhattan, blocks from Grand Central Terminal with direct underground access to Grand Central Terminal
- The current rent roll is comprised of quality credit tenants on long term leases
- Only 13% of leases expire in the next 5 years with 70% not expiring until after 2029; 50% 2031 and later

Plan of Action

- Complete ongoing lobby renovation by July 2020, on schedule and in-line with budget
- Complete additional leasing capitalizing on renovations and strong market conditions in the Park Avenue submarket
- Evaluate hold period considering stabilization/optimization of NOI and investor demand

The Shops at North Bridge – Chicago, IL
670,888 SF Regional Shopping Center – L&B Realty

Background

- The APFC purchased a 50% interest in The Shops at North Bridge in 2008 in a joint venture with Macerich
- There has been a shift in consumer behavior causing retailers to shift store models as they look to close non-profitable and outdated stores
- This effect, along with retail bankruptcies, has caused vacancy rates to rise and corresponding rents to decline from a peak of $550 to $350 psf. The potential for softening valuations exists in the short term.

Strengths

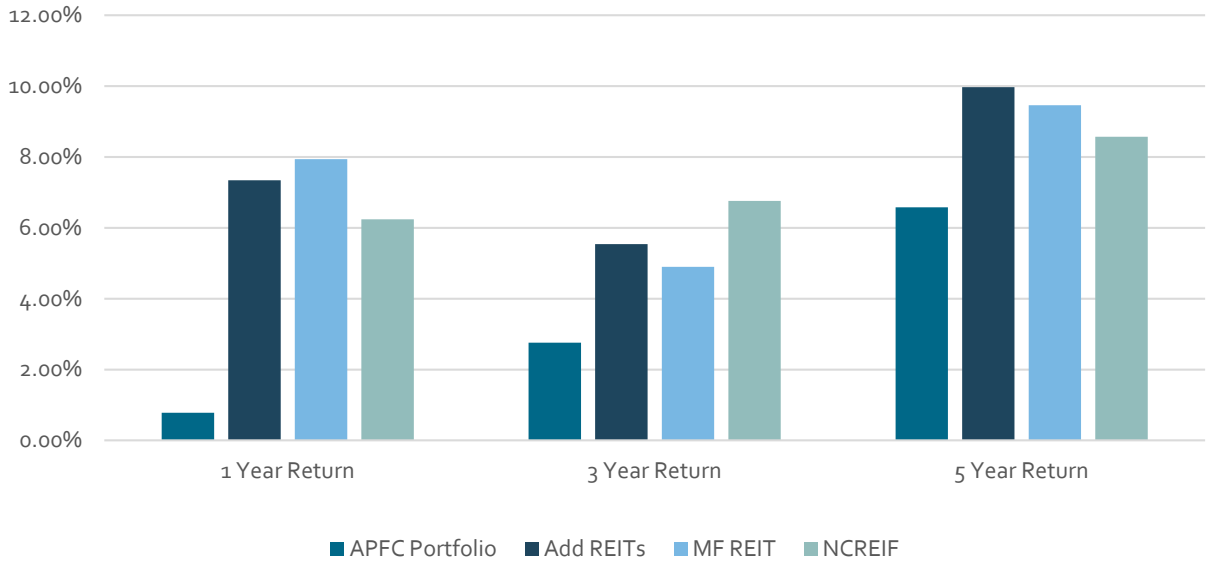
- The nucleus of Michigan Avenue retail has shifted to the southern part of the Avenue which will benefit North Bridge
- This is evidenced by the recent openings of the Starbucks Roastery and Apple's flagship store on the southern end of Michigan Avenue
- Tourism traffic remains strong with early 60 million visitors – 8th straight year of record tourism
- Experiential type stores are expected to be in demand for spaces along the Avenue as focus shifts to tourist-driven attractions

Plan of Action

- Continue leasing strategy focused on experiential type users and catering to tourism traffic along Michigan Avenue
- Re-tenant flagship space recently vacated by Forever 21 pursuing both single tenant and multi-tenant scenarios
- Drive customer traffic to the 2nd and 3rd floor of the interior mall to generate leasing interest and drive rents
- As retail shifts to the southern end of Michigan Avenue pursue tenants looking to relocate from the north end

APFC Real Estate Portfolio Scenario 1 (REITs Inclusion)

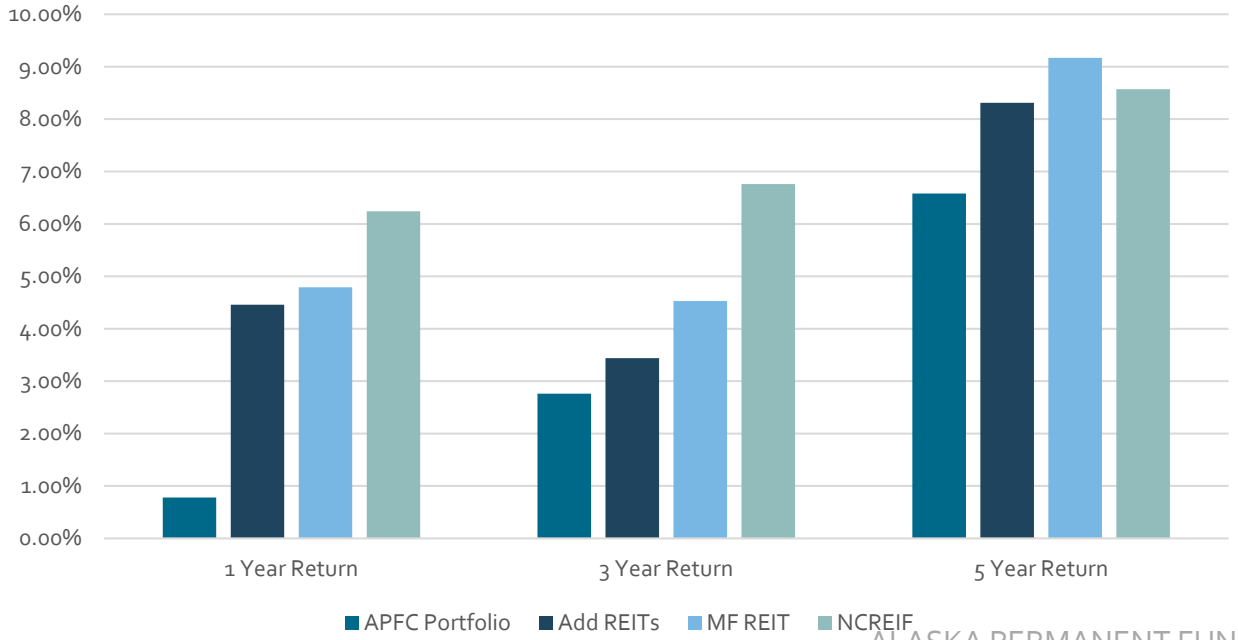
Adding REITs for 2017-2019 at $1.5B



Note: REITs at original balance in Real Estate Portfolio for 2015 & 2016 and at $1.5B since inception of Fixed Income Plus Portfolio, thereafter

APFC Real Estate Portfolio Scenario 2 (REITs Inclusion)

Adding REITs for 2017-2019 at 15% of Real Estate exposure



Note: REITs at original balance in Real Estate Portfolio for 2015 & 2016 and at 15% of Real Estate exposure thereafter

Presentation: RCLCO

RCLCO Memo

APFC ALASKA PERMANENT FUND CORPORATION
801 W 10TH SUITE 302 | JUNEAU, AK 99801
907.796.1500 | apfc.org

SUBJECT: Real Estate Strategies RCLCO

ACTION: _____

DATE: February 19, 2020

INFORMATION: X

BACKGROUND:
RCLCO, real estate consultant to the APFC, will be providing the board with a real estate market update. RCLCO will also focus on direct investing in real estate, and outline the process used to screen potential operating company and programmatic joint venture opportunities.

Biographies of Attendees:

Taylor Mammen (Managing Director, Institutional, RCLCO)

Taylor Mammen is a Managing Director based in RCLCO's Los Angeles office and currently serves as the firm's Director of Institutional Advisory Services (IAS). Since joining RCLCO in 2006, he has directed and managed consulting engagements in each of the firm's practice areas, across a wide range of geographies. As Director of IAS, Taylor leads the firm's institutional investor client relationships, including directing investment strategy, underwriting, and asset management responsibilities. Taylor has helped establish the IAS practice within RCLCO while sourcing and underwriting approximately $4 billion in equity commitments to separate accounts and funds on behalf of public pension funds. He also serves on RCLCO's Executive Committee, with responsibility for implementing firm strategy.

Taylor joined RCLCO after serving as director of research for a boutique government relations consulting firm in Washington, D.C. and working with the Boston Redevelopment Authority on a public-private initiative to revitalize and "re-knit" downtown Boston in response to the Big Dig. He received his Masters in City Planning from the Massachusetts Institute of Technology and a Bachelor of Arts in Political Science from Brigham Young University. He is an active member of the Pension Real Estate Association (PREA) and the Urban Land Institute.

Ben Maslan (CFA Principal, RCLCO)

Ben Maslan is a Principal based in RCLCO's Los Angeles, California office.
Ben serves across RCLCO's practice groups with a focus on investment analysis on behalf of the firm's institutional accounts and strategic planning and litigation support services. In these engagements he brings to bear his experience in various aspects within commercial and residential real estate, including risk management, due diligence, and underwriting processes. He has experience examining national, regional, and local market trends for all types of real estate, including commercial, residential, construction, and land.

Prior to joining RCLCO, Ben spent six years at Cornerstone Research, where he managed a variety of economic and financial consulting projects. Ben previously worked at Transom Consulting Group in Los Angeles, a start-up strategy consulting firm, where he provided strategic

solutions to financial services firms. Earlier in his career, Ben worked as a Summer Associate for Bank of America Securities and as a Senior Analyst at Mercer.

Ben holds an MBA from the UCLA Anderson School of Management and a Bachelor of Arts in Business Administration from the University of Washington. He is a Chartered Financial Analyst (CFA) charterholder.

Presentation: RCLCO

APFC BOARD PRESENTATION

Alaska Permanent Fund Corporation

February 19, 2020

RCLCO FUND ADVISORS

The information contained in this report is confidential, may be legally privileged, and is intended only for the use of the APFC.

CONTENTS

1. MARKET CONTEXT

2. ATTRIBUTION ANALYSIS

3. STRATEGIC PARTNERSHIP UPDATE

The information contained in this report is confidential, may be legally privileged, and is intended only for the use of the APFC.

MARKET OUTLOOK AND CONTEXT

- **Expected Returns:** Market participants are expecting declining levels of return, as evidenced by the latest investor survey results compiled by PREA. While income returns are expected to remain fairly steady over the next few years, returns from appreciation are anticipated to decline from 2.0% in 2019 to 0.4% in 2021 as cap rates expand (with little to no appreciation expected in retail). Participants are expecting industrial returns to decline the most by 2021 amongst real estate product types, although they are still expecting outsized industrial returns compared to all other product types.

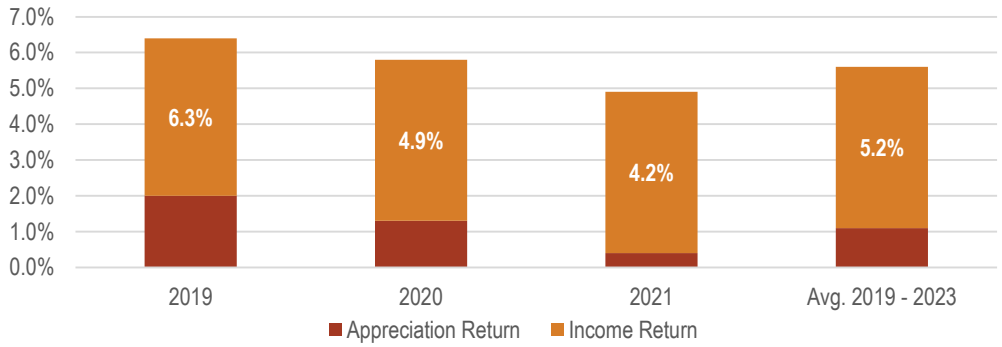
- **Retail:** The lack of new supply is sustaining performance and rent growth, and retail is the only property type with expected increasing returns according to the Pension Real Estate Association (PREA) survey results (though it is also the only property with negative appreciation return). However, certain retail types (primarily power centers and suburban malls) and locations are suffering from "structural obsolescence" due to the growth of e-commerce and capital expenditures across retail categories remain high.

- **Office:** RCLCO views office to be in the late stable stage of the cycle, with both CBD and suburban cap rates currently stabilizing. However, construction levels remain elevated in many major markets, capital expenditures remain high, and rental growth has steeply declined over the past year.

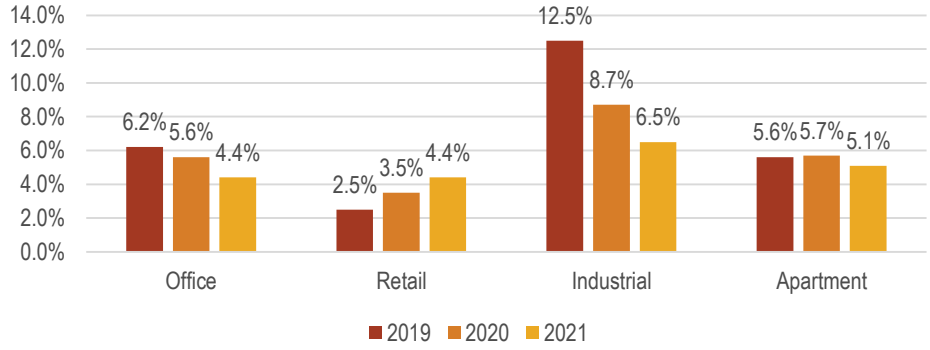
- **Multifamily:** We remain in the "late stable" stage of the multifamily housing cycle. Low unemployment rates and increases in household formations will continue to contribute to strong demand. Multifamily cap rates have continued to slightly compress over the past year, and transaction volume for apartments remain the most robust of all property types.

- **Industrial:** Despite recent absorption deceleration, occupancy remains relatively steady and rents continue to experience double-digit growth in supply-constrained markets. Increases in e-commerce and the desire for more convenient delivery options continue to push long-term demand forecasts. Strong investor activity has compressed cap rates well below pre-recession lows and transactions continue to set record highs.

Forecasted NPI Returns[1]



Forecasted NPI Returns by Product Type[1]



[1] *Provided by Q4 2019 PREA Consensus Forecast Survey conducted in November 2019. Data labels in the charts reflect total returns.*
SOURCE: PREA; RCLCO

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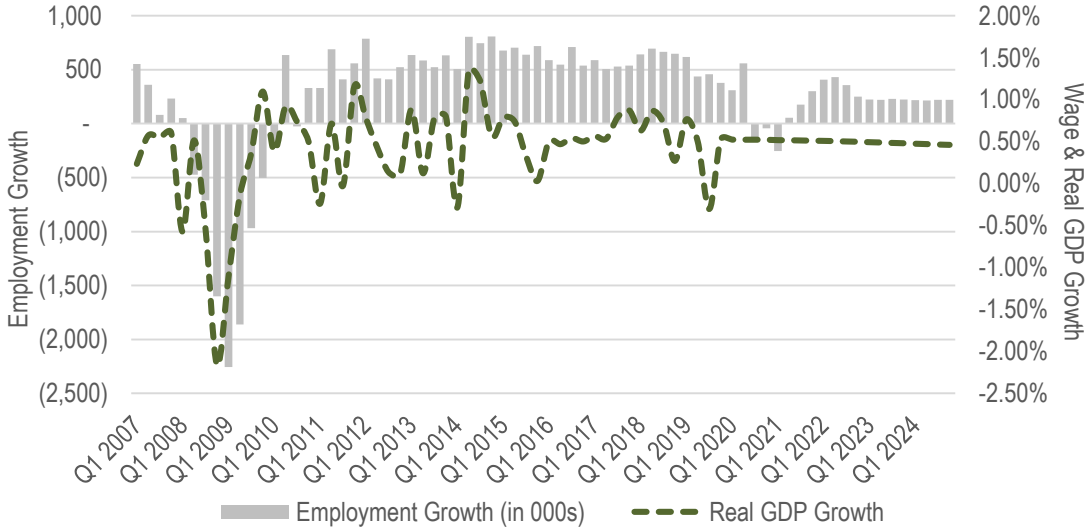
OPPORTUNITIES AND CHALLENGES

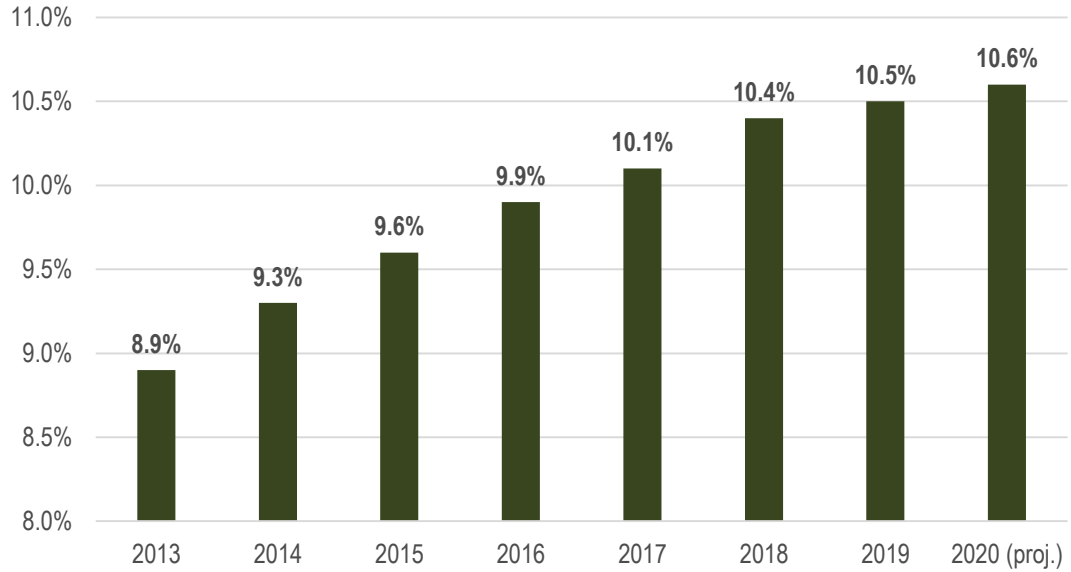
REAL ESTATE CYCLE

- The economy and real estate markets have been in recovery since 2011 and little evidence suggests that real estate is approaching a significant, "global" downturn in the near- to medium-term.
- The primary risks to real estate return performance are "macro" and therefore affect all asset classes, including concerns about the long-term global growth rate (highlighted by inverted yield curve in 2019) and ongoing worries that assets may be generally overvalued. Increased real estate allocations and significant "dry powder" growth globally suggest that investors believe real estate will outperform other asset classes amid these risks.
- From a "micro" perspective, real estate performance has been and will continue to be mixed. In general, construction activity has been moderated by lender discipline and memories of the last, painful downturn. Specifically, certain property types (e.g., industrial) are in a robust expansion, while others face painful contractions (e.g., retail); specific geographies are going through their own economic cycles given local economic drivers.
- Our view, therefore, is that, over the near- to medium-term, real estate assets will experience mixed performance based on a range of property-type and geographic drivers amid a generally favorable capital markets environment that maintains abundant debt and equity capital and high relative valuations—especially for favored property types and geographies.
- Activities in this environment include aggressively investing in real estate most likely to benefit from sustained demand drivers and aggressively pruning portfolios of assets that are likely at peak values. In general, a focus on income, which is driven by demand,, should drive superior total returns.

U.S. Employment Growth vs. Quarterly Wage and Real GDP Growth (2007 – 2024)



Weighted Average Target Allocation to Real Estate, All Institutions[1]



[1]Includes pension plans, insurance companies, sovereign wealth funds, and endowments and foundations
Source: FRED; Bureau of Labor Statistics; Cornell University and Hodes Weill & Associates

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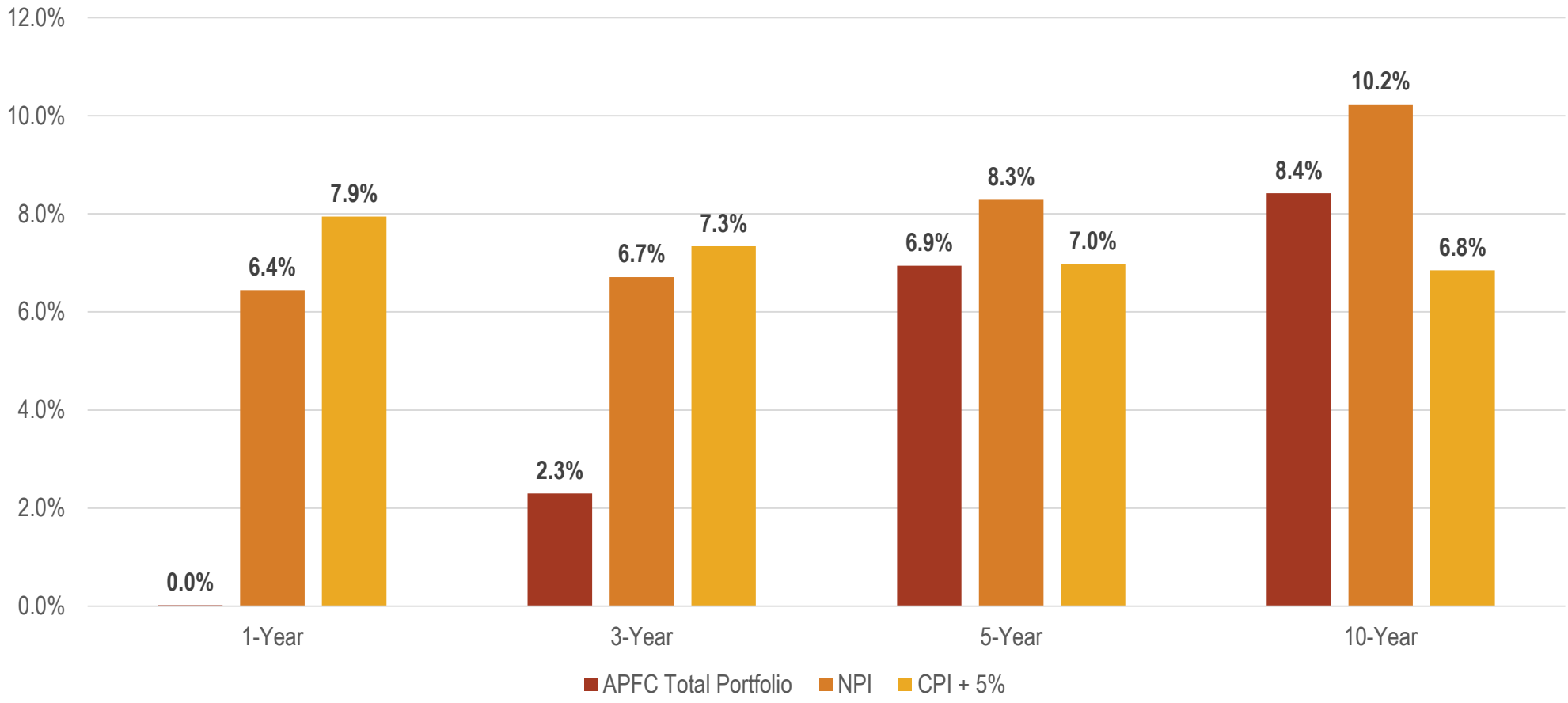
APFC PORTFOLIO CONTEXT

- APFC's real estate portfolio's performance has exceeded the Fund's overall target of CPI + 5% over the past 10 years, but has lagged its real estate benchmark (the NCREIF Property Index).
- Performance has lagged in recent years as the portfolio has trailed both benchmarks, with the one-year return dropping to approximately zero.

APFC Real Estate Historical Returns vs. Benchmarks[1,2]



[1]All figures are as of Q3 2019
[2]APFC historical returns are net of fees. NPI historical returns are gross of fees.
Source: NCREIF; APFC; RCLCO

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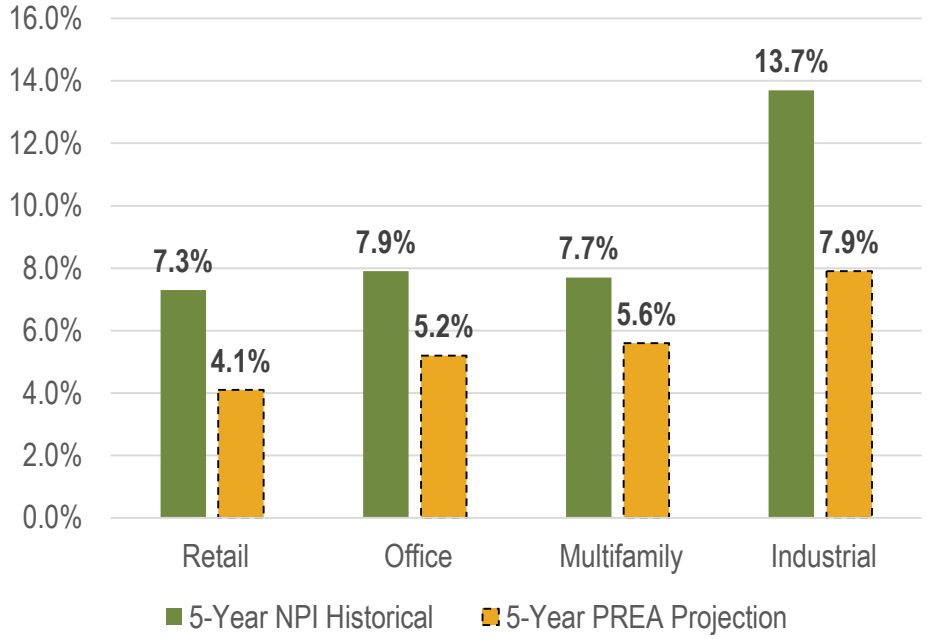
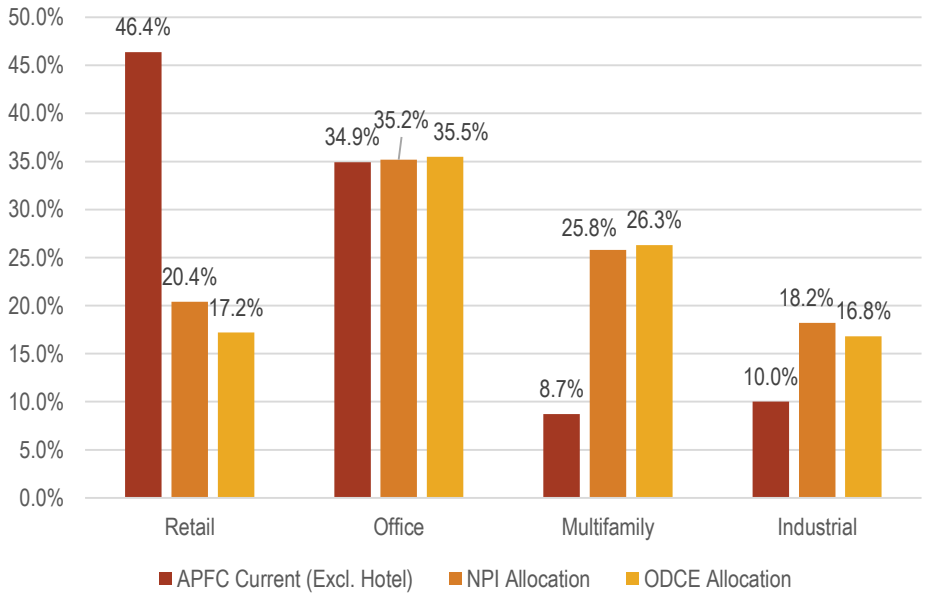
ATTRIBUTION ANALYSIS
PROPERTY TYPE CONCENTRATION

- Part of the recent underperformance can be attributed to an "allocation effect."
- Relative to ODCE, the Fund is currently overweight retail, inline with office, and underweight in multifamily and industrial properties.
  - Industrial has been the highest performing property type over the last five years, and multifamily and industrial are projected to be the highest performing property types going forward.
  - Retail, which currently represents approximately half of APFC's portfolio, has the lowest historical and projected returns of any real estate property type.

Historical (NPI) and Projected (PREA) Returns By Property Type



Comparison of Portfolio Allocations by Property Type – APFC vs. ODCE



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Source: NCREIF; PREA; APFC; RCLCO

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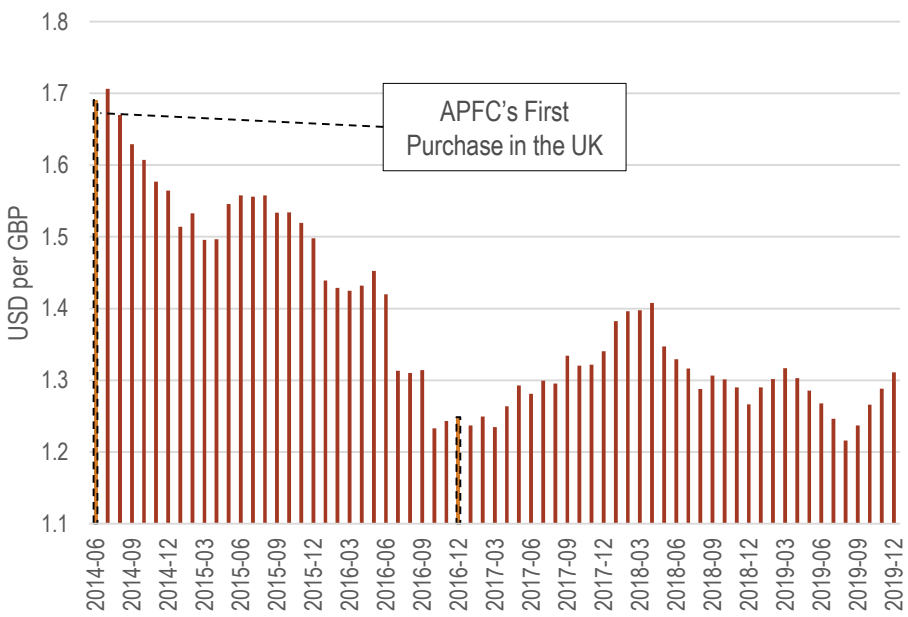
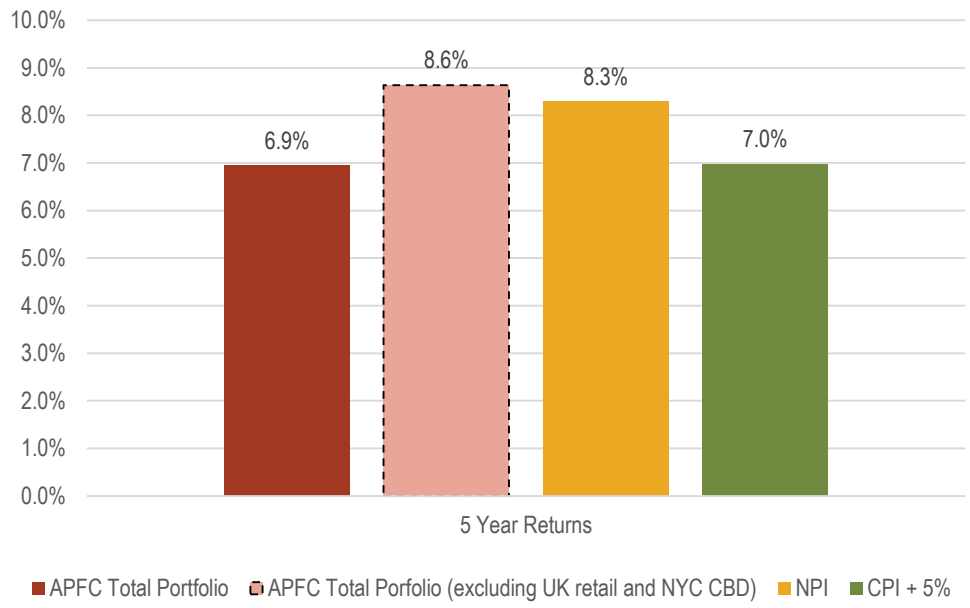
ATTRIBUTION ANALYSIS
SELECT UNDERPERFORMERS

- Two large APFC investments have had outsized negative impacts on the Fund's returns; excluding these properties, the Fund has achieved a return of 8.6% over the last five years (compared to the actual return of 6.9% including these properties).
- One investment underperformed as a result of unfavorable changes in exchange rate caused by the announcement of Brexit as well as systemic weakness in the UK shopping center market segment; the British Pound has declined in value by approximately 29.0% relative to the US Dollar subsequent to APFC's first purchase.
- Another investment has underperformed partially due to recent softness in the New York City office market, where excess new supply has driven negative appreciation returns in recent years.

Historical Exchange Rate USD/GBP; 2014-2019



AFPC Real Estate 5-Year Return vs. Benchmarks[1]



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[1]All figures are as of Q3 2019.
Source: NCREIF; US Treasury; RCLCO

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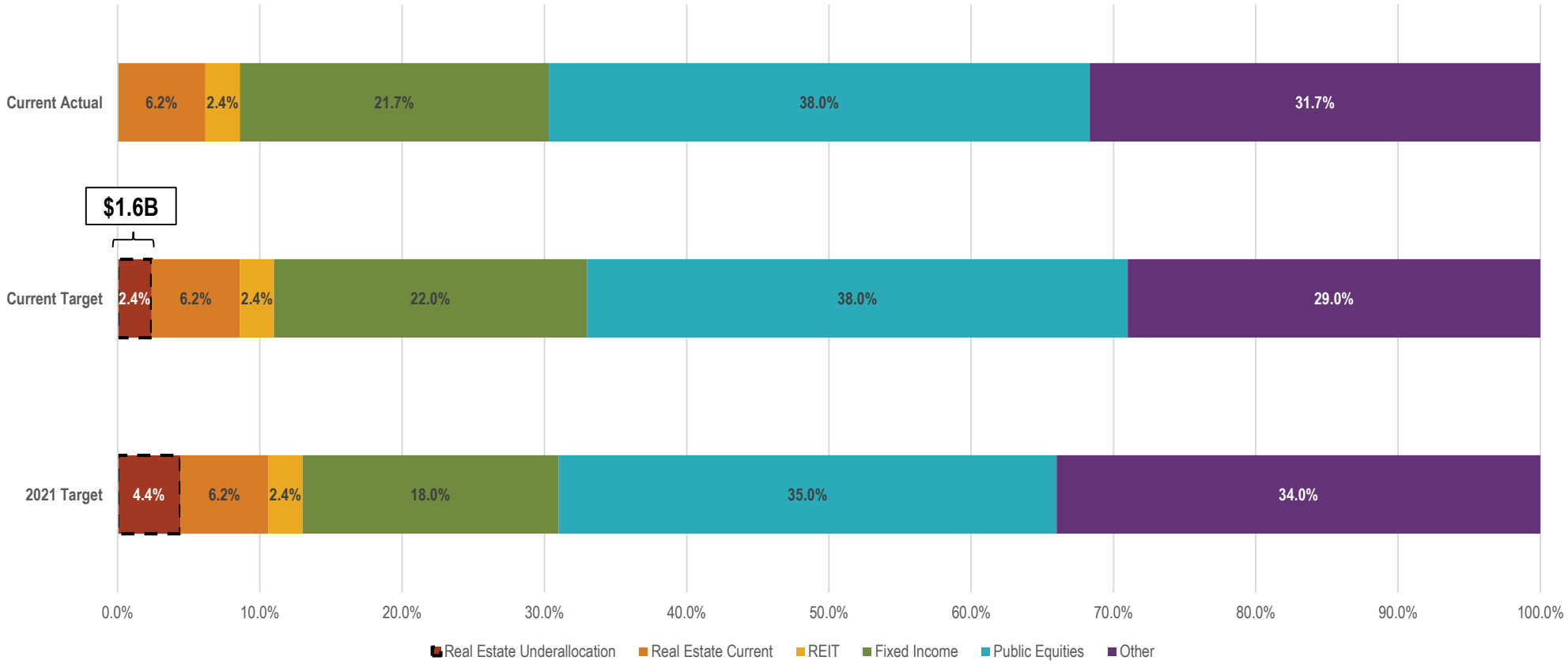
ATTRIBUTION ANALYSIS
UNDER ALLOCATION TO REAL ESTATE

- APFC remains below its target real estate allocation, in part due to a lack of replacement for Simpson Housing.
- Bringing in the REIT allocation will bring APFC closer to its target allocation but, even with this addition, the portfolio will still be under allocated by approximately $1.6B.

APFC Fund Allocation by Asset Class – Current vs. Target[1]



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[1]As of December 2019.
Source: APFC; RCLCO

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GO-FORWARD STRATEGY

STRATEGIC "DIRECT" PARTNERSHIPS

- Direct investment structures maximize alignment; provide transparency; provide liquidity through control of investment periods, financing, and exits; and allow for the opportunity to review compliance with criteria on each investment relative to funds.
- Direct investing also requires greater oversight and expertise. APFC must dedicate appropriate resources (both internal and external) to oversee and manage the portfolio.

Pros	Cons
Transparency ▶ A direct investor can receive as much transparency as is desired, including property level operating performance or portfolio level attributes ▶ This allows the investor to better understand the unique risks and attributes of its properties and portfolios	***Increased Oversight*** ▶ Direct investing requires increased bandwidth from staff to provide oversight on manager activities
Control ▶ Investors are able to retain the rights to major decisions when investing directly. ▶ Major decisions can include reinvestment of capital, major lease terms, financing structure and terms, hold vs. sell decisions, etc.	***Timing*** ▶ Implementation of a direct investment strategy takes time (manager searches/selection, due diligence on investments, development of asset management structure, etc.)
Leverage Optimization ▶ Direct investors can optimize the amount and structure (e.g., fixed vs. floating, maturities, etc.) of leverage	***Access To Niche Strategies*** ▶ Investors may have difficulty accessing niche investment strategies through a separate account or joint venture (e.g. manufactured housing)
Liquidity ▶ The investor can determine its own investment horizon based on its unique situation	***Potential for Concentration Risk*** ▶ Investors may not be able to participate in large transactions without increasing concentration risk
Alignment ▶ Investment fees can be tailored so that the fee is dependent on the health of the property and incentives are aligned ▶ Asset management fees are typically 40-90 bps lower under direct partnerships compared to comingled funds	

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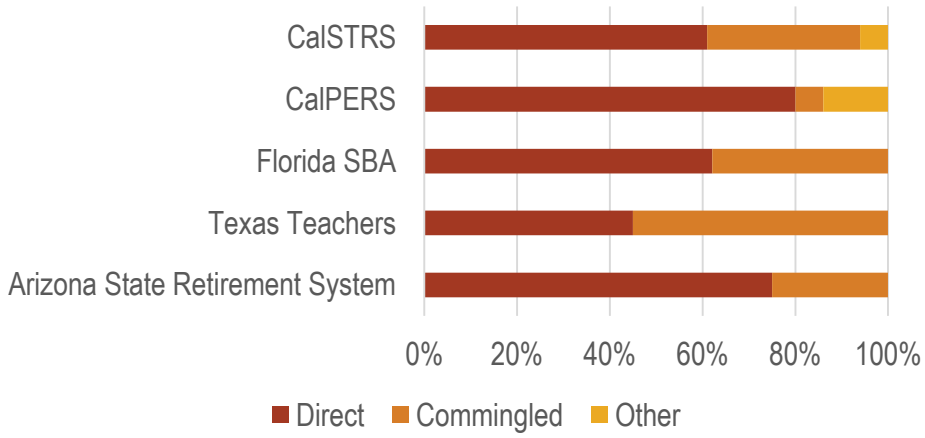
INSTITUTIONAL INVESTOR HOLDINGS

DIRECT APPROACHES HAVE BECOME A PREVALENT STRATEGY

- Institutional investors have been increasing their allocations to direct investing over time, mostly at the expense of closed-end commingled funds.
- Among large institutional investors, "direct" investments comprise 50-80% of real estate portfolio allocations.
- Institutions have stated a desire to continue to focus on this strategy:
  - CalSTRS: *"Staff has emphasized an increase in joint ventures and separate accounts in order to increase internal management control and lower fees."*
  - CalPERS: *"Real Estate maintains strategic separate account relationships while moving toward fewer external manager relationships."*
  - Texas Teachers: *"The pension system is trying… to pivot towards principal investments over commingled funds…We attribute [the direct investment strategy's] outperformance primarily to securities selection and the advantageous fees, terms, and structures we have in place for those vehicles."*
  - Washington State Investment Board: *"Real estate relies on direct relationships and we have control."*

Sample of Direct Allocations by Select Institutions [1]



Historical Performance of Select Institutions [1]

	1-Year	3-Year	5-Year
CalSTRS	8.20%	8.90%	9.90%
CalPERS*	6.84%	7.17%	9.75%
Florida SBA	7.39%	7.50%	8.62%
Texas Teachers	7.70%	10.70%	11.20%
Arizona State Retirement System	7.60%	8.90%	10.60%
Washington State Investment Board	8.66%	11.18%	11.64%
Average	7.73%	9.06%	10.29%
ODCE	5.59%	7.30%	9.34%

[1] Data shown represents publicly available data from the top 10 largest pension funds and other RCLCO clients. Precise allocations by strategy data is not publicly available for WSIB.
[2] CalSTRS data is as of Q1 2019 and excludes its legacy portfolio.
[3] CalPERS' data is as of Q3 2018.
Source: PREA; CalPERS; CalSTRS; Florida SBA; Texas Teachers; ASRS; NCREIF; RCLCO

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DIRECT INVESTING
IMPLEMENTATION

In order to effectively execute a direct investment strategy, RCLCO recommends the implementation of the following action items (some of which are already well-underway):

Best-In-Class Manager Selection	Partner with best-in-class operators that have specific investment guidelines (similar to current efforts which are seeking out expert operators who specialize in discrete real estate strategies without overlapping mandates).
Proactive Asset Management	Manage performance and allocation at the portfolio, manager, and asset level with a proactive asset management structure that relies on rigorous re-underwriting and hold-sell analyses.
Staffing Organization	Add to existing APFC staffing levels as portfolio grows. Leverage partner relationships and delegate tasks to align incentives across team.
Leverage	Evaluate potential to lever up currently unlevered assets in portfolio.
Structuring	Achieve alignment through appropriate incentive compensation and requiring a meaningful coinvestment from the manager.

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STRATEGIC PARTNERSHIP UPDATE

STATUS

- RCLCO was tasked with conducting a search for real estate operating companies specializing in the multifamily and industrial spaces
- RCLCO is in the process of negotiating terms and conducting diligence for the following strategies:
  - A national “build-to-core” apartment programmatic joint venture
  - A national “value-add” acquisition apartment programmatic joint venture
  - A national “build-to-core” industrial programmatic joint venture
  - Open-ended fund commitments for both the industrial and apartment property types

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DISCLAIMERS

CRITICAL ASSUMPTIONS

Our analysis depends on the correctness and completeness of data available as of the date of this memo. The future performance of the global, national, and local economy and real estate market, and other factors similarly outside our control may vary. Given the fluid and dynamic nature of the economy and real estate markets, as well as the uncertainty surrounding particularly the near-term future, it is critical to monitor the economy and markets continuously. Stable and moderate growth patterns are historically not sustainable over extended periods of time; the economy is cyclical; and real estate markets are typically highly sensitive to business cycles. Further, it is very difficult to predict when an economic and real estate upturn will end.

Our analysis cannot predict unusual economic shocks on the national and/or local economy, potential benefits from major "booms" that may occur, or the residual impact on the real estate market and the competitive environment of such a shock or boom. Also, it is important to note that it is difficult to predict changing consumer and market psychology.

As such, we recommend the close monitoring of the economy and the marketplace, and updating this analysis as appropriate.

GENERAL LIMITING CONDITIONS

Reasonable efforts have been made to ensure that the data contained in this study reflect accurate and timely information and are believed to be reliable and comprehensive. This study is based on estimates, assumptions, and other information developed by RCLCO Fund Advisors from its independent research effort and general knowledge of the industry. No responsibility is assumed for inaccuracies in reporting by any data source used in preparing or presenting this study. This memo is based on information that to our knowledge was current as of the date of this memo, and RCLCO Fund Advisors has not undertaken any update of its research effort since such date.

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RCLCO
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15) Real Estate Presentation: IAC

Alaska Permanent Fund

Board Adviser Real Estate Review

Tim Walsh, February 2020

Background on Presentation

- At the December APFC Board meeting, Chair requested comments and findings on APFC Real Estate program from Board advisor Tim Walsh

- Concerns seemed to be from performance versus benchmark, real estate portfolio “out of target” (multi-family at 8% of vs 26% target), and structure.

- I selected three US Pension Funds to compare APFC method. The decision to use these funds was **not** based on returns but on various structures.

- The following data is from publically available websites of three US Public Pension funds.

Background on Presentation

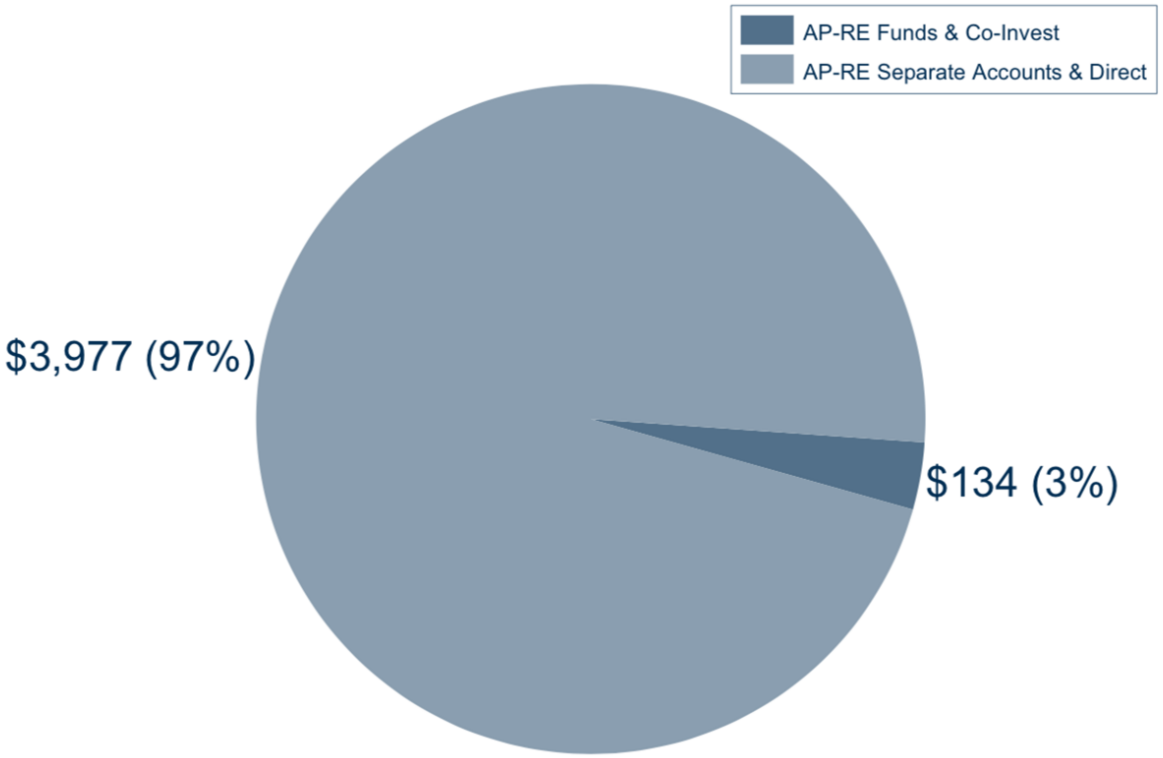
- The opinions come from his experience and background as Chief Investment Officer of the Indiana Teachers' Retirement fund ($7 billion) and Director (CIO) of State of New Jersey Retirement System ($70 billion).

- While at New Jersey, Walsh directly supervised first hand the real estate program, running it's $3 billion real estate program and responsible for $1 billion real estate sale of secondary positions.

- In addition, Walsh was also the President of Gaw Capital USA, a private equity real estate firm located in Los Angeles, CA (2013-2015)

Overview

- The Alaska Permanent Fund uses direct investments and separate accounts almost exclusively to gain exposure to real estate.
- Most of peer organizations use comingled funds instead of direct investments for their real estate allocation.
- Of the few comparable U.S. funds that do use direct investing, they also have large staffs and multiple offices dedicated to the investment program.



Source:

Diversification & Performance Concerns

- Concern on APFC portfolio of lack of diversification
  - Based on gross assets, 5 assets are approximately 50% of the portfolio
  - APFC portfolio approximately 55 assets.
    - One of the largest core-open ended funds (over $40 billion in assets) has more than 160 assets and top 5 positions are approximately 17% of portfolio
  - Performance has lagged with APFC behind it’s benchmark in almost every-time frame from 1 year through 10 year.

Portfolio Positioning concerns

- Due to sales, etc. Portfolio is very underweight two sectors and overweight another (Retail).
- Investing in public REIT's could tactically backfill large over-weights quickly and efficiently.
- Large under and over weights has contributed to performance issues and increased risk.

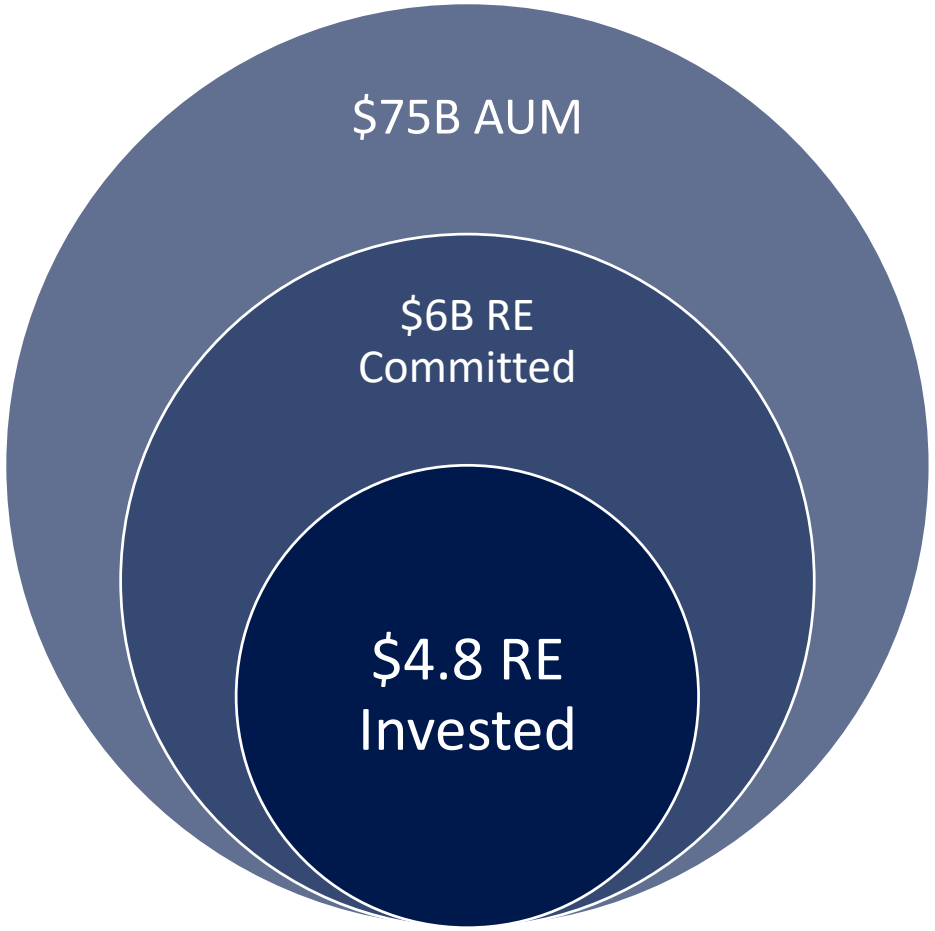
Property Type	APFC	NCREIF	Tactical Plan
HOTEL	2%	1%	1%
INDUSTRIAL	7%	16%	14%
MULTI-FAMILY	8%	26%	35%
OFFICE	36%	35%	25%
RETAIL	46%	22%	25%
	100%	100%	100%

Public REIT's

- From my understanding, APFC has been hindered by regulations that prevent APFC by using public REIT's to "backfill" portfolio underweights.
- Public REIT's are "separated" from looking at entire real estate exposure in many plans by inertia, history, or Private vs Public internal "turf" battles
- In many cases, the management teams and portfolio's are equal to or better than private funds equivalent.
- Applaud APFC moving forward to integrate public REITS into "total real estate exposure"

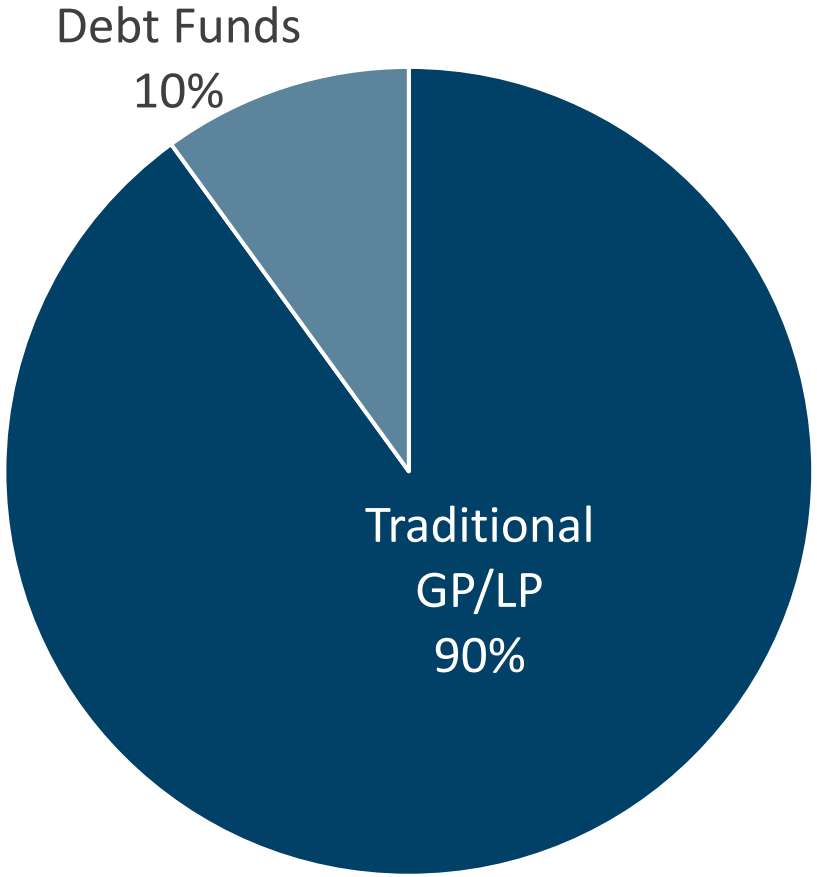
Peer Comparison Sample (1)

- U.S. Public Pension Fund located on the East Coast. Assets approximately $75 billion
- 1-2 Employees dedicated to Real Estate
- Like majority of public funds, this fund almost **exclusively** invests in closed end funds and a few separate accounts
- Nearly zero direct real estate exposure.
  - Used Public REIT's (internally managed) to fill gaps in allocation



Peer Comparison RE Portfolio Composition

- Portfolio comprised of 30 managers with 48 individual Funds
- One manager represents 20% of portfolio in 9 different funds.
- Hundreds of individual exposures vs approximately 54 for APFC.
- Healthy exposure to European and Asia real estate.



Peer Comparison Analysis and Results

ADVANTAGES

- Ability to restrict investments to top quartile managers.
- Ability to capitalize on scale to negotiate favorable fees and terms.
- Diversified portfolio with exposure to US, Non-US, RE debt and REIT's
- Ability to manage with a small staff.
- Opportunity to co-invest with many GP's.

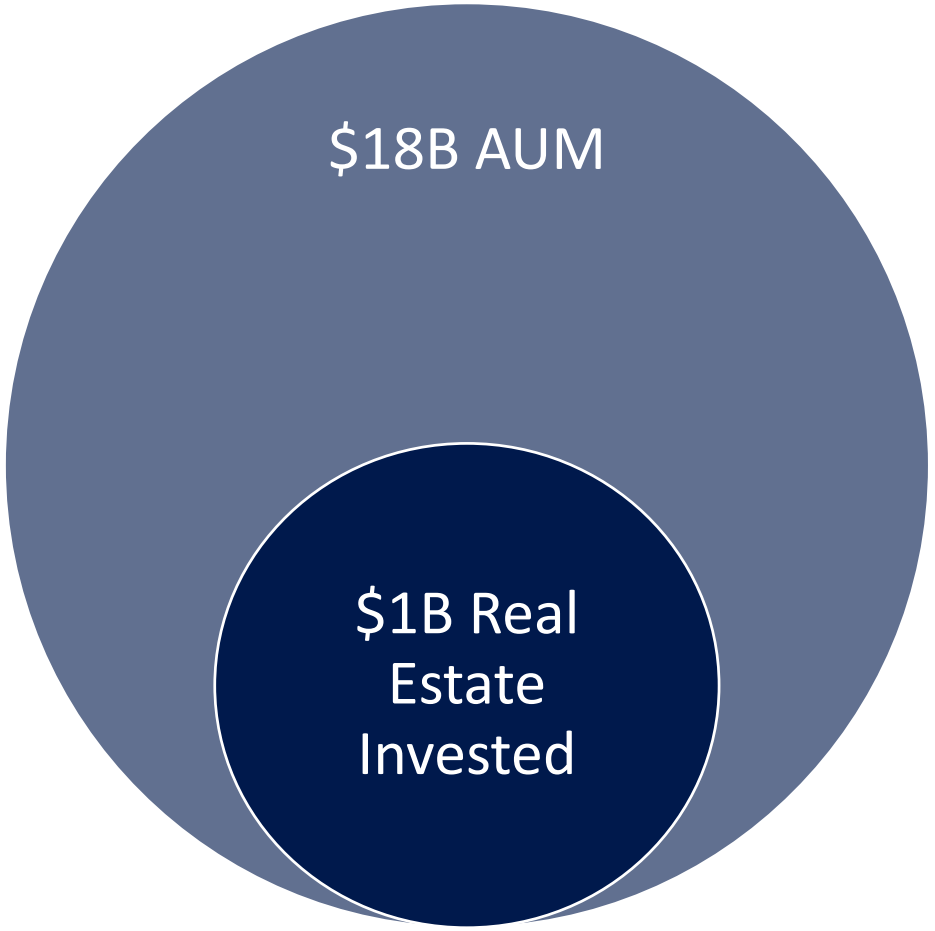
NEGATIVES

- Higher management fees (1%-2%) but usually incentives are paid only after earning a minimum annual return of 7%-8%.
- Investment decisions determined by General Partner.

RETURNS:		BENCHMARK
5 year:	10.13%	9.18%
10 Year:	9.54%	9.57%

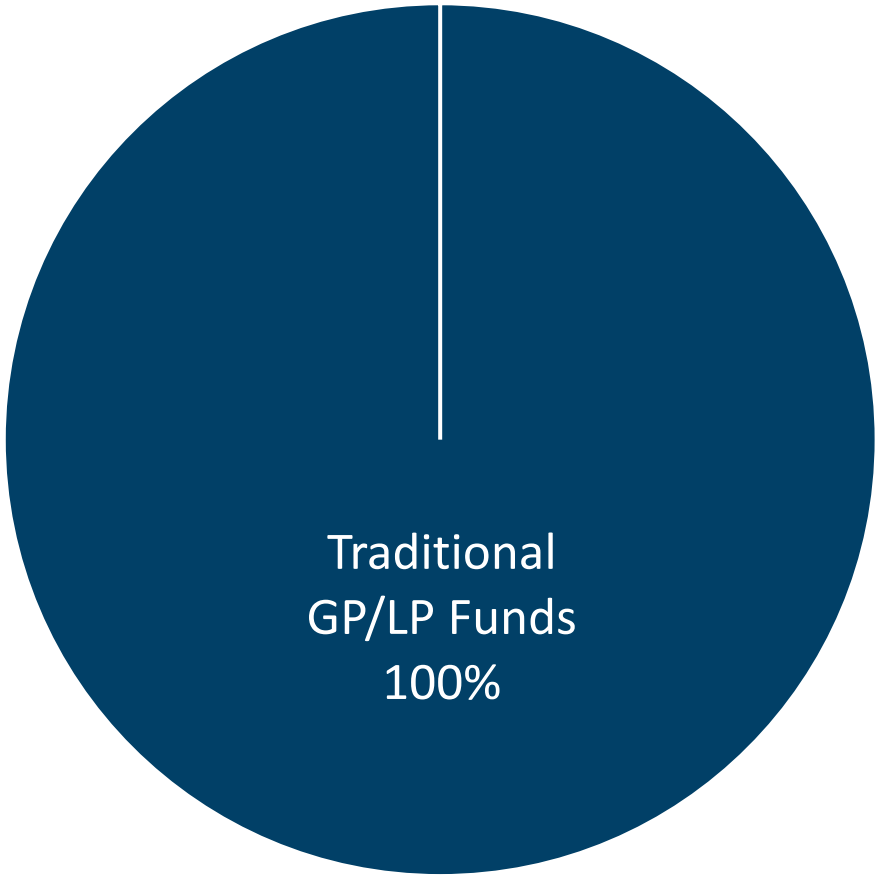
Peer Comparison Sample (2)

- U.S. Public Pension Fund located in the Upper Plains.
- Highly sophisticated management.
- 1-2 Employees dedicated to Real Estate
- This fund **exclusively** invests in closed end funds.
- Zero direct real estate exposure.



Peer Comparison RE Portfolio Composition

- 70% of portfolio comprised of 1 manager.
- 90% of portfolio comprised of 4 managers.
- All 4 managers in top quartile/decile.
- Diversified, U.S. centric portfolio.



Peer Comparison Analysis and Results

ADVANTAGES

- Ability to leverage the fund's small size by targeting large commitments with very few managers.
- Ability to manage with a small staff.

NEGATIVES

- Higher management fees (1%-2%).
- Subject to manager risk given concentration of managers.
- Higher volatility

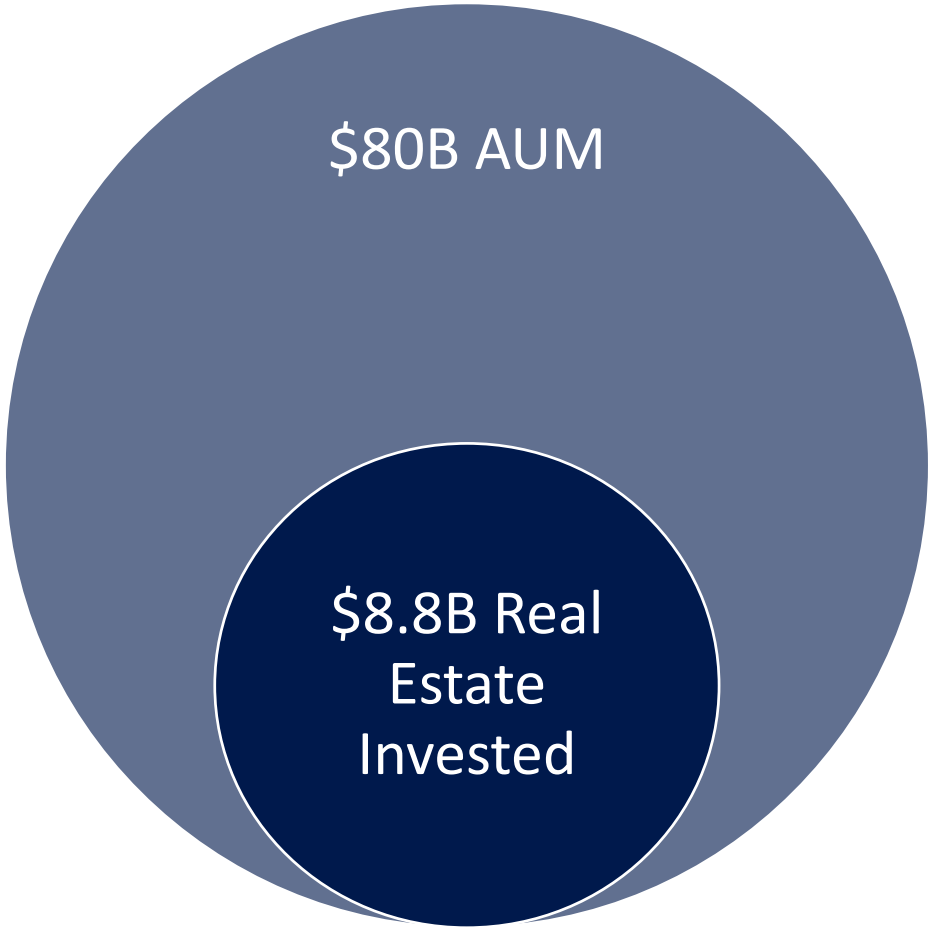
Results

20.4% average annualized net real estate portfolio returns vs. benchmark of 10% (since inception in 1994)

2005: +66.4% 2007: +60% 2009: (-52.5%)

Peer Comparison Sample (3)

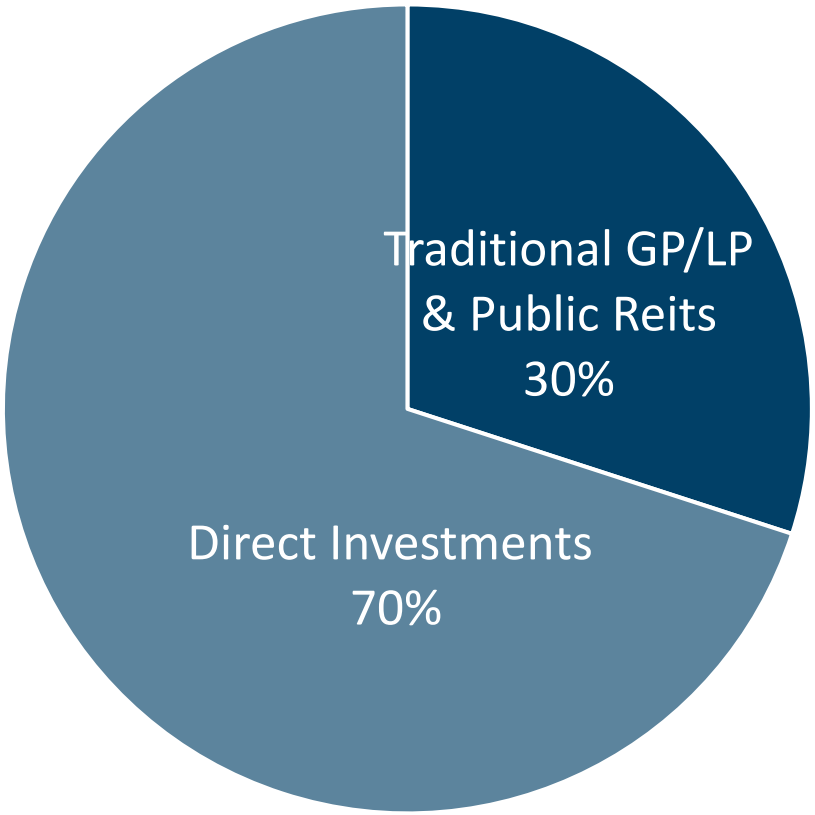
- U.S. Public Pension Fund located in the Midwest.
- Large staff of approximately 40 employees dedicated to real estate.
- Offices around the United States, Columbus, New York, Chicago, Minneapolis, Atlanta, San Francisco.



Peer Comparison RE Portfolio Composition

- Extensive team in various cities sourcing, asset management, dispositions
- Program is highly sophisticated and started in 1980's.
- Excellent returns but very complex

Results	
5 Year: 9.73%	10 Year: 10.84%



Summary

- Limited competitive advantages in continuing direct real estate investing program under current structure.
- The proper direct structure requires significant hiring, compensation changes and office location expansions (sample #3).
- Recommend retaining a consultant to conduct a study regarding the optimum mixture of core, core plus, opportunistic, debt and international.
- Recommend discontinuation of direct real estate purchases until study has been completed.
- Hire additional consultants such as Callan for Core fund, Core Plus and opportunistic GP/LP searches

Recommendations

- 1. Explore contributing large single assets into pooled vehicles such as open-end core and core plus funds. It is not common, but it has been done before. This would almost instantly increase diversification, reduce portfolio over/underweights, and hopefully returns. Having 5 assets making up close to half the portfolio is too risky.

- 2. Stop direct real estate investing immediately. In my opinion, APFC needs more simplicity not complexity.

- 3. Consider Real Estate Debt funds. APFC has minimal exposure in RE debt and with concern where we are in the cycle, debt funds are a better risk/reward.

- 4. Implement public REITs immediately to address portfolio under-weightings. It will take potentially years to address underweights through funds, public REIT's could be methodically used with current managers. For example, if underweight by $400 million in multi-family etc, target purchases of $100 million a quarter to remedy benchmark within one year.

16) Asset Allocation & Investment Policy

Asset Allocation & Investment Policy Memo

ALASKA PERMANENT FUND CORPORATION

SUBJECT:	Asset Allocation & Investment Policy	ACTION:	_____
DATE:	February 20, 2020	INFORMATION:	X

BACKGROUND:

Each year APFC reviews Asset Allocation to make any recommended changes to take effect in the upcoming fiscal year. In addition, at least every 5 years, the staff make recommendations for a long-term strategic asset allocation.

STATUS:

The staff have been working on updating the Investment policy and determining an asset allocation that will maximize return and protect principal given the Board's risk appetite. A draft policy along with a long-term strategic asset allocation are proposed for discussion purposes. The goal is to get feedback on the staff recommendation before asking for the Board's final approval in May 2020.

Presentation: Asset Allocation & Investment Policy

APFC

ALASKA PERMANENT FUND CORPORATION

Revised Investment Policy & Asset Allocation Discussion

February 2020

Revised Investment Policy

Executive Summary

- Staff has spent the last several months working collaboratively on a Revised Investment Policy with input from Investments, Risk & Compliance, Finance and Legal

- Follows last substantial re-write in Fall 2016 and last amendment adopted in May 2018

- Key Changes:
    1. Moves away from framework created in 2016 of growth vs. income and tradable vs. private distinctions and quadrants
    2. REIT's and Listed Infrastructure out of Fixed Income; flexibility to invest in REIT's moved to Real Estate portfolio and Listed Infrastructure to Infrastructure portfolio
    3. Creation of "Real Assets Completion Portfolio" to address significant current underweight vs. target allocation in Real Estate and multi-year time-line to prudently move back to desired target allocation
    4. Divides current "Asset Allocation Portfolio" (at current 5% target allocation) into "Total Fund Cash" (at 1% target allocation, down from 2% current implied target) and "Risk Parity" (at 1% target allocation)
    5. Conscious effort made to cut down on superfluous language with no perceived loss of content (47 page document reduced down to 33 pages)
    6. Clarifies manager search procedures for Public Market investments

Executive Summary (continued)

- Key Changes (continued):
  7. Tighter Derivatives Policy is more consistent with APFC Leadership Team's view of prudent limits and cuts off some remote but possibly large risks associated with external managers who previously could take large derivative positons relative to allocated capital
  8. Investment Committee to have 3 voting members for Investment Decisions: CEO, CIO and CRO
  9. Creates certain new portfolio limits primarily to address concentration levels (examples include sector targets, single name exposure levels, strategy allocations for private assets, etc.)
  10. Creates a grid by asset class (shown on the following two pages) that summarizes by asset class certain limits within which Staff will operate the portfolio
  11. Maintains Green Zone, Yellow Zone, Red Zone asset class ranges
      - The introduction of the Real Assets Completion Portfolio provides an important tool that will enable Staff to run the portfolio much closer to its target allocations
      - Staff is also focused on operating with more efficient (lower) operating cash balances
      - In recognition of this, green zone ranges have been tightened up to +/- 5% for Public Equity and Fixed Income, +/- 3% for Privates and Alternatives, and +/- 0.5% for Risk Parity and Cash
      - The green, yellow, and red zones are applicable to the grid structure as well

Investment Policy – Table 3
Asset Class Grid

			Public Equity	Fixed Income	Private Equity	Real Estate	Real Assets Completion	Private Income	Absolute Return	Risk Parity	Cash	Total Fund
1	**Asset Allocation**											
2	**Asset Allocation (AA): Target Levels - FY 2021**	**% of Fund**	**37%**	**18%**	**15%**	**7%**	**6%**	**9%**	**6%**	**1%**	**1%**	**100%**
	Green Zone (expressed as +/- to Target Allocation)	**% of Fund**	+/- 5%	+/- 5%	+/- 3%	+/- 3%	+/- 3%	+/- 3%	+/- 3%	+/- 0.5%	+/- 0.5%	
	Yellow Zone (expressed as range beyond green zone)	**% of Fund**	0 - 5%	0 - 5%	0 - 3%	0 - 3%	0 - 3%	0 - 3%	0 - 3%	0 - 0.3%	0 - 0.3%	
3	Asset Allocation (AA): Target Levels - FY 2022	% of Fund	36%	18%	16%	8%	5%	9%	6%	1%	1%	**100%**
4	Asset Allocation (AA): Target Levels - FY 2023	% of Fund	35%	18%	17%	9%	4%	9%	6%	1%	1%	**100%**
5	Asset Allocation (AA): Target Levels - FY 2024	% of Fund	34%	18%	18%	10%	3%	9%	6%	1%	1%	**100%**
6	Asset Allocation (AA): Target Levels - FY 2025	% of Fund	33%	18%	19%	12%	1%	9%	6%	1%	1%	**100%**

Investment Policy – Table 3
Asset Class Grid (continued)

- With elimination of equity securities from Fixed Income portfolio; tracking error green zone limit reduced from 350 bps to 250 bps

- Total Fund Relative VAR green zone limit increased to 125% of benchmark from prior limit of 110% of benchmark to better align with total Fund tracking error limit

		Target Levels										Green Zone		Yellow Zone	
All Targets are Maximum Permitted, except #29-Min Cash		Public Equity	Fixed Income	Private Equity	Real Estate	Real Assets Completion	Private Income	Absolute Return	Risk Parity	Cash	Total Fund	Low	High	Low	High
												As a % of Target			
Future Outstanding Commitments	% of Fund	0.0%	0.0%	5.3%	2.5%	2.1%	3.2%	2.1%		0.0%	15.1%	85%	115%	75%	125%
Benchmark		M664204USN	LEHGFTBD	CAM_PE	NCREIFPTYP	TBD	INPRIICM	HFRIPROXY	TBD	TBD	LEHFTJPM				
Tracking Error		3.5%	2.5%								4.0%	n/a	115%	n/a	125%
Relative VaR (Portfolio VaR / Benchmark VaR)		100.0%	100.0%								100.0%	0%	125%	0%	140%
Concentrations															
Single Name / Issuer [Note 1]	% of AA	4%	4%	2%	10%	2%	2%	n/a	n/a	n/a		0%	115%	0%	125%
Single Industry (DEFINITION: GICS)	% of AA	20%	20%	30%	n/a	30%	30%	n/a	n/a	n/a		0%	115%	0%	125%
Single Country - EX US	% of AA	10%	10%	20%	20%	20%	20%	n/a	n/a	n/a		0%	115%	0%	125%
Total EX US	% of AA	50%	30%	50%	50%	50%	50%	n/a	n/a	n/a					
Single Fund Investment [Note 2]	% of AA	5%	10%	10%	10%	10%	10%	10%	50%	n/a		0%	115%	0%	125%
Proportion of ownership	-	5%	5%	10%	100%	10%	10%	n/a	n/a	n/a		0%	115%	0%	125%
Credit Risk															
Rating - Below Inv Grade	% of AA	n/a	25%	n/a	n/a	n/a	n/a	n/a	n/a	0%		0%	115%	0%	125%
Rating - Below A- & Unrated	% of AA	n/a	50%	n/a	n/a	n/a	n/a	n/a	n/a	0%		0%	115%	0%	125%
Rating - Unrated	% of AA	n/a	5%	n/a	n/a	n/a	n/a	n/a	n/a	0%		0%	115%	0%	125%
Market Risk															
FX - Proportion Unhedged	% of AA	30%	5%	20%	20%	20%	20%	n/a	n/a	5%		0%	115%	0%	125%
Liquidity - Proportion without at least Daily liquidity	% of AA	10%	10%	100%	100%	100%	100%	100%	100%	5%		0%	115%	0%	125%
Liquidity - Proportion without at least Monthly liquidity	% of AA	2%	2%	100%	100%	70%	100%	70%	70%	0%		0%	115%	0%	125%
Liquidity - Proportion without at least Quarterly liquidity	% of AA	0%	0%	100%	100%	30%	100%	30%	30%	0%		0%	115%	0%	125%
Cash Levels															
Cash & Equivalents	% of AA	2%	10%	5%	5%	5%	5%	n/a	n/a	100%		0%	115%	0%	125%
MINIMUM Cash & Equivalents	% of AA	0%	0%	0%	0%	0%	0%	n/a	n/a	30%		85%	115%	75%	125%

Notes:

1 *Single Name / Issuer: represents security level exposure to single entity or operating company. US Treasury & Govt Agencies are exempt. For Private Assets, the limit applies at the time of investment or cost basis*

2 *Single Fund Investment: represents exposure to a fund or strategy based vehicle*

In-Process Items & Next Steps Related to Investment Policy

- Evaluating a new benchmark for the Fund's Private Infrastructure portfolio; considering switch to Cambridge Associates Infrastructure Index from FTSE Developed Core Infrastructure Index (global listed infrastructure stocks); will address in final recommended Investment Policy

- Evaluating pacing and targets for prudent levels of unfunded private markets commitments relative to existing and prospective portfolio size; will address in final recommended Investment Policy and May 2020 Private Markets Pacing discussions

- Achieve alignment with Board of Trustees around Asset Allocation plan for the next five years
  - Please see next section of this presentation for a discussion of Staff's recommended plan

- Review and analysis of Total Fund and ERA modeling
  - A different asset allocation for the ERA vs. the Principal, for example, would have Investment Policy implications

- May 2020 targeting final approval of Revised APFC Investment Policy; benchmark changes to be effective July 1, 2020

Draft Investment Policy

- Please see Appendices to this presentation for:
  a) Clean version of draft Revised APFC Investment Policy
  b) Redline of draft Revised APFC Investment Policy versus current version of APFC Investment Policy that was adopted on May 23, 2018

Asset Allocation Discussion

Current Fund Positioning @ 1/31/20

Daily Dashboard - January 31, 2020 **NAV : $ 67,539,831,548**

Performance (%) *					Asset Allocation*				
Asset Class	MTD	FYTD	CYTD	1 Year	NAV (m)	NAV	Target	Compliance	Over/Under
Total Fund	-0.58	4.81	-0.58	10.05	67,539,832				
Public Equity**	-2.37	6.82	-2.37	13.80	25,083,636	37.1%	37%		0.1%
Fixed Income Plus	1.56	5.51	1.56	11.62	16,438,439	24.3%	20%		4.3%
PE & Special Opps	0.27	2.65	0.27	6.98	9,274,497	13.7%	13%		0.7%
Real Estate	0.14	2.27	0.14	1.26	4,048,086	6.0%	12%		-6.0%
Inf. & Private Income	-1.36	2.12	-1.36	6.59	5,174,084	7.7%	8%		-0.3%
Absolute Return	0.00	2.11	0.00	4.04	4,354,207	6.4%	5%		1.4%
Asset Allocation**	0.09	1.55	0.09	5.38	3,166,882	4.7%	5%		-0.3%

Objectives for Long-term Asset Allocation Exercise

- Maintain a prudent mix of Low Market Exposure Assets (Fixed Income, Absolute Return, Cash, Gold) vs. Total Fund in the range of 25 – 30%

- While recognizing the very rapid growth of our Drawdown Private Markets assets in the past decade, continue this growth at a prudent rate of 1% per year all applied to our target allocation for Private Equity; the increase in Private Equity allocation is mostly derived from a proportionate decline in public equity allocation

- Maintain a healthy allocation to Real Assets Investments of 13%; while building our private Real Estate portfolio back up to targeted levels over a multi-year period
  - From a portfolio role standpoint, APFC's Private Infrastructure portfolio is not being included because the drawdown nature of the investments, the capital structures employed and the largely opportunistic approach results in a cash flow profile closer to private equity than to private ownership of low leveraged real estate assets

- Construct a portfolio that achieves CPI + 5%+ expected returns using Callan capital markets expectations for most asset classes and a modest premium to Callan capital markets expectations for Private Equity (reflecting APFC's experience in the strategy and expectations going forward)

REIT Valuation Environment

- After an ~30% total return in 2019, REIT's trading levels today represent a premium to NAV
- A more diverse basket of valuation indicators tracked by a large Wall Street Investment Bank indicate that REIT trading levels today are also expensive (two standard deviations high on this measure)
- Within the REIT universe, not unexpectedly, Industrial and Multi-family REIT's trade the best relative to private market valuations with Retail and Lodging taking up the rear
- **Given this dynamic we are inclined to add modest REIT exposure to our Real Estate portfolio (~15% of total), but not address the overall Fund's underweight to Real Assets via the REIT market**

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Real Assets Completion Portfolio

- While from a valuation, risk/return, and tactical standpoint, REITs appear expensive, other liquid real assets appear more interesting (and are more defensive given the prevailing late cycle dynamics at play in today's markets)
  - **Gold** – can be positioned to benefit from any eventual disappointing outcomes from today's extreme and unprecedented Central Bank activities; favored emphatically by investors like Ray Dalio and Paul Singer; can be very efficiently accessed via ETF's
  - **TIP's** - purest way to achieve a real return in liquid capital markets; APFC internal capabilities to trade
  - **Leveraged Loans** – adds some yield to the portfolio; floating rate nature of structures results in unexpected increases in inflation flowing through to higher coupon payments; also leveraged borrowers (ceteris paribus) would benefit from inflationary environment, which reduce the value of their liabilities
  - **Listed Infrastructure and Natural Resources Equities** – both these areas would provide higher expected returns (in an expansionary environment, much higher losses in a bear market scenario) than the prior asset options; Listed Infrastructure doesn't trade at the premium to private NAV's that REIT's do and Natural Resources equities provide additional diversification and inflation protection in a category that hasn't performed as well as overall equities in the past decade

- A mix of the above assets (detailed on the following page) would create a defensive and liquid portfolio that provides the inflation protection the Fund otherwise derives by owning private real estate; this portfolio would have an expected return below private real estate (based on Callan capital markets expectations), however, would deliver some yield and other real assets portfolio characteristics and better performance in difficult market conditions

- The Real Assets Completion Portfolio would be managed by the Chief Investment Officer and Public Markets Team under a separate Guidelines and Policies in the Investment Policies & Procedures Document to be established for July 1, 2020

- The Real Assets Completion Portfolio would be a separate asset class from Real Estate for performance and Investment Policy purposes

- APFC Staff has been in dialogue with a large state pension system; this pension system has a current 3% exposure to real return vs. an 8% target and is in the process of considering a similar real return completion strategy; this pension's Chief Investment Officer recognizes that it would not be prudent or advisable to deploy 5% of the Fund into private inflation-linked assets in today's market on an accelerated basis and therefore is moving forward with a completion strategy

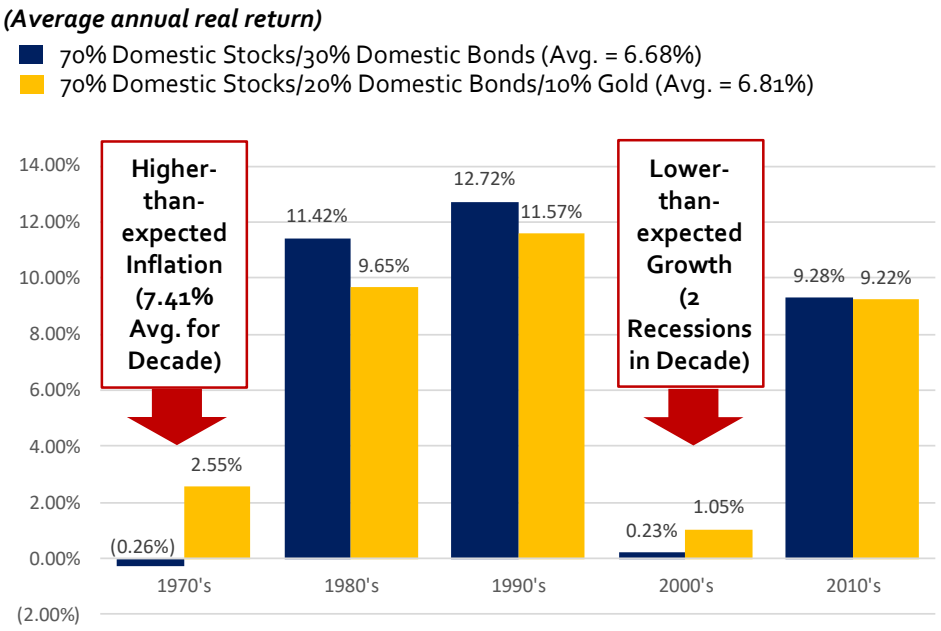
Real Assets Completion Portfolio (cont'd)

	Portfolio Mix	$ Exposure (mm)	% of Total Fund	Expected Return	Return Rationale
Gold					
Gold	33.3%	$1,368	2.0%	2.25%	Callan Inflation Expection
Inflation Resistant Fixed Income					
TIP's	16.7%	$684	1.0%	3.75%	Callan Cap Mkts Expectation
Leveraged Loans	16.7%	$684	1.0%	5.35%	Callan High Yield Expectation
Inflation-Linked Equities					
Global REITs	11.1%	$456	0.7%	6.75%	Callan Cap Mkts Expectation
Global Listed Infrastructure	11.1%	$456	0.7%	6.50%	Callan Cap Mkts Expectation
Global Natural Resources Equities	11.1%	$456	0.7%	6.75%	Callan REIT Expectation
Total	**100.0%**	**$4,104**	**6.0%**	**4.49%**	
Market Exposure - High vs. Low					
Low	50.0%				
High	50.0%				
Total	100.0%				

The Benefit of Gold in Portfolio Context

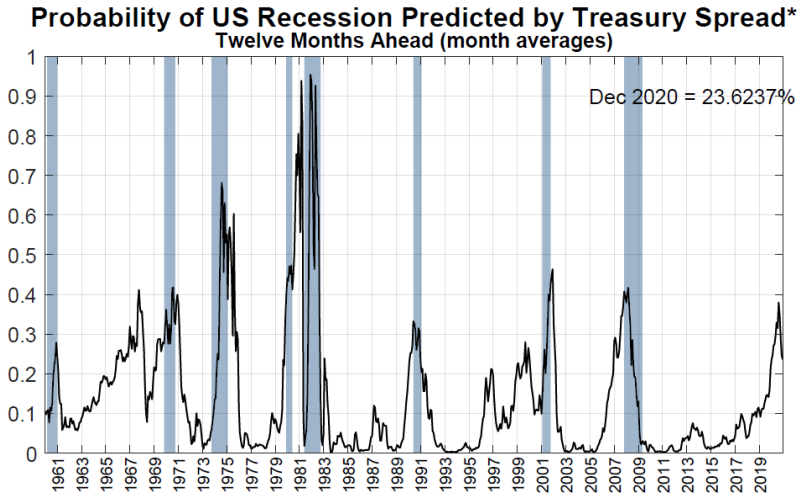
- "The APFC portfolio is vulnerable to environments of lower-than-expected growth or higher-than-expected inflation."
  - Bridgewater Associates, November 2017 "APFC Plan Stress Test"

- "I think these [equity linked / traditional investments] are unlikely to be good real returning investments and that those that will most likely do best will be those that do well when the value of money is being depreciated and domestic and international conflicts are significant, such as gold."
  - Ray Dalio, Bridgewater Associates Founder & CIO, July 2019 "Paradigm Shifts"



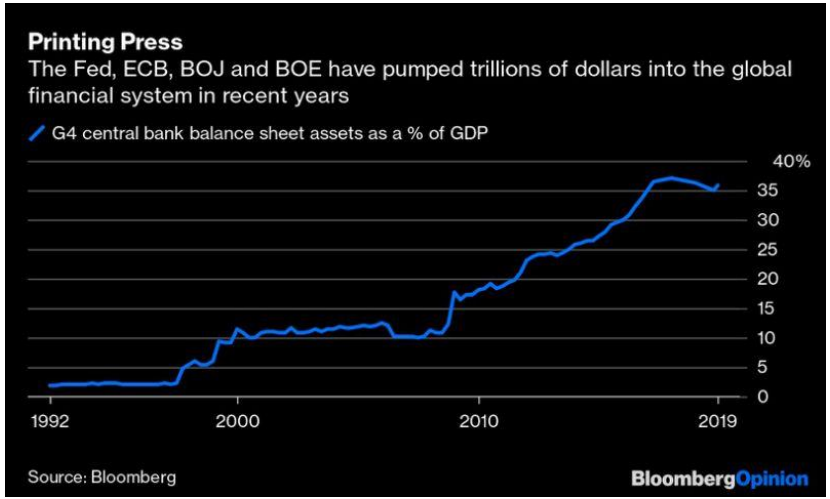
What is the Outlook for Lower Growth or Higher Inflation?…

Lower Growth / Recession?



Source: New York Federal Reserve analysis.

Higher Inflation?

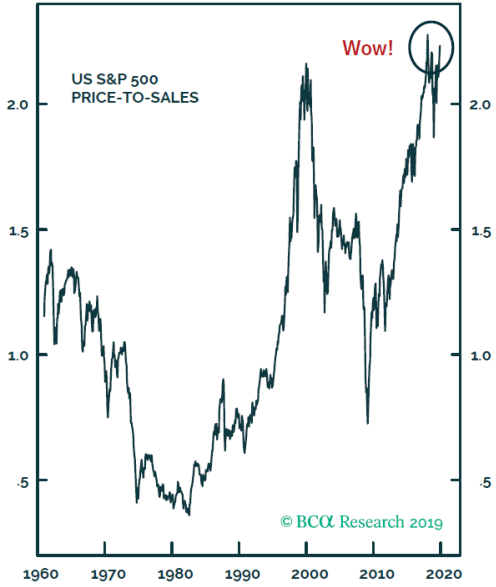


- "Inflation is always and everywhere a monetary phenomenon in the sense that it is and can be produced only by a more rapid increase in the quantity of money than in output."
  - *Milton Friedman, 1970*

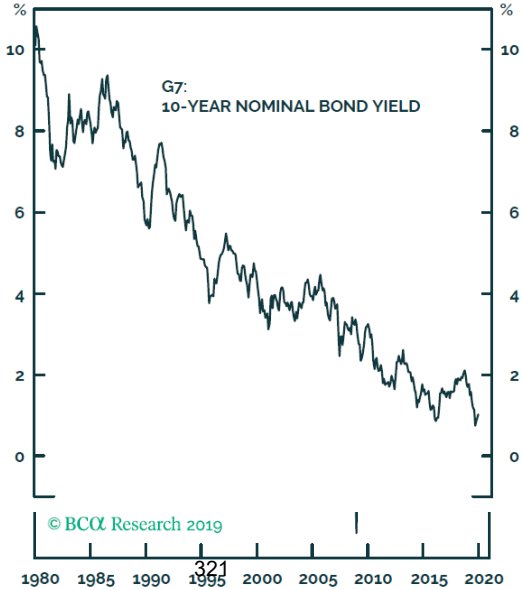
…and what is the outlook for traditional assets?

- "A balanced portfolio is likely to generate average returns of only 2.4% a year in real returns over the next decade."
  - *BCA Research, December 2019*

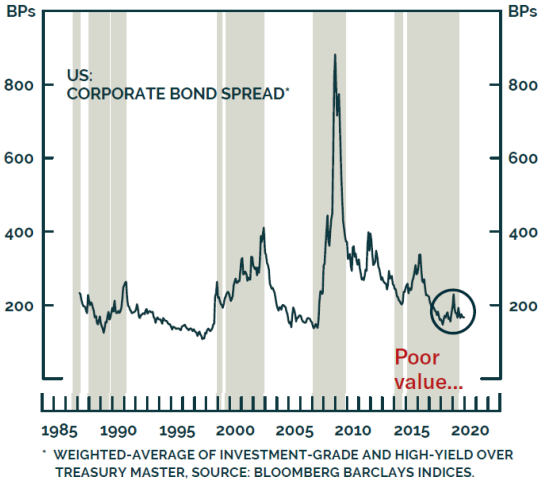
The S&P is Very Expensive…



…and Global Sovereign Bonds are Unattractive by Historical Standards…



…with tight Corporate Bond Spreads by Historical Standards



Asset Allocation Proposal Through FY '25

	Existing Policy		Proposed				
	FY '20	FY '21	FY '21	FY '22	FY '23	FY '24	FY '25
Public Equity	37.0%	35.0%	37.0%	36.0%	35.0%	34.0%	33.0%
Fixed Income	20.0%	18.0%	18.0%	18.0%	18.0%	18.0%	18.0%
Private Equity	13.0%	14.0%	15.0%	16.0%	17.0%	18.0%	19.0%
Real Estate	12.0%	13.0%	7.0%	8.0%	9.0%	10.0%	12.0%
Real Asset Completion	0.0%	0.0%	6.0%	5.0%	4.0%	3.0%	1.0%
Total Real Assets	12.0%	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%
Private Income	8.0%	9.0%	9.0%	9.0%	9.0%	9.0%	9.0%
Absolute Return	5.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Asset Allocation	5.0%	5.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Risk Parity	0.0%	0.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Total Fund Cash	0.0%	0.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Portfolio Expected Returns Through FY '25
(Callan 2019 Capital Market Expectations + APFC PE Assumption)

	Existing Policy		Proposed "Strawman"				
Expected Return							
Public Equity	7.30%	7.30%	7.30%	7.30%	7.30%	7.30%	7.30%
Fixed Income	4.55%	4.55%	4.55%	4.55%	4.55%	4.55%	4.55%
Private Equity	12.30%	12.30%	12.30%	12.30%	12.30%	12.30%	12.30%
Real Estate	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%	6.25%
Real Asset Completion	4.49%	4.49%	4.49%	4.49%	4.49%	4.49%	4.49%
Real Assets	6.25%	6.25%	5.44%	5.57%	5.71%	5.84%	6.11%
Private Income	6.75%	6.75%	6.75%	6.75%	6.75%	6.75%	6.75%
Absolute Return	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%
Asset Allocation	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%
Risk Parity	6.95%	6.95%	NA	NA	NA	NA	NA
Total Fund Cash	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Total - Simple Math	**7.05%**	**7.12%**	**7.03%**	**7.10%**	**7.16%**	**7.23%**	**7.32%**
Inflation	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
Real Return (Simple Math)	**CPI + 4.8%**	**CPI + 4.9%**	**CPI + 4.8%**	**CPI + 4.8%**	**CPI + 4.9%**	**CPI + 5.0%**	**CPI + 5.1%**
Real Return (including Geometric Compounding)	**CPI + 5%+**	**CPI + 5%+**	**CPI + 5%+**	**CPI + 5%+**	**CPI + 5%+**	**CPI + 5%+**	**CPI + 5%+**

Market Exposure and Liquidity Mix

- "Yale targets a minimum allocation of 30% of the endowment to market-insensitive assets (cash, bonds, and absolute return). The university further seeks to limit illiquid assets (Venture Capital, Leveraged Buyouts, Real Estate, and Natural Resources) to 50% of the portfolio."

-Yale Investments Office website

	Existing Policy		Proposed "Strawman"				
	FY '20	**FY '21**	**FY '21**	**FY '22**	**FY '23**	**FY '24**	**FY '25**
Liquid Exposure							
Liquid	62.0%	58.0%	61.0%	59.0%	57.0%	55.0%	52.0%
Illiquid	38.0%	42.0%	39.0%	41.0%	43.0%	45.0%	48.0%
Market Exposure - High vs. Low							
Low	27.0%	26.0%	28.0%	27.5%	27.0%	26.5%	25.5%
High	73.0%	74.0%	72.0%	72.5%	73.0%	73.5%	74.5%

Conclusion

- This presentation has been for information purposes only at this stage
- At the May 2020 Board of Trustees meeting, Staff will present again on Revised Investment Policy and Asset Allocation; at that point it will be requesting action to formally approve them
- Goal is to have new five year asset allocation plan in place for July 1, 2020 and to execute all capital markets transactions around the new FY 2021 asset allocation on or around July 1, 2020

Current Investment Policy Redlines

APFC Investment Policy ~~& Procedures~~

Adopted May xx~~23~~, 2020, Effective Date July 1, 2020~~18, amended September 27, 2018~~

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~~O~~INTRODUCTION~~BJECTIVES~~

A. Purpose

- The purpose of this Investment Policy ("Policy") is to provide a formal plan for investing and managing the assets of the Alaska Permanent Fund and other state assets as prescribed by law ("Fund") to achieve the defined investment objectives~~ through the asset allocation adopted by the Board~~. This Policy also defines the roles and responsibilities of the various parties involved in the investment process and facilitates external communication of the Policy. The appendices are incorporated into and form part of this Policy. Terms not defined within the body of the Policy have meanings assigned to them in the "Glossary," Appendix D~~C~~ of this document.
- This document is not intended to be a static, one-time document and will be considered for possible amendment on an annual basis or any time the Board of Trustees ("Board") modifies the Alaska Permanent Fund Corporation's ("APFC") investment-related policies or asset allocation. Amendment of this Policy requires Board action as described in AS 37.13.080 and the APFC By-Laws ("By-Laws"). Following any Board approved amendment to this document, changes will be noted in Board meeting minutes and as soon as practicable this document will be amended to reflect the approved changes and posted on the APFC website.

B. Roles of Board, Staff, Consultants, and Advisors

- The Board has a responsibility to invest Fund assets in accordance with the Alaska Constitution and the prudent-investor rule as provided in AS 37.13.120(a) – (e). The Board has adopted regulations (15 AAC 137.410 – 15 AAC 137.990), which define the eligible investments of Fund assets ("Regulations"). The Board has also adopted By-Laws which~~that~~ delegate and empower the APFC staff to invest and manage Fund assets consistent with the parameters of the Regulations and this Policy. Finally, through regularly scheduled and special meetings, the Board oversees the management of APFC Staff and Fund assets, and ensures that APFC staff has the resources needed to fulfill its objectives as effectively as possible.
- The APFC Staff's task is to invest and manage Fund assets to fulfill the Fund's objectives, as specified by the Board, in this Investment Policy. Additionally, APFC Staff advises the Board about recommended changes to the asset allocation and this Policy to help the Fund achieve its objectives. Finally, APFC Staff, or external investment managers selected by APFC Staff, negotiates and executes all investment plans and strategies~~and executes all investment transactions~~, performs risk-management functions, and helps prepare~~s~~ investment performance and other management reports.
- External consultants provide advice and implementation assistance to the Board and APFC Staff related to~~ on~~ investment programs ~~to the Board and APFC Staff on~~at both the overall Fund level as well as for~~with~~ specific asset classes ("General Consultant"). The General Consultant also reports on the progress that the Fund is making with regard to specific

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investment programs and makes comparisons of Fund performance against its target benchmarks, including Fund peers.

- Consistent with the Board's Charters and Governance Policies, up to three Investment Advisors are selected by the Board to provide education, advice, commentary, and discussion at Board meetings, or as requested by the Board.

~~Mission~~

- ~~The Mission of the Alaska Permanent Fund Corporation ("Corporation" or "APFC") is to manage and invest the assets of the Alaska Permanent Fund ("Fund") and other funds designated by law.~~

~~Vision and Values~~

- ~~APFC's vision is to deliver sustained, compelling investment returns as the United States' leading sovereign endowment manager, benefiting all current and future generations of Alaskans.~~
- ~~To fulfill its mission and vision, the Corporation will adhere to the following values:~~
    - ~~Integrity: We act in an honorable, respectful, professional manner that continually earns and justifies the trust and confidence of each other and those we serve.~~
    - ~~Stewardship: We are committed to wisely investing and protecting the assets, resources, and information with which we have been entrusted.~~
    - ~~Passion: We are driven to excellence through self-improvement, innovative solutions, and an open, creative culture; and are energized by the challenges and rewards of serving Alaskans.~~

II TOTAL FUND & PORTFOLIO DESIGN PHILOSOPHY

~~A. Purpose~~

~~The purpose of this Investment Policy & Procedures Statement ("Policy & Procedures") is to provide a formal plan for investing and managing the assets of the Alaska Permanent Fund and other state assets as prescribed by law to achieve the defined investment objectives consistent with the APFC Mission adopted by the Board. The Policy & Procedures also define the roles and responsibilities of the various parties involved in the investment process and facilitates external communication of investment policy. The appendices to the Policy & Procedures are incorporated into and form part of this document. Terms that are not defined within the body of the Policy & Procedures have meanings assigned to them in the "Glossary," Appendix C of this document.~~

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~~This document is not intended to be a static, one-time document and will be considered for possible amendment on an annual basis or any time the Board of Trustees ("Board") modifies or adds to the Corporation's investment-related policies and practices. Amendment to this document require Board action as described in AS 37.13.080. Following any Board approved amendment to this document, changes will be noted in Board meeting minutes and as soon as practicable this document will be amended to reflect the approved changes and posted on the APFC website.~~

~~The Policy & Procedures addressed herein shall be interpreted and applied in a manner consistent with: (1) 15 AAC 137.410 – 15 AAC 137.990, and (2) AS 37.13.120.~~

~~B. Roles of Board, Staff, Consultants, and Advisors~~

~~The Board has the primary fiduciary responsibility for investing Fund assets in accordance with the Alaska Constitution and applicable law. The roles of the Board are to set investment policy and procedures, oversee investment management through the Executive Director and Staff through regularly scheduled and special meetings, and ensure the adequacy of staff resources and structure needed for the Corporation to fulfill its objectives as effectively as possible.~~

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~~APFC Staff, in turn, is tasked with the fiduciary responsibility for managing the investment portfolio and operations needed to fulfill the Fund's objectives, as specified by the Board, in line with the Policy & Procedures. Staff advises and informs the Executive Director and the Board about investments and recommends changes as needed to the Policy & Procedures. Staff executes all transactions, performs risk-management functions, and prepares investment reports.~~

~~Consultants provide advice and implementation assistance on investment programs to the Board and Staff on both the overall Fund as well as with specific asset classes. Consistent with 15 AAC 137.460(b)(2), Consultants may also be used to evaluate whether a specific investment is a prudent investment of Fund assets.~~

~~**Finally, Consultants report on the progress that the Fund is making with regard to specific programs and makes comparisons of Fund performance against its target benchmarks, including Fund peers.**~~

~~**Consistent with the Board's Charters and Governance Policies, Investment Advisors are selected by the Board to provide education, advice, commentary, and discussion as requested at Board meetings, based upon their industry experience with peer institutions.**~~

A. Total Fund Objective

~~**C. Total Fund Objectives**~~

Consistent with the Legislature's findings regarding the purpose of the Alaska Permanent Fund (Alaska Statute 37.13.020), ~~T~~the Board's objective ~~of the Fund~~ is for the Fund ~~is~~ to achieve the highest level of investment performance that is compatible with the Board's risk tolerance and prudent investment practices~~provide compelling investment returns with acceptable levels of risk~~. Because of the perpetual nature of the Fund and the Legislature's finding that the Fund should benefit all generations of Alaskans, the Board maintains a long-term perspective when formulating this Policy and in evaluating Fund performance.~~-~~ To that end, the Board expects~~effectiveness of~~ the Fund's design and performance~~'s~~ ~~design and portfolio management~~ will be ~~assessed~~evaluate ~~based upon~~ d using the following criteria:

- **Investment Performance:** ability to generate an annualized return of CPI + 5% over a 10-year period ("long-term target")
- **Investment Risk**: ability of the Fund to generate this 10-year return while conforming to the risk appetite approved by the Board

~~**Investment Performance: ability to generate a 10-year returnmeet or exceed long-term (5+ years) i of CPI + 5% ("long-term target")nflation-adjusted actuarial, medium-term (3-year) peer group, and short-term (1-year) index benchmarks; and**~~

~~**Investment Efficiency: ability for the Fund to harvest investment returns commensurate with the overall level of risk undertaken by the portfolio, as measured primarily by the Sharpe Ratio; and**~~

~~**Investment Risk: ability of the Fund to generate this 10-year returnmeasure and control risks in line withile conforming to the risk appetite approved by the Board State and Board tolerances and peer group norms.**~~

~~**D.**~~**B. Total Fund Asset Mix**

APFC's investment programs are organized by asset class~~es, each of which has a specific investment objective and liquidity profile. The total return objectives for the Fund are thus a composite of the "growth" or "income" objectives for each asset class. Furthermore, expected return hurdles for each asset class are a function of investment risk (as measured by volatility or Value-of-Risk) and liquidity.~~

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- and APFC Staff ~~will~~ assist the Board in engaging in an asset allocation study for the Fund at least once every five (5) years to review asset classes, r~~eturn~~isk-r~~isk~~eturn assumptions, and correlations of investment returns with applicable benchmarks and across asset classes. A key objective of the asset allocation study shall be the development, through ~~statistical~~ quantitative and qualitative model~~l~~ing techniques, of a diversified portfolio that specifies ~~ranges of prudent portfolio exposures and~~ a "long-term target" position for each asset class. The ~~normal~~ portfolio mix will represent the portfolio that is expected to meet the Board's ~~actuarial, peer group, and index benchmark targets~~ long-term target w~~ithin~~hile conforming to the risk ~~tolerances~~appetite ~~specified herein~~approved by the Board.
- Each asset class allocation percentage ~~ha~~shall designate a "long-term target" position within the overall portfolio as well as maximum and minimum ranges around those targets, as outlined in Table-1~~s~~. ~~R~~Ranges are specified by a "green zone" which reflect normal expected variability around the targets, "yellow zone~~s~~" which ~~prescribe~~ reflect potential remediation by ~~the~~ APFC ~~s~~Staff according to prudent portfolio management over a reasonable period of time, and "red zone~~s~~" which require ~~reporting to the Board and~~ Board approval of a ~~-~~remediation plan within 30 days~~to be presented by staff at the regularly scheduled Board Meetings~~. ~~Allocation r~~Ranges of these zones are expressed as percentages of the overall Fund. Details of the zones and compliance cure periods are provided in Appendix B.

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Table 1: Asset Allocation

		Public Equity	Fixed Income	Private Equity	Real Estate	Real Assets Completion	Private Income	Absolute Return	Risk Parity	Cash	Total Fund
Asset Allocation											
Asset Allocation (AA): Target Levels - FY 2021	**% of Fund**	**37%**	**18%**	**15%**	**7%**	**6%**	**9%**	**6%**	**1%**	**1%**	**100%**
Green Zone (expressed as +/- to Target Allocation)	**% of Fund**	+/- 5%	+/- 5%	+/- 3%	+/- 3%	+/- 3%	+/- 3%	+/- 3%	+/- 0.5%	+/- 0.5%	
Yellow Zone (expressed as range below and above green zone)	**% of Fund**	0 - 5%	0 - 5%	0 - 3%	0 - 3%	0 - 3%	0 - 3%	0 - 3%	0 - 0.3%	0 - 0.3%	
Asset Allocation (AA): Target Levels - FY 2022	% of Fund	36%	18%	16%	8%	5%	9%	6%	1%	1%	**100%**
Asset Allocation (AA): Target Levels - FY 2023	% of Fund	35%	18%	17%	9%	4%	9%	6%	1%	1%	**100%**
Asset Allocation (AA): Target Levels - FY 2024	% of Fund	34%	18%	18%	10%	3%	9%	6%	1%	1%	**100%**
Asset Allocation (AA): Target Levels - FY 2025	% of Fund	33%	18%	19%	12%	1%	9%	6%	1%	1%	**100%**

Category	Target Allocation (FY2019)	Green Zone (CIO)	Yellow Zone (ED)	Red Zone (Board)
Investment Objective				
Growth (Public Equities + Private Equity & Special Opp. + Absolute Return + Asset Allocation)	60%	+/- 10%	0-5% beyond the green zone	>5% beyond the green zone
Income (Fixed Income Plus + Real Estate + Infrastructure & Private Income)	40%	+/- 10%	0-5% beyond the green zone	>5% beyond the green zone
Investment Objective - Liquidity				
Tradable (Public Equities + Fixed Income Plus + Asset Allocation)	65%	+/- 10%	0-5% beyond the green zone	>5% beyond the green zone
Illiquid (Private Equity & Special Opp. + Real Estate + Infrastructure & Private Income + Absolute Return)	35%	+/- 10%	0-5% beyond the green zone	>5% beyond the green zone
Asset Classes				
Public Equities	38%	+/- 5%	0-10% beyond the green zone	>10% beyond the green zone
Fixed Income Plus	22%	+/- 5%	0-10% beyond the green zone	>10% beyond the green zone
Private Equity & Special Opp.	12%	+/- 5%	0-5% beyond the green zone	>5% beyond the green zone
Real Estate	11%	+/- 5%	0-5% beyond the green zone	>5% beyond the green zone
Infrastructure & Private Income	7%	+/- 5%	0-5% beyond the green zone	>5% beyond the green zone
Absolute Return	5%	+/- 3%	0-5% beyond the green zone	>5% beyond the green zone
Asset Allocation	5%	+/-3%	0-3% beyond the green zone	>3% beyond the green zone

C. Total Fund and Asset Class Benchmarks

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Each asset class is associated with a benchmark that describes in general terms the opportunity set and return characteristics associated with the asset class ("Policy

Benchmark"). For certain private ~~or more complex~~ market asset classes, the Policy B~~b~~enchmark serves as a proxy for expected returns rather than an approximation of the actual investments that will characterize the~~at~~ components of the portfolio. ~~These benchmarks for each asset class are also referred to as Policy Benchmarks.~~ Note that the investment returns and Policy B~~b~~enchmarks for Private Equity & Special Opportunities, Real Estate, and Infrastructure & Private Income are lagged by 1-quarter for performance calculation purposes, as is common practice among large ~~complex investment plans~~ institutional investors~~in the United States and internationally~~. Each asset class is also associated with a long-term return objective, which cumulatively reflects the total Fund's long-term objective of CPI + 5%.

- ~~Table 2 reflects t~~ The long-term return objectives and ~~short-term~~ Policy B~~b~~enchmarks for each ~~of the~~ asset class are reflected in Table 2~~es~~.

Table 2: Benchmarks - constituent indexes and weights

	Public Equity	Fixed Income	Private Equity	Real Estate	Real Assets Completion	Private Income	Absolute Return	Risk Parity	Fund Cash	Total Fund FY 2021	Total Fund FY 2022	Total Fund FY 2023	Total Fund FY 2024	Total Fund FY 2025
Asset Allocation (AA): Target Levels-FY 2021	37.0%	18.0%	15.0%	7.0%	6.0%	9.0%	6.0%	1.0%	1.0%	100.0%				
Minuimum Long Term Return Target	CPI+5.05%	CPI+2.30%	CPI+10.05%	CPI+4.00%	CPI+2.24%	CPI+4.5%	CPI+3.25%	CPI+4.7%	CPI-0.25%	CPI+5%				
Benchmark Index Weights	**Asset Class / Portfolio Weights**									**Total Fund Weights**				
90 Day T-Bills	-	5.00%	-	-	-	-	-	-	100.00%	**1.90%**	1.90%	1.90%	1.90%	1.90%
BB Corporate	-	27.50%	-	-	-	-	-	-	-	**4.95%**	4.95%	4.95%	4.95%	4.95%
BB Gbl Treasury ex-US	-	10.00%	-	-	-	-	-	-	-	**1.80%**	1.80%	1.80%	1.80%	1.80%
BB US Agg	-	27.50%	-	-	-	-	-	-	-	**4.95%**	4.95%	4.95%	4.95%	4.95%
BB US HY 2% Issuer Cap	-	10.00%	-	-	-	-	-	-	-	**1.80%**	1.80%	1.80%	1.80%	1.80%
BB US HY 2% Issuer Cap (Lagged)	-	-	-	-	-	40.00%	-	-	-	**3.60%**	3.60%	3.60%	3.60%	3.60%
BB Barclays US Securitzed Index		10.00%								**1.80%**	1.80%	1.80%	1.80%	1.80%
BB US TIPS	-	5.00%	-	-	16.70%	-	-	-	-	**1.90%**	1.74%	1.57%	1.40%	1.07%
Cambridge PE (Lagged)	-	-	100.00%	-	-	-	-	-	-	**15.00%**	16.00%	17.00%	18.00%	19.00%
FTSE Developed Core Infra. (Lagged)	-	-	-	-	-	60.00%	-	-	-	**5.40%**	5.40%	5.40%	5.40%	5.40%
HFRI Total HFOF Universe	-	-	-	-	-	-	100.00%	-	-	**6.00%**	6.00%	6.00%	6.00%	6.00%
JPM EMBI Gbl Diversified	-	2.50%	-	-	-	-	-	-	-	**0.45%**	0.45%	0.45%	0.45%	0.45%
JPM GBI-EM Gbl Diversified	-	2.50%	-	-	-	-	-	-	-	**0.45%**	0.45%	0.45%	0.45%	0.45%
MSCI ACWI IMI	100.00%	-	-	-	-	-	-	-	-	**37.00%**	36.00%	35.00%	34.00%	33.00%
NCREIF Property (Lagged)	-	-	-	100.00%	-	-	-	-	-	**7.00%**	8.00%	9.00%	10.00%	12.00%
S&P Gbl Listed Infra. Net	-	-	-	-	11.10%	-	-	-	-	**0.67%**	0.56%	0.44%	0.33%	0.11%
S&P Gbl REIT Net	-	-	-	-	11.10%	-	-	-	-	**0.67%**	0.56%	0.44%	0.33%	0.11%
Gold Spot	-	-	-	-	33.30%	-	-	-	-	**2.00%**	1.67%	1.33%	1.00%	0.33%
S&P/LSTA US Leverage Loan 100 Index	-	-	-	-	16.70%	-	-	-	-	**1.00%**	0.84%	0.67%	0.50%	0.17%
S&P Global Natural Resources Index	-	-	-	-	11.10%	-	-	-	-	**0.67%**	0.56%	0.44%	0.33%	0.11%
HFRI Risk Parity Vol 12	-	-	-	-	-	-	-	100.00%	-	**1.00%**	1.00%	1.00%	1.00%	1.00%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	100.00%	100.00%	100.00%	100.00%

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~~E.~~D. Total Fund Performance Measurement & Reporting ~~Criteria—Performance Scorecard~~

- The Board looks to its General Consultant as the primary source of quantitative evaluation of the performance of the Fund and its investment managers. As promptly as possible after the close of each calendar quarter, the General Consultant shall submit a report to the Board, Executive Director ("ED") and Chief Investment Officer ("CIO")~~IO~~ analyzing the performance of the Fund, its asset classes and investment programs, including both internally and externally managed assets. The report shall include a comparison of total Fund performance with the Board's long-term investment ~~goal~~objective, an analysis of the returns of each asset class as measured against established benchmarks ~~for each class~~; and an analysis of the returns of each manager or relevant groupings of managers as measured against relevant benchmarks. The General Consultant's report ~~to the Board~~ shall also

address any special concerns or observations the General Consultant concludes should be brought to the attention of the Board, Executive Director and CIO.

- At each regular Board meeting, the General Consultant will also report on the investment performance of the Fund and each asset class in comparison with Fund peers (i.e., Large US Public Funds and Endowment Funds). The comparative performance of the Fund and each asset class will be assessed and reported across multiple timeframes, including 10-year, 5-year, 3-year, and 1-year. To the extent that peer comparisons may not be directly available for specific asset class comparisons, the General Consultant should ~~select the closest available proxy for comparison purposes. T~~use the Fund's Policy Benchmarks (see Table 2) ~~will be used~~ as a proxy ~~for the peer group comparisons on an ongoing basis. The Consultant's report shall also address any special concerns or observations the Consultant concludes should be brought to the attention of the Board, Executive Director and CIO.~~

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E. Total Fund Portfolio Implementation, Delegations, and Investment Committee

APFC Staff directs all investment activities through a delegation of investment authority in the By-Laws from the Board to the Executive Director and then from the Executive Director to specific APFC Staff, as deemed appropriate by the Executive Director. The Executive Director will also convene a Public Markets Investment Committee and a Private Markets Investment Committee ("Investment Committee") on a regular basis in order to discuss and deliberate on investment decisions requiring authorization. The voting members of the Investment Committee include the Executive Director, the Chief Investment Officer, and the Chief Risk Officer. Approval of any investment decision by the Investment Committee requires the affirmative vote of at least two of the three voting members. If any voting member of the Investment Committee is absent from a meeting, the Chef Financial Officer shall take the place of the absent member. Investment decisions approved by the Investment Committee will be affirmed in-writing.

~~The Board's General Consultant will deliver reports to the Board at each regular Board meeting which indicate whether the Fund is meeting its objectives as described in the Policy & Procedures. In addition, the General Consultant will provide a "Performance Scorecard" at each Board meeting based on the prior quarter-end investment performance intended to assess the overall effectiveness of the Fund in terms of its objectives as outlined above in Section II.C. Reporting on measures of Investment Performance and Investment Efficiency will be distilled into the equivalent of "percentile rankings" through comparisons with peers (i.e., institutional investment plans) and through the computation of statistical "Z-scores" against investment return and variability targets. The overall percentile ranking and comparative performance of the Fund will be assessed and reported across multiple timeframes including, as the simple average of its returns in comparison with long-term (5+ year) inflation-adjusted actuarial, medium-term (3-year) peer group, and short-term (1-year) index benchmarks.~~

~~The Board looks to its General Consultant as the primary source of quantitative evaluation of the performance of the Fund and its investment managers. As promptly as possible after the close of each calendar quarter, the Consultant shall submit a report to the Board, Executive Director and CIO analyzing the performance of the Fund, its asset classes and investment programs, including both internally and externally assets. The report shall include a comparison of total Fund performance with the Board's long-term investment goal, an analysis of the returns of each asset class as measured against established benchmarks for each class; and an analysis of the returns of each manager or relevant groupings of managers as measured against relevant benchmarks. The Consultant's report shall also address any special concerns or observations the Consultant concludes should be brought to the attention of the Board, Executive Director and CIO.~~

~~Each asset class is associated with a benchmark that describes in general terms the opportunity set and return characteristics associated with the asset class. For certain private or more complex asset classes, the benchmark serves as a proxy for expected returns rather than an approximation of the actual investments that will characterize that component of the portfolio. Those benchmarks, along with the allocation ranges, for each asset class are also referred to as Policy Benchmarks. Note that the investment returns and benchmarks for Private Equity & Special Opportunities, Real Estate, and Infrastructure & Private Income are lagged by 1 quarter for performance calculation purposes, as is common practice among large complex investment plans in the United States and internationally.~~

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~~**The long-term investment objectives for the Fund should target a return of CPI+5% or better into the future. This CPI+5% or better target should be achieved through a combination of (1) strategic asset allocation among the asset classes, (2) tactical asset allocation, which overweights or underweights specific assets classes on a shorter-term basis due to perceived valuational or risk imbalances between the asset classes, and (3) value-added contributions within each asset class. The following table reflects the long-term return objectives and short-term benchmarks for each of the asset classes based upon the prevailing strategic asset allocation and value-added contributions from both tactical asset allocation and asset class portfolio management:**~~

~~**Table 2**~~

Asset Classes	Long-Term Return	Alloc. FY2019	Alloc. FY2020	Alloc. FY2021	Asset Class Benchmark Indices (FY2019)
Public Equities	CPI+5.25%	38%	37%	35%	100% MSCI ACWI IMI (BB ID: M1WDIM)
Fixed Income Plus	CPI+2%	22%	20%	18%	25% BB US Agg (BB ID: LBUSTRUU)
					25% BB US Corporate (BB ID: LUACTRUU)
					10% BB Gbl Treasury ex-US (BB ID: LGT1TRUH)
					10% BB US HY 2% Issuer Cap (BB ID: LF89TRUU)
					10% S&P Gbl REIT Net (BB ID: SREITGUN)
					5% S&P Gbl Listed Infra. Net (BB ID: SPGTINNT)
					5% 90 Day T-Bills (BB ID: G0O1)
					5% BB US TIPS (BB ID: LBUTTRUU)
					2.5% JPM GBI-EM Gbl Diversified (BB ID: JPGCCOMP)
					2.5% JPM EMBI Gbl Diversified (BB ID: JGENVUUG)
Private Equity & Special Opp.	CPI+7.5%	12%	13%	14%	100% Cambridge PE (Lagged) (BB ID: No ID)
Real Estate	CPI+5%	11%	12%	13%	100% NCREIF Proterty (Lagged) (BB ID: NPPITR)
Infrastructure & Private Income	CPI+5%	7%	8%	9%	60% FTSE Developed Core Infra. (Lagged) (BB ID: TFDCIIU)
					40% BB US HY 2% Issuer Cap (Lagged) (BB ID: LF89TRUU)
Absolute Return	CPI+5%	5%	5%	6%	100% HFRI Total HFOF Universe (BB ID: HFRIFWI)
Asset Allocation	CPI+3%	5%	5%	5%	40% 90 Day T-Bills (BB ID: G0O1)
					23% MSCI ACWI IMI (BB ID: M1WDIM)
					2% 90 Day T-Bills (BB ID: G0O1)
					1% BB US TIPS (BB ID: LBUTTRUU)
					3% BB US Agg (BB ID: LBUSTRUU)
					3% BB US Corporate (BB ID: LUACTRUU)
					1% BB Gbl Treasury ex-US (BB ID: LGT1TRUH)
					0.5% JPM GBI-EM Gbl Diversified (BB ID: JPGCCOMP)
					0.5% JPM EMBI Gbl Diversified (BB ID: JGENVUUG)
					1% BB US HY 2% Issuer Cap (BB ID: LF89TRUU)
					1% S&P Gbl REIT Net (BB ID: SREITGUN)
					1% S&P Gbl Listed Infra. Net (BB ID: SPGTINNT)
					7% Cambridge PE (Lagged) (BB ID: No ID)
					7% NCREIF Proterty (Lagged) (BB ID: NPPITR)
					3% FTSE Developed Core Infra. (Lagged) (BB ID: TFDCIIU)
					2% BB US HY 2% Issuer Cap (Lagged) (BB ID: LF89TRUU)
					3% HFRI Total HFOF Universe (BB ID: HFRIFWI)
Implied Strategic Target Return→		CPI+4.6%	CPI+4.7%	CPI+4.8%	
Plus value-added tactical allocation		.25-.5%	.25-.5%	.25-.5%	
Overall Long-Term Target Return→		CPI+5%	CPI+5.1%	CPI+5.2%	

~~Table 3~~

Total Fund Performance Benchmark Indices	FY2019	FY2020	FY2021
MSCI ACWI IMI (BB ID: M1WDIM)	39%	38%	36%
90 Day T-Bills (BB ID: G0O1)	3%	3%	3%
BB US TIPS (BB ID: LBUTTRUU)	1%	1%	1%
BB US Agg (BB ID: LBUSTRUU)	6%	5%	5%
BB US Corporate (BB ID: LUACTRUU)	6%	5%	5%
BB Gbl Treasury ex-US (BB ID: LGT1TRUH)	2%	2%	2%
JPM GBI-EM Gbl Diversified (BB ID: JPGCCOMP)	1%	1%	0.5%
JPM EMBI Gbl Diversified (BB ID: JGENVUUG)	1%	1%	0.5%
BB US HY 2% Issuer Cap (BB ID: LF89TRUU)	2%	2%	2%
S&P Gbl REIT Net (BB ID: SREITGUN)	2%	2%	2%
S&P Gbl Listed Infra. Net (BB ID: SPGTINNT)	1%	1%	1%
Cambridge PE (Lagged) (BB ID: No ID)	12%	13%	14%
NCREIF Proterty (Lagged) (BB ID: NPPITR)	11%	12%	13%
FTSE Developed Core Infra. (Lagged) (BB ID: TFDCIIU)	4%	5%	6%
BB US HY 2% Issuer Cap (Lagged) (BB ID: LF89TRUU)	3%	3%	4%
HFRI Total HFOF Universe (BB ID: HFRIFWI)	5%	5%	6%

~~**In addition, after the conclusion of each fiscal year, the General Consultant will provide an asset class breakdown of the Performance Scorecard (in addition to the total Fund Performance Scorecard which will be reported quarterly). Rather than utilizing equal weightings among long-term, medium-term, and short-term objectives, however, the asset class Performance Scorecards will reflect the greater relevance of short-term (40% weight) and medium-term peer group (40% weighting) objectives versus the long-term inflation-adjusted actuarial (20% weighting) objective for Public Equity, Asset Allocation, and Fixed Income Plus asset classes. By contrast, private markets asset classes including Private Equity & Special Opportunities, Real Estate, Infrastructure & Private Income will emphasize the greater importance of medium-term peer group (40% weighting) and long-term inflation-adjusted actuarial (40%) objectives versus the short-term index benchmark (20% weighting) objective.**~~

~~**Peer group comparisons will generally be made on a 3-year (medium-term) basis for assessing the effectiveness of the Fund and its asset classes. Fund peers will include large US Public Funds as well as other plans deemed comparable by the General Consultant, Staff, and Board. To the extent that peer comparisons may not be directly available for specific asset class comparisons, the General Consultant should select the closest available proxy for comparison and percentile ranking purposes (including the use of statistical Z-scores when appropriate). The Fund's Performance Benchmark (comprised of both publicly-traded and private-market indexes, see Table 23) will be used as a proxy for the Peer Group comparisons on an ongoing basis.**~~

~~**Index comparisons are to be utilized for assessing the short-term (1-year) performance of the Fund. Such comparisons should include a Passive Index Benchmark (comprised of investable publicly traded securities, reflected as 60% MSCI ACWI IMI (BB ID: M1WDIM), 20% BB US Agg (BB ID: LBUSTRUU), 10% BB US TIPS (BB ID: LBUTTRUU), and 10% FTSE EPRA/NAREIT Developed Rental (BB ID: TENGRU).**~~

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~~**F. Total Fund Portfolio Implementation, Restrictions, Delegations**~~

~~The structure of the Fund is organized through asset classes, each with a distinctive investment objective (growth or income) as well as liquidity profile (tradable or illiquid), plus an allocation to a portfolio named "Asset Allocation," designed to: (1) manage Fund liquidity, and (2) manage Fund risk through rebalancing and tactical hedging. APFC Staff directs all investment activities through a delegation from the Board to the Executive Director as described in the Board's Bylaws. Delegations of Investment Authority will thus be conferred from the Board to the Executive Director (ED) and then by extension to specific investment staff in order to effect investment transactions. The Executive Director will also convene a Public Markets Investment Committee and a Private Markets Investment Committee on a regular and as needed basis in order to discuss and deliberate on decisions requiring the authorization of ED from the Policy & Procedures or Investment Guidelines. Investment decisions resulting from those meetings will generally be affirmed by email to and from the ED.~~

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~~G.~~F. Relationship of the Investment Policy~~ & Procedures~~ with Regulations, ~~and~~ Investment Guidelines and Risk Appetite

- As required by Alaska Statute 37.13.120(a), the Board has adopted ~~r~~Regulations specifically designating the types of investments in which~~that~~ Fund assets can be invested~~ in~~. All investments authorized by the~~is~~ Policy ~~& Procedures~~ shall be limited to those authorized investments ~~authorized~~ and in the manner ~~authorized~~prescribed ~~-~~by this Policy~~e Board's investment regulations, 15 AAC 137.010 – 15 AAC 137.990~~ and Alaska Statute 37.13.120. ~~Recommended changes to these regulations must be approved by the Board and adopted in conformity with the process provided in Alaska Statute 37.13.206.~~

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The Investment Guidelines, attached as Appendix A, supplement the Investment Policy ~~Statement~~ by providing operational guidelines for APFC's internally managed investment programs. The Executive Director may update th~~is Appendi~~e Investment guidelines~~x~~ from time-to-time; updates will be provided to the Board at its next regularly scheduled meeting.~~reflect the day-to-day operational expectations, restrictions and requirements needed to ensure effective management of Fund assets consistent with the regulations and the~~is~~ Policy & Procedures. With the written approval of the Executive Director, the Investment Guidelines may be amended. Amended Investment Guidelines will be provided and described to the Board at its next regular meeting.~~

The salient risk parameters and related risk tolerances are prescribed in Section VII of this ~~p~~Policy document.

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III PUBLIC MARKETS

A. Public Equity

i. Objective

The objective of the Public Equity portfolio is to invest in publicly traded securities authorized in 15 AAC 137.440, to meet or exceed the performance of a well-diversified pool of global equities, embodied in the **MSCI ACWI IMI Index**, while staying within predefined risk conmaintaining risk similar to that of the benchmarkstraints. Performance of this portfolio will be evaluated quarterly, but success in achieving the long-term objective (See Table 2) will be measured, net of all costs and fees, on a one-year, three-year, five-year, and ten-year annualized basis.

The above objective is achieved via both external and internal investment management activities with respect to security selection and allocation size.

ii. Structure

Consistent with performance objectives, applicable tracking error guidelines, and other investment restrictions described in this Policy and Investment Guidelines, the Public Equity portfolio may includeThe structure of the Public Equity portfolio may include a combination of actively and passively managed investments within prescribed tracking error targets relative to the **ACWI IMI benchmark**:

- Actively (and quasi-passively) managed equity strategies that strive to enhance the after-fee total returns of athe portfolio relative to its assigned benchmark; and
- Passively managed equity strategies that strive to replicate, in a cost-efficient manner, the returns of a benchmark index.

iii. Authorized Investments Strategy

The Public Equity portfolioportfolio will be primarily managed by a mix of external active managers, external passive managers and internal selected in accordance with the requirements of this Policy.managers. In the case of active external managers, Eeach manager, through an investment manager agreement ("IMA"), will be directed to focus on a subset of the global equity market in which the manager has demonstrated an ability to provide risk-adjusted, after-fee returns in excess of its respective benchmark. Each external manager's IMA will also detail its strategy, performance objectives, permitted investments and restrictions. The CIO and ED may also approve the internal management of a portion of the Public Equity portfolio by APFC Staff. But, iIn place of an IMA, the CIO and ED will require the approval of and adherence to investment guidelines that cover the relevant aspects of the portion of the Public Equity portfolio internally managed by APFC Staff. The Director of Public Equity will have primary responsibility in for executing the portfolio's investment strategy and plans., whether external or internal, are authorized to invest in the following:

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- All publicly traded equity securities described in 15 AAC 137.440(1), including equity-oriented funds, or equity related securities, and securities issued in underwritten initial public offerings ("IPOs");
- Equity derivatives as described in 15 AAC 440(2), including forwards, futures, options, swaps, collateralized securities, and structure notes; and
- Other investment as permitted in the APFC Regulations, including commingled investment funds as described in 15 AAC 137.470.

iv. Rebalancing and Mandate Modification

The Director of Public Equity may, with the approval of the CIO:

- The Director of Public Equity may, with the approval of the CIO and ED, rebalance assets to, from, or between individual Public Equity portfolios With the approval of the Chief Investment Officer and the Executive Director, aAdd, terminate, or rebalance Public Equity portfolio mandates and allocations for external investment managers; and
- Rebalance assets to, from, or between individual Public Equity portfoliosInitiating or terminating external manager mandates requires the consent of CIO and Executive Director and must conform to Section VIII of this Policy (Public Markets External Manager Selection) section VII of policy at his/her own discretion within the Investment Guidelines.

v. DiversificationRisk Limits and Pportfolio Rrestrictions

The Public Equity portfolio shall be appropriately diversified and exhibit portfolio risk characteristics similar to that of the benchmark. The Chief Risk OfficerDirector of Public Equity is responsible for managing aggregatethe various risks entailedincurred risk exposures and the following limitations will apply to the Public Equity portfolioadhering to the investment policy. In addition to general pPolicy aspects requirements, the following asset class specificwill restrictions apply to this portfolio:

- Risk Limits as detailed in Table-3, Ssection VII
- Short selling is prohibited by an internal or external manager of assets in this portfolio, unless authorized by the CIO and CRO.
- All derivatives in this portfolio must comply with Section VI (Authorized Uuse of Derivatives) of this Policy.
- All externally managed mandates must comply with Ssection VIII (External Manager Selection) of this Policy.

Tracking error of the overall Public Equity portfolio shall not exceed 350 basis points;

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- Allocations to an external investment managers to actively manages assets in this portfolio may not exceed 5% of the total Public Equity allocation;
- Without CIO approval, an external investment manager may not hold cash related to a Public Equity allocation in excess of 5% of the account's net asset value;
- Without CIO approval, the Fund may not own more than 5% of the total outstanding shares of a public company;
- Without CIO approval, short selling is prohibited by an internal or external manager of assets in the Public Equity portfolio; and
- All derivatives in the Public Equity portfolio must comply with the Derivatives section of this Policy

B. Fixed Income Plus

i.vi. Objective

The objective of the Fixed Income Plus portfolio is intended to provide meaningful income-oriented investment returns and diversify the risks of the Fund's equity and other growth-oriented programs. This portfolio should provide steady, low volatility returns in normal market conditions and act as a cushion when more volatile asset classes experience a market drop. The liquidity of this portfolio will also allow it to serve as a funding source for other, less liquid asset classes, and to meet annual Fund liabilities. The Fixed Income Plus portfolio invests in publicly traded and other liquid income-oriented investments authorized in 15 AAC 137.430, intended to meet or exceed the performance of investment the **return of an Fixed Income index cComposite bBenchmark** comprised of liquid, while staying within predefined risk constraints. Performance of this portfolio will be evaluated quarterly, but success in achieving the long-term objective (See Table 2) will be measured, net of all costs and fees on a one-year, three-year, five-year, and ten-year annualized basis.

income-producing assets.

ii.vii. Structure

Consistent with performance objectives, and applicable tracking error guidelines, and other investment restrictions described in this Policy and Investment Guidelines, the structure of the Fixed Income Plus portfolio may include:

- Actively (and quasi-passively) managed income producing strategies that strive to enhance the after-fee total return s of the a Fixed Income portfolio relative to its assigned benchmark; and
- Passively managed income producing strategies that strive to replicate, in a cost-efficient manner, the returns of the benchmark index.

iii.viii. Authorized Investment StrategyInvestments

The Fixed Income Plus portfolio will primarily be implemented by the CIO's internal APFC Staff, which may be supplemented by hiring external investment managers to manage

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portions of the Fixed Income portfolio which~~that~~ are not appropriate for internal management by APFC~~. The CIO will oversee the internal management of all fixed income assets and will require the approval of and adherence to investment guidelines that cover the portions of the Fixed Income portfolio that are internally managed~~. Regarding the fixed income assets that are externally managed, each external manager, through an IMA, will be directed to focus on a subset of the Fixed Income portfolio in which the manager has demonstrated an ability to ~~(if it is an active external manager)~~ manage in relation to its respective benchmark. Each external manager's IMA will also detail its strategy, performance objectives, permitted investments and restrictions. The Director of Fixed Income will have primary responsibility in executing the portfolio's investment strategy~~ and plans~~. ~~whether external or internal, is authorized to invest in the following:~~

- ~~All fixed-income investments as described in 15 AAC 137.430, including US and International fixed-income securities including those issued in the Emerging Markets, with investment grade, non-investment grade (high yield) or implied ratings;~~
- ~~Fixed-income derivatives as described in 15 AAC 137.430(a)(19), including forwards, futures, options, swaps, collateralized securities, structured notes, and credit default swaps;~~
- ~~Real Estate Investment Trusts (REITs) and real estate investment trust exchange traded funds as described in 15 AAC 137.450(a)(4);~~
- ~~Exchange traded securities, commingled funds, and other tradable investments related to liquid infrastructure investments; and~~
- ~~Other investment as permitted in the APFC Regulations.~~

~~iv.~~ix. Rebalancing and Mandate Modification

- The Director of Fixed Income may, with the approval of the ED and CIO, rebalance assets to, from, or between individual Public Equity portfolios
- Initiating or terminating external manager mandates requires the consent of ~~Executive Directo~~ and CIO,~~r~~ and must conform to ~~Manager Selection se~~Section VIII of this ~~p~~Policy (Public Markets External Manager Selection).
- ~~The Director of Fixed Income Plus may, with the approval of the CIO:~~
- ~~With the approval of the Chief Investment Officer and Executive Director hire~~Add~~, terminate, approve or modify any external manager mandate within~~ the ~~Fixed Income Plus;~~portfolio~~; and~~
- ~~Rebalance assets to, from or between individual~~ Fixed Income portfolios~~external managers at his/her discretion within the Investment Guidelines.~~
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x. Diversification and portfolio restrictionsRisk Limits and Portfolio Restrictions

The Director of Fixed Income is responsible for managing the various risks entailedincurred and adhering to tinvestment This pPolicy. In addition to general Ppolicy aspects requirements, the following asseet class specific restrictions will apply to this portfolio:

- Risk Limits as detailed in Table-3, Ssection VII.
- Short selling is prohibited by an internal or external manager of assets in this portfolio, unless authorized by the CIO and CRO.
- All derivatives in this portfolio must comply with Ssection VI (Authorized use of Derivatives) of this Policy.
- All externally managed mandates must comply with Ssection VIII (Public Markets External Manager Selection) of this Policy.

The Fixed Income portfolio shall be appropriately diversified and exhibit portfolio risk characteristics similar to that of the benchmark. The Chief Risk Officer is responsible for managing aggregate risk exposures and the following limitations will apply to the Fixed Income portfolio:
Tracking error of the overall Fixed Income portfolio shall not exceed 350 basis points;
Allocations to an external investment managers to actively manages assets in this portfolio may not exceed 5% of the total Fixed Income allocation;
The average weighted effective duration of any internally managed portfolio will not vary from that of the benchmark by more +/- 20%;
Internally managed Fixed Income portfolios may not hold more than 10% of its net asset value in securities rated below investment grade;
Without CIO approval, no more than 20% of the market value of the overall Fixed Income portfolio may be invested in Private Placements or Rule 144A securities;
Without CIO approval, no more than 10% of the market value of the Fixed Income portfolio may be invested in securities denominated in currencies other than U.S. Dollar; and
All derivatives in the Fixed Income portfolio must comply with the Derivatives section of this Policy

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C. Risk Parity Asset Allocation

i.xi. Objectives

The objectives of the Risk Parity portfolio is to deliver long-term returns that meet or exceed the performance of a 60% stock/40% bond portfolio through managers which seek to generate returns that are less correlated to global public markets (i.e. less volatility) through allocation of risk rather than allocation of capital. Performance of this portfolio will be evaluated quarterly against the Hedge Fund Research **HFR 12% Vol Institutional Index**, but success in achieving the long-term objective (See Table 2) will be measured, net of all costs and fees on a one-year, three-year, five-year, and ten-year annualized basis.Asset Allocation portfolio are to: (1) provide liquidity management for the Fund, (2) manage

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foreign currency risks, (3) avoid "cash drag" by maintaining synthetic public equity and fixed income exposure to surplus portfolio cash, (4) manage allocation transfers between asset classes, and (5) manage a liquid Risk Parity portfolio with an attractive risk/return profile.

ii.xii. Structure and Authorized Investments Strategy

The Risk Parity portfolio will be managed by external managers, selected in accordance with the requirements of this Policy, that provide risk-balanced exposure to multiple sources of excess expected return. Each manager, through an IMA -or limited liability fund, will detail its strategy, performance objectives, permitted investments and restrictions. The Director of Risk Parity will have primary responsibility in executing the portfolio's investment strategy and plans. The Asset Allocation portfolio refers to four distinct programs, each with specific roles for the Fund:

Authorized Investments

The external managers selected to manage a portion of the Risk Parity portfolio may invest Fund assets in the following:

- Futures contracts, including single-equity futures, bond futures, interest rate futures, commodity futures, currency futures, and futures on stock indices;
- Treasury Inflation-Protected Securities ("TIPS") and inflation-linked bonds;
- Currencies; commodities; currency forwards, including developed and emerging market forwards and non-deliverable forwards;
- Swaps, including swaps on equity indices, equity futures, bond indices, bond futures, commodity swaps, and interest rate swaps;
- Global equities and equity-like securities;
- Fixed income instruments, including government and corporate bonds;
- Repurchase instruments; exchange-traded funds; other derivative products; and
- Asset-backed securities and mortgage-backed securities.

xiii. Risk Limits and Portfolio Restrictions

The Director of Risk Parity is responsible for managing the various risks entailedincurred and adhering to investment this pPolicy. In addition to general poPolicy aspectsrequirements, the following restrictions will apply to this portfolio:

- Risk Limits as detailed in Table-3, Section VII.
- Short selling is prohibited by an internal or external manager of assets in this portfolio, unless authorized by the CIO and CRO.

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- All derivatives in this portfolio must comply with S~~s~~ection VI (Authorized use of Derivatives) of this Policy.
- All externally managed mandates must comply with S~~s~~ection VIII (Public Markets External Manager Selection) of this Policy.

~~**Diversification and portfolio restrictions**~~

~~The Risk Parity portfolio will be appropriately diversified and exhibit portfolio risk characteristics similar to that of the benchmark. The Chief Risk Officer is responsible for managing aggregate risk exposures and the following limitations will apply to the Risk Parity portfolio:~~

- ~~Allocations to Risk Parity external managers shall be limited to no more than 1% of the Fund at the time of investment;~~
- ~~Each external investment manager's use of leverage should operate in a range from 100% to 400% and shall not exceed 500% of invested capital;~~
- ~~Without CIO approval, a Risk Parity manager cannot short an entire asset class and is limited to shorting individual exposures; and~~
- ~~All derivatives in the Risk Parity portfolio must comply with the Derivatives section of this Policy.~~

Total Fund Cash

i. Objective

The objective of the Total Fund Cash portfolio is to: (i) be a ~~generate the highest return possible while also providing a~~ source of ~~available~~ funds available to meet the Fund's operational needs, including capital calls and appropriations from the Earnings Reserve Account to the State's general fund; and -(ii) allocate small portion of~~.~~ ~~be~~ the Fund to ~~sleeve for the CIO's asset allocation to cash~~an asset class that is ~~;~~nearly risk-free and experiences extremely low volatility ~~(iii) generate returns commensurate with efficient and prudent liquidity / cash management~~.

Performance of this portfolio will be evaluated quarterly and will be measured against the risk and after-fee return of the 90 Day Treasury Bills Index, but success in achieving the long-term objective (See Table 2) will be measured, net of all costs and fees on a one-year, three-year, five-year, and ten-year annualized basis~~**Federal Reserve US Treasury Constant Maturity 1-Month Index**~~.

ii. Investment Strategy

The Total Fund Cash portfolio will be internally managed at the direction of the CIO. The size and investment profile of this portfolio may fluctuate month-to-month to

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prepare for and accommodate the Fund's liquidity requirements. The CIO will have primary responsibility in executing theis portfolio's investment strategy. and plans

iii. Authorized Investments

The CIO may invest this portfolio in cash and the following cash equivalents:

Liquidity Program—Comprised of cash, and cash equivalents, and other liquid investment balances, including:

- Short-Term Investment Pools (STIP);US treasuries with a maximum final maturity of 24 months;

- Investment Grade US corporate bonds with a maximum final maturity of 24 months;
  - A vehicle available through the APFC Custodian;Repurchase transactions, where collateral is high quality US treasury or US agency bonds;
  - Tri-Party Repurchase Agreements; or
  - An SSEC registered money market investment funds;lines of credit and letters of credit, this program is intended to meet the Fund's operational needs including capital calls and appropriations from the earnings reserve account to the State's general fund. ; and
- Other cash equivalents approved by the CIO.

At any point, 80% of the portfolio should be invested in instruments with a final maturity not exceeding 181 days.

iv. Risk Limits and Portfolio Restrictions

The CIO and APFC Staff designated by the CIO is responsible for managing the various risks entailedincurred and adhering to investment this pPolicy. In addition to general pPolicy aspectsrequirements, the following specific restrictions will apply to this portfolio:

- Risk Limits as detailed in Table-3, Ssection VII.
- At any point, 80% of the portfolio should be invested in instruments with a final maturity not exceeding 181 days.
-
- Short selling is prohibited by an internal or external manager of assets in this portfolio, unless authorized by the CIO and CRO.
- All derivatives in this portfolio must comply with Ssection VI (Authorized use of Derivatives) of this Policy.

All externally managed mandates must comply with section VIII (External Manager Selection) of this Policy.

Short duration U.S. dollar denominated bonds.

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Securities Lending

v. Authorized Investments

- The ~~This program may also utilize stock and bond-related securities used for transitional purposes;~~
- ~~Cash Overlay Program—Comprised of exchange-traded and over-the-counter derivatives managed by external investment managers to provide efficient exposure to public equity and fixed-income markets, thereby reducing "cash drag" that is a natural side effect of holding cash for liquidity management purposes;~~
- ~~Currency Overlay Program—Comprised of currency-related derivatives, as described in 15 AAC 137.480, managed by external investment managers, this program seeks to add value and manage the risks associated with the Fund's exposure to foreign currencies; and~~
- ~~Risk Parity Program—Designed to deliver long-term returns of CPI+5% or better through external managers which seek to generate returns that are less correlated to global public markets through allocation of risk (i.e. volatility) rather than allocation of capital. Private market investments are generally excluded from Risk Parity funds. Because Risk Parity investments are diversifying, they represent a small share of the Fund's risk while generating a proportionately larger share of the Fund's returns. To avoid investment manager concentration risk, allocations to Risk Parity external managers shall be limited to no more than 1% of the Fund at the time of investment. Risk Parity investments are generally liquid and highly scalable. Risk Parity Fund investments will be consummated following a search process and the recommendation of APFC's General Consultant.~~

~~**D.** Securities Lending~~

~~The~~ Executive Director is authorized to enter~~may execute~~ into a~~n~~ securities lending agreement with the Fund's custodian ~~or other lending agent~~ to lend domestic and non-domestic public equity and ~~debt~~fixed income securities from the Fund's portfolio directly to borrowers for a fee in accordance with ~~15 AAC 137.510 and~~ the following guidelines:

- The Fund's custodian ~~or lending agent~~ shall ~~extend without reservation or qualification complete~~ agree to indemnif~~icationy~~ the Fund ~~against~~ against any direct loss from: (1) a borrower default~~,~~; (2) the reinvestment of cash collateral~~,~~; and (3) the failure to comply with the terms and conditions of the lending agreements;
- ~~As described in 15 AAC 137.510,~~ collateral shall be required at ~~the following levels:~~ a ~~M~~minimum of 102% of the market value of the loaned securities which are denominated in the same currency as the collateral provided by the borrower; ~~and~~
- Collateral shall be required at a ~~M~~minimum of 105% of the market value of the loaned securities which are denominated in a currency other than the collateral provided by the borrower;
- Collateral and loaned securities shall be marked~~-~~to~~-~~market daily;

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- The investment of cash collateral posted by borrowers shall be restricted to those investment-grade securities permissible under the provisions of AS 37.13.120~~,~~ and 15 AAC 137~~, and the Investment Guidelines; and~~; unless the Executive Director elects to have cash collateral released to the Fund to meet the Fund's liquidity needs rather than having it invested by the Custodian.
- ~~The Corporation shall periodically review investments of cash collateral for compliance with the provisions of AS 37.13.120, 15 AAC 137, and the Investment Guidelines.~~
- ~~At the discretion of the Executive Director, the Corporation may elect to have cash collateral released to the Corporation to meet liquidity needs rather than having it invested by the Custodian or lending agent.~~

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IV ALTERNATIVE INVESTMENTS

A. Private Equity & Special Opportunities

i.vi. Objectives

The objective of the Private Equity & Special Opportunities ("PESO") portfolio is to invest in illiquid growth-oriented assets authorized in 15 AAC 137.460 that are expected to generate diversify and enhance the overall expected risk-adjusted, after-fee investment return of the Fund s that are superior to the Public Equity portfolio.through investments inthe identification, purchase, and sales of relatively illiquid growth-oriented investments. Performance of the this portfolio will be evaluated quarterly, in aggregate and based upon the vintage year, against the **Cambridge PE (Lagged)**, but success in achieving the long-term objective (See Table 2), will be measured, net of all costs, fees, and carry, on a one-year, three-year, five-year, and ten-year annualized basis.

vii. Investment Strategy

PESO Iinvestment strategies include: venture capital, growth equity, leveraged buyouts, special situationsopportunities, and distressed debt. PESO portfolio investments Opportunities are will be executed accessed both through long-term capital commitments to limited liability funds managed by external investment managers, and through co-investments alongside existing external managers, and direct investments into operating companies. The portfolio will seek to benefit from the:

- long-term ownership of businesses and assets;
- application of specialized skills;
- allocation of capital into disrupted markets; and
- potential incremental return premium connected with the illiquidity of targeted investments.

Private Equity: Private equity assets are typically characterized by long investment horizons and limited liquidity but bring to the Fund increased diversification and the potential for risk-adjusted returns that exceed those of publicly-listed securities. In constructing a diversified private equity portfolio, Staff will consider the following characteristics: strategy, geography, industry, investment size, leverage, investment structure, competitive landscape, market position, and vintage year.

Special Opportunities: Technological innovation and market volatility periodically create attractive investment opportunities that do not fit precisely into standard, predetermined categories. These opportunities may be caused by temporary market dislocations, evolving social or economic trends, or a changing regulatory environment. APFC seeks to be positioned to capture such opportunities for the benefit of the Fund.

Portfolio performance will be evaluated using:

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- a comparison of vintage year performance against the Cambridge Private Equity Index benchmark; and
- a comparison of long-term performance over five- and ten-year rolling periods to public equity benchmarks plus a premium of 200 basis points;
- and CPI+7.5%.

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Annually, APFC Staff will provide to the for Board approval a pacing and investment plan for Board approval that reflects the current PESO exposures, assumptions, and outlook. The Deputy CIO-Private Markets & Alternatives will have primary responsibility in executing the PESO portfolio's investment strategy and plans. Additionally, T the purchase or sale of individual private equity or special opportunities investments or fund investments with a single manager that exceed 1% of the Fund shall be approved Board.

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viii. Diversification and portfolio restrictions

In constructing a diversified PESO portfolio, APFC Staff will consider the following characteristics: strategy, geography, industry, manager, investment size, leverage, vintage year, and market position. The Deputy CIO-Private Markets & Alternatives is responsible for managing the portfolio risks and adhering to investmentthis pPolicy. In constructing an optimally -diversified PESO portfolio, APFC Staff will consider the following thecharacteristics including the following characteristics: strategy, geography, industry, manager, investment size, leverage, vintage year, and market position. In addition to general pPolicy aspectsrequirements, the following asset class specific restrictions will apply to this portfolio:

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- Risk Limits as detailed in Table-3, Ssection VII.

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- All derivatives in this portfolio must comply with section VI (Authorized use of Derivatives) of this Policy.
- Unless otherwise approved by the Board, the Chief Risk Officer is responsible for managing aggregate risk exposures and the following limitations will apply:

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- The PESO portfolio shall be invested within the following strategy diversification ranges;
  - Venture Capital - 5% to 45%;
  - Buyouts/Acquisition – 40% to 70%;
  - Specialized Funds/Investments – 0% to 50%;

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- No more than 40% of the Peso Portfolio shall be invested Internationally, as measured by the exposure of the underlying investments rather than the jurisdiction of the investment vehicle;

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- No more than 20% of the PESO Portfolio shall be invested with a single Investment Manager/General Partner.

- No more than 10% of the PESO Portfolio shall be invested in publicly traded securities; and
- Following the public listing of any directly held shares of a portfolio company, such shares shall be~~, consistent with SEC regulations,~~ either liquidated consistent with SEC regulations within a reasonable period of time, not to exceed eighteen months, or express approval to hold such direct public securities within PESO must be attained from the Executive Director on a quarterly basis.

~~No more than 20% of the PESO Portfolio shall be invested in a single industry sector;~~
~~No more than 20% of the PESO Portfolio shall be invested with a single Investment Manager/General Partner;~~
~~No more than 20% of the PESO portfolio will be in a single operating company;~~
~~Fund level leverage shall not exceed 25%;~~
~~No more than 10% of the PESO Portfolio will be invested in a single vintage year;~~
~~No more than 10% of the PESO Portfolio shall be invested in publicly traded securities; and~~
~~Following the public listing of any directly held shares of portfolio company shall be, consistent with SEC regulations, either liquidated within a reasonable period of time, not to exceed one-year, or transferred to the Public Equity portfolio;~~

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~~**ii. Structure**~~

~~Investment strategies include venture capital, growth equity, leveraged buyouts, special situations, and distressed debt. Opportunities are accessed both through long-term commitments to funds managed by external investment managers and through co-investments and direct investments into operating companies.~~

~~The purchase or sale of individual private equity or special opportunities investments or fund investments with a single manager that exceed 1% of the Fund shall be approved Board. In addition, as described in 15 AAC 137.460(b), investments into new externally managed funds may be consummated following the advice and recommendation of a qualified, independent consultant. A commitment to successor funds to ones previously invested in by APFC shall also be deemed consistent with regulation. Co-investments and direct investments shall only be consummated pursuant to the advice and recommendation of a qualified, independent consultant. That said, a co-investment alongside an existing discretionary manager or a commitment to subsequent funds managed by an existing discretionary manager, shall generally be considered as having met the requirements of 15 AAC 137.460(b).~~

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~~B.~~G. Real Estate~~, Infrastructure, and Private Income~~

~~i.~~ix. Objective

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The ~~long-term~~ objective of the Real Estate~~, Infrastructure & Private Income Portfo~~ Portfolio is to generate a risk-adjusted return ~~between the expected return for public equity and fixed income that is~~ comprised of an attractive level of current income and capital appreciation, while ~~maintaining a prudent~~contributing to diversification of the Fund ~~assets~~. Performance of the Real Estate portfolio will be evaluated quarterly against the **NCREIF Property Benchmark (Lagged),** but success in achieving the long-

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term objective, will be measured, net of all costs, fees, and carry, on a one-year, three-year, five-year, and ten-year annualized basis.

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x. Investment Strategy

Real Estate investments, as authorized in 15 AAC 137.450, shall primarily target (i) directly-held income producing, core real estate in the United States and globally, (ii) directly-held build-to-core or other non-core properties, (iii) funds~~, including publicly traded funds (e.g. REITs),~~ that invest predominantly in real estate strategies (e.g. core, core-plus, value-added, and opportunistic), (iv) publicly traded funds (e.g. ETFs or Index), or securities (e.g. REITs), where the underlying investments consist of real estate and (~~i~~v) co-investments alongside an existing Real Estate manager.~~ The purchase or sale of individual investments or fund investments with a single manager in any of the four programs that exceed 1% of the Fund shall be approved Board. Annually, APFC Staff shall prepare for Board approval a real estate tactical plan, which details the status of the portfolio and identifies APFC Staff's expectations for the portfolio toward meeting the objectives of the investment strategy.~~The Director of Real Estate will have primary responsibility in executing the portfolio's investment strategy~~ and plans~~.

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xi. Diversification and portfolio restrictions

The Director of Real Estate is responsible for managing the various risks ~~entailed~~incurred and adhering to this~~investment~~ ~~p~~Policy. In constructing an optimally diversified Real Estate portfolio, APFC Staff will consider the following characteristics: investment type, property type, geography, manager, and leverage. In addition to general ~~p~~Policy ~~aspects~~requirements, the following will apply to this portfolio:

- Risk Limits as detailed in Table-3, S~~s~~ection VII.

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- All derivatives in this portfolio must comply with section VI (Authorized use of Derivatives) of this Policy.
- The directly-held portion of the Real Estate portfolio shall be invested within the following diversification ranges:
- No more than 60% of the Real Estate portfolio shall be invested in "non-core" real estate (value-add and opportunistic);
- The directly-held portion of the Real Estate portfolio will target the following property types: Multifamily, Industrial, Office, Hotel, and Retail with maximum weightings for each property type measured against NCREIF NPI benchmark weightings. ~~; e~~Except for the 5% carve-out for other property types cited below, maximum risk ceilings of 1.5x the benchmark weighting shall apply for each property type measured against the FY-2025 target allocation for the Real Estate portfolio.

- In recognition that the Real Estate team may pursue some niche property types (e.g., Parking, Self Storage) that are not among the primary property types in the NCREIF NPI, the directly-held portion of the Real Estate portfolio may include up to 5% in property types other than those listed above.
- No more than 35% of the Real Estate portfolio shall be invested with a single investment manager/general partner as measured against the FY-2025 target allocation for the Real Estate portfolio
- Leverage on investments in the directly-held portion of the Real Estate portfolio shall be limited by investment type as follows:~~Unless otherwise approved by the Board, the Chief Risk Officer is responsible for managing aggregate Real Estate risk exposures and the following limitations apply:~~
- Core real estate leverage is limited to 50% of the gross asset value of the investment at the time of debt placement; ~~(~~however, limit can be increased to 52.5% when including transaction fees and expenses.~~)~~
- Non-Core real estate leverage is limited to 65% of the gross asset value of the investment at the time of debt placement or 65% of the project cost on build-to-core investments; ~~(~~however, limit can be increased to 67.5% when including transaction fees and expenses~~)~~.
- Portfolio-wide leverage is limited to 40% of the gross asset value of the directly-held Real Estate portfolio.

~~No more than 60% of the Real Estate portfolio shall be invested in "non-core" real estate (value-add and opportunistic);~~

~~To achieve diversification by property type, the Real Estate portfolio will target the following property types and ranges:~~

~~Multifamily in the range of 15% - 35%;~~

~~Industrial in the range of 5% - 25%;~~

~~Office in the range of 25% - 45%; and~~

~~Retail in the range of 15% - 35%;~~

~~No more than 30% of the Real Estate portfolio shall be invested outside of the United States;~~

~~No more than 35% of the Real Estate portfolio shall be invested with a single investment manager/general partner; and~~

~~Leverage on investments in the Real Estate portfolio shall be limited by investment type as follows:~~

~~Core real estate leverage is limited to 35% of the net asset value of the investment; and~~

~~Non-Core real estate leverage is limited to 60% of the net asset value of the investment or project cost on build-to-core investments.~~

Real Assets Completion Portfolio

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- Objective

The objective of the Real Assets Completion portfolio is to invest in publicly-traded securities that, on a portfolio-wide basis will provide inflation protection, current income, and a high degree of liquidity. In an appreciating market for risk assets, the Real Asset Completion portfolio should generate a total return modestly below that of the Private Real Estate portfolio and in a declining market for risk assets, the portfolio should outperform Private Real Estate. The Real Asset Completion portfolio will provide liquid exposure to assets that have a similar portfolio role to Private Real Estate (i.e. current yield, inflation protection, lower risk than public equities or private equity). As such, while the Fund's Private Real Estate Portfolio is re-invested back to target exposure weight (See Table 1), this portfolio will serve to supplement the Real Estate portfolios current exposure. Performance of the Real Assets Completion portfolio will be evaluated quarterly against the **Real Assets Composite Benchmark,** but success in achieving the long-term objective, will be measured, net of all costs, fees, and carry, on a one-year, three-year, five-year, and ten-year annualized basis.

~~The performance of the Real Assets Completion portfolio will be measured against the **Real Assets Composite Benchmark** and will be evaluated monthly, quarterly, annually, and over multi-year periods.~~

- Structure

The Real Assets Completion portfolio may include:

- Actively managed strategies, whether internally or externally managed, designed to outperform the benchmark for a particular component of the portfolio;
- Exchange-traded funds ("ETF's") designed to provide returns similar to the benchmark for a particular component of the portfolio; and
- Passively managed strategies designed to replicate, in a cost -efficient manner, the returns of the benchmark index for -a particular component of the portfolio

- Investment Strategy

The Real Assets Completion portfolio will be managed to achieve efficient exposure to the underlying component betas of the portfolio. APFC Staff will also have the flexibility to seek out sources of alpha in the portfolio as well. –The Deputy CIO-Public Markets will have primary responsibility in executing the portfolio's investment strategy ~~and plans~~. The component sub-assets of the Real Assets Completion portfolio will include:

- Gold
- Treasury Inflation Protected Securities (TIP's)

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- Publicly-traded non-investment grade syndicated bank loans (Leveraged Loans)
- Publicly-traded global Real Estate Investment Trusts (REITs)
- Publicly-traded global Listed Infrastructure Equities (Listed Infrastructure)
- Publicly-traded global Natural Resources Equities (Natural Resources)

Rebalancing and Mandate Modification

- The Deputy CIO-Public Markets may, with the approval of the CIO and ED, rebalance assets to, from, or between individual portfolios; and
- Initiating or terminating external manager mandates requires the consent of CIO and ED~~Executive Director~~ and must conform to Manager Selection section VII of policy.

~~The Deputy CIO-Public Markets may, with the approval of the CIO:~~

~~Add, terminate, or rebalance Real Asset Completion Portfolio mandates and allocations~~

~~Rebalance assets to, from, or between individual Real Assets Completion Portfolio portfolios~~

~~Benchmark~~

~~33.3% Gold (spot Gold price as reported on Bloomberg)~~

~~16.7% TIP's (Bloomberg US Treasury: US TIPS Index)~~

~~16.7% Leveraged Loans (S&P/LSTA U.S. Leveraged Loan 100 Index)~~

~~11.1% Global REIT's (S&P Global REIT Net Index) – question out to C. Cummins on whether this is hedged or not… I guess my preference would be unhedged, but not a strong preference and probably would stick with what we have~~

~~11.1% Global Listed Infrastructure (S&P Global Listed Infrastructure Index) – ditto on hedged question~~

~~11.1% Global Natural Resources (S&P Global Natural Resources Index) – although a couple questions out to Youlian on this vs. MSCI and FTSE versions~~

xii. Risk Limits and Portfolio Restrictions

The Deputy CIO-Public Markets is responsible for managing the various risks ~~entailed~~incurred and adhering to ~~investment~~ this ~~p~~Policy. In addition to general ~~p~~Policy ~~aspects~~requirements, the following restrictions will apply to this portfolio:

- Risk Limits as detailed in Table-3, S~~s~~ection VII.

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- Short selling is prohibited by an internal or external manager of assets in this portfolio, unless authorized by the CIO and CRO.
- All derivatives in this portfolio must comply with S~~s~~ection VI (Authorized use of Derivatives) of this Policy.
- All externally managed mandates must comply with S~~the~~section VIII ~~-~~(Public Market External~~ly~~ Manage~~d~~r ~~Mandates' s~~Selection ~~of t~~) of this Policy.

~~Restrictions~~

~~Sebastian – I'm open to whatever you want here; I'd maybe suggest some tolerances like 5% or whatever for the sub-components where we'd rebalance if it got out of the range; the plan definitely is not to be taking market views on individual sub-assets to outperform, but rather to get efficient market exposure to these betas~~

Infrastructure ~~(~~and Private Credit and Income Opportunities Portfolio~~)~~

- The Infrastructure and Private Credit and Income Opportunities portfolio will be comprised of two separate investment strategies in accordance with the Policy requirements below:

H. Infrastructure Portfolio

xiii. Objective

The objective of the Infrastructure portfolio is to provide attractive risk-adjusted returns that have inflation-protection characteristics and exhibit low correlations with other major asset classes, as authorized by 15 AAC 137.460. Performance of the Infrastructure portfolio will be evaluated quarterly against the ~~[~~**Cambridge Associates Infrastructure Index (Lagged)~~]~~,** but success in achieving the long-term objective (See Table 2), will be measured, net of all costs, fees, and carry, on a one-year, three-year, five-year, and ten-year annualized basis.

xiv. Investment Strategy

Infrastructure investments involve the purchase of critical assets with high barriers to entry and due to the "essential services" nature of the assets often result in low elasticity of demand. Infrastructure ~~I~~investments may include energy infrastructure, transportation, water infrastructure, telecommunications, social infrastructure (e.g. lotteries, student housing, prisons), other infrastructure (e.g. protected income stream assets, other interests of infrastructure issuers, infrastructure-related assets), other real assets (e.g. timberlands, agricultural farmlands, leasable hard assets), and any other tangible or intangible asset that possesses similar characteristics as those outlined in this section.

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Infrastructure investments will be executed through long-term commitments to limited liability funds managed by external investment managers, through co-investments alongside existing Infrastructure managers and direct investments into operating companies. Additionally, investments in publicly-traded stocks of companies whose business profile includes ownership of infrastructure assets (Listed Infrastructure) may be included in the portfolio. Annually, APFC Staff will provide ~~for Board approval~~ a pacing and investment plan for Board approval that reflects the~~n~~ current exposures, assumptions, and outlook. The Deputy CIO-Private Markets & Alternatives will have primary responsibility in executing the portfolio's investment strategy and plans. ~~Annually, APFC Staff will provide for Board approval a pacing and investment plan that reflects then current exposures, assumptions, and outlook.~~

xv. Risk Limits and Portfolio Restrictions

~~**III. Diversification and portfolio Restrictions**~~

The Deputy CIO-Private Markets & Alternatives is responsible for managing the various risks ~~entailed~~incurred and adhering to investment policy. In constructing a diversified Infrastructure portfolio, APFC Staff will consider the following characteristics~~ including the following~~: drivers of underlying assets' cash flow, industry sector, geography, manager, strategy, investment size, and company concentration. In addition to general ~~p~~Policy ~~aspects,~~requirements, the following will apply to this portfolio:

- Risk Limits as detailed in Table-3, S~~s~~ection VII.
- All derivatives in this portfolio must comply with S~~s~~ection VI (Authorized use of Derivatives) of this Policy.
- Investments in multiple limited liability investment vehicles managed by the same manager are permitted~~.,~~ ~~H~~ however, combined investments with a single manager shall not exceed 30% of the total ~~Private Income~~ Infrastructure ~~P~~portfolio.
- APFC assets invested with each manager shall not represent more than 30% of that manager's AUM.

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~~In constructing a diversified Infrastructure portfolio, APFC Staff will consider the following characteristics: manager, strategy, investment size, and company concentration. Unless otherwise approved by the Board, the Chief Risk Officer is responsible for managing aggregate Infrastructure risk exposures and the following limitations apply:~~

~~At the time of investment, no single partnership commitment, individual direct investment, or co-investment (or a series of investment securities issued by the same operating entity or company) shall exceed 15% of the Infrastructure Portfolio;~~

~~Investments in multiple vehicles managed by the same manager are permitted. However, combined investments with a single manager shall not exceed 30% of the Infrastructure Portfolio;~~

~~APFC assets invested with each manager shall not represent more than 30% of that manager's AUM;~~

~~Staff will seek to accomplish this as follows:~~

- ~~Achieve investment returns in excess of the long-term and short-term portfolio benchmarks listed in Section II.E, Table 2;~~
- ~~Generate a sustained, attractive level of current income judged relative to comparable risk/income investments available in the public markets; and~~
- ~~Construct a diversified portfolio as measured by the following attributes: asset type, strategy, industry, geography, vintage year, inflation sensitivity, public market sensitivity, and fund or asset manager.~~

~~ii. Structure~~

~~APFC shall invest in the Real Estate, Infrastructure & Private Income Portfolio primarily through limited liability entities into (i) commingled or separately managed fund investments with independent fiduciaries, (ii) co-investments with independent fiduciaries, or (iii) direct equity interests in, or debt obligations secured by, securities or interests of real assets or companies. Fund investments shall primarily be made through commitments to drawdown funds with multi-year investment periods, followed by multi-year harvest periods and a defined termination date. As described in 15 AAC 137.460(b), co-investments shall primarily be made alongside current APFC investment managers or upon the advice of a qualified, independent consultant.~~

~~iii. Authorized Investments~~

~~The Real Estate, Infrastructure & Private Income Portfolio will consist of four programs with specific goals designed to contribute to long-term objectives of the portfolio and the Fund. The performance of these programs will be evaluated individually against the return mandate of the portfolio and an asset-specific benchmark. The purchase or sale of individual investments or fund investments with a single manager in any of the four programs that exceed 1% of the Fund shall be approved Board.~~

- ~~**Private Real Estate: Private Real Estate investments shall primarily target (i) directly-held income-producing, core real estate in the United States and globally, (ii) directly-held build-to-core or other non-core properties, (iii) funds that invest predominantly in real estate strategies (e.g. core, core-plus, value-added, and opportunistic), and (iv) co-investments alongside fund managers described above.**~~

- ~~**Private Infrastructure: Private Infrastructure investments shall primarily target long-lived assets and companies that exhibit contractual or inflation protection characteristics, while safeguarding principal. Investments may include energy infrastructure, transportation, water infrastructure, telecommunications, social infrastructure (e.g. lotteries, student housing, prisons), other infrastructure (e.g. protected income stream assets, other interests of infrastructure issuers, infrastructure-related assets), other real assets (e.g. timberlands, agricultural farmlands, leasable hard assets), and any other tangible or intangible asset that possesses similar characteristics as those outlined in this section.**~~

- ~~**Private Credit: Private Credit investments, in the context of a diversified portfolio, shall exhibit a high level of income and potentially provide for capital appreciation, while safeguarding principal. These investments shall primarily target funds that pursue one or more of the following strategies: direct lending, subordinated and mezzanine lending, distressed debt, opportunistic credit-oriented funds with flexibility to pursue illiquid and liquid strategies, and other private credit (e.g. special situations, asset-based lending, structured credit, leasing, royalties lending, ventured debt).**~~

- ~~**Income Opportunities: The dynamic nature of global markets, company innovation, market volatility, and behavioral economics often create attractive investment opportunities that do not fit precisely into standard, predetermined categories. These Income Opportunities, to the extent they are income generating in nature, shall be included in the Real Estate, Infrastructure & Private Income portfolio.**~~

I. Private Credit and Income Opportunities ~~(Private Income Portfolio)~~

xvi. Objective

The objective of the Private Credit and Income Opportunities portfolio is to provide attractive risk-adjusted returns that generate a high level of income and potentially provide for capital appreciation, while safeguarding principal, as authorized by 15 AAC 137.460. Performance of the Private Credit and Income Opportunities ~~Infrastructure~~ portfolio will be evaluated quarterly against the **CBB US HY 2% Issuer Cap (Lagged),** but success in achieving the long-term objective (See Table 2), will be measured, net of all costs, fees, and carry, on a one-year, three-year, five-year, and ten-year annualized basis.

xvii. Investment Strategy

Private Credit and Income Opportunities investments involve the ownership of higher yielding, illiquid investment debt opportunities that cover a range of risk/return profiles. ~~Additionally, Income Opportunities include investments such as Timberlands, Life Settlements, and special situations investments that share the common characteristic of~~

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being private markets investments with an objective of income generation and downside protection, but which do not neatly fit into other portfolios. The Private Credit portion of this This portfolio shall target externally managed limited liability funds, and co-investments, and direct investments into operating companies that target one or more of the following strategies: direct lending, subordinated and mezzanine lending, distressed debt, and opportunistic credit-oriented funds, with flexibility to pursue illiquid and liquid strategies. The Income Opportunities portion of this portfolio shall include investments such as: timberlands, asset-based lending, structured credit, life settlements, leasing and royalty strategies, and special situations that share the common characteristic of being private markets investments with an objective of income generation and downside protection, but which do not neatly fit into other portfolios. ity strategiesCertain portfolios within Private Credit and Income Opportunities , such as the ADAC strategy described in Appendix A, may also include some liquid credit exposures to complement the private investments described above in this portfolio. Annually, APFC Staff will provide for Board approval a pacing and investment plan for Board approval that reflects the current exposures, assumptions, and outlook. The Deputy CIO-Private Markets & Alternatives will have primary responsibility in executing the portfolio's investment strategy and plans.

xviii. Risk Limits and Portfolio Restrictions

The Deputy CIO-Private Markets & Alternatives is responsible for managing the various risks entailedincurred and adhering to investment this pPolicy. In constructing a diversified Private Credit and Income Opportunities portfolio, APFC Staff will consider the following characteristics including the following: credit profile, geography, manager, strategy, investment size, and company concentration. In addition to general policy aspects, the following will apply to this portfolio:

- Risk Limits as detailed in Table-3, Ssection VII.
- All derivatives in this portfolio must comply with Ssection VI (Authorized use of Derivatives) of this Policy.
- Investments in multiple vehicles managed by the same manager are permitted., Hhowever, combined investments with a single manager shall not exceed 30% of the Private Income portfolio.
- APFC assets invested with each manager shall not represent more than 30% of that manager's AUM.

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III. Diversification and portfolio Restrictions

In constructing a diversified Private Credit and Income Opportunities portfolio, APFC Staff will consider the following characteristics: manager, strategy, investment size, and company concentration. Unless otherwise approved by the Board, the Chief Risk Officer is responsible for managing aggregate risk exposures and the following limitations apply:

- At the time of investment, no single partnership commitment, individual direct investment, or co-investment (or a series of investment securities issued by the same operating entity or company) shall exceed 15% of the portfolio;
- Investments in multiple vehicles managed by the same manager are permitted. However, combined investments with a single manager shall not exceed 30% of the Infrastructure portfolio;
- APFC assets invested with each manager shall not represent more than 30% of that manager's AUM;

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Private Credit: Private Credit investments, in the context of a diversified portfolio, shall exhibit a high level of income and potentially provide for capital appreciation, while safeguarding principal. These investments shall primarily target funds that pursue one or more of the following strategies: direct lending, subordinated and mezzanine lending, distressed debt, opportunistic credit-oriented funds with flexibility to pursue illiquid and liquid strategies, and other private credit (e.g. special situations, asset-based lending, structured credit, leasing, royalties lending, ventured debt).

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C.J. Income Opportunities: The dynamic nature of global markets, company innovation, market volatility, and behavioral economics often create attractive investment opportunities that do not fit precisely into standard, predetermined categories. These Income Opportunities, to the extent they are income generating in nature, shall be included in the Real Estate, Infrastructure & Private Income portfolio.Absolute Return

i.xix. Objective

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The long-term objective for the Absolute Return Portfolio is to deliver reasonably consistent and accretive returns that are largely uncorrelated with traditional, market-driven asset classes. Performance of the Absolute Return portfolio will be evaluated quarterly against the **HFRI Total HFOF Universe benchmark,** but success in achieving the long-term objective (See Table 2), will be measured, net of all costs, fees, and carry, on a one-year, three-year, five-year, and ten-year annualized basis. The long-term objective for this portfolio is to generate a return similar to the total Fund with a correlation to the total Fund of less than fifty percent (50%), as measure over rolling 36 month periods.

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xx. Investment Strategy

The Absolute Return Portfolio will invest directly into comingled limited liability funds as authorized by 15 AAC 137.460. The managers of these funds will invest in public or private securities and other financial instruments and may use leverage consistent with other managers of similar strategies. It is not uncommon for the legal terms of these limited liability funds to have restrictions on liquidity, including redemption windows (e.g. monthly, quarterly, annually), notice periods (e.g. 30, 60, or 90 days), lock-ups (e.g. soft, hard), gates (e.g. investor-level, fund-level), and, at times, withdrawal fees. The Absolute Return Portfolio shall primarily target funds that include pursue one or more of the

following strategies:~~, with no fund exceeding 10% of the Absolute Return Portfolio size as measured at the time of investment without Board approval:~~

- Relative Value, including equity market neutral, fixed income arbitrage, and convertible arbitrage;
- Event-Driven, including merger arbitrage, distressed securities/discounted bank debt, and special situations; and
- Directional/Tactical/Opportunistic, including long-short equity, managed futures, and global macro.

The Deputy CIO-Private Markets & Alternatives will have primary responsibility in executing the Absolute Return portfolio's investment strategy~~ and plans~~.

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xxi. Risk Limits and Portfolio Restrictions

The Deputy CIO-Private Markets & Alternatives is responsible for managing the various risks ~~entailed~~incurred and adhering to ~~investment~~ this ~~p~~Policy. In constructing a diversified Absolute Return portfolio, APFC Staff will consider the following characteristics~~s including the following~~: manager, strategy, investment size, leverage, correlation with other assets of the Fund, and liquidity. In addition to general ~~p~~Policy ~~aspects~~Requirements, the following restrictions will apply to this portfolio:

- Risk Limits as detailed in Table-3, S~~s~~ection VII.
- Relative Value Managers in the range of 0 – 75%
- Event Driven Managers in the range of 0 – 50%
- Directional/Tactical/Opportunistic Managers in the range of 0 – 75%
- A~~a~~t least 50% of the portfolio shall be capable of being liquidated within a 12 month period
- APFC assets invested with each manager shall not represent more than 30% of that manager's AUM

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~~**III. Diversification and portfolio Restrictions**~~

~~In constructing a diversified Absolute Return portfolio, APFC Staff will consider the following characteristics: manager, strategy, investment size, and liquidity. Unless otherwise approved by the Board, the Chief Risk Officer is responsible for managing aggregate risk exposures and the following limitations apply:~~

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- ~~To achieve manager diversification, the Absolute Return portfolio shall include a range of 10 to 25 manager/fund commitments;~~
- ~~At the time of investment, no single fund commitment shall exceed 10% of the portfolio;~~

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- To achieve strategy diversification the portfolio will include a mix of the following strategies and ranges:
  - Relative Value Managers in the range of 0 – 75%;
  - Event Driven Managers in the range of 0 – 50%; and
  - Directional/Tactical/Opportunistic Managers in the range of 0 – 75%;
- To ensure appropriate liquidity in the Absolute Return portfolio, at least 50% of the portfolio shall be capable of being liquidated within a 12 month period; and
- APFC assets invested with each manager shall not represent more than 30% of that manager's AUM;

The Absolute Return Portfolio seeks to accomplish this goal by pursuing the following investment objectives:

- **Achieve investment returns in excess of the long-term and short-term portfolio benchmarks listed previously in Section II.E, Table 2;**
- **Generate a long-term correlation of monthly returns compared to the Fund's overall returns of less than fifty percent (50.0%) as measured over rolling 36 month periods; and**
- **Generate an ex-ante standard deviation of monthly returns of less than twelve percent (12.0%) per annum as measured over rolling 36 month periods.**

ii. Structure

APFC shall invest the Absolute Return Portfolio by committing to comingled or separately managed limited liability entities classified as direct funds or fund-of-funds managers. These managers may invest in public or private securities and other financial instruments and may use leverage consistent with other managers of similar strategies. Funds will often have restrictions on liquidity including redemption windows (e.g. monthly, quarterly, annually), notice periods (e.g. 30, 60, or 90 days), lock-ups (e.g. soft, hard), gates (e.g. investor-level, fund-level), and, at times, withdrawal fees. Fund

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~~investments shall primarily be made through subscriptions into open-ended investment vehicles.~~

~~iii.~~ ~~Authorized Investments~~

~~The Absolute Return Portfolio shall primarily target funds that include one or more of the following strategies, with no fund exceeding 10% of the Absolute Return Portfolio size as measured at the time of investment without Board approval:~~

- ~~Relative Value, including equity market neutral, fixed income arbitrage, and convertible arbitrage;~~
- ~~Event-Driven, including merger arbitrage, distressed securities/discounted bank debt, and special situations; and~~
- ~~Directional/Tactical/Opportunistic, including long-short equity, managed futures, and global macro.~~

V ALASKA INVESTMENT POLICY

A. Objective and Considerations

To implement the requirements of Alaska Statute 37.13.120(c), the Board believes the Fund should have an in-state investment policy that maintains the investment integrity of the Fund and is both proactive and impartial. As such, any internal in-state investment decision made by APFC Staff should include the following considerations:

- Honor Alaska Statute 37.13.120(c): Prescribes that if an Alaskan investment has equivalent risk and expected return comparable to or better than a similar non-Alaskan investment, the Alaskan investment should be preferred.
- Require Compelling Risk-Adjusted Returns: To honor the prudent investor rule provided in Alaska Statute 37.13.120(a), any Alaskan investment contemplated by APFC must be attractive on a stand-alone basis.
- Ensure Fund Diversification: In order to provide sufficient risk diversification as required under Alaska Statute 37.13.120(c), Board approval is required for any in-state investment that would exceed 1% of the Fund, at the time of investment.
- Seek Participation by Another Institutional Investor: In order to ensure that an Alaskan investment opportunity is attractive on a stand-alone basis and satisfies the institutional quality requirements of 15 AAC 137.420, APFC should generally seek to invest into an Alaskan investment alongside of at least one of its peers (i.e., a large institutional investor, which may include endowments, foundations, sovereign wealth funds, or public or private pension funds).

~~a.~~B. In-State Investment Targets

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To encourage the APFC Staff to identify and invest the Fund in additional compelling in-state investments, the following investment targets and guidelines are set to promote compliance with AS 37.13.120(c):

~~o~~• By 2020, at least 2% of the Fund should be invested in-state;

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~~o~~• By 2021, at least 3% of the Fund should be invested in-state;

~~o~~• By 2022, at least 4% of the Fund should be invested in-state;

~~o~~• By 2023, at least 5% of the Fund should be invested in-state;

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~~o~~• For purposes of this Section, a Fund investment will be considered "invested in-state" if,

~~o~~• An external investment manager has an office in Alaska and the employee(s) that is primarily responsible for management of the asset(s) is based in Alaska; or

~~o~~• An external investment manager with offices outside of Alaska makes an investment in Alaska, such as an investment in a portfolio company or investment project located in Alaska.

~~o~~• Fund investments managed internally by APFC Staff will not be included in achieving these targets.

VI ~~AUTHORIZED USE OF~~ DERIVATIVES ~~S~~

A. Objective

Th~~is~~e purpose ~~section of the~~ of this section of the Polic~~y & Procedures~~ y is to establish the ~~describes the application~~permitted uses and the limitations on the use of derivatives and establish ~~the~~ procedures for managing risks associated with derivatives ~~and limitations for the use of derivatives authorized in 15 AAC 137.430, 15 AAC 137.440, and 15 AAC 137.460; and defined in 15 AAC 137.990(6) and (7)~~. ~~Efficient portfolio management and reduction of risk in various Fund portfolios is the primary purpose for the use of derivatives by Fund managers.~~ The requirements and limitations of this section of the Policy ~~& Procedures~~ shall apply to all derivatives transactions executed by APFC ~~Investment S~~Staff and all external managers ~~operating~~ with authority ~~under an Investment Management Agreement~~to buy or sell a derivative as an agent on behalf of the of the Alaska Permanent Fund. This section of the Policy does not apply to investments in a limited liability investment vehicle in which derivatives are in the name of the limited liability investment vehicle and the liability is limited to the amount invested.

B. Derivatives Definition; ~~Authorization~~Scope

- As defined in 15 AAC 137.990(6), "Derivative" means "an instrument whose value, usefulness, and marketability is dependent upon or derives from an underlying asset; classes of derivatives include futures contracts, options, forward contracts, including currency forward contracts, swaps, and options on futures."
- Both exchange traded and over the counter ("OTC") derivative instruments are under the scope of th~~e~~is Polic~~yy & Procedures~~. The principal risk of derivatives strategies comes from the potential to lever the portfolio and to express a view on a security or risk factor without committing capital commensurate with the exposure. To mitigate this risk, the successful and prudent use of derivatives depends on:
  - Well-defined uses for derivatives, and avoidance of leverage;
  - manager-by-manager l~~L~~imits on economic exposures through derivatives; and
  - investment manager internal control and defined procedures for managing risk. ~~Exchange traded derivatives are listed and traded on a national exchange. In the exchange, the derivative contracts are standardized, there is no credit risk between market participants because the exchange generally guarantees the fulfilment of the contract, and there is a very visible and transparent market price of the instruments. By contrast, OTC derivatives are privately negotiated between a buyer and a counterparty directly, which may result in non-standard terms. Consequently, the value of the derivative may be affected by the credit-worthiness of the counter-party, triggering the need for this section of the Policy & Procedures.~~

C. ~~Derivatives Applications~~ Permitted Uses

- ~~Derivative instruments maybe used by internal and external managers to achieve the objectives described in this section. Efficient portfolio management and reduction of risk in~~

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various Fund portfolios is the primary purpose for the use of derivatives by Fund managers.Permitted usesapplications of derivatives include:

- Hedge and control risks of Fund portfolios so they better align with benchmarks and objectives;
- Implement investment strategies in a lower cost and efficient manner;
- Efficiently manage portfolio exposures synthetically as opposed to trading underlying securities;
- Build portfolios with targeted risk and return characteristics that otherwise could not be efficiently created with securities;
- Hedge and control risks of portfolios and the total Fund so they better align with benchmarks and objectives; and
- Facilitate rebalancing.

D. Derivatives Risk Management and Compliance

xxii. Derivative Pre-Approval Requirement

- All derivatives strategies, whether internally or externally managed, are prohibited unless specifically allowed in writing for a permitted use as a part of an investment manager's guidelines.APFC Staff shall have due regard for operational risk associated with various derivatives strategies, including risk management, accounting systems, liquidity needs, adequate staffing, and staff qualifications.

- The use of derivatives by an external manager shall be conditioned upon the finding by the Chief Investment Officer (CIO) and Chief Risk Officer (CRO) that the external manager:
  - has demonstrated investment expertise in the use of derivatives for the strategy they have been selected to implement;;
  -
  - has appropriate risk management -and valuation policies and procedures in place;;
  -
  - has legal and investment experience to limit downside effects of the proposed derivatives; and
  -
  - Has demonstrated the ability to effectively monitor and control the use of derivatives
  - and has agreed to provide Will provide monthly derivative exposure reports, at least on a monthly basis, whichthat at a minimum details: (1) total derivative exposures on a gross and net basis, (2) total collateral/margin postings on gross and net basis—, and (3) a list of authorized counterparties and exposure by counterparty.

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xxiii. Derivative Recourse Limitations

~~Limitation of Recourse to APFC~~

- For externally managed portfolios, ~~it is important to ensure that~~ all liability created by the use of derivatives ~~liability to~~ in the name of the Fund ~~APFC is~~must be limited to the total ~~NAV~~ value of the ~~fund /~~ portfolio being managed by the external manager. To ensure this requirement is met, ~~A~~approval of the IMA-/-External Manager guidelines by General Counsel is required ~~in this regard~~.
-

xxiv. Counterparty and other ~~Rigorous counterparty selection criteria shall be required Management of counterparty risk is required to reduce the possibility of the Fund being overly exposed to risk that a counterparty fails to fulfill its financial obligation. So, in order to be eligible as a counterparty to an OTC derivative transaction with Fund assets: Limits and R~~Requirements ~~strictions~~

- The counterparty to any OTC derivative transaction must have a credit rating of at least A- (Standard and Poor's) or A3 (Moody's), unless an exception is approved in writing by the CIO and CRO;~~O; and~~
- T~~t~~he net market value, net of all collateral postings, of all OTC derivatives for any individual counterparty may not exceed 30 basis points of the total market value of the Fund. ~~The risks associated with an individual counterparty may change due to factors like financial solvency, systemic risks, regulatory or legal claims; operational fraud, and financial stres;s.~~
- Selling (writing) uncovered options is prohibited;
- The net of long and short dollar exposures to assets or currencies, whether derived from physical or derivative securities, must be less than or equal to the dollar market value of the portfolio, except for very small, inadvertent, or temporary amounts that occur in the normal course of portfolio management or authorized by the CRO;
- The gross dollar exposures of ~~the~~a ~~p~~portfolio in the Fund from physical and derivative securities (futures, options, swaps) cannot exceed 300% of the market value of the aggregate underlying portfolio at all times unless authorized by the CRO; and
- If derivatives are used by a manager to actively manage currency exposure, net short exposure to any single currency remains within limits established for that manager's strategy.

~~APFC Risk Management Staff will monitor and report on counterparty risk each quarter as fon the use of derivatives based on the followingollows:~~

- ~~Monthly reconciliation of managers' derivatives reports with custodian positions in derivatives;~~
- ~~Monthly review of Managers' use of derivatives relative to their own policies and guidelines;~~

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- ~~A monthly statement that all portfolios are in compliance with the Policy, and a description of any instances of non-compliance and their disposition; and~~
- ~~An annual report that compares Fund risks with and without the derivatives.~~

~~The following guidelines should be adhered to for risk management purposes when investing in derivatives in the Public Equities *and* Fixed Income :~~

- ~~The net of long and short dollar exposures to assets or currencies, whether derived from physical or derivative securities, must be less than or equal to the dollar market value of the portfolio, except for very small, inadvertent, or temporary amounts that occur in the normal course of portfolio management or authorized by the CRO;~~
- ~~The gross dollar exposures of the portfolio from physical and derivative securities (futures, options, swaps) cannot exceed 300% of the market value of the aggregate underlying portfolio at all times unless authorized by the CRO; and~~
- ~~If derivatives are used by a manager to actively manage currency exposure, net short exposure to any single currency remains within limits established for that manager's strategy.Regular monitoring and oversight of the exposures within portfolios, including unrealized profit and losses (P&L) and potential exposures;~~
- ~~Ensuring external investment managers have strong counterparty risk controls;~~
- ~~Ongoing due diligence of investment managers, including regular onsite meetings with managers.~~
- ~~The Fund will measure counterparty risk as the P&L, netted where applicable from OTC contracts. The P&L more accurately reflects the total amount at risk than the notional contract amount should a counterparty fail to honor its obligation. Net is preferred as the managers usually employ ISDAs and/or netting agreements. Staff will monitor and reports these exposures each quarter or more frequently if required. The Fund does not set exposure limits to individual counterparties.~~

~~Through the following strategies the risks resulting from the use of derivatives shall be measured and mitigated:~~

- ~~Analyzing collateral exposure under various rate shocks;~~
- ~~Establishing minimum counterparty credit ratings that the Fund uses directly;~~
- ~~Diversifying counterparties;~~
- ~~Collateral requirements or third-party guarantees.~~

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VII RISK MANAGEMENT & OVERSIGHT

Recognizing the relationship between return and risk, APFC consciously and deliberately assumes various risks in pursuit of its return objectives. The goal of risk management is to understand, analyze and manage these risks. The risk management function strives to create risk awareness, establish &and formalize a risk management framework, and ensure risks entailedincurred are within the Board's risk appetite.

- Theis Policy Board outlines the Boards' approved risk management framework that, which includes include the salient investment risk parameters and thresholds in this policy. The objective of APFC's risk management program is the balancing of risk in order to generate investment returns. The assumption of risk is necessary to meet the Fund's objectives. As such, the Board recognizes that risk cannot be eliminated and should be managed by understanding the risks in various strategies, ensuring the Fund is properly compensated for these risks, and measuring and monitoring them frequently. The Board sets the framework for risk management through the Policy & Procedures, the Fund's asset allocation, and benchmarks. In addition, the Board will express its risk tolerance in the form of various metrics of risk and defined ranges for those metrics. The CIO, Director of Risk Management and Asset Class Directors shall allocate risk exposure within and between asset classes in order to optimize return.

A. Market Risk ManagementRisk Parameters and Measures

APFC Staff will establish a framework for measuring absolute risk of the Fund and its each asset classes, as well as relative risks in comparison to established benchmarks. This framework should generally include a quantifiable estimates of active and relative risk. APFC Staff will monitor and produce reports as appropriate for the Board, ED, CIO, and otherAPFC staff. which may incorporate the following market risks:

The salient risk parameters are listed below. and rRelated tolerances and associated ranges are provided in Table 3.

Asset Allocation Limits — Target allocation levels are determined for each asset class / portfolio based on quantitative modelling and qualitative inputs. Disciplined alignment to these targets is essential, albeit ensuring limited flexibility to cater forto changing markets and other factors.

Future Commitments - Future commitments are a function of committed capital to private investments and essentially reflect a contingent cash draw liability. Monitoring and limiting future commitments relative to the Fund's overall size is important.

- In addition to the Total Fund level risk limits, the portfolio will be constrained to the asset allocation percentages and ranges prescribed in Section II.D, Table 1. Accordingly, the total exposure to each asset class must be based on the individual exposures of each cash security and each outstanding derivative contract. These limits are specified in the Investment Guidelines.

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- Active Risk - Limits – Tracking error is a measure of how closely a portfolio follows the index to which it is benchmarked. Tracking error is used to ascertain how much the portfolio expected return will deviate from the prescribed risk benchmark. Tracking error is calculated for this purpose on an ex-ante basis using a holdings-based risk analytical system. By convention, tracking error is reported as the annualized one-standard deviation of the expected difference in returns between a portfolio and the risk benchmark. A target tracking error will be imposed on the Total Fund and on each underlying asset class mandate. These limits are specified in the Investment Guidelines.

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- Relative Risk Limit - Relative Value at Risk (RVaR) provides a comparison of portfolio risk relative to benchmark risk and is measured as a ratio of Portfolio VaR to benchmark VaR.risk measures the expected investment portfolio's risk and return relative to a benchmark using industry-standard risk measures. APFC Staff will model and monitor the Total Fund as compared to its benchmarks to ensure that the total estimated risk for the Total Fund is within the upper and lower bounds of this Policy and Procedure's risk framework, following the specific green zones illustrated in the Investment Guidelines.

In addition to relative measures, multiple risk parameters including concentrations, credit risk, market, and liquidity risks are monitored and controlled.

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- Downside Risk - Downside risk is risk of significant loss of capital. Staff will actively monitor the Total Fund's downside risk relative to the risk benchmark using scenario analysis and stress testing. Specific scenario analyses and stress tests are outlined in the Investment Guidelines.
-

Scenario Analysis - Scenario analysis utilizes historical market dislocations to evaluate mark-to-market impacts on the portfolio. For each historical market dislocation, the changes in the major risk factors are applied to the existing portfolio simultaneously. This shock may provide insight into potential future downside risks.

Stress Testing - Stress testing involves shocking a major market factor by a predetermined magnitude to measure the Fund's change in mark-to-market. Stress testing is designed to determine which factors, given an independent move, produce a large deviation in mark-to-market.

- Proxy Securities and Indices - If necessary and prudent, as determined by the CRO, APFC Staff will employ index proxies to approximate the economic characteristics of specific investments to the extent that the terms and conditions of those investments or the underlying holdings (in the case of funds) are not readily available or where the complexity of the underlying investment renders direct empirical measurement impractical.
- Private Market Asset Holdings - APFC Staff will actively monitor the portion of the Total Fund invested in private market asset holdings to ensure that the percent of the total fund

invested in private markets adheres to the private investment~~s~~ limits. ~~outlined in the Investment Guidelines.~~

A. Credit Ratings for Fixed Income Securities

Credit ratings by the three major ratings agencies, Standard & Poor's, Moody's and Fitch will be the primary source of credit ratings for fixed income securities in the Fixed Income and Total Fund Cash portfolios, subject to the following~~.~~:

- In case of split ratings, the 'Bloomberg Barclays Middle Rating' methodology shall be applied (i.e. if all three agencies rate a security, the middle rating is adopted; if only two agencies rate a security, the most conservative (lowest) rating is used; if only one rates a security, that single rating is used).
- If none of the three agencies have assigned a rating, ratings by other agencies and or implied ratings may be used with ~~. In such instances,~~ CRO approval ~~will be required~~.
- If no agency ratings are available and a rating cannot be implied, it shall be categorized as 'Unrated'.

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~~**B. Future Commitments – Future commitments are a function of committed capital to private investments where the general partner has the right to drawdown capital from the limited partners over a specified period of time. To mitigate the risk presented because the cash draws are in essence a cash draw liability with unknown timing, APFC Staff will monitor and limit future commitments relative to the Fund's overall size. Specific limits are outlined in the Investment Guidelines.**~~

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~~In addition to this framework, APFC Staff will monitor regularly and report quarterly on a multitude of risks to the extent they are material, either on an absolute or relative basis, to the Board:~~

- ~~Economic Environment;~~
- ~~Country/Currency Risk;~~
- ~~Counterparty Risk;~~
- ~~Business Relationship Risk;~~
- ~~Pricing Risk;~~
- ~~Credit (Quality) Risk;~~
- ~~Leverage;~~
- ~~Debt Refinancing Risk;~~
- ~~Active Risk Contribution;~~
- ~~Liquidity Risk;~~
- ~~Geographical Risk;~~
- ~~Equity Style Risk;~~
- ~~Fixed Income Risk;~~
- ~~Ex-ante versus Ex-post VaR; and~~
- ~~Ex-ante versus Ex-post Tracking Error~~

~~C. Foreign Exchange Risk~~

~~Investment managers and APFC Staff, may, with prior approval of the Executive Director, transact in any foreign exchange instrument (including currency futures and forward contracts, options, and swap agreements), to implement their investment strategies, contingent upon such transactions being consistent with the Policy & Procedures and the requirements of 15 AAC 137.480.~~

~~APFC Staff analyzes foreign exchange risk regularly and presents quarterly to the Board. This analysis includes both internal hedging and external foreign exchange overlay manager positioning and performance.~~

~~D.~~B. Legal Risk Management

Legal documentation for all ~~internally~~ internally managed public and private investments will be reviewed, negotiated and approved by APFC General Counsel ~~for~~ prior to execution by the Executive Director. ~~APFC Staff will seek the assistance, review, and advice of legal counsel for all internally managed investments which are executed by the Executive Director.~~ APFC General Counsel ~~h~~shall be responsible for ~~as primary responsibility for~~determining ~~-~~when ~~the engagement of~~ outside legal counsel should be engaged to assist in the review and negotiation of Fund ~~for~~

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iinvestment matters, subject to applicable statutes and rules adopted by the Office of the Attorney General.

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E.C. Permitted Use of Leverage

- APFC Staff and external managers, consistent with the requirements of 15 AAC 137.500 and this Policye Policy & Procedures (including the risk parameters established by the asset allocation ranges), is authorized to use the leverage for an investment ofwith onFund assets behalf of the overall Fund or specific funds and investments, provided that such leverage is non-recourse to APFC or the Fund as described in AS 37.13.120(b) and 15 AAC 137.500.

D. Foreign Exchange Risk

- External Investment managers and APFC Staff, may, with prior approval of the Executive Director, transact in any foreign exchange instrument (including currency futures and forward contracts, options, and swap agreements), to implement their investment strategies, contingent upon such transactions being consistent with this Policy and the requirements of 15 AAC 137.480.
- APFC Staff shall analyzes foreign exchange risk regularly and presents quarterly to the Board. This analysis includes both internal hedging and external foreign exchange overlay manager positioning and performance.

Risk Reporting

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- The Chief Risk Officerrisk management team will provide the Board and APFC staff with a comprehensive risk profile of the fFund on a regular basis. At a minimum, this would includes the Daily Risk Dashboard and more detailed quarterly updates. The quarterly reports to the Board shall include the levels for most of the salient risk parameters mentioned earlierdescribed in this Policy.

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Risk & Compliance Monitoring

The ~~portfolio leads and~~ investment directors assigned to~~responsible for~~ each Asset Class ,in this Policy will have primary responsibility to ensure adherence to all aspects of this ~~p~~Policy. Additionally, the CRO and risk management team will be responsible for monitoring compliance of Fund investment activity.

Risk Parameters and Limits

Table 3

		Public Equity	Fixed Income	Private Equity	Real Estate	Real Assets Completion	Private Income	Absolute Return	Risk Parity	Cash	Total Fund	Green Zone Low	Green Zone High	Yellow Zone Low	Yellow Zone High
Asset Allocation															
Asset Allocation (AA): Target Levels - FY 2021	**% of Fund**	**37%**	**18%**	**15%**	**7%**	**6%**	**9%**	**6%**	**1%**	**1%**	**100%**				
Green Zone (expressed as +/- to Target Allocation)	**% of Fund**	+/- 5%	+/- 5%	+/- 3%	+/- 3%	+/- 3%	+/- 3%	+/- 3%	+/- 0.5%	+/- 0.5%					
Yellow Zone (expressed as range beyond green zone)	**% of Fund**	0 - 5%	0 - 5%	0 - 3%	0 - 3%	0 - 3%	0 - 3%	0 - 3%	0 - 0.3%	0 - 0.3%					
Asset Allocation (AA): Target Levels - FY 2022	% of Fund	36%	18%	16%	8%	5%	9%	6%	1%	1%	**100%**				
Asset Allocation (AA): Target Levels - FY 2023	% of Fund	35%	18%	17%	9%	4%	9%	6%	1%	1%	**100%**				
Asset Allocation (AA): Target Levels - FY 2024	% of Fund	34%	18%	18%	10%	3%	9%	6%	1%	1%	**100%**				
Asset Allocation (AA): Target Levels - FY 2025	% of Fund	33%	18%	19%	12%	1%	9%	6%	1%	1%	**100%**				
		Target Levels										Green Zone		Yellow Zone	
All Targets are Maximum Permitted, except #29-Min Cash		Public Equity	Fixed Income	Private Equity	Real Estate	Real Assets Completion	Private Income	Absolute Return	Risk Parity	Cash	Total Fund	Low	High	Low	High
												As a % of Target			
Future Outstanding Commitments	% of Fund	0.0%	0.0%	5.3%	2.5%	2.1%	3.2%	2.1%		0.0%	15.1%	85%	115%	75%	125%
Benchmark		M66420 4USN	LEHCREYBO	CAM_PE	NCREIFPTYP		INPRIICM	HFRIPROXY			LEHFTJPM				
Tracking Error		3.5%	2.5%								4.0%	n/a	115%	n/a	125%
Relative VaR (Portfolio VaR / Benchmark VaR)		100.0%	100.0%								100.0%	0%	125%	0%	140%
Concentrations															
Single Name / Issuer [Note 1]	% of AA	4%	4%	2%	10%	2%	2%	n/a	n/a	n/a		0%	115%	0%	125%
Single Industry (DEFINITION: GICS)	% of AA	20%	20%	30%	n/a	30%	30%	n/a	n/a	n/a		0%	115%	0%	125%
Single Country - EX US	% of AA	10%	10%	20%	20%	20%	20%	n/a	n/a	n/a		0%	115%	0%	125%
Total EX US	% of AA	50%	30%	50%	50%	50%	50%	n/a	n/a	n/a					
Single Fund Investment [Note 2]	% of AA	5%	10%	10%	10%	10%	10%	10%	50%	n/a		0%	115%	0%	125%
Proportion of ownership	-	5%	5%	10%	100%	10%	10%	n/a	n/a	n/a		0%	115%	0%	125%
Credit Risk															
Rating - Below Inv Grade	% of AA	n/a	25%	n/a	n/a	n/a	n/a	n/a	n/a	0%		0%	115%	0%	125%
Rating - Below A- & Unrated	% of AA	n/a	50%	n/a	n/a	n/a	n/a	n/a	n/a	0%		0%	115%	0%	125%
Rating - Unrated	% of AA	n/a	5%	n/a	n/a	n/a	n/a	n/a	n/a	0%		0%	115%	0%	125%
Market Risk															
FX - Proportion Unhedged	% of AA	30%	5%	20%	20%	20%	20%	n/a	n/a	5%		0%	115%	0%	125%
Liquidity - Proportion without at least Daily liquidity	% of AA	10%	10%	100%	100%	100%	100%	100%	100%	5%		0%	115%	0%	125%
Liquidity - Proportion without at least Monthly liquidity	% of AA	2%	2%	100%	100%	70%	100%	70%	70%	0%		0%	115%	0%	125%
Liquidity - Proportion without at least Quarterly liquidity	% of AA	0%	0%	100%	100%	30%	100%	30%	30%	0%		0%	115%	0%	125%
Cash Levels															
Cash & Equivalents	% of AA	2%	10%	5%	5%	5%	5%	n/a	n/a	100%		0%	115%	0%	125%
MINIMUM Cash & Equivalents	% of AA	0%	0%	0%	0%	0%	0%	n/a	n/a	30%		85%	115%	75%	125%

Notes:

1 *Single Name / Issuer: represents security level exposure to single entity or operating company. US Treasury & Govt Agencies are exempt. For Private Assets, the limit applies at the time of investment or cost basis*

2 *Single Fund Investment: represents exposure to a fund or strategy based vehicle*

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VIII PUBLIC MARKETS ~~INTERNAL &~~ EXTERNAL ~~PORTFOLIO~~ MANAGE~~MENT~~R SELECTION

~~A. Discretionary Internal versus External~~ Manage~~ment~~r Searches and Selection

~~The Board retains the authority to select internal versus external management of the Fund's assets. The Board will consider recommendations from the Executive Director, CIO, Advisors and Consultants to manage portions of or entire investment programs internally.~~

~~B.~~E. ~~Manager Searches and Selection~~

This section of the ~~p~~Policy ~~pertains~~applies to discretionary mandates ~~given~~ assigned to external investment managers to transact and manage public market assets on behalf of the Fund ~~When selecting an external manager who will be given discretion to buy or sell public market assets in the name of the Fund~~ (i.e. through an Investment Manager Agreement). T~~) T~~the Board has authorize~~s~~d APFC Staff ~~the Executive Director~~ to hire new investment managers ~~and advisors (including real estate advisors)~~ upon conclusion of an appropriate search with the assistance of ~~by~~ a qualified consultant,~~-~~ which can include the Board's General Consultant, contingent~~and Staff.~~ upon the search and hiring process adhering to the following steps:

S

~~Although a specific situation may warrant modifying the process, a typical~~The ~~manager or advisor search~~ and hiring ~~process should involve the following steps:~~

- ~~s~~etting of relevant search criteria by APFC Staff of applicable manager qualifications;~~;~~
- I~~i~~dentification, with the assistance of the consultant, ~~by the Consultant~~ of a list of potential managers that ~~the Consultant believes a~~are qualified to provide the investment management services needed, based on the qualifications and other search criteria established by APFC Staff;~~;~~
- E~~e~~valuation by a review committee established within the ~~C~~consultant's organization of the list of potential, qualified managers identified ~~with the goal of~~ for recommendation~~ing~~ of ~~managers for~~ consideration by~~to~~ APFC Staff;~~;~~
- I~~i~~nforming the CIO of ~~selected~~ managers recommended by the ~~C~~consultant's review committee;~~;~~
- S~~s~~election by APFC Staff of between three and five ~~of the managers as~~ finalists from those recommended by the ~~C~~consultant's review committee. This process may include, as part of due diligence, on-site visits by APFC Staff. P~~; p~~resentations to APFC Staff by the recommended managers are at the election of the CIO and E~~xecutive~~ D;~~irector,~~;
- A~~a~~nalysis by APFC S~~s~~taff including ~~which then provides~~ a detailed recommendation to the CIO and E~~xecutive~~ D~~irector~~, considering ~~taking into account~~ ~~not only~~ manager-specific characteristics as well as ~~but also~~ portfolio considerations; and
- A~~a~~pproval of the new manager or advisor by the CIO~~, with~~ and ~~Executive Directo~~ED~~r consent~~, assignment of benchmarks as appropriate, and determination of the initial amount to be placed under management with the manager.

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- A manager shall also be required to execute a written investment management agreement ("IMA") with the APFC. The IMA shall address matters of performance, compensation, term/termination, investment guidelines, among others, as the APFC and the manager consider necessary and appropriate. The use of derivatives, if any, within externally managed mandates shall ~~be~~ conform to the Derivatives section of this ~~p~~Policy and be explicitly detailed in the IMA.

Review and approval by the CRO and General ~~c~~Counsel of the proposed IMA is required prior to execution.~~A manager shall also be required to be retained by execution e of a written investment management agreement ("IMA") with the APFC. The IMA shall address such matters of performance, compensation, and term/termination, investment guidelines, among others, as the APFC and the manager consider necessary and appropriate.~~

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~~C.~~F. ~~Alternative Manager Searches and Selection Process~~Special Situations

- In certain special ~~C~~circumstances, the CIO and E~~xecutive Director~~ has the authority to modify or waive the criteria in the selection and hiring process outlined above. Even in such instances, ~~may make a deviation from normal search process practice appropriate. Even if this alternative process is utilized, t~~the CIO~~, with~~ and E~~xecutive~~ D~~irector consent,~~ retains the final manager selection authority. Use of an alternative manager search process may be considered when any one or more of these conditions exist:
  - A~~a~~ manager under consideration for hire has already been vetted in a significant manner either through a search process with a qualified consultant ~~or advisor~~, or the manager is already employed in a manager capacity by APFC;
  - T~~t~~he skill for which the manager is being considered is related in a substantive manner to the role the manager already fulfills for APFC or was the subject of a manager search that first identified this manager;
  - ~~IA qualified the Cconsultant and the Staff are both recommending hiring a particular manager for the specific mandate even though the CIO and Executive Director recognize that a more complete search process might reasonably be expected to identify additional qualified candidates to compete for the business;~~
  - ~~i~~t is in the best interest of the Fund to move more quickly than the typical procedures permit; or
  - D~~d~~ue to confidentiality or specificity of the investment strategy or structure, use of the typical search procedure is not prudent.
- ~~When any of the above criteria are present, the Executive Director may modify or waive portions of the typical manager search steps.~~ The CIO and Executive Director are required to report use of the alternative manager search and selection process, along with the rationale for the use, at the next regularly-scheduled Board meeting.

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D.G. Monitoring and Evaluation of Managers

- The Board looks to its General Consultant as the primary source of quantitative evaluation of the performance of the Fund and its investment managers. As promptly as possible after the close of each calendar quarter, the Consultant shall submit a report to the Board, Executive Director and CIO analyzing the performance of the Fund, its asset classes and investment programs, including both internally and externally assets. The report shall include a comparison of total Fund performance with the Board's long-term investment goal, an analysis of the returns of each asset class as measured against established benchmarks for each class; and an analysis of the returns of each manager or relevant groupings of managers as measured against relevant benchmarks. The Consultant's report shall also address any special concerns or observations the Consultant concludes should be brought to the attention of the Board, Executive Director and CIO.

- The Board expects APFC Staff to also monitor the performance of the Fund's external managers, using the quarterly quantitative performance reports prepared by the General Consultant- and, information obtained from the APFC's annual manager evaluation questionnaire. Monitoring manager performance may also include review of , and other quantitative and qualitative such other review and analysis of an individual manager's performanceaspects based on, both quantitative and qualitative, as Staff considers appropriate, including on-site visits to the manager's offices, discussions with other clients of the manager, media reports and such analytical tools as may be availableother feedback.

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- The CIO and Executive Director shall report to the Board any special concerns or observations they may have with respect to the performance of a manager no later than the next regular meeting of the Board.

- The Board authorizes the CIO and ED, to terminate an investment manager. If the CIO and Executive Director terminate or give notice of unsatisfactory performance to a particular manager, they shall inform the Board of the actions and rationale at the next regularly-scheduled Board meeting.

E. Manager Retention

- A manager shall be retained by execution of a written investment management agreement ("IMA") with the APFC. The IMA shall address such matters of performance, compensation, and term/termination, investment guidelines, among others, as the APFC and the manager consider necessary and appropriate.

F. Manager Termination

The Board authorizes the CIO, with Executive Director consent, to terminate an investment manager.

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~~**G. Reporting**~~

- ~~The CIO and Executive Director are required to report all manager additions and terminations, along with the rationale, at the next regular Board meeting.~~

Appendix A: Investment Guidelines

~~I.~~ Objective

The objective of the APFC Investment Guidelines is to supplement the ~~APFC~~ Investment Policy ~~& Procedures~~ by providing operational guidelines for APFC's internally managed ~~and external~~ investment programs~~portfolio managers~~. The Executive Director may update this Appendix from time-to-time; updates will be provided to the Board at its next regularly scheduled meeting.

~~**Internally Managed Investment Programs Section headings generally correspond to their counterparts in the Policy & Procedures.**~~

~~**II. Total Fund & Portfolio Design Philosophy**~~

~~**The following table outlines the components of the Fund's Performance Scorecard (which can then be adapted to apply to individual asset classes):**~~

~~Time Horizon~~	~~APFC~~	~~Benchmark~~	~~Spread (Standard Deviation)~~	~~Percentile Calculation~~
~~Short-Term (ST)~~	~~1-year Return~~	~~Passive Benchmark (60% MSCI ACWI IMI 20% Barclay Global Aggregate (less management and transaction fees) 20% Real Assets (10% FTSE EPRA/NAREIT Rental Index/10% US TIPs))~~	~~1-year standard deviation of returns among public plan peers (typically 1%-2%, with 2% being the conservative default)~~	~~Implied Percentile (statistical Z-score: =1-NORMSDIST((Return-Benchmark)/2%))~~
~~Medium-Term (MT)~~	~~3-year Return~~	~~Peers Policy Asset Allocation Benchmark Large US Public Plans, or the Performance Benchmark of Publicly traded and Private Market indexes used as a proxy (Table 10.3.1.1)~~	~~3-year returns for Peers~~	~~Percentile among Peers~~

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Time Horizon	APFC	Benchmark	Spread (Standard Deviation)	Percentile Calculation
Long-Term (LT)	5-year Return, Sharpe Ratio	CPI + 5% & Sharpe Ratio>0.5	5-year Peer variation (2%), Sharpe Ratio vol = 0.5	Implied Percentile (average): =1 - Normsdist((Return-(CPI+5%))/2%) and =1-Normsdist((SR-0.5)/.5)

III.A. Public Equity

APFC's Internal Compliance will issue an alert (i.e., a notification) to APFC's Director of Public Equity for potential follow-up either internally or with external managers in the following instances:

a. **Tracking Error:** Issue an alert when the tracking error of the overall Public Equity portfolio exceeds 350 basis points ("bps") versus the MSCI ACWI IMI.

b. **Active manager concentration risk:** Issue an alert when an allocation to an active external manager reaches 5% of total Public Equity allocation; no limits are set *a priori* for passively managed assets.

c. Other Guidelines:

a. **Cash**: Issue an alert when cash held by a manager reaches 5% of the manager's account's Net Asset Value ("NAV"). Transactional cash (i.e. payables/receivables) and cash used for collateral will be excluded from this calculation; there is no alert on cash for performance-fee based external managers; there is no alert on cash for internally managed public equity portfolios.

b. **Percentage Ownership**: Issue an alert when the Fund's ownership of total shares outstanding of a public company reaches 5% or more. This applies to the total shares outstanding that is used to determine the market capitalization of a company. The guideline above is applied once at the individual account level (internal or external), and separately across all public equity managers combined.

c. **Short Selling**: Issue an alert in instances of short selling in external and internal accounts (only applies to cash equities and ETFs, not to derivatives);

d. **Derivatives Holdings (External and Internal Accounts)**: Issue an alert when the gross notional value across all derivatives holdings (exchange traded and OTC) within a public equity account reaches 20% of the account NAV. Guideline applies to aggregate notional value across different types of derivatives; issue an alert when the gross notional value of all OTC derivatives holdings within an account reaches 10% of the account NAV;

e. **Rebalancing**: Generally, the team leader should seek the approvals from the CIO and ED for rebalancing programs among internal and/or external managers aggregating to in excess of 1% of the value of the Fund.

III.B. Fixed Income-Plus

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~~Fixed Income Plus portfolios, whether managed internally or externally, must adhere to the following the guidelines in the table below:~~

~~Category~~	~~Risk Benchmark~~	~~Green Zone (CIO)~~	~~Yellow Zone (ED)~~	~~Red Zone (Board)~~
~~Fixed Income Plus (VaR)~~	~~25% US Aggregate,25% US Corp, 10% High Yield, 5% Emerging Market Debt, 10% REIT Index, 10% Non-US Rates, 5% TIPS, 5% Listed Infrastructure, 5% Cash~~	~~70% to 120%~~	~~50% to 70% & 120% to 140%~~	~~<50% & >140%~~
~~Listed Infrastructure~~	~~S&P Global Infrastructure~~	~~0 to 400 bps~~	~~400 to 500 bps~~	~~>500 bps~~
~~REITs~~	~~S&P Global REIT~~	~~0 to 400 bps~~	~~400 to 500 bps~~	~~>500 bps~~
~~Emerging Market Debt~~	~~Barclays EMD Hard Currency Aggregate~~	~~0 to 400 bps~~	~~400 to 500 bps~~	~~>500 bps~~
~~Opportunistic Income~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~
~~International Government Bonds~~	~~Barclays Developed Government Bond Index (ex. U.S. & currency hedged)~~	~~0 to 200 bps~~	~~200 to 300 bps~~	~~>300 bps~~
~~Investment Grade Corporate Bonds~~	~~Barclays US Investment Grade Corporate Bond Index~~	~~0 to 200 bps~~	~~200 to 300 bps~~	~~>300 bps~~
~~High Yield Corporate Bonds~~	~~Barclays US High Yield 2% issuer cap Index~~	~~0 to 400 bps~~	~~400 to 500 bps~~	~~>500 bps~~
~~Treasury Inflation Protected Securities~~	~~Barclays U.S. Treasury Inflation Protected Securities Index~~	~~0 to 200 bps~~	~~200 to 300 bps~~	~~>300 bps~~
~~Domestic Fixed Income Aggregate~~	~~Barclays US Aggregate Index~~	~~0 to 300 bps~~	~~300 to 400 bps~~	~~>400 bps~~

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Fixed Income Plus, may, with prior written approval of the Chief Investment Officer, transact in any derivative authorized in 15 AAC 137.430(a)(19). For purposes of rebalancing, the Director of Fixed Income Plus shall seek the approval of the CIO and ED for re-allocations among internal and/or external portfolio managers in excess of 1% of the value of the total Fund.

I **Requirements regarding Cash Account:**

1. **fixed or floating rate securities with weighted average maturities of no greater than 24 months. These securities must be investment grade rated income producing listed securities.**
2. **approved money market funds utilized for cash sweep purposes.**
3. **Commercial paper that, at the time of purchase, is rated: (1) A-a or A-1 by S&P, or (2) P-1 by Moody's.**

Requirements of Corporate Bond Portfolio:

a. **At time of purchase, security must be investment grade; and**
b. **If a security falls below investment grade, it must be sold within seven months of downgrade.**

Requirements of US Aggregate Portfolio:

a. **At time of purchase, securities must be investment grade.**
b. **If a security falls below investment grade, it must be sold within seven months of downgrade.**

Requirements of US TIPS Portfolio:

o **Portfolio shall be invested in investment grade, inflation-linked, income producing instruments.**

Requirements of Global Rates Portfolio:

a. **Portfolio shall be invested in investment grade, income producing instruments issued by supranational institutions, sovereign governments and their instrumentalities.**
b. **Portfolio exposure to foreign currency cannot exceed 1% of NAV.**

Investment Grade Ratings:

Regarding any fixed income investment that is required by the Investment Guidelines to be "investment grade": (1) if three ratings are given, two must be investment grade, (2) if two ratings are given, both must be investment grade, (3) if one rating is given, it must be investment grade; and (4) if no rating is given, it must have an implied investment grade rating.

III.C. Asset Allocation

The following guidelines should be adhered to for all investments authorized by Policy & Procedures regarding the Asset Allocation portfolio:

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a. The Liquidity Overlay Program should be monitored as such:

a. Overlay manager will equitize cash in the account indicated by the portfolio manager

i. Overlay manager is allowed to use exchange-traded futures, options on exchange-traded futures, over-the-counter or exchange-traded swap, over-the-counter or exchange-traded option, and forward contracts.

b. The overlay manager will target an exposure of 65% ACWI IMI and 35% Bloomberg Aggregate Bond index.

c. The notional value of the overlay exposure will be equal to 100% of the value of the underlying cash with a +/- 5% range to allow for normal daily variations.

d. The overlay exposure will be trued up on a daily basis by the external manager based on cash reports provided by the APFC custodian.

b. To the extent that additional liquidity is desired to manage plan assets, APFC staff will notify the Board of Trustees and Investment Committee immediately to establish an additional liquidity plan.

c. Additional guidelines will be established for the liquidity portfolio, currency overlay, and Risk Parity programs as needed for the future management of these programs, as they are managed by a combination of internal APFC staff and external investment managers.

IV.A. Private Equity & Special Opportunities

Standard of Care

Higher expected return implies necessarily a wider range of potential outcomes for each of the underlying assets, and this uncertainty increases the importance and the benefits of informed manager selection, rigorous deal selection, and active portfolio management. Accordingly, the following investment guidelines and restrictions are intended to ensure appropriate asset diversification, analytical deliberation, and risk mitigation.

Institutional Quality: All investments must be of institutional investment quality. Institutional quality is defined as an investment that would reasonably be considered acceptable by other prudent institutional investors (e.g., insurance company, commercial banks, employee benefit and retirement plans, endowments and foundations).

Portfolio Diversification: The part of the Private Equity & Special Opportunities portfolio committed to private equity funds will be diversified by strategy, size, vintage, industry, manager, and geography. No more than twenty percent (20%) of the total allocation will be invested at any time with or in any single general partnership, entity, or organization. No single private equity investment strategy, as described below under "Strategy Diversification," may comprise more than 70% of the Private Equity & Special Opportunities allocation as established by the Board.

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- **Strategy Diversification: The following private equity strategies and investment types will be considered eligible for the Fund's portfolio. Long-term ranges are established with percentage exposures based on market value plus undrawn committed capital.**
  - **Venture Capital: (5% to 45%) – Venture capital commitments and investments will be allocated into two categories.**
    - **Early Stage: Seed or start-up equity investments in private companies.**
    - **Later Stage: Investments in more mature companies to provide funding for growth and expansion.**
  - **Buyouts/Acquisition: (40% to 70%) – Partnerships or direct investments which provide funding to acquire substantial interests in a business or product. These investments will be diversified by industry and other relevant factors.**
  - **Specialized Funds or Investments: (0% to 50%) -This will include, but not be limited to, distressed debt strategies, royalty strategies, other direct investments, co-investments, and certain asset-specific or industry-specific strategies.**
- **Geographical Diversification: Although the priority should be to achieve diversification by investment strategy and industry, geographical diversification is also desirable. Over the long-term, the portfolio should seek reasonably balanced global geographic diversification.**
  - **International private equity investments should not total more than 40% of the invested private equity portfolio and shall be diversified in the context of the total portfolio.**
- **Industry Sector Diversification: The portfolio shall be diversified by industry sector (e.g., biotechnology, software, financial services, healthcare, medical, media/communications, basic industry, etc.) so that no single industry classification is too heavily represented in the private equity portfolio.**
- **Time and Life Cycle Diversification: Commitments to private investments shall be staged over time, and venture capital investments shall include early, later, and multi-stage investments.**
- **General Partner Diversification: Fund commitments shall be diversified by investment partner and will limit discretionary control of any single general partnership or investment sponsor organization to a maximum of 20% of the total private equity portfolio (based on total commitments).**

IV.B. Real Estate, Infrastructure & Private Income

i. Investment Process

Real Estate, Infrastructure & Private Income investments shall only be consummated following (i) a search process conducted by a qualified, independent consultant or APFC's general consultant, (ii) through an existing manager of APFC assets, or (iii) upon the written analysis of a qualified consultant retained to evaluate a specific proposed investment.

Investments will be identified as Private Real Estate, Private Infrastructure, Private Credit, or Income Opportunities at the time of investment and included in each respective composite from that time forward for performance and compliance purposes. Any movement of individual investments between composites will only occur with written approval of the Executive Director.

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ii. Diversification

APFC Staff shall construct the Real Estate, Infrastructure & Private Income portfolio with a level of diversification consistent with other institutional investors in this asset class, specifically:

a. Manager Diversification

No manager or fund general partner shall represent more than 35% of total Real Estate, Infrastructure & Private Income exposures when measured both on the basis of (i) manager advised NAV divided by total NAV for this portfolio, and (ii) manager advised NAV plus unfunded commitments divided by total NAV for this portfolio plus unfunded commitments.

b. Strategy Diversification

Staff shall manage the portfolio with a combination of the four primary programs defined in the Policy & Procedures. Measured on the basis of NAV plus unfunded commitments (i) 0-75% of the portfolio shall be invested in the Private Real Estate program, (ii) 0-75% of the portfolio shall be invested in the Private Infrastructure program, (iii) 0-50% of the portfolio shall be invested in the Private Credit program, and (iv) 0-50% of the portfolio shall be invested in the Income Opportunities program.

c. Individual Company and Asset Diversification

Individual direct investments and co-investments (or a series of investments in securities issued by the same underlying operating entity or company) will not exceed an aggregate total commitment or cost basis of 1.0% of the value of the total Fund as determined at the time of investment. This rule does not apply to existing positions in excess of this threshold (for example, Tyson's Corner and 299 Park).

The diversification limits outlined above may be exceeded with written approval of the Executive Director.

iii. Direct Equity Real Estate Investments Guidelines

Authorized investments include directly-held core and non-core properties as noted in the Policy & Procedures. The following guidelines apply to those strategies:

a. Core real estate: leverage limited to 50% of assets.

b. Non-core real estate: leverage limited to 65% of project cost on "build-to-core" assets.

c. Total directly-held private real estate: leverage limited to 40% of assets.

d. Any additional land acquired shall be permitted so long as it is fully entitled at point of purchase. Entitlement risk may only be assumed in limited circumstances upon the approval of Executive Director.

iv. **ADAC Investments Guidelines**

In fiscal year 2018, Staff established an in-house hybrid liquid / illiquid alternative credit effort named Alaska Direct Alternative Credit (or "ADAC"). Investments included in ADAC will be (i) non-investment grade high yield ETF's and individual bonds and cash ("Liquid Portfolio") and (ii) co-investments with Private Credit managers and working capital cash ("Private Portfolio"). The following guidelines apply to ADAC:

a. ADAC shall be included in the Special Opportunities / Income Opportunities category.
b. Size and Funding Schedule
   - $500 million funded at inception, initially invested in Liquid Portfolio.

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- Following inception, additional funds will be invested into ADAC through cash transfers to the Liquid Portfolio and capital calls into the Private Portfolio for co-investments, or working capital or organizational expenses for the Private Credit Co-Investment Vehicle.
- Funding of additional cash transfers to the Liquid Portfolio will be done at no greater than a 1:1 ratio with cumulative Private Portfolio capital calls.
- I~~Total i~~nvested capital of $1,000 million targeted to be funded within ~~twenty-four~~24 months of inception.

c. Portfolio Control and Decision Making
- Private Income team will have discretion over portfolio-wide decisions including: (i) percentage of portfolio invested in Liquid vs. Private Portfolio, (ii) retaining APFC Fixed Income Plus team as manager of the Liquid Portfolio, and (iii) individual investment decisions in the Private Portfolio

d. Liquid Portfolio and Benchmark
- Liquid Portfolio, initially 100% of ADAC, ultimately scaling down to less than 50%, will be managed by the APFC Fixed Income Plus team at inception.
- T~~he t~~argeted maximum allocation will be the greater of $750 million and 75% of ADAC NAV.
- T~~he t~~argeted minimum allocation will be 25% of ADAC NAV.
- ETF Account within Liquid Portfolio benchmarked to Barclays US High Yield Index (after July 1, 2018 to allow for an initial ramp-up).
- Individual securities portfolio will favor BB-B over CCC-rated securities and will be benchmarked to the Barclays BB High Yield Index (after July 1, 2018 to allow for an initial ramp-up). A relatively high tracking error to this index will be tolerated with the aim of outperformance over a full market cycle.

e. Private Portfolio and Benchmark
- Private Portfolio, initially 0% of ADAC, ultimately scaling to greater than 50%, will be managed by the Private Income team
- T~~he t~~argeted maximum allocation will be 75% of ADAC NAV.
- T~~he t~~argeted minimum allocation will be 25% of ADAC NAV (after initial, ~~twenty-four~~24 month ramp-up).
- Private Portfolio will target having a minimum of $100 million committed within ~~twelve~~ 12 months of inception and a minimum of $250 million within ~~twenty-four~~24 months of inception.
- Co-investment opportunities will be primarily sourced through existing managers.
- Maximum commitment per co-investment of $75 million without Executive Director written approval.
- Private Portfolio will be benchmarked to CPI + 500 bps.

f. Overall ADAC Portfolio Benchmarks
- Barclays US High Yield Index (relatively high tracking error to this index will be tolerated with the aim of outperformance over a full market cycle).

- A long-term target of CPI + 400 bps.

g. Tenor and Termination

- This is an evergreen strategy with realized gains re-invested, which means the size of ADAC will be equal to invested capital, *plus* cumulative realized/unrealized gains, *minus* cumulative realized/unrealized losses.
- The CIO, with Executive Director consent, may choose to invest additional capital at any time.
- The CIO, with Executive Direct consent, may choose to terminate the strategy at any time. Upon termination, available cash will be distributed from ADAC, the Liquid Portfolio will be sold within 180 days, and the Private Portfolio will cease making new commitments (with the exception of follow-on investments to existing portfolio holdings and investments to which a written commitment to invest has already been executed; both to be pursued only with written consent of the Executive Director) and will distribute proceeds upon any partial or full realization of existing investments.

II U.S. Large Cap Low P/E

In the fall of 2019, APFC Public Equity Staff established an internally traded deep value strategy. The following guidelines apply to this strategy:

1. Benchmark

The performance benchmark is the Russell 1000 Value Index.

2. Risk Limit

The portfolio will be included within the Total Public Equities' Tracking Error and Relative VaR limits. The allocation limit to the strategy will conform to the limits set in the Public Equities investment guidelines.

3. Concentration Risk

When originally purchasing securities for this strategy, the securities will all be equally weighted and from the lowest valuation quintile of the Russell 1000 index. The portfolio will be rebalanced every 12 months to ensure that the securities that make up this portfolio remain equally weighted and at least 90% of the securities are in the lowest valuation quintile of the Russell 1000 index. At all times, the portfolio will have a minimum of 100 securities.

4. Allowable Investments

The strategy will invest in U.S. listed equity securities from the Russell 1000 Index.

5. Shorting, Leverage, and Derivatives

Not applicable at this time.

6. Liquidity Risk

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The strategy is expected to be fairly liquid. For example, at $500mm in AUM the portfolio is estimated to trade 95% on day 1 and 99% by day 3, under normal market conditions.

7. Portfolio Size limit

Without prior approval of the CEO and CIO, the market value of the portfolio may not exceed 1% of the market value of the total Fund.

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Appendix B: Limit Ranges and Compliance Cure Periods

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~~**IV.C. Absolute Return**~~

~~**i. Investment Process**~~

~~Absolute Return investments shall only be consummated following (i) a search process conducted by one of APFC's Absolute Return consultants or APFC's general consultant or (ii) upon the written analysis of a qualified consultant retained to evaluate a specific proposed investment. All investments, in addition to the preceding process, shall only be consummated following an independent review of the manager's operational processes (also known as "Operational Due Diligence").~~

~~**ii. Diversification**~~

~~Staff shall construct the Absolute Return portfolio with a level of diversification consistent with other institutional investors in the asset class, specifically:~~

~~a. Manager Diversification~~

~~To achieve prudent diversification, the portfolio shall (i) at any given time be limited to investments with 10 to 25 managers, and (ii) at the time of investment no individual fund shall represent more than 10% of the target Absolute Return allocation.~~

~~b. Strategy Diversification~~

~~Staff shall manage the portfolio with a mix of the three primary strategies defined in the Policy & Procedures: (i) 0-75% of the portfolio shall be invested with Relative Value Managers, (ii) 0-50% of the portfolio shall be invested with Event-Driven Managers, (iii) 0-75% of the portfolio shall be invested with Directional/Tactical/Opportunistic Managers.~~

~~The diversification limits outlined above may be exceeded with written approval of the Executive Director.~~

~~**iii. Liquidity**~~

~~Staff shall manage the liquidity terms and portfolio composition such that they can rely on contractual terms to liquidate 50% of the NAV of the portfolio, at any given time, within a 12-month period. The legacy illiquid fund-of-fund exposures (lock-up funds, private credit exposures, and side-pocket exposures) shall not be included for purposes of applying this test.~~

~~The liquidity limits outlined above may be exceeded with written approval of the Executive Director.~~

~~VI. Derivatives~~

~~The following guidelines should be adhered for risk management purposes:~~

~~a. APFC risk management staff will monitor and report on the use of derivatives based on the following:~~

~~a. Monthly reconciliation of managers' derivatives reports with custodian positions in derivatives;~~

~~b. Monthly review of Managers' use of derivatives relative to their own policies and guidelines;~~

~~c. Monthly reports of risk model results (for fixed income only):~~

~~i. Contribution to effective duration and effective convexity, by portfolio, of all positions; and~~

~~ii. Economic exposures and risk characteristics of derivatives.~~

~~d. A monthly statement that all portfolios are in compliance with the Policy & Procedures and these guidelines, and a description of any instances of non-compliance and their disposition; and~~

~~e. An annual report that compares Fund risks with and without the derivatives.~~

~~b. Permitted derivatives include those listed in Section VI.B. of the Policy & Procedures as well as others allowed in the regulations.~~

~~The following guidelines should be adhered to for risk management purposes when investing in derivatives in the Public Equities *and* Fixed Income Plus Portfolios:~~

~~a. The net of long and short dollar exposures to assets or currencies, whether derived from physical or derivative securities, must be less than or equal to the dollar market value of the portfolio, except for very small, inadvertent, or temporary amounts that occur in the normal course of portfolio management or authorized by the Executive Director;~~

b. The gross dollar exposures of the portfolio from physical and derivative securities (futures, options, swaps) cannot exceed 300% of the market value of the aggregate underlying portfolio at all times unless authorized by the Executive Director;

c. The CIO may impose further limits on the use of derivatives so that derivative notional values are not only constrained by their contribution to portfolio risk factors (such as beta, regional or industry exposure) but also with consideration to: liquidity, counterparty credit risk, pricing transparency, and model risk. Thus derivative use may be limited even if other portfolio risk limits are not breached.

d. If derivatives are used by a manager to actively manage currency exposure, net short exposure to any single currency remains within limits established for that manager's strategy.

VII. Risk Management and Oversight

The following tables illustrate the guidelines to be followed in terms of active risk limits:

Table VII.2. Relative Risk Guidelines – VaR (Value-at-Risk)

Category	Green Zone (CIO)	Yellow Zone (ED)	Red Zone (Board)
Portfolio	85% to 110%	70% to 85% & 110% to 120%	<70% & >120%
Fixed Income Plus	70% to 120%	50% to 70% & 120% to 140%	<50% & >140%
Public Equities	70% to 120%	50% to 70% & 120% to 140%	<50% & >140%

Table VII.3. Relative Risk Guidelines – Tracking Error

Category	Green Zone (CIO)	Yellow Zone (ED)	Red Zone (Board)
Portfolio	0 to 400 bps*	400 to 600 bps	>600 bps
Public Equities**	0 to 350 bps	350 to 500 bps	>500 bps
Fixed Income Plus	0 to 350 bps	350 to 500 bps	> 500 bps

* bps = basis points (where 100bps = 1%)

** Compared to the MSCI All Country Investable Market Equity Index

a. Scenario Analysis: APFC staff will look at a range of scenarios to evaluate mark-to-market impacts on the portfolio. These scenarios might include (illustrative):

a. Slow Deflation
b. Rapid Deflation
c. Chinese Market Crash
d. Fed Tapering Talk (2013)
e. US Downgrade (2011)

f. 2008 Market Crash
g. 2007 Credit Crisis

b. Stress Testing: APFC staff will analyze how specific market shocks might affect the Total Fund. Sample shocks to be analyzed are (illustrative):
a. Global Stock Market Crash
b. U.S. Stock Market Crash
c. Euro Stock Market Crash
d. Japan Stock Market Crash
e. U.S. Interest Rates Risk
f. Euro Interest Rates Rise
g. Japan Interest Rates Rise
h. U.S. Inflation Rise
i. Euro Inflation Rise
j. U.S. Credit Spread Widening
k. Euro Credit Spread Widening
l. U.S. Dollar Weakens
m. VIX Volatility Spike
n. Oil Crash

c. The following table provides the guidelines regarding private market asset holdings:

Table VII.4. Private Investments Limits

Category	Green Zone (CIO)	Yellow Zone (ED)	Red Zone (Board)
Private Assets	35 to 50%	25% to 35% & 50% to 55%	<25% & >55%

d. The following table provides the guidelines regarding future commitments:

Table VII.5. Future Commitment Limits

Category	Green Zone (CIO)	Yellow Zone (ED)	Red Zone (Board)
Future Commitments	< 20%	20% to 25%	>25%

e. Counterparty Exposures: all counterparties should have at least a AAA credit rating. APFC staff should also make sure no manager is funded over 5% of the Total Fund NAV.
f. Liquidity management should be analyzed routinely by APFC Staff as such:
a. A monthly assessment of Total Fund liquidity
b. A monthly review and reporting of liquidity ratios
c. A quarterly review of liquidity scenario analysis to be presented to the Board of Trustees
d. An annual assessment of the conditions required to result in a liquidity breach event
g. Risk Management Compliance Cure Periods and Remedies should follow these guidelines:

The Green Zone Operating Range ("Green Zone") concept is designed to indicate the Board-approved operating risk limits.

1. The Green Zone is the Board-approved Chief Investment Officer ("CIO") operating range.
    a. The portfolio must be within the Green Zone at least 80% of the calendar year; the Board must approve exceptions.
2. The Yellow Zone is the Board-approved Executive Director ("ED") operating range.
    a. The Chief Financial Officer ("CFO") will notify the CIO and ED promptly upon entry into a Yellow Zone.
    b. The CIO will respond by requesting ED approval to operate within the Yellow Zone.
    c. With ED approval, the CIO may operate within a Yellow Zone for up to 90 consecutive days or, if longer, until the next Board meeting following entry into a Yellow Zone.
    d. The CFO will notify the Board (i) when approaching 90 days of operating within a Yellow Zone and (ii) monthly thereafter.
    e. Following Board notification, a Trustee may request in writing a meeting to discuss an extension to continue operating within the Yellow Zone.
    f. The Board may grant the CIO and ED an extension to continue operating within a Yellow Zone. Between Board meetings, unless a Trustee requests a meeting, the Board Chair may grant the CIO and ED an extension to continue operating within a Yellow Zone.
3. The Red Zone is the operating range that requires Board approval.
    a. The CFO will notify the Board upon entry into a Red Zone.
    b. The ED will respond to the Board with an action plan.
    c. Absent Board approval, operating within a Red Zone is limited to 30 consecutive days (plus the time needed to notice a Board meeting).
    d. The Board has the authority to approve operating within a Red Zone, beyond 30 days.

Even though the Fund is expected to operate most of the time within the Green Zone, the Fund may periodically be within a Yellow Zone, and there may be times when the Fund will be within a Red Zone. The zones are designed to increase transparency and awareness; they should not be viewed as explicit violations. A historical report showing periods of operating within the Yellow and Red Zones will be included in Board meeting packets.

~~Exhibit VII.1.~~ Visual Display of Green Zone Concept

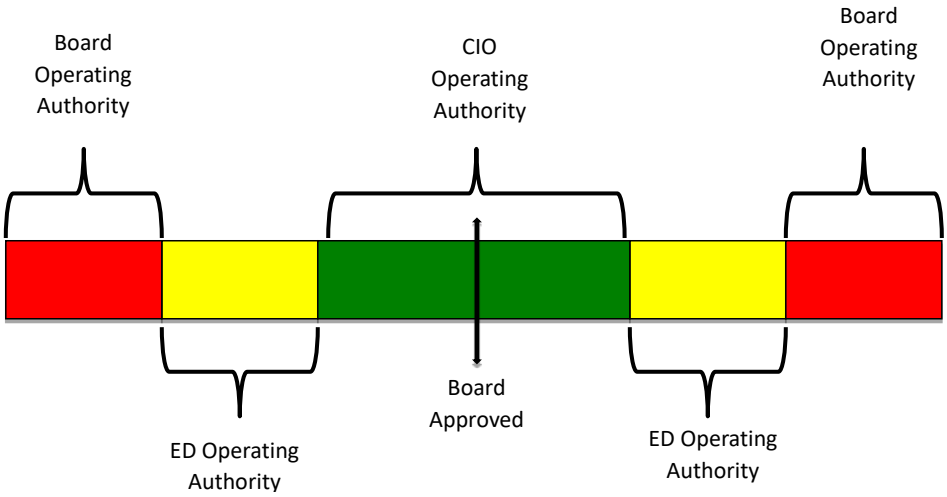
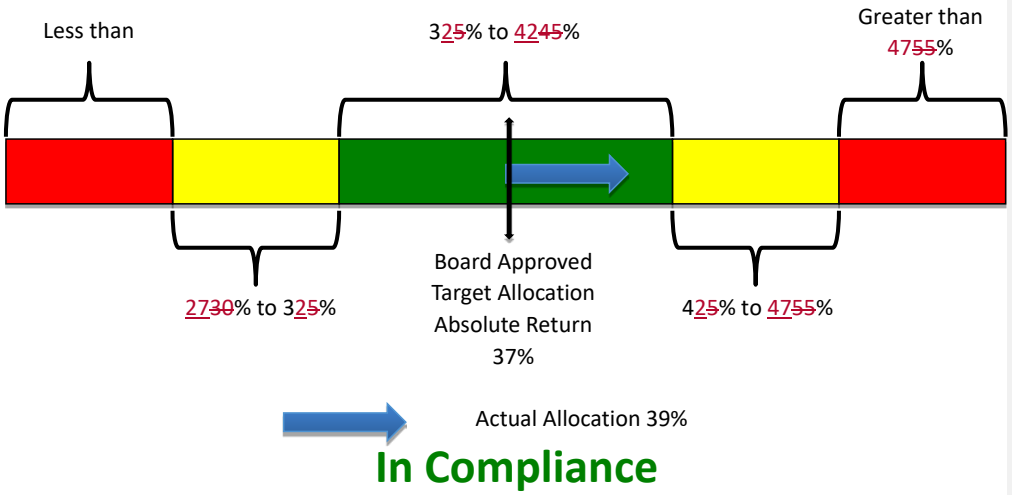


Exhibit VII.2. Green Zone Example for Public Equities



~~Appendix B:~~Appendix C: Internal Investment Managers

This Appendix identifies internal Investment Managers at APFC. The Executive Director may update this Appendix from time-to-time; updates will be provided to the Board at its next regularly scheduled meeting.

Name and Title	Asset Class
Fawad Razzaque, Director of Investments, Public Equity Youlian Ninkov, Analyst and Trader	Public Equity
Jim Parise, Director of Investments, Tradable Income Chris Cummins, Senior Portfolio Manager, Fixed Income Masha Skuratovskaya, Senior Portfolio Manager, Fixed Income Matt Olmsted, Senior Portfolio Manager Tom O'Day, Analyst and Trader	Fixed Income Plus
Steve Moseley, Director of Investments, Private Equity & Special Opportunities Yup Kim, Senior Portfolio Manager	Private Equity & Special Opportunities
Marcus Frampton, Director of Investments, Real Estate, Infrastructure & Private Income, Absolute Return Jared Brimberry, Senior Portfolio Manager, Private Income Rose Duran, Director of Real Estate Investments Tim Andreyka, Senior Portfolio Manager, Real Estate	Real Estate, Infrastructure & Private Income, and Absolute Return
Valeria Martinez, Director of Investments, Asset Allocation	Asset Allocation Programs
~~Russell Read~~Marcus Frampton, Chief Investment Officer	Oversees all Assets Classes

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~~Appendix C:~~Appendix D: Glossary

AAC means the Alaska Administrative Code.
ADA means the Americans With Disabilities Act of 1990.
Advisors and **Board Advisors** mean the investment professionals who comprise the Board's Investment Advisory Group.
APFC and **Corporation** mean the Alaska Permanent Fund Corporation, established under AS 37.13.040.
AS means Alaska Statutes.
BB means Bloomberg.
Board means the Board of Trustees of the APFC.
CMBS means commercial mortgage-backed securities.
CFO means the APFC's Chief Financial Officer.
CIO means the APFC's Chief Investment Officer.
Consultant means the Board's investment consultant(s), not including Board Advisors.
CPI means the Consumer Price Index.
CRO means Chief Risk Officer
Custodian means the APFC's custodian.
Days means calendar days.
ED means the APFC's Executive Director.
FoF means fund-of-funds.
Fund and **Permanent Fund** mean the Alaska Permanent Fund, established under Article IX, Section 15, of the Alaska Constitution, and described in AS 37.13.010.
IMA means investment management agreement.
Investment Manager and Manager mean investment manager(s) retained by the APFC.
IRR means internal rate-of-return.
Long-Term means over one or more business cycles.
MBS means mortgage-backed securities.
RBM means Strategic Risk Benchmark.
Staff means the APFC Investment staff and, where the context requires, also means or includes the Executive Director and/or other APFC staff.
TE means Tracking Error.
Trustees means the members of the APFC's Board of Trustees.
VaR means Value at Risk.

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~~Appendix D:~~Appendix E: Previous Investment Policy Adoption and Amendments

The previous APFC Investment Policy was adopted or amended effective as follows:

Adopted: May 27, 2010

Amended: September 30, 2010 (§14.9 added)

Amended: December 1, 2010 (§9.1 revised; new §11.1 added and prior §§11.1-11.3 and subsections thereunder renumbered; and §18.2.4 revised)

Amended: May 20, 2011 (§18A added)

Amended: September 30, 2011 (§§ 8, 8.2, 8.3, 8.5, 9.2, 9.3.1, 9.4.1, 11.3.1, 15.3, and 15.4 revised)

Amended: December 8, 2011 (§11.3.2 revised)

Amended: February 22, 2012 (§20 revised)

Amended: April 23, 2012 (§§16.3.1 and 16.3.2 revised; and Specific Policy Modifications for Tysons Corner Phase I Project and Mariner Frontier Fund, L.P. added)

Amended: February 27, 2013 (§§ 15.2, 15.3, and 15.4 revised)

Amended: May 22, 2013 (§§9.5.4, 9.5.5,12.4, 12.6, 13.2, 13.3.1, 13.3.3, 14.9.4.10, 16.1.2, 16.1.3, 16.1.4, 16.2, 16.3, 16.3.1, 18A, 23.2, and 23.5 revised; Specific Policy Modification for Mariner Frontier Fund, L.P. revised; Specific Policy Modification for Crestline AK Permanent Fund, L.P. added; and Addendum re Internal Investment Managers added)

Amended: May 23, 2013 (§§ 3.1, 3.3, 5.3, 6, 8 (including Table 8a), 8.1 revised; §8.2 deleted; §§ 8.3-8.5 renumbered (as §§ 8.2-8.4) and newly-renumbered §§ 8.2-8.4 revised; and §§ 9.2, 9.3.1, 9.4.1, 10, 11.3.1, and 22.2 revised)

Amended: February 26, 2014 (§§23.3.1, and 23.2 revised; and Addendum re Internal Investment Managers revised)

Amended: May 21, 2014 (§14.9.4.10 (including Table 14.9.4.10.1) revised)

Amended: December 10, 2014 (§§ 8, 9.3.1, 11.3.2, 14.2.2, and Table 14.5.4.1revised)

Amended: May 19, 2015 (§§ 15 and 16, including conforming changes in other sections revised)

Amended: September 27, 2016

Amended: December, 2016 (§§ 9, 10 and 12, including conforming changes in other sections revised)

Amended: May 23, 2018, complete re-write of the Policy and Guidelines. Changes to be effective on July 1, 2018.

Amended: September 27, 2018 (§ 5, Alaska Investment Policy was revised)

Amended: May ?, 2020, complete rewrite of the Investment Policy.

~~Appendix E:~~Appendix F: Callan's Capital Markets Projections (2018-2027)

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		Asset Class		PROJECTED RETURN		PROJECTED RISK	
Asset Class	**Performance Index**	**Target Weight**	**Target Weight**	**1-Year Arithmetic**	**10-Year Geometric***	**Standard Deviation**	**Projected Yield**
Public Equities			**39.0%**	**8.60%**	**7.05%**	**18.85%**	**2.60%**
Global Equity	MSCI ACWI - IMI			8.60%	7.05%	18.85%	2.40%
Fixed Income Plus			**22.0%**	**4.10%**	**4.05%**	**5.00%**	**4.00%**
Money Markets	90-Day T-Bill	5.0%	1.1%	2.25%	2.25%	0.90%	2.25%
TIPS	Barclays TIPS	5.0%	1.1%	3.10%	3.00%	5.25%	3.30%
US Fixed Income	Barclays Aggregate	25.0%	5.5%	3.05%	3.00%	3.75%	3.45%
US Investment Grade Credit	Barclays Credit	25.0%	5.5%	3.65%	3.55%	5.05%	4.00%
Non-US Fixed Income	Barclays Global AggregateXUS	10.0%	2.2%	1.80%	1.40%	9.20%	1.90%
Emerging Market Debt	Barclays EMD Hard Currency	5.0%	1.1%	4.85%	4.50%	9.60%	4.90%
Global High Yield	Barclays Global High Yield	10.0%	2.2%	5.20%	4.75%	10.35%	5.40%
Global REITs	S&P Global REIT	10.0%	2.2%	8.25%	6.40%	20.30%	4.30%
Global Listed Infrastructure	S&P Global Listed Infrastructure	5.0%	1.1%	7.65%	6.40%	17.25%	4.00%
Private Equity/Growth Opps			**11.0%**	**10.60%**	**8.50%**	**22.00%**	**0.00%**
Private Equity	Cambridge Private Equity		11.0%	10.60%	8.50%	22.00%	0.00%
Private Real Estate			**10.0%**	**6.90%**	**5.75%**	**16.35%**	**4.75%**
Real Estate	NCREIF Total Index		10.0%	6.90%	5.75%	16.35%	4.75%
Private Infra/Credit/Income			**6.0%**	**6.65%**	**5.75%**	**14.50%**	**5.50%**
Private Infrastructure	FTSE Global Listed Infrastruc	60.0%	3.6%	6.45%	5.75%	13.00%	5.00%
Private Credit	Barclays Global High Yield	40.0%	2.4%	6.95%	5.75%	16.50%	6.25%
Absolute Return			**6.0%**	**5.35%**	**5.05%**	**9.15%**	**0.00%**
Hedge Funds	HFRI Total HFOF Universe		6.0%	5.35%	5.05%	9.15%	0.00%
Asset Allocation			**6.0%**	**7.15%**	**6.55%**	**12.55%**	**3.00%**
Cash Equivalents	90-Day T-Bill	33.3%	2.0%	2.25%	2.25%	0.90%	2.25%
Multi Asset Class/ECIO	APFC Total Fund Target	66.7%	4.0%	7.15%	6.55%	12.55%	3.00%
Inflation	CPI-U				2.25%	1.50%	
Total Fund	APFC Total Fund Target		**100.0%**	**7.15%**	**6.55%**	**12.55%**	**3.00%**

Proposed Investment Policy

APFC Investment Policy

Adopted May xx, 2020, Effective Date July 1, 2020

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I. INTRODUCTION

A. Purpose

1. The purpose of this Investment Policy ("Policy") is to provide a formal plan for investing and managing the assets of the Alaska Permanent Fund and other state assets as prescribed by law ("Fund") to achieve the defined investment objectives. This Policy also defines the roles and responsibilities of the various parties involved in the investment process and facilitates external communication of the Policy. The appendices are incorporated into and form part of this Policy. Terms not defined within the body of the Policy have meanings assigned to them in the "Glossary," Appendix D of this document.

2. This document is not intended to be a static, one-time document and will be considered for possible amendment on an annual basis or any time the Board of Trustees ("Board") modifies the Alaska Permanent Fund Corporation's ("APFC") investment-related policies or asset allocation. Amendment of this Policy requires Board action as described in AS 37.13.080 and the APFC By-Laws ("By-Laws"). Following any Board approved amendment to this document, changes will be noted in Board meeting minutes and as soon as practicable this document will be amended to reflect the approved changes and posted on the APFC website.

B. Roles of the Board, Staff, Consultants, and Advisors

1. The Board has a responsibility to invest Fund assets in accordance with the Alaska Constitution and the prudent-investor rule as provided in AS 37.13.120(a) – (e). The Board has adopted regulations (15 AAC 137.410 – 15 AAC 137.990), which define the eligible investments of Fund assets ("Regulations"). The Board has also adopted By-Laws which delegate and empower the APFC Staff to invest and manage Fund assets consistent with the parameters of the Regulations and this Policy. Finally, through regularly scheduled and special meetings, the Board oversees the management of APFC Staff and Fund assets, and ensures that APFC Staff have the resources needed to fulfill its objectives as effectively as possible.

2. The APFC Staff's task is to invest and manage Fund assets to fulfill the Fund's objectives, as specified by the Board, in this Investment Policy. Additionally, APFC Staff advises the Board about recommended changes to the asset allocation and this Policy to help the Fund achieve its objectives. Finally, APFC Staff, or external investment managers selected by APFC Staff, negotiates and executes all investment plans and strategies, performs risk-management functions, and helps prepare investment performance and other management reports.

3. External consultants provide advice and implementation assistance to the Board and APFC Staff related to investment programs at both the overall Fund level as well as for specific asset classes ("General Consultant"). The General Consultant also reports on the progress that the Fund is making with regard to specific investment programs and makes comparisons of Fund performance against its target benchmarks, including Fund peers.

4. Consistent with the Board's Charters and Governance Policies, up to three Investment Advisors are selected by the Board to provide education, advice, commentary, and discussion at Board meetings, or as requested by the Board.

II. TOTAL FUND & PORTFOLIO DESIGN PHILOSOPHY

A. Total Fund Objective

Consistent with the Legislature's findings regarding the purpose of the Alaska Permanent Fund (Alaska Statute 37.13.020), the Board's objective is for the Fund to achieve the highest level of investment performance that is compatible with the Board's risk tolerance and prudent investment practices. Because of the perpetual nature of the Fund and the Legislature's finding that the Fund should benefit all generations of Alaskans, the Board maintains a long-term perspective when formulating this Policy and in evaluating Fund performance. To that end, the Board expects the Fund's design and performance will be evaluated using the following criteria:

1. **Investment Performance:** ability to generate an annualized return of CPI + 5% over a 10-year period ("long-term target")
2. **Investment Risk:** ability of the Fund to generate this 10-year return while conforming to the risk appetite approved by the Board

B. Total Fund Asset Mix

1. APFC's investment programs are organized by asset class and APFC Staff assist the Board in engaging in an asset allocation study for the Fund at least once every five (5) years to review asset classes, risk-return assumptions, and correlations of investment returns with applicable benchmarks and across asset classes. A key objective of the asset allocation study shall be the development, through quantitative and qualitative modeling techniques, of a diversified portfolio that specifies a "long-term target" position for each asset class. The portfolio mix will represent the portfolio that is expected to meet the Board's long-term target while conforming to the risk appetite approved by the Board.
2. Each asset class allocation percentage shall designate a "long-term target" position within the overall portfolio as well as maximum and minimum ranges around those targets, as outlined in Table1. Ranges are specified by a "green zone" which reflect normal expected variability around the targets, "yellow zone" which reflect potential remediation by APFC Staff according to prudent portfolio management over a reasonable period of time, and "red zone" which require Board approval of a remediation plan within 30 days. Ranges of these zones are expressed as percentages of the overall Fund. Details of the zones and compliance cure periods are provided in Appendix B.

Table 1: Asset Allocation

		Public Equity	Fixed Income	Private Equity	Real Estate	Real Assets Completion	Private Income	Absolute Return	Risk Parity	Cash	Total Fund
Asset Allocation											
Asset Allocation (AA): Target Levels - FY 2021	**% of Fund**	**37%**	**18%**	**15%**	**7%**	**6%**	**9%**	**6%**	**1%**	**1%**	**100%**
Green Zone (expressed as +/- to Target Allocation)	**% of Fund**	+/- 5%	+/- 5%	+/- 3%	+/- 3%	+/- 3%	+/- 3%	+/- 3%	+/- 0.5%	+/- 0.5%	
Yellow Zone (expressed as range below and above green zone)	**% of Fund**	0 - 5%	0 - 5%	0 - 3%	0 - 3%	0 - 3%	0 - 3%	0 - 3%	0 - 0.3%	0 - 0.3%	
Asset Allocation (AA): Target Levels - FY 2022	% of Fund	36%	18%	16%	8%	5%	9%	6%	1%	1%	**100%**
Asset Allocation (AA): Target Levels - FY 2023	% of Fund	35%	18%	17%	9%	4%	9%	6%	1%	1%	**100%**
Asset Allocation (AA): Target Levels - FY 2024	% of Fund	34%	18%	18%	10%	3%	9%	6%	1%	1%	**100%**
Asset Allocation (AA): Target Levels - FY 2025	% of Fund	33%	18%	19%	12%	1%	9%	6%	1%	1%	**100%**

C. Total Fund and Asset Class Benchmarks

Each asset class is associated with a benchmark that describes in general terms the opportunity set and return characteristics associated with the asset class ("Policy Benchmark"). For certain private market asset classes, the Policy Benchmark serves as a proxy for expected returns rather than an approximation of the actual investments that will characterize the components of the portfolio. Note that the investment returns and Policy Benchmarks for Private Equity & Special Opportunities, Real Estate, and Infrastructure & Private Income are lagged by one quarter for performance calculation purposes, as is common practice among large institutional investors. Each asset class is also associated with a long-term return objective, which cumulatively reflects the total Fund's long-term objective of CPI + 5% or better. The long-term return objectives and Policy Benchmarks for each asset class are reflected in Table 2.

Table 2: Benchmarks - Constituent Indices and Weights

	Public Equity	Fixed Income	Private Equity	Real Estate	Real Assets Completion	Private Income	Absolute Return	Risk Parity	Fund Cash	Total Fund FY 2021	Total Fund FY 2022	Total Fund FY 2023	Total Fund FY 2024	Total Fund FY 2025
Asset Allocation (AA): Target Levels-FY 2021	37.0%	18.0%	15.0%	7.0%	6.0%	9.0%	6.0%	1.0%	1.0%	100.0%				
Minuimum Long Term Return Target	CPI+5.05%	CPI+2.30%	CPI+10.05%	CPI+4.00%	CPI+2.24%	CPI+4.5%	CPI+3.25%	CPI+4.7%	CPI-0.25%	CPI+5%				
Benchmark Index Weights	Asset Class / Portfolio Weights									Total Fund Weights				
90 Day T-Bills	-	5.00%	-	-	-	-	-	-	100.00%	**1.90%**	1.90%	1.90%	1.90%	1.90%
BB Corporate	-	27.50%	-	-	-	-	-	-	-	**4.95%**	4.95%	4.95%	4.95%	4.95%
BB Gbl Treasury ex-US	-	10.00%	-	-	-	-	-	-	-	**1.80%**	1.80%	1.80%	1.80%	1.80%
BB US Agg	-	27.50%	-	-	-	-	-	-	-	**4.95%**	4.95%	4.95%	4.95%	4.95%
BB US HY 2% Issuer Cap	-	10.00%	-	-	-	-	-	-	-	**1.80%**	1.80%	1.80%	1.80%	1.80%
BB US HY 2% Issuer Cap (Lagged)	-	-	-	-	-	40.00%	-	-	-	**3.60%**	3.60%	3.60%	3.60%	3.60%
BB Barclays US Securitzed Index		10.00%								**1.80%**	1.80%	1.80%	1.80%	1.80%
BB US TIPS	-	5.00%	-	-	16.70%	-	-	-	-	**1.90%**	1.74%	1.57%	1.40%	1.07%
Cambridge PE (Lagged)	-	-	100.00%	-	-	-	-	-	-	**15.00%**	16.00%	17.00%	18.00%	19.00%
FTSE Developed Core Infra. (Lagged)	-	-	-	-	-	60.00%	-	-	-	**5.40%**	5.40%	5.40%	5.40%	5.40%
HFRI Total HFOF Universe	-	-	-	-	-	-	100.00%	-	-	**6.00%**	6.00%	6.00%	6.00%	6.00%
JPM EMBI Gbl Diversified	-	2.50%	-	-	-	-	-	-	-	**0.45%**	0.45%	0.45%	0.45%	0.45%
JPM GBI-EM Gbl Diversified	-	2.50%	-	-	-	-	-	-	-	**0.45%**	0.45%	0.45%	0.45%	0.45%
MSCI ACWI IMI	100.00%	-	-	-	-	-	-	-	-	**37.00%**	36.00%	35.00%	34.00%	33.00%
NCREIF Property (Lagged)	-	-	-	100.00%	-	-	-	-	-	**7.00%**	8.00%	9.00%	10.00%	12.00%
S&P Gbl Listed Infra. Net	-	-	-	-	11.10%	-	-	-	-	**0.67%**	0.56%	0.44%	0.33%	0.11%
S&P Gbl REIT Net	-	-	-	-	11.10%	-	-	-	-	**0.67%**	0.56%	0.44%	0.33%	0.11%
Gold Spot	-	-	-	-	33.30%	-	-	-	-	**2.00%**	1.67%	1.33%	1.00%	0.33%
S&P/LSTA US Leverage Loan 100 Index	-	-	-	-	16.70%	-	-	-	-	**1.00%**	0.84%	0.67%	0.50%	0.17%
S&P Global Natural Resources Index	-	-	-	-	11.10%	-	-	-	-	**0.67%**	0.56%	0.44%	0.33%	0.11%
HFRI Risk Parity Vol 12	-	-	-	-	-	-	-	100.00%	-	**1.00%**	1.00%	1.00%	1.00%	1.00%
Total	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**	100.00%	100.00%	100.00%	100.00%

D. Total Fund Performance Measurement and Reporting

1. The Board looks to its General Consultant as the primary source of quantitative evaluation of the performance of the Fund and its investment managers. As promptly as possible after the close of each calendar quarter, the General Consultant shall submit a report to the Board, Executive Director ("ED") and Chief Investment Officer ("CIO") analyzing the performance of the Fund, its asset classes and investment programs, including both internally and externally managed assets. The report shall include a comparison of total Fund performance with the Board's long-term investment objective, an analysis of the returns of each asset class as measured against established benchmarks; and an analysis of the returns of each manager or relevant groupings of managers as measured against relevant benchmarks. For the purpose of evaluating the value-added by the Fund's investment strategy, the report shall also compare the performance of the total Fund on a one-year basis to a passive benchmark that represents the following: (1) 60% MSCI ACWI IMI; (2) 20% Barclay Global Aggregate (less fees); (3) 10% FTSE EPRA/NAREIT Rental Index; (4) and 10% US TIPs. The General Consultant's report shall also address any special concerns or observations the General Consultant concludes should be brought to the attention of the Board, ED and CIO.

2. At each regular Board meeting, the General Consultant will also report on the investment performance of the Fund and each asset class in comparison with Fund peers (i.e., large US Public Funds and Endowment Funds). The comparative performance of the Fund and each asset class will be assessed and reported across multiple timeframes, including ten-year, five-year, three-year, and one-year. To the extent that peer comparisons may not be directly available for specific asset class comparisons, the General Consultant should use the Fund's Policy Benchmarks (see Table 2) as a proxy.

E. Total Fund Portfolio Implementation and Delegations

APFC Staff directs all investment activities through a delegation of investment authority in the By-Laws from the Board to the Executive Director and then from the Executive Director to specific APFC Staff, as deemed appropriate by the Executive Director. The Executive Director will also convene a Public Markets Investment Committee and a Private Markets Investment Committee ("Investment Committee") on a regular basis in order to discuss and deliberate on investment decisions requiring authorization. The voting members of the Investment Committee include the Executive Director, the Chief Investment Officer, and the Chief Risk Officer. Approval of any investment decision by the Investment Committee requires the affirmative vote of at least two of the three voting members. If any voting member of the Investment Committee is absent from a meeting, the Chief Financial Officer shall take the place of the absent member. Investment decisions approved by the Investment Committee will be in writing.

F. Relationship of the Investment Policy with Regulations, and Investment Guidelines

As required by Alaska Statute 37.13.120(a), the Board has adopted Regulations specifically designating the types of investments in which Fund assets can be invested. All investments authorized by this Policy shall be limited to those authorized investments and in the manner prescribed by this Policy and Alaska Statute 37.13.120.

The Investment Guidelines, attached as Appendix A, supplement the Investment Policy by providing operational guidelines for APFC's internally managed investment programs. The Executive Director may update the Investment guidelines from time-to-time; updates will be provided to the Board at its next regularly scheduled meeting.

III. PUBLIC MARKETS

A. Public Equity

1. Objective

The objective of the Public Equity portfolio is to invest in publicly traded securities authorized in 15 AAC 137.440, to exceed the performance of a well-diversified pool of global equities embodied in the **MSCI ACWI IMI Index**, while maintaining risk similar to that of the benchmark. Performance of this portfolio will be evaluated quarterly, but success in achieving the long-term objective (see Table 2) will be measured, net of all costs and fees, on a one-year, three-year, five-year, and ten-year annualized basis.

2. Structure

Consistent with performance objectives, applicable tracking error guidelines, and other investment restrictions described in this Policy and Investment Guidelines, the Public Equity portfolio may include:

a. Actively and quasi-passively managed equity strategies to enhance the after-fee return of the portfolio relative to its assigned benchmark; and
b. Passively managed equity strategies to replicate, in a cost-efficient manner, the returns of a benchmark index.

3. Investment Strategy

The Public Equity portfolio will be managed by a mix of external active managers, external passive managers and internal managers. In the case of active external managers, each manager, through an investment manager agreement ("IMA"), will be directed to focus on a subset of the global equity market in which the manager has demonstrated an ability to provide risk-adjusted, after-fee returns in excess of its respective benchmark. Each external manager's IMA will also detail its strategy, performance objectives, permitted investments and restrictions.

The CIO may also approve the internal management of a portion of the Public Equity portfolio by APFC Staff. In place of an IMA, the CIO and ED will require the approval of and adherence to investment guidelines that cover the relevant aspects of the portion of the Public Equity portfolio internally managed by APFC Staff. The Director of Public Equity will have primary responsibility for executing the portfolio's investment strategy.

4. Rebalancing and Mandate Modification

The Director of Public Equity may, with the approval of the CIO, rebalance assets to, from, or between individual Public Equity portfolios.

Initiating or terminating external manager mandates requires the consent of CIO and ED and must conform to Section VIII of this Policy (Public Markets External Manager Selection).

5. Risk Limits and Portfolio Restrictions

The Director of Public Equity is responsible for managing the various risks incurred and adhering to the investment policy. In addition to general Policy requirements, the following asset class specific restrictions apply to this portfolio:

a. Risk Limits as detailed in Table 3, Section VII.
b. Short selling is prohibited by an internal or external manager of assets in this portfolio, unless authorized by the CIO and Chief Risk Officer ("CRO").
c. All derivatives in this portfolio must comply with Section VI (Authorized Use of Derivatives) of this Policy.
d. All externally managed mandates must comply with Section VIII (External Manager Selection) of this Policy.

B. Fixed Income

1. Objective

The objective of the Fixed Income portfolio is to provide income-oriented investment returns and diversify the risks of the Fund's equity-oriented programs. The Fixed Income portfolio invests in publicly traded and other liquid income-oriented investments authorized in 15 AAC 137.430, to meet or exceed the performance of the **Fixed Income Composite Benchmark**, while staying within predefined risk constraints. Performance of this portfolio will be evaluated quarterly, but success in achieving the long-term objective (see Table 2) will be measured, net of all costs and fees, on a one-year, three-year, five-year, and ten-year annualized basis.

2. Structure

Consistent with performance objectives, applicable tracking error guidelines, and other investment restrictions described in this Policy and Investment Guidelines, the Fixed Income portfolio may include:

a. Actively and quasi-passively managed income producing strategies that enhance the after-fee return of the Fixed Income portfolio relative to its assigned benchmark; and
b. Passively managed income producing strategies to replicate, in a cost-efficient manner, the returns of the benchmark index.

3. Investment Strategy

The Fixed Income portfolio will primarily be implemented by the CIO's internal APFC Staff, which may be supplemented by hiring external investment managers to manage portions of the Fixed Income portfolio which are not appropriate for internal management by APFC. Regarding the Fixed Income assets that are externally managed, each external manager, through an IMA, will be directed to focus on a subset of the Fixed Income portfolio in which the manager has demonstrated an ability to manage in relation to its respective benchmark. Each external manager's IMA will also detail its strategy, performance objectives, permitted investments, and restrictions. The Director of Fixed Income will have primary responsibility in executing the portfolio's investment strategy.

4. Rebalancing and Mandate Modification

The Director of Fixed Income may, with the approval of the CIO, rebalance assets to, from, or between individual Fixed Income portfolios.

Initiating or terminating external manager mandates requires the consent of the CIO and ED, and must conform to Section VIII of this Policy (Public Markets External Manager Selection).

5. Risk Limits and Portfolio Restrictions

The Director of Fixed Income is responsible for managing the various risks incurred and adhering to this Policy. In addition to general Policy requirements, the following asset class specific restrictions apply to this portfolio:

a. Risk Limits as detailed in Table 3, Section VII.
b. Short selling is prohibited by an internal or external manager of assets in this portfolio, unless authorized by the CIO and CRO.
c. All derivatives in this portfolio must comply with Section VI (Authorized Use of Derivatives) of this Policy.
d. All externally managed mandates must comply with Section VIII (Public Markets External Manager Selection) of this Policy.

C. Risk Parity

1. Objective

The objective of the Risk Parity portfolio is to deliver long-term returns that meet or exceed the performance of a 60% stock/40% bond portfolio through managers which seek to generate returns that are less correlated to global public markets utilizing allocation of risk rather than allocation of capital. Performance of this portfolio will be evaluated quarterly against the Hedge Fund Research **HFR 12% Vol Institutional Index**, but success in achieving the long-term objective (see Table 2) will be measured, net of all costs and fees, on a one-year, three-year, five-year, and ten-year annualized basis.

2. Investment Strategy

The Risk Parity portfolio will be managed by external managers, selected in accordance with the requirements of this Policy, that provide risk-balanced exposure to multiple sources of excess expected return. Each manager, through an IMA or limited liability fund, will detail its strategy, performance objectives, permitted investments and restrictions. The Director of Risk Parity will have primary responsibility in executing the portfolio's investment strategy and plans.

3. Risk Limits and Portfolio Restrictions

The Director of Risk Parity is responsible for managing the various risks incurred and adhering to this Policy. In addition to general Policy requirements, the following restrictions will apply to this portfolio:

a. Risk Limits as detailed in Table 3, Section VII.
b. Short selling is prohibited unless authorized by the CIO and CRO.
c. All derivatives in this portfolio must comply with Section VI (Authorized Use of Derivatives) of this Policy.
d. All externally managed mandates must comply with Section VIII (Public Markets External Manager Selection) of this Policy.

D. Total Fund Cash

1. Objective

The objective of the Total Fund Cash portfolio is to:

a. Be a source of funds available to meet the Fund's operational needs, including capital calls and appropriations from the Earnings Reserve Account to the State's general fund; and
b. Allocate a small portion of the Fund to an asset class that is nearly risk-free and experiences extremely low volatility.

Performance of this portfolio will be evaluated quarterly and will be measured against the risk and after-fee return of the **90 Day Treasury Bills Index**, but success in achieving the long-term objective (see Table 2) will be measured, net of all costs and fees, on a one-year, three-year, five-years, and ten-year annualized basis.

2. Investment Strategy

The Total Fund Cash portfolio will be internally managed at the direction of the CIO. The size and investment profile of this portfolio may fluctuate month-to-month to accommodate the Fund's liquidity requirements. The CIO will have primary responsibility in executing this portfolio's investment strategy.

3. Authorized Investments

The CIO may invest this portfolio in cash and the following cash equivalents:

a. US Treasuries with a maximum final maturity of 24 months;
b. Investment Grade US corporate bonds with a maximum final maturity of 24 months;
c. Repurchased transactions, where collateral is high quality US Treasury or US Agency bonds;
d. SEC registered money market investment funds;
e. Other cash equivalents approved by the CRO and ED.

4. Risk Limits and Portfolio Restrictions

The CIO is responsible for managing the various risks incurred and adhering to this Policy. In addition to general Policy requirements, the following specific restrictions will apply to this portfolio:

a. Risk Limits as detailed in Table 3, Section VII.
b. At any point, 80% of the portfolio should be invested in instruments with a final maturity not exceeding 181 days.
c. Short selling is prohibited in this portfolio.
d. All derivatives in this portfolio must comply with Section VI (Authorized Use of Derivatives) of this Policy.

E. Securities Lending

1. Authorized Investments

The ED is authorized to enter into a securities lending agreement with the Fund's custodian to lend domestic and non-domestic Public Equity and Fixed Income securities from the Fund's portfolio directly to borrowers for a fee in accordance with the following guidelines:

a. The Fund's custodian shall agree to indemnify the Fund against any direct loss from:
   i. a borrower default;
   ii. the reinvestment of cash collateral; and
   iii. the failure to comply with the terms and conditions of the lending agreements;
b. Collateral shall be required at a minimum of 102% of the market value of the loaned securities which are denominated in the same currency as the collateral provided by the borrower;
c. Collateral shall be required at a minimum of 105% of the market value of the loaned securities which are denominated in a currency other than the collateral provided by the borrower;
d. Collateral and loaned securities shall be marked-to-market daily;
e. The investment of cash collateral posted by borrowers shall be restricted to those investment-grade securities permissible under the provisions of AS 37.13.120 and 15 AAC 137; unless the ED elects to have cash collateral released to the Fund to meet the Fund's liquidity needs rather than having it invested by the custodian.

IV. ALTERNATIVE INVESTMENTS

A. Private Equity and Special Opportunities

1. Objective

The objective of the Private Equity & Special Opportunities ("PESO") portfolio is to invest in illiquid growth-oriented assets authorized in 15 AAC 137.460 that are expected to generate risk-adjusted, after-fee returns that are superior to the Public Equity portfolio. Performance of this portfolio will be evaluated quarterly, in aggregate and based upon the vintage year, against the **Cambridge PE (Lagged)**, but success in achieving the long-term objective (see Table 2) will be measured, net of all costs, fees, and carry, on a one-year, three-year, five-year, and ten-year annualized basis.

2. Investment Strategy

PESO investment strategies include: venture capital, growth equity, leveraged buyouts, special opportunities, and distressed debt. PESO portfolio investments will be executed through capital commitments to limited liability funds managed by external investment managers, through co-investments alongside existing external managers, and direct investments into operating companies. Annually, APFC Staff will provide a pacing and investment plan for Board approval that reflects the current PESO exposures, assumptions, and outlook. The Deputy CIO-Private Markets & Alternatives will have primary responsibility in executing the PESO portfolio's investment strategy.

3. Diversification and Portfolio Restrictions

The Deputy CIO-Private Markets & Alternatives is responsible for managing the portfolio risks and adhering to this Policy. In constructing an optimally diversified PESO portfolio, APFC Staff will consider the following characteristics: strategy, geography, industry, manager, investment size, leverage, vintage year, and market position. In addition to general Policy requirements, the following asset class specific restrictions apply to this portfolio:

a. Risk Limits as detailed in Table 3, Section VII.
b. All derivatives in this portfolio must comply with Section VI (Authorized Use of Derivatives) of this Policy.
c. The PESO portfolio shall be invested within the following strategy diversification ranges:
    i. Venture Capital – 5% to 45%;
    ii. Buyouts/Acquisition – 40% to 70%;
    iii. Specialized Funds/Investments – 0% to 50%;
d. No more than 20% of the PESO Portfolio shall be invested with a single Investment Manager/General Partner.
e. No more than 10% of the PESO Portfolio shall be invested in publicly traded securities; and
f. Following the public listing of any directly held shares of a portfolio company, such shares shall be either liquidated consistent with SEC regulations within a reasonable period of time, not to exceed eighteen months, or express approval to hold such direct public securities within PESO must be attained from the ED on a quarterly basis.

B. Real Estate

1. Objective

The objective of the Real Estate Portfolio is to generate a risk-adjusted return comprised of an attractive level of current income and capital appreciation, while contributing to diversification of the Fund. Performance of the Real Estate portfolio will be evaluated

quarterly against the **NCREIF Property Benchmark (Lagged)**, but success in achieving the long-term objective will be measured, net of all costs, fees, and carry, on a one-year, three-year, five-year, and ten-year annualized basis.

2. Investment Strategy

Real Estate investments, as authorized in 15 AAC 137.450, shall primarily target:

a. Directly-held income producing, core real estate globally,
b. Directly-held build-to-core or other non-core properties,
c. Funds that invest predominantly in real estate strategies (e.g. core, core-plus, value-added, and opportunistic),
d. Publicly traded funds (e.g. ETFs or Index), or securities (e.g. REITs), where the underlying investments consist of real estate and
e. Co-investments alongside an existing Real Estate manager.

The Director of Real Estate will have primary responsibility in executing the portfolio's investment strategy.

3. Diversification and Portfolio Restrictions

The Director of Real Estate is responsible for managing the various risks incurred and adhering to this Policy. In constructing an optimally diversified Real Estate portfolio, APFC Staff will consider the following characteristics: investment type, property type, geography, manager, and leverage. In addition to general Policy requirements, the following will apply to this portfolio:

a. Risk Limits as detailed in Table 3, Section VII.
b. All derivatives in this portfolio must comply with Section VI (Authorized Use of Derivatives) of this Policy.
c. No more than 60% of the directly-held Real Estate portfolio shall be invested in "non-core" real estate (value-add and opportunistic).
d. The directly-held portion of the Real Estate portfolio will target the following property types: Multifamily, Industrial, Office, Hotel, and Retail with maximum weightings for each property type measured against NCREIF NPI benchmark weightings. Except for the 5% carve-out for other property types cited below, maximum risk ceilings of 1.5x the benchmark weighting shall apply for each property type measured against the FY2025 target allocation for the Real Estate portfolio.
e. In recognition that the Real Estate team may pursue some niche property types (e.g., Parking, Self Storage) that are not among the primary property types in the NCREIF NPI, the directly-held portion of the Real Estate portfolio may include up to 5% in property types other than those listed above.
f. No more than 35% of the Real Estate portfolio shall be invested with a single investment manager/general partner as measured against the FY2025 target allocation for the Real Estate portfolio

g. Leverage on investments in the directly-held portion of the Real Estate portfolio shall be limited by investment type as follows:

   i. Core real estate leverage is limited to 50% of the gross asset value of the investment at the time of debt placement; however, limit can be increased to 52.5% when including transaction fees and expenses.
   ii. Non-Core real estate leverage is limited to 65% of the gross asset value of the investment at the time of debt placement or 65% of the project cost on build-to-core investments; however, limit can be increased to 67.5% when including transaction fees and expenses.
   iii. Portfolio-wide leverage is limited to 40% of the gross asset value of the directly-held Real Estate portfolio.

C. Real Assets Completion Portfolio

1. Objective

The objective of the Real Assets Completion portfolio is to invest in publicly-traded securities that, on a portfolio-wide basis will provide inflation protection, current income, and a high degree of liquidity. In an appreciating market for risk assets, the Real Asset Completion portfolio should generate a total return modestly below that of the Private Real Estate portfolio and in a declining market for risk assets, the portfolio should outperform Private Real Estate. The Real Asset Completion portfolio will provide liquid exposure to assets that have a similar portfolio role to Private Real Estate (i.e. current yield, inflation protection, lower risk than public equities or private equity). As such, while the Fund's Private Real Estate Portfolio is re-invested back to target exposure weight (see Table 1), this portfolio will serve to supplement the Real Estate portfolios current exposure. Performance of the Real Assets Completion portfolio will be evaluated quarterly against the **Real Assets Composite Benchmark**, but success in achieving the long-term objective will be measured, net of all costs, fees, and carry, on a one-year, three-year, five-year, and ten-year annualized basis.

2. Structure

The Real Assets Completion portfolio may include:

a. Actively managed strategies, whether internally or externally managed, designed to outperform the benchmark for a particular component of the portfolio;
b. Exchange-traded funds ("ETF's") designed to provide returns similar to the benchmark for a particular component of the portfolio; and
c. Passively managed strategies designed to replicate, in a cost-efficient manner, the returns of the benchmark index for a particular component of the portfolio.

3. Investment Strategy

The Real Assets Completion portfolio will be managed to achieve efficient exposure to the underlying component betas of the portfolio. APFC Staff will also have the flexibility to seek out sources of alpha in the portfolio as well. The Deputy CIO-Public Markets will

have primary responsibility in executing the portfolio's investment strategy. The component sub-assets of the Real Assets Completion portfolio will include:

a. Exposure to gold as authorized in 15 AAC 137.460(4)
b. Treasury Inflation Protected Securities (TIP's)
c. Publicly-traded non-investment grade syndicated bank loans (Leveraged Loans)
d. Publicly-traded global Real Estate Investment Trusts (REITs)
e. Publicly-traded global Listed Infrastructure Equities (Listed Infrastructure)
f. Publicly-traded global Natural Resources Equities (Natural Resources)

4. Rebalancing and Mandate Modification

The Deputy CIO-Public Markets may, with the approval of the CIO, rebalance assets to, from, or between individual Real Assets Completion portfolios.

Initiating or terminating external manager mandates requires the consent of the CIO and ED and must conform to Manager Selection Section VIII of this policy.

5. Risk Limits and Portfolio Restrictions

The Deputy CIO-Public Markets is responsible for managing the various risks incurred and adhering to this Policy. In addition to general Policy requirements, the following restrictions will apply to this portfolio:

a. Risk Limits as detailed in Table 3, Section VII.
a. Short selling is prohibited by an internal or external manager of assets in this portfolio, unless authorized by the CIO and CRO.
b. All derivatives in this portfolio must comply with Section VI (Authorized Use of Derivatives) of this Policy.
c. All externally managed mandates must comply with Section VIII (Public Market External Manager Selection) of this Policy.

Infrastructure and Private Credit and Income Opportunities Portfolio

The Infrastructure and Private Credit and Income Opportunities portfolio will be comprised of two separate investment strategies in accordance with the Policy requirements below:

D. Infrastructure Portfolio

1. Objective

The objective of the Infrastructure portfolio is to provide attractive risk-adjusted returns that have inflation-protection characteristics and exhibit low correlations with other major asset classes, as authorized by 15 AAC 137.460. Performance of the Infrastructure portfolio will be evaluated quarterly against the **Cambridge Associates Infrastructure Index (Lagged)**, but success in achieving the long-term objective (see Table 2) will be measured, net of all costs, fees, and carry, on a one-year, three-year, five-year, and ten-year annualized basis.

2. Investment Strategy

Infrastructure investments involve the purchase of critical assets with high barriers to entry and, due to the "essential services" nature of the assets, often result in low elasticity of demand. Infrastructure investments may include energy infrastructure, transportation, water infrastructure, telecommunications, social infrastructure (e.g. lotteries, student housing, prisons), other infrastructure (e.g. protected income stream assets, other interests of infrastructure issuers, infrastructure-related assets), other real assets (e.g. timberlands, agricultural farmlands, leasable hard assets), and any other tangible or intangible asset that possesses similar characteristics as those outlined in this section.

Infrastructure investments will be executed through long-term commitments to limited liability funds managed by external investment managers, through co-investments alongside existing Infrastructure managers and direct investments into operating companies. Additionally, investments in publicly-traded stocks of companies whose business profile includes ownership of infrastructure assets (Listed Infrastructure) may be included in the portfolio. Annually, APFC Staff will provide a pacing and investment plan for Board approval that reflects the current exposures, assumptions, and outlook. The Deputy CIO-Private Markets & Alternatives will have primary responsibility in executing the portfolio's investment strategy and plans.

3. Risk Limits and Portfolio Restrictions

The Deputy CIO-Private Markets & Alternatives is responsible for managing the various risks incurred and adhering to investment policy. In constructing a diversified Infrastructure portfolio, APFC Staff will consider the following characteristics: drivers of underlying assets' cash flow, industry sector, geography, manager, strategy, investment size, and company concentration. In addition to general Policy requirements, the following will apply to this portfolio:

a. Risk Limits as detailed in Table 3, Section VII.
b. All derivatives in this portfolio must comply with Section VI (Authorized Use of Derivatives) of this Policy.
c. Investments in multiple limited liability investment vehicles managed by the same manager are permitted, however, combined investments with a single manager shall not exceed 30% of the total Infrastructure portfolio.
d. APFC assets invested with each manager shall not represent more than 30% of that manager's AUM.

E. Private Credit and Income Opportunities

1. Objective

The objective of the Private Credit and Income Opportunities portfolio is to provide attractive risk-adjusted returns that generate a high level of income and potentially provide for capital appreciation, while safeguarding principal, as authorized by 15 AAC 137.460. Performance of the Private Credit and Income Opportunities portfolio will be evaluated quarterly against the **CBB US HY 2% Issuer Cap (Lagged)**, but success

in achieving the long-term objective (see Table 2) will be measured, net of all costs, fees, and carry, on a one-year, three-year, five-year, and ten-year annualized basis.

2. Investment Strategy

Private Credit and Income Opportunities investments involve the ownership of higher yielding, illiquid investment debt opportunities that cover a range of risk/return profiles. The Private Credit portion of this portfolio shall target externally managed limited liability funds, co-investments, and direct investments into operating companies that target one or more of the following strategies: direct lending, subordinated and mezzanine lending, distressed debt, and opportunistic credit-oriented funds, with flexibility to pursue illiquid and liquid strategies. The Income Opportunities portion of this portfolio shall include investments such as: timberlands, asset-based lending, structured credit, life settlements, leasing and royalty strategies, and special situations that share the common characteristic of being private markets investments with an objective of income generation and downside protection, but which do not fit neatly into other portfolios. Certain portfolios within Private Credit and Income Opportunities may also include some liquid credit exposures to complement the private investments in this portfolio. Annually, APFC Staff will provide a pacing and investment plan for Board approval that reflects the current exposures, assumptions, and outlook. The Deputy CIO-Private Markets & Alternatives will have primary responsibility in executing the portfolio's investment strategy.

3. Risk Limits and Portfolio Restrictions

The Deputy CIO-Private Markets & Alternatives is responsible for managing the various risks incurred and adhering to this Policy. In constructing a diversified Private Credit and Income Opportunities portfolio, APFC Staff will consider the following characteristics: credit profile, geography, manager, strategy, investment size, and company concentration. In addition to general policy aspects, the following will apply to this portfolio:

a. Risk Limits as detailed in Table 3, Section VII.
b. All derivatives in this portfolio must comply with Section VI (Authorized Use of Derivatives) of this Policy.
c. Investments in multiple vehicles managed by the same manager are permitted, however, combined investments with a single manager shall not exceed 30% of the Private Income portfolio.
d. APFC assets invested with each manager shall not represent more than 30% of that manager's AUM.

F. Absolute Return

1. Objective

The objective for the Absolute Return Portfolio is to deliver reasonably consistent and accretive returns that are largely uncorrelated with traditional, market-driven asset classes. Performance of the Absolute Return portfolio will be evaluated quarterly against the **HFRI Total HFOF Universe benchmark**, but success in achieving the long-term

objective (see Table 2) will be measured, net of all costs, fees, and carry, on a one-year, three-year, five-year, and ten-year annualized basis. The long-term objective for this portfolio is to generate a return similar to the total Fund with a correlation to the total Fund of less than fifty percent (50%), as measure over rolling 36-month periods.

2. Investment Strategy

The Absolute Return Portfolio will invest directly into comingled limited liability funds as authorized by 15 AAC 137.460. The managers of these funds will invest in public or private securities and other financial instruments and may use leverage consistent with other managers of similar strategies. It is not uncommon for the legal terms of these limited liability funds to have restrictions on liquidity, including redemption windows (e.g. monthly, quarterly, annually), notice periods (e.g. 30, 60, or 90 days), lock-ups (e.g. soft, hard), gates (e.g. investor-level, fund-level), and, at times, withdrawal fees. The Absolute Return Portfolio shall primarily target funds that pursue one or more of the following strategies:

a. Relative Value, including equity market neutral, fixed income arbitrage, and convertible arbitrage;
b. Event-Driven, including merger arbitrage, distressed securities/discounted bank debt, and special situations; and
c. Directional/Tactical/Opportunistic, including long-short equity, managed futures, and global macro.

The Deputy CIO-Private Markets & Alternatives will have primary responsibility in executing the Absolute Return portfolio's investment strategy.

3. Risk Limits and Portfolio Restrictions

The Deputy CIO-Private Markets & Alternatives is responsible for managing the various risks incurred and adhering to this Policy. In constructing a diversified Absolute Return portfolio, APFC Staff will consider the following characteristics: manager, strategy, investment size, leverage, correlation with other assets of the Fund, and liquidity. In addition to general Policy Requirements, the following restrictions will apply to this portfolio:

a. Risk Limits as detailed in Table 3, Section VII.
b. Relative Value Managers in the range of 0 – 75%
c. Event Driven Managers in the range of 0 – 50%
d. Directional/Tactical/Opportunistic Managers in the range of 0 – 75%
e. At least 50% of the portfolio shall be capable of being liquidated within a 12-month period
f. APFC assets invested with each manager shall not represent more than 30% of that manager's AUM

V. ALASKA IN-STATE INVESTMENT POLICY

A. Objective and Considerations

To implement the requirements of Alaska Statute 37.13.120(c), the Board believes the Fund should have an in-state investment policy that maintains the investment integrity of the Fund and is both proactive and impartial. As such, any internal in-state investment decision made by APFC Staff should include the following considerations:

1. Honor Alaska Statute 37.13.120(c): Prescribes that if an Alaskan investment has equivalent risk and expected return comparable to or better than a similar non-Alaskan investment, the Alaskan investment should be preferred.
2. Require Compelling Risk-Adjusted Returns: To honor the prudent investor rule provided in Alaska Statute 37.13.120(a), any Alaskan investment contemplated by APFC must be attractive on a stand-alone basis.
3. Ensure Fund Diversification: In order to provide sufficient risk diversification as required under Alaska Statute 37.13.120(c), Board approval is required for any in-state investment that would exceed 1% of the Fund, at the time of investment.
4. Seek Participation by Another Institutional Investor: In order to ensure that an Alaskan investment opportunity is attractive on a stand-alone basis and satisfies the institutional quality requirements of 15 AAC 137.420, APFC should generally seek to invest into an Alaskan investment alongside of at least one of its peers (i.e., a large institutional investor, which may include endowments, foundations, sovereign wealth funds, or public or private pension funds).

B. In-State Investment Targets

To the APFC Staff to identify and invest the Fund in additional compelling in-state investments, the following investment targets and guidelines are set to promote compliance with AS 37.13.120(c):

1. By 2021, at least 3% of the Fund should be invested in-state;
2. By 2022, at least 4% of the Fund should be invested in-state;
3. By 2023, at least 5% of the Fund should be invested in-state;

For purposes of this section, a Fund investment will be considered "invested in-state" if,

1. An external investment manager has an office in Alaska and the employee(s) that is primarily responsible for management of the asset(s) is based in Alaska; or
2. An external investment manager has an office in Alaska and the employee(s) that is primarily responsible for management of the asset(s) is based in Alaska; or
3. Funds investments managed internally by APFC Staff will not be included in achieving these targets.

VI. AUTHORIZED USE OF DERIVATIVES

A. Objective

The purpose of this section of the Policy is to establish the permitted uses and the limitations on the use of derivatives and establish procedures for managing risks associated with derivatives. The requirements and limitations of this section of the Policy shall apply to all derivatives transactions executed by APFC Staff and all external managers with authority to buy or sell a derivative as an agent on behalf of the of the Alaska Permanent Fund. This section of the Policy does not apply to investments in a limited liability investment vehicle in which derivatives are in the name of the limited liability investment vehicle and the liability is limited to the amount invested.

B. Derivatives Definition; Scope

1. As defined in 15 AAC 137.990(6), "Derivative" means "an instrument whose value, usefulness, and marketability is dependent upon or derives from an underlying asset; classes of derivatives include futures contracts, options, forward contracts, including currency forward contracts, swaps, and options on futures."

2. Both exchange traded and over the counter ("OTC") derivative instruments are under the scope of this Policy. The principal risk of derivatives strategies comes from the potential to lever the portfolio and to express a view on a security or risk factor without committing capital commensurate with the exposure. To mitigate this risk, the successful and prudent use of derivatives depends on:

    a. Well-defined uses for derivatives, and avoidance of leverage;
    b. Manager-by-manager limits on economic exposures through derivatives; and
    c. Investment manager internal control and defined procedures for managing risk.

C. Permitted Uses

1. Permitted uses of derivatives include:

    a. Hedge and control risks of Fund portfolios so they better align with benchmarks and objectives;
    b. Efficiently manage portfolio exposures synthetically as opposed to trading underlying securities;
    c. Build portfolios with targeted risk and return characteristics that otherwise could not be efficiently created with securities; and
    d. Facilitate rebalancing.

D. Derivatives Risk Management and Compliance

1. Derivative Pre-Approval Requirement

All derivatives strategies, whether internally or externally managed, are prohibited unless specifically allowed in writing for a permitted use as a part of an investment manager's guidelines.

The use of derivatives by an external manager shall be conditioned upon the finding by the CIO and CRO that the external manager:

a. Has demonstrated investment expertise in the use of derivatives for the strategy they have been selected to implement;
b. Has appropriate risk management and valuation policies and procedures in place;
c. Has legal and investment experience to limit downside effects of the proposed derivatives; and
d. Has demonstrated the ability to effectively monitor and control the use of derivatives and has agreed to provide monthly derivative exposure reports which detail:
    i. Total derivative exposures on a gross and net basis,
    ii. Total collateral/margin postings on gross and net basis, and
    iii. A list of authorized counterparties and exposure by counterparty.

2. Derivative Recourse Limitations

For externally managed portfolios, all liability created by the use of derivatives in the name of the Fund must be limited to the total value of the portfolio being managed by the external manager. To ensure this requirement is met, approval of the IMA/External Manager guidelines by General Counsel is required.

3. Counterparty and other Requirements

a. The counterparty to any OTC derivative transaction must have a credit rating of at least A- (Standard and Poor's) or A3 (Moody's), unless an exception is approved in writing by the CIO and CRO;
b. The net market value, net of all collateral postings, of all OTC derivatives for any individual counterparty may not exceed 30 basis points of the total market value of the Fund.;
c. Selling (writing) uncovered options is prohibited;
d. The net of long and short dollar exposures to assets or currencies, whether derived from physical or derivative securities, must be less than or equal to the dollar market value of the portfolio, except for very small, inadvertent, or temporary amounts that occur in the normal course of portfolio management or authorized by the CRO;
e. The gross dollar exposures of a portfolio in the Fund from physical and derivative securities (futures, options, swaps) cannot exceed 300% of the market value of the aggregate underlying portfolio at all times unless authorized by the CRO; and

f. If derivatives are used by a manager to actively manage currency exposure, net short exposure to any single currency remains within limits established for that manger's strategy.

VII. RISK MANAGEMENT & OVERSIGHT

Recognizing the relationship between return and risk, APFC consciously and deliberately assumes various risks in pursuit of its return objectives. The goal of risk management is to understand, analyze and manage these risks. The risk management function strives to create risk awareness, establish and formalize a risk management framework, and ensure risks incurred are within the Board's risk appetite. This Policy outlines the Boards' approved risk management framework, which includes the salient investment risk parameters and thresholds.

A. Risk Parameters and Measures

APFC Staff will establish a framework for measuring absolute risk of the Fund and each asset class, as well as relative risks in comparison to established benchmarks. This framework should generally include quantifiable estimates of active and relative risk. APFC Staff will monitor and produce reports as appropriate for the Board, ED, CIO, and APFC staff.

The salient risk parameters are listed below. Related tolerances and associated ranges are provided in Table 3.

Asset Allocation Limits – Target allocation levels are determined for each asset class based on quantitative modeling and qualitative inputs. Disciplined alignment to these targets is essential, albeit ensuring limited flexibility to cater to changing markets and other factors.

Future Commitments - Future commitments are a function of committed capital to private investments and essentially reflect a contingent cash draw liability. Monitoring and limiting future commitments relative to the Fund's overall size is important.

1. Active Risk - Tracking error is a measure of how closely a portfolio follows the index to which it is benchmarked. Tracking error is calculated for this purpose on an ex-ante basis using a holdings-based risk analytical system.

2. Relative Risk Limit - Relative Value at Risk (RVaR) provides a comparison of portfolio risk relative to benchmark risk and is measured as a ratio of Portfolio VaR to benchmark VaR.

In addition to relative measures, multiple risk parameters including concentration, credit, market, and liquidity risks are monitored and controlled.

1. Downside Risk - Downside risk is risk of significant loss of capital. Staff will actively monitor the Fund's downside risk relative to the risk benchmark using scenario analysis and stress testing.

2. Proxy Securities and Indices - If necessary and prudent, as determined by the CRO, APFC Staff will employ index proxies to approximate the economic characteristics of specific investments to the extent that the terms and conditions of those investments or the underlying holdings (in the case of the funds) are not readily available or where the complexity of the underlying investment renders empirical measurement impractical.

3. Private Market Asset Holdings - APFC Staff will actively monitor the portion of the Fund invested in private market asset holdings to ensure that the percent of the total fund invested in private markets adheres to the private investment limits.

B. Credit Ratings for Fixed Income Securities

Credit ratings by the three major ratings agencies, Standard & Poor's, Moody's and Fitch will be the primary source of credit ratings for Fixed Income securities in the Fixed Income and Total Fund Cash portfolios, subject to the following:

1. In case of split ratings, the 'Bloomberg Barclays Middle Rating' methodology shall be applied (i.e. if all three agencies rate a security, the middle rating is adopted; if only two agencies rate a security, the most conservative (lowest) rating is used; if only one rates a security, that single rating is used).
2. If none of the three agencies have assigned a rating, ratings by other agencies and or implied ratings may be used with CRO approval.
3. If no agency ratings are available and a rating cannot be implied, it shall be categorized as 'Unrated'.

C. Legal Risk Management

Legal documentation for all internally managed public and private investments will be reviewed, negotiated and approved by APFC General Counsel prior to execution by the ED. APFC General Counsel shall be responsible for determining when outside legal counsel should be engaged to assist in the review and negotiation of Fund investment matters, subject to applicable statutes and rules adopted by the Office of the Attorney General.

D. Permitted Use of Leverage

APFC Staff and external managers, consistent with the requirements of 15 AAC 137.500 and this Policy (including the risk parameters established by the asset allocation ranges), is authorized to use leverage for an investment of Fund assets, provided that such leverage is non-recourse to APFC or the Fund as described in AS 37.13.120(b) and 15 AAC 137.500.

E. Foreign Exchange Risk

1. External managers and APFC Staff may, with prior approval of the CIO, transact in any foreign exchange instrument (including currency futures and forward contracts, options, and swap agreements), to implement their investment strategies, contingent upon such transactions being consistent with this Policy and the requirements of 15 AAC 137.480.
2. APFC Staff shall analyze foreign exchange risk regularly and present quarterly to the Board. This analysis includes both internal hedging and external foreign exchange overlay manager positioning and performance.

F. Risk Compliance, Monitoring, and Reporting

The APFC Staff assigned to each Asset Class in this Policy will have primary responsibility to ensure adherence to all aspects of this Policy. Additionally, the CRO and risk management team will be responsible for monitoring compliance of Fund investment activity. The Chief Risk

Officer will provide the Board and APFC staff with a comprehensive risk profile of the Fund on a regular basis. At a minimum, this includes the Daily Risk Dashboard and more detailed quarterly updates. The quarterly reports to the Board shall include the levels for most of the salient risk parameters described in this Policy.

G. Risk Parameters and Limits

Table 3

		Public Equity	Fixed Income	Private Equity	Real Estate	Real Assets Completion	Private Income	Absolute Return	Risk Parity	Cash	Total Fund				
Asset Allocation															
Asset Allocation (AA): Target Levels - FY 2021	**% of Fund**	**37%**	**18%**	**15%**	**7%**	**6%**	**9%**	**6%**	**1%**	**1%**	**100%**				
Green Zone (expressed as +/- to Target Allocation)	**% of Fund**	+/- 5%	+/- 5%	+/- 3%	+/- 3%	+/- 3%	+/- 3%	+/- 3%	+/- 0.5%	+/- 0.5%					
Yellow Zone (expressed as range beyond green zone)	**% of Fund**	0 - 5%	0 - 5%	0 - 3%	0 - 3%	0 - 3%	0 - 3%	0 - 3%	0 - 0.3%	0 - 0.3%					
Asset Allocation (AA): Target Levels - FY 2022	% of Fund	36%	18%	16%	8%	5%	9%	6%	1%	1%	**100%**				
Asset Allocation (AA): Target Levels - FY 2023	% of Fund	35%	18%	17%	9%	4%	9%	6%	1%	1%	**100%**				
Asset Allocation (AA): Target Levels - FY 2024	% of Fund	34%	18%	18%	10%	3%	9%	6%	1%	1%	**100%**				
Asset Allocation (AA): Target Levels - FY 2025	% of Fund	33%	18%	19%	12%	1%	9%	6%	1%	1%	**100%**				
		Target Levels										Green Zone		Yellow Zone	
All Targets are Maximum Permitted, except #29-Min Cash		Public Equity	Fixed Income	Private Equity	Real Estate	Real Assets Completion	Private Income	Absolute Return	Risk Parity	Cash	Total Fund	Low	High	Low	High
												As a % of Target			
Future Outstanding Commitments	% of Fund	0.0%	0.0%	5.3%	2.5%	2.1%	3.2%	2.1%		0.0%	15.1%	85%	115%	75%	125%
Benchmark		M6642 04USN	LEHCREYBO	CAM_PE	NCREIFPTYP		INPRIICM	HFRIPROXY			LEHFTJPM				
Tracking Error		3.5%	2.5%								4.0%	n/a	115%	n/a	125%
Relative VaR (Portfolio VaR / Benchmark VaR)		100.0%	100.0%								100.0%	0%	125%	0%	140%
Concentrations															
Single Name / Issuer [Note 1]	% of AA	4%	4%	2%	10%	2%	2%	n/a	n/a	n/a		0%	115%	0%	125%
Single Industry (DEFINITION: GICS)	% of AA	20%	20%	30%	n/a	30%	30%	n/a	n/a	n/a		0%	115%	0%	125%
Single Country - EX US	% of AA	10%	10%	20%	20%	20%	20%	n/a	n/a	n/a		0%	115%	0%	125%
Total EX US	% of AA	50%	30%	50%	50%	50%	50%	n/a	n/a	n/a					
Single Fund Investment [Note 2]	% of AA	5%	10%	10%	10%	10%	10%	10%	50%	n/a		0%	115%	0%	125%
Proportion of ownership	-	5%	5%	10%	100%	10%	10%	n/a	n/a	n/a		0%	115%	0%	125%
Credit Risk															
Rating - Below Inv Grade	% of AA	n/a	25%	n/a	n/a	n/a	n/a	n/a	n/a	0%		0%	115%	0%	125%
Rating - Below A- & Unrated	% of AA	n/a	50%	n/a	n/a	n/a	n/a	n/a	n/a	0%		0%	115%	0%	125%
Rating - Unrated	% of AA	n/a	5%	n/a	n/a	n/a	n/a	n/a	n/a	0%		0%	115%	0%	125%
Market Risk															
FX - Proportion Unhedged	% of AA	30%	5%	20%	20%	20%	20%	n/a	n/a	5%		0%	115%	0%	125%
Liquidity - Proportion without at least Daily liquidity	% of AA	10%	10%	100%	100%	100%	100%	100%	100%	5%		0%	115%	0%	125%
Liquidity - Proportion without at least Monthly liquidity	% of AA	2%	2%	100%	100%	70%	100%	70%	70%	0%		0%	115%	0%	125%
Liquidity - Proportion without at least Quarterly liquidity	% of AA	0%	0%	100%	100%	30%	100%	30%	30%	0%		0%	115%	0%	125%
Cash Levels															
Cash & Equivalents	% of AA	2%	10%	5%	5%	5%	5%	n/a	n/a	100%		0%	115%	0%	125%
MINIMUM Cash & Equivalents	% of AA	0%	0%	0%	0%	0%	0%	n/a	n/a	30%		85%	115%	75%	125%

Notes:

1 *Single Name / Issuer: represents security level exposure to single entity or operating company. US Treasury & Govt Agencies are exempt. For Private Assets, the limit applies at the time of investment or cost basis*

2 *Single Fund Investment: represents exposure to a fund or strategy based vehicle*

VIII. PUBLIC MARKETS EXTERNAL MANAGER SELECTION

A. Manager Search and Selection

This section of the Policy applies to discretionary mandates assigned to external investment managers to transact and manage public market assets on behalf of the Fund (i.e. through an IMA). The Board has authorized APFC Staff to hire new investment managers upon conclusion of an appropriate search with the assistance of a qualified consultant, which can include the Board's General Consultant, contingent upon the search and hiring process adhering to the following steps:

1. Setting of relevant search criteria by APFC Staff of applicable manager qualifications;
2. Identification, with the assistance of the consultant, of a list of potential managers that are qualified to provide the investment management services needed, based on the qualifications and other search criteria established by APFC Staff;
3. Evaluation by a review committee established within the consultant's organization of the list of potential, qualified managers identified for recommendation of consideration by APFC Staff;
4. Informing the CIO of managers recommended by the General Consultant's review committee;
5. Selection by APFC Staff of between three and five finalists from those recommended by the consultant's review committee. This process may include, as part of due diligence, on-site visits by APFC Staff. Presentations to APFC Staff by the recommended managers are at the election of the CIO and ED;
6. Analysis by APFC Staff including a detailed recommendation to the CIO and ED, considering manager-specific characteristics as well as portfolio considerations; and
7. Approval of the new manager or advisor by the CIO and ED, assignment of benchmarks as appropriate, and determination of the initial amount to be placed under management with the manager.
8. A manager shall also be required to execute a written IMA with the APFC. The IMA shall address matters of performance, compensation, term/termination, investment guidelines, among others, as the APFC and the manager consider necessary and appropriate. The use of derivatives, if any, within externally managed mandates shall conform to the Derivatives section of this Policy and be explicitly detailed in the IMA.
9. Review and approval by the CRO and General Counsel of the proposed IMA is required prior to execution.

B. Special Situations

In certain special circumstances, the ED and CIO has the authority to modify or waive the criteria in the selection and hiring process outlined above. Even in such instances, the ED and CIO retains the final manager selection authority. Use of an alternative manager search process may be considered when any one or more of these conditions exist:

1. A manager under consideration for hire has already been vetted in a significant manner either through a search process with a qualified consultant, or the manager is already employed in a manager capacity by APFC;
2. The skill for which the manager is being considered is related in a substantive manner to the role the manager already fulfills for APFC or was the subject of a manager search that first identified this manager;
3. It is in the best interest of the Fund to move more quickly than the typical procedures permit; or
4. Due to confidentiality or specificity of the investment strategy or structure, use of the typical search procedure is not prudent.

The CIO and ED are required to report use of the alternative manager search and selection process, along with the rationale for the use, at the next regularly-scheduled Board meeting.

C. Monitoring and Evaluation of Managers

1. The Board expects APFC Staff to monitor the performance of the Fund's external managers, using the quarterly quantitative performance reports prepared by the General Consultant and information obtained from the APFC's annual manager evaluation questionnaire. Monitoring manager performance may also include review of other quantitative and qualitative aspects based on on-site visits to the manager's offices, discussions with other clients of the manager, media reports and other feedback.
2. The CIO and ED shall report to the Board any special concerns or observations they may have with respect to the performance of a manager no later than the next regular meeting of the Board.
3. The Board authorizes the CIO and ED, to terminate an investment manager. If the CIO and ED terminate or give notice of unsatisfactory performance to a manager, they shall inform the Board of the actions and rationale at the next regularly scheduled Board meeting.

Appendix A: Investment Guidelines

Objective

The objective of the APFC Investment Guidelines is to supplement the Investment Policy by providing operational guidelines for APFC's internally managed investment programs. The Executive Director ("ED") may update this Appendix from time-to-time; updates will be provided to the Board at its next regularly scheduled meeting.

A. ADAC Investment Guidelines

In fiscal year 2018, APFC Staff established an in-house hybrid liquid / illiquid alternative credit effort named Alaska Direct Alternative Credit (or "ADAC"). Investments included in ADAC will be (i) non-investment grade high yield ETF's and individual bonds and cash ("Liquid Portfolio") and (ii) co-investments with Private Credit managers and working capital cash ("Private Portfolio"). The following guidelines apply to ADAC:

1. **ADAC shall be included in the Special Opportunities / Income Opportunities category.**

2. **Size and Funding Schedule**
   a. $500 million funded at inception, initially invested in Liquid Portfolio.
   b. Following inception, additional funds will be invested into ADAC through cash transfers to the Liquid Portfolio and capital calls into the Private Portfolio for co-investments, or working capital or organizational expenses for the Private Credit Co-Investment Vehicle.
   c. Funding of additional cash transfers to the Liquid Portfolio will be done at no greater than a 1:1 ratio with cumulative Private Portfolio capital calls.
   d. Invested capital of $1,000 million targeted to be funded within 24 months of inception.

3. **Portfolio Control and Decision Making**
   a. Private Income team will have discretion over portfolio-wide decisions including: (i) percentage of portfolio invested in Liquid vs. Private Portfolio, (ii) retaining APFC Fixed Income Plus team as manager of the Liquid Portfolio, and (iii) individual investment decisions in the Private Portfolio

4. **Liquid Portfolio and Benchmark**
   a. Liquid Portfolio, initially 100% of ADAC, ultimately scaling down to less than 50%, will be managed by the APFC Fixed Income Plus team at inception.
   b. Targeted maximum allocation will be the greater of $750 million and 75% of ADAC NAV.
   c. Targeted minimum allocation will be 25% of ADAC NAV.
   d. ETF Account within Liquid Portfolio benchmarked to Barclays US High Yield Index (after July 1, 2018 to allow for an initial ramp-up).
   e. Individual securities portfolio will favor BB-B over CCC-rated securities and will be benchmarked to the Barclays BB High Yield Index (after July 1, 2018 to allow for an initial ramp-up). A relatively high tracking error to this index will be tolerated with the aim of outperformance over a full market cycle.

5. **Private Portfolio and Benchmark**
   a. Private Portfolio, initially 0% of ADAC, ultimately scaling to greater than 50%, will be managed by the Private Income team.
   b. Targeted maximum allocation will be 75% of ADAC NAV.
   c. Targeted minimum allocation will be 25% of ADAC NAV (after initial, 24-month ramp-up).
   d. Private Portfolio will target having a minimum of $100 million committed within 12 months of inception and a minimum of $250 million within 24 months of inception.
   e. Co-investment opportunities will be primarily sourced through existing managers.
   f. Maximum commitment per co-investment of $75 million without Executive Director written approval.
   g. Private Portfolio will be benchmarked to CPI + 500 bps.

6. **Overall ADAC Portfolio Benchmarks**
   a. Barclays US High Yield Index (relatively high tracking error to this index will be tolerated with the aim of outperformance over a full market cycle).
   b. A long-term target of CPI + 400 bps.

7. **Tenor and Termination**
   a. This is an evergreen strategy with realized gains re-invested, which means the size of ADAC will be equal to invested capital, *plus* cumulative realized/unrealized gains, *minus* cumulative realized/unrealized losses.
   b. The CIO, with Executive Director consent, may choose to invest additional capital at any time.
   c. The CIO, with Executive Direct consent, may choose to terminate the strategy at any time. Upon termination, available cash will be distributed from ADAC, the Liquid Portfolio will be sold within 180 days, and the Private Portfolio will cease making new commitments (with the exception of follow-on investments to existing portfolio holdings and investments to which a written commitment to invest has already been executed; both to be pursued only with written consent of the Executive Director) and will distribute proceeds upon any partial or full realization of existing investments.

B. U.S. Large Cap Low P/E

In the fall of 2019, APFC Public Equity Staff established an internally traded deep value strategy. The following guidelines apply to this strategy:

1. **Benchmark**
   The performance benchmark is the Russell 1000 Value Index.

2. **Risk Limit**
   The portfolio will be included within the Total Public Equities' Tracking Error and Relative VaR limits. The allocation limit to the strategy will conform to the limits set in the Public Equities investment guidelines.

3. **Concentration Risk**
   When originally purchasing securities for this strategy, the securities will all be equally weighted and from the lowest valuation quintile of the Russell 1000 index. The portfolio will be rebalanced every 12 months to ensure that the securities that make up this portfolio remain equally weighted and at least 90% of the securities are in the lowest valuation quintile of the Russell 1000 index. At all times, the portfolio will have a minimum of 100 securities.

4. **Allowable Investments**
   The strategy will invest in U.S. listed equity securities from the Russell 1000 Index.

5. **Shorting, Leverage, and Derivatives**
   Not applicable at this time.

6. **Liquidity Risk**
   The strategy is expected to be fairly liquid. For example, at $500mm in AUM the portfolio is estimated to trade 95% on day 1 and 99% by day 3, under normal market conditions.

7. **Portfolio Size Limit**
   Without strategy is expected to be fairly liquid. For example, at $500mm in AUM the portfolio is estimated to trade 95% on day 1 and 99% by day 3, under normal market conditions.

Appendix B: Limit Ranges and Compliance Cure Periods

The Green Zone Operating Range ("Green Zone") concept is designed to indicate the Board approved operating risk limits.

A. The Green Zone is the Board-approved Chief Investment Officer ("CIO") operating range.

B. The Yellow Zone is the Board approved Executive Director ("ED") operating range.

   1. The Chief Financial Officer ("CFO") will notify the CIO and ED promptly upon entry into a Yellow Zone.

   2. The CIO will respond by requesting ED approval to operate within the Yellow Zone.

   3. With ED approval, the CIO may operate within a Yellow Zone for up to 90 consecutive days or, if longer, until the next Board meeting following entry into a Yellow Zone.

   4. The CFO will notify the Board (i) when approaching 90 days of operating within a Yellow Zone and (ii) monthly thereafter.

   5. Following Board notification, a Trustee may request in writing a meeting to discuss an extension to continue operating within the Yellow Zone.

   6. The Board may grant the CIO and ED an extension to continue operating within a Yellow Zone. Between Board meetings, unless a Trustee requests a meeting, the Board Chair may grant the CIO and ED an extension to continue operating within a Yellow Zone.

C. The Red Zone is the operating range that requires Board approval.

   1. The CFO will notify the Board upon entry into a Red Zone.

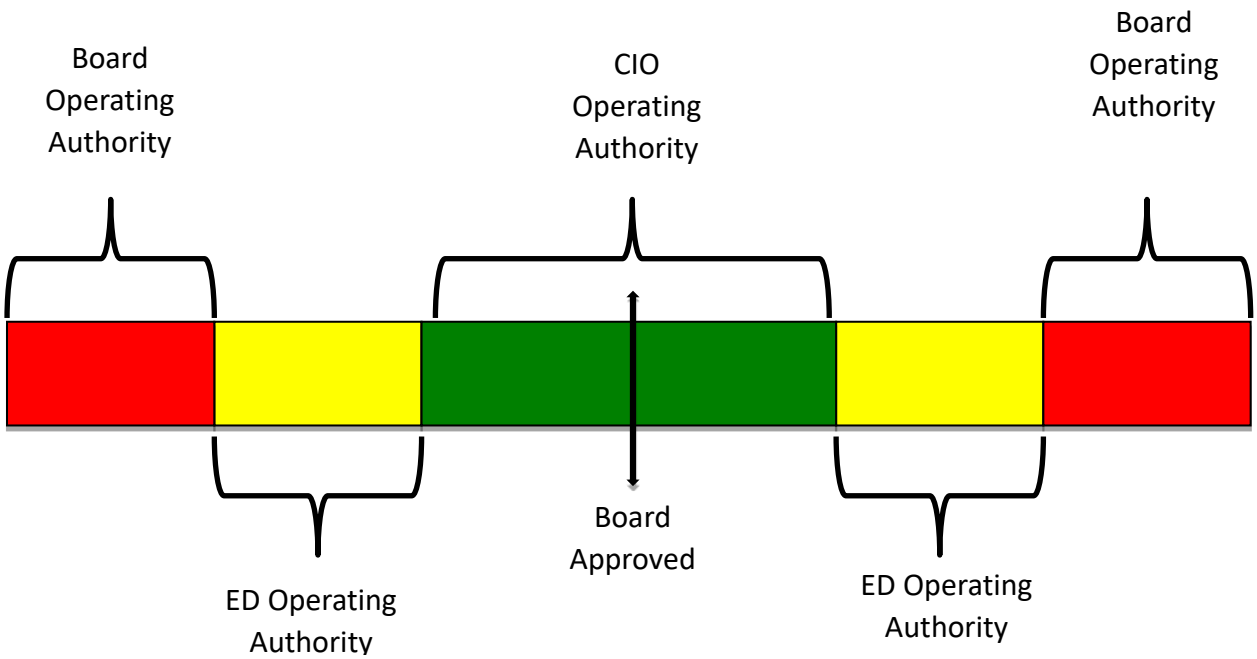
   2. The CIO and ED will respond to the Board with an action plan.

   3. Absent Board approval, operating within a Red Zone is limited to 30 consecutive days (plus the time needed to notice a Board meeting).

   4. The Board has the authority to approve operating within a Red Zone, beyond 30 days.

Even though the Fund is expected to operate most of the time within the Green Zone, the Fund may periodically be within a Yellow Zone, and there may be times when the Fund will be within a Red Zone. The zones are designed to increase transparency and awareness; they should not be viewed as explicit violations. Each year a historical report showing periods of operating within the Yellow and Red Zones will be included in Board meeting packets.

Visual Display of Green Zone Concept



Appendix C: Glossary

AAC means the Alaska Administrative Code.

ADA means the Americans With Disabilities Act of 1990.

Advisors and **Board Advisors** mean the investment professionals who comprise the Board's Investment Advisory Group.

APFC and **Corporation** mean the Alaska Permanent Fund Corporation, established under AS 37.13.040.

AS means Alaska Statutes.

BB means Bloomberg.

Board means the Board of Trustees of the APFC.

CMBS means commercial mortgage-backed securities.

CFO means the APFC's Chief Financial Officer.

CIO means the APFC's Chief Investment Officer.

Consultant means the Board's investment consultant(s), not including Board Advisors.

CPI means the Consumer Price Index.

CRO means Chief Risk Officer

Custodian means the APFC's custodian.

Days means calendar days.

ED means the APFC's Executive Director.

FoF means fund-of-funds.

Fund and **Permanent Fund** mean the Alaska Permanent Fund, established under Article IX, Section 15, of the Alaska Constitution, and described in AS 37.13.010.

IMA means investment management agreement.

Investment Manager and Manager mean investment manager(s) retained by the APFC.

IRR means internal rate-of-return.

Long-Term means over one or more business cycles.

MBS means mortgage-backed securities.

RBM means Strategic Risk Benchmark.

Staff means the APFC Investment staff and, where the context requires, also means or includes the Executive Director and/or other APFC staff.

TE means Tracking Error.

Trustees means the members of the APFC's Board of Trustees.

VaR means Value at Risk.

Appendix D: Previous Investment Policy Adoption and Amendments

The previous APFC Investment Policy was adopted or amended effective as follows:

Adopted: May 27, 2010

Amended: September 30, 2010 (§14.9 added)

Amended: December 1, 2010 (§9.1 revised; new §11.1 added and prior §§11.1-11.3 and subsections thereunder renumbered; and §18.2.4 revised)

Amended: May 20, 2011 (§18A added)

Amended: September 30, 2011 (§§ 8, 8.2, 8.3, 8.5, 9.2, 9.3.1, 9.4.1, 11.3.1, 15.3, and 15.4 revised)

Amended: December 8, 2011 (§11.3.2 revised)

Amended: February 22, 2012 (§20 revised)

Amended: April 23, 2012 (§§16.3.1 and 16.3.2 revised; and Specific Policy Modifications for Tysons Corner Phase I Project and Mariner Frontier Fund, L.P. added)

Amended: February 27, 2013 (§§ 15.2, 15.3, and 15.4 revised)

Amended: May 22, 2013 (§§9.5.4, 9.5.5,12.4, 12.6, 13.2, 13.3.1, 13.3.3, 14.9.4.10, 16.1.2, 16.1.3, 16.1.4, 16.2, 16.3, 16.3.1, 18A, 23.2, and 23.5 revised; Specific Policy Modification for Mariner Frontier Fund, L.P. revised; Specific Policy Modification for Crestline AK Permanent Fund, L.P. added; and Addendum re Internal Investment Managers added)

Amended: May 23, 2013 (§§ 3.1, 3.3, 5.3, 6, 8 (including Table 8a), 8.1 revised; §8.2 deleted; §§ 8.3-8.5 renumbered (as §§ 8.2-8.4) and newly-renumbered §§ 8.2-8.4 revised; and §§ 9.2, 9.3.1, 9.4.1, 10, 11.3.1, and 22.2 revised)

Amended: February 26, 2014 (§§23.3.1, and 23.2 revised; and Addendum re Internal Investment Managers revised)

Amended: May 21, 2014 (§14.9.4.10 (including Table 14.9.4.10.1) revised)

Amended: December 10, 2014 (§§ 8, 9.3.1, 11.3.2, 14.2.2, and Table 14.5.4.1revised)

Amended: May 19, 2015 (§§ 15 and 16, including conforming changes in other sections revised)

Amended: September 27, 2016

Amended: December, 2016 (§§ 9, 10 and 12, including conforming changes in other sections revised)

Amended: May 23, 2018, complete re-write of the Policy and Guidelines. Changes to be effective on July 1, 2018.

Amended: September 27, 2018 (§ 5, Alaska Investment Policy was revised)

Amended: May ?, 2020, complete rewrite of the Investment Policy.

17) Governance Charter & Bylaws

Governance Charter & Bylaws Memo

APFC ALASKA PERMANENT FUND CORPORATION
801 W 10TH SUITE 302 | JUNEAU, AK 99801
907.796.1500 | apfc.org

SUBJECT: Proposed Changes to By Laws and Governance Policies

ACTION: Changes require Board Approval

DATE: 2/20/2020

BACKGROUND:

The Alaska Permanent Fund Corporation's By Laws and Board of Trustees Charters and Governance Policies provide the framework and process for the Corporation to fulfill its statutory mission to prudently invest and manage the assets of the of Alaska Permanent Fund.

Specifically, the current By Laws:

(1) describe the mechanism by which the Board of Trustees is organized and conducts its business at regularly scheduled and special board meetings; and
(2) outline the duties assigned to the Executive Director, which includes the investment function of the Corporation.

The current Governance Policies, which supplement the By Laws, outlines the duties and responsibilities of the:

(1) Board;
(2) Chair and Vice Chair;
(3) Board Committees;
(4) Investment Advisory Group; and
(5) Executive Director, which includes the investment function of the Corporation.

PROPOSED ACTION ITEM:

The proposed amendments to the By Laws and Governance Policies before the Board for consideration would:

(1) Re-assign the investment authority from the Executive Director to the Chief Investment Officer; and
(2) have the Chief Investment Officer report directly to the Board rather than the Executive Director.

To effectuate these changes, the following amendments are being proposed to the By Laws:

(1) **Section 4 of Article II** that relates to the Executive Director would be amended to remove the investment authority from the list of duties assigned to the Executive Director; and
(2) A new section, **Section 5 of Article II,** that relates to the Chief Investment Officer would be added to:
    a. assign the investment authority to the Chief Investment Officer;
    b. require the Chief Investment Officer to report Fund performance to the Board quarterly; and
    c. require Board approval of the Executive Director's selection of the Chief Investment Officer.

To effectuate these changes, the following amendments are being proposed to the Governance Policies:

(1) The **Charter of the Board of Trustees** would be amended to:
    a. require the Board to establish a charter outlining the duties of the Chief Investment Officer;
    b. require the Board to establish a process to evaluate the annual performance of the Chief Investment Officer;
    c. require the Board to approve the Executive Director's selection of the Chief Investment Officer; and
    d. require the Board to ensure that the Chief Investment Officer complies with the duties of the Chief Investment Officer Charter;

(2) The **Charter of the Governance Committee of the Board** would be amended to:
    a. Review the Charter of the Chief Investment Officer every three years, or as needed, and offer any proposed changes to this Charter to the Board for consideration; and
    b. Ensure that the Governance Committee assist the Board in conducting the annual performance evaluation of the Chief Investment Officer;

(3) The **Charter of the Chair of the Board** would be amended to modify the duties of the Chair to facilitate communication between the Board and the Chief Investment Officer;

(4) The **Charter of the Executive Director** would be amended to:
    a. Remove the duties assigned to the Executive Director regarding the investment authority of the Corporation, which include the development of the investment policy, including asset allocation, and Fund performance reporting; and
    b. Remove the Executive Director's ability to set the compensation level of the Chief Investment Officer;

(5) Create a new section entitled **Charter of the Chief Investment Officer,** which provides the following:
    a. The duties assigned to the Chief Investment Officer include:

i. The development of and implementation of an investment policy to fulfill the Board's investment philosophy, including an asset allocation;
ii. Monitoring and reporting on the investment performance, including management costs, of: (1) the Fund, (2) each asset class, (3) Fund managers, and (4) investment portfolios; and

b. Authorizes the Chief Investment Officer to delegate investment functions to APFC Staff but make clear that the Chief Investment Officer remains responsible for the ensuring the investment functions are properly performed; and

(6) The **Performance Evaluation Policy** would be amended to include the Chief Investment Officer in the annual performance evaluation process that the Board currently uses to evaluate the performance of the Executive Director.

Should the Board vote to approve the above outlined changes, or any other changes, an updated version of the By Laws and Governance Policies will be posted to the APFC website with the effective date approved by the Board.

In addition to this memorandum describing these proposed changes, attached is a track-change version of the By Laws and Governance Policies reflecting these proposed changes.

APFC Bylaws Redlines

ALASKA PERMANENT FUND CORPORATION

BYLAWS

~~February 25, 2011~~
February 20, 2020

Alaska Permanent Fund Corporation
801 West 10th Street, Suite 302 Juneau, Alaska 99811 (907)796-1500

ALASKA PERMANENT FUND CORPORATION

BYLAWS

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ALASKA PERMANENT FUND CORPORATION
BYLAWS

PREAMBLE

The Alaska Permanent Fund Corporation, a government instrumentality of the State of Alaska created by AS 37.13 to manage and invest the assets of the Alaska Permanent Fund and other funds designated by law, by and through its Board of Trustees who, under AS 37.13.040, are responsible for managing the affairs of the Corporation, hereby adopts the following bylaws:

ARTICLE I. THE CORPORATION

Section 1. Name of Corporation. The name of the Corporation is the "ALASKA PERMANENT FUND CORPORATION".

Section 2. Seal of Corporation. The seal of the Corporation is in the form of a circle and shall bear the name of the Corporation and the year of its creation, 1980. The seal of the Corporation shall be different than the logo of the Alaska Permanent Fund, which will bear the name of the Fund and the year of its creation, 1976.

Section 3. Offices of the Corporation. The principal office of the Corporation shall be at Juneau, Alaska, with branch offices at other locations in the State of Alaska as the Board of Trustees may from time to time designate by resolution.

ARTICLE II. ORGANIZATION AND OFFICERS

Section 1. Officers. The principal officers of the Corporation are Chair, Vice Chair, Secretary/Treasurer, and Executive Director. The Executive Director is also designated as Secretary/Treasurer.

Section 2. Chair. The Chair shall preside at meetings of the Board of Trustees. At each meeting, the Chair shall submit such recommendations and information as the Chair may

consider proper concerning the business, affairs, and policies of the Corporation. The Chair shall be primarily responsible for communications between the Board of Trustees and the Executive Director whenever the Board of Trustees is not in session. The Chair serves as one of the official spokespersons for the Corporation, together with the Executive Director.

Section 3. Vice Chair. The Vice Chair shall perform the duties of the Chair in the absence or incapacity of the Chair.

Section 4. Executive Director. The Board of Trustees shall appoint an Executive Director for the Corporation who serves as the Chief Executive Officer of the Corporation. The Executive Director serves at the pleasure of the Board. The Executive Director serves as one of the official spokespersons for the Corporation, together with the Chair of the Board. The duties of the Executive Director include:

(a) Provide for execution of all operational and~~,~~ administrative~~, and investment~~ functions of the Corporation on a daily basis;

(b) Act as Secretary/Treasurer of the Corporation and sign all contracts, deeds, and other instruments of the Corporation;

(c) Provide for recording of all votes and proceedings of the Board of Trustees, electronically whenever possible;

(d) Provide for the custody, recordkeeping, and monitoring of all assets managed by the Corporation, either directly or through one or more financial institutions or fiduciaries qualified and experienced in the safekeeping of financial assets of large institutional investors;

(e) Provide for the retention and safekeeping of all instruments that reflect the assets managed by the Corporation;

(f) Provide for disbursements of funds for Corporation-managed investments, expenses, and obligations;

(g) Provide periodic reports to the Board of Trustees;

(h) Perform such duties and responsibilities assigned to the Executive Director in the Board of Trustees Charters and Governance Policies; and

(i) Perform such other duties as may be assigned from time to time by the Board of Trustees by resolution or motion.

Section 5. Chief Investment Officer. The Executive Director, with the approval of the Board of Trustees, shall select and employ a Chief Investment Officer. Consistent with the Investment

Responsibilities provided in AS 37.13.120 and any Regulations and Investment Policies adopted by the Board of trustees, the Chief Investment Officer shall provide for the investment functions of the Corporation on a daily basis and report quarterly to the Board on the performance of the Alaska Permanent Fund investments. The Chief Investment Officer shall also perform such duties and responsibilities assigned to the Chief Investment Officer in the Board of Trustees Charters and Governance Policies.

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Section 6. Committees.

(a) **Standing Committees.** Standing committees of the Board of Trustees shall be as follows:

(1) The Audit Committee consists of at least three Trustees appointed by the Chair. In accordance with the Board of Trustees Charters and Governance Policies, the Board shall adopt an Audit Committee Charter that sets forth the role, authority, operating procedures, and duties and responsibilities of the Audit Committee.

(2) The Governance Committee consists of at least three Trustees. The Vice Chair of the Board shall be the Chair of the Governance Committee, and the Chair of the Board shall appoint the other Governance Committee members. In accordance with the Board of Trustees Charters and Governance Policies, the Board shall adopt a Governance Committee Charter that sets forth the duties and responsibilities of the Governance Committee.

(b) **Ad hoc Committees**. The Chair may appoint temporary, ad hoc committees for specified purposes. Ad hoc committees shall report to the full Board and have no decision-making powers except those specifically granted by action of the Board of Trustees. Unless the term of an ad hoc committee is extended by action of the Board of Trustees, the term shall expire at the conclusion of the next annual meeting of the Corporation after the committee is first appointed, or upon completion of the matter for which the committee was appointed, whichever first occurs.

Section ~~6~~7. Election or Appointment. The election of the Chair and the Vice Chair shall occur at the annual meeting of the Corporation, and those officers shall hold office for one year or until their successors are elected and qualified.

Section ~~7~~8. Vacancies. If the office of the Chair becomes vacant, the Vice Chair shall succeed to the position of Chair for the unexpired term of the office. If the office of the Vice Chair becomes vacant, the Board of Trustees shall elect a successor for the unexpired term of the office from among its members at the next meeting of the Board.

Section ~~8~~9. Personnel. In addition to the Chief Investment Officer position described in Section 5 of this Article, ~~T~~the Executive Director of the Corporation shall employ such personnel as the Executive Director deems necessary to exercise the powers, duties, and functions of the Executive Director as prescribed by AS 37.13, all other applicable laws of the State of Alaska, these bylaws, the Board of Trustees Charters and Governance Policies, and other duties as are assigned from time to time by the Board of Trustees. The compensation of such personnel shall be determined by the Executive Director of the Corporation. All decisions of the Executive Director under this section shall be made within the limitations of the budget of the Corporation as approved by the Board of Trustees, and in compliance with the charters and policies established by the Board of Trustees.

Section ~~9~~10. Conflict of Interest and Ethics; Disclosure. The Board of Trustees may impose standards of conduct and disclosure that are stricter than those required of Trustees and Corporate officers and employees by State law.

Section 1~~0~~1. Political Activities. Except as otherwise provided by law, the resources of the Corporation or the Fund may not be used to finance or influence political activities.

Section 1~~1~~2. Bonding. The Board of Trustees and the Executive Director shall be bonded in the manner provided for state officers under AS 39. The Executive Director may provide for bonding of other employees of the Corporation.

ARTICLE III. MEETINGS

Section 1. Annual Meeting. The annual meeting of the Board of Trustees of the Corporation shall be held in the first six (6) months of each fiscal year ending June 30 at the place and time

and on a date fixed by the Chair and transmitted by written notice to the Trustees at least thirty (30) days prior to the date of such annual meeting. The annual meeting is also a regular meeting as set forth in Section 2 of this Article.

Section 2. Regular Meetings. Regular meetings of the Board of Trustees of the Corporation shall be held at least once in each calendar quarter of each year on the date and at the time and place designated at the last regular meeting or by adoption of an annual calendar. In the absence of such designation, then at the place and time and on the date in any such month as fixed by the Chair. Regular meetings shall be held to review investment activity of the Corporation, to consider other matters properly brought before the Board, and to provide an opportunity for public comment on matters affecting the Fund or the Corporation. The members of the Board of Trustees of the Corporation shall be given at least fifteen (15) days prior notice of regular meetings. Designation of the date, time, and place of the next regular meeting at the previous regular meeting or adoption by the Board of an annual calendar constitutes sufficient notice to Board members. If a waiver of notice and consent to the meeting of each absent member is provided, and so long as a quorum is otherwise present, then any and all business may be transacted even though notice of that meeting was not provided to the absent Board members.

Section 3. Special Meetings. The Chair of the Board of Trustees may, when the Chair deems it expedient, and shall upon the written request of two members of the Board, call a special meeting of the Board for the purpose of transacting any business designated in the call. The call for a special meeting shall be transmitted to the business or home address of each member of the Board at least five (5) days prior to the date of such special meeting. At such special meetings, no business shall be considered other than as designated in the call. However, if all the members of the Board are present at a special meeting, or those not present have signed a waiver of notice and consent to the meeting with a quorum otherwise being present, then any and all business may be transacted at such special meeting. Public notice for a special meeting shall be accomplished pursuant to Section 5 of this Article.

Section 4. Committee Meetings. The Chair of the Board of Trustees or the chair of a committee appointed by the Chair of the Board may, and shall upon the written request of two members of the committee, call a meeting of the committee including, but not limited to, a committee of the whole composed of the entire Board. The committee may discuss and take action on any subject within its area of responsibility and authority.

Section 5. Public Notice. All meetings of the Board of Trustees or of a committee of the Board shall be preceded by reasonable notice to the public of the time, place, and subject matter of the proceeding. If reasonable under the circumstances, notice shall be made by advertisement in a newspaper of general circulation throughout the State of Alaska and by posting on the Corporation's website.

Section 6. Quorum and Action.

(a) In accordance with AS 37.13.080, four members of the Board of Trustees constitute a quorum, and the Board may take action only upon the affirmative vote of a majority of the full membership of the Board at a regular or properly called special meeting at which a quorum is present.

(b) In accordance with AS 44.62.310(a), a member of the Board of Trustees may attend and vote at a meeting of the Board by teleconference.

Section 7. Order of Business. For regular meetings of the Board of Trustees, the order of business shall be determined by the Chair at least 24 hours in advance of the scheduled meeting time. The order of business may be amended at the time of the meeting by the Chair without objection of any Trustee present or by approved motion of the Board of Trustees.

Section 8. Rules of Procedure. The rules of procedure applicable at all regular, special, and committee meetings of the Board of Trustees are the current edition of Robert's Rules of Order, Newly Revised, except as the Board provides by resolution for other procedures.

Section 9. Manner of Voting.

(a) The voting on all resolutions coming before the Board of Trustees shall be by roll call, and the vote of each Trustee shall be entered upon the minutes of such meeting.

(b) The voting on motions coming before the Board may be by voice vote. The "Yeas" and "Nays" shall be entered upon the minutes of such meeting, providing any dissenting votes are cast; otherwise, actions on motions may be shown as unanimous.

Section 10. Motions and Resolutions. All investment policy shall be established by adoption of resolutions; provided, however, the Corporation's Investment Policy may be amended by motion in accordance with procedures described in the Investment Policy. Short-term administrative and operational matters may be adopted by motion. The Board of Trustees may adopt long-term administrative and operating policies by resolution.

ARTICLE IV. BOOKS AND RECORDS

Section 1. Custody. Unless the Board of Trustees directs otherwise, the Executive Director of the Corporation shall, to the extent practicable, maintain physical custody at the Corporation's principal office of the books and records of the Corporation.

Section 2. Public Inspection. The Executive Director shall insure that the books and records of the Corporation, unless confidential under AS 37.13.200 or otherwise confidential or privileged under applicable law, are available for public inspection in accordance with Alaska law relating to public records.

ARTICLE V. AMENDMENTS

Amendments to Bylaws. The bylaws of the Corporation may be amended by motion at a regular or special meeting when the amendment has been submitted to each member of the Board of Trustees at least thirty (30) days prior to such meeting.

ADOPTED September 12, 1980.
AMENDED December 3, 1981.
AMENDED March 23, 1984.
AMENDED March 20, 1990.
AMENDED October 1, 1992.
AMENDED September 29, 1994.
AMENDED September 27, 1995.
AMENDED September 26, 2002.
AMENDED November 14, 2002.
AMENDED March 27, 2003.
RESCINDED AND READOPTED September 20, 2004.
AMENDED September 30, 2010.
AMENDED February 25, 2011.
AMENDED February 20, 2020.

APFC Governance Manual Redline

APFC Governance Manual Redlines

Alaska Permanent Fund Corporation

Board of Trustees Charters and Governance Policies

FebruaryFebruary 2017 20

BOARD CHARTERS AND GOVERNANCE POLICIES

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ALASKA PERMANENT FUND CORPORATION

Charter of the Board of Trustees

INTRODUCTION

1. The State of Alaska has established the Alaska Permanent Fund Corporation (APFC) to manage and invest the assets of the Alaska Permanent Fund and other funds designated by law. [AS 37.13.040]

2. The Board of Trustees of the APFC consists of six members appointed by the Governor. Two of the members are required by law to be heads of principal departments of state government, one of whom shall be the commissioner of revenue. Four members shall be appointed by the Governor from the public with recognized competence and wide experience in finance, investments, or other business management-related fields. [AS 37.13.050]

DUTIES AND RESPONSIBILITIES

Governance

3. The Board of Trustees will establish a committee structure that it considers necessary and appropriate.

4. The Board will establish charters setting out the duties and responsibilities of:

   (a) The Board of Trustees;
   (b) The Chair and Vice Chair of the Board;
   (c) The Committees of the Board;
   (d) The Investment Advisory Group; ~~and~~
   (e) The Executive Director~~.~~; and
   ~~(e)~~(f) The Chief Investment Officer.

5. The Board will establish governance policies as necessary, including bylaws and other Board standards, to ensure effective operation of the affairs of the Board.

6. The Board will establish a process for the evaluation of the performance of the Executive Director and Chief Investment Officer~~—~~ and ~~—~~will conduct such performance evaluations annually.

Investments

7. In managing and investing the assets of the Alaska Permanent Fund, the Board is required to exercise the judgment and care under the circumstances then prevailing that an institutional investor of ordinary prudence, discretion, and intelligence exercises in the designation and management of large investments

entrusted to it, not in regard to speculation, but in regard to the permanent disposition of funds, considering preservation of the purchasing power of the Fund over time while maximizing the expected total return from both income and the appreciation of capital. [AS 37.13.120]

8. The Board will establish an investment policy which shall include the Board's overall investment philosophy, as well as other related policies as necessary for the effective management and investment of the assets of the Fund.

9. The Board will establish a framework and process for the management of the investment risk of the Fund, which shall be set out in the investment policy.

10. The Board will approve the long-term or strategic asset allocation of the Fund in terms of the proportion of total assets to be invested within a minimum-maximum range at any point in time.

Finance, Accounting and Audit

11. The Board will ensure that appropriate financial and operational controls and procedures are in place to safeguard the assets of the Fund.

12. The Board will ensure that audits of these controls and procedures are conducted from time to time by an independent external auditor in order to ensure that the assets are properly accounted for, and that the investments of the Fund are in accordance with applicable laws and regulations.

13. The Board will ensure that annual financial statements of the Fund are prepared and that these statements are audited by an independent external auditor. It will approve the annual financial statements, and include them as part of an annual report for distribution to the Governor, the Legislature and the public. [AS 37.13.170]

Operations and Human Resources

14. The Board will appoint an Executive Director~~ and review the performance of the Executive Director annually~~ and approve the Executive Director's selection of the Chief Investment Officer.

15. The Board will establish a strategic plan for the APFC and review the strategic plan annually.

16. The Board will approve an annual operating budget for the APFC.

17. The Board will establish human resources policies and procedures necessary for the effective management of the APFC, including a compensation and benefit policy and a succession plan for the senior management of the organization.

Communications

18. The Board will establish a communications policy which sets out guidelines with respect to how the Board and individual trustees should communicate with:

    (a) The staff of the APFC;
    (b) Service providers;
    (c) The media, including social media such as Facebook, LinkedIn, and Twitter; and
    (d) Other external parties.

Appointments

19. The Board will appoint the following key service providers and advisors:

    (a) The Auditor;
    (b) The Custodian;
    (c) The Investment Consultant;
    (d) The members of the Investment Advisory Group; and
    (e) At the Board's election, any other service providers.

Monitoring and Reporting

20. The Board will establish a policy which sets out its requirements regarding the reports the Board will receive on a regular basis in order to meet its responsibility for the oversight of the management of the APFC.

21. The Board will review on a regular basis, without limitation, the following:

    (a) The investment performance of the Fund and each asset class, including the costs of managing the Fund;
    (b) The asset allocation and investment risk of the Fund; and
    (c) The compliance program of the Fund and the APFC in relation to applicable laws and regulations, as well as all policies, procedures and bylaws established by the Board.

22. The Board will review the compliance of the Board, its committees, the Chair and Vice Chair of the Board, and the Executive Director and Chief Investment Officer with the duties and responsibilities set out in their respective charters.

23. The Board will review all policies established by the Board as frequently as required under the terms of the individual policy.

~~24.~~ The Board will review and evaluate the performance of the Executive Director and Chief Investment Officer on an annual basis.

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25. The Board will ensure that an annual report of the APFC is prepared and distributed as required by Alaska Statute 37.13.170.

REVIEW AND AMENDMENT OF THE CHARTER

26. The Governance Committee will review this Charter at least once every three (3) years and recommend any amendments to the Board for approval as necessary to ensure that the Charter remains relevant and appropriate.

27. The Board of Trustees last ~~a~~amended ~~dopted~~ this Charter on February 20, 2020 ~~February 23rd, 2017~~.

ALASKA PERMANENT FUND CORPORATION

Charter of the Audit Committee of the Board

INTRODUCTION

1. The Board of Trustees of the Alaska Permanent Fund Corporation ("APFC") has established an Audit Committee ("the Committee") to assist the Board in the financial oversight of the APFC.

2. The Board has established this Charter which sets out the duties and responsibilities of the Committee.

ROLE

3. The role of the Audit Committee will be to:

   (a) Monitor the integrity of the financial reporting process and the system of internal controls and procedures regarding finance, accounting, and legal compliance;
   (b) Review the performance and independence of the APFC's external auditors; and
   (c) Provide an avenue of communication among the external auditors, management, the Chief Financial Officer, and the Board.

AUTHORITIES

4. The Committee will have the authority to conduct any investigation appropriate to fulfill its responsibilities.

5. The Committee will have direct access to the external auditors, as well as all APFC management and staff, legal counsel, as well as all advisors, consultants and investment managers of the Fund.

6. The Committee may retain, at the expense of the APFC and consistent with applicable procurement requirements, consultants or experts it considers necessary in the performance of its duties.

OPERATING PROCEDURES

7. The Committee will consist of at least three Trustees, each of whom must have a basic understanding of finance and accounting and be able to read and understand financial statements.

8. The Committee will meet at least two times annually, or more frequently as circumstances dictate. The Committee Chair will prepare and/or approve an agenda in advance of each meeting.

9. The Committee will invite members of management, auditors, or other professionals as deemed necessary, to attend meetings and provide pertinent information. The Committee may meet in executive sessions as necessary within the requirements of the Alaska Open Meetings Act [AS 44.62.310].

10. The Committee will maintain minutes or digital recordings of Committee meetings and periodically report to the board of Trustees on significant results of the Committee's activities.

11. The Committee will annually perform a self-assessment of the Committee's performance.

DUTIES AND RESPONSIBILITIES

Financial Reporting and Internal Controls

12. The Committee will carry out the following responsibilities with respect to financial reporting and internal controls:

    (a) Review the annual audited financial statements prior to filing or distribution of the final report. This review should include discussion with management and external auditors of significant issues regarding accounting principles, practices, and judgments;

    (b) In consultation with management, the external auditors, and the Chief Financial Officer, consider the integrity of the financial reporting processes and controls; discuss significant financial risk exposures and the steps management has taken to monitor, control, and report such exposures; and review significant findings prepared by the external auditors and the Chief Financial Officer together with management's responses;

    (c) Discuss any significant changes to applicable accounting principles and any items required to be communicated by the independent auditors;

    (d) At least annually, review with the APFC's counsel any legal matters that could have a material impact on the Fund's financial statements, the APFC's compliance with applicable laws and regulations, and any inquiries received from regulators or governmental agencies; and

External Audit

13. The Committee will have the following responsibilities with respect to the APFC's external auditors:

    (a) Review the external auditors' audit plan - discuss scope, staffing, locations, reliance upon management, and general audit approach;

    (b) Consider the external auditors' judgments about the quality and appropriateness of the APFC's accounting principles as applied in its financial reporting;

    (c) Discuss with management and the external auditors the quality of the accounting principles and underlying estimates used in the preparation of the Fund's financial statements;

    (d) Discuss with the external auditors the clarity of the financial disclosure practices used or proposed by the APFC;

    (e) Review the performance and independence of the auditors and periodically recommend to the Board of Trustees the appointment of the external auditors or approve any discharge of auditors when circumstances warrant; and

    (f) On an annual basis, review and discuss with the external auditors all significant relationships the auditors have with the APFC that could impair the auditors' independence.

REVIEW AND AMENDMENT OF THE CHARTER

14. The Governance Committee, in consultation with the Audit Committee, and staff will review this Charter at least once every three (3) years and recommend any amendments to the Board for approval as necessary to ensure that the Charter remains relevant and appropriate.

15. The Board of Trustees adopted this Charter on February 23rd, 2017.

ALASKA PERMANENT FUND CORPORATION

Charter of the Governance Committee of the Board

INTRODUCTION

1. The Board of Trustees of the Alaska Permanent Fund Corporation ("APFC") has established a Governance Committee ("the Committee") to assist the Board in the governance of the APFC.

2. The Vice Chair of the Board will serve as the Chair of the Governance Committee. The Vice Chair may act on behalf of the Governance Committee in performing the following duties with the approval of the full Board.

DUTIES AND RESPONSIBILITIES

Governance

3. The Governance Committee will review the charters of the Board, its committees, the Chair, the Vice Chair, the Investment Advisory Group, ~~and~~ the Executive Director, and Chief Investment Officer, as well as the governance policies of the Board as frequently as required under the terms of the individual charter or policy. The Committee will recommend any proposed changes in the charters and policies to the Board for approval as necessary.

4. The Committee will review compliance by the Board, its committees, the Chair, the Vice Chair, ~~and~~ the Executive Director and Chief Investment Officer with the duties and responsibilities set forth in their respective charters.

5. The Committee will ensure that the Board undertakes an evaluation of the performance of the Executive Director and Chief Investment Officer annually. It will supervise and coordinate the process by which the evaluation is conducted, including developing and recommending to the Board an evaluation survey, meeting with the Executive Director and Chief Investment Officer to discuss the evaluation results, and preparing an evaluation report.

6. Every three years, the Committee will review and update the senior management personnel (including Executive Director, Chief Investment Officer, and Chief Financial Officer) succession plan.

Strategic Planning and Budgeting

7. The Committee will assist the Board in establishing a Strategic Plan. It will undertake a comprehensive review of the Plan every three to five years, and supervise the preparation of a new Strategic Plan.

Monitoring and Reporting

8. The Committee will review and approve any changes to the list of reports that the Board will receive on a regular basis as set out in the *Monitoring and Reporting Policy*.

REVIEW AND AMENDMENT OF THE CHARTER

9. The Governance Committee will review this Charter at least once every three (3) years and recommend any amendments to the Board for approval as necessary to ensure that the Charter remains relevant and appropriate.

10. The Board of Trustees a~~dopted~~mended this Charter on February 20, 2020~~February 23rd, 2017~~.

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ALASKA PERMANENT FUND CORPORATION

Charter of the Chair of the Board

INTRODUCTION

1. Alaska Statute 37.13.050 requires the Board of Trustees to elect a Chair annually from among its members.

DUTIES AND RESPONSIBILITIES

2. The Chair will perform the duties and responsibilities and exercise the powers as specified below:

   (a) Appoint the members of the committees of the Board and the committee chairs (other than the chair of the Governance Committee);

   (b) Coordinate Board meetings, agendas, schedules and presentations, in consultation with the Executive Director;

   (c) Preside at the meetings of the Board and ensure that such meetings are conducted in an efficient manner and in accordance with Alaska's Open Meetings Act and agreed-upon rules of order;

   (d) Facilitate effective and open communications between the Board and the Executive Director and Chief Investment Officer;

   (e) Act as one of the official spokespersons for the APFC, together with the Executive Director;

   (f) Review and approve travel and other expenses of the members of the Board of Trustees;

   (g) Review and approve travel outside of the United States and other expenses of the Executive Director; and

   (h) Carry out any other duties and responsibilities as assigned by the Board.

REVIEW AND AMENDMENT OF THE CHARTER

3. The Governance Committee will review this Charter at least once every three (3) years and recommend any amendments to the Board for approval as necessary to ensure that the Charter remains relevant and appropriate.

4. The Board of Trustees a~~dopted~~mended this Charter on February 20, 2020 ~~February 23rd, 2017~~.

ALASKA PERMANENT FUND CORPORATION

Charter of the Vice Chair of the Board

INTRODUCTION

1. The Bylaws of the APFC establish the Vice Chair as an officer of the Board. The Vice Chair is elected annually.

DUTIES AND RESPONSIBILITIES

2. The Vice-Chair will perform the duties and responsibilities and exercise the powers as specified below:

   (a) Assume the duties of the Chair when the Chair is absent, or when the Chair designates the Vice-Chair to act in that capacity;

   (b) Temporarily act as the Chair in the event of death, resignation, removal from office, or permanent disability of the Chair, until the election of a new Chair;

   (c) Serve as the Chair of the Governance Committee; and

   (d) Carry out any other duties and responsibilities as assigned by the Board.

REVIEW AND AMENDMENT OF THE CHARTER

3. The Board of Trustees will review this Charter at least once every three (3) years and make any amendments as necessary to ensure that the Charter remains relevant and appropriate.

4. The Board of Trustees adopted this Charter on February 23rd, 2017.

ALASKA PERMANENT FUND CORPORATION (APFC)

Charter of the Investment Advisory Group

INTRODUCTION

1. The Board of Trustees has established an Investment Advisory Group consisting of at least one but not more than three individuals who have considerable knowledge and experience in the management and investment of large endowment or trust funds to serve as independent advisors to the Board of Trustees.

2. This Charter sets out the duties and responsibilities of the Investment Advisory Group, which includes evaluating Fund performance, asset allocation, the merits of specific investment proposals, and other investment topics identified by the Board.

3. The Board will have full authority over the selection and appointment of the members of the Investment Advisory Group who will serve at the pleasure of the Board.

DUTIES AND RESPONSIBILITIES

4. The Investment Advisory Group (or "IAG") members are expected to attend in-person at least three of the quarterly Board meetings and present at least one topic annually for the Board's consideration on best practices in the management of large institutional funds, with input from the Board on the specific topic for presentation.

5. The IAG will provide comments to the Board on the following issues:

   (a) The long-term or strategic asset allocation of the Fund;

   (b) The risk management framework of the Fund;

   (c) Any changes to the investment policy;

   (d) Any proposed investment in new asset classes;

   (e) Any proposed investment in new or innovative investment products or strategies, particularly those involving alternative or non-traditional asset classes;

   (f) Any significant changes to the investment management structure of the Fund, including the following:

i) The relative proportion of assets in an asset class managed by external investment managers versus internal staff;
ii) The relative proportion of assets in an asset class managed using active versus passive investment strategies;
iii) The total number of active investment managers or portfolios in an asset class; and

(g) Any other issue at the discretion of the Investment Advisory Group or as requested by the Board.

6. The IAG shall make contact with the Chief Investment Officer prior to each quarterly Board meeting to discuss topics on the agenda for the upcoming meeting, including:

(a) Fund performance for the quarter;

(b) Changes being considered or implemented to the asset allocation or investment policy; and

(c) Any special topics that are to be discussed at the upcoming Board meeting.

7. Each member of the Investment Advisory Group will annually visit the Juneau office of the APFC and attend in-person an investment committee meeting of the APFC Staff.

REVIEW AND AMENDMENT OF THE CHARTER

8. The Governance Committee will review this Charter at least once every three (3) years and recommend any amendments to the Board for approval as necessary to ensure that the Charter remains relevant and appropriate.

9. The Board of Trustees adopted this Charter on September 25, 2019.

ALASKA PERMANENT FUND CORPORATION

Charter of the Executive Director

INTRODUCTION

1. Alaska Statute 37.13.100 states that the Board of Trustees of the APFC may employ and determine the salary of an Executive Director.

2. The Bylaws of the APFC state that the Executive Director will be the chief executive officer of the Corporation and serve at the pleasure of the Board. They set out, in general terms, the duties of the Executive Director.

3. The Board has, for greater clarity, established this Charter which sets out, in more specific terms, the duties and responsibilities of the Executive Director.

4. The Executive Director may delegate certain of these duties to staff. The Executive Director will, however, remain responsible for ensuring that these duties are carried out.

DUTIES AND RESPONSIBILITIES

Leadership

5. The Executive Director will provide executive leadership to the APFC in setting and achieving its mission, goals and objectives and will manage the APFC in accordance with guidelines and parameters established by the Board. In doing so, the Executive Director may solicit advice and counsel from the Board as necessary.

Policy Development

6. The Executive Director will provide support to the Board in establishing the policies of the Board. This will involve working with the Board and the Governance Committee to identify issues requiring Board policy, conducting the necessary analysis of such issues and providing clear and well-supported policy recommendations for Board approval.

~~Investments~~

~~7. The Executive Director will develop and recommend to the Board:~~

~~(a) An investment policy, including the Board's overall investment philosophy, and mechanism for monitoring and managing investment risk;~~

~~(b) The long-term or strategic asset allocation of the Fund in terms of the proportion of total assets to be invested within a minimum-maximum range at any point in time; and~~

~~8. The Executive Director will implement all investment policies and strategies as approved by the Board.~~

Finance, Accounting and Audit

~~9.~~7. The Executive Director will direct that appropriate financial and operational controls and procedures are put in place to safeguard the assets of the Fund.

~~10.~~8. The Executive Director will direct and supervise a review of the Corporation's internal controls and procedures to ensure that the operations of the Corporation are performed in a secure and appropriate manner.

~~11.~~9. The Executive Director will direct and supervise the preparation of annual financial statements of the APFC and cooperate in the audit of these statements by an independent external auditor prior to their submission to the Audit Committee for its review.

~~12.~~10. The Executive Director will prepare and coordinate management's response to any issues of significant concern on the part of the external auditor, and will meet and discuss with the Audit Committee the findings of the audit.

Operations and Human Resources

~~13.~~11. The Executive Director will develop and recommend to the Board the overall organizational structure of the APFC.

~~14.~~12. The Executive Director will be responsible for managing the day-to-day operations of the APFC.

~~15.~~13. The Executive Director will have the authority to make all necessary operational expenditures, consistent with budgets, policies, and internal controls established by the Board.

~~16.~~14. The Executive Director will have the authority to execute all formal documents and contracts on behalf of the APFC.

~~17.~~15. The Executive Director will develop and recommend to the Board:

(a) A strategic plan; and
(b) An annual operating budget for the APFC.

~~18.~~16. The Executive Director will select and employ the staff necessary to manage the APFC and develop appropriate staff training and development programs.

~~19.~~17. The Executive Director will develop and recommend to the Board human resources policies and procedures necessary for the effective management of the APFC,

including a compensation and benefit policy and a succession plan for the senior management of the organization.

~~20.~~18. With the exception of the Chief Investment Officer, ~~T~~the Executive Director will determine the appropriate level of compensation for all staff within the benefits and compensation policy approved by the Board.

Communications

~~21.~~19. The Executive Director will develop and recommend to the Board a communications policy which sets outs guidelines with respect to how the Board and individual trustees will communicate with:

(a) The staff of the APFC;
(b) Service providers;
(c) The media, including social media such as Facebook, LinkedIn, and Twitter; and
(d) Other external parties.

~~22.~~20. The Executive Director will serve as one of the official spokespersons for the APFC, together with the Chair of the Board.

Appointments

~~23.~~21. The Executive Director will direct and supervise the conduct of all necessary due diligence that is appropriate in the search and selection of all service providers of the Fund.

~~24.~~22. The Executive Director will develop and recommend to the Board the appointment of the following key service providers and advisors:

(a) The Auditor;
(b) The Custodian;
(c) The members of the Investment Advisory Group;
(d) The Investment Consultant; and
(e) Other service providers as the Board may direct.

~~25.~~23. The Executive Director will be responsible for the selection and appointment of all other service providers not appointed by the Board.

~~26.~~24. The Executive Director will negotiate and execute the terms and provisions of all agreements and contracts with the service providers of the Fund, including those appointed by the Board.

Monitoring and Reporting

~~27.~~25. The Executive Director will develop and recommend to the Board a monitoring and reporting policy which sets out the Board's requirements regarding the reports it

will receive on a regular basis in order to meet its responsibility for the oversight of the management of the APFC.

~~28.~~26. The Executive Director will provide the Board with all relevant and appropriate information in a timely manner so as to enable the Board to meet its responsibilities.

~~29.~~27. The Executive Director will monitor on an ongoing basis, without limitation, the following:

~~(a) The investment performance of the Fund, asset classes, and investment managers and portfolios, including the costs of managing the Fund;~~
~~(b)~~(a) The asset allocation and investment risk of the Fund; and
~~(c)~~(b) The compliance of the Fund and the APFC with all applicable laws and regulations, as well as all policies, procedures and bylaws established by the Board, including those set forth in the Board standards.

~~30.~~28. The Executive Director will periodically review the performance, level of service and fees of the service providers appointed by the Executive Director.

~~31.~~29. The Executive Director will direct and supervise the preparation of an annual report of the APFC for distribution as required by Alaska Statute 37.13.170.

REVIEW AND AMENDMENT OF THE CHARTER

~~32.~~30. The Governance Committee will review this Charter at least once every three (3) years and recommend any amendments to the Board for approval as necessary to ensure that the Charter remains relevant and appropriate.

~~33.~~31. The Board of Trustees a~~dopted~~mended this Charter on February 20, 2020 ~~February 23rd, 2017~~.

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ALASKA PERMANENT FUND CORPORATION

Charter of the Chief Investment Officer

INTRODUCTION

1. Alaska Statute 37.13.100 states that the Executive Director may, with the approval of the Board of Trustees employ additional staff as necessary.

2. Article II, Section 5 of the APFC Bylaws provides for the Executive Director, with approval of the Board of Trustees, to employ a Chief Investment Officer to carry out the investment functions of the Corporation.

3. The Board has, for greater clarity, established this Charter which sets out, in more specific terms, the duties and responsibilities of the Chief Investment Officer.

4. The Chief Investment Officer may delegate certain of the investment duties to staff. The Chief Investment Officer will, however, remain responsible for ensuring that the investment duties are carried out.

Investments

5. The Chief Investment Officer will develop and recommend to the Board:

   (a) An investment policy, including the Board's overall investment philosophy, and mechanism for monitoring and managing investment risk; and

   (b) The long-term or strategic asset allocation of the Fund in terms of the proportion of total assets to be invested within a minimum-maximum range at any point in time.

6. The Chief Investment Officer will monitor on an ongoing basis and report to the Board at each regular meeting, the investment performance of the Fund, asset classes, and investment managers and portfolios, including the cost of managing the Fund.

7. The Chief Investment Officer will implement all investment policies and strategies as approved by the Board.

Review and Amendment of the Charter

8. The Governance Committee will review this Charter at least once every three (3) years and recommend any amendments to the Board for approval as necessary to ensure that the Charter remains relevant and appropriate.

9. The Board of Trustees adopted this Charter on February 20, 2020.

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ALASKA PERMANENT FUND CORPORATION

Board Policy Development Process

OBJECTIVES OF THE POLICY

1. The Board of Trustees of the APFC has established this *Board Policy Development Process* in order to meet the following objectives:

   (a) To set out the process by which the Board will develop and establish the policies of the Board; and

   (b) To ensure that the process is sound and reasonable and provides the Board with effective policies that achieves the goals and objectives of the APFC.

POLICY GUIDELINES

Roles and Responsibilities

2. The role of the Executive Director in the policy development process will be to:

   (a) Assist the Board in identifying appropriate areas or subject matters in which a board policy may be required;

   (b) Provide the Board with sound and comprehensive analysis of the underlying issues;

   (c) Undertake any research and analysis required in the development of the proposed policy, with the assistance of external advisors and consultants if necessary; and

   (d) Prepare a draft of the proposed policy for the Board's consideration.

3. The role of the Board is to review the proposed policy, including the research and analysis undertaken, and approve it if the Board determines that the policy will achieve the goals and objectives of the APFC.

Development and Approval

4. Any member of the Board, a Board committee, or the Executive Director may propose to the Board that it consider the development of a new Board policy.

5. In determining whether a particular matter warrants a Board policy, the Board should consider whether it meets the following criteria:

   (a) The matter may have a significant impact on the APFC's ability to achieve its goals and objectives;

   (b) It is an ongoing concern which is expected to come up again or remain indefinitely; and

   (c) It is not an operational matter that would otherwise fall within the responsibility of the Executive Director.

6. If the Board determines that the matter warrants a Board policy, it will pass a motion directing the Executive Director to prepare and submit a draft policy to the Board for its consideration.

7. A Board policy should contain, at a minimum, the following sections:

   (a) Objectives of the policy – what the policy is intended to achieve;
   (b) Policy guidelines – the actual terms and provisions of the policy; and
   (c) Review and amendment of the policy – how often the policy will be reviewed, and the date(s) on which the policy was adopted and/or amended.

8. The Board will approve a policy by resolution in order for the policy to take effect.

Maintenance and Review

9. All Board policies will be maintained in up-to-date form in a single volume or a series of volumes within the APFC's offices, and will be accessible to trustees, staff and the public. Trustees will be provided with a copy of the Board policies which will be updated as necessary.

10. The Board will formally review a Board policy within the time period specified in the policy, but no less frequently than once every three years. Any Trustee, Board committee, or the Executive Director may propose to the Governance Committee that a particular policy be reviewed earlier than required.

REVIEW AND AMENDMENT OF THE POLICY

11. The Governance Committee will review this Policy at least once every three (3) years and recommend any amendments to the Board for approval as necessary to ensure that the Policy remains relevant and appropriate.

12. The Board of Trustees adopted this Policy on February 23rd, 2017.

ALASKA PERMANENT FUND CORPORATION

Strategic Planning and Budgeting Policy

OBJECTIVES OF THE POLICY

1. The Board of Trustees of the APFC has established this *Strategic Planning and Budgeting Policy* in order to meet the following objectives:

   (a) To ensure that the APFC plans, in a deliberate and systematic way, for the future needs of the organization; and

   (b) To achieve a consensus among the Board and staff on how those needs and priorities are going to be met.

POLICY GUIDELINES

The Strategic Plan

2. The APFC will establish a Strategic Plan, extending over a period of five years into the future, to be reviewed and updated annually, which will address, without limitation, the following:

   (a) The mission of the APFC;
   (b) The philosophy and core values of the organization;
   (c) The goals and objectives of the APFC over the three to five-year period;
   (d) An evaluation of the external environment in which the APFC operates;
   (e) An assessment of the organization's internal resources and capabilities; and
   (f) The strategies for achieving the APFC's goals and objectives.

3. The Strategic Plan will include a list of the specific projects and initiatives to be started and/or implemented over the next fiscal year, including for each project or initiative:

   (a) Its potential benefit or impact;
   (b) Responsibility for implementation;
   (c) Timeline for completion; and
   (d) Budgetary implications.

4. The Board, with the assistance of the Executive Director, will undertake a comprehensive review of the Strategic Plan every five years.

The Planning and Budgeting Process

5. The Executive Director will review and update the Strategic Plan annually and present a report to the Governance Committee that includes:

   (a) A review of the implementation of the Strategic Plan for the current fiscal year; and

   (b) The updated Strategic Plan, including the current projects and initiatives in progress to be carried forward and new initiatives to be undertaken in the next fiscal year.

6. The Executive Director will present to the Board semi-annually a variance report on the current year's Budget that provides:

   (a) A comparison of actual expenditures versus the budget; and
   (b) An explanation for significant differences in actual and budgeted amounts for any budget item.

7. The Executive Director will prepare and present to the Board annually a proposed Budget for the next fiscal year which provides:

   (a) A breakdown of the Budget by line item, and within each line item by major expense category;

   (b) A comparison of each budget item to the current year's budget and actual expenditure (projected to year-end);

   (c) An explanation of significant changes from the previous year for any budget item; and

   (d) The identification of budgetary amounts tied to any project or initiatives in the Strategic Plan for the next fiscal year.

8. Any significant revisions to the Strategic Plan or Budget must be reviewed and approved by the Board.

9. The Executive Director shall inform the Board Chair in a timely manner, if for any reason, a particular project or initiative cannot be implemented or completed as planned.

REVIEW AND AMENDMENT OF THE POLICY

10. The Governance Committee will review this Policy at least once every three (3) years and recommend any amendments to the Board for approval as necessary to ensure that the Policy remains relevant and appropriate.

11. The Board of Trustees adopted this Policy on February 23rd, 2017.

ALASKA PERMANENT FUND CORPORATION

Monitoring and Reporting Policy

OBJECTIVES OF THE POLICY

1. The Board of Trustees of the APFC has established this *Monitoring and Reporting Policy* in order to set out its minimum requirements with respect to the reports it expects to receive on a regular basis.

POLICY GUIDELINES

2. The Board will receive the reports specified in the Appendix to this Policy. The reports will be provided on a regular basis at the frequency indicated in the Appendix.

3. The Board may receive additional reports on an ad hoc basis as necessary.

4. Any request by Trustees for additional reports to be provided on a regular basis will require approval by the Board and an amendment to the Appendix of this Policy.

REVIEW AND AMENDMENT OF THE POLICY

5. The Governance Committee will review this Policy at least once every three (3) years and recommend any amendments to the Board for approval as necessary to ensure that the Policy remains relevant and appropriate.

6. The Board of Trustees adopted this Policy on February ~~23rd~~20, 20~~17~~20.

Monitoring and Reporting Policy

APPENDIX

Governance Reports

Name of Report	Frequency	Prepared By	Description of Report
1. Review of Governance Policies and Charters	Every 3 years	Staff	Report on the findings and recommendations of the Board's review of its governance policies and charters. There could be separate reports, for policies one year and charters another year.
2. Governance Report	Every 3 years	Third Party or staff	Report on compliance with governance policies and charters. This report should be part of the Board's review of its policies and charters, and produced with the same frequency, i.e. every 3 years, with separate reports for policies and charters.
3.			
4. Executive Director/ CIO Performance Evaluation Report	Annual	Vice Chair, or Third Party	Report on the results of the Executive Officer's performance evaluation.
5. Board Education Report	Annual	Staff	Report on the activities of the Board and its members with respect to education.

Investment Reports

Name of Report	Frequency	Prepared By	Description of Report
6. Investment Performance Report	Monthly and Quarterly	Staff and/or Investment Consultant	Report on the asset allocation and investment performance of the Fund, including the performance of asset classes
7. Risk Management Report	Quarterly	Staff and/or Investment Consultant	Report on the investment risk of the Fund, its asset classes and investment portfolios.
8. Asset Allocation Study	Every 3 to 5 years	Staff and/or Investment Consultant	Report on the findings and recommendations of a review of the long-term or target asset allocation policy of the Fund.
9. Review of the Fund's Investment Policies	Every 1 to 3 years	Staff and/or Investment Consultant	Report on the findings and recommendations of a review of the investment policy statement and related policies and procedures of the Fund.
10. Review of the Fund's Investment Managers	Quarterly	Staff and/or Investment Consultant	Report on the performance and strategies of the investment managers of the Fund.

Financial, Audit and Operational Reports

Name of Report	Frequency	Prepared By	Description of Report
11. Annual Financial Report, including: ▪ Audited Financial Statements ▪ Management's Discussion and Analysis ▪ Auditor's Opinion	Annual	Staff and External Auditor	Report on the financial position and activities of the Fund.
12. Cybersecurity/IT Audit	Every 3 years	Staff and/or Third Party	Report on the safety and security controls of the Fund.

Planning and Budgeting Reports

Name of Report	Frequency	Prepared By	Description of Report
13.			
14. Budget Variance Report	Semi-Annual	Staff	Report on the implementation of the current year's budget, showing the variance between actual and budgeted expenditures.
15. Operating Budget	Annual	Staff	Report on the proposed budget for the next fiscal year.

ALASKA PERMANENT FUND CORPORATION

Trustee Education Policy

OBJECTIVES OF THE POLICY

1. The Board of Trustees of the APFC has established this *Trustee Education Policy* with the following objectives:

   (a) To ensure that the members of the Board have access to the knowledge and information necessary for them to fulfill their fiduciary duties as trustees of the Alaska Permanent Fund; and

   (b) To assist them in becoming well informed in all matters pertaining generally to the management of a large institutional fund, both public and private, and more specifically to the management and investments of the APFC.

POLICY GUIDELINES

2. The education program for Trustees will be based on the following principles:

   (a) The program should include both in-house education, so that Trustees can share in a common base of knowledge and information relevant to their tasks, as well as external conferences and seminars, so that Trustees can benefit from exposure to alternative perspectives and interaction with trustees of other organizations;

   (b) There should be diverse sources for education, beyond APFC staff and current service providers, including other external consultants, advisors and experts, so that Trustees may benefit from a wide range of views and opinions; and

   (c) Trustees are expected to participate in any in-house education sessions that may be organized for their benefit, including an orientation session for new Trustees. They are also encouraged to attend external conferences and seminars.

3. The education program will consist of the following:

   (a) A formal orientation for new Trustees;
   (b) A Trustee Reference Manual containing key information about the APFC;
   (c) In-house education, including:
      i) At the request of the Board, an annual education session
      ii) Seminars and briefings from time to time;
      iii) Selected reading material provided by staff; and
   (d) External conferences and seminars.

Orientation Program

4. The Executive Director will develop an orientation program designed to introduce new trustees to all relevant operations of the APFC, and to the duties and responsibilities of the Trustee. The aim of the orientation program will be to ensure that a new Trustee is in a position to contribute fully to the deliberations of the Board, and effectively carry out their duties and responsibilities as soon as possible after joining the Board.

5. The orientation program should include the following:

   (a) A briefing by the Executive Director on the history, mission, organization and operations of the APFC;

   (b) A briefing by the Chief Investment Officer on the investment philosophy, asset allocation, investment managers, and the major investment portfolios of the Fund;

   (c) A briefing on the laws and regulations governing the APFC, the fiduciary duties and responsibilities of the Trustees, the Board Charter, Committee structure, Bylaws and other Board standards including disclosure requirements;

   (d) A briefing on administrative policies and procedures relating to Board members;

   (e) An introduction to the APFC's website and the educational resources available there for Trustees; and

   (f) A briefing by the Chair of the Board and the Executive Director on the major issues currently before the Board.

6. The new Trustee will also, as part of the orientation program, be provided with the following:

   (a) The Trustee Reference Manual;
   (b) Selected articles and papers on the APFC and institutional fund management;
   (c) A list of upcoming conferences and seminars; and
   (d) The most recent Annual Report, including the audited financial statements.

Trustee Reference Manual

7. The Trustee Reference Manual will include the following:

   (a) The laws and regulations governing the Alaska Permanent Fund;
   (b) The Bylaws of the APFC;
   (c) The Charters and Governance Policies established by the Board;
   (d) A list of Board committees and committee members;
   (e) Names and contact information for Trustees, members of the Investment Advisory Group and the Executive Director;
   (f) Organization chart of the APFC;

(g) List of the APFC's major service providers; and
(h) The Investment Policy for the Fund.

In-house Education

8. The Board will periodically conduct assessments of its educational requirements to ensure it will be provided with the knowledge and information necessary to discharge its functions.

9. Trustees are encouraged to attend, if scheduled, an annual educational session which may be organized either by the Executive Director or in conjunction with other Alaska public funds such as the Alaska Retirement Management Board.

10. The Executive Director will, from time to time, organize short seminars or presentations on various topics by APFC staff and service providers, as well as other external consultants, advisors and experts. The Executive Director will consult with Trustees to identify topics of special interest or relevance to the Board, taking into account the results of the educational needs assessment. These sessions may be organized either as part of regular Board meetings or as stand-alone events.

11. The Executive Director will also provide Trustees with relevant and appropriate reading material (e.g., journal articles, research studies, news clippings, etc.).

External Conferences and Seminars

12. The Executive Director will maintain a list of conferences and seminars that Trustees may wish to attend, with expenses to be paid for by the APFC upon approval of the Chair. The Executive Director will update the list from time to time taking into account new information and feedback from previous conference attendees.

13. The Executive Director will notify the Board of upcoming conferences on a regular basis at Board meetings.

14. Trustees are free to attend any other conferences, seminars, or workshops, other than those recommended by the Executive Director. The potential reimbursement of expenses incurred by Trustees will be subject to prior approval by the Chair.

Trustee Education Report

15. The Executive Director will present to the Board annually a report on the various educational activities undertaken by the Board and individual Trustees during the year.

REVIEW AND AMENDMENT OF THE POLICY

16. The Governance Committee will review this Policy at least once every three (3) years and recommend any amendments to the Board for approval as necessary to ensure that the Policy remains relevant and appropriate.

17. The Board of Trustees adopted this Policy on February 23rd, 2017.

ALASKA PERMANENT FUND CORPORATION

Board Communications Policy

OBJECTIVES OF THE POLICY

1. The Board of Trustees has established this *Board Communications Policy* in order to facilitate effective communication by the Trustees with each other, and with APFC staff and service providers, the media and other external parties.

POLICY GUIDELINES

Communication among Trustees

2. Trustees are free to communicate with each other on matters concerning the APFC, subject to the requirements of Alaska's Open Meetings Act.

Communication with Staff

3. While Trustees have the right to communicate with any member of the APFC staff, they should direct questions and requests for information regarding the APFC's management and operations to the Executive Director or senior management staff.

4. Any question or request for information which can reasonably be expected to take up a significant amount of time, effort or resources on the part of APFC staff or service providers should be made through a formal request at a Board or committee meeting or with the consent of the Chair of the Board.

5. Trustees may directly contact the Executive Director or members of the senior management staff or APFC legal counsel, with any other question or request for which an answer or response is readily available or can be quickly and easily obtained.

Communication with Service Providers

6. Trustees should communicate with the APFC's investment managers and other service providers on matters concerning the APFC generally at Board or committee meetings, or through staff. If Trustees have any questions or wish to request any information from service providers, they should contact the Executive Director or a member of the senior management staff.

7. If Trustees do communicate directly with a service provider, they should be careful not to disclose any privileged information, make any commitments on behalf of the Board, or provide any special treatment or favoritism to the service provider. Trustees should disclose the nature of any communication with the service provider that is important or material to the APFC to the Board at their earliest convenience.

8. Trustees should refer any investment opportunities or proposals they receive from a service provider which may be of relevance to the APFC directly to the Executive Director.

9. The provisions of Section 6 through 8 above will not apply to Trustees' communication with the Investment Consultant, the Investment Advisory Group, the Auditor and APFC legal counsel.

Communication with the Media and Other External Parties

10. The Chair and the Executive Director will both serve as the official spokespersons for the APFC.

11. In their role as spokespersons, they should communicate in a manner consistent with the established policies and decisions of the Board and should not make comments which represent their personal views.

12. The Executive Director will be responsible for all "press releases" or written communications with the media. Such communications should clearly and accurately represent the actions and decisions of the Board.

13. All Trustees, including the Chair, are free to communicate with the media on matters concerning the Board or the APFC in their capacity as individual Trustees. If approached by the media for interviews or information on the APFC, they may refer the matter to one of the official spokespersons. If Trustees do communicate with the media, they should observe the following guidelines:

    (a) Trustees, other than the Chair, should not speak on behalf of the Board unless specifically authorized to do so by the Board;

    (b) If authorized to speak on behalf of the Board, Trustees should follow the provisions of Section 11 above; and

    (c) If Trustees, including the Chair, are speaking as individual Trustees, they should indicate that they are doing so, and not speaking on behalf of the Board.

14. Any written material on the APFC prepared by Trustees for publication or general distribution should be submitted to the Executive Director for review prior to its publication or distribution. The review will be only for the purpose of verifying the accuracy of the material to ensure that the APFC is not being inadvertently misrepresented.

REVIEW AND AMENDMENT OF THE POLICY

15. The Governance Committee will review this Policy at least once every three (3) years and recommend any amendments to the Board for approval as necessary to ensure that the Policy remains relevant and appropriate.

16. The Board of Trustees adopted this Policy on February 23rd, 2017.

ALASKA PERMANENT FUND CORPORATION

Executive Director and Chief Investment Officer Performance Evaluation Policy

OBJECTIVES OF THE POLICY

1. The Board of Trustees of the APFC has established this Executive Director and Chief Investment Officer Performance Evaluation Policy with the following objectives:

   (a) To ensure that the Executive Director and Chief Investment Officer receives appropriate and useful feedback on their performance from the Board on an annual basis; and

   (b) To help develop clear and meaningful performance objectives for the Executive Director and Chief Investment Officer.

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POLICY GUIDELINES

Roles and Responsibilities

2. The Board will be responsible for evaluating the performance of the Executive Director and Chief Investment Officer on an annual basis.

3. The Governance Committee will be responsible for initiating and coordinating the performance evaluation process.

4. The Board may retain the services of an independent third party to facilitate and administer the performance evaluation in order to ensure the integrity and confidentiality of the process.

Evaluation Survey and Criteria

5. The Board will establish a survey to provide Trustees with a tool for evaluating the performance of the Executive Director and Chief Investment Officer based on a number of criteria, including the following:

   (a) Achievement of the goals and objectives of the APFC;
   (b) Completion of the specific projects and initiatives set out in the strategic plan for that fiscal year;
   (c) Implementation of Board policies and reporting requirements;
   (d) General leadership and management skills; and
   (e) Compliance with the Executive Director's and Chief Investment Officer's respective charters.

6. The Governance Committee~~, with the assistance of the Executive Director,~~ will develop and recommend to the Board the design of the survey.

The Evaluation Process

7. The Vice Chair, acting as Chair of the Governance Committee, will meet with the Executive Director and Chief Investment officer to review the evaluation survey and criteria and agree on any changes.

8. Towards the end of the calendar year and before the fourth quarter meeting of the Board, ~~,~~ the Vice Chair will distribute a package of materials to each Trustee which may include the following:

   (a) A report prepared by the Executive Director and Chief Investment Officer on their achievements for the previous year, including the ~~Executive Director's~~ir o~~o~~wn assessment of the extent to which the evaluation criteria were met;
   (b) The strategic plan and budget for the fiscal year or a summary thereof; and
   (c) The evaluation survey, containing the evaluation criteria, to be filled out by the Trustee.

9. Trustees should complete the survey and return it to the facilitator within a specified period of time. The facilitator will tabulate the results of the survey, present a report summarizing the results to the Governance Committee, together with the completed evaluation surveys. The Committee will review the report and submit it to the Board.

~~10.~~ The Board, consistent with Alaska's Open Meetings Act, will meet in executive session to review and discuss the results of the Executive Director~~'s~~ and Chief Investment Officer's performance evaluation and any opportunities for improvement. The Governance Committee will prepare an ~~draft~~ Evaluation Report, with the ~~Executive Director's~~ assessment and the summary of the evaluation results attached as appendices.

~~11.~~10. ~~The Board, consistent with Alaska's Open Meetings Act, will meet with the Executive Director in executive session to discuss the results of the performance evaluation and any opportunities for improvement.~~

~~12.~~11. The Board will then approve the final Evaluation Report, following which the Chair, Vice Chair and the Executive Director or Chief Investment Officer will each sign their respective Evaluation Report, which will also be included in their respective personnel file.

~~13. The Vice Chair will cause the signed Evaluation Report to be placed in the Executive Director's personnel file.~~

REVIEW AND AMENDMENT OF THE POLICY

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~~14.~~12. The Governance Committee will review this Policy at least once every three (3) years and recommend any amendments to the Board for approval as necessary to ensure that the Policy remains relevant and appropriate.

~~15.~~13. The Board of Trustees a~~dopted~~mended this Policy on February 20, 2020 ~~February 23rd, 2017~~.

ALASKA PERMANENT FUND CORPORATION

Board Standards

OBJECTIVES OF THE STANDARDS

1. The Permanent Fund was established by Article IX, Section 15 of the Alaska Constitution. The statutory purpose of the APFC is to manage and invest the assets of the Permanent Fund. The Trustees' conduct is subject to Alaska Constitution and Statutes, regulations under the Alaska Administrative Code, and various other rules and policies. The Board of Trustees has established the *Board Standards* to identify applicable rules and policies and provide further guidance to Trustees in conducting their affairs and activities as Board members.

POLICY GUIDELINES

2. Trustees will conduct themselves with honesty, integrity, decorum, and professionalism in all aspects of their duties, and in their interaction with fellow trustees, APFC staff, service providers, and other external parties.

With Respect to Compliance with Laws, Regulations and Policies

3. Trustees will abide by all applicable laws and regulations, including, in particular, the following:

   (a) Alaska Statutes at Title 37, Chapter 13;
   (b) Alaska Administrative Code at Title 15, Chapter 137;
   (c) APFC Bylaws;
   (d) The Alaska Open Meetings Act and regulations thereunder;
   (e) The Alaska Executive Branch Ethics Act and regulations thereunder, administered by the Department of Law; and
   (f) The Alaska Conflict of Interest Act and regulations thereunder, administered by the Alaska Public Offices Commission (APOC).

4. Trustees will abide by all policies of the APFC.

With Respect to Confidentiality and Use of Information

5. Trustees will respect the confidentiality of all information pertaining to the APFC to which they become privy to by virtue of their position. They will not disclose any confidential information to any external party unless required to do so by law.

6. Any information on the APFC that Trustees request in their capacity as Trustees will only be to fulfill their responsibilities as Trustees of the APFC and not for use in their own personal or business affairs.

With Respect to Enforcement of the Board Standards

7. The Chair of the Board will enforce and attempt to rectify any breach of the Board Standards.

8. If a Trustee has reason to believe that a material violation of the Board Standards has taken place, they will notify the Chair (or the Vice Chair if the allegation is against the Chair) and the Executive Director.

REVIEW AND AMENDMENT OF THE POLICY

9. This Policy will be reviewed periodically and amended by the Board as necessary or appropriate.

10. The Board of Trustees adopted this Policy on February 23rd, 2017.

18) External Internship Program

ALASKA PERMANENT FUND CORPORATION

SUBJECT:	External Internship Program	ACTION:	_____
DATE:	February 20, 2020	INFORMATION:	X

BACKGROUND:

Over the last year, APFC has restarted its external internship program. This program is designed to match talented Alaska students with our external managers in a setting which will benefit both the education of future talent and the needs of our manager partners.

STATUS:

The staff reached out to both public market and private market partners. Five of our managers responded with opportunities. In addition, the Alaska Retirement Management Board requested our assistance in recruiting for their internship. Each external manager provided a description of the opportunity along with any individual application requirements. The internships are posted on our website and announcements have made via social media postings.

APFC collected applications and requested each applicant to list the top 3 opportunities they would like to work for from the internship posting. We had 14 applications of which 8 met the qualifications and their applications were forwarded on to their selected Partners for further review and vetting. The application deadline remains open through the month of February. We will be notified in March as to whether or not any of the candidates have been successfully placed into the opportunities.

APFC

ALASKA PERMANENT
FUND CORPORATION

External Partner Internship Program

Summer 2020

Internship Partners

Per the request of the Board of Trustees we have rebooted our Partner Internship Program.

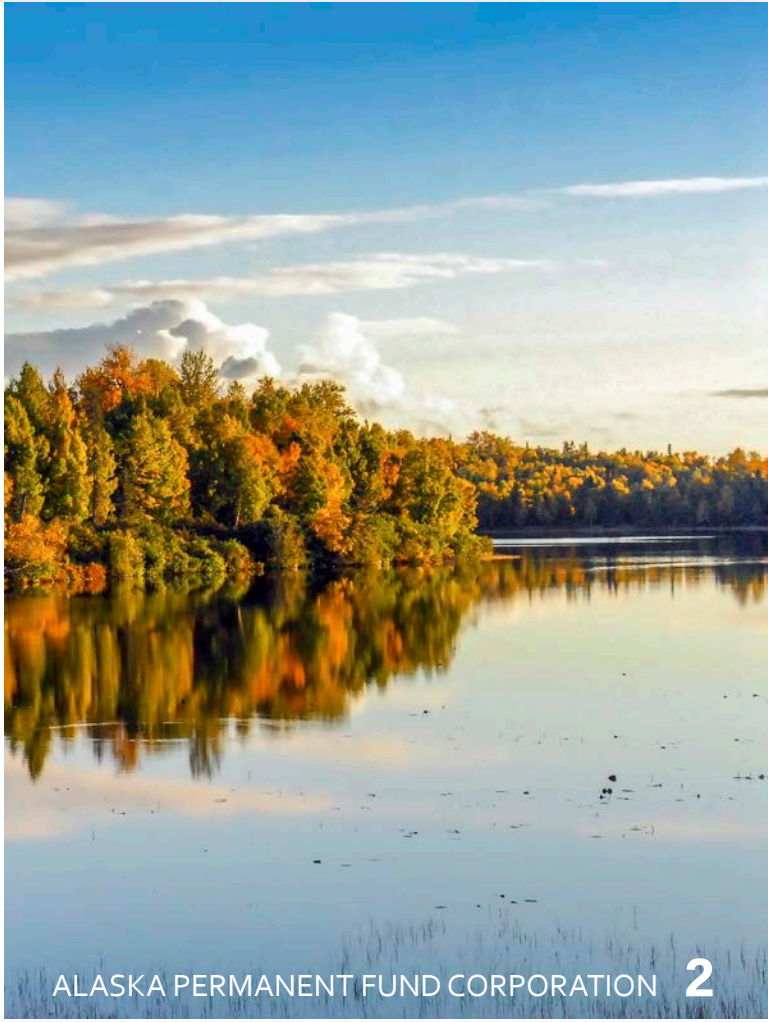
APFC Requirements:

- A student that is an Alaska resident
- A student attending post-secondary school in Alaska

It is anticipated that in the first two weeks of March our Partners will notify us on whether or not the candidates provided by APFC have been selected and hired.

2020 Internship Partners	Number of Applicants
McKinley Capital	6
L&B Realty	1
Acadian Asset Management	4
Pathway Capital Management	3
Crestline Investors	3
Alaska Retirement Management Board	1

- Total applicants – 14
- Qualified applicants – 8
- Unqualified Applicants – 6 (did not meet APFC's requirements)



19) Earnings Reserve Account Model

Presentation: Callan LLC.

Callan

February 20, 2020

Earnings Reserve Account Discussion

Gregory C. Allen
CEO, Chief Research Officer

Steven J. Center, CFA
Senior Vice President

Outline

- **Review Concepts from December discussion**
  - Statutory Net Income
  - Earnings Reserve Account and Principal
  - Stress Testing the ERA and the POMV spending rule under different starting ERA balances
    - *ERA Balances of 4X, 3X, 2X, and 1X next year's draw*
- **Analysis of the impact of a separate asset allocation for the ERA**
  - Impact on potential for POMV spending rule short-fall
- **Analysis of the interaction of the statutory dividend rule and the POMV rule**
  - Can the dividend spending rule exceed the POMV?
    - *How often?*
    - *Why?*
  - Historical look-back
- **Analysis of Ad Hoc appropriations from ERA to Principal**

Statutory Net Income (Realized Return)

Projected Fiscal Year 2020

- Statutory Net Income (SNI) in each year is the the sum of total income (dividends, coupon payments, real estate income, etc.), plus realized capital gains minus realized capital losses.
- Gains are realized when assets are sold for an amount above their purchase price (cost basis).
- Gains realization events include, annual turnover in equity and bond accounts, rebalancing related turnover, sales to fund distributions, distributions from private market investments, etc.

Dividends $0.4B +

Bond Coupons $0.6B +

Other Income $0.5B =

Total Income $1.5B +

Turnover Realized Gains $1.2B +

Distribution Realized Gains $0.5B +

Rebalancing Realized Gains $0.8B =

Statutory Net Income $4.0B

Earnings Reserve Account

Projected Fiscal Year 2020

- Earnings Reserve Account is equal to total cumulative Statutory Net Income minus total cumulative spending minus total cumulative appropriations to Principal plus a pro-rata share of unrealized gains or losses.
- ERA receives a pro-rata share of unrealized gains or losses based on the size of the ERA relative to the size of Principal.
- ERA receives 100% of SNI if SNI is positive.
- ERA receives a pro-rata share of SNI if SNI is negative.

Beginning Realized ERA $10.1B +

Statutory Net Income $3.1B –

Distribution $2.9B –

Appropriation to Principal $4.0B =

Ending Realized ERA $10.3B +

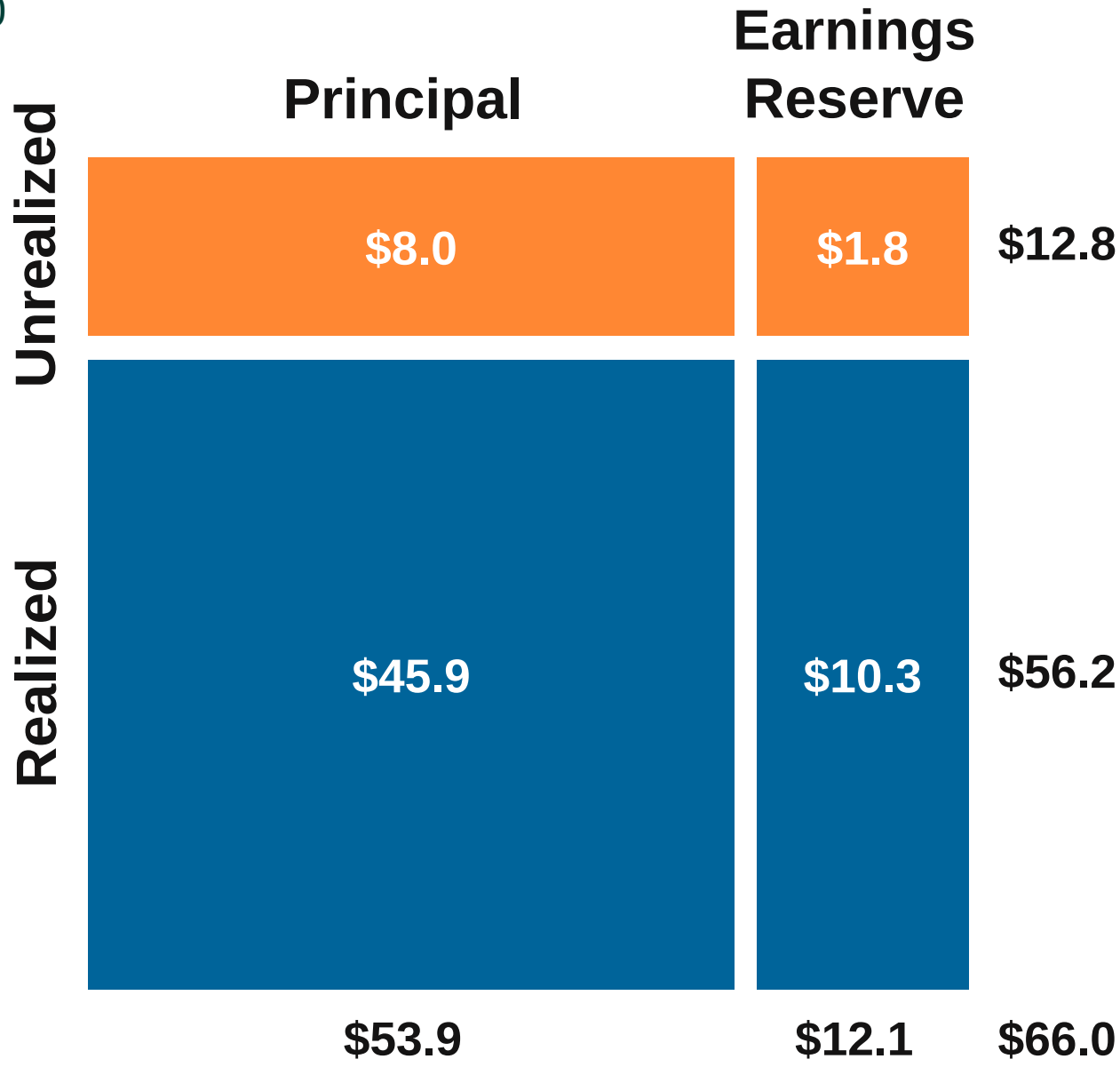
Pro Rata Unrealized Gains $1.8B =

Ending ERA Balance $12.1B

Principal and Earnings Reserve

Projected Fiscal Year End 2020

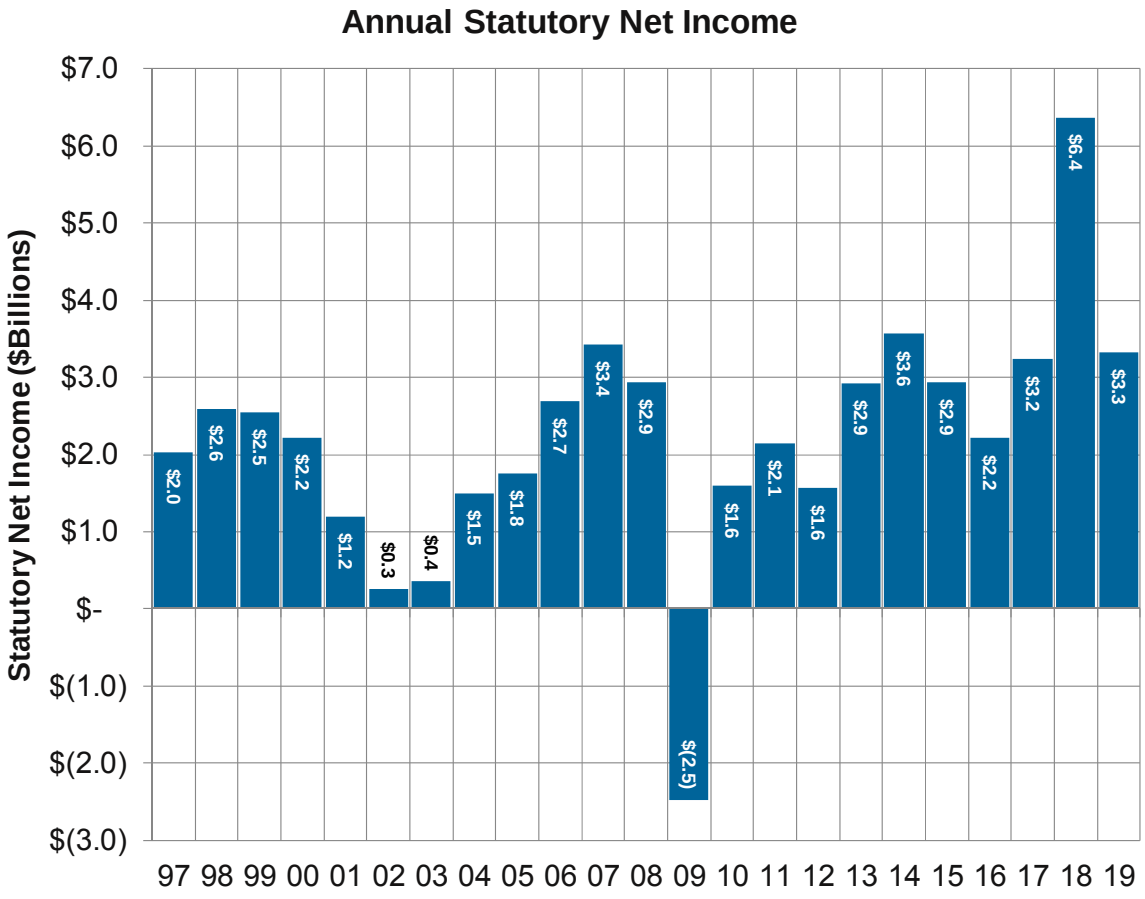
- Realized Principal is sum of cumulative oil revenue, inflation-proofing appropriations, and ad hoc appropriations to Principal.
- Realized Earnings Reserve is sum of cumulative realized earnings minus cumulative appropriations.
- Realized ERA + Realized Principal = cost basis.
- Unrealized gains are allocated to Principal and ERA proportionally based on their respective sizes.
- Unrealized ERA is significantly more volatile than the Fund itself or the realized ERA.



Historical Statutory Net Income

Experience Since 1997

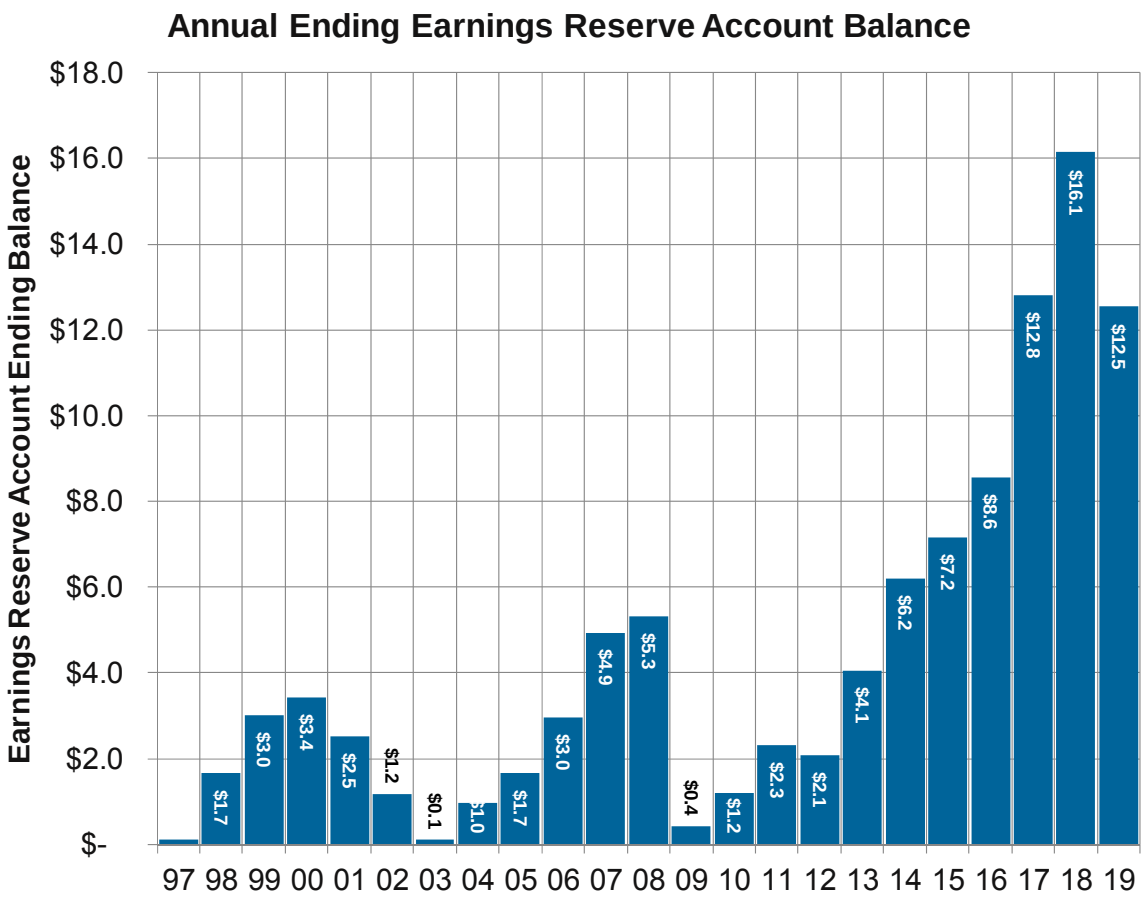
- Post 2001 it took the Fund 5 years to recover to the pre-2000 levels of Statutory Net Income.
- In 2009 the total realized losses exceeded the total income generated by the Fund resulting in net negative realized gains.
- SNI did not recover to 2007 levels until 2013.
- Sales of lumpy assets can create spikes in SNI as seen in 2018, which in turn results in a larger resulting ERA balance.



Historical Earnings Reserve Account Balance

Experience Since 1997

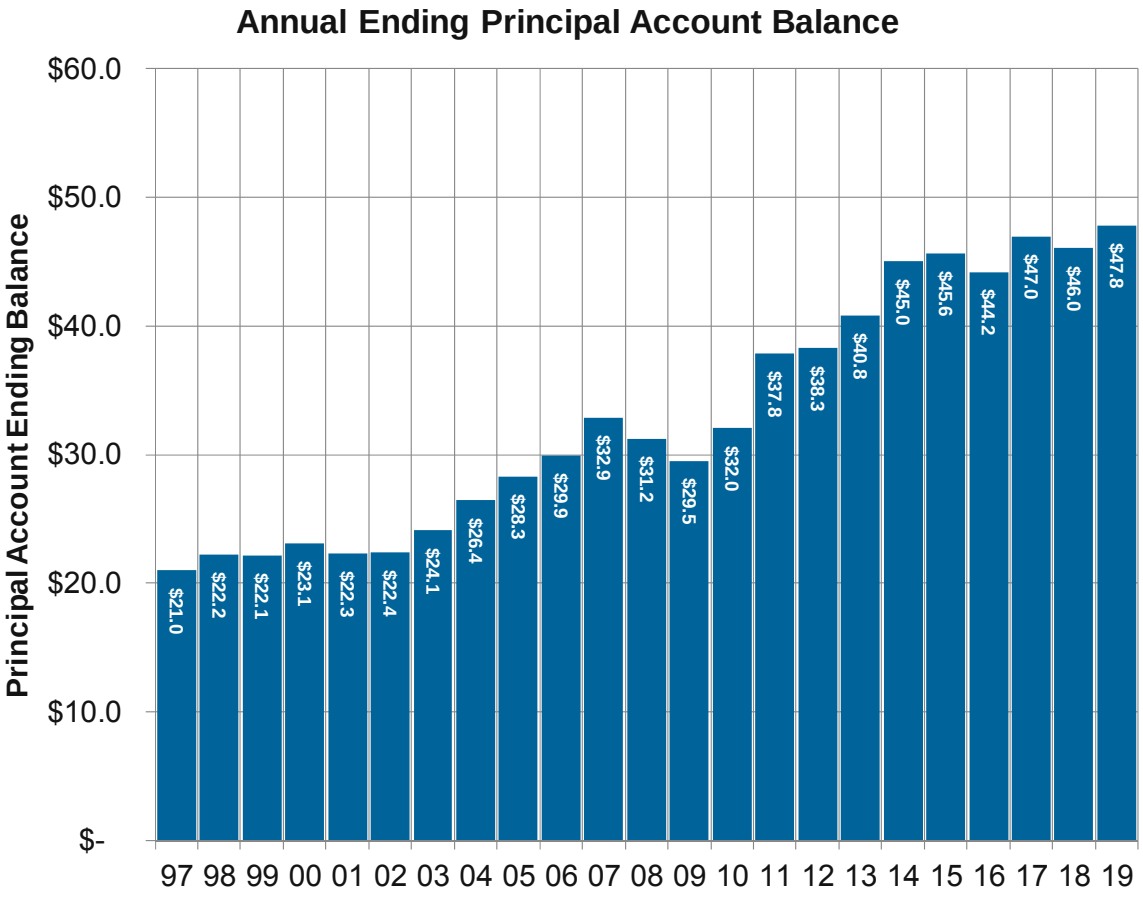
- In 1997, 2003, and 2009, the ending ERA balance was very close to zero.
- Each of these years were followed by relatively healthy markets which generated SNI well in excess of the distribution.
- 2018 saw a big spike in the ERA due to unusually high SNI resulting from lumpy asset sales.



Historical Principal Account Balance

Experience Since 1997

- The Principal Account balance has grown steadily over time as a result of oil revenue and inflation proofing appropriations.
- The unrealized portion of Principal can cause some volatility in the Principal balance over time.
- The drops in the balance in 2001, 2009, and more recently in 2016 and 2018 are examples of this.



Stress Testing the ERA and the POMV Spending Rule

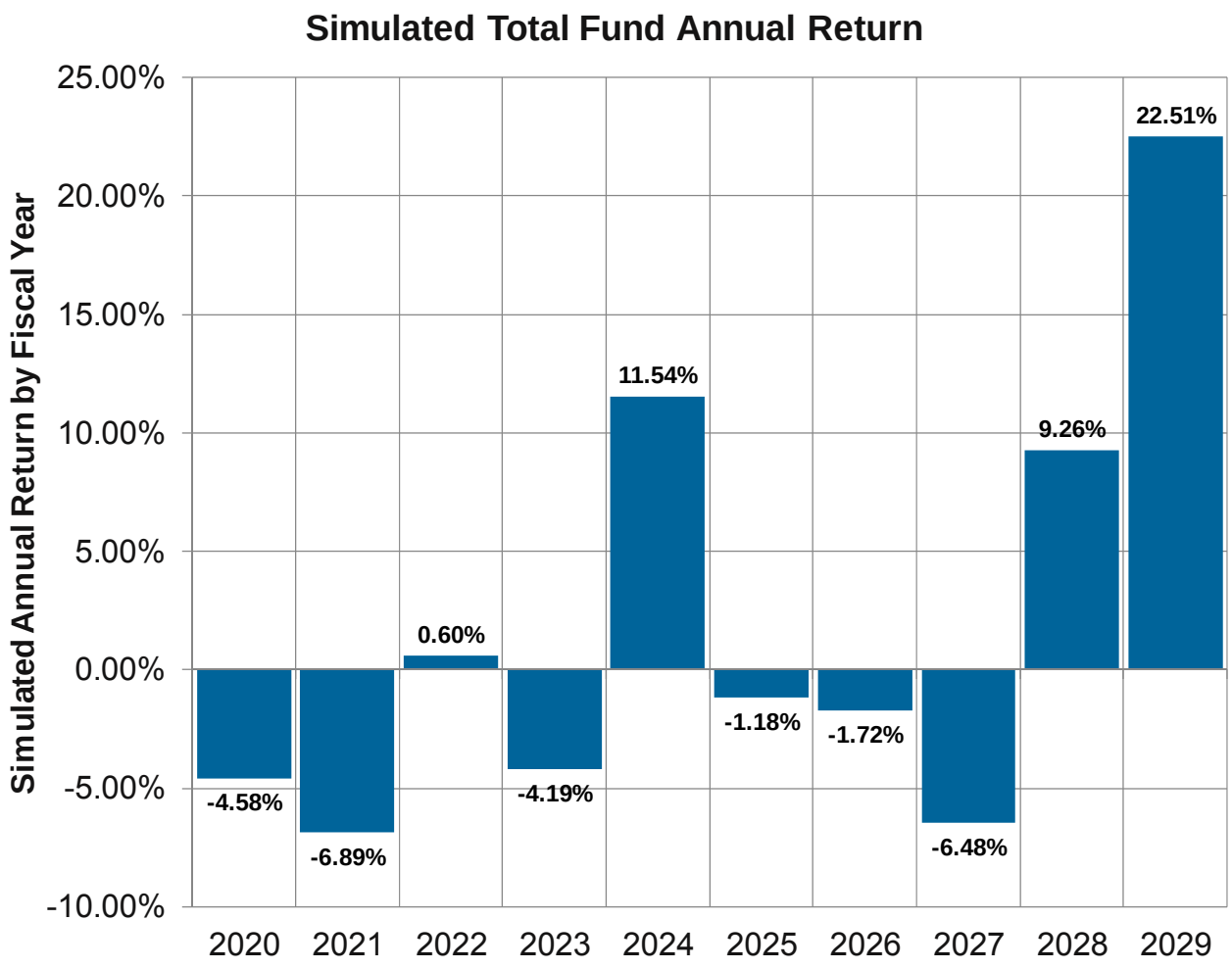
Monte Carlo Simulation

- We wanted to understand how resilient the Fund is to varying levels of Earnings Reserve Account balances in terms of its ability to support the POMV spending rule.
- We tested four different scenarios, the base case (ERA roughly 4 times next year's spending), and 3 cases where the ERA was reduced to 3X, 2X, and 1X next year's spending.
- The reduction was assumed to happen through an additional distribution (beyond the POMV distribution) in FY 2020.
- The distribution is actually assumed to be made in FY 2021 consistent with the current practice.
- 2000 simulations were run representing a full range of potential capital market outcomes.
- The asset allocation for the Fund was assumed to remain constant at the FY 2020 target.
- The model tracked dozens of variables including the number of times the ERA balance limited the spending below the POMV rule, the cumulative shortfall over a ten-year period, and the shortfall in each year of the simulation.

95th Percentile Tail Risk Scenario

What Does it Look Like?

- Bad outcomes for the ERA balance supporting the POMV spending rule generally have multiple low or negative return years in a row.
- Large negative single years (like 2008) feel terrible, but the ERA is generally robust to those events as long as there is a recovery soon after.
- In this scenario the current ERA holds up pretty well until 2027.
- The 25% Case not so well.



Range of Outcomes – Instances of Shortfalls

Stress Test Results

- All cases had some probability of a shortfall during the 10-year projection period.
- As the size of the ERA was reduced, the probability of a shortfall steadily increased.
- There is a 15% chance of at least one shortfall year even with the current healthy balance in the ERA.
- Reducing the ERA balance to equal the projected draw the next year increases the probability of a shortfall to roughly 30%.

10-Year Shortfall Instance				
Percentile	4X	3X	2X	1X
5%	0	0	0	0
10%	0	0	0	0
15%	0	0	0	0
20%	0	0	0	0
25%	0	0	0	0
30%	0	0	0	0
35%	0	0	0	0
40%	0	0	0	0
45%	0	0	0	0
50%	0	0	0	0
55%	0	0	0	0
60%	0	0	0	0
65%	0	0	0	0
70%	0	0	0	1
75%	0	0	1	2
80%	0	0	1	3
85%	1	1	2	3
90%	2	3	4	4
95%	3	4	5	6

Range of Outcomes – Probability of Shortfall by Year

Stress Test Results

- Another perspective is the probability of a shortfall in each year.
- In the base case it isn't until year 7 that we observe a 5% probability of a shortfall.
- As the ERA balance declines the probability of a shortfall in each year increases and the shortfalls happen earlier in the projection period.
- In the 1X Case there is a 5% probability of a shortfall in the 3rd year of the projection.

Probability of Shortfall by Year				
Year	4X	3X	2X	1X
1	0%	0%	0%	0%
2	0%	0%	0%	0%
3	0%	0%	0%	5%
4	0%	0%	5%	10%
5	0%	0%	5%	10%
6	0%	5%	10%	10%
7	5%	5%	10%	15%
8	5%	10%	10%	15%
9	5%	10%	10%	15%
10	10%	10%	10%	15%

Range of Outcomes – Cumulative Shortfall

Stress Test Results

- This last variable measures the cumulative value of all of the shortfalls for each case over the 10-year projection period (nominal).
- Consistent with the previous table, the probability of a non-zero shortfall increases as the ERA declines.
- The size of the cumulative projected shortfall also increases at each probability level as the ERA declines.
- At the 95% confidence level the Base Case only has one instance of a zero distribution.
- The rest of the cases all have two instances of a zero distribution at the same confidence level.

Cumulative 10-Year Shortfall - Status Quo				
Percentile	4X	3X	2X	1X
5%	$ -	$ -	$ -	$ -
10%	$ -	$ -	$ -	$ -
15%	$ -	$ -	$ -	$ -
20%	$ -	$ -	$ -	$ -
25%	$ -	$ -	$ -	$ -
30%	$ -	$ -	$ -	$ -
35%	$ -	$ -	$ -	$ -
40%	$ -	$ -	$ -	$ -
45%	$ -	$ -	$ -	$ -
50%	$ -	$ -	$ -	$ -
55%	$ -	$ -	$ -	$ -
60%	$ -	$ -	$ -	$ -
65%	$ -	$ -	$ -	$ -
70%	$ -	$ -	$ -	$ 647,145
75%	$ -	$ -	$ 206,037	$ 1,876,829
80%	$ -	$ -	$ 1,585,337	$ 3,231,147
85%	$ 31,994	$ 1,628,902	$ 3,158,085	$ 4,818,364
90%	$ 2,509,922	$ 3,801,347	$ 5,406,297	$ 7,039,319
95%	$ 5,290,373	$ 6,552,054	$ 8,224,804	$ 9,978,653

General Observations from Stress Test

What Did We Learn?

- The ERA is inconsistent with a pure endowment model and will ultimately limit the Fund's ability to support the POMV spending rule during certain capital market outcomes.
- The smaller the ERA balance, the more likely that the Fund will not be able to support the POMV spending rule.
- If the Fund's market value is close to or below the Fund's cost basis it will reduce the amount of SNI generated in subsequent years and further exacerbate the impact of a smaller ERA balance.
- In worst-case capital market outcomes there is nothing that the APFC Board or investment staff will be able to do to manage the ERA balance. There will likely be no gains in the portfolio to realize, and if there were, a strategy designed to realize gains (particularly in a down market) simply to manipulate an accounting variable would be short-sighted, expensive, and detrimental to the long-term return of the Fund.
- The stress test did not reveal a specific ERA balance that represents a breaking point for the system. Bigger is better. The current balance, roughly 4 times next year's projected draw, seems like a healthy level since it only resulted in a shortfall in 5% of the outcomes.

Analysis of Impact of Ad Hoc Appropriations to Principal

Impact on Potential for Spending Short-Fall

- **Previous analysis assumed Ad Hoc distributions in first year to reduce balance to 3X, 2X, and 1X next year's POMV draw.**
- **In this analysis it is assumed that those distributions were appropriated to Principal instead of being distributed out of the Fund.**
- **Timing and amount of appropriations to Principal were assumed to be exactly equal to distributions in the previous analysis to allow for better comparison.**
- **Focus on cumulative shortfall variable as best measure of relative risk of each approach.**
- **Compare cumulative shortfall across 4X, 3X, 2X, and 1X scenarios**

Range of Outcomes – Distributions versus Appropriations

Stress Test Results

- The results of the analysis are mixed which is somewhat non-intuitive.
- Appropriations to Principal create a greater total fund market value which leads to higher distributions under the POMV rule.
- Appropriations to Principal result in a larger Principal account which results in the ERA receiving a smaller portion of unrealized gains based on pro-rata formula.
- Distributions require liquidations which increase SNI which makes the ERA bigger.
- Across all scenarios the projected shortfall is roughly 3.4% **larger** under the appropriation to Principal scenarios.

Cumulative 10-Year Shortfall - Distributions				
Percentile	4X	3X	2X	1X
50%	$ -	$ -	$ -	$ -
55%	$ -	$ -	$ -	$ -
60%	$ -	$ -	$ -	$ -
65%	$ -	$ -	$ -	$ -
70%	$ -	$ -	$ -	$ 647,145
75%	$ -	$ -	$ 206,037	$ 1,876,829
80%	$ -	$ -	$ 1,585,337	$ 3,231,147
85%	$ 31,994	$ 1,628,902	$ 3,158,085	$ 4,818,364
90%	$ 2,509,922	$ 3,801,347	$ 5,406,297	$ 7,039,319
95%	$ 5,290,373	$ 6,552,054	$ 8,224,804	$ 9,978,653

Cumulative 10-Year Shortfall - Appropriations to Principal				
Percentile	4X	3X	2X	1X
50%	$ -	$ -	$ -	$ -
55%	$ -	$ -	$ -	$ -
60%	$ -	$ -	$ -	$ -
65%	$ -	$ -	$ -	$ -
70%	$ -	$ -	$ -	$ 485,672
75%	$ -	$ -	$ 224,549	$ 1,929,498
80%	$ -	$ -	$ 1,713,824	$ 3,421,771
85%	$ 31,994	$ 1,661,298	$ 3,263,490	$ 4,860,897
90%	$ 2,509,922	$ 4,203,524	$ 5,730,180	$ 7,293,499
95%	$ 5,290,373	$ 6,850,192	$ 8,549,361	$ 10,694,107

Analysis of Separate Asset Allocation for ERA

Impact on Potential for Spending Short-Fall

- **Assume that the ERA is invested in a short-term bond portfolio**
- **ERA continues to receive all SNI if SNI is positive**
- **ERA continues to receive pro-rata share of SNI if SNI is negative**
- **ERA receives only unrealized gains or losses associated with a short-term bond portfolio**
- **All other unrealized gains or losses allocated to Principal**
- **Two ways to implement**
  - Keep the overall asset allocation of the combined assets the same as the current target
    - *Assume the ERA is invested in a portion of the current bond portfolio.*
    - *Keeps overall risk level for the Fund the same but shifts most of market volatility to Principal account.*
  - Keep the asset allocation of Principal the same as the current target, and invest the ERA in bonds
    - *More conservative than current asset allocation (lower return, lower risk)*
    - *Very difficult to model because overall asset allocation changes depending on the relative size of ERA to Principal*
    - *The smaller the ERA, the greater the overall equity exposure and vice versa.*
- **Examine impact of the first approach on projected spending shortfall**

Range of Outcomes – Status Quo versus ERA in Bonds

Stress Test Results

- Investing the ERA account in a bond portfolio marginally reduces projected shortfall in some scenarios and increases shortfall in others.
- Scenarios where there are unrealized losses in the total portfolio large enough to overwhelm the ERA balance it is beneficial to have the ERA invested in bonds.
- Scenarios where the ERA is small and there are large unrealized gains in the total portfolio it is beneficial to have the ERA invested in the total portfolio.
- Across all scenarios the difference in the two approaches is less than 1%.

Cumulative 10-Year Shortfall - Status Quo				
Percentile	4X	3X	2X	1X
50%	$ -	$ -	$ -	$ -
55%	$ -	$ -	$ -	$ -
60%	$ -	$ -	$ -	$ -
65%	$ -	$ -	$ -	$ -
70%	$ -	$ -	$ -	$ 647,145
75%	$ -	$ -	$ 206,037	$ 1,876,829
80%	$ -	$ -	$ 1,585,337	$ 3,231,147
85%	$ 31,994	$ 1,628,902	$ 3,158,085	$ 4,818,364
90%	$ 2,509,922	$ 3,801,347	$ 5,406,297	$ 7,039,319
95%	$ 5,290,373	$ 6,552,054	$ 8,224,804	$ 9,978,653

Cumulative 10-Year Shortfall - ERA in Bonds				
Percentile	4X	3X	2X	1X
50%	$ -	$ -	$ -	$ -
55%	$ -	$ -	$ -	$ -
60%	$ -	$ -	$ -	$ -
65%	$ -	$ -	$ -	$ -
70%	$ -	$ -	$ -	$ 359,098
75%	$ -	$ -	$ 111,686	$ 1,770,266
80%	$ -	$ -	$ 1,540,096	$ 3,348,882
85%	$ -	$ 1,566,125	$ 3,147,468	$ 4,785,399
90%	$ 2,253,001	$ 3,943,115	$ 5,659,492	$ 7,293,499
95%	$ 5,013,022	$ 6,628,248	$ 8,404,434	$ 10,578,001

Interaction of statutory dividend rule and the POMV rule

Impact on Distributions to Government

- **Assume actual spending is limited to POMV rule**
- **Calculate statutory dividend rule**
- **Track both spending rules in the simulation**
- **Track probability of dividend rule exceeding POMV rule**
- **Track the amount that goes to government after the dividend is paid each year.**

Projected deterministic results FY 2020

POMV Spending Rule: $2.9B –

Statutory Dividend Spending Rule[1]: $2.0B =

Government Spending: $0.9B

Range of Outcomes – Amount Available for Government

Base Case

Amount Available to Government by Year										
Percentile	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year 10**
5%	$ 627,064	$ 156,307	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
10%	$ 693,104	$ 316,777	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
15%	$ 734,697	$ 406,246	$ 20,889	$ 130,728	$ -	$ -	$ -	$ -	$ -	$ -
20%	$ 769,998	$ 480,603	$ 142,911	$ 299,287	$ 17,235	$ -	$ -	$ -	$ -	$ -
25%	$ 793,653	$ 546,608	$ 249,314	$ 413,918	$ 198,056	$ 131,719	$ 20,660	$ -	$ -	$ -
30%	$ 814,157	$ 603,043	$ 333,744	$ 533,899	$ 368,601	$ 277,601	$ 213,534	$ 149,332	$ 123,245	$ 82,877
35%	$ 833,426	$ 649,237	$ 412,936	$ 641,092	$ 511,285	$ 435,550	$ 402,395	$ 349,555	$ 320,673	$ 319,288
40%	$ 854,132	$ 700,295	$ 499,018	$ 750,243	$ 628,286	$ 593,144	$ 550,460	$ 518,914	$ 492,703	$ 518,953
45%	$ 872,750	$ 752,175	$ 555,198	$ 846,317	$ 744,180	$ 725,539	$ 704,059	$ 682,977	$ 657,384	$ 683,893
50%	**$ 891,528**	**$ 789,600**	**$ 618,880**	**$ 948,390**	**$ 874,618**	**$ 874,803**	**$ 834,870**	**$ 832,525**	**$ 813,377**	**$ 839,427**
55%	$ 911,557	$ 824,748	$ 678,278	$ 1,028,616	$ 985,367	$ 981,474	$ 964,150	$ 966,414	$ 955,874	$ 961,093
60%	$ 926,805	$ 864,071	$ 750,598	$ 1,103,586	$1,092,816	$ 1,108,021	$ 1,103,650	$ 1,096,234	$ 1,081,575	$ 1,097,086
65%	$ 943,561	$ 912,092	$ 820,292	$ 1,190,330	$1,206,766	$ 1,217,156	$ 1,227,305	$ 1,225,116	$ 1,226,199	$ 1,235,202
70%	$ 961,309	$ 952,861	$ 890,291	$ 1,288,864	$1,302,321	$ 1,354,018	$ 1,346,732	$ 1,369,015	$ 1,364,270	$ 1,367,484
75%	$ 979,822	$ 1,007,402	$ 951,956	$ 1,388,938	$1,444,588	$ 1,470,557	$ 1,477,284	$ 1,512,792	$ 1,488,306	$ 1,508,060
80%	$ 1,000,905	$ 1,058,361	$ 1,026,781	$ 1,494,312	$1,556,885	$ 1,584,999	$ 1,589,904	$ 1,637,050	$ 1,635,889	$ 1,668,583
85%	$ 1,020,527	$ 1,107,714	$ 1,121,907	$ 1,603,254	$1,691,408	$ 1,731,637	$ 1,713,012	$ 1,767,336	$ 1,825,913	$ 1,891,310
90%	$ 1,045,839	$ 1,175,445	$ 1,247,820	$ 1,758,566	$1,873,799	$ 1,903,480	$ 1,888,653	$ 1,937,376	$ 2,023,096	$ 2,134,654
95%	$ 1,082,215	$ 1,268,523	$ 1,407,643	$ 1,950,727	$2,064,269	$ 2,109,024	$ 2,113,216	$ 2,223,115	$ 2,308,021	$ 2,506,438

- Due to spike in SNI in 2018, statutory dividend payment is high relative to the size of the POMV distribution through 2023.
- There is a 10% chance of the statutory dividend rule exceeding the POMV rule by year 3.
- There is a 25% chance of this happening in years 8-10.
- Analysis assumes POMV rule prevails so distributions are reduced relative to Statutory Dividend rule if Statutory Dividend rule exceeds POMV rule.

Conclusions

Results of Scenario Analysis

- **POMV rule is inconsistent with pure endowment model.**
- **The larger the ERA the more sustainable the POMV rule.**
- **4X next year's draw seems like a reasonable (though perhaps aspirational) goal for the ERA balance.**
- **Over the ten-year horizon the ERA is marginally better able to support the POMV spending rule assuming Ad Hoc distributions versus appropriations to Principal.**
  - ERA keeps a larger percentage of unrealized gains with distributions.
  - Distributions require liquidations which result in higher SNI which increases the size of the ERA.
- **Investing the ERA account in bonds does not seem to make an appreciable difference in its robustness in supporting the POMV spending rule (given current starting point).**
  - In cases where unrealized gains are high it reduces the size of the ERA.
  - In cases where there are unrealized losses it increases the size of the ERA.
  - Currently there are a lot of unrealized gains in the portfolio.
- **There is roughly a 25% chance in the next ten years that the Statutory Dividend formula exceeds the POMV rule.**
  - Spikes in SNI combined with slow growth (or declines) in EMV generally favor the Statutory Dividend Rule.

Appendix

Additional Exhibits from December Presentation

Statutory Net Income (Cost = Market)

Projected Fiscal Year 2020

- Currently the market value of the portfolio is approximately 15% above the cost basis (EMV $66B, ECB $58B).
- On average sales result in realized gains equal to 15% of total sales price.
- Sales related realized gains are estimated to contribute roughly $2.5B or 63% of total SNI in FY 2020.
- If market value were equal to cost basis, SNI would be only $1.5B with same level of turnover.
- If market value were below cost basis, SNI could be zero or negative.

Dividends $0.4B +

Bond Coupons $0.6B +

Other Income $0.5B =

Total Income $1.5B +

Turnover Realized Gains $0.0B +

Distribution Realized Gains $0.0B +

Rebalancing Realized Gains $0.0B =

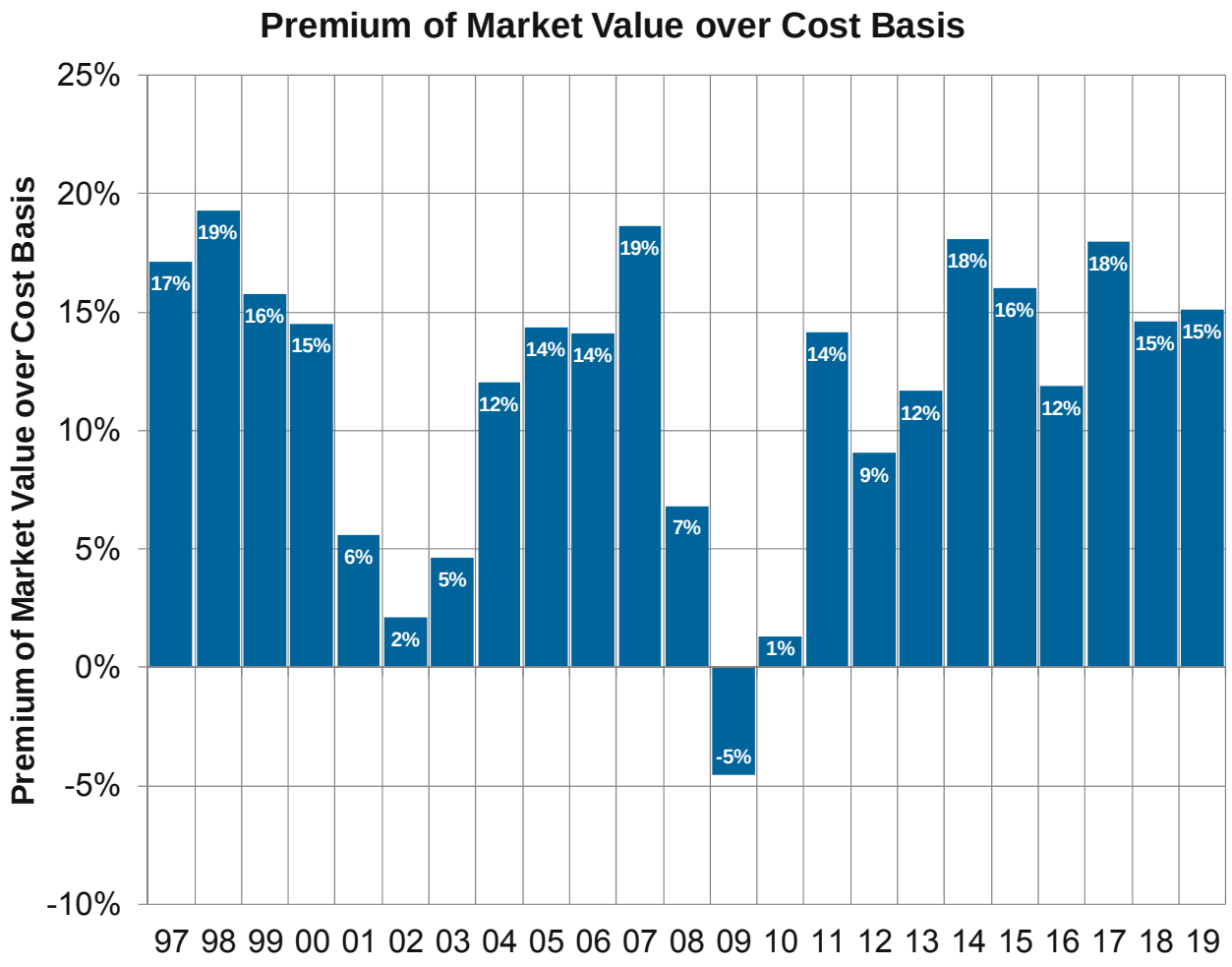
Statutory Net Income $1.5B

Current level of unrealized gains creates a buffer for the ERA Balance

Historical Market Value vs Cost Basis Premium

Experience Since 1997

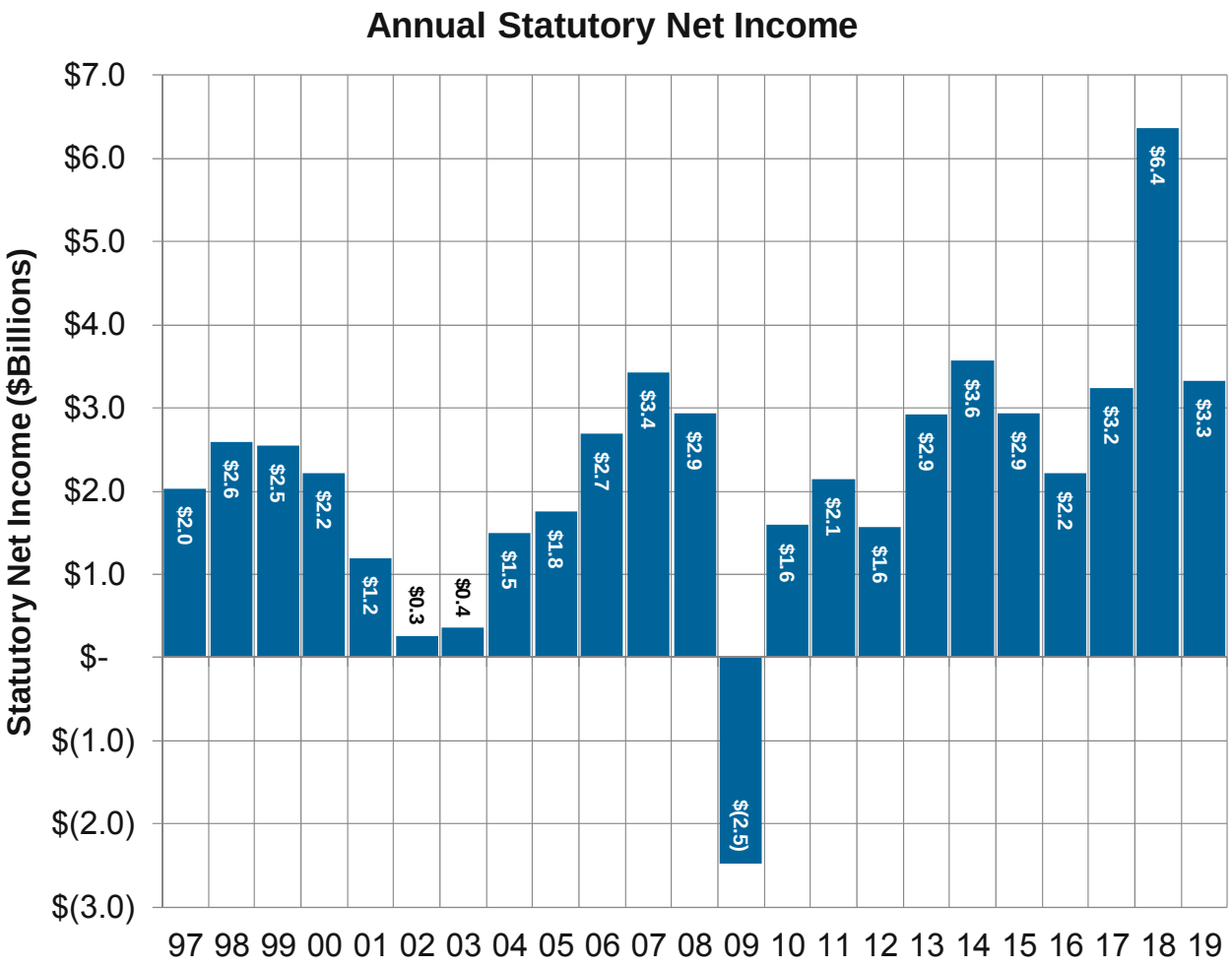
- Over the period since 1997 the Fund's market value has only been below the cost basis once (2009).
- It got close in 2002.
- The premium of market over cost has averaged about 12%.
- The premium has been above 10% for most of this period.



Historical Statutory Net Income

Experience Since 1997

- Post 2001 it took the Fund 5 years to recover to the pre-2000 levels of Statutory Net Income.
- In 2009 the total realized losses exceeded the total income generated by the Fund resulting in net negative realized gains.
- SNI did not recover to 2007 levels until 2013.
- Sales of lumpy assets can create spikes in SNI as seen in 2018, which in turn results in a larger resulting ERA balance.



Base Case – Deterministic Median

No Additional Distribution, Median Projected Return in Each Year

PRINCIPAL

Fiscal Year	Beginning Contributions and Appropriations	Inflation Proofing	Oil Revenues	Special Appropriations	Ending Contributions and Appropriations	Reserved Unrealized Gain/(Loss)	Ending Reserved Balance	Ending Market Value
2020	$ 41,542,109	$ -	$ 354,170	$ 4,000,000	$ 45,896,279	$ 8,020,094	$ 53,916,373	$ 69,347,557
2021	$ 45,896,279	$ -	$ 388,160	$ -	$ 46,284,439	$ 9,052,340	$ 55,336,780	$ 71,774,872
2022	$ 46,284,439	$ -	$ 381,730	$ -	$ 46,666,169	$ 9,932,242	$ 56,598,411	$ 74,291,398
2023	$ 46,666,169	$ -	$ 373,590	$ -	$ 47,039,759	$ 10,708,678	$ 57,748,437	$ 77,018,957
2024	$ 47,039,759	$ 1,058,395	$ 375,770	$ -	$ 48,473,924	$ 11,615,485	$ 60,089,409	$ 79,790,327
2025	$ 48,473,924	$ 1,090,663	$ 378,150	$ -	$ 49,942,737	$ 12,445,633	$ 62,388,371	$ 82,646,021
2026	$ 49,942,737	$ 1,123,712	$ 393,830	$ -	$ 51,460,279	$ 13,218,755	$ 64,679,034	$ 85,623,807
2027	$ 51,460,279	$ 1,157,856	$ 424,830	$ -	$ 53,042,965	$ 13,945,231	$ 66,988,196	$ 88,729,279
2028	$ 53,042,965	$ 1,193,467	$ 453,790	$ -	$ 54,690,222	$ 14,637,813	$ 69,328,036	$ 91,972,790
2029	$ 54,690,222	$ 1,230,530	$ 486,700	$ -	$ 56,407,452	$ 15,306,624	$ 71,714,076	$ 95,360,640

ERA

Fiscal Year	Beginning Realized Reserves	Statutory Net Income	Distribution	Total Appropriations	Ending Realized Reserves	Unreserved Unrealized Gain/(Loss)	Ending Unreserved Balance	Ending Cost Basis
2020	$ 10,121,533	$ 3,123,188	$ (2,933,075)	$ -	$ 10,311,645	$ 1,801,897	$ 12,113,542	$ 59,525,566
2021	$ 10,311,645	$ 3,625,377	$ (3,091,480)	$ -	$ 10,845,542	$ 2,121,178	$ 12,966,720	$ 60,601,353
2022	$ 10,845,542	$ 3,980,581	$ (3,113,984)	$ -	$ 11,712,139	$ 2,492,765	$ 14,204,905	$ 61,866,391
2023	$ 11,712,139	$ 4,298,294	$ (3,308,283)	$ -	$ 12,702,150	$ 2,891,665	$ 15,593,815	$ 63,418,614
2024	$ 12,702,150	$ 4,624,149	$ (3,457,591)	$ (1,058,395)	$ 12,810,313	$ 3,069,650	$ 15,879,963	$ 65,105,192
2025	$ 12,810,313	$ 4,924,695	$ (3,583,084)	$ (1,090,663)	$ 13,061,261	$ 3,254,841	$ 16,316,102	$ 66,945,547
2026	$ 13,061,261	$ 5,205,584	$ (3,722,231)	$ (1,123,712)	$ 13,420,902	$ 3,447,467	$ 16,868,369	$ 68,957,586
2027	$ 13,420,902	$ 5,477,058	$ (3,855,216)	$ (1,157,856)	$ 13,884,888	$ 3,650,399	$ 17,535,287	$ 71,133,650
2028	$ 13,884,888	$ 5,741,689	$ (3,993,705)	$ (1,193,467)	$ 14,439,405	$ 3,864,700	$ 18,304,105	$ 73,470,277
2029	$ 14,439,405	$ 6,003,636	$ (4,138,084)	$ (1,230,530)	$ 15,074,427	$ 4,090,569	$ 19,164,996	$ 75,963,446

25% Case – Deterministic Median

$7.8 Billion Additional Distribution, Median Projected Return in Each Year

PRINCIPAL

Fiscal Year	Beginning Contributions and Appropriations	Inflation Proofing	Oil Revenues	Special Appropriations	Ending Contributions and Appropriations	Reserved Unrealized Gain/(Loss)	Ending Reserved Balance	Ending Market Value
2020	$ 41,542,109	$ -	$ 354,170	$ 4,000,000	$ 45,896,279	$ 9,311,223	$ 55,207,502	$ 69,347,557
2021	$ 45,896,279	$ -	$ 388,160	$ -	$ 46,284,439	$ 9,103,824	$ 55,388,263	$ 63,640,801
2022	$ 46,284,439	$ -	$ 381,730	$ -	$ 46,666,169	$ 9,999,114	$ 56,665,283	$ 65,550,589
2023	$ 46,666,169	$ -	$ 373,590	$ -	$ 47,039,759	$ 10,775,755	$ 57,815,515	$ 67,619,250
2024	$ 47,039,759	$ 1,058,395	$ 375,770	$ -	$ 48,473,924	$ 11,677,278	$ 60,151,203	$ 69,762,195
2025	$ 48,473,924	$ 1,090,663	$ 378,150	$ -	$ 49,942,737	$ 12,495,925	$ 62,438,662	$ 72,029,722
2026	$ 49,942,737	$ 1,123,712	$ 393,830	$ -	$ 51,460,279	$ 13,253,030	$ 64,713,310	$ 74,470,452
2027	$ 51,460,279	$ 1,157,856	$ 424,830	$ -	$ 53,042,965	$ 13,959,067	$ 67,002,032	$ 77,101,147
2028	$ 53,042,965	$ 1,193,467	$ 453,790	$ -	$ 54,690,222	$ 14,647,732	$ 69,337,954	$ 79,943,603
2029	$ 54,690,222	$ 1,230,530	$ 486,700	$ -	$ 56,407,452	$ 15,312,751	$ 71,720,204	$ 82,930,446

ERA

Fiscal Year	Beginning Realized Reserves	Statutory Net Income	Distribution	Total Appropriations	Ending Realized Reserves	Unreserved Unrealized Gain/(Loss)	Ending Unreserved Balance	Ending Cost Basis
2020	$ 10,121,533	$ 3,123,188	$ (10,727,075)	$ -	$ 2,517,645	$ 510,768	$ 3,028,414	$ 59,525,566
2021	$ 2,517,645	$ 4,563,523	$ (3,091,480)	$ -	$ 3,989,688	$ 784,744	$ 4,774,432	$ 53,752,233
2022	$ 3,989,688	$ 3,562,710	$ (3,113,984)	$ -	$ 4,438,415	$ 951,015	$ 5,389,429	$ 54,600,460
2023	$ 4,438,415	$ 3,832,563	$ (3,226,943)	$ -	$ 5,044,035	$ 1,155,475	$ 6,199,510	$ 55,688,019
2024	$ 5,044,035	$ 4,097,247	$ (3,288,842)	$ (1,058,395)	$ 4,794,044	$ 1,154,876	$ 5,948,921	$ 56,930,041
2025	$ 4,794,044	$ 4,337,346	$ (3,320,338)	$ (1,090,663)	$ 4,720,389	$ 1,181,065	$ 5,901,454	$ 58,352,732
2026	$ 4,720,389	$ 4,559,280	$ (3,359,204)	$ (1,123,712)	$ 4,796,753	$ 1,235,351	$ 6,032,104	$ 59,982,070
2027	$ 4,796,753	$ 4,774,249	$ (3,386,026)	$ (1,157,856)	$ 5,027,120	$ 1,322,963	$ 6,350,083	$ 61,819,117
2028	$ 5,027,120	$ 4,985,748	$ (3,494,322)	$ (1,193,467)	$ 5,325,078	$ 1,426,221	$ 6,751,299	$ 63,869,650
2029	$ 5,325,078	$ 5,212,020	$ (3,609,828)	$ (1,230,530)	$ 5,696,741	$ 1,546,476	$ 7,243,217	$ 66,071,218

Base Case – 95th Percentile Tail Risk Scenario

No Additional Distribution, Negative Capital Market Simulation Outcome

PRINCIPAL

Fiscal Year	Beginning Contributions and Appropriations	Inflation Proofing	Oil Revenues	Special Appropriations	Ending Contributions and Appropriations	Reserved Unrealized Gain/(Loss)	Ending Reserved Balance	Ending Market Value
2020	$ 41,542,109	$ -	$ 351,527	$ 4,000,000	$ 45,893,637	$ 1,926,839	$ 47,820,476	$ 61,627,013
2021	$ 45,893,637	$ -	$ 468,247	$ -	$ 46,361,884	$ (2,665,182)	$ 43,696,701	$ 55,278,401
2022	$ 46,361,884	$ -	$ 421,710	$ -	$ 46,783,593	$ (3,999,380)	$ 42,784,213	$ 52,960,817
2023	$ 46,783,593	$ -	$ 501,176	$ -	$ 47,284,769	$ (6,459,889)	$ 40,824,880	$ 48,070,926
2024	$ 47,284,769	$ 2,310,602	$ 558,550	$ -	$ 50,153,921	$ (4,670,648)	$ 45,483,273	$ 50,920,295
2025	$ 50,153,921	$ 573,608	$ 668,035	$ -	$ 51,395,564	$ (6,587,967)	$ 44,807,597	$ 48,131,613
2026	$ 51,395,564	$ -	$ 505,461	$ -	$ 51,901,026	$ (8,054,236)	$ 43,846,790	$ 44,939,928
2027	$ 51,901,026	$ -	$ 397,592	$ -	$ 52,298,618	$ (10,957,264)	$ 41,341,354	$ 41,544,532
2028	$ 52,298,618	$ -	$ 396,448	$ -	$ 52,695,066	$ (7,672,027)	$ 45,023,039	$ 45,821,324
2029	$ 52,695,066	$ 291,889	$ 334,409	$ -	$ 53,321,364	$ (374,748)	$ 52,946,616	$ 55,929,677

ERA

Fiscal Year	Beginning Realized Reserves	Statutory Net Income	Distribution	Total Appropriations	Ending Realized Reserves	Unreserved Unrealized Gain/(Loss)	Ending Unreserved Balance	Ending Cost Basis
2020	$ 10,121,533	$ 3,027,123	$ (2,933,075)	$ -	$ 10,215,580	$ 428,900	$ 10,644,480	$ 59,271,273
2021	$ 10,215,580	$ 2,099,907	$ (3,091,480)	$ -	$ 9,224,007	$ (530,256)	$ 8,693,752	$ 58,473,839
2022	$ 9,224,007	$ 1,157,647	$ (3,036,778)	$ -	$ 7,344,876	$ (627,890)	$ 6,716,986	$ 57,588,087
2023	$ 7,344,876	$ 443,905	$ (3,066,113)	$ -	$ 4,722,668	$ (645,195)	$ 4,077,473	$ 55,176,011
2024	$ 4,722,668	$ 2,932,964	$ (3,002,115)	$ (2,310,602)	$ 2,342,915	$ (218,187)	$ 2,124,728	$ 55,809,130
2025	$ 2,342,915	$ 1,068,821	$ (2,838,128)	$ (573,608)	$ 0	$ (0)	$ 0	$ 54,719,580
2026	$ 0	$ 888,803	$ (888,803)	$ -	$ 0	$ (0)	$ 0	$ 52,994,164
2027	$ 0	$ (138,489)	$ -	$ -	$ (138,489)	$ -	$ (138,489)	$ 52,501,796
2028	$ (138,489)	$ 656,575	$ (518,086)	$ -	$ -	$ -	$ -	$ 53,493,351
2029	$ -	$ 3,269,428	$ (2,336,073)	$ (291,889)	$ 641,466	$ (4,508)	$ 636,958	$ 56,308,933

25% ERA – 95th Percentile Tail Risk Scenario

$7.8 Billion Additional Distribution, Negative Capital Market Simulation Outcome

PRINCIPAL

Fiscal Year	Beginning Contributions and Appropriations	Inflation Proofing	Oil Revenues	Special Appropriations	Ending Contributions and Appropriations	Reserved Unrealized Gain/(Loss)	Ending Reserved Balance	Ending Market Value
2020	$ 41,542,109	$ -	$ 351,527	$ 4,000,000	$ 45,893,637	$ 2,237,669	$ 48,131,305	$ 61,627,013
2021	$ 45,893,637	$ -	$ 468,247	$ -	$ 46,361,884	$ (2,619,474)	$ 43,742,409	$ 47,545,977
2022	$ 46,361,884	$ -	$ 421,710	$ -	$ 46,783,593	$ (3,901,855)	$ 42,881,738	$ 45,176,406
2023	$ 46,783,593	$ -	$ 501,176	$ -	$ 47,284,769	$ (6,064,544)	$ 41,220,225	$ 41,845,813
2024	$ 47,284,769	$ 539	$ 558,550	$ -	$ 47,843,858	$ (3,925,983)	$ 43,917,875	$ 46,757,957
2025	$ 47,843,858	$ -	$ 668,035	$ -	$ 48,511,893	$ (5,658,818)	$ 42,853,075	$ 44,477,737
2026	$ 48,511,893	$ -	$ 505,461	$ -	$ 49,017,355	$ (7,120,292)	$ 41,897,063	$ 43,059,003
2027	$ 49,017,355	$ -	$ 397,592	$ -	$ 49,414,947	$ (9,948,103)	$ 39,466,844	$ 39,723,975
2028	$ 49,414,947	$ -	$ 396,448	$ -	$ 49,811,395	$ (6,860,497)	$ 42,950,898	$ 43,831,865
2029	$ 49,811,395	$ 275,915	$ 334,409	$ -	$ 50,421,719	$ 45,527	$ 50,467,246	$ 53,409,582

ERA

Fiscal Year	Beginning Realized Reserves	Statutory Net Income	Distribution	Total Appropriations	Ending Realized Reserves	Unreserved Unrealized Gain/(Loss)	Ending Unreserved Balance	Ending Cost Basis
2020	$ 10,121,533	$ 3,027,123	$ (10,727,075)	$ -	$ 2,421,580	$ 118,071	$ 2,539,651	$ 59,271,273
2021	$ 2,421,580	$ 1,562,128	$ (3,091,480)	$ -	$ 892,228	$ (50,411)	$ 841,817	$ 50,215,863
2022	$ 892,228	$ 985,222	$ (1,827,039)	$ -	$ 50,411	$ (4,204)	$ 46,207	$ 49,082,466
2023	$ 50,411	$ 434,888	$ (481,095)	$ -	$ 4,204	$ (539)	$ 3,665	$ 47,910,897
2024	$ 4,204	$ 2,522,447	$ (2,526,112)	$ (539)	$ 0	$ (0)	$ 0	$ 50,683,940
2025	$ 0	$ 1,151,005	$ (1,151,005)	$ -	$ 0	$ (0)	$ 0	$ 50,136,555
2026	$ 0	$ 946,724	$ (946,724)	$ -	$ 0	$ (0)	$ 0	$ 50,179,295
2027	$ 0	$ (85,691)	$ -	$ -	$ (85,691)	$ -	$ (85,691)	$ 49,672,077
2028	$ (85,691)	$ 682,572	$ (596,881)	$ -	$ -	$ -	$ -	$ 50,692,361
2029	$ -	$ 3,190,375	$ (2,158,645)	$ (275,915)	$ 755,815	$ 682	$ 756,498	$ 53,363,373

Board Resolution Concepts

Discussion of Potential Strategies for a Board Resolution

- Language supporting a constitutional amendment to adopt an endowment model.
- Language encouraging the legislature not to make ad hoc appropriations to Principal and limit appropriations only to inflation-proofing.
- Language reinforcing the legislature's stated intent that the recent $4 billion ad hoc appropriation from the ERA to Principal be treated as an inflation proofing "prepayment", meaning that inflation proofing appropriations be suspended until the cumulative required inflation proofing under the formula exceeds the recent $4 billion appropriation.
- Language encouraging the legislature to limit distributions to those determined under the POMV spending rule.
- Language reinforcing the Permanent Fund Board's commitment to a Total Return investment approach, and reinforcing their resolve that the APFC will not engage in investment behavior designed to manipulate the balance of the Earnings Reserve Account.
- Language silent on the above and simply supporting the findings of the Trustee White Paper.

Presentation: APFC

APFC

ALASKA PERMANENT
FUND CORPORATION

APFC Total Fund & ERA Model

February 19-20, 2020

Summary of Modeling Exercise

Assumptions & Methodology

- **Inflation:** In historical capital markets scenarios use actual inflation from periods; 2.25% inflation rate in 7.00% flat return case
- **APFC Portfolio Turnover Rate:** 20%
- **Inflation Proofing:** Yes, in base-line model, assumed for all periods for which Realized Earnings are available after paying POMV (including FY 2021-2024)
- **Assignment of Statutory Net Income:** If positive for a full fiscal year, 100% assigned to ERA; If negative for a full fiscal year, Statutory Net Income from ERA balances remains in the ERA, Statutory Net Income from Principal balances remains in the Principal
- **Accounting Net Income:** Accounting Net Income assumed to approximate total fund return (applied to beginning fund balance minus 50% of POMV transfer amount for mid-year convention)
- **Beginning Model Balances:** Fund balances for beginning amounts sourced from "History & Projections" file's projected levels for June 30, 2020 (including $4 billion appropriation from ERA to Principal occurring in FY 2020)
- **Baseline Realized Income:** 2.5% of Total Fund (Beginning Value) for any given year

Capital Markets Scenarios

- For purposes of modeling a wide range of capital markets expectations for the APFC's Fund portfolio returns, eleven discrete projection cases based on historical capital markets environments were used plus a case with 7.00% static annual returns and 2.25% static inflation

- This approach is different than Callan's Monte Carlo simulation approach; the benefit of the Monte Carlo approach is that one can run many thousands of simulations and the benefit of running a discrete number of projection cases is the reader can more fully grasp what is happening in the different scenarios (i.e., "1970's Capital Market Environment" vs. "95% Tail Risk Scenario")
  - Monte Carlo models also may suffer from many of the same shortcomings of other statistical analyses such as assuming a normal distribution of outcomes or other outcome distribution assumptions that may not fully capture "fat tails"

- Capital Market Scenarios (essentially twenty year forecasts for Total Fund Annual Returns) includes the following approaches:
  - **Flat Annual Return Assumption (1 Scenario):** Assumes that the Fund earns the flat 7.00% with 2.25% inflation in-line with History & Projections file
  - **Periods 1900's through 2010's (11 Scenarios) :** These eleven scenarios take the total returns on a portfolio 70% invested in domestic stocks and 30% invested in domestic fixed income with annual rebalancing and applies its annual returns for each twenty year period starting in 1900 and each subsequent decade start; modeled inflation is the actual CPI experienced in these time periods

Capital Markets Scenarios (continued)

The table below provides a summary of average returns of domestic stocks, domestic fixed income, and a 70/30 portfolio going back to 1900; given the emphasis on looking at portfolio returns in these past periods (by decade) an upfront summary can be helpful to orient the reader

	1900's	1910's	1920's	1930's	1940's	1950's	1960's	1970's	1980's	1990's	2000's	2010's	Long-Term Average [1]
Average Annual Return on Domestic Stocks	11.91%	5.85%	16.05%	5.48%	9.98%	21.98%	8.68%	7.46%	18.19%	18.99%	1.21%	14.15%	11.66%
Average Annual Return on Domestic Fixed Income	5.24%	5.27%	3.75%	4.01%	2.52%	0.83%	2.51%	6.44%	12.76%	7.88%	6.37%	3.80%	5.11%
Average Annual Return on 70/30 Portfolio	**9.91%**	**5.67%**	**12.36%**	**5.04%**	**7.74%**	**15.64%**	**6.83%**	**7.15%**	**16.56%**	**15.66%**	**2.76%**	**11.05%**	**9.70%**
Average Annual Inflation (CPI)	2.50%	6.94%	(0.86%)	(1.92%)	5.51%	2.24%	2.53%	7.41%	5.14%	2.94%	2.53%	1.76%	3.06%
Average Real Return	**7.41%**	**(1.27%)**	**13.22%**	**6.96%**	**2.23%**	**13.39%**	**4.30%**	**(0.26%)**	**11.42%**	**12.72%**	**0.23%**	**9.28%**	**6.64%**

1. Represents the simple average of the columns to the left, which, themselves, are the simple average of the annual returns or average annual inflation in each decade.
Source: Analysis from APFC Investments Department.

Capital Markets Scenarios (continued)

	Year 1 FY 2021	Year 2 FY 2022	Year 3 FY 2023	Year 4 FY 2024	Year 5 FY 2025	Year 6 FY 2026	Year 7 FY 2027	Year 8 FY 2028	Year 9 FY 2029	Year 10 FY 2030	Average Year 11-20 FY '31-'40	Average Full 20 Yr. Projection
1900-1919 - 70/30	14.04%	15.73%	5.33%	(8.42%)	23.17%	15.11%	6.14%	(18.91%)	32.40%	14.47%	5.67%	7.79%
1910-1929 - 70/30	(3.96%)	5.67%	7.28%	(4.80%)	(0.19%)	25.87%	7.06%	(15.91%)	20.00%	15.72%	12.36%	9.02%
1920-1939 - 70/30	(10.77%)	11.87%	19.82%	3.43%	18.57%	20.54%	10.17%	25.30%	26.15%	(1.46%)	5.04%	8.70%
1930-1949 - 70/30	(14.73%)	(28.25%)	(4.00%)	38.02%	0.49%	33.32%	25.61%	(23.90%)	22.80%	1.06%	7.74%	6.39%
1940-1959 - 70/30	(5.22%)	(8.72%)	14.79%	18.69%	12.99%	26.56%	(4.68%)	4.22%	4.34%	14.42%	15.64%	11.69%
1950-1969 - 70/30	22.15%	16.69%	13.39%	0.58%	37.58%	21.58%	3.86%	(5.46%)	29.57%	16.40%	6.83%	11.23%
1960-1979 - 70/30	3.81%	19.43%	(4.36%)	16.44%	12.62%	8.94%	(6.14%)	16.25%	8.71%	(7.39%)	7.15%	6.99%
1970-1989 - 70/30	7.34%	12.95%	14.14%	(9.18%)	(18.83%)	29.43%	21.18%	(4.10%)	5.02%	13.61%	16.56%	11.86%
1980-1999 - 70/30	23.56%	(1.57%)	24.87%	18.30%	8.94%	28.84%	17.64%	4.50%	13.99%	26.54%	15.66%	16.11%
1990-2009 - 70/30	0.52%	26.13%	7.55%	9.98%	0.05%	31.85%	17.16%	26.25%	22.61%	14.48%	2.76%	9.21%
2000-2019 - 70/30	(2.89%)	(5.79%)	(12.39%)	21.31%	8.92%	4.17%	12.36%	5.94%	(24.33%)	20.30%	11.05%	6.90%
Flat 7.00% & 2.25%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%

POMV Shortfall Analysis

Base Case – Principal Allocated the Same as ERA

- Baseline POMV / ERA combination is not particularly stable with 7 out of 11 historical capital markets scenarios failing to fulfill POMV payments to General Fund over twenty year horizon

($ in millions)	Base Case						
	Shortfall Year	**Initial Shortfall**	**Cum. Shortfall**	**Worst % Shortfall**	**# Shortfall Years**	**Cum. Infl. SF**	**Ending Fund Value**
1 = "1900-1919 - 70/30"	FY 2036	($2,345)	($5,189)	58%	2.00	$41,980	$114,731
2 = "1910-1929 - 70/30"	FY 2026	($1,774)	($5,140)	66%	4.00	$21,334	$160,712
3 = "1920-1939 - 70/30"	N/A	$0	$0	0%	0.00	$0	$106,995
4 = "1930-1949 - 70/30"	FY 2024	($820)	($8,346)	96%	5.00	$8,529	$84,731
5 = "1940-1959 - 70/30"	FY 2024	($992)	($992)	32%	1.00	$15,106	$253,550
6 = "1950-1969 - 70/30"	N/A	$0	$0	0%	0.00	$0	$232,331
7 = "1960-1979 - 70/30"	FY 2035	($495)	($6,249)	100%	3.00	$44,264	$104,141
8 = "1970-1989 - 70/30"	FY 2026	($3,667)	($4,188)	100%	2.00	$37,902	$270,694
9 = "1980-1999 - 70/30"	N/A	$0	$0	0%	0.00	$0	$614,268
10 = "1990-2009 - 70/30"	N/A	$0	$0	0%	0.00	$0	$141,518
11 = "2000-2019 - 70/30"	FY 2024	($686)	($8,005)	90%	8.00	$12,829	$110,352
12 = "Flat 7.00% & 2.25%"	N/A	$0	$0	0%	0.00	$0	$111,981
Average (Cases 1-11)		($980)	($3,464)	49%	2.27	$16,540	$199,457

POMV Shortfall Analysis

Base Case – Fund Allocation Shifted with Total Allocation Same, More FI in ERA

- Although "shifting" the APFC allocation for the ERA more into Fixed Income (while leaving Total Fund allocation unchanged) has some theoretical benefit, in the eleven cases examined here (using the Base Case) there was no material benefit to doing so
- In past versions of this analysis there were cases that made it through under this approach (e.g., APFC – GFC Scenario), however, none remain at this point; in the difficult cases the ERA is reduced rapidly to a point where changing ERA allocation makes little difference
- As demonstrated later in these materials, however, there is a benefit to shifting the asset allocation when combined with methods to ensure a minimum ERA size (e.g., 4x Rule); when minimum ERA sizes are not assured, stress scenarios results in dwindling ERA sizes with little benefit of shifting its asset mix

($ in millions)	**Base Case**						
	Shortfall Year	**Initial Shortfall**	**Cum. Shortfall**	**Worst % Shortfall**	**# Shortfall Years**	**Cum. Infl. SF**	**Ending Fund Value**
1 = "1900-1919 - 70/30"	FY 2036	($1,704)	($4,930)	61%	3.00	$41,851	$114,654
2 = "1910-1929 - 70/30"	FY 2026	($715)	($5,029)	71%	5.00	$21,583	$161,677
3 = "1920-1939 - 70/30"	N/A	$0	$0	0%	0.00	$0	$108,008
4 = "1930-1949 - 70/30"	FY 2025	($199)	($7,365)	100%	5.00	$7,451	$82,430
5 = "1940-1959 - 70/30"	FY 2024	($1,500)	($1,500)	48%	1.00	$14,314	$264,918
6 = "1950-1969 - 70/30"	N/A	$0	$0	0%	0.00	$0	$240,732
7 = "1960-1979 - 70/30"	FY 2035	($865)	($6,891)	100%	4.00	$43,556	$105,326
8 = "1970-1989 - 70/30"	FY 2026	($3,663)	($5,045)	100%	3.00	$37,000	$274,140
9 = "1980-1999 - 70/30"	N/A	$0	$0	0%	0.00	$0	$626,260
10 = "1990-2009 - 70/30"	N/A	$0	$0	0%	0.00	$0	$141,740
11 = "2000-2019 - 70/30"	FY 2025	($289)	($7,946)	92%	7.00	$11,877	$109,960
12 = "Flat 7.00% & 2.25%"	N/A	$0	$0	0%	0.00	$0	$113,892
			542				
Average (Cases 1-11)		($812)	($3,519)	52%	2.55	$16,148	$202,713

POMV Shortfall Analysis

4x POMV in ERA Inflation Proofing Approach (Asset Allocation Unchanged)

- The version of SB 26 that passed the House included a feature whereby the lessor of (i) excess amounts in the ERA (minus the POMV transfer amount) in excess of 4x of the POMV transfer amount and (ii) cumulative inflation proofing shortfall would be available to the Legislature to appropriate to Principal as inflation proofing
- The table below shows the outcome of the eleven operating cases forecasted for twenty years using this approach

($ in millions)	**4x ERA Overage Inflation Proofing**						
	Shortfall Year	**Initial Shortfall**	**Cum. Shortfall**	**Worst % Shortfall**	**# Shortfall Years**	**Cum. Infl. SF**	**Ending Fund Value**
1 = "1900-1919 - 70/30"	N/A	$0	$0	0%	0.00	$46,612	$108,017
2 = "1910-1929 - 70/30"	N/A	$0	$0	0%	0.00	$0	$146,744
3 = "1920-1939 - 70/30"	N/A	$0	$0	0%	0.00	$0	$106,995
4 = "1930-1949 - 70/30"	FY 2024	($820)	($6,094)	83%	5.00	$15,652	$80,687
5 = "1940-1959 - 70/30"	N/A	$0	$0	0%	0.00	$0	$249,191
6 = "1950-1969 - 70/30"	N/A	$0	$0	0%	0.00	$0	$232,331
7 = "1960-1979 - 70/30"	N/A	$0	$0	0%	0.00	$49,712	$95,160
8 = "1970-1989 - 70/30"	N/A	$0	$0	0%	0.00	$0	$251,758
9 = "1980-1999 - 70/30"	N/A	$0	$0	0%	0.00	$0	$614,268
10 = "1990-2009 - 70/30"	N/A	$0	$0	0%	0.00	$0	$141,518
11 = "2000-2019 - 70/30"	FY 2026	($253)	($5,340)	84%	6.00	$12,615	$105,194
12 = "Flat 7.00% & 2.25%"	N/A	$0	$0	0%	0.00	$5,946	$111,981
Average (Cases 1-11)		($98)	($1,039)	15%	1.00	$11,326	$193,806

POMV Shortfall Analysis

4x POMV in ERA Inflation Proofing Approach, AA Shifted – FI in ERA

- Neither of the two POMV shortfall scenarios from the prior page are avoided by shifting the Fund's asset allocation (ERA invested in Fixed Income, Principal in remaining higher risk/higher return assets); however, the cumulative POMV shortfalls are materially reduced and the year of initial POMV shortfall is delayed by two years and four years, respectively

($ in millions)	**4x ERA Overage Inflation Proofing**						
	Shortfall Year	**Initial Shortfall**	**Cum. Shortfall**	**Worst % Shortfall**	**# Shortfall Years**	**Cum. Infl. SF**	**Ending Fund Value**
1 = "1900-1919 - 70/30"	N/A	$0	$0	0%	0.00	$47,134	$108,819
2 = "1910-1929 - 70/30"	N/A	$0	$0	0%	0.00	$0	$148,773
3 = "1920-1939 - 70/30"	N/A	$0	$0	0%	0.00	$0	$108,008
4 = "1930-1949 - 70/30"	FY 2026	($2,036)	($4,900)	88%	3.00	$15,967	$78,074
5 = "1940-1959 - 70/30"	N/A	$0	$0	0%	0.00	$0	$258,630
6 = "1950-1969 - 70/30"	N/A	$0	$0	0%	0.00	$0	$240,732
7 = "1960-1979 - 70/30"	N/A	$0	$0	0%	0.00	$49,427	$95,911
8 = "1970-1989 - 70/30"	N/A	$0	$0	0%	0.00	$0	$253,283
9 = "1980-1999 - 70/30"	N/A	$0	$0	0%	0.00	$0	$626,260
10 = "1990-2009 - 70/30"	N/A	$0	$0	0%	0.00	$0	$141,740
11 = "2000-2019 - 70/30"	FY 2030	($1,997)	($4,781)	72%	4.00	$13,173	$104,043
12 = "Flat 7.00% & 2.25%"	N/A	$0	$0	0%	0.00	$6,842	$113,892
Average (Cases 1-11)		($367)	($880)	15%	0.64	$11,427	$196,752

4x POMV in ERA Rule Can Improve both POMV and Inflation Shortfalls

Cumulative POMV Shortfall

Case	Base Case	4x Rule	4x Rule, AA Shifted
1 = "1900-1919 - 70/30"	$5,189	$0	$0
2 = "1910-1929 - 70/30"	$5,140	$0	$0
3 = "1920-1939 - 70/30"	$0	$0	$0
4 = "1930-1949 - 70/30"	$8,346	$6,094	$4,900
5 = "1940-1959 - 70/30"	$992	$0	$0
6 = "1950-1969 - 70/30"	$0	$0	$0
7 = "1960-1979 - 70/30"	$6,249	$0	$0
8 = "1970-1989 - 70/30"	$4,188	$0	$0
9 = "1980-1999 - 70/30"	$0	$0	$0
10 = "1990-2009 - 70/30"	$0	$0	$0
11 = "2000-2019 - 70/30"	$8,005	$5,340	$4,781

Cumulative Inflation Shortfall

Case	Base Case	4x Rule	4x Rule, AA Shifted
1 = "1900-1919 - 70/30"	$41,980	$46,612	$47,134
2 = "1910-1929 - 70/30"	$21,334	$0	$0
3 = "1920-1939 - 70/30"	$0	$0	$0
4 = "1930-1949 - 70/30"	$8,529	$15,652	$15,967
5 = "1940-1959 - 70/30"	$15,106	$0	$0
6 = "1950-1969 - 70/30"	$0	$0	$0
7 = "1960-1979 - 70/30"	$44,264	$49,712	$49,427
8 = "1970-1989 - 70/30"	$37,902	$0	$0
9 = "1980-1999 - 70/30"	$0	$0	$0
10 = "1990-2009 - 70/30"	$0	$0	$0
11 = "2000-2019 - 70/30"	$12,829	$12,615	$13,173

4x Rule Sensitivity Analysis
With no Change to Asset Allocation

($ in millions)		Cumulative Shortfall (at Range of Minimum Multiples of POMV in ERA)						
	Base Case	**2.00x**	**2.50x**	**3.00x**	**3.50x**	**4.00x**	**4.50x**	**5.00x**
1 = "1900-1919 - 70/30"	($5,189)	$0	$0	$0	$0	$0	$0	$0
2 = "1910-1929 - 70/30"	($5,140)	($531)	($443)	$0	$0	$0	$0	$0
3 = "1920-1939 - 70/30"	$0	$0	$0	$0	$0	$0	$0	$0
4 = "1930-1949 - 70/30"	($8,346)	($8,007)	($8,007)	($7,557)	($6,741)	($6,094)	($6,094)	($6,094)
5 = "1940-1959 - 70/30"	($992)	$0	$0	$0	$0	$0	$0	$0
6 = "1950-1969 - 70/30"	$0	$0	$0	$0	$0	$0	$0	$0
7 = "1960-1979 - 70/30"	($6,249)	($3,449)	($1,693)	$0	$0	$0	$0	$0
8 = "1970-1989 - 70/30"	($4,188)	($906)	($906)	($724)	$0	$0	$0	$0
9 = "1980-1999 - 70/30"	$0	$0	$0	$0	$0	$0	$0	$0
10 = "1990-2009 - 70/30"	$0	$0	$0	$0	$0	$0	$0	$0
11 = "2000-2019 - 70/30"	($8,005)	($6,568)	($6,568)	($5,812)	($5,812)	($5,340)	($4,243)	($4,243)
12 = "Flat 7.00% & 2.25%"	$0	$0	$0	$0	$0	$0	$0	$0
Average (Cases 1-11)		($1,769)	($1,602)	($1,281)	($1,141)	($1,039)	($940)	($940)

4x Rule Sensitivity Analysis
With ERA Shifted into Fixed Income

($ in millions)		Cumulative Shortfall (at Range of Minimum Multiples of POMV in ERA)						
	Base Case	**2.00x**	**2.50x**	**3.00x**	**3.50x**	**4.00x**	**4.50x**	**5.00x**
1 = "1900-1919 - 70/30"	($4,930)	$0	$0	$0	$0	$0	$0	$0
2 = "1910-1929 - 70/30"	($5,029)	($917)	($541)	$0	$0	$0	$0	$0
3 = "1920-1939 - 70/30"	$0	$0	$0	$0	$0	$0	$0	$0
4 = "1930-1949 - 70/30"	($7,365)	($5,596)	($5,471)	($4,900)	($4,900)	($4,900)	($4,900)	($4,900)
5 = "1940-1959 - 70/30"	($1,500)	$0	$0	$0	$0	$0	$0	$0
6 = "1950-1969 - 70/30"	$0	$0	$0	$0	$0	$0	$0	$0
7 = "1960-1979 - 70/30"	($6,891)	($2,609)	($399)	$0	$0	$0	$0	$0
8 = "1970-1989 - 70/30"	($5,045)	$0	$0	$0	$0	$0	$0	$0
9 = "1980-1999 - 70/30"	$0	$0	$0	$0	$0	$0	$0	$0
10 = "1990-2009 - 70/30"	$0	$0	$0	$0	$0	$0	$0	$0
11 = "2000-2019 - 70/30"	($7,946)	($6,440)	($5,595)	($5,595)	($4,781)	($4,781)	($3,153)	($3,072)
12 = "Flat 7.00% & 2.25%"	$0	$0	$0	$0	$0	$0	$0	$0
Average (Cases 1-11)		($1,415)	($1,091)	($954)	($880)	($880)	($732)	($725)

2-4x and 3-5x Dynamic Inflation Proofing
With ERA Shifted into Fixed Income

($ in millions)	2 - 4x Rule Dynamic Inflation Proofing					
	Shortfall Year	**Initial Shortfall**	**Cum. Shortfall**	**Worst % Shortfall**	**# Shortfall Years**	**Cum. Infl. SF**
1 = "1900-1919 - 70/30"	N/A	$0	$0	0%	0.00	$44,747
2 = "1910-1929 - 70/30"	FY 2030	$280	$917	14%	3.00	$0
3 = "1920-1939 - 70/30"	N/A	$0	$0	0%	0.00	$0
4 = "1930-1949 - 70/30"	FY 2026	$2,036	$5,596	88%	3.00	$10,998
5 = "1940-1959 - 70/30"	N/A	$0	$0	0%	0.00	$0
6 = "1950-1969 - 70/30"	N/A	$0	$0	0%	0.00	$0
7 = "1960-1979 - 70/30"	FY 2036	$1,269	$2,493	28%	2.00	$47,250
8 = "1970-1989 - 70/30"	N/A	$0	$0	0%	0.00	$0
9 = "1980-1999 - 70/30"	N/A	$0	$0	0%	0.00	$0
10 = "1990-2009 - 70/30"	N/A	$0	$0	0%	0.00	$0
11 = "2000-2019 - 70/30"	FY 2026	$191	$6,440	89%	6.00	$10,736

($ in millions)	3 - 5x Rule Dynamic Inflation Proofing					
	Shortfall Year	**Initial Shortfall**	**Cum. Shortfall**	**Worst % Shortfall**	**# Shortfall Years**	**Cum. Infl. SF**
1 = "1900-1919 - 70/30"	N/A	$0	$0	0%	0.00	$45,936
2 = "1910-1929 - 70/30"	N/A	$0	$0	0%	0.00	$2,518
3 = "1920-1939 - 70/30"	N/A	$0	$0	0%	0.00	$0
4 = "1930-1949 - 70/30"	FY 2026	$2,036	$4,900	88%	3.00	$14,191
5 = "1940-1959 - 70/30"	N/A	$0	$0	0%	0.00	$0
6 = "1950-1969 - 70/30"	N/A	$0	$0	0%	0.00	$0
7 = "1960-1979 - 70/30"	N/A	$0	$0	0%	0.00	$48,459
8 = "1970-1989 - 70/30"	N/A	$0	$0	0%	0.00	$0
9 = "1980-1999 - 70/30"	N/A	$0	$0	0%	0.00	$0
10 = "1990-2009 - 70/30"	N/A	$0	$0	0%	0.00	$0
11 = "2000-2019 - 70/30"	FY 2027	$350	$5,595	90%	5.00	$14,156

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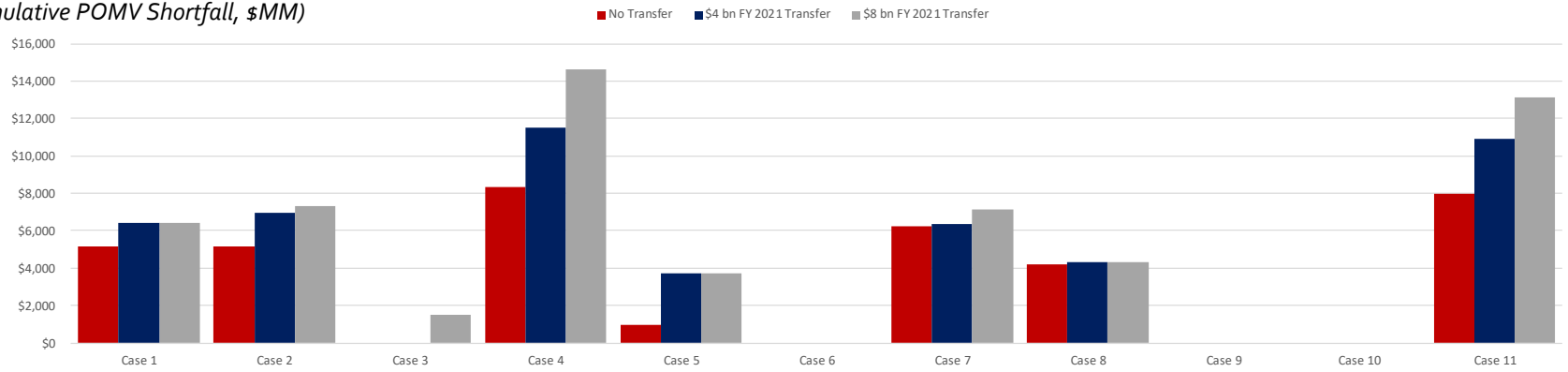
Impact of an Initial Ad Hoc Transfer to Principal
No Change to ERA Asset Allocation

- Ad hoc transfers of balances from the Earnings Reserve Account to the Principal have the impact of increasing the likelihood of POMV Shortfall, reducing the time cushion until shortfall, and increasing the severity of experienced POMV Shortfalls
- Analysis below illustrates the base case impact of an additional $4 billion and $8 billion ad hoc transfer from ERA to Principal in FY 2021 (base case with no asset allocation of ERA unchanged)

(Cumulative POMV Shortfall, $MM)



Initial Shortfall Year	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9	Case 10	Case 11
No Transfer	FY 2036	FY 2026	N/A	FY 2024	FY 2024	N/A	FY 2035	FY 2026	N/A	N/A	FY 2024
$4 bn FY 2021 Transfer	FY 2035	FY 2025	N/A	FY 2023	FY 2023	N/A	FY 2032	FY 2026	N/A	N/A	FY 2024
$8 bn FY 2021 Transfer	FY 2035	FY 2024	FY 2022	FY 2022	FY 2023	N/A	FY 2031	FY 2026	N/A	N/A	FY 2022

Impact of POMV Step-Down/Floor Construct
Base Case, ERA Asset Allocation Unchanged

($ in millions)

	Base Case				3.5% POMV at <3x ERA/POMV (Base Case)			
	Cumulative POMV Shortfall	Initial Shortfall Year	# Shortfall Years	Worst % Shortfall	Cumulative POMV Shortfall	Initial Shortfall Year	# Shortfall Years	Worst % Shortfall
1 = "1900-1919 - 70/30"	($5,189)	FY 2036	2	58%	($1,468)	FY 2039	1	41%
2 = "1910-1929 - 70/30"	($5,140)	FY 2026	4	66%	($1,180)	FY 2029	1	53%
3 = "1920-1939 - 70/30"	$0	N/A	0	0%	$0	N/A	0	0%
4 = "1930-1949 - 70/30"	($8,346)	FY 2024	5	96%	($3,651)	FY 2025	4	94%
5 = "1940-1959 - 70/30"	($992)	FY 2024	1	32%	($32)	FY 2024	1	1%
6 = "1950-1969 - 70/30"	$0	N/A	0	0%	$0	N/A	0	0%
7 = "1960-1979 - 70/30"	($6,249)	FY 2035	3	100%	($3,213)	FY 2036	1	100%
8 = "1970-1989 - 70/30"	($4,188)	FY 2026	2	100%	($2,567)	FY 2026	1	100%
9 = "1980-1999 - 70/30"	$0	N/A	0	0%	$0	N/A	0	0%
10 = "1990-2009 - 70/30"	$0	N/A	0	0%	$0	N/A	0	0%
11 = "2000-2019 - 70/30"	($8,005)	FY 2024	8	90%	($1,776)	FY 2025	3	51%

Impact of POMV Step-Down/Floor Construct
ERA Asset Allocation Shifted to Fixed Income & 4x POMV Construct

- If one were to combine (i) the 4x POMV in ERA construct with (ii) ERA Shifted to Fixed Income and (iii) a 3.5% POMV floor at either 2x or 3x POMV in ERA there are no instances of a POMV shortfall in any of the cases over the 20 year horizon
- Elimination of either (i), (ii), or (iii) above does result in instances of POMV Shortfalls

($ in millions)

	3.5% POMV at <2x ERA/POMV (Shift ERA AA, 4x POMV Inf. Proofing)				3.5% POMV at <3x ERA/POMV (Shift ERA AA, 4x POMV Inf. Proofing)			
	Cumulative POMV Shortfall	Initial Shortfall Year	# Shortfall Years	Worst % Shortfall	Cumulative POMV Shortfall	Initial Shortfall Year	# Shortfall Years	Worst % Shortfall
1 = "1900-1919 - 70/30"	$0	N/A	0	0%	$0	N/A	0	0%
2 = "1910-1929 - 70/30"	$0	N/A	0	0%	$0	N/A	0	0%
3 = "1920-1939 - 70/30"	$0	N/A	0	0%	$0	N/A	0	0%
4 = "1930-1949 - 70/30"	$0	N/A	0	0%	$0	N/A	0	0%
5 = "1940-1959 - 70/30"	$0	N/A	0	0%	$0	N/A	0	0%
6 = "1950-1969 - 70/30"	$0	N/A	0	0%	$0	N/A	0	0%
7 = "1960-1979 - 70/30"	$0	N/A	0	0%	$0	N/A	0	0%
8 = "1970-1989 - 70/30"	$0	N/A	0	0%	$0	N/A	0	0%
9 = "1980-1999 - 70/30"	$0	N/A	0	0%	$0	N/A	0	0%
10 = "1990-2009 - 70/30"	$0	N/A	0	0%	$0	N/A	0	0%
11 = "2000-2019 - 70/30"	$0	N/A	0	0%	$0	N/A	0	0%

Pros vs. Cons of a Different Allocation for ERA Assets

Pros	Cons
+ Increased expected returns for Corpus (the portion of the Fund with the longest time-horizon and highest ability to take risk)	- Increased risk profile and expected volatility for Corpus (however, overall Fund risk/return profile unchanged)
+ Potential in many cases to delay a POMV shortfall by several years giving policy-makers time to react to the prevailing fiscal environment	- Few instances where a POMV shortfall may be avoided by this change alone (tends to only impact severity and timing)
+ Especially when used in conjunction with an ERA buffer construct (e.g., 4x POMV) tends to reduce the severity of POMV shortfalls when they occur	- If not coupled with an ERA buffer construct (e.g., 4x POMV) does not tend to materially reduce the severity of POMV shortfalls
+ Missed POMV shortfalls in some cases (e.g., Case 8 with 2-3x POMV in ERA construct, pages 10-11)	- Finance and accounting complexity and upfront implementation effort
+ Necessary ingredient in only set of rules identified that eliminates any POMV shortfalls in all eleven scenarios (previous page)	

Dividend vs. POMV Draw Analysis

Projected Ratio of Statutory Dividend Transfer to POMV

Red represents >= 100%

Yellow represents >65% and <100%

Green represents <= 65%

65% is approximate ratio for FY 2021

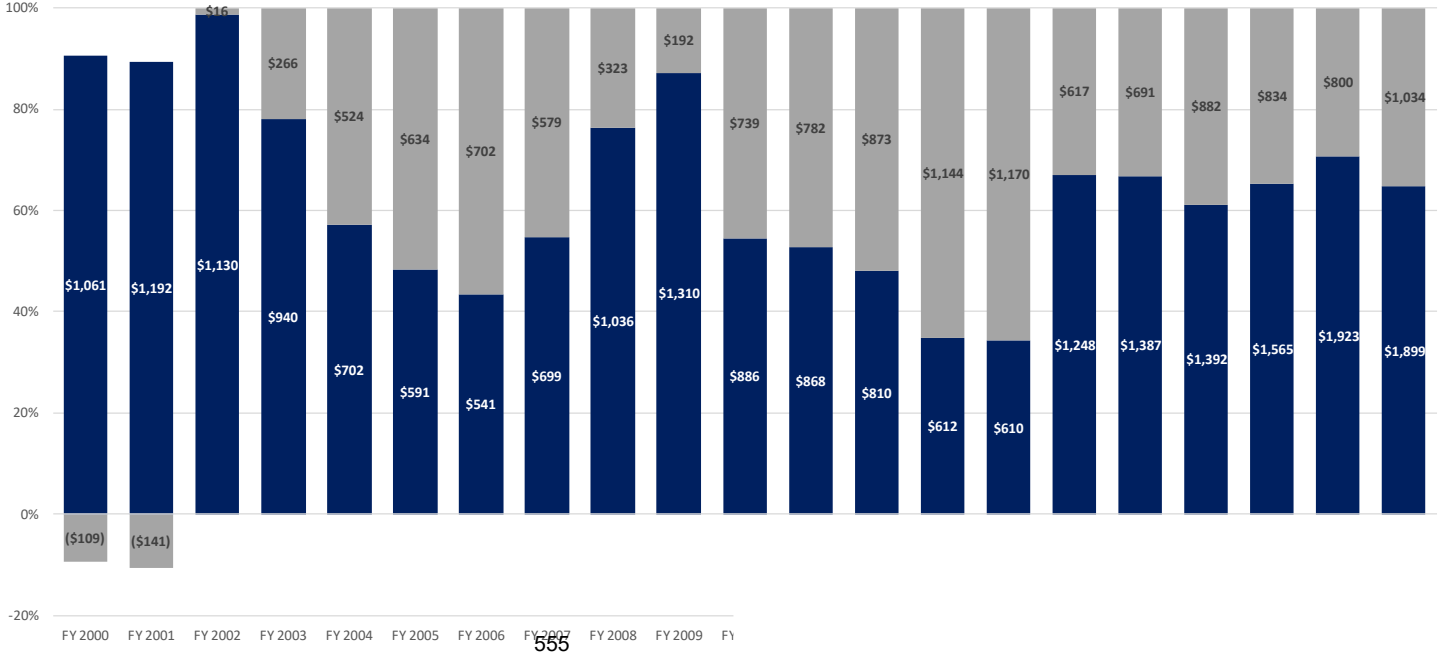
($ in millions)

	Year 1 FY 2021	Year 2 FY 2022	Year 3 FY 2023	Year 4 FY 2024	Year 5 FY 2025	Year 6 FY 2026	Year 7 FY 2027	Year 8 FY 2028	Year 9 FY 2029	Year 10 FY 2030
1 = "1900-1919 - 70/30"	64.86%	73.54%	78.22%	71.99%	68.43%	71.87%	75.33%	73.93%	62.17%	69.91%
2 = "1910-1929 - 70/30"	64.86%	65.44%	61.03%	49.11%	43.87%	35.35%	41.37%	46.12%	39.17%	44.21%
3 = "1920-1939 - 70/30"	64.86%	62.38%	58.37%	51.21%	52.64%	57.38%	75.38%	85.45%	96.69%	113.35%
4 = "1930-1949 - 70/30"	64.86%	60.60%	40.82%	11.41%	0.17%	0.00%	0.00%	32.76%	46.00%	54.13%
5 = "1940-1959 - 70/30"	64.86%	64.88%	54.43%	40.39%	42.51%	44.80%	62.44%	72.92%	76.28%	74.20%
6 = "1950-1969 - 70/30"	64.86%	77.19%	84.31%	83.59%	86.33%	101.21%	110.68%	109.55%	100.92%	108.37%
7 = "1960-1979 - 70/30"	64.86%	68.94%	72.44%	60.63%	64.92%	68.66%	73.93%	66.90%	71.46%	71.03%
8 = "1970-1989 - 70/30"	64.86%	70.53%	72.21%	68.08%	65.10%	52.07%	50.86%	52.44%	45.04%	46.54%
9 = "1980-1999 - 70/30"	64.86%	77.83%	76.29%	75.98%	87.63%	93.50%	102.96%	115.17%	112.60%	111.80%
10 = "1990-2009 - 70/30"	64.86%	67.46%	72.74%	67.32%	73.01%	72.06%	85.74%	91.38%	104.54%	117.18%
11 = "2000-2019 - 70/30"	64.86%	65.93%	57.18%	34.94%	30.00%	24.13%	23.70%	31.64%	45.49%	36.62%
12 = "Flat 7.00% with 2.25% Inflation"	64.86%	70.37%	69.36%	60.36%	62.10%	61.92%	62.73%	63.36%	63.86%	64.24%

Historical Calculated Dividend Amounts vs. Calculated POMV

Historical mix (FY 2000 – FY 2020)

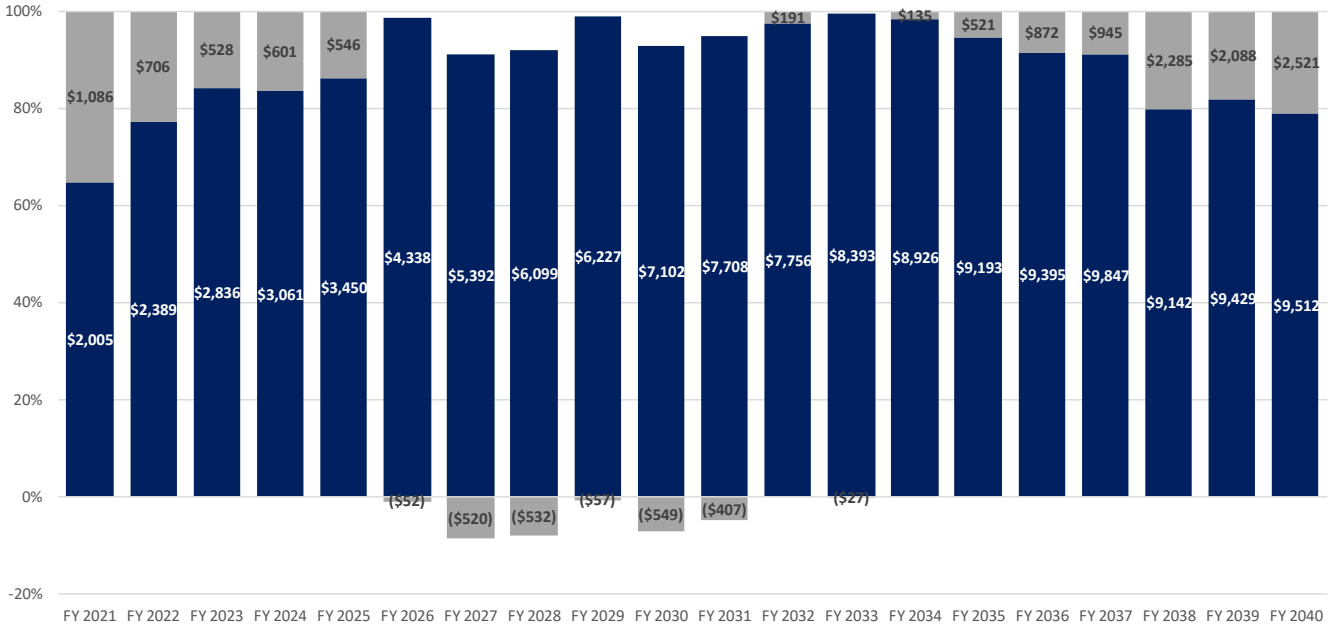
- Dollars (in millions) required for full dividends according to statutory formula
- Implied remaining dollars (in millions) remaining (implied by POMV calculation less dividend formula) for State government spending



Note: analysis looks at actual historical Fund balances and actual historical Statutory Net Income to derive amounts and resultant ratios; analysis is not a simulation of what would've occurred if a POMV were in place throughout the Fund's history. A simulation would potentially result in more volatility as the Fund's value would be reduced each year by the POMV amount.

Projected Mix – Case 6 (1950-1969)

- Dollars (in millions) required for full dividends according to statutory formula
- Implied remaining dollars (in millions) remaining (implied by POMV calculation less dividend formula) for State government spending



Appendix - Case Studies

Case Study: Scenario 4 – "1930-1949 – 70/30"

Narrative / Executive Summary (first ten years of model)

- The "1930 – 1949 – 70/30" scenario is interesting to examine as an extreme downside case; 1929 is remembered as the year of the great market crash, however, as a result of strong stock market performance earlier in the year, only resulted in a 1.46% loss on a diversified portfolio with 1930 really marking the beginning of extremely difficult portfolio performance
- In 1930, the 70/30 portfolio posted a loss of 14.73% followed by losses of 28.25% in 1931, and 4.00% in 1932
- This extremely difficult performance sustained over three years is virtually impossible to weather regardless of strategy (assuming one can not spend Principal and must fund a 5% POMV); highlighting the futility of the discretionary or dynamic inflation proofing strategies in an environment like this is the fact that **there was no inflation in 1930-1932**; de-flation for the three years, in fact, clocked in at 6.40% (1930), 9.32% (1931), and 10.27% (1932)
- The deflation of the early 1930's was followed by modest inflation for the balance of the 1930's (7 year average of 0.97%) resulting in a cumulative maximum inflation proofing **cushion** of $12.1 billion by year three of the model only being worked down to $11.1 billion by year 10 – clearly no policy around inflation has any impact on outcome here
- After the extremely difficult beginning to the 1930's, the 70/30 portfolio actually delivered an average return of 13.91% for the rest of the decade (however, remember that higher percentage returns off lower AUM post declines are required to rebound fully) with a range of annual returns of minus (23.90%) to positive 38.02% (the Great Depression was a volatile time in the markets as the Federal Reserve lacked the power of the printing press (Quantitative Easing) that is so prolifically used today)
- The following page outlines the results of the model (running in the base case for the first ten years of the forecast)

Case Study: Scenario 4 – "1930-1949 – 70/30"

First Ten Years of Forecast (Base Case)

($ in millions) History Year:		1930	1931	1932	1933	1934	1935	1936	1937	1938	1939
Fiscal Year Ending June 30, Model Year:	**2020PF**	**2021E**	**2022E**	**2023E**	**2024E**	**2025E**	**2026E**	**2027E**	**2028E**	**2029E**	**2030E**
Total Fund Return		(14.73%)	(28.25%)	(4.00%)	38.02%	0.49%	33.32%	25.61%	(23.90%)	22.80%	1.06%
Annual Inflation Rate (CPI)		(6.40%)	(9.32%)	(10.27%)	0.76%	1.52%	2.99%	1.45%	2.86%	(2.78%)	0.00%
Nonspendable Fund Balance - Principal											
Beginning Balance - Contributions		$46,871	$47,215	$45,540	$43,644	$43,970	$44,320	$44,701	$45,774	$47,548	$48,054
Plus: Dedicated State Revenues		344	337	324	326	350	381	425	466	507	530
Plus: Statutory Net Income		0	(2,012)	(2,219)	0	0	0	0	0	0	0
Plus: Inflation Proofing & Special Appropriations		0	0	0	0	0	0	648	1,308	0	0
Ending Balance - Contributions	$46,871	$47,215	$45,540	$43,644	$43,970	$44,320	$44,701	$45,774	$47,548	$48,054	$48,584
Ending Unrealized Gain (Loss)	$6,934	($1,766)	($13,047)	($12,906)	($1,944)	($2,254)	$8,040	$15,161	($568)	$6,920	$4,914
Ending Total Principal Balance	**$53,805**	**$45,449**	**$32,493**	**$30,739**	**$42,026**	**$42,066**	**$52,741**	**$60,935**	**$46,980**	**$54,974**	**$53,498**
Earnings Reserve											
Beginning Balance - Realized		$12,231	$10,101	$6,497	$2,942	$1,073	$428	$3,116	$5,906	$3,876	$4,462
Less: Div/POMV Transfer		(3,091)	(3,095)	(3,119)	(2,072)	(1,025)	(406)	(2,085)	(2,098)	(2,414)	(2,594)
Earnings Reserve Balance Available for Inflation Proofing		$9,139	$7,007	$3,379	$870	$47	$22	$1,030	$3,808	$1,462	$1,868
Less: Inflation Proofing & Special Appropriations		0	0	0	0	(0)	0	(648)	(1,308)	0	0
Plus: Statutory Net Income		962	(509)	(437)	203	381	3,094	5,523	1,376	3,000	2,664
Ending Balance - Realized	$12,231	$10,101	$6,497	$2,942	$1,073	$428	$3,116	$5,906	$3,876	$4,462	$4,532
Ending Unrealized Gain (Loss)	$1,809	($378)	($1,861)	($870)	($47)	($22)	$560	$1,956	($46)	$643	$458
Ending Total Earnings Reserve	**$14,040**	**$9,724**	**$4,636**	**$2,072**	**$1,025**	**$406**	**$3,676**	**$7,862**	**$3,830**	**$5,105**	**$4,990**
Ending Total Fund	**$67,845**	**$55,172**	**$37,128**	**$32,810**	**$43,052**	**$42,472**	**$56,417**	**$68,797**	**$50,810**	**$60,079**	**$58,488**
Cumulative POMV Shortfall		*$0*	*$0*	*$0*	*$820*	*$2,366*	*$4,299*	*$4,299*	*$4,299*	*$4,299*	*$4,299*
Cumulative Inflation Proofing Shortfall	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*

Case Study: Scenario 4 – "1930-1949 – 70/30"

Narrative / Executive Summary (second ten years of model)

- By the end of the first ten years of the forecast, in spite of POMV shortfalls totaling $4.3 billion between years 4-6 of the model, the Fund is fairly healthy with full POMV made in the last four years and an ending ERA of $5.0 billion
- By FY 2031 in our model (1940 in capital markets history) trouble hits again with back-to-back negative total return years of 5.22% and 8.72%, which the recouped ERA is not in a position to fund; FY 2033 and FY 2034 in our model suffer shortfalls of $2.8 billion and $1.3 billion, respectively
- With the completion of World War II, the balance of the forecast period features impressive returns; averaging 11.2% over eight years
- Inflation, however, rears its head with average CPI increases of 5.6% over the eight years with a peak of 18.13%; the model is not able to fully inflation proof over this period and the base case model ends the twenty year forecast with a $8.5 billion cumulative inflation proofing shortfall and cumulative POMV shortfall of $8.3 billion
- The ERA ends year 20 of the forecast with a balance of $7.4 billion; this relatively large number is a little deceptive; final year Statutory Net Income is $5.5 billion; in the final year the POMV takes Realized ERA available for inflation proofing down to $588 million, which is then topped up by the $5.5 billion, and a $1.3 billion Unrealized Gain in the ERA takes the ERA up to the aforementioned level
- The forecast model thus ends a very difficult two decade period where POMV shortfalls occur in both halves of the forecast and no inflation proofing rules would have prevented a shortfall; fortunately the 1950's were one of the best real return periods on record (avg. total return = 15.6%, avg. inflation = 2.24%)

Case Study: Scenario 4 – "1930-1949 – 70/30"

Second Ten Years of Forecast (Base Case)

($ in millions) History Year:	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949
Fiscal Year Ending June 30, Model Year:	**2031E**	**2032E**	**2033E**	**2034E**	**2035E**	**2036E**	**2037E**	**2038E**	**2039E**	**2040E**
Total Fund Return	(5.22%)	(8.72%)	14.79%	18.69%	12.99%	26.56%	(4.68%)	4.22%	4.34%	14.42%
Annual Inflation Rate (CPI)	0.71%	9.93%	9.03%	2.96%	2.30%	2.25%	18.13%	8.84%	2.99%	(2.07%)
Nonspendable Fund Balance - Principal										
Beginning Balance - Contributions	$48,584	$49,461	$49,991	$50,521	$51,051	$51,994	$53,692	$58,700	$61,172	$62,810
Plus: Dedicated State Revenues	530	530	530	530	530	530	530	530	530	530
Plus: Statutory Net Income	0	0	0	0	0	0	0	0	0	0
Plus: Inflation Proofing & Special Appropriations	347	0	0	0	414	1,168	4,478	1,943	1,107	0
Ending Balance - Contributions	$49,461	$49,991	$50,521	$51,051	$51,994	$53,692	$58,700	$61,172	$62,810	$63,339
Ending Unrealized Gain (Loss)	$729	($4,009)	$1,277	$7,400	$10,521	$19,234	$11,787	$10,497	$9,486	$13,942
Ending Total Principal Balance	**$50,190**	**$45,981**	**$51,798**	**$58,450**	**$62,515**	**$72,926**	**$70,487**	**$71,670**	**$72,296**	**$77,281**
Earnings Reserve										
Beginning Balance - Realized	$4,532	$2,894	$120	$1,365	$3,102	$4,204	$7,276	$5,038	$4,507	$4,226
Less: Div/POMV Transfer	(2,765)	(2,925)	(110)	(1,399)	(2,689)	(2,708)	(2,799)	(3,095)	(3,400)	(3,637)
Earnings Reserve Balance Available for Inflation Proofing	$1,767	($30)	$10	($35)	$414	$1,496	$4,478	$1,943	$1,107	$588
Less: Inflation Proofing & Special Appropriations	(347)	0	0	0	(414)	(1,168)	(4,478)	(1,943)	(1,107)	0
Plus: Statutory Net Income	1,474	150	1,355	3,137	4,204	6,949	5,038	4,507	4,226	5,517
Ending Balance - Realized	$2,894	$120	$1,365	$3,102	$4,204	$7,276	$5,038	$4,507	$4,226	$6,105
Ending Unrealized Gain (Loss)	$43	($10)	$35	$450	$851	$2,607	$1,012	$773	$638	$1,344
Ending Total Earnings Reserve	**$2,937**	**$110**	**$1,399**	**$3,552**	**$5,054**	**$9,883**	**$6,050**	**$5,281**	**$4,864**	**$7,449**
Ending Total Fund	**$53,127**	**$46,092**	**$53,197**	**$62,002**	**$67,569**	**$82,809**	**$76,537**	**$76,950**	**$77,160**	**$84,731**
Cumulative POMV Shortfall	*$4,299*	*$4,299*	*$7,080*	*$8,346*	*$8,346*	*$8,346*	*$8,346*	*$8,346*	*$8,346*	*$8,346*
Cumulative Inflation Proofing Shortfall	*$0*	*$0*	*$0*	*$0*	*$607*	*$607*	*$5,865*	*$9,110*	*$9,832*	*$8,529*

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Case Study: Scenario 4 – "1930-1949 – 70/30"

Strategies to Navigate

- One perspective to look at this Scenario 4 is that "it is the Great Depression afterall" and the model does make it to year 4 (4 years after the Great Crash of 1929) before the model suffers a modest $820 million POMV shortfall
- By year 5 and year 6 the shortfalls are material at $1.5 billion and $1.9 billion, but they still leave $1 billion and $406 million, respectively for State spending (assuming no dividends)
- Also with the heavy deflation of the early 1930's a dollar in year 4 is worth $1.32 of year 1 money; reducing the inflation-adjusted impact of the shortfalls
- Notably, in this scenario the two tools we have of (i) using a 4x inflation proofing rule (doesn't help in the first ten years but does modestly in the back half) and (ii) shifting the Fund's asset allocation to more Fixed Income in the ERA are both, to a minor degree, beneficial
- Because these tools can't completely close the gap, however, decision-makers in this environment would need to reduce the POMV draws to avoid a shortfall (or "invade" Principal); below are POMV %'s which would allow the model to make it through the 20 year forecast without a POMV shortfall in any year:
  - Base Case: 2.97% POMV draws
  - Base Case with AA Shifted with FI in ERA: 2.74% POMV draws
  - 4x POMV Inflation Proofing Rule: 3.74% POMV draws
  - 4x POMV Inflation Proofing Rule with AA Shifted with FI in ERA: 4.40% POMV draws

Case Study: Scenario 4 – "1930-1949 – 70/30"

Key take-away

- If the Fund entered the Great Depression of the 1930's (i) with the asset allocation shifted to fixed income assets in the ERA and higher returning assets in the Principal (total Fund allocation unchanged) with (ii) utilizing the 4x POMV inflation proofing construct and policy-makers reacted immediately to the Crash of 1929 by lowering the POMV rate from 5.00% to 4.40% the Fund would not incur a POMV in any years of the twenty year horizon
- This modest change to POMV rate might be palatable given the deflationary environment and the overall belt tightening that occurred across America during the Great Depression
- Total scheduled POMV payments at current statutory rates (if they could be made) would have been $55.3 billion over the twenty years (avg of $2.8 billion annually) are reduced to $49.1 billion (avg of $2.5 billion) at a 4.40% POMV rate

Case Study: Scenario 11 – "2000-2019 – 70/30"

Narrative / Executive Summary (first ten years of model)

- The only scenario other than the 1930-1949 / Great Depression scenario where the Fund is not able to weather the twenty year forecast period (assuming the 4x POMV in ERA inflation proofing approach) is the "2000-2019 – 70/30" scenario
- Like the 1930-1940 scenario, this case includes a very difficult market environment with two severe bear markets in the first ten years of the forecast; specifically years 1-3 of the projection (representing 2000-2001) feature Total Fund returns of (2.89%), (5.79%), and (12.39%), respectively; years 4-8 do represent a decent bull market (average return of 10.54%), however, by Year 9, the Great Financial Crisis hits with a (24.33%) annual return
- Exacerbating matters (depleting the ERA in early years further) is the fact that, unlike the 1930's, there were no deflationary years and inflation averaged 2.53% in the first ten years
- The next page illustrates the first ten years of the forecast using the Base Case approach:
  - With the poor portfolio returns of 2000-2002, the ERA is reduced from $14.0 billion to $2.5 billion by the end of year 3 as Statutory Net Income drops in half in year 2 and turns negative by year 3
  - Full inflation proofing occurs in Years 1-3 at a cost of $3.5 billion to the ERA
  - POMV shortfalls occurs in years 4-7, a full POMV is paid in year 8 just in time for the GFC to hit in year 9
- Next comes an illustration of the first ten years of the forecast utilizing the 4x POMV in ERA Inflation Proofing methodology:
  - Methodology prevents any inflation proofing over the ten year horizon (except for year 1) resulting in a modestly smaller cumulative POMV shortfall ($3.3 bn vs. $5.8 bn)
  - Only two small POMV shortfalls occur ($253 mm and $667 mm) until year 10 when there is $2.4 billion (84% POMV shortfall)
- Finally a scenario is shown where the 4x POMV in ERA rule is used in combination with an asset allocation shift to Fixed Income in the ERA
  - This combination is fairly powerful with the forecast making it to year 10 without a POMV shortfall, but with significant POMV shortfalls in years 10 and 11

Case Study: Scenario 11 – "2000-2019 – 70/30"

First Ten Years of Forecast (Base Case)

($ in millions) History Year:		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Fiscal Year Ending June 30, Model Year:	**2020PF**	**2021E**	**2022E**	**2023E**	**2024E**	**2025E**	**2026E**	**2027E**	**2028E**	**2029E**	**2030E**
Total Fund Return		(2.89%)	(5.79%)	(12.39%)	21.31%	8.92%	4.17%	12.36%	5.94%	(24.33%)	20.30%
Annual Inflation Rate (CPI)		3.39%	1.55%	2.38%	1.88%	3.26%	3.42%	2.54%	4.08%	0.09%	2.72%
Nonspendable Fund Balance - Principal											
Beginning Balance - Contributions		$46,871	$48,802	$49,897	$51,038	$51,364	$51,714	$52,095	$52,520	$53,266	$53,523
Plus: Dedicated State Revenues		344	337	324	326	350	381	425	466	507	530
Plus: Statutory Net Income		0	0	(369)	0	0	0	0	0	(298)	0
Plus: Inflation Proofing & Special Appropriations		1,587	757	1,186	0	0	0	0	281	49	0
Ending Balance - Contributions	$46,871	$48,802	$49,897	$51,038	$51,364	$51,714	$52,095	$52,520	$53,266	$53,523	$54,053
Ending Unrealized Gain (Loss)	$6,934	$3,430	($666)	($6,781)	$1,083	$3,492	$3,519	$6,998	$7,166	($7,340)	$674
Ending Total Principal Balance	**$53,805**	**$52,232**	**$49,231**	**$44,257**	**$52,447**	**$55,206**	**$55,614**	**$59,518**	**$60,432**	**$46,183**	**$54,727**
Earnings Reserve											
Beginning Balance - Realized		$12,231	$10,085	$7,428	$2,859	$1,677	$2,070	$2,041	$2,986	$3,288	$335
Less: Div/POMV Transfer		(3,091)	(3,095)	(3,197)	(2,479)	(1,712)	(2,210)	(2,178)	(2,705)	(2,769)	(289)
Earnings Reserve Balance Available for Inflation Proofing		$9,139	$6,990	$4,231	$380	($35)	($140)	($138)	$281	$519	$46
Less: Inflation Proofing & Special Appropriations		(1,587)	(757)	(1,186)	0	0	0	0	(281)	(49)	(0)
Plus: Statutory Net Income		2,533	1,196	(186)	1,297	2,106	2,180	3,124	3,288	(135)	1,208
Ending Balance - Realized	$12,231	$10,085	$7,428	$2,859	$1,677	$2,070	$2,041	$2,986	$3,288	$335	$1,254
Ending Unrealized Gain (Loss)	$1,809	$709	($99)	($380)	$35	$140	$138	$398	$442	($46)	$16
Ending Total Earnings Reserve	**$14,040**	**$10,794**	**$7,329**	**$2,479**	**$1,712**	**$2,210**	**$2,178**	**$3,384**	**$3,730**	**$289**	**$1,269**
Ending Total Fund	**$67,845**	**$63,026**	**$56,560**	**$46,737**	**$54,159**	**$57,416**	**$57,792**	**$62,902**	**$64,163**	**$46,473**	**$55,997**
Cumulative POMV Shortfall		*$0*	*$0*	*$0*	*$686*	*$1,957*	*$2,609*	*$3,188*	*$3,188*	*$3,188*	*$5,842*
Cumulative Inflation Proofing Shortfall	*$0*	*$0*	*$0*	*$0*	*$959*	*$2,631*	*$4,398*	*$5,721*	*$7,584*	*$7,584*	*$9,041*

Case Study: Scenario 11 – "2000-2019 – 70/30"

First Ten Years of Forecast (4x POMV in ERA Inflation Proofing)

($ in millions) History Year:		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Fiscal Year Ending June 30, Model Year:	**2020PF**	**2021E**	**2022E**	**2023E**	**2024E**	**2025E**	**2026E**	**2027E**	**2028E**	**2029E**	**2030E**
Total Fund Return		(2.89%)	(5.79%)	(12.39%)	21.31%	8.92%	4.17%	12.36%	5.94%	(24.33%)	20.30%
Annual Inflation Rate (CPI)		3.39%	1.55%	2.38%	1.88%	3.26%	3.42%	2.54%	4.08%	0.09%	2.72%
Nonspendable Fund Balance - Principal											
Beginning Balance - Contributions		$46,871	$48,331	$48,668	$48,632	$48,958	$49,308	$49,689	$50,114	$50,580	$50,809
Plus: Dedicated State Revenues		344	337	324	326	350	381	425	466	507	530
Plus: Statutory Net Income		0	0	(360)	0	0	0	0	0	(278)	0
Plus: Inflation Proofing & Special Appropriations		1,116	0	0	0	0	0	0	0	0	0
Ending Balance - Contributions	$46,871	$48,331	$48,668	$48,632	$48,958	$49,308	$49,689	$50,114	$50,580	$50,809	$51,339
Ending Unrealized Gain (Loss)	$6,934	$3,397	($649)	($6,461)	$998	$3,353	$3,403	$6,713	$6,838	($6,945)	$651
Ending Total Principal Balance	**$53,805**	**$51,728**	**$48,019**	**$42,171**	**$49,956**	**$52,661**	**$53,092**	**$56,827**	**$57,418**	**$43,864**	**$51,989**
Earnings Reserve											
Beginning Balance - Realized		$12,231	$10,556	$8,657	$5,265	$3,375	$2,436	$1,930	$2,857	$3,351	$535
Less: Div/POMV Transfer		(3,091)	(3,095)	(3,197)	(3,165)	(2,983)	(2,602)	(2,062)	(2,650)	(2,685)	(462)
Earnings Reserve Balance Available for Inflation Proofing		$9,139	$7,462	$5,460	$2,100	$392	($166)	($132)	$207	$666	$73
Less: Inflation Proofing & Special Appropriations		(1,116)	0	0	0	0	0	0	0	0	0
Plus: Statutory Net Income		2,533	1,196	(195)	1,275	2,044	2,095	2,989	3,144	(130)	1,150
Ending Balance - Realized	$12,231	$10,556	$8,657	$5,265	$3,375	$2,436	$1,930	$2,857	$3,351	$535	$1,223
Ending Unrealized Gain (Loss)	$1,809	$742	($115)	($700)	$69	$166	$132	$383	$453	($73)	$16
Ending Total Earnings Reserve	**$14,040**	**$11,298**	**$8,542**	**$4,566**	**$3,444**	**$2,602**	**$2,062**	**$3,240**	**$3,804**	**$462**	**$1,239**
Ending Total Fund	**$67,845**	**$63,026**	**$56,560**	**$46,737**	**$53,400**	**$55,263**	**$55,153**	**$60,066**	**$61,221**	**$44,326**	**$53,228**
Cumulative POMV Shortfall		*$0*	*$0*	*$0*	*$0*	*$0*	*$253*	*$920*	*$920*	*$920*	*$3,287*
Cumulative Inflation Proofing Shortfall	*$0*	*$472*	*$1,222*	*$2,378*	*$3,292*	*$4,886*	*$6,571*	*$7,833*	*$9,878*	*$9,924*	*$11,307*

Case Study: Scenario 11 – "2000-2019 – 70/30"

First Ten Years of Forecast (4x POMV in ERA Inflation Proofing, FI in ERA)

($ in millions) History Year:		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Fiscal Year Ending June 30, Model Year:	**2020PF**	**2021E**	**2022E**	**2023E**	**2024E**	**2025E**	**2026E**	**2027E**	**2028E**	**2029E**	**2030E**
Total Fund Return		(2.89%)	(5.79%)	(12.39%)	21.31%	8.92%	4.17%	12.36%	5.94%	(24.33%)	20.30%
Annual Inflation Rate (CPI)		3.39%	1.55%	2.38%	1.88%	3.26%	3.42%	2.54%	4.08%	0.09%	2.72%
Nonspendable Fund Balance - Principal											
Beginning Balance - Contributions		$46,871	$48,802	$49,139	$48,076	$48,402	$48,752	$49,133	$49,558	$50,024	$49,951
Plus: Dedicated State Revenues		344	337	324	326	350	381	425	466	507	530
Plus: Statutory Net Income		0	0	(1,387)	0	0	0	0	0	(579)	0
Plus: Inflation Proofing & Special Appropriations		1,587	0	0	0	0	0	0	0	0	0
Ending Balance - Contributions	$46,871	$48,802	$49,139	$48,076	$48,402	$48,752	$49,133	$49,558	$50,024	$49,951	$50,481
Ending Unrealized Gain (Loss)	$6,934	$1,600	($3,473)	($10,116)	($1,273)	$1,609	$2,019	$5,852	$6,179	($7,937)	($275)
Ending Total Principal Balance	**$53,805**	**$50,402**	**$45,666**	**$37,961**	**$47,129**	**$50,361**	**$51,152**	**$55,411**	**$56,203**	**$42,014**	**$50,206**
Earnings Reserve											
Beginning Balance - Realized		$14,040	$12,400	$10,463	$8,040	$5,658	$4,318	$3,181	$3,164	$3,460	$782
Less: Div/POMV Transfer		(3,091)	(3,095)	(3,195)	(3,159)	(2,970)	(2,834)	(2,703)	(2,618)	(2,643)	(782)
Earnings Reserve Balance Available for Inflation Proofing		$10,948	$9,305	$7,268	$4,881	$2,689	$1,484	$479	$545	$817	$0
Less: Inflation Proofing & Special Appropriations		(1,587)	0	0	0	0	0	0	0	0	0
Plus: Statutory Net Income		3,039	1,158	772	777	1,629	1,698	2,685	2,914	(35)	889
Ending Balance - Realized	$14,040	$12,400	$10,463	$8,040	$5,658	$4,318	$3,181	$3,164	$3,460	$782	$889
Ending Unrealized Gain (Loss)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Ending Total Earnings Reserve	**$14,040**	**$12,400**	**$10,463**	**$8,040**	**$5,658**	**$4,318**	**$3,181**	**$3,164**	**$3,460**	**$782**	**$889**
Ending Total Fund	**$67,845**	**$62,802**	**$56,129**	**$46,000**	**$52,787**	**$54,679**	**$54,333**	**$58,574**	**$59,663**	**$42,796**	**$51,095**
Cumulative POMV Shortfall		*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$1,997*
Cumulative Inflation Proofing Shortfall	*$0*	*$0*	*$757*	*$1,925*	*$2,829*	*$4,405*	*$6,070*	*$7,318*	*$9,341*	*$9,386*	*$10,746*

Case Study: Scenario 11 – "2000-2019 – 70/30"

Narrative / Executive Summary (second ten years of model)

- The second ten years of Scenario 11 are characterized by a strong bull market driven by unprecedented global Central Bank stimulus, money printing, and quantitative easing; average returns for the 70/30 portfolio for the second ten years is 11.05% with a 1.76% average inflation rate in the United State (as measured by CPI)

- Nonetheless, the model struggles in the early few years of the second decade to make full POMV payments; the driver of this is the low ERA balances coming out of the GFC:
  - The Base Case model has a material POMV shortfall in Years 1 ($1.6 bn) followed by modest shortfalls of $163 mm and $402 mm in Years 2 and 3
  - The model utilizing the 4x POMV in ERA Inflation Proofing fares slightly better but still has a material POMV Shortfalls in Year 1 ($1.5 bn) and modest shortfalls of $164 mm in year 2 and $389 mm in year 3
  - A scenario that combines (i) the 4x POMV in ERA Inflation Proofing with (ii) an asset allocation shift to move Fixed Income to the ERA (while leaving overall Fund asset allocation unchanged) suffers a Year 1 Shortfall of $1.8 bn and in years 2 and 3 suffers shortfalls of $531 mm and $462 mm

- On the basis of minimizing cumulative POMV Shortfall the 4x POMV in ERA rule coupled with asset allocation shift of Fixed Income to ERA fares the best with a twenty-year cumulative shortfall of $4.8 billion, compared to $8.0 billion in the base case and $5.3 billion in the 4x POMV in ERA case (without any asset allocation changes)

Case Study: Scenario 11 – "2000-2019 – 70/30"

Second Ten Years of Forecast (Base Case)

($ in millions) History Year:	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Fiscal Year Ending June 30, Model Year:	**2031E**	**2032E**	**2033E**	**2034E**	**2035E**	**2036E**	**2037E**	**2038E**	**2039E**	**2040E**
Total Fund Return	12.51%	3.83%	12.47%	22.06%	11.37%	1.13%	9.17%	16.34%	(3.07%)	24.66%
Annual Inflation Rate (CPI)	1.50%	2.96%	1.74%	1.50%	0.76%	0.73%	2.07%	2.11%	1.91%	2.35%
Nonspendable Fund Balance - Principal										
Beginning Balance - Contributions	$54,053	$54,583	$55,113	$55,643	$56,605	$57,563	$58,513	$60,256	$62,057	$63,772
Plus: Dedicated State Revenues	530	530	530	530	530	530	530	530	530	530
Plus: Statutory Net Income	0	0	0	0	0	0	0	0	0	0
Plus: Inflation Proofing & Special Appropriations	0	0	0	432	428	420	1,214	1,271	1,185	1,499
Ending Balance - Contributions	$54,583	$55,113	$55,643	$56,605	$57,563	$58,513	$60,256	$62,057	$63,772	$65,801
Ending Unrealized Gain (Loss)	$4,768	$4,447	$8,074	$15,593	$16,678	$12,237	$13,340	$18,127	$11,008	$21,118
Ending Total Principal Balance	**$59,351**	**$59,560**	**$63,716**	**$72,197**	**$74,241**	**$70,749**	**$73,596**	**$80,184**	**$74,781**	**$86,920**
Earnings Reserve										
Beginning Balance - Realized	$1,254	$2,473	$2,306	$3,318	$5,783	$9,022	$10,884	$11,974	$14,474	$14,845
Less: Div/POMV Transfer	(1,269)	(2,689)	(2,492)	(2,886)	(2,920)	(3,251)	(3,549)	(3,768)	(4,030)	(4,343)
Earnings Reserve Balance Available for Inflation Proofing	($16)	($216)	($186)	$432	$2,863	$5,771	$7,335	$8,205	$10,444	$10,502
Less: Inflation Proofing & Special Appropriations	0	0	0	(432)	(428)	(420)	(1,214)	(1,271)	(1,185)	(1,499)
Plus: Statutory Net Income	2,488	2,522	3,505	5,783	6,587	5,533	5,852	7,540	5,586	8,737
Ending Balance - Realized	$2,473	$2,306	$3,318	$5,783	$9,022	$10,884	$11,974	$14,474	$14,845	$17,739
Ending Unrealized Gain (Loss)	$216	$186	$481	$1,593	$2,614	$2,276	$2,651	$4,228	$2,562	$5,693
Ending Total Earnings Reserve	**$2,689**	**$2,492**	**$3,800**	**$7,376**	**$11,636**	**$13,161**	**$14,624**	**$18,702**	**$17,407**	**$23,432**
Ending Total Fund	**$62,040**	**$62,052**	**$67,516**	**$79,573**	**$85,877**	**$83,910**	**$88,221**	**$98,886**	**$92,188**	**$110,352**
Cumulative POMV Shortfall	*$7,439*	*$7,602*	*$8,005*	*$8,005*	*$8,005*	*$8,005*	*$8,005*	*$8,005*	*$8,005*	*$8,005*
Cumulative Inflation Proofing Shortfall	*$9,849*	*$11,466*	*$12,426*	*$12,829*	*$12,829*	*$12,829*	*$12,829*	*$12,829*	*$12,829*	*$12,829*

Case Study: Scenario 11 – "2000-2019 – 70/30"

Second Ten Years of Forecast (4x POMV in ERA Inflation Proofing)

($ in millions) History Year:	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Fiscal Year Ending June 30, Model Year:	**2031E**	**2032E**	**2033E**	**2034E**	**2035E**	**2036E**	**2037E**	**2038E**	**2039E**	**2040E**
Total Fund Return	12.51%	3.83%	12.47%	22.06%	11.37%	1.13%	9.17%	16.34%	(3.07%)	24.66%
Annual Inflation Rate (CPI)	1.50%	2.96%	1.74%	1.50%	0.76%	0.73%	2.07%	2.11%	1.91%	2.35%
Nonspendable Fund Balance - Principal										
Beginning Balance - Contributions	$51,339	$51,869	$52,398	$52,928	$53,458	$53,988	$56,446	$57,321	$61,132	$63,045
Plus: Dedicated State Revenues	530	530	530	530	530	530	530	530	530	530
Plus: Statutory Net Income	0	0	0	0	0	0	0	0	0	0
Plus: Inflation Proofing & Special Appropriations	0	0	0	0	0	1,928	346	3,281	1,383	1,594
Ending Balance - Contributions	$51,869	$52,398	$52,928	$53,458	$53,988	$56,446	$57,321	$61,132	$63,045	$65,169
Ending Unrealized Gain (Loss)	$4,539	$4,233	$7,680	$14,720	$15,632	$11,792	$12,675	$17,837	$10,864	$20,892
Ending Total Principal Balance	**$56,408**	**$56,631**	**$60,608**	**$68,178**	**$69,620**	**$68,237**	**$69,996**	**$78,969**	**$73,909**	**$86,062**
Earnings Reserve										
Beginning Balance - Realized	$1,223	$2,350	$2,191	$3,154	$5,907	$9,395	$9,640	$11,487	$11,798	$11,896
Less: Div/POMV Transfer	(1,239)	(2,555)	(2,368)	(2,746)	(2,776)	(3,090)	(3,375)	(3,584)	(3,835)	(4,134)
Earnings Reserve Balance Available for Inflation Proofing	($16)	($206)	($177)	$408	$3,131	$6,305	$6,265	$7,902	$7,963	$7,762
Less: Inflation Proofing & Special Appropriations	0	0	0	0	0	(1,928)	(346)	(3,281)	(1,383)	(1,594)
Plus: Statutory Net Income	2,365	2,397	3,331	5,499	6,265	5,262	5,568	7,176	5,316	8,321
Ending Balance - Realized	$2,350	$2,191	$3,154	$5,907	$9,395	$9,640	$11,487	$11,798	$11,896	$14,488
Ending Unrealized Gain (Loss)	$206	$177	$458	$1,627	$2,720	$2,014	$2,540	$3,442	$2,050	$4,645
Ending Total Earnings Reserve	**$2,555**	**$2,368**	**$3,612**	**$7,533**	**$12,116**	**$11,653**	**$14,026**	**$15,240**	**$13,946**	**$19,133**
Ending Total Fund	**$58,963**	**$58,999**	**$64,220**	**$75,712**	**$81,736**	**$79,891**	**$84,023**	**$94,209**	**$87,855**	**$105,194**
Cumulative POMV Shortfall	*$4,788*	*$4,951*	*$5,340*	*$5,340*	*$5,340*	*$5,340*	*$5,340*	*$5,340*	*$5,340*	*$5,340*
Cumulative Inflation Proofing Shortfall	*$12,075*	*$13,612*	*$14,524*	*$15,319*	*$15,723*	*$14,189*	*$15,014*	*$12,942*	*$12,727*	*$12,615*

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Case Study: Scenario 11 – "2000-2019 – 70/30"

Second Ten Years of Forecast (4x POMV in ERA Inflation Proofing, FI in ERA)

($ in millions) History Year:	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Fiscal Year Ending June 30, Model Year:	**2031E**	**2032E**	**2033E**	**2034E**	**2035E**	**2036E**	**2037E**	**2038E**	**2039E**	**2040E**
Total Fund Return	12.51%	3.83%	12.47%	22.06%	11.37%	1.13%	9.17%	16.34%	(3.07%)	24.66%
Annual Inflation Rate (CPI)	1.50%	2.96%	1.74%	1.50%	0.76%	0.73%	2.07%	2.11%	1.91%	2.35%
Nonspendable Fund Balance - Principal										
Beginning Balance - Contributions	$50,481	$51,011	$51,541	$52,071	$52,601	$53,130	$53,660	$54,499	$57,861	$58,615
Plus: Dedicated State Revenues	530	530	530	530	530	530	530	530	530	530
Plus: Statutory Net Income	0	0	0	0	0	0	0	0	0	0
Plus: Inflation Proofing & Special Appropriations	0	0	0	0	0	0	309	2,832	223	3,685
Ending Balance - Contributions	$51,011	$51,541	$52,071	$52,601	$53,130	$53,660	$54,499	$57,861	$58,615	$62,829
Ending Unrealized Gain (Loss)	$3,841	$3,589	$7,413	$15,844	$17,781	$13,493	$14,964	$21,013	$12,953	$24,965
Ending Total Principal Balance	**$54,852**	**$55,130**	**$59,484**	**$68,445**	**$70,911**	**$67,153**	**$69,463**	**$78,874**	**$71,568**	**$87,794**
Earnings Reserve										
Beginning Balance - Realized	$889	$2,112	$2,207	$3,133	$5,731	$9,283	$11,281	$13,167	$14,025	$15,037
Less: Div/POMV Transfer	(889)	(2,112)	(2,207)	(2,657)	(2,687)	(3,001)	(3,292)	(3,506)	(3,759)	(4,062)
Earnings Reserve Balance Available for Inflation Proofing	$0	$0	$0	$475	$3,044	$6,283	$7,989	$9,660	$10,266	$10,975
Less: Inflation Proofing & Special Appropriations	0	0	0	0	0	0	(309)	(2,832)	(223)	(3,685)
Plus: Statutory Net Income	2,112	2,207	3,133	5,256	6,239	4,998	5,487	7,197	4,994	8,958
Ending Balance - Realized	$2,112	$2,207	$3,133	$5,731	$9,283	$11,281	$13,167	$14,025	$15,037	$16,248
Ending Unrealized Gain (Loss)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Ending Total Earnings Reserve	**$2,112**	**$2,207**	**$3,133**	**$5,731**	**$9,283**	**$11,281**	**$13,167**	**$14,025**	**$15,037**	**$16,248**
Ending Total Fund	**$56,965**	**$57,338**	**$62,616**	**$74,176**	**$80,195**	**$78,434**	**$82,630**	**$92,900**	**$86,605**	**$104,043**
Cumulative POMV Shortfall	*$3,788*	*$4,319*	*$4,781*	*$4,781*	*$4,781*	*$4,781*	*$4,781*	*$4,781*	*$4,781*	*$4,781*
Cumulative Inflation Proofing Shortfall	*$11,501*	*$13,012*	*$13,909*	*$14,691*	*$15,089*	*$15,477*	*$16,281*	*$14,598*	*$15,480*	*$13,173*

Case Study: Scenario 11 – "2000-2019 – 70/30"

Strategies to Navigate

- In both Case 4 and Case 11 there is no strategy around inflation proofing that can avoid a POMV shortfall at any point (literally zero inflation proofing at any point would still result in POMV Shortfalls)
- Accordingly we are left with the tools of (i) reducing the cumulative POMV shortfalls with the 4x POMV in ERA rule, (ii) shifting Fixed Income assets to the ERA, and (iii) exploring the potential for policy makers to reduce POMV rates at some point when the acuteness of the bear markets become apparent
- As we did in Case 4, below we explore what POMV rate would work (result in no POMV shortfalls); in Case 4 its more plausible that policy-makers would take some sort of immediate action (given the 1929 stock market crash and near immediate onset of the Great Depression), but certainly in either case the figures below show the best case (i.e., immediate change in year 1) and later recognition of the issues would require more drastic reductions to POMV rates (or "invasion" of Principal):
  - Base Case: 2.65% POMV draws
  - Base Case with AA Shifted with FI in ERA: 2.82% POMV draws
  - 4x POMV Inflation Proofing Rule: 4.19% POMV draws
  - 4x POMV Inflation Proofing Rule with AA Shifted with FI in ERA: 4.31% POMV draws

20) Calendars

APFC ALASKA PERMANENT FUND CORPORATION
801 W 10TH SUITE 302 | JUNEAU, AK 99801
907.796.1500 | apfc.org

2020 BOARD OF TRUSTEES MEETING SCHEDULE

DATE	LOCATION	TYPE OF MEETING
February 19-20, 2020 (Wednesday/Thursday)	Juneau	Regular
May 20-21, 2020* (Wednesday/Thursday)	Kenai	Regular Audit Committee
September 3, 2020* (Thursday)	Juneau	Audit Committee Budget Planning Session
September 23-24, 2020 (Wednesday/Thursday)	Anchorage	Annual Meeting
December 9-10, 2020 (Tuesday/Wednesday)	Juneau	Regular

Committee Meetings and Special or additional APFC board meetings will be scheduled as needed. Investment Advisors are invited to attend all meetings.

*The Audit Committee Meeting in September must be scheduled in advance to coordinate with the release date for the Audited Statements and the Annual Report as required in statute.

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2021 BOARD OF TRUSTEES MEETING SCHEDULE

DATE	LOCATION	TYPE OF MEETING
February 17-18, 2021 (Wednesday/Thursday)	Juneau	Regular
May 19-20, 2021 (Wednesday/Thursday)	Kodiak	Regular Audit Committee
September 2, 2021* (Thursday)	Anchorage	Audit Committee Budget Planning Session
September 22-23, 2021 (Wednesday/Thursday)	Juneau	Annual Meeting
December 8-9, 2021 (Wednesday/Thursday)	Anchorage	Regular

Committee Meetings and Special or additional APFC board meetings will be scheduled as needed. Investment Advisors are invited to attend all meetings.

*The Audit Committee Meeting in September must be scheduled in advance to coordinate with the release date for the Audited Statements and the Annual Report as required in statute.