OREGON STATE TREASURY

Oregon Investment Council

January 26, 2022

Cara Samples
Chair

Tobias Read
State Treasurer

Rex Kim
Chief Investment Officer

Investment Division
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OREGON INVESTMENT COUNCIL

Agenda

January 26, 2022
9:00 AM

Oregon State Treasury
Investment Division
16290 SW Upper Boones Ferry Road
Tigard, OR 97224

Time	A. Action Items	Presenter	Tab
9:00-9:10	**1. Review & Approval of Minutes** December 1 & 8, 2021	**Cara Samples** *OIC Chair*	**1**
	2. Committee Reports	**Rex Kim** *Chief Investment Officer*	**2**
	3. 2023 OIC Calendar Approval	**Cara Samples** *OIC Chair*	**3**
	B. Information Items		
9:10-9:15	**4. Annual Placement Agent Report**	**Michael Langdon** *Director of Private Markets*	**4**
9:15-10:00	**5. OPERF Private Equity Portfolio Annual Review**	**Michael Langdon** *Director of Private Markets* **Thomas Martin** *Head of PE & RA Research, Aksia/TorreyCove* **Karen Jakobi** *Senior Managing Director, Pathway Capital* **Derrek Ransford** *Managing Director, Pathway Capital* **Pete Veravanich** *Managing Director, Pathway Capital*	**5**
10:00-11:00	**6. Market Commentary**	**Henry McVey** *Partner & Head of Global Macro, Balance Sheet and Risk* *CIO of KKR Balance Sheet*	**6**

---------------------------BREAK------------------------

11:10-11:40	**7. OPERF Opportunity Portfolio Annual Review**	**Mike Mueller** *Investment Officer, Alternatives*	**7**
11:40-12:10	**8. OPERF Risk Parity Portfolio Annual Review**	**Karl Cheng** *Senior Investment Officer, Portfolio Risk & Research* **Colin Bebee** *Managing Principal/Consultant, Meketa Investment Group*	**8**
12:10	**9. Asset Allocation & NAV Updates** a. Oregon Public Employees Retirement Fund b. SAIF Corporation c. Common School Fund	**Rex Kim**	**9**
	10. Calendar — Future Agenda Items	**Rex Kim**	**10**
12:10	**11. Open Discussion**	**OIC Member** **Staff** **Consultants**	

TAB 1

REVIEW & APPROVAL OF MINUTES

State of Oregon
Office of the State Treasurer

16290 SW Upper Boones Ferry Road

Tigard, Oregon 97224

OREGON INVESTMENT COUNCIL

December 1, 2021

Meeting Minutes

Members Present:	John Russell, Cara Samples, Monica Enand, Tobias Read and Kevin Olineck
Staff Present:	Rex Kim, John Hershey, Michael Langdon, David Randall, Karl Cheng, Ben Mahon, Tony Breault, Geoff Nolan
Staff Participating Virtually:	Caleb Aldridge, Deena Bothello, Debra Day, Andrew Hillis, Kristi Jenkins, Krystal Korthals, Steve Kruth, May Sommer, Mike Mueller, Aadrial Phillips, Tim Powers, Andrew Robertson
Consultants Present:	Allan Emkin, Colin Bebee, Jonathan Camp, Jeanna Cullins, Kristen Doyle, Raneen Jalajel
PERS Present:	
Legal Counsel Present:	Steven Marlowe, Department of Justice

Before proceeding with the OIC meeting, Chief Investment Officer Rex Kim provided a disclosure pertaining to the virtual set-up of this OIC meeting, informing those in attendance (virtual and in person) of the guidelines in which this meeting will proceed.

The December 1, 2021 OIC meeting was called to order at 12:06 pm by John Russell, OIC Chair.

I. 12:00 pm Mission, History, and Overview of the OIC

Allan Emkin gave a presentation about the history of the Oregon Investment Council, including its leadership and the evolution of investment strategies over time.

II. 12:15 pm Fiduciary Responsibility

Jeanna Cullins discussed the OIC's fiduciary responsibility, key fiduciary standards, and fiduciary responsibility and prohibited transactions.

III. 1:00 pm Governance

Jeanna Cullins discussed governance of the OIC, including best practices and how to avoid issues. Jeanna Cullins and OIC Members discussed how the OIC can oversee Investment Division staff.

IV. 1:30 pm Hot Topics for Institutional Investors

Jeanna Cullins and Kristen Doyle presented hot topics for institutional investors, which included fiduciary responsibility for cybersecurity, new ESG and proxy voting rules and proposed rule changes. Kristen Doyle and the OIC discussed what rules apply if there is a conflict.

V. 2:00 pm Actuarial Concepts

Colin Bebee and Jonathan Camp presented actuarial concepts, including pension plan dynamics, plan liability timelines, funded status, Moody's tread water measure, key terms, important assumptions, and asset liability studies.

VI. 2:30 pm Investment Program

Mike Malone reviewed the investment program. She began with a review of the beliefs of the OIC and how they fit within the broader program. Paola Nealon discussed the duties of the OIC, the roles of other parties such as Treasury staff, and the roles they serve in working toward the program's objective and success. Paola Nealon also discussed the roles of consultants, the custody bank, and other service providers.

VII. 3:15 pm Operations

David Randall provided an overview of the Investment Operations program, including the team, core functions, and background. Kristi Jenkins discussed assets under the team's management, logistics, and checks and balances. Debra Day discussed financial reporting and auditing.

VIII. 3:35 pm Legal and Legislative

Steven Marlowe discussed the legal and legislative structure related to the OIC, shareholder responsibilities, confidentiality and public meetings, risks, and litigation processes.

Mr. Russell adjourned the meeting at 3:55 pm.

Respectfully submitted,

Aadrial Phillips
Executive Support Specialist

State of Oregon

Office of the State Treasurer

16290 SW Upper Boones Ferry Road

Tigard, Oregon 97224

OREGON INVESTMENT COUNCIL

December 8, 2021

Meeting Minutes

Members Present:	John Russell, Cara Samples, Monica Enand, Charles Wilhoite, Tobias Read and Kevin Olineck
Staff Present:	Rex Kim, John Hershey, Michael Langdon, David Randall, Karl Cheng, Ben Mahon, Tony Breault, Geoff Nolan
Staff Participating virtually:	Caleb Aldridge, Kristi Jenkins, Krystal Korthals, Perrin Lim, Aadrial Phillips, Tim Powers, Kenny Bao, Tyler Bernstein, Tan Cao, Austin Carmichael, Andrew Coutu, Debra Day, Chris Ebersole, David Elott, Alli Gordon, William Hiles, Andrew Hillis, Ian Huculak, Claire Illo, Roy Jackson, Aliese Jacobsen, Josh Jones, Robin Kaukonen, Amanda Kingsbury, Paul Koch, Krystal Korthals, Steve Kruth, Perrin Lim, Ryan Mann, Eric Messer, Tim Miller, Dana Millican, Mike Mueller, Lisa Pettinati, Jen Plett, Mohammed Quraishi, Jo Recht, Andrew Robertson, Scott Robertson, Faith Sedberry, Mark Selfridge, Sam Spencer, Andrey Voloshinov, Rachel Wray, Tiffany Zahas
Consultants Present:	Allan Emkin, Christy Fields, Mika Malone, David Glickman, Colin Bebee, Paola Nealon(Meketa Investment Group, Inc.); Raneen Jalajel, Stephen Cummings (Aon Investments); Tom Martin, David Fann (Aksia/TorreyCove Capital Partners LLC); Paul Britton, Rishabh Bhandari, Ryan Donovan, Thomas Leake (Capstone Investment Advisors)
PERS Present:	Heather Case (PERS Board)
Legal Counsel Present:	Steven Marlowe, Department of Justice

Before proceeding with the OIC meeting, Chief Investment Officer Rex Kim provided a disclosure pertaining to the virtual set-up of this OIC meeting, informing those in attendance (virtual and in person) of the guidelines in which this meeting will proceed.

The December 8, 2021 OIC meeting was called to order at 9:01 am by John Russell, OIC Chair.

I. 9:01 am Review and Approval of Minutes

MOTION: Chair Russell asked for approval of the October 27, 2021 OIC regular meeting minutes. Treasurer Read moved approval at 9:01 am, and Member Samples seconded the motion which then passed by a 5/0 vote.

II. 9:02 am Committee Reports

Private Equity Committee:

November 15	A&M Capital Partners III	$200M
November 15	GTCR Strategic Growth	≤$75M
November 15	TSG Consumer Partners9	$250M

Real Estate Committee:

None

Opportunity Committee:

None

Alternatives Portfolio Committee:

None

III. 9:03 am OPERF Tail Risk Hedging Education

Karl Cheng, Senior Investment Officer, Portfolio Risk & Research introduced tail risk hedging, then turned the presentation over to Capstone Investment Advisors, LLC.

Paul Britton, Chief Executive Officer, presented an overview of Capstone in general and discussed why the OIC might consider tail hedging as an investment strategy.

Rishabh Bhandari, Senior Portfolio Manager, presented an overview of the current market environment.

Thomas Leake, Head of Solutions, discussed OPERF's portfolio and the risk that Capstone has projected based on asset allocation. He then discussed observations Capstone has made about tail hedging strategies pension plans are using in relation to their risk profiles. Finally, he presented some approximate projections for the OPERF portfolio if incorporating tail hedging strategies, with the caveat that the study was not comprehensive and based on assumptions that may be different from actual experience.

IV. 10:13 am OPERF Benchmarking Discussion

Mika Malone, Managing Principal/Consultant, and Allan Emkin, Management Principal/Consultant, from Meketa Investment Group presented Phase 1 of the OPERF Benchmarking Review. The focus for Phase 1 was what is important to benchmarking the overall plan.

OIC Members and consultants discussed what makes a good benchmark, and approaches to creating plan-level benchmarks.

V. 10:41 am Common School Fund Policies Review

John Hershey, Director of Investments, gave an overview of an investment policy review currently underway, including problems identified, goals for the review, and the project process. There are currently 48 policies and 26 appendices under review.

Raneen Jalajel, Associate Partner, and Kristen Doyle, Partner, with Aon gave an update on the project. It is currently focused on the Common School Fund policies, and will move to OPERF, SAIF, and Asset Class Guidelines in the future.

VI. 11:05 am OPERF Q3 Performance Review

Allan Emkin, Management Principal/Consultant, from Meketa Investment Group gave an overview of the Q3 OPERF performance report.

VII. 11:18 am OPERF Public Equity Annual Review

Karl Cheng, Senior Investment Officer, Portfolio Risk & Research and Paola Nealon, Management Principal/Consultant from Meketa Investment Group gave a retrospective on the portfolio's five-year performance and background on its construction.

Paola Nealon and Colin Bebee, Managing Principal/Consultant, from Meketa Investment Group then discussed insights for the Public Equity Program.

Karl Cheng presented to policy change recommendations for INV 601 and INV 603 for the OIC's review and approval.

MOTION: Chair Russell asked for approval of changes to policies INV 601 and INV 603. Council Member Enand moved approval at 12:14 pm, and Treasurer Read seconded the motion, which then passed by a 5/0 vote.

VIII. 12:15 pm OPERF Fixed Income Annual Review

Geoff Nolan, Senior Investment Officer, Fixed Income, gave the annual review of the OPERF Fixed Income Portfolio, including 2021 performance and 2022 goals.

Perrin Lim, Investment Officer, Fixed Income, gave a review of the Oregon Short Term Fund.

Mika Malone, Managing Principal/Consultant from Meketa Investment Group discussed insights from the Fixed Income Program.

IX. 12:48 pm Special Election

Chair Russell explained that today was the final meeting during which he is allowed to serve as Chair, per OIC policy Therefore, a special election is necessary to elect new Chair and Vice-Chair.

MOTION: Chair Russell asked for a motion to elect a new Chair. Treasurer Read moved that Cara Samples become the new Chair and that John Russell become the new Vice--Chair. The motion was seconded by Member Enand. The motion passed by a vote of 5/0.

X. 12:49 pm Calendar – Future Agenda Items

A calendar listing of future OIC meetings and scheduled agenda topics was included in the Council's meeting materials.

XI. 12:49 pm Open Discussion

The OIC members discussed investment in Oregon companies.

XII. 12:50 pm Public Comments

Chair Russell made note of approximately 250-300 pages of written public comments received, and approximately 1,500 phone calls to Treasury staff on the issue of investment or divestment from fossil fuels.

Mr. Russell adjourned the meeting at 12:51 pm.

Respectfully submitted,
Aadrial Phillips
Executive Support Specialist

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OREGON STATE TREASURY

TAB 2

COMMITTEE REPORTS

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OREGON STATE TREASURY

TAB 3

OIC CALENDAR APPROVAL

OREGON INVESTMENT COUNCIL

2023 Meeting Schedule

Meetings Begin at 9:00 am

Oregon State Treasury
Investment Division
16290 SW Upper Boones Ferry Road
Tigard, OR 97224

Wednesday, January 25

Wednesday, March 8

Wednesday, April 19

Wednesday, May 31

Wednesday, July 19

Wednesday, September 6

Wednesday, October 25

Wednesday, December 6

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OREGON STATE TREASURY

TAB 4

ANNUAL PLACEMENT AGENT REPORT

Annual Placement Agent Disclosure

January 26, 2022

Purpose
In accordance with its Policy COM 201: Conflict of Interest and Code of Conduct, OST shall disclose, in all investment recommendations to the Oregon Investment Council, any Placement Agent used by the investment firm *that has had any contact with Treasury investment staff*. Staff shall present to the OIC an annual summary of the foregoing, which will also be made available to the public on the Treasury website.

Placement Agent Contact Summary for Calendar Year 2021

Partnership	**OPERF Commitment**	**Placement Agent**
Alpine Investors VIII	$100 million	Evercore
Blue Torch Credit Opportunities Fund II	$100 million	Mercury
Luminate Capital Partners III	$150 million	Moelis

Note that Placement Agents are retained by investment funds' General Partner, and OST investment staff does not rely on such placement agent firms for access or analysis.

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OREGON STATE TREASURY

TAB 5

OPERF PRIVATE EQUITY PORTFOLIO ANNUAL REVIEW

January 26, 2022

OPERF Private Equity Annual Review & 2022 Plan

OREGON STATE TREASURY

Agenda

LEGEND: OIC INVESTMENT AND MANAGEMENT BELIEFS

1 **THE OIC SETS POLICY AND IS ULTIMATELY RESPONSIBLE FOR THE INVESTMENT PROGRAM**

A. Investment management is dichotomous -- part art and part science.

B. The OIC is a policy-setting council that largely delegates investment management activities to the OST and qualified external fiduciaries.

C. The OIC is vested with the authority to set and monitor portfolio risk. Both short-term and long-term risks are critical.

■ D. To exploit market inefficiencies, the OIC should be long term, contrarian, innovative, and opportunistic in its investment approach.

2 **ASSET ALLOCATION DRIVES RISK AND RETURN**

■ A. Asset allocation is the OIC's primary policy tool for managing the investment program's long-term risk/return profile.

■ B. Portfolio construction, including diversification and correlation considerations, is essential to maximizing risk-adjusted returns.

3 **THE EQUITY RISK PREMIUM WILL BE REWARDED**

A. Over the long-term, equity-oriented investments provide reliable return premiums relative to risk-free investments.

4 **PRIVATE MARKET INVESTMENTS CAN ADD SIGNIFICANT VALUE AND REPRESENT A CORE OIC/OST COMPETENCY**

■ A. The OIC can capitalize on its status as a true, long-term investor by making meaningful allocations to illiquid, private market investments.

■ B. Dispersion in private market investment returns is wide; accordingly, top-quartile manager selection, diversification across vintage year, strategy type, and geography, and careful attention to costs are paramount.

5 **CAPITAL MARKETS HAVE INEFFICIENCIES THAT CAN BE EXPLOITED**

■ A. Inefficiencies that can be exploited by active management may exist in certain segments of the capital markets.

B. Passive investment management in public markets will outperform the median active manager in those markets over time.

6 **COSTS DIRECTLY IMPACT INVESTMENT RETURNS AND SHOULD BE MONITORED AND MANAGED CAREFULLY**

■ A. All fees, expenses, commissions, and transaction costs should be diligently monitored and managed in order to maximize net investment returns.

■ B. External incentive structures should be carefully evaluated to ensure proper alignment with investment program objectives.

7 **FAIR AND EFFICIENT CAPITAL MARKETS ARE ESSENTIAL FOR THE LONG-TERM INVESTMENT SUCCESS**

A. The OIC recognizes that the quality of regulation and corporate governance can affect the long-term value of its investments.

B. The OIC also recognizes that voting rights have economic value.

8 **THE INTEGRATION OF ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) FACTORS, SIMILAR TO OTHER INVESTMENT FACTORS, MAY HAVE A BENEFICIAL IMPACT ON THE ECONOMIC OUTCOME OF AN INVESTMENT AND AID IN THE ASSESSMENT OF RISKS ASSOCIATED WITH THAT INVESTMENT**

■ A. The consideration of ESG factors within the investment decision-making framework is importantin understanding the near-term and long-term impacts of investment decisions.

■ B. Over time, there has been an evolution of multi-factor, or more holistic approaches, to identify opportunities and remediate risks, in a large globally-diversified investment portfolio.

9 **DIVERSITY, IN ALL ASPECTS, IS ACCRETIVE TO MEETING OIC OBJECTIVES**

■ A. By embracing and enhancing diversity and inclusion efforts, the OIC ensures that the investment program will be exposed to and informed by a wide range of perspectives, ideas and opinions.

Private Equity Strategic Role

INV 1201: Investment Belief #4 – Private market investments can add significant value and represent a core OIC/OST competency

- The OIC can capitalize on its status as a true, long-term investor by making meaningful allocations to illiquid, private market investments
  - Private markets provide a diversifying risk/return profile relative to public market analogues
  - Private markets offer excess return opportunities that may be exploited by patient, long-term investors
- Dispersion in private market investment returns is wide; accordingly, top-quartile manager selection, diversification across vintage year, strategy type, geography, and careful attention to costs are paramount
  - Private market investment success is predicated on identifying skilled managers and developing long-term investment relationships with those managers that enable the application of skill to manifest in the form of excess returns
  - Proper investment pacing, including deliberate vintage year diversification is also an integral element of superior private market investment results

INV 701: Private Equity Portfolio Standards and Procedures – Policy Statement II – Objective #1 Performance

- The performance objective is long-term, net returns above a public market analog plus an appropriate premium to compensate for illiquidity, principal risk and related investment costs and expenses. Specifically, Program performance should exceed a net internal rate of return equal to the Russell 3000 Index plus 300 basis points

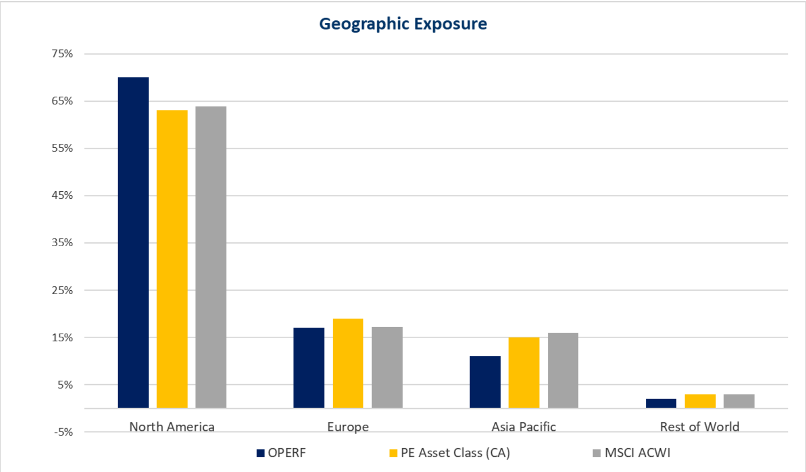
9/30/2021	1 Yr.	3 Yr.	5 Yr.	10 Yr.
OPERF Private Equity	**41.8%**	**21.3%**	**19.3%**	**15.2%**
Russell 3000 + 3%	36.3%	19.5%	20.3%	20.6%
OPERF Value-Add:	*5.4%*	*1.8%*	*-1.0%*	*-5.4%*
MSCI ACWI + 3%	31.8%	16.2%	16.6%	15.6%
OPERF Value-Add:	*9.9%*	*5.2%*	*2.6%*	*-0.4%*
Burgiss All Funds Ex. Real Assets	45.1%	23.2%	20.4%	16.1%
OPERF Value-Add:	*-3.3%*	*-1.9%*	*-1.2%*	*-0.9%*

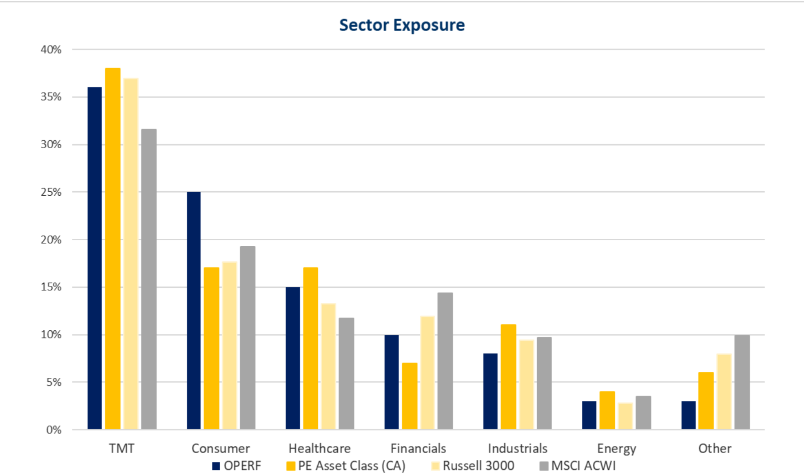
Source: OST, Aksia, Russell, MSCI, Burgiss

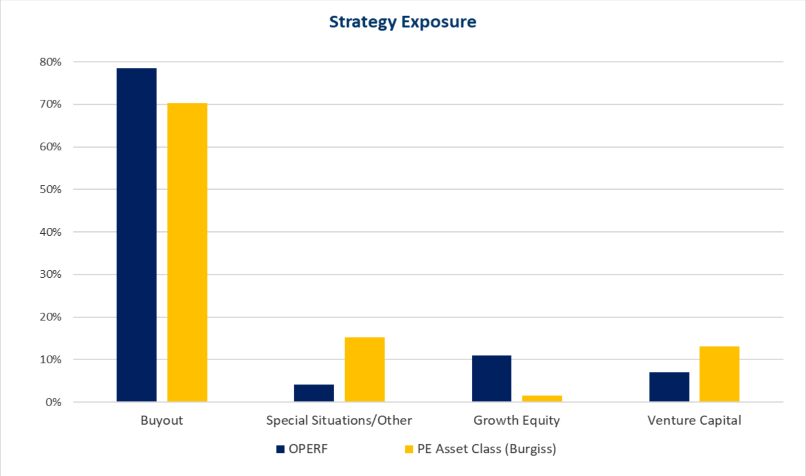
Private Equity Portfolio Positioning

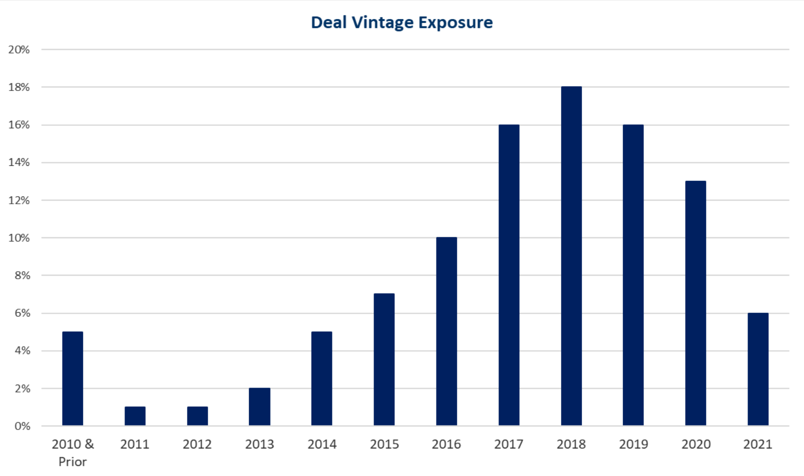
INV 701: Private Equity Portfolio Standards and Procedures – Policy Statement II – Objective #2 Diversification

- Diversification reduces risk among Program investments. The following types of diversification should be considered by Staff, including, but not limited to stage (strategy), sector, size, geography and time









OREGON STATE TREASURY

Source: OST, Aksia, Cambridge Associates, Burgiss, MSCI, Russell

Executive Summary

Key Takeaways…

1. Private equity activity was white hot by any measure in 2021

2. Absolute returns are exceptional, but the relative return picture is complex

3. Allocation relative to target remains frustratingly high due to outsized mark-ups

Patience is being tested, but the long-term implementation plan is sound

Implementation Review

OPERF's PE implementation plan is built on three core principles:

1. Focused Primary Program
    1. **~45 General Partner relationships** emphasizing an average commitment of **~$250 million per fund** to create a portfolio that is balanced by style, geography, sector, size, etc.
    2. Focus on managers capable of generating consistently strong returns via earnings/cash flow growth
2. Fee Mitigation
    1. **Co-investment** (via the outsourced program with Pathway) currently represents **20%** of pacing
    2. Negotiated and structured discounts where possible
3. Smooth Pacing
    1. Commitment to balanced vintage year pacing – current pacing plan is **$2.5-3.5 billion per annum** of new commitments to 10-15 opportunities
    2. The Enhanced Monitoring & Liquidity Program with Pathway is available to dynamically manage legacy investments/relationships as well as vintage exposures

Investment Environment

- **M&A Activity**
  - Announced deal volume through the first nine months of 2021 was 50% ahead of 2020 and on pace to exceed previous records
  - Private equity sponsors were a driver of activity accounting for nearly 40% of total transaction volume

- **Corporate Leveraged Finance**
  - In 2021, total leverage loan new issue volumes (through 12/10/21) shattered previous records with nearly $800 billion of activity
  - At ~$560 billion of total volume through 11/30/21, PE sponsor backed leverage loan volumes easily exceeded previous records

- **Private Equity Returns**
  - The asset class generated extremely strong returns for the year ending September 30, 2021, and private equity now strongly outpaces public equities for the three- and five-year periods
  - The strongest returns in recent years have come from venture capital, and North America has been the leading region

- **Private Equity Activity**
  - 2021 will see new records set for both fundraising and deployment volumes, but the asset class will post record shattering exit volumes
  - Unprecedented IPO activity drove exit volumes in 2021, but it is important to remember that, while IPOs are counted as realization events, they are not commonly meaningful liquidity events for private equity partnerships

- **Additional materials on investment environment available in the appendix**

The market was white hot on all metrics in 2021

2021 Year in Review – Priorities

OST Staff made progress on all five initiatives set out in the 2021 PE Annual Review & Plan:

2021 OST Private Equity Staff Priorities

1. **$2.5-3.5 billion of new commitments**
   - 10-15 commitments of $100-500 million
2. **Drive savings via existing fee mitigation strategies**
   - Focus on sourcing and relationship management for the co-investment program
3. **Leverage portfolio & pacing management tools**
   - Explore additional enhanced liquidity opportunities
4. **Private equity team capacity**
   - Recruit to fill open Investment Officer position
5. **Continue enhancements to due diligence and monitoring capabilities**
   - Further formalize the integration of ESG and DEI factors

2021 Year in Review – Approvals

Over the course of 2021, the OIC approved 16 new private equity commitments totaling $3.2 billion

- **Pacing** – with $400 million of previously approved & evergreen commitments, total pacing amounts to $3.6 billion for the year, which is modestly above the top end of OPERF's target pacing range ($2.5-3.5 billion)
- **Strategy** – the 2021 vintage skews heavily to the buyout strategy which represents ~90% of commitments in total
- **Geography** – ~84% North America, ~11% Europe and ~6% Asia
- **Manager** – new GP relationships formed with Alpine, Arsenal, Luminate, TA Associates and TSG Consumer

	FUND NAME	SEGMENT	STRATEGY	GEOGRAPHY	COMMIT (MM)
1	A&M Capital Partners III	Middle Market	Diversified - value	North America	$ 200
2	Advent Global Technology II	Middle - Large	Growth equity & control - technology	Global	$ 95
3	Alpine Investors VIII	Middle Market	Growth buyout - software & services	North America	$ 100
4	Arsenal Capital Partners VI & Growth	Middle Market	Control - healthcare & industrial	North America	$ 200
5	Clearlake Capital Partners VII	Upper Middle Market	Control/structured/distressed - tech, consumer & industrial	North America	$ 250
6	Genstar Capital Partners X & Opps	Upper Middle Market	Control - software, financials, healthcare & industrial	North America	$ 225
7	GTCR Strategic Growth	Middle Market	Growth equity & control - TMT, HC, FIG & bus services	North America	$ 65
8	Hellman & Friedman Capital Partners X	Large Market	Diversified - growth	Transatlantic	$ 350
9	KKR North America XIII	Large Market	Diversified - core	North America	$ 275
10	Luminate Capital Partners III	Middle Market	Control - software	North America	$ 150
11	Pathway Co-Inv - 2021 Follow-on	Co-Invest	Co-invest with OPERF GP roster	Global	$ 350
12	Roark Capital Partners VI	Upper Middle Market	Growth equity & growth buyout - consumer	North America	$ 250
13	Thoma Bravo XV	Large Market	Control - software	North America	$ 250
14	TSG9	Upper Middle Market	Growth equity & growth buyout - consumer	Transatlantic	$ 250
	BUYOUT TOTAL				**$ 3,010**
15	Sherpa Healthcare II & Sidecar	Venture Capital	Venture capital - healthcare	Asia - China	$ 100
16	TA XIV	Growth Equity	Growth equity & growth buyout - diversified	Global	$ 100
	GROWTH/VC TOTAL				**$ 200**
	TOTAL APPROVALS				**$ 3,210**
17	General Atlantic SMA	Growth Equity	Growth equity - diversified	Global	$ 150
18	Pathway Co-Inv - Recyling	Co-Invest	Co-invest with OPERF GP roster	Global	$ 250
	TOTAL PACING				**$ 3,610**

2021 Year in Review – Commitment Pacing

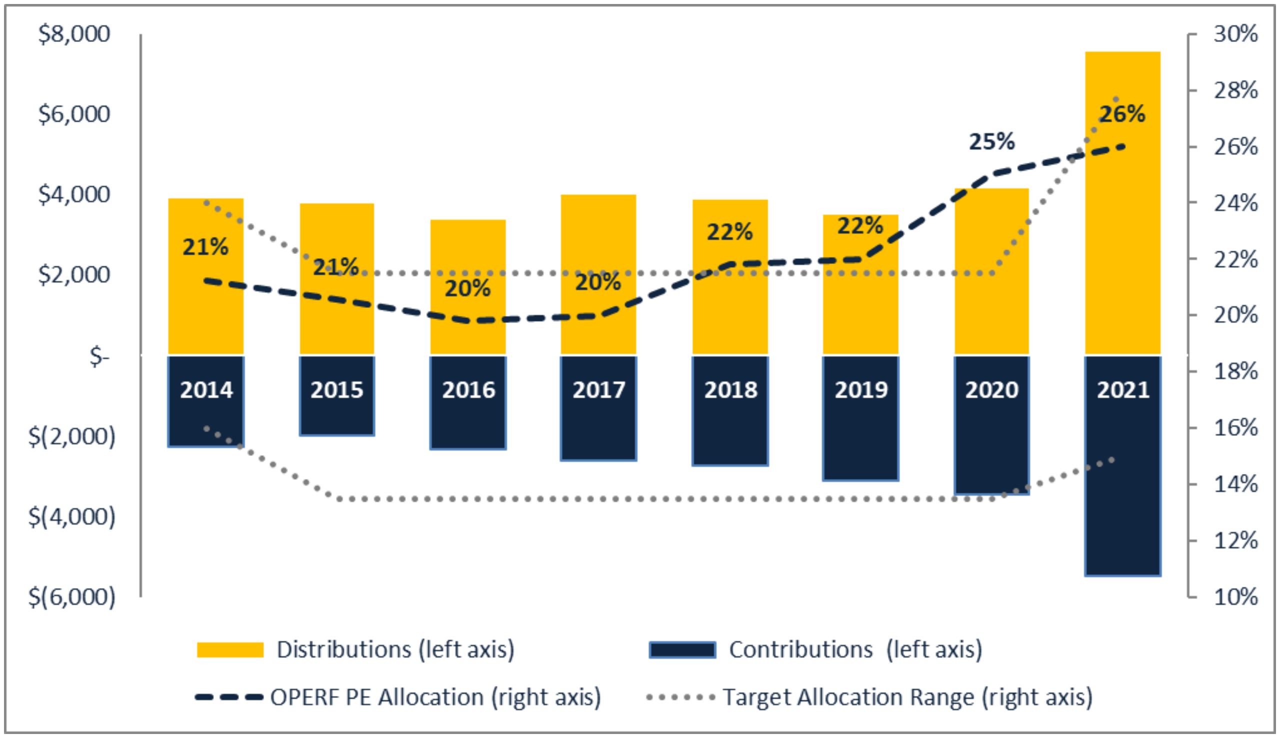
At $3.6 billion of total pacing, the 2021 vintage is modestly above the target range, but medium-term pacing remains on plan

Source: OST

2021 Year in Review – Cash Flows

For the calendar year 2021, the private equity portfolio processed capital calls totaling $5.5 billion and distributions totaling $7.6 billion for net distributions of $2.1 billion

- OPERF's capital call activity was massively ahead of plan (~$3 billion) in 2021
- OPERF's distributions were also massively ahead of plan (~$4.5 billion) in 2021. The activity for 2021 includes proceeds generated proactively through the Enhanced Monitoring & Liquidity program
- As of December 31, 2021 (9/30/21 valuations adjusted for cash flows), the portfolio's net asset value of $25 billion represented roughly 26% of the full OPERF portfolio. This is at the top end of the OPERF's target allocation range (15-28%)



Source: OST, Aksia, SSB

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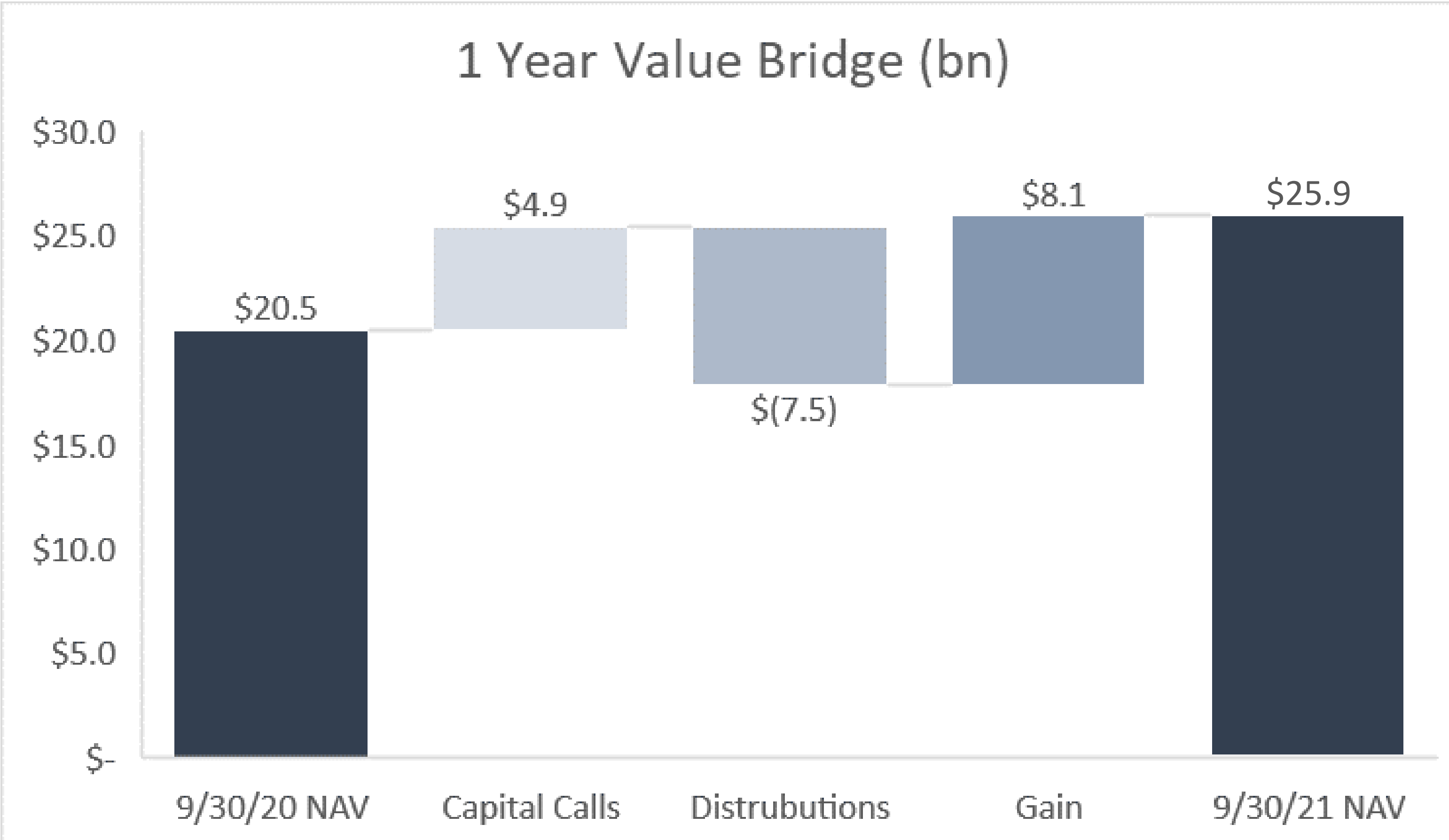
2021 Year in Review – Value Bridge

In 2021, the private equity portfolio's net asset value increased $5 billion driven by a gain of $8 billion



Source: OST, Aksia,

Relative Returns – Horizon

OPERF's results continue to trail public equities over the past decade, but relative results look better for the 3- and 5-year periods

- **Following an extremely strong year for private equity, OPERF now trails the asset class (Burgiss) for all time periods**

9/30/2021	IRR 1 year	IRR 3 year	IRR 5 year	IRR 10 year
OPERF Private Equity	**41.8%**	**21.3%**	**19.3%**	**15.2%**
Russell 3000 + 3%	36.3%	19.5%	20.3%	20.6%
Value-Added	5.4%	1.8%	-1.0%	-5.4%
Russell 3000	32.6%	16.2%	16.9%	17.3%
Value-Added	9.1%	5.1%	2.3%	-2.0%
Russell 2000 + 3%	53.6%	14.2%	17.1%	19.1%
Value-Added	-11.9%	7.2%	2.2%	-3.8%
Russell 2000	49.6%	11.0%	13.8%	15.8%
Value-Added	-7.8%	10.4%	5.5%	-0.6%
MSCI ACWI + 3%	31.8%	16.2%	16.6%	15.6%
Value-Added	9.9%	5.2%	2.6%	-0.4%
MSCI ACWI	28.2%	12.9%	13.3%	12.4%
Value-Added	13.5%	8.4%	5.9%	2.8%
Burgiss All Funds Ex RA	45.1%	23.2%	20.4%	16.1%
Value-Added	-3.3%	-1.9%	-1.2%	-0.9%

Source: OST, Aksia, Burgiss, Russell, MSCI

Relative Returns – Vintage Year

OPERF's vintage level results are solid over the past decade as compared to both the asset class and public equities

- **On an IRR basis, OPERF's vintage level results post high in the second quartile since 2014**

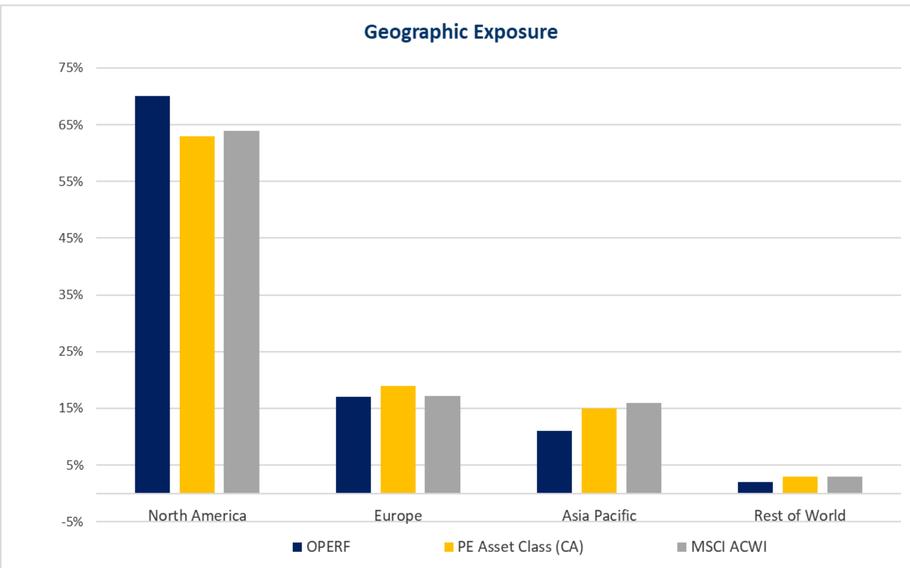
Vintage Year	Commit. (mm)	FMV at 9/30/21 (mm)	FMV %	TVPI	IRR	Burgiss Quart. TVPI	Burgiss Quart. IRR	Russell 3000 PME	MSCI ACWI PME
1981-2005	$ 13,773	$ 357	1%	NM	NM	N/A	N/A	N/A	N/A
2006	$ 4,333	$ 291	1%	1.4	6.6%	2nd	2nd	8.5%	4.8%
2007	$ 3,464	$ 87	0%	1.5	8.7%	3rd	3rd	10.6%	6.9%
2008	$ 4,144	$ 496	2%	1.6	11.6%	2nd	2nd	13.4%	10.0%
2009	$ 377	$ 14	0%	1.4	9.2%	4th	3rd	15.6%	11.2%
2010	$ 980	$ 460	2%	1.7	11.4%	2nd	2nd	14.4%	11.3%
2011	$ 2,427	$ 1,164	4%	1.9	14.9%	2nd	2nd	14.2%	11.7%
2012	$ 2,001	$ 1,169	5%	1.9	18.7%	2nd	2nd	13.4%	11.1%
2013	$ 1,515	$ 1,219	5%	1.8	15.0%	2nd	2nd	13.6%	11.1%
2014	$ 980	$ 1,151	4%	2.1	22.4%	2nd	2nd	14.0%	11.4%
2015	$ 2,893	$ 3,116	12%	1.8	21.1%	2nd	2nd	16.0%	12.9%
2016	$ 2,839	$ 4,872	19%	2.0	27.6%	2nd	2nd	17.3%	14.0%
2017	$ 3,393	$ 4,356	17%	1.8	33.2%	2nd	2nd	18.5%	14.9%
2018	$ 3,037	$ 2,560	10%	1.4	30.1%	2nd	2nd	21.3%	17.4%
2019	$ 3,410	$ 2,915	11%	1.3	28.6%	2nd	2nd	24.6%	20.2%
2020	$ 2,945	$ 1,312	5%	1.3	NM	N/A	N/A	N/A	N/A
2021	$ 3,026	$ 321	1%	1.0	NM	N/A	N/A	N/A	N/A
Total	**$ 55,537**	**$ 25,860**	**100%**	**1.7**	**15.7%**	**N/A**	**N/A**	**N/A**	**N/A**

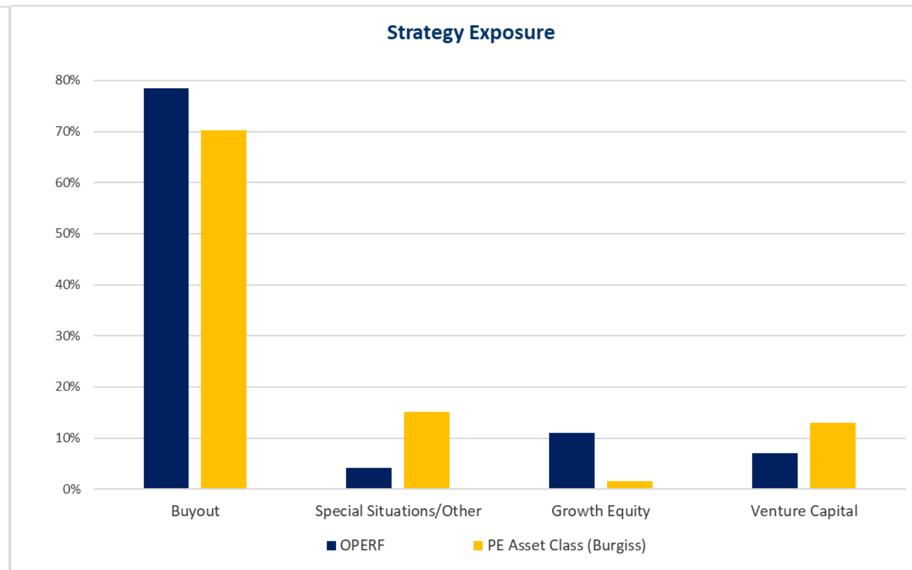
Source: OST, Aksia, Burgiss, Russell, MSCI

Return Attribution – Asset Allocation

The asset allocation factor has been a modest detractor given OPERF's index like exposures

- **Geography:** OPERF's relative overweight in North America has made a positive contribution
- **Strategy:** OPERF's relative underweight in VC is a clear negative, but it is offset to some extent by an underweight in "special situations/other"





Partnership Level Strategy	IRR 1 year	IRR 3 year	IRR 5 year	IRR 10 year
Burgiss All Fund Ex Real Assets	45%	23%	20%	16%
GEOGRAPHY				
Burgiss All Fund Ex Real Assets - North America	49%	25%	21%	17%
Burgiss All Fund Ex Real Assets - Europe	35%	19%	19%	14%
Burgiss All Fund Ex Real Assets - Asia Pacific	32%	20%	18%	16%
Burgiss All Fund Ex Real Assets - Generalist	55%	27%	22%	15%

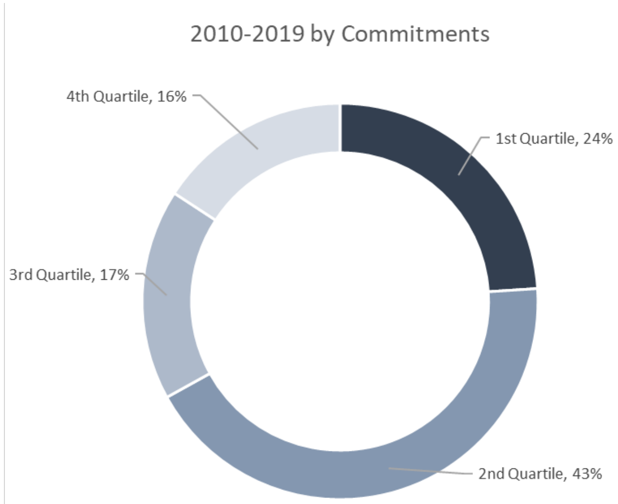
Partnership Level Strategy	IRR 1 year	IRR 3 year	IRR 5 year	IRR 10 year
Burgiss All Fund Ex Real Assets	45%	23%	20%	16%
ASSET CLASS				
Burgiss - Buyout	42%	22%	20%	16%
Burgiss - Expansion Capital	40%	20%	18%	14%
Burgiss - Venture Capital	72%	37%	28%	21%
Burgiss - Other Ex Real Assets	33%	17%	15%	13%

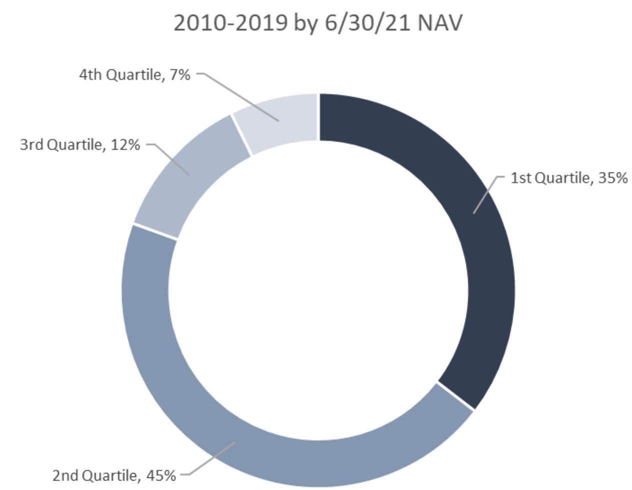
Source: 9/30/21 - OST, Aksia, Burgiss, Cambridge Associates, MSCI

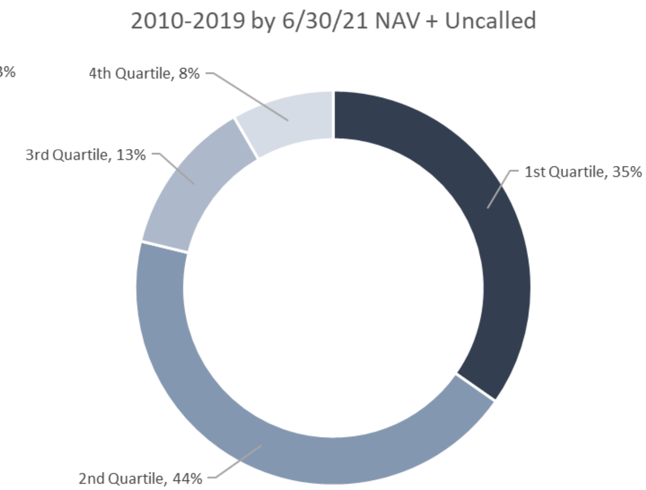
Return Attribution – Security Selection

The security selection factor has been a positive contributor

- OPERF's manager/fund selection has been solid in the 2010-2019 vintages with ~67% by commitments and ~80% by both net asset value (NAV) and total exposure (NAV + uncalled) posting above median results (as measured by IRR)







Source: 6/30/21 - OST, Aksia, Burgiss

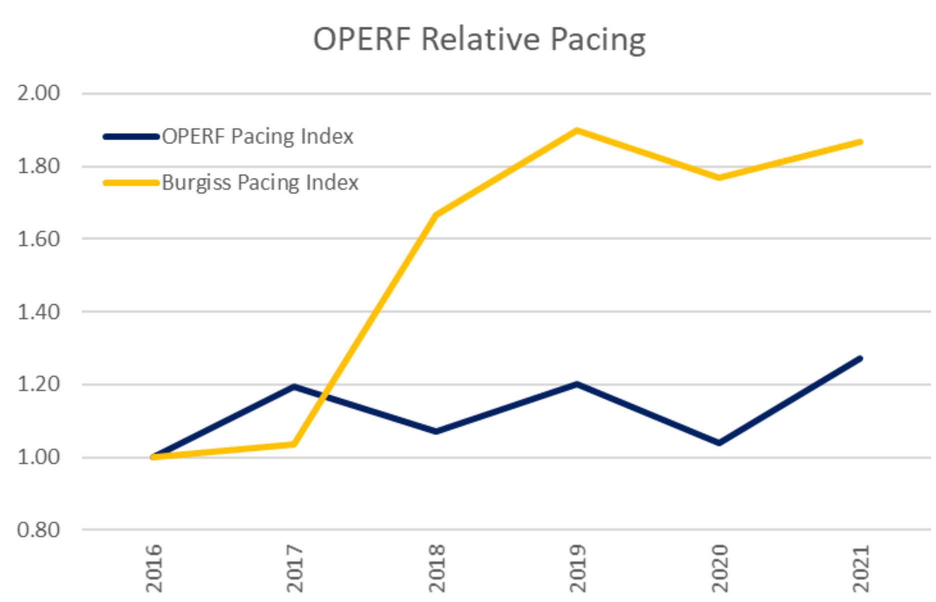
Return Attribution –Timing

OPERF's pacing discipline in recent vintages has had a negative impact

- The asset class has massively scaled commitments since 2016 as OPERF's pacing has remained reasonably consistent
  - OPERF would have had to commit an additional ~$7 billion to the 2017-21 vintages to match the market's pace
- As a result, OPERF is underweight recent vintages that have posted extremely strong early results

Vintage Year	OPERF Commitment (mm)	Burgiss All Funds Ex Real Assets Commitment (mm)	IRR 1 year	IRR 3 year	IRR 5 year	IRR 10 year
2005	$ 2,471	$ 182,330	29%	11%	10%	11%
2006	$ 4,333	$ 325,600	58%	12%	11%	12%
2007	$ 3,464	$ 366,897	34%	12%	12%	13%
2008	$ 4,144	$ 347,817	33%	8%	11%	13%
2009	$ 377	$ 83,843	71%	22%	19%	16%
2010	$ 980	$ 118,753	57%	19%	16%	14%
2011	$ 2,427	$ 214,480	46%	16%	17%	17%
2012	$ 2,001	$ 206,116	53%	23%	21%	17%
2013	$ 1,515	$ 239,424	36%	17%	16%	N/A
2014	$ 980	$ 305,905	50%	26%	24%	N/A
2015	$ 2,893	$ 330,596	45%	23%	22%	N/A
2016	$ 2,839	$ 334,415	43%	25%	23%	N/A
2017	$ 3,393	$ 345,839	46%	28%	25%	N/A
2018	$ 3,037	$ 557,077	41%	27%	N/A	N/A
2019	$ 3,410	$ 635,254	50%	35%	N/A	N/A
2020	$ 2,945	$ 591,550	45%	N/A	N/A	N/A
2021*	$ 3,610	$ 624,353	24%	N/A	N/A	N/A

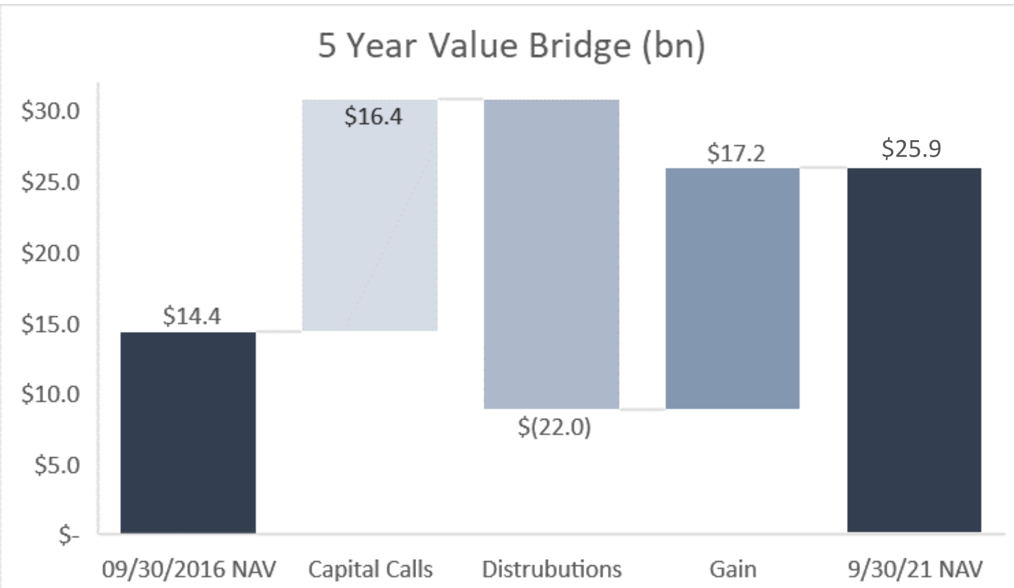
* - Estimated FY commitments



Source: 9/30/21 - OST, Aksia, Burgiss

PE Allocation Relative to Target

- **The portfolio's NAV has increased nearly $12 billion over the past five years. NAV was anticipated to be roughly flat over this period**
  - **The delta between forecast and actual NAV is roughly a third attributable to capital calls coming in ~30% ahead of expectations in an aggressive environment**
  - **The remaining two thirds of that delta is attributable to mark-ups coming in ~80% above forecast**



2016 Pacing Forecast (bn)

	5 Yr. Forecast	5 Yr. Actual	Delta ($)	Delta (%)
Commitments	$ 15	$ 16	$ 1	5%
09/30/16 NAV	$ 14	$ 14	N/A	N/A
Capital Calls	$ 13	$ 16	$ 4	31%
Distributions	$ (22)	$ (22)	$ (0)	1%
Gain	$ 9	$ 17	$ 8	81%
09/30/21 NAV	$ 14	$ 26	$ 12	81%

Source: OST, Aksia

Pathway Update

PRIVATE MARKET SPECTRUM		GLOBAL REACH		FULL-SERVICE MODEL
1991 Founded	**100%** owned by its 21 partners	**199** Staff	**>$90 billion** in global AUM[b]	**23 years'** average investment experience[c]

[a]Strategic alliance with Tokio Marine Asset Management. [b]Represents roll-forward market value plus undrawn capital as of September 30, 2021. [c]Represents Pathway's 19 investment partners.

OREGON STATE TREASURY

Pathway Update

Pathway Program Overview and Update

OPERF and Pathway enjoy a long relationship.

Program	Year	Focus	Status	Amount[a]
PPEF III	2001	Sub-$400m PE Funds	Monitoring & Liquidation	$251 million
PPEF III-B	2009	Sub-$1b PE Funds	Monitoring	$403 million
PPEF III-Co	2019	Co-investments	Investing	$1.7 billion
Pathway IMA	2020	Monitoring & Liquidity	Monitoring & Divesting	NA

NOTE: NA=Not applicable.
[a]Represents total fund size or committed capital to date.

Current programs—PPEF III-Co and Pathway IMA—address key strategic focus areas for OPERF:

- Mitigating gross-to-net spread by investing in co-investments that may eliminate GP annual management fee and carried interest
- Leveraging the OPERF private equity team's capacity by providing a solution for monitoring legacy fund portfolio
- Opportunistically seeking liquidity from legacy portfolio with a portion of proceeds redeployed into co-investments

Pathway Update

Co-investment Program

- Sourcing: 100% from OPERF GP relationships
- Selectivity: Completed 66 of 113 co-investments reviewed[1]
- Savings: Estimated since-inception net fee and carry savings of $119 million to date[2]
- Excess Capacity: Significant capacity to invest more in the same co-investments
- Selective and systematic deployment of capital, with risk-based approach
- No annual management fee or carried interest on any co-investment to date
- The program is developing well and generating attractive returns

PPEF III-Co Performance

($ in millions)

	No. of Co-investments	Commitments	Cumulative Contributions	Cumulative Distributions	Market Value	Total Value	Gain/ Loss	S-I Net MOIC	S-I Net IRR	1-Year Net IRR
September 30, 2021	53	$1,105	$1,005	$11	$1,476	$1,487	$482	1.5x	38.8%	48.2%
Subsequent Activity[a]	13	239	197	77						
Total	**66**	**$1,344**	**$1,202**	**$89**						

[a]As of January 15, 2022. Includes two co-investments representing $20.9 million of expected committed capital that have been approved by Pathway's Investment Committee but are pending close.

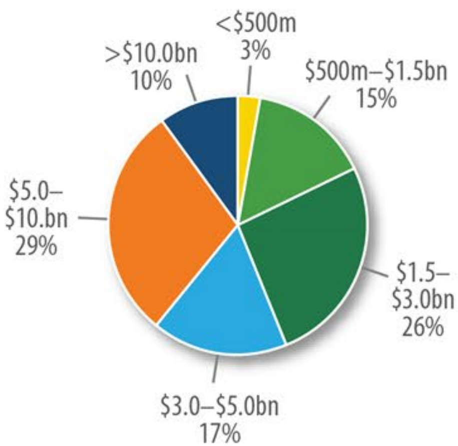
1. Includes pending co-investments.
2. Represents the estimated savings from contributing to a portfolio of direct co-investments with no annual management fee or carried interest charged, as opposed to commitments with a private equity limited partnership charging a 1.50% annual management fee and 20% carried interest based on actual PPEF III-Co tranche commitments to date and net gain generated, as of September 30, 2021.

Pathway Update

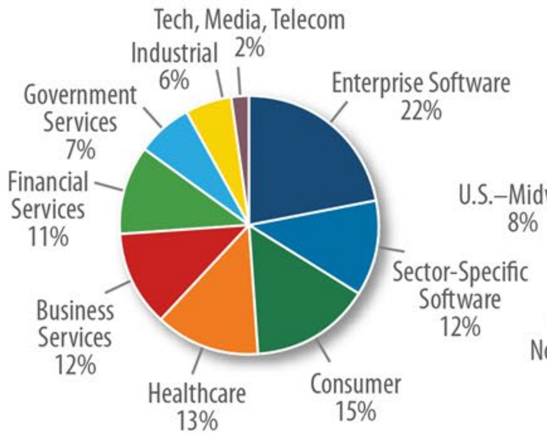
Co-investment Program

The portfolio is well-diversified by enterprise value, industry, region, and general partner.

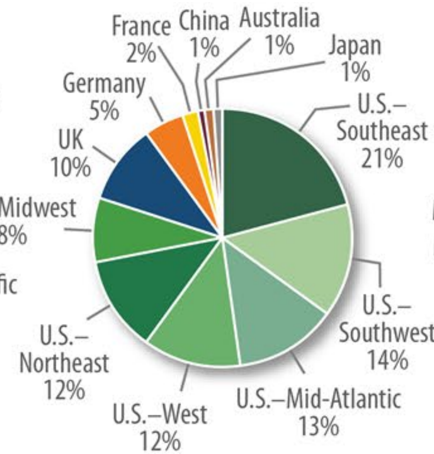
ENTERPRISE VALUE



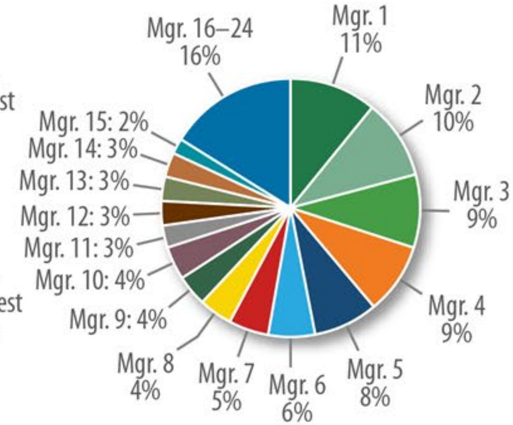
INDUSTRY



REGION



GENERAL PARTNER



NOTES: Presented as a percentage of committed capital, as of January 15, 2022.
Includes two co-investments representing $20.9 million of expected committed capital that have been approved by Pathway's Investment Committee but are pending close.

Pathway Update

Enhanced Monitoring and Managed Liquidity Program Update

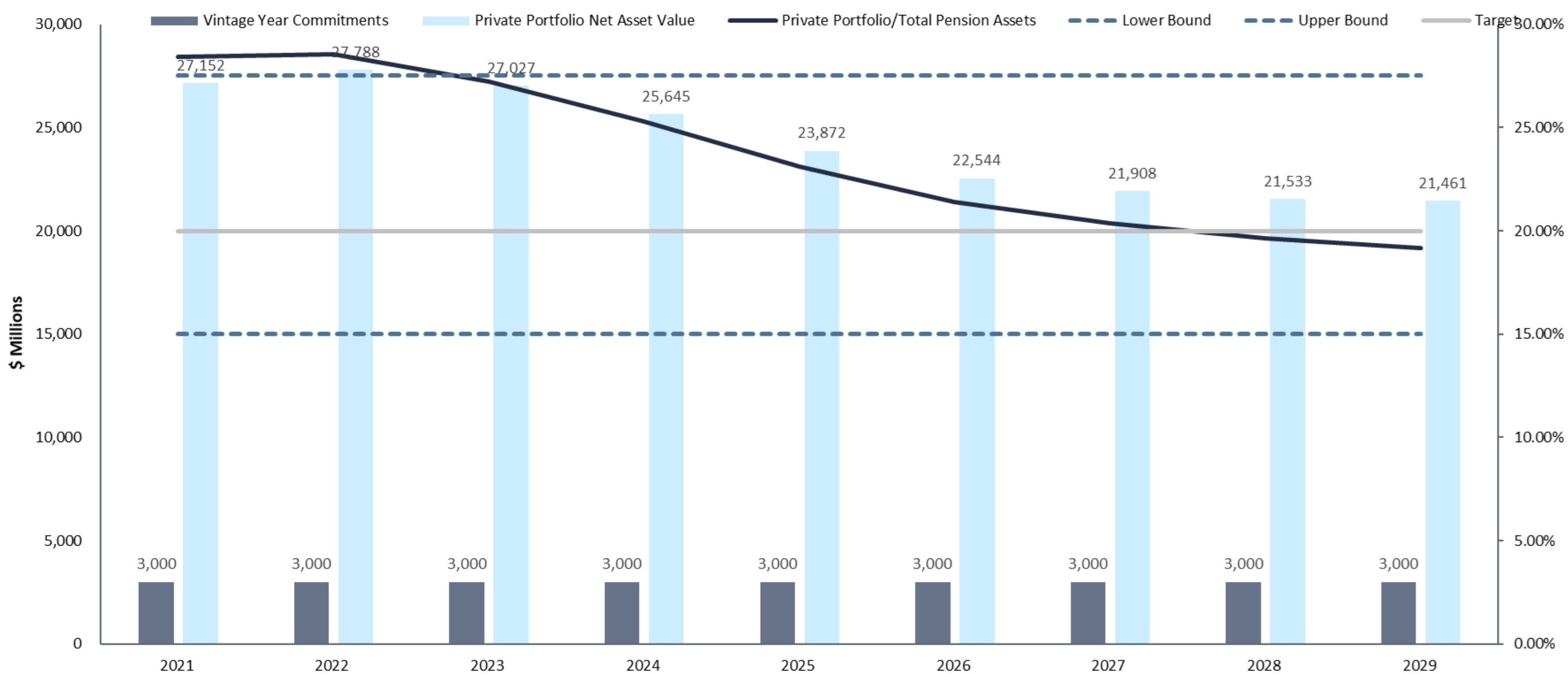
Since 2020, Pathway has assisted OPERF with monitoring and exploring accelerated liquidity options for portions of its legacy portfolio.

- Program includes 91 partnerships across the 1999–2015 vintage years.
- Since 2020, Pathway has managed 2 portfolio sales through the secondaries market and 2 GP-led secondary transactions that have resulted in approximately $2 billion in liquidity being accelerated and received by OPERF.
- Pathway's managed-sale process has assisted OPERF with progress toward achieving its strategic goals of
  - smoothing vintage year exposure,
  - reducing the number of general partners and active partnerships in its portfolio,
  - generating accelerated liquidity to reduce the current market value of the portfolio.
- In addition to exploring liquidity options, Pathway assists OPERF staff with
  - advisory board coverage;
  - analysis and execution of advisory board consents, extensions, amendments, etc.;
  - annual meeting participation;
  - market value reporting.

Forward Pacing Plan

In keeping with the principal of maintaining flat pacing, Staff is recommending $2.5-3.5 billion of new commitments again in 2022

- Consistent with prior years, Staff is likely to recommend ~10-15 commitments over the course of the year. It is anticipated that $2.5-3.5 billion per annum will be the recommendation for the next several vintage years as the program remains high in the target allocation range making pacing growth unpalatable
- Aksia and Staff's "base case" output of the horizon model used to create this forward pacing recommendation is presented in the chart below. For the sake of conservatism, this case constrains projected distributions relative to generic assumptions and makes no allowance for additional accelerated liquidity proceeds

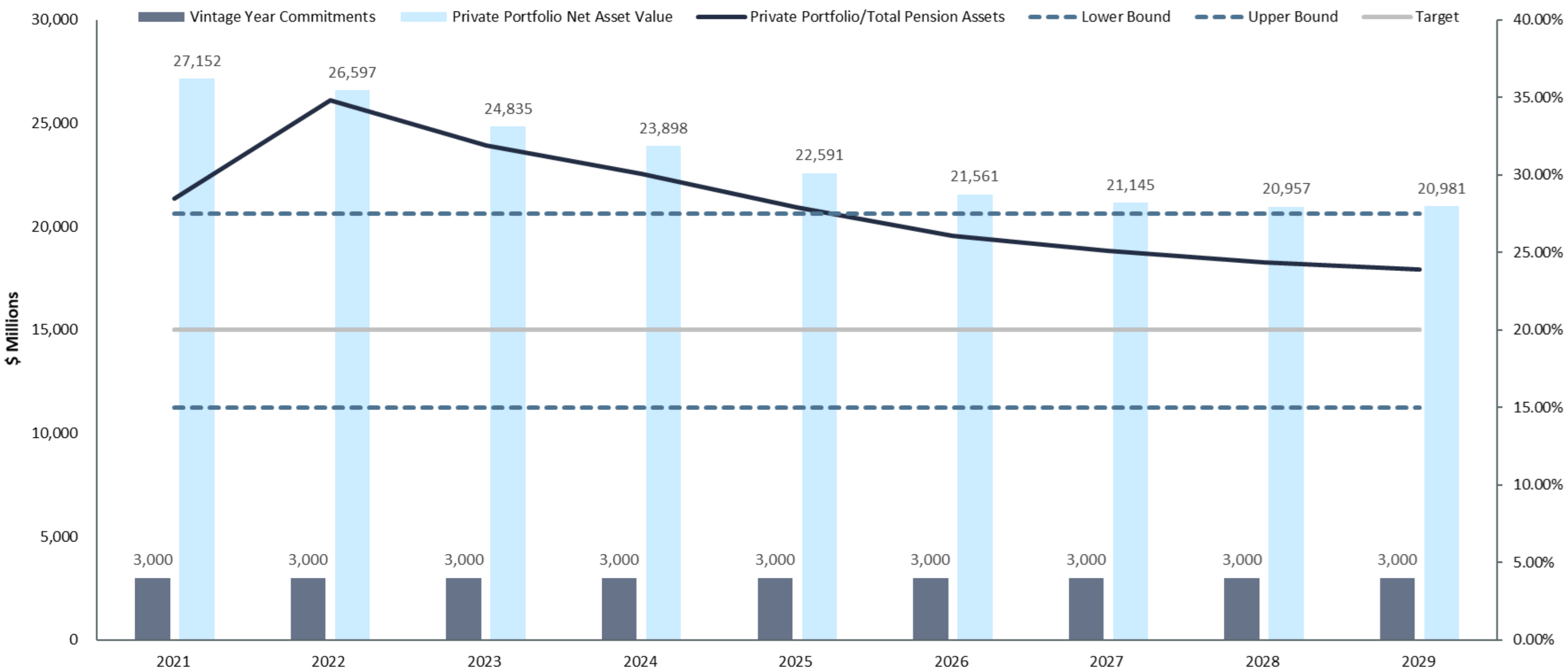


Source: OST, Aksia

Forward Pacing Plan

Given OPERF's current, elevated private equity exposure, the fund would likely face an extended period of overallocation in a market correction scenario

- Among the more draconian cases Aksia and Staff considered involved an immediate 20% correction in total plan assets followed by sideways growth in plan assets and corresponding downward adjustments in medium term cash flows and returns from private equity. The case also assumes no adjustment in pacing strategy or accelerated proceeds for a decade. The output from that unlikely case is presented below



Source: OST, Aksia

Rollforward Portfolio

Based on the active manager roster & the most recent generation of commitments, OPERF's anticipated forward exposures are:

- **Implementation:** ~80% primary fund commitments & ~20% co-investments
- **Asset Class:** ~80% buyout, ~15% growth equity & ~5% venture capital
- **Strategy:** Upper middle market bias and a "growth" tilt
- **Geography:** ~66% North America, ~22% Europe, ~11% Asia & ~2% ROW
- **Sector:** ~32% TMT, ~12% industrial, ~10% business services, ~19% consumer, ~16% healthcare & ~11% financial services
- **Manager:** the current, active roster is light relative to plan at ~35 managers

Source: OST

2022 Initiatives

2022 OST Private Equity Staff Priorities

1. **$2.5-3.5 billion of new commitments**
   - 10-15 commitments of $100-350 million
2. **Leverage portfolio & pacing management tools**
   - Carefully consider additional enhanced liquidity opportunities
3. **Explore scalable implementation models in venture capital**
   - Consider options for medium term implementation
4. **Private equity team capacity**
   - Recruit to fill open position(s)
5. **Continue enhancements to due diligence and monitoring capabilities**
   - Implement and leverage portfolio management tools

Closing

Key Takeaways…

1. Private equity activity was white hot in 2021 from all perspectives

2. Absolute returns are exceptional, but the relative return picture is complex

3. Allocation relative to target remains frustratingly high due to outsized mark-ups

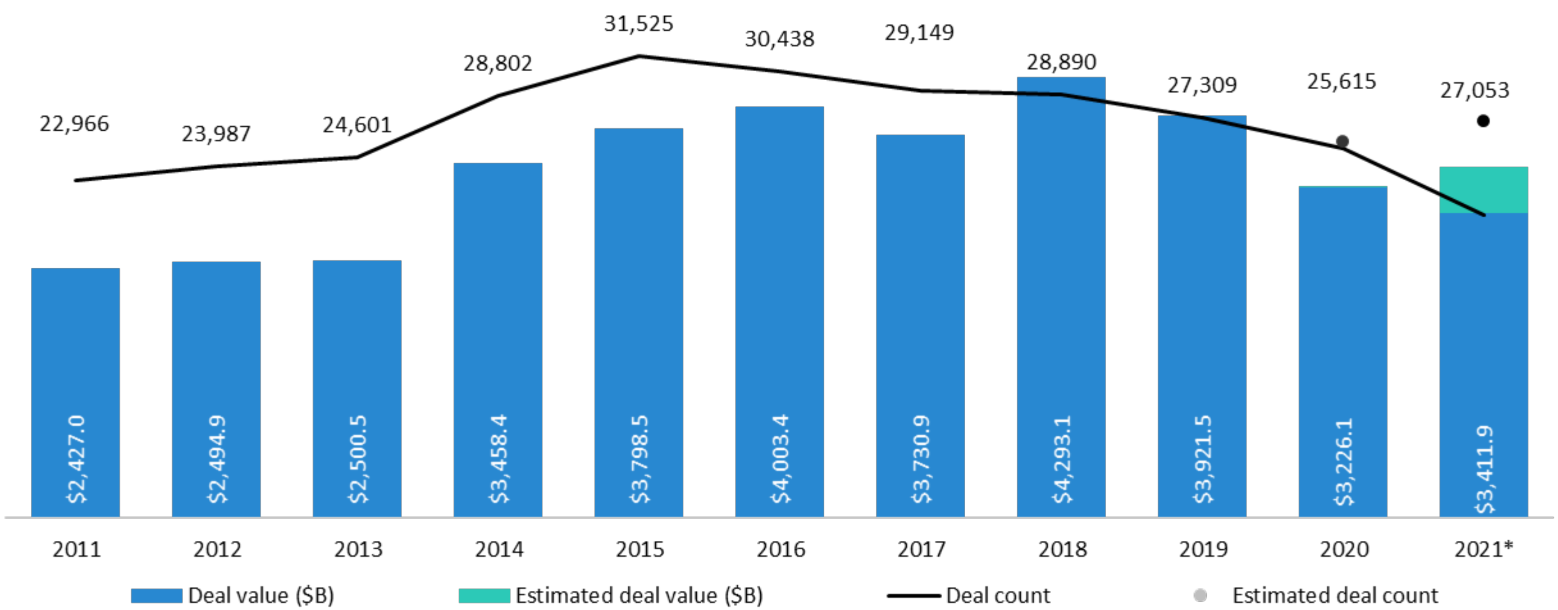
Patience is being tested, but the long-term plan remains viable

Appendix – 2021 Private Equity Market Review

- **Investment Environment Agenda**
  - M&A Activity
  - Corporate Leveraged Finance
  - Private Equity Returns
  - U.S. Private Equity Update
  - Europe Private Equity Update
  - U.S. Venture Capital Update

M&A Activity – Developed Market Volumes

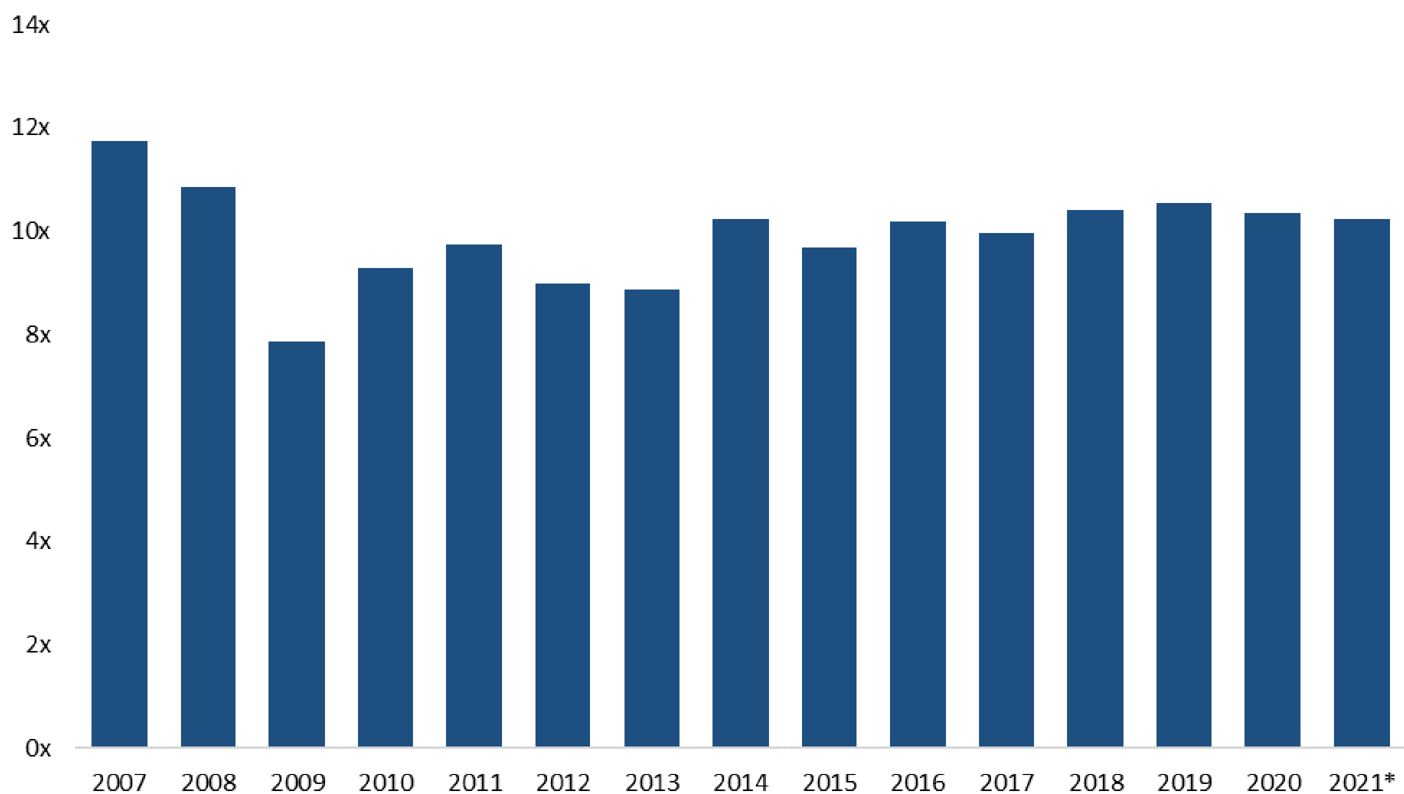
- **Through 3Q 2021, Pitchbook recorded over 27k M&A transactions with an aggregate value of $3.4 trillion**
  - In total, volume through 3Q 2021 was more than 50% ahead of where it stood through the first three quarters of 2020
  - With a strong Q4, 2021 is on track to exceed the record M&A volume seen in 2018
  - Developed markets continue to dominate the activity with $1.9 trillion of transactions in North America and $1.3 trillion in Europe
  - The chart below presents the annual M&A volumes since 2011



Source: Pitchbook
** As of 9/30/21*

M&A Activity – Transaction Multiples

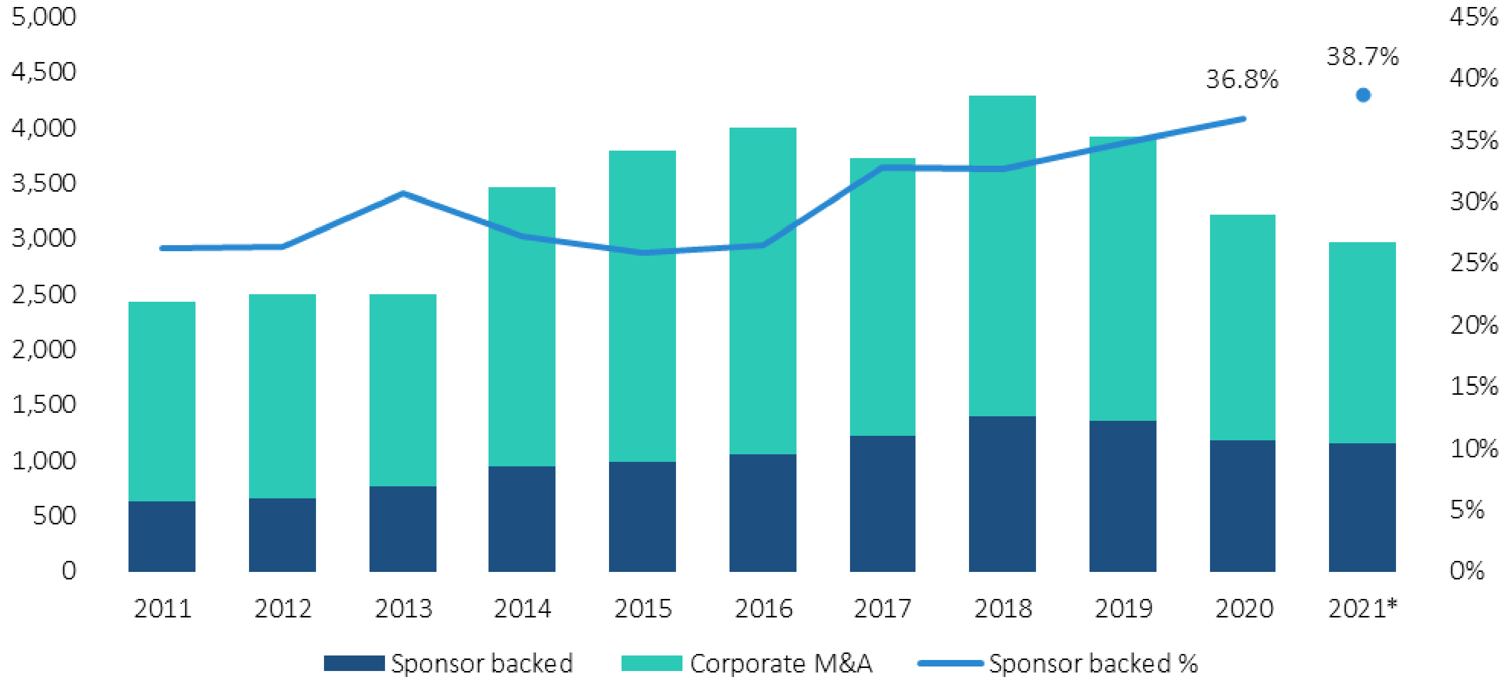
- **Through 3Q 2021, median transaction multiples remained elevated at 10.2x**
  - Financial sponsor backed M&A had median pricing of nearly 12x through the first three quarters of the year, which compares to ~9.5x for strategic M&A
  - The chart below presents median multiples since 2007 in North America



Source: Pitchbook
** Through 9/30/21*

M&A Activity – Private Equity Market Share

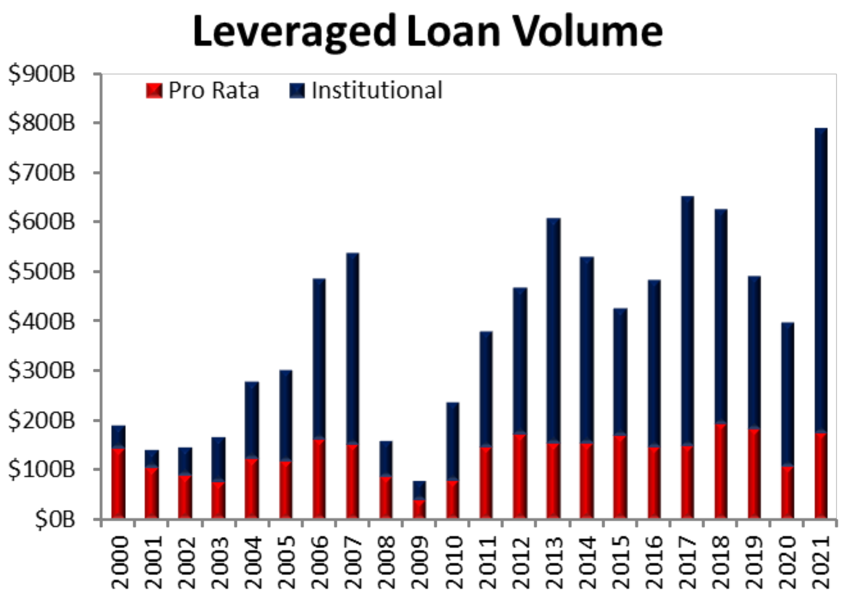
- **The share of PE driven M&A activity reached record levels through the first three quarters of 2021**
  - Through 3Q 2021, PE sponsors led nearly 40% of deal activity (as measured by value) which was broadly in line with the record levels seen in 2007
  - Nearly 70% of PE sponsor deals by count were add-on acquisitions for existing platforms
  - The chart below presents PE sponsors' share of North American M&A activity per year since 2011

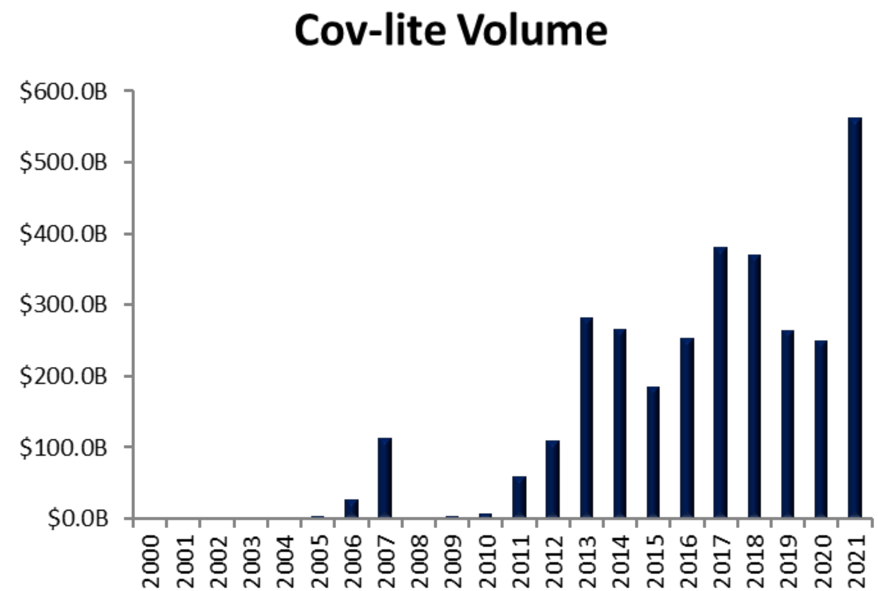


Source: Pitchbook
** Through 9/30/21*

Corporate Leveraged Finance

- **<u>In 2021, leverage loan new issue volumes (through 12/10/21) shattered previous records with nearly $800 billion of activity</u>**
    - Total new issue volumes for 2021 were more than 20% above the previous record set in 2017. The chart on the left presents new issue volumes for leveraged loans since 2000
    - The market continues to be extremely borrower friendly with 92% of institutional loan issuance characterized as "covenant lite". Covenant lite loans account for 85% of institutional and 62% of total volume since 2017. The chart on the right presents covenant lite new issue volumes since 2000

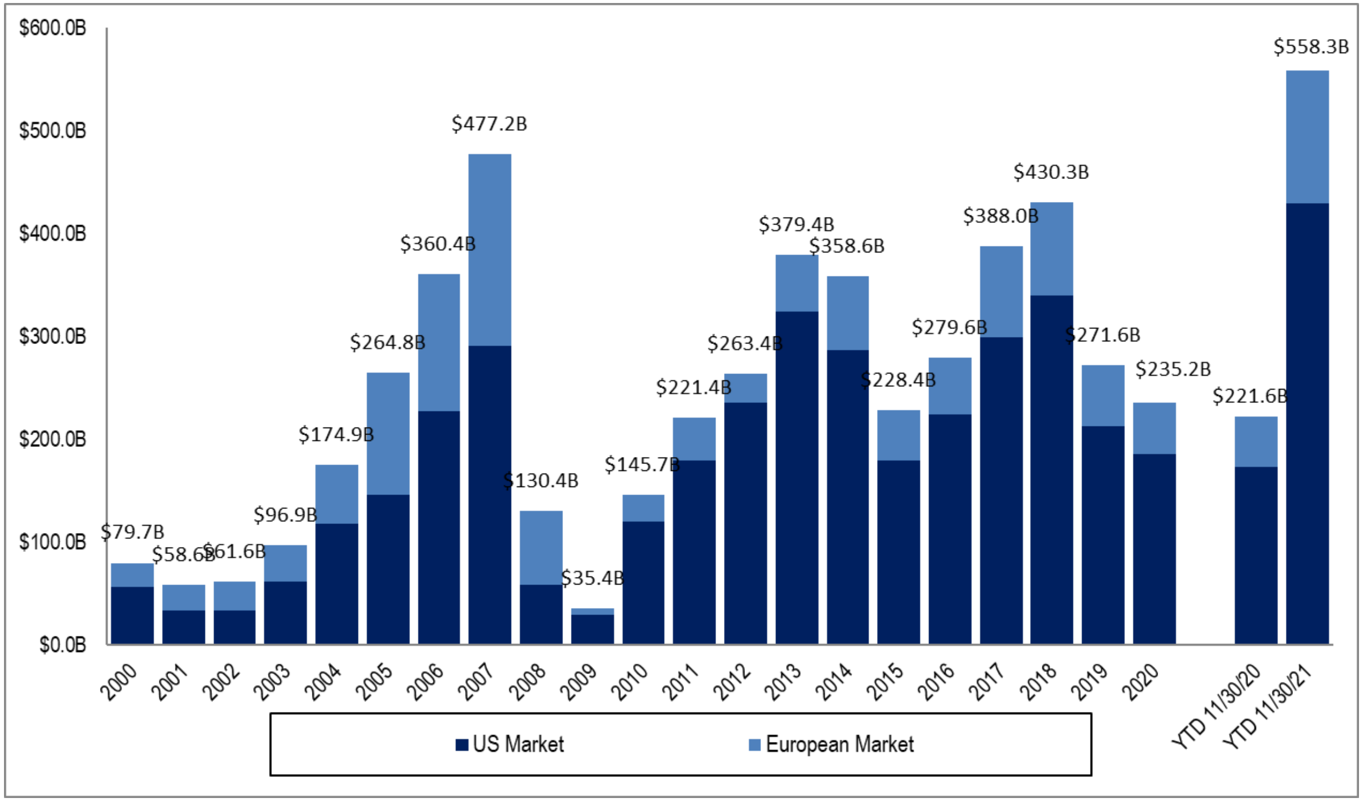




Source: S&P Global Market Intelligence LCD, OHA

Corporate Leveraged Finance

- **<u>In 2021, PE sponsor backed leverage loan volumes easily exceeded previous records</u>**
  - Through 11/30/21, nearly $560 billion of primary volume was issued in the U.S. and Europe.
    - This includes $226 billion of LBO financing as well as add-on acquisition financing for existing platforms, recapitalizations and refinancings. LBO financing volumes in 2021 were well below the $313 billion in 2007
  - The chart below presents new issue volumes for sponsor loans in the U.S. and Europe since 2000



Source: S&P Global Market Intelligence LCD, Aksia

Private Equity Returns

- **The chart below presents trailing horizon net IRRs for the Private Equity industry as of September 30, 2021**
  - Returns for the asset class were extremely strong over the past year at ~45% for All Funds excluding Real Assets (real estate, infrastructure and natural resources)
  - North America leads the regions over the past decade, but global funds (generalist) post the strongest results for the one-, three- and five-year periods
  - VC is the strongest performing asset class for all periods

Partnership Level Strategy	IRR 1 year	IRR 3 year	IRR 5 year	IRR 10 year
Burgiss All Fund Ex Real Assets	45%	23%	20%	16%
Russell 3000 ICM IRR	32%	17%	17%	17%
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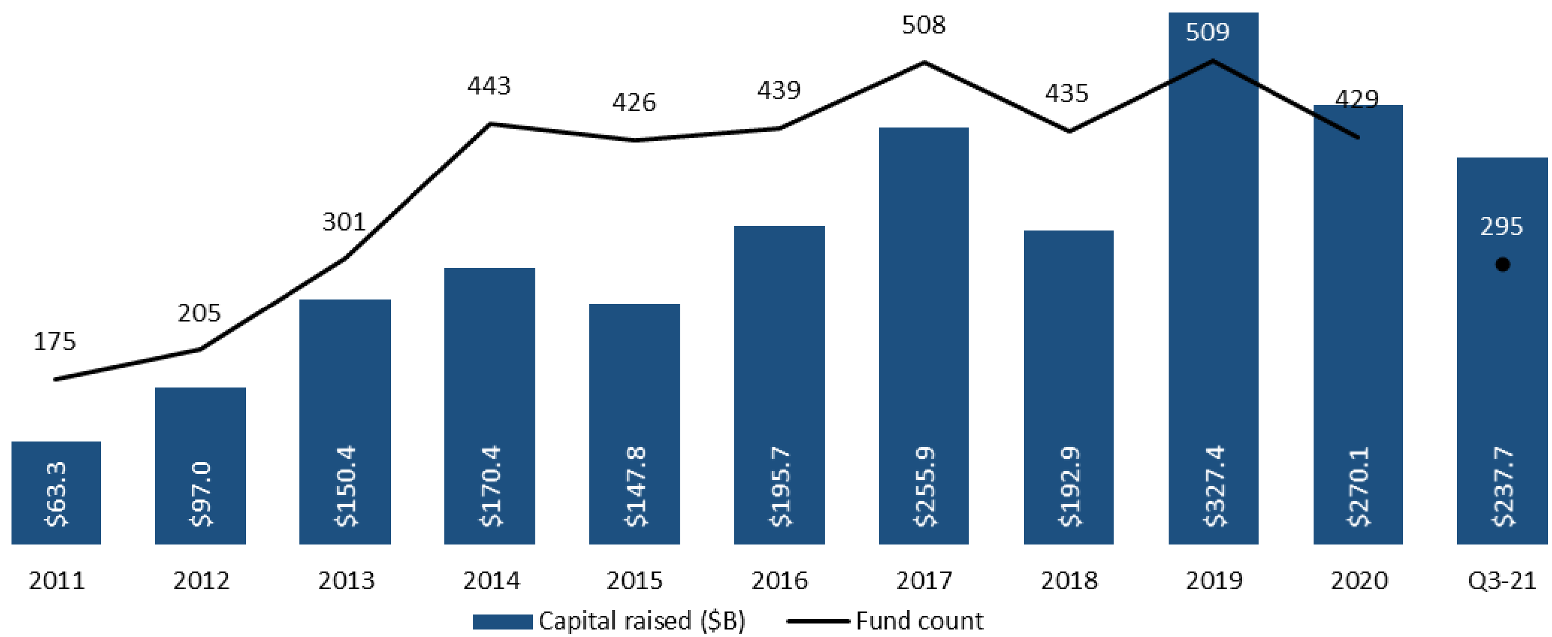
Burgiss - Venture Capital	72%	37%	28%	21%
Burgiss - Other Ex Real Assets	33%	17%	15%	13%

Source: Burgiss 9/30/21

U.S. Private Equity Update – Fundraising

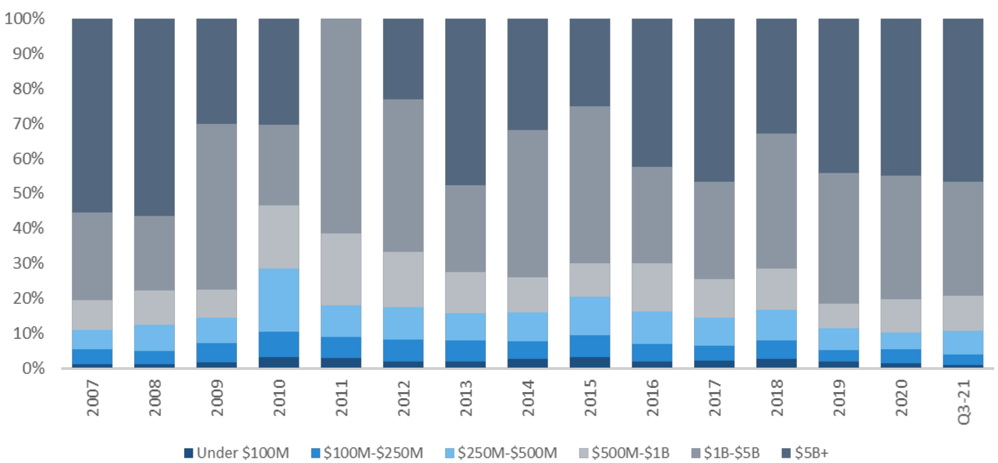
- **Through 3Q 2021, ~$240 billion had been raised across 295 U.S. private equity funds**
  - Fundraising through the first three quarters of 2021 was roughly on par with the record set in 2019
  - First time funds represent a historically low 15% of funds formed and account for less than 4% of capital raised through the first three quarters of the year
  - On average, experienced managers came back only 2.8 years after their prior fundraise. This represents a significant acceleration that is without historical precedent
  - The chart below presents annual U.S. private equity fundraising activity since 2011

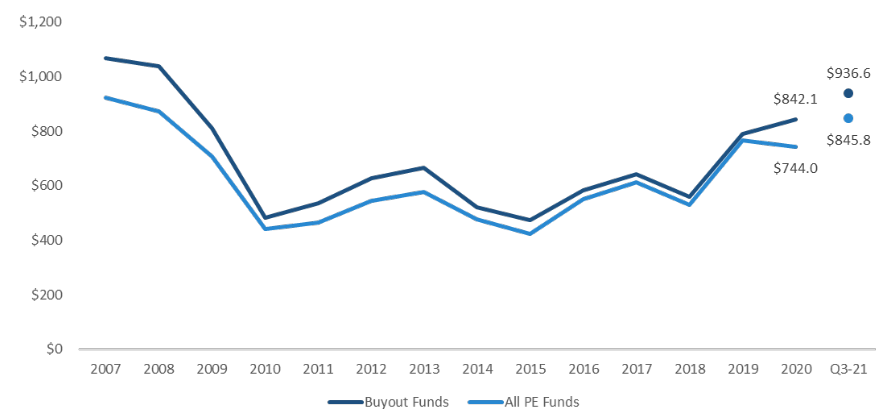


Source: Pitchbook

U.S. Private Equity Update – Fundraising

- **Larger funds continued to play a dominant role in U.S. PE fundraising**
  - As the chart on the left reflects, nearly 80% of capital raised through the first three quarters of 2021 went to funds targeting $1 billion or more of capital commitments
  - At ~$940 million, the average size of a buyout fund raised through the first three quarters of 2021 remains high by historical standards
  - As always, smaller funds dominate by count with ~85% of funds formed receiving less than $1 billion of commitments
  - The charts below show the fund size mix (left) and average fund size (right) annually for U.S. private equity fundraising activity since 2007

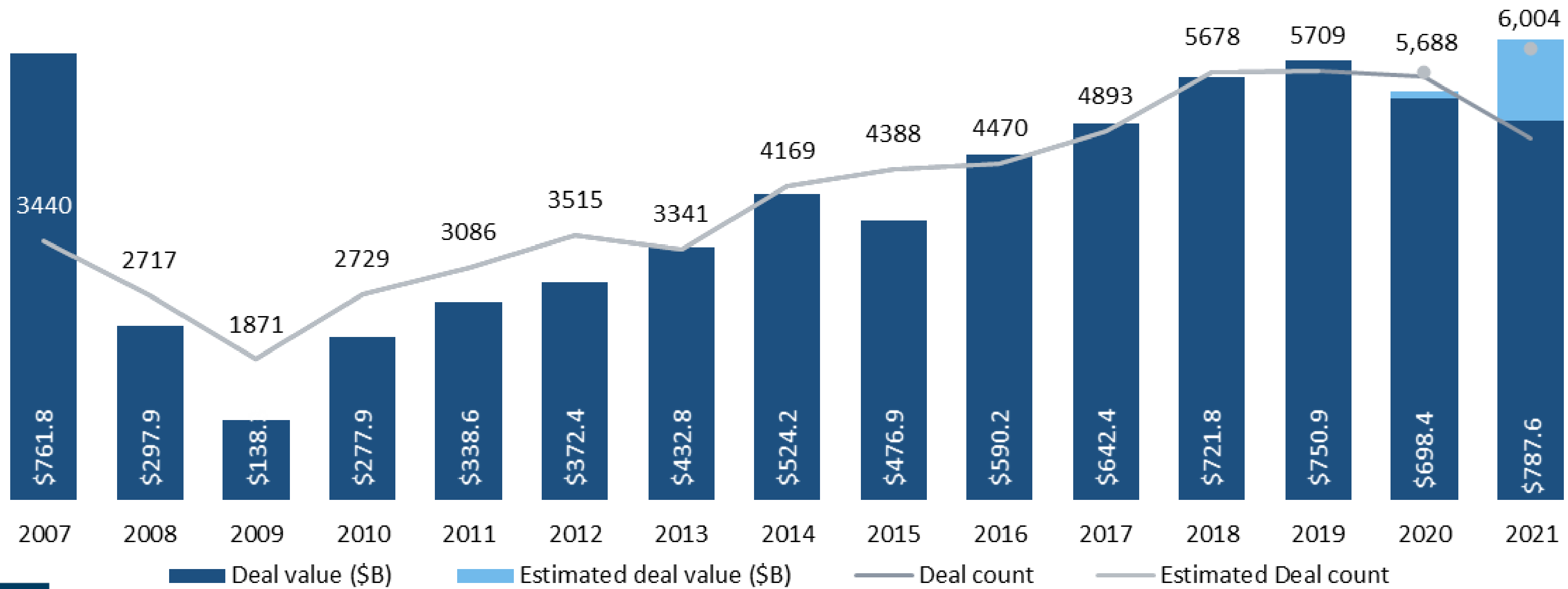




Source: Pitchbook

U.S. Private Equity Update – Deployment

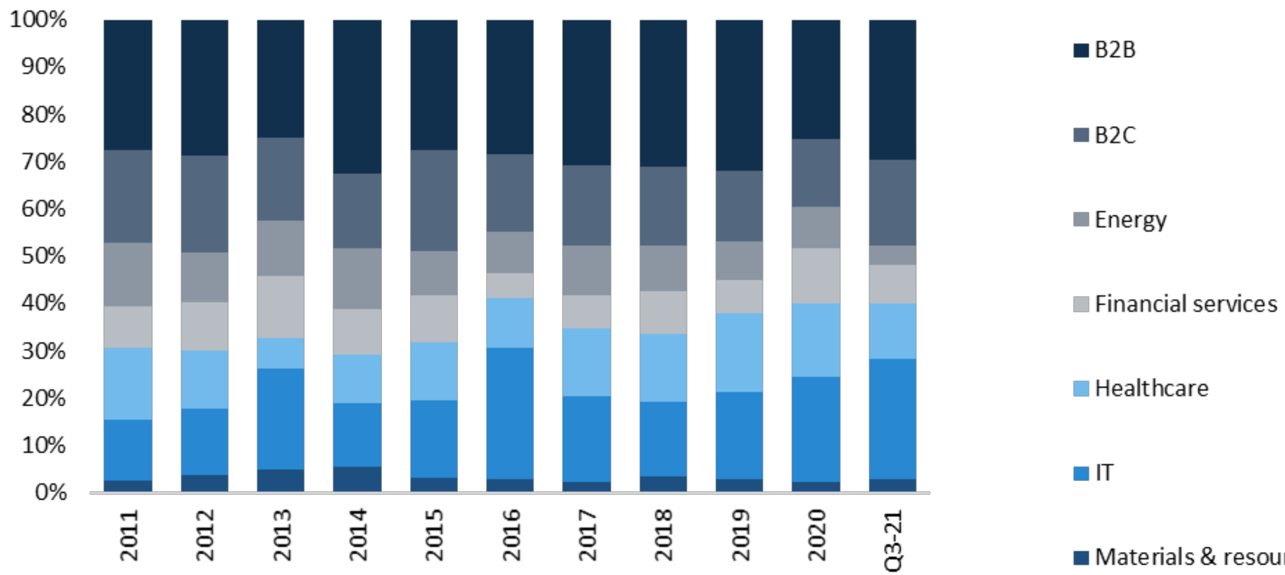
- **<u>Through 3Q 2021, roughly 6,000 private equity deals have been announced with a total value of $788 billion</u>**
  - The volume through 3Q 2021 has already exceeded the record volume seen in 2007
  - Add-on acquisitions represented ~73% of all deals done in the first nine months of the year setting a new all-time high
  - Deals with enterprise values at or above $1 billion represent ~30% of total transaction volume, which is about average by historical standards and well below levels seen in 2007 (~60%)
  - The chart below presents annual U.S. investment activity since 2007



Source: Pitchbook

U.S. Private Equity Update – Deployment

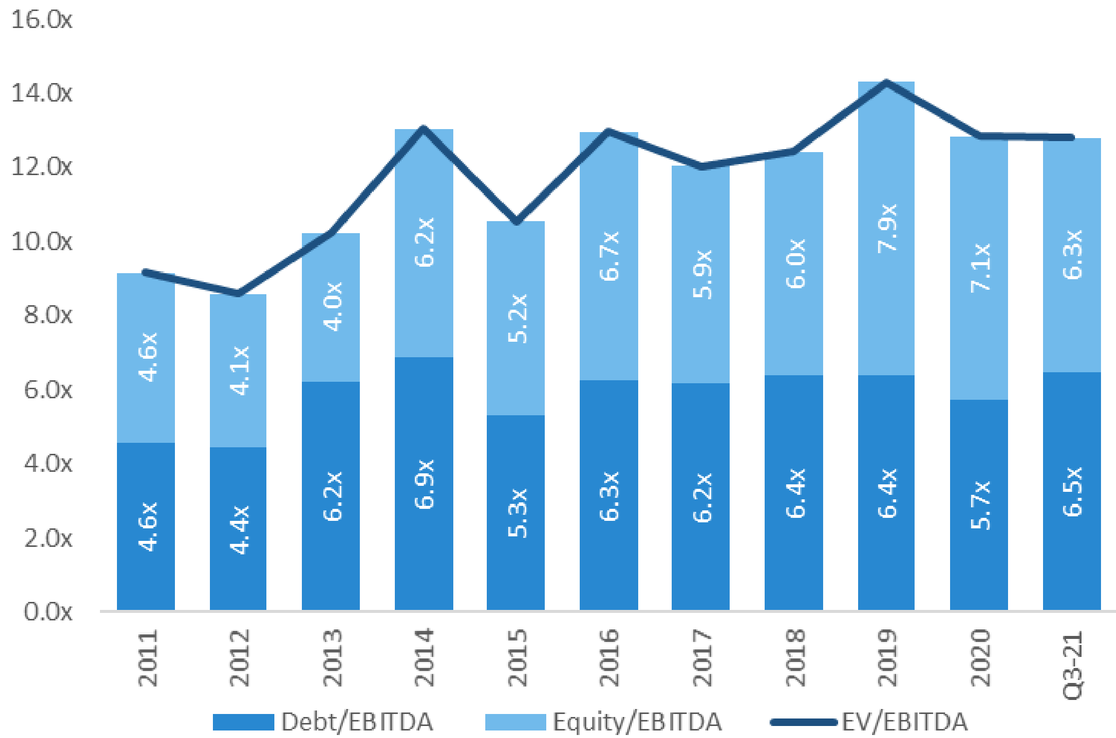
- **The well-established sector shift to information technology accelerated through the first three quarters of 2021**
  - The allocation to IT represented 26% of overall volume through 3Q 2021, approaching the record level seen in 2016. This understates total exposure as it misses material "tech-enabled" exposure in the B2B, financial services and healthcare sectors
  - However, IT represented more than 40% of deals with enterprise values at or above $1 billion, and a record $112 billion had already been deployed into software transactions in the first nine months of the year
  - Deals in the more cyclical consumer, energy, and materials verticals represented only 25% of all deals announced through the first three quarters of 2021
  - The chart below presents the sector mix (by $) for annual U.S. investment activity since 2011



Source: Pitchbook

U.S. Private Equity Update – Deployment

- **At a median entry multiple of 12.8x enterprise value/EBITDA, transaction pricing remained at peak levels through 3Q-2021**
  - While entry prices are at an all time high, median debt multiples remained where they have been for most of the past decade
  - Equity contribution as a percentage of the going-in capital structure stands at nearly 50% through the first three quarters of 2021
  - The chart below presents median transaction multiples for U.S. investment activity since 2011



Source: Pitchbook

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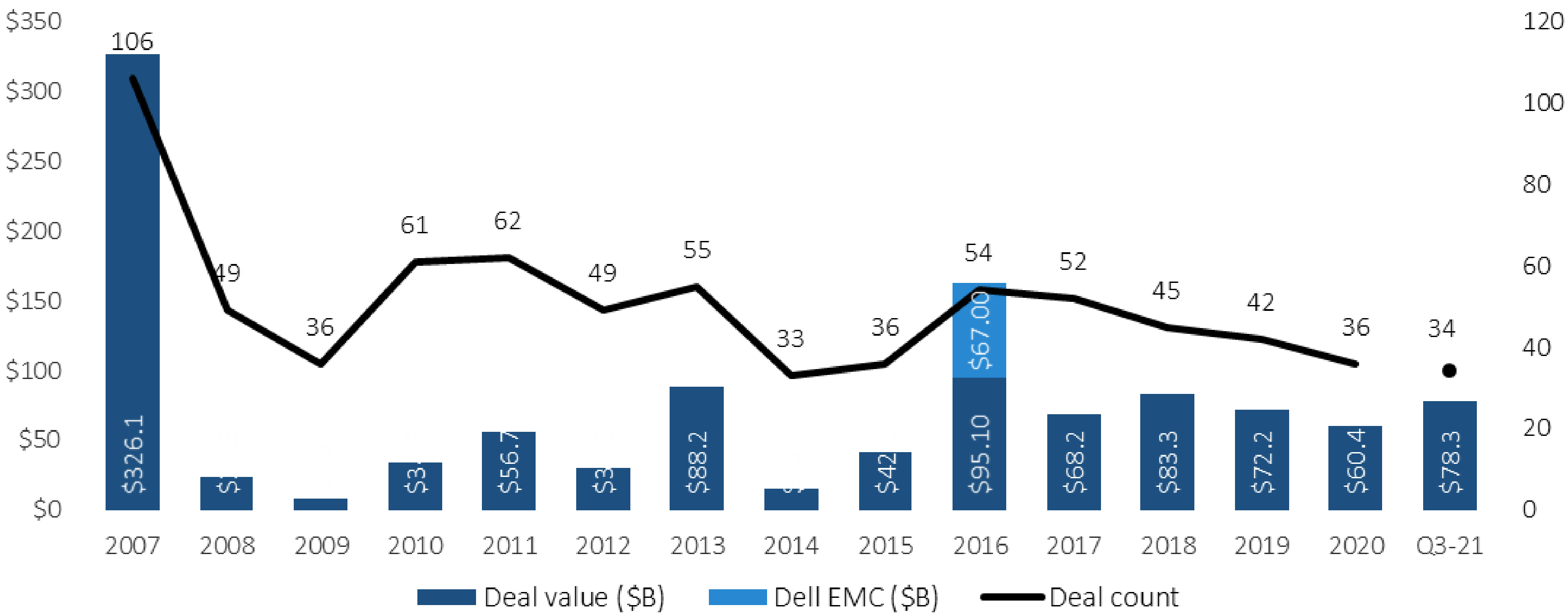
U.S. Private Equity Update – Deployment

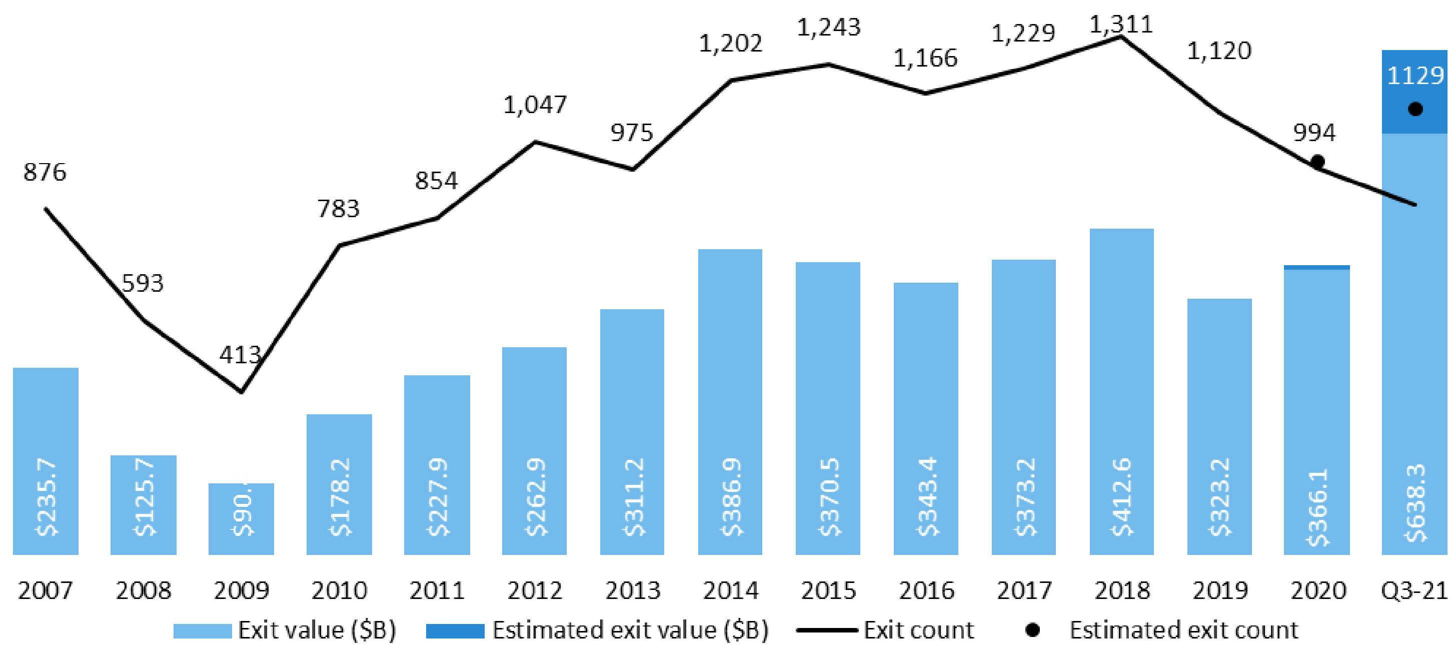
- **Take-private transactions are set to exceed $100 billion for the first time since 2016**
  - While volumes are elevated by historical standards in a fully priced environment, take-private activity remains well below the levels seen in 2007
  - The chart below presents take-private volumes in the U.S. since 2007



Source: *Pitchbook*

U.S. Private Equity Update – Exits

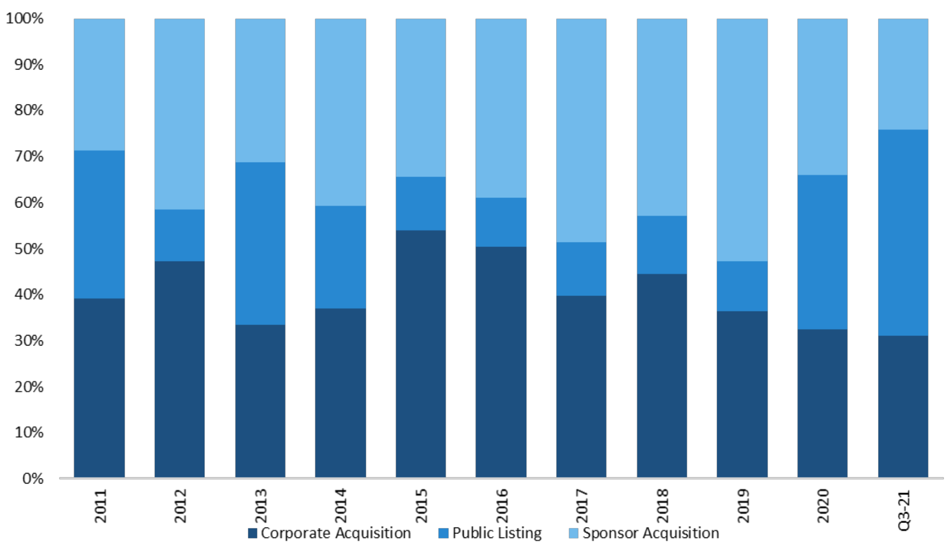
- **<u>Through 3Q 2021, more than 1,100 exits of U.S. private equity backed companies had been consummated for a total value of $638 billion</u>**
  - Exit pace through 3Q 2021 was well beyond anything previously seen in the industry
  - Exits at enterprise values at or above $1 billion account for roughly 70% of total transaction volume, and the IT sector accounts for 31% of exit value
  - The chart below presents the annual U.S. exit activity since 2007

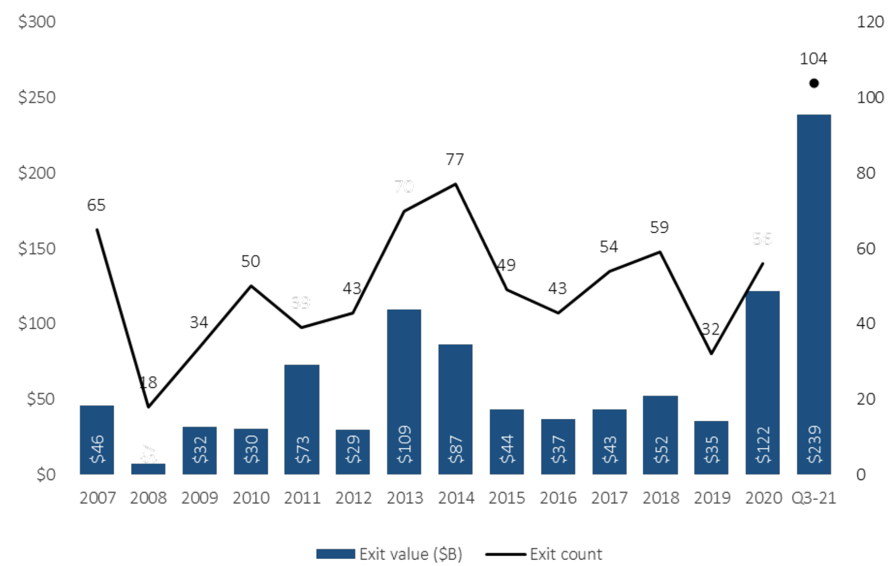


Source: Pitchbook

U.S. Private Equity Update – Exits

- **Through 3Q 2021, public market exits represented nearly 45% of deal volume (by $)**
  - PE backed IPOs drove exit activity through the first three quarters of the year generating $239 billion of total proceeds.
  - Importantly, while IPOs are counted as "exits", they typically are not significant liquidity events for private equity funds
  - The charts below presents annual U.S. exits by type since 2011 (left) and U.S. PE backed IPO volume since 2007 (right)

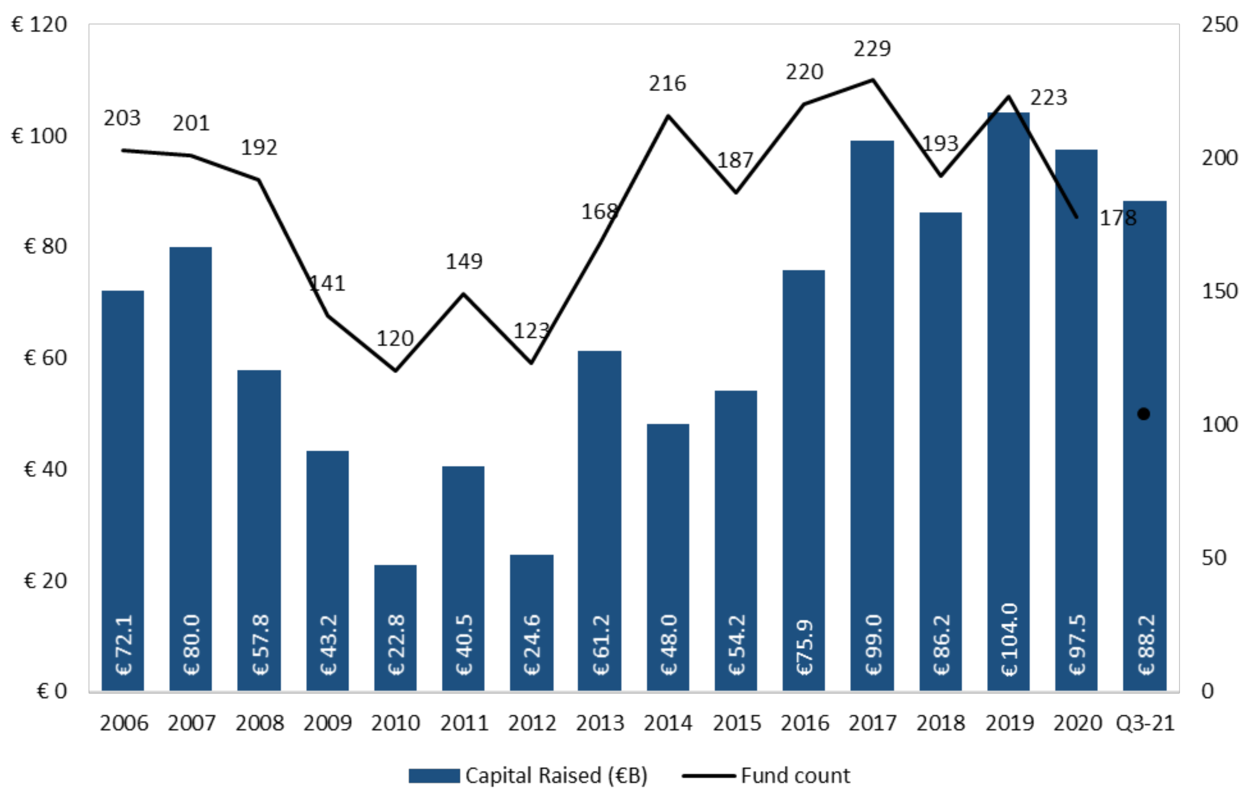




Source: Pitchbook

Europe Private Equity Update – Fundraising

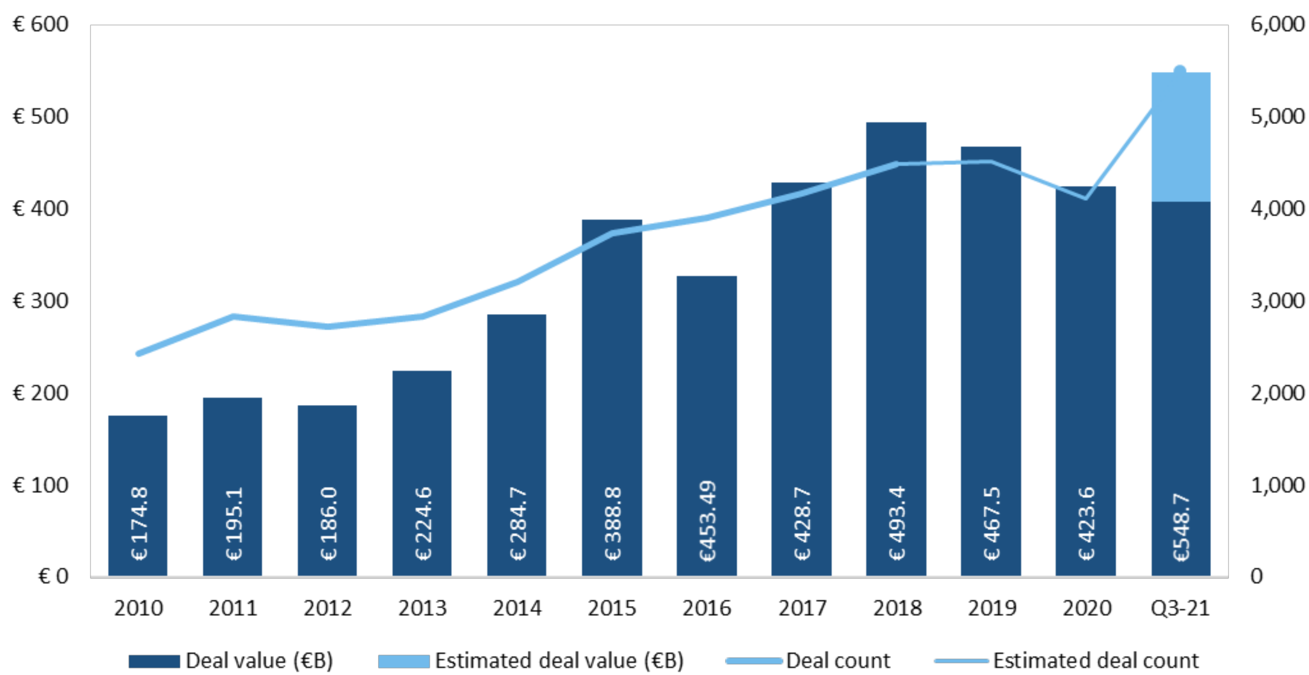
- **Through 3Q 2021, €88 billion had been raised across 104 funds**
  - Fundraising for the first three quarters of the year was on pace to exceed the record level seen in 2019
  - At roughly €850 million of commitments, the average fund size through the first nine months of the year was well in excess of previous years
  - The chart below presents annual European private equity fundraising activity since 2006



Source: Pitchbook

Europe Private Equity Update – Deployment

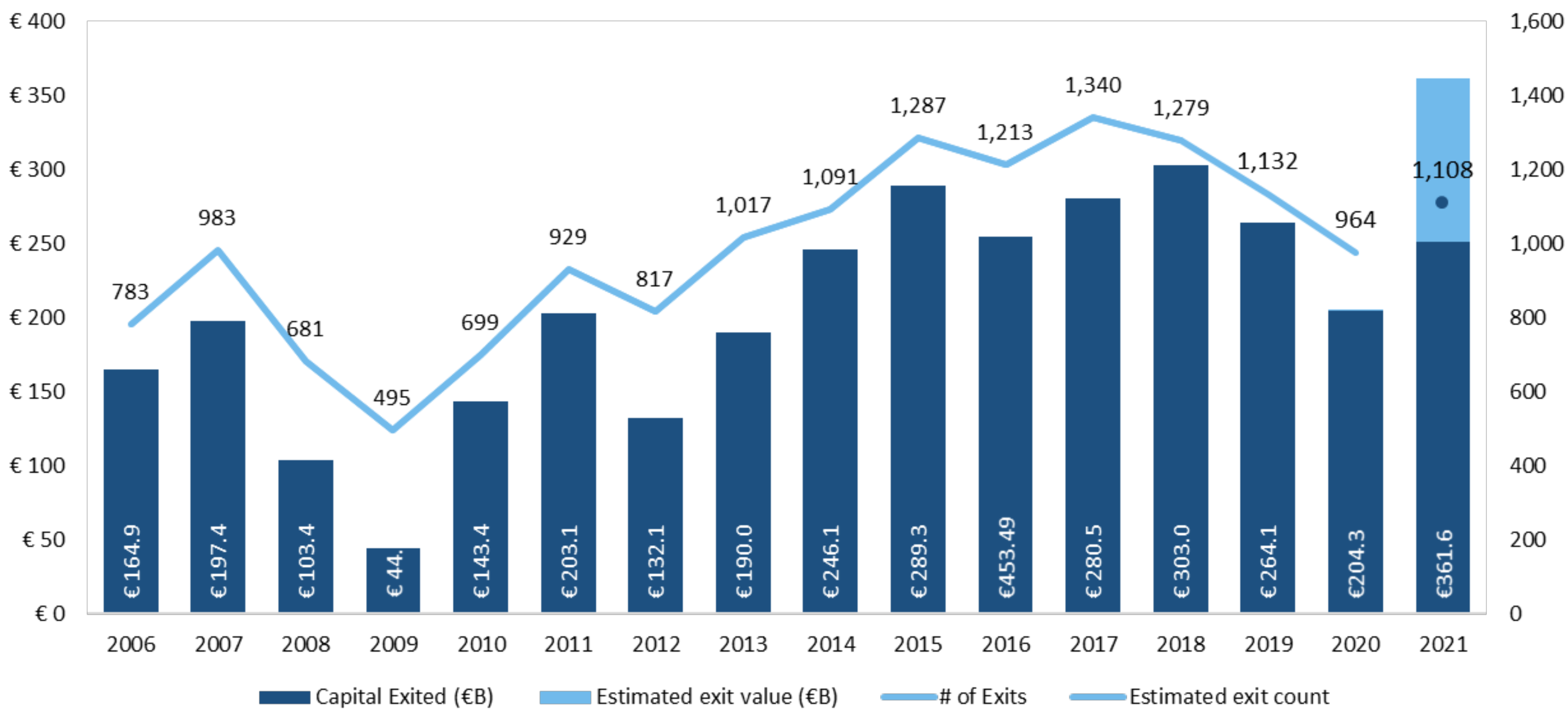
- **<u>Through 3Q 2021, nearly 5,500 private equity deals have been announced with a total value of €549 billion</u>**
  - Year-to-date deployment activity in 2021 already easily exceeds previous records
  - The UK/Ireland remains the largest regional allocation representing 34% of total deployment volume
  - The chart below presents the annual private equity investment activity in Europe since 2010



Source: Pitchbook

Europe Private Equity Update – Exits

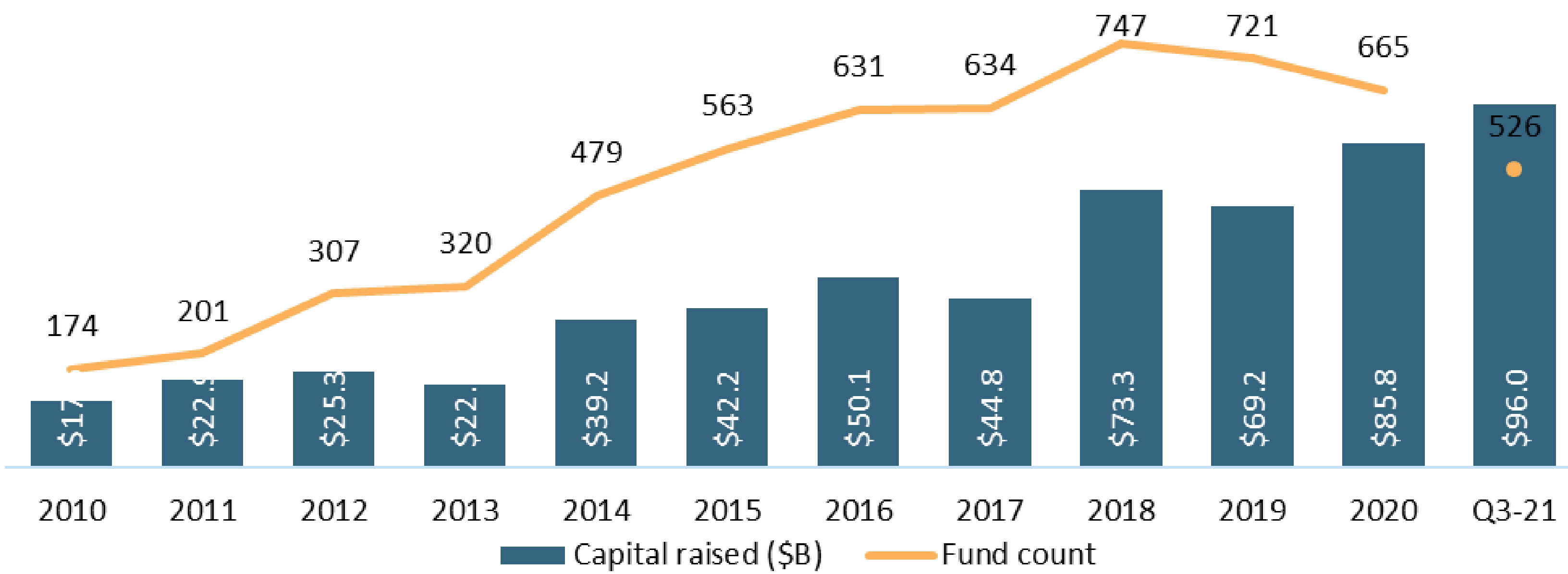
- **Through 3Q 2021, more than 1,100 exits of private equity backed companies have been announced with a total value of €362 billion**
  - As with deployment, exit volumes through the first nine months of the year easily exceed any previous annual record
  - As in the U.S., PE backed IPO activity year-to-date (~€90 billion) far outpaces any previous year representing nearly 40% of total volume
  - The chart below presents the annual private equity exit activity in Europe since 2006



Source: Pitchbook

U.S. Venture Capital Update – Fundraising

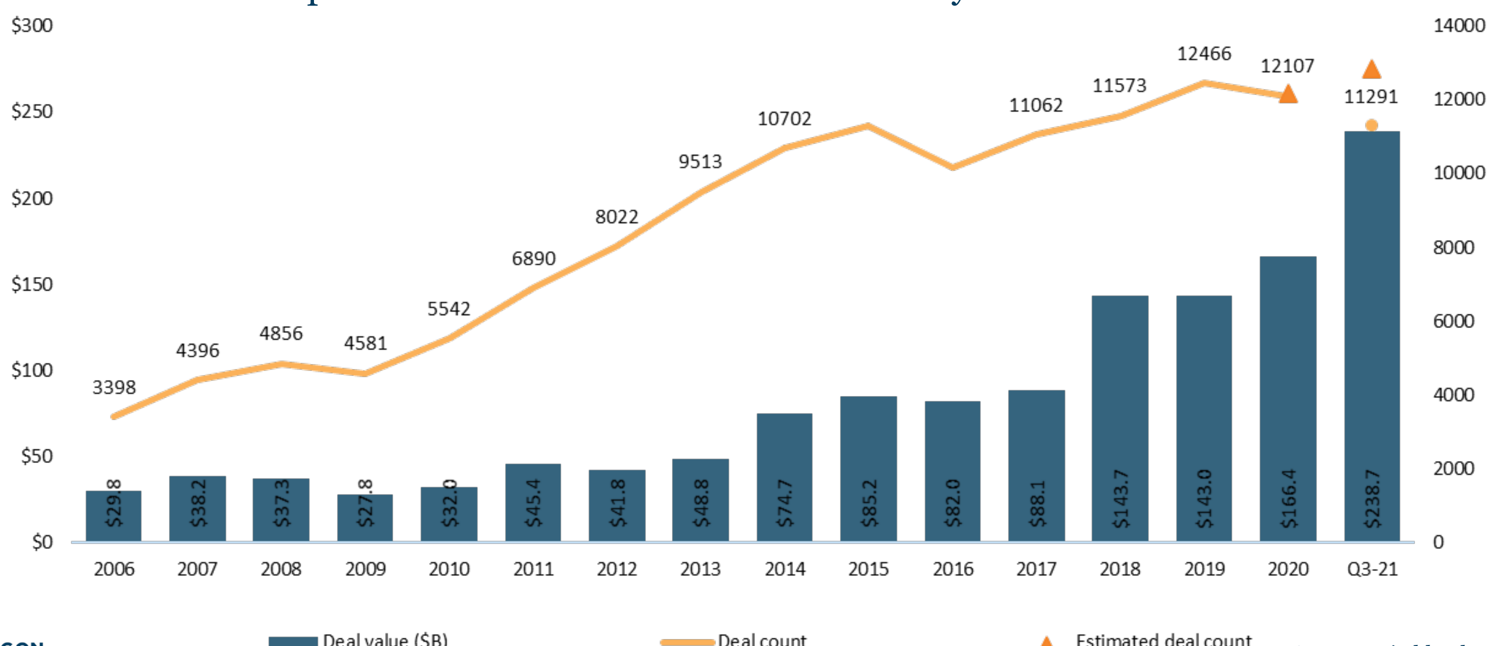
- **<u>Through 3Q 2021, $96 billion had been raised across 526 U.S. venture capital funds</u>**
  - Fundraising through the first three quarters of 2021 easily exceeds any vintage in the last 20 years
  - Funds with commitments at or above $1 billion represent two thirds of all fundraising volumes having represented only 24% of aggregate commitment from 2006-2020
  - The chart below presents annual U.S. venture capital fundraising activity since 2010



Source: Pitchbook

U.S. Venture Capital Update – Deployment

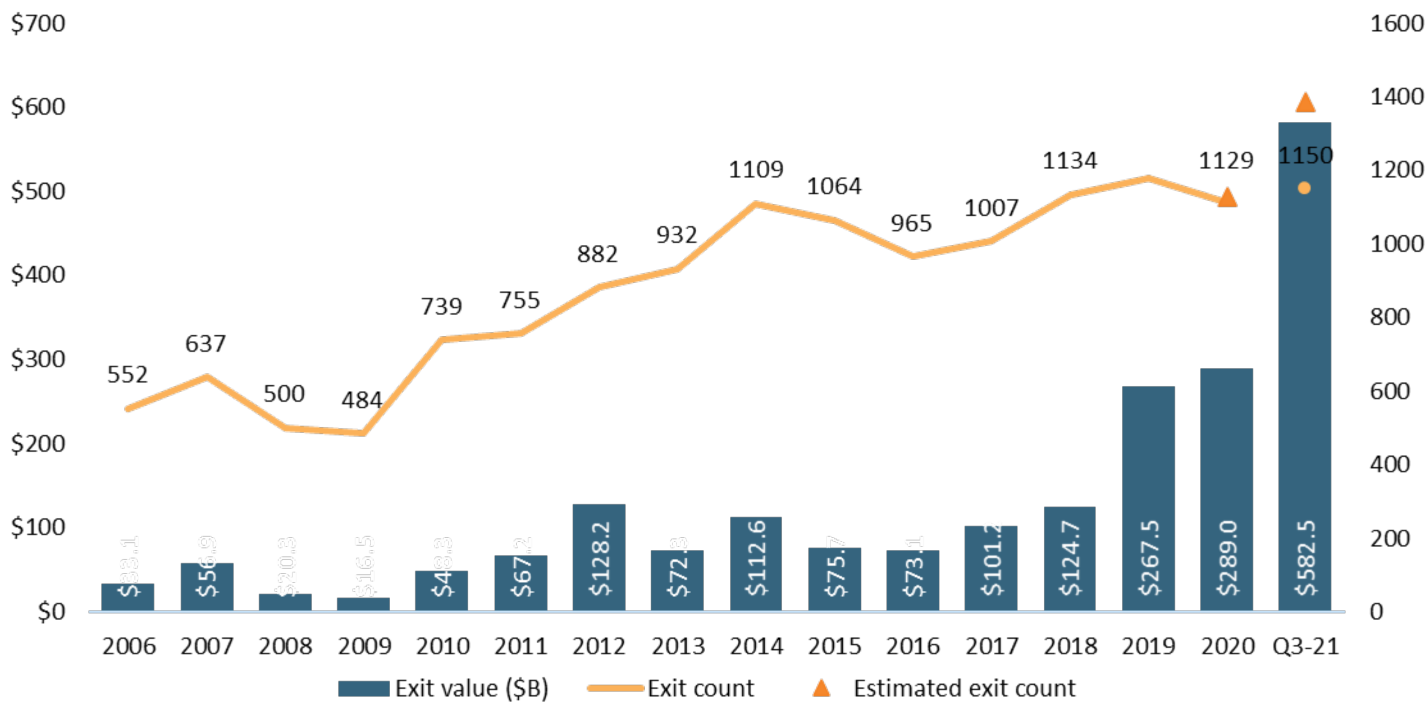
- **Through 3Q 2021, roughly 13,000 venture capital rounds have been announced with a total value approaching $240 billion**
  - Volumes through 3Q 2021 are well in excess of any previous vintage. This is largely driven by fundraising at "unicorn" valuations ($1 billion plus), which represent 40% by volume but 4% by count
  - At more than $170 billion total, rounds at or in excess of $50 million represent a staggering 72% of total volume. Rounds at or above $100 million represent 57% of total activity
  - Deals with participation from non-traditional venture capital and/or crossover investors represent ~54% of total volume (by $). This is a nascent and accelerating phenomenon
  - The chart below presents annual U.S. investment activity since 2006



Source: Pitchbook

U.S. Venture Capital Update – Exits

- **Through 3Q 2021, nearly 1,400 exits of U.S. venture capital backed companies have been consummated for a total value of $582 billion**
  - Exit pace through 3Q 2021 already more than doubles any previous year, and exits of software companies continue to represent half of total exited value
  - At more than $500 billion year-to-date, IPOs account for 88% of total exited value. Through the first nine months of 2021, U.S. venture backed IPOs went out at an average post money valuation of $3.2 billion
  - The chart below presents the annual U.S. exit activity since 2006



Source: Pitchbook

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oregon.gov/treasury

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OREGON STATE TREASURY

TAB 6

MARKET COMMENTARY

KKR Investment Outlook for 2022

presented to:

The Oregon Investment Council

Henry H. McVey

January 26, 2022

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A Different Cycle

We look for an economic backdrop that is wildly different than what unfolded after the 2008 downturn

01 **Unlike the GFC, this recovery is being driven by the West, not the East**

02 **It is heavily front-end loaded, with the one-two punch of both monetary and fiscal stimulus**

03 **Input costs, we believe, will stay higher for longer, driven by rising wages and reconfiguration of global supply chains**

04 **Periodic growth slowdowns will likely be more driven by supply constraints, not demand ones. Both COVID flare-ups (e.g., Omicron) and the global energy transition could amplify this tightness in supply**

05 **Outside of China, real rates generally will lag this cycle, given the stock of total liquidity in the system**

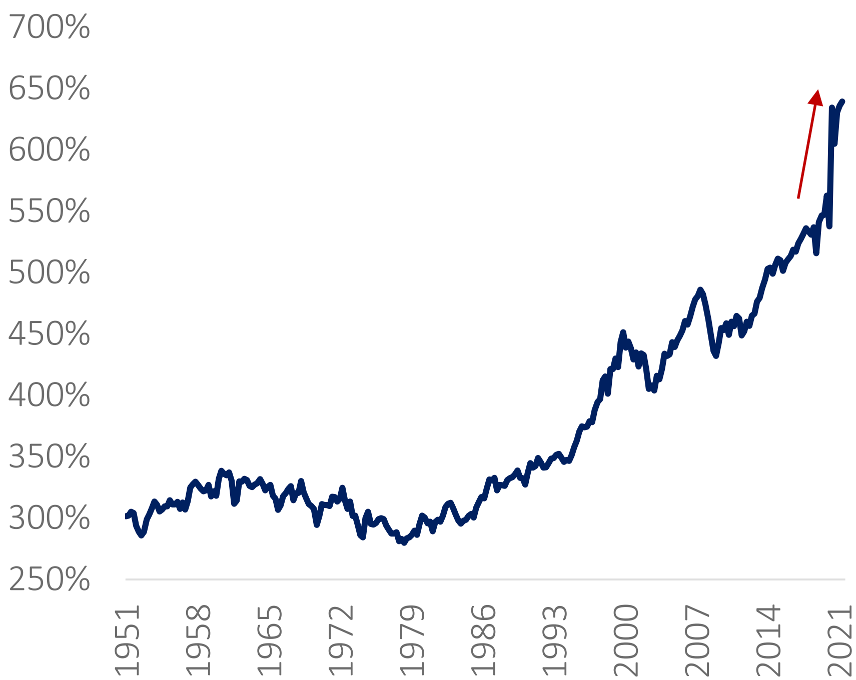
I KEY INVESTING CONCLUSIONS

Point #1: Portfolios Will Need Both Growth and Value/Real Assets This Cycle

We have likely put too much stimulus into the system at a time when innovation is booming. As such, a barbell approach will be required

Both QE and Increased Innovation Have Led to a Surge in Financial Assets; We Now Tilt More of Our Portfolio Towards Real Assets

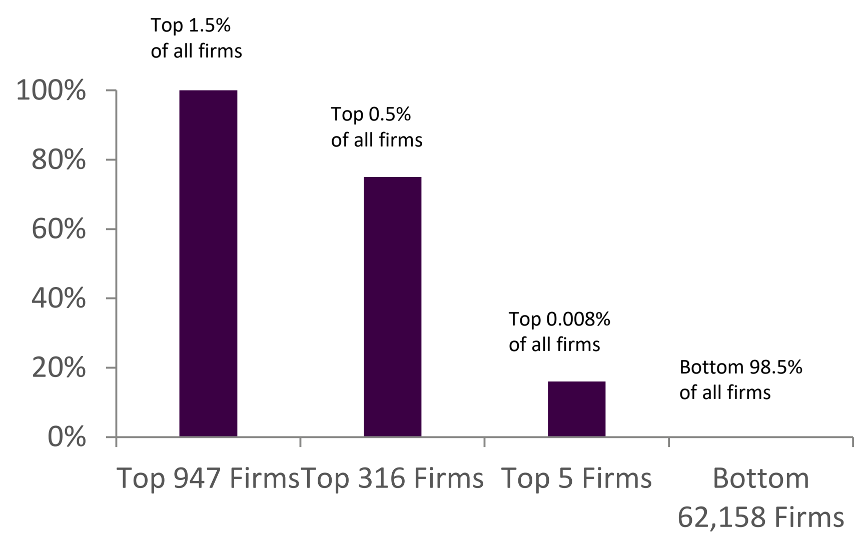
U.S. Private Sector Financial Assets, % of GDP



Note: Includes assets of Households, Nonprofits, and Non-Financial Corporations. Data as at June 30, 2021. Source: Federal Reserve, Bureau of Economic Analysis, Haver Analytics.

Just 1.5% of All Stocks Have Generated Net Wealth in the Global Markets Since 1990. We Remain Bullish on Innovation

Share of Net Wealth Generated by Stocks Between 1990 and Mid-2020



Note: Net wealth accounts for wealth generated above the performance from one-month Treasury bill. Data as at June 30, 2020. Source: H Bessembinder, Arizona State University 2020.

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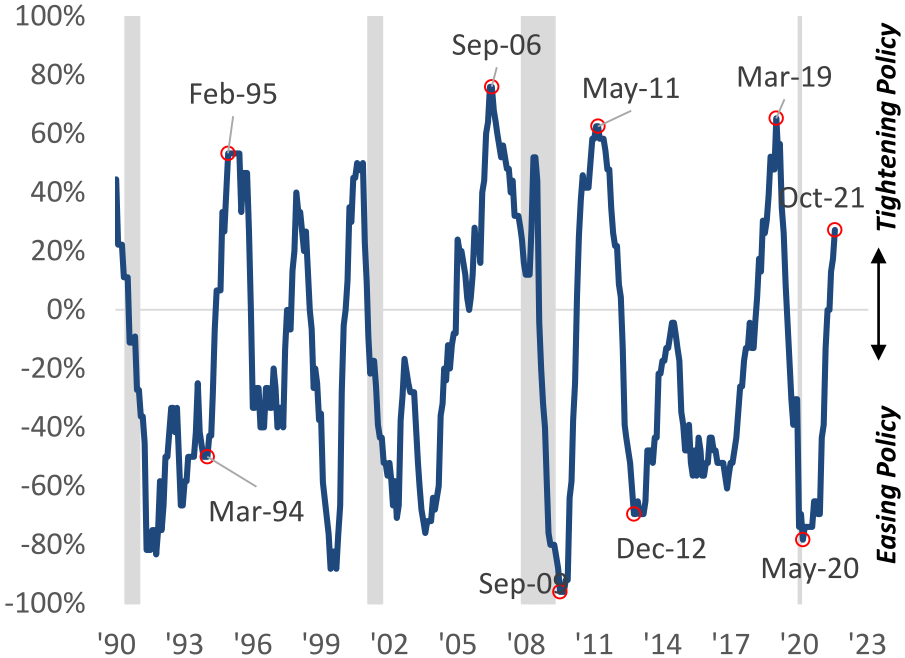
Point #2: Rate of Change Is Now Poised to Slow…

This backdrop will likely create more volatility, as margins come under pressure and rate of change on economic growth slows

We Are Already in a Global Central Bank Hiking Cycle

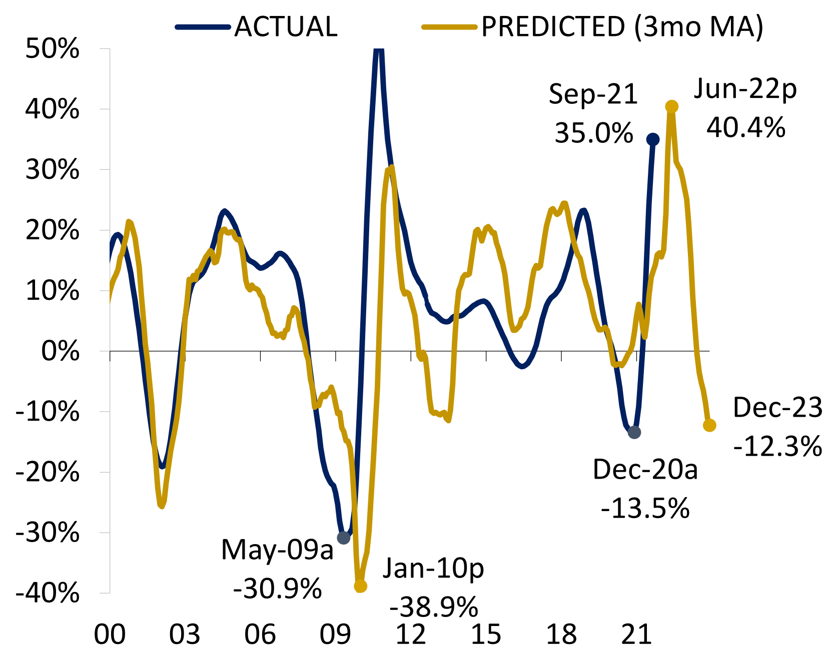
Net % of Global Central Banks Hiking/(Easing) Rates



Data as at September 4, 2021. Source: Bloomberg, Deutsche Bank.

EPS Growth Will Start to Slow

S&P 500 EPS Growth: 12-Month Leading Indicator



Our Earnings Growth Leading Indicator is a combination of seven macro inputs that in combination we think have significant explanatory power regarding the S&P 500 EPS growth outlook. Data as at November 15, 2021. Source: Bloomberg, KKR Global Macro & Asset Allocation analysis.

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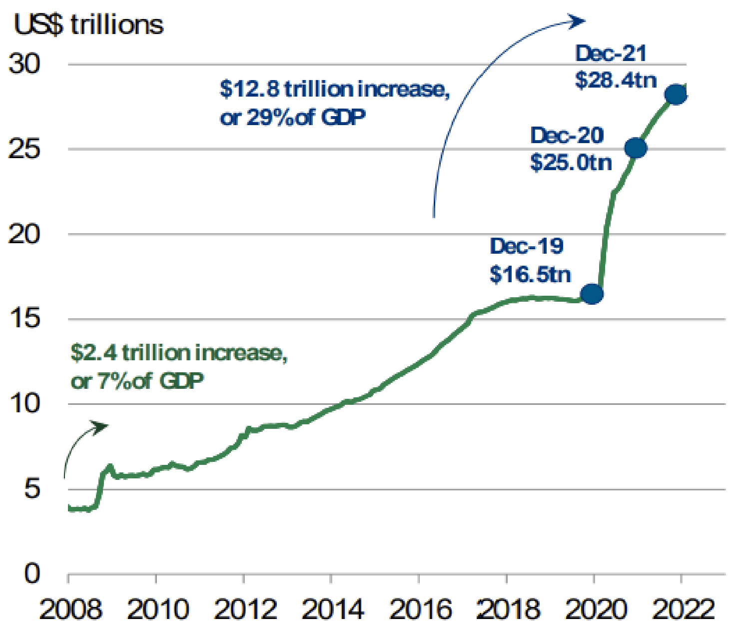
…But There Is a Still A LOT of Stimulus in the System

G4 balance sheets will expand until year-end 2022. Last cycle, it took 4-5 years before balance sheets shrank

Even If G4 Balance Sheets Start to Shrink, the Base Today Is Now Massive

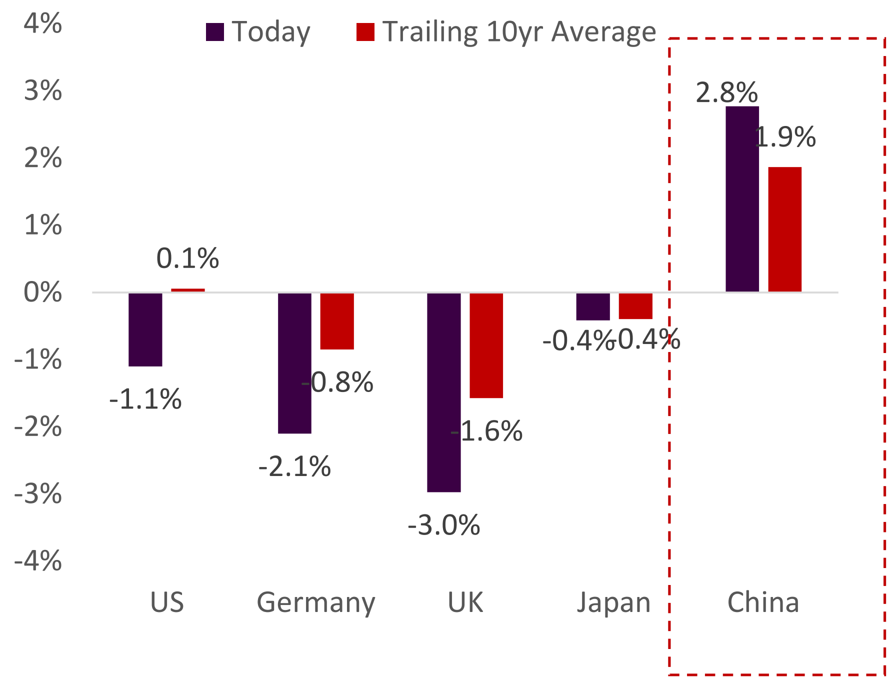
G4 Central Bank Balance Sheet, US$ Trillions



Data as at October 31, 2021. Source: Fed, Bloomberg, Morgan Stanley estimates.

Real Yields Will Remain Much Lower This Cycle

Real 10-Year Government Bond Yields, %



Data as at December 31, 2021. Source: Bloomberg.

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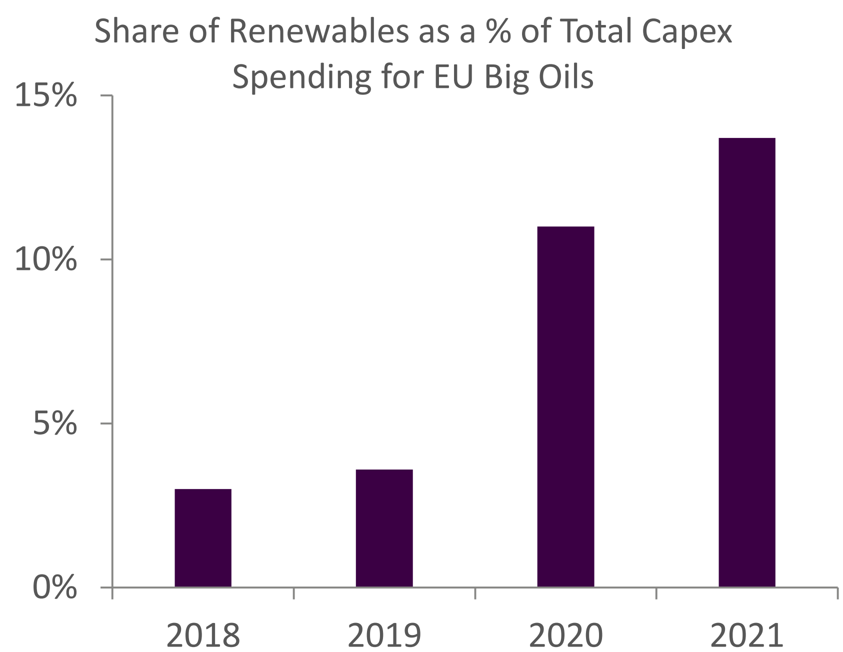
Point #3: Inflation Issues Are Unlikely to Abate in Near-Term

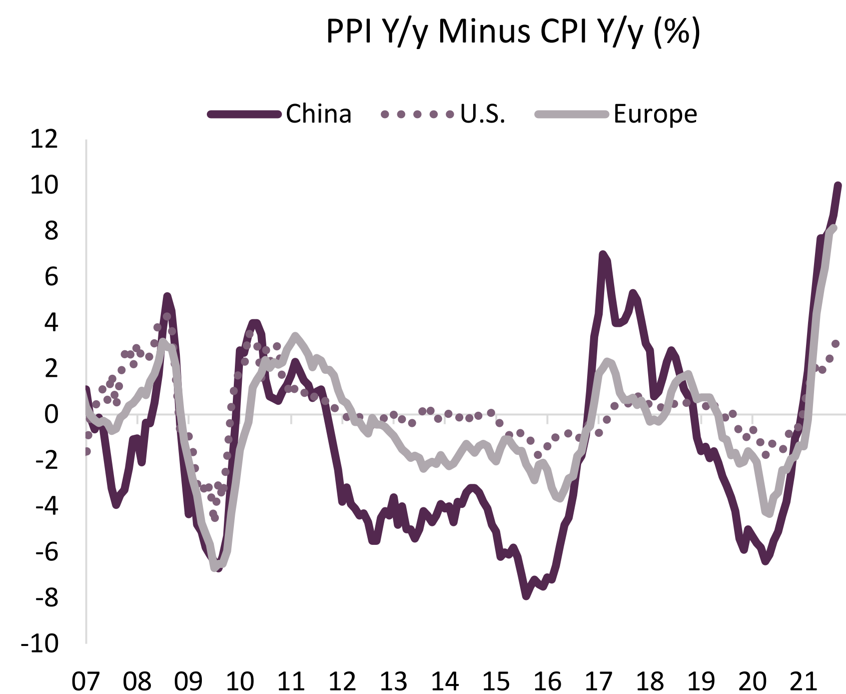
With real yields pinned so low, we think money is set to pour into real assets that can actually keep up with nominal GDP, including Real Estate, Energy, and Infrastructure

EU Big Oils Are Spending 10-15% of Their Total Capex on Low Carbon Energy As Traditional Oil and Gas Capex Fell by 20% in 2020-2021



Note: Big Oil includes BP, Equinor, TOTAL, RDShell, ENI, Respol, Galp; 2020 and 2021 are GS estimates. Data as at June 30, 2020. Source: Goldman Sachs.

We Continue to Focus on Pricing Power As One of the Calls to Arms This Cycle



Data as at August 30, 2021. Source: KKR Global Macro & Asset Allocation analysis.
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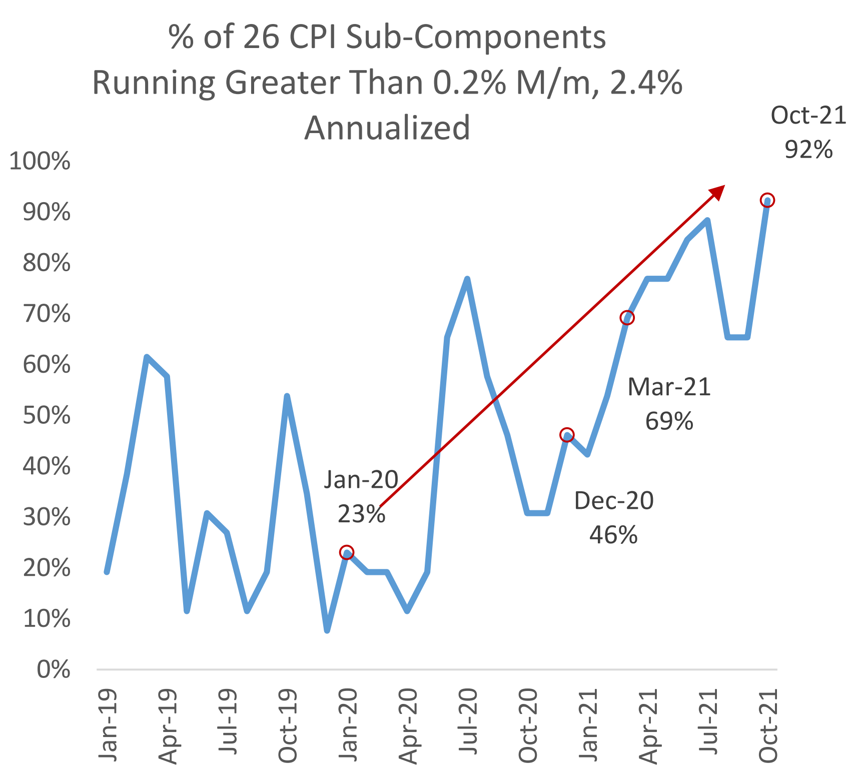
We Are Most Focused on Wage Growth Inflation, But Our Models Show It is Now Broad-Based, As Companies Take Price

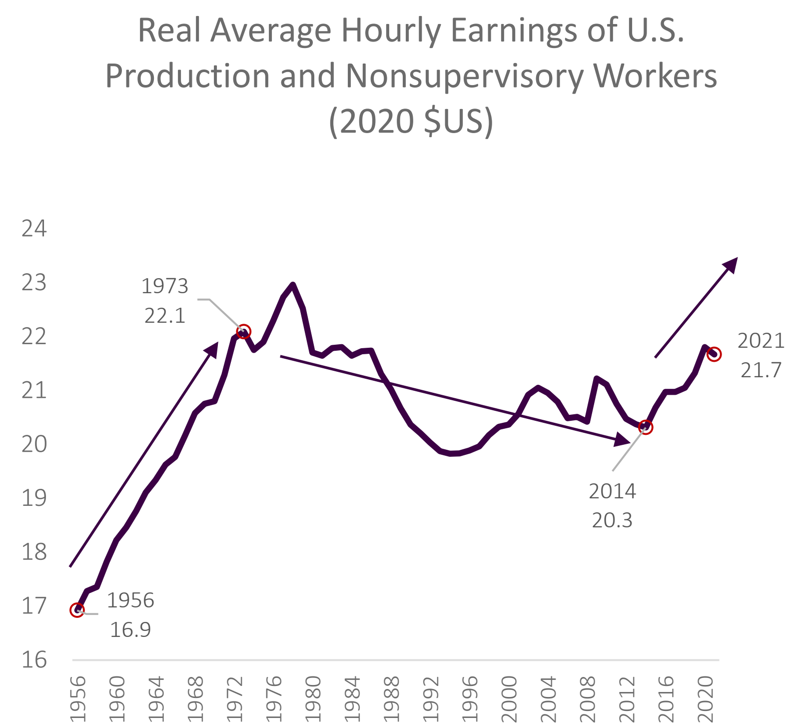
While the recovery has been V-shaped of late, monetary policy until recently has been L-shaped. As such, we look for an economic backdrop that is wildly different than what unfolded after the GFC

U.S. Inflation Is Now Broad-Based Across Industries



Data as at November 15, 2021. Source: Zillow, Manheim, Bureau of Labor Statistics, Haver, Bloomberg, KKR Global Macro & Asset Allocation analysis.

Real Wages Are Now Finally Poised to Increase



Data as at November 30, 2021. Nominal wages translated to real using U.S. CPI-U All Items Index. Source: Bureau of Labor Statistics, Haver, KKR GMAA analysis.

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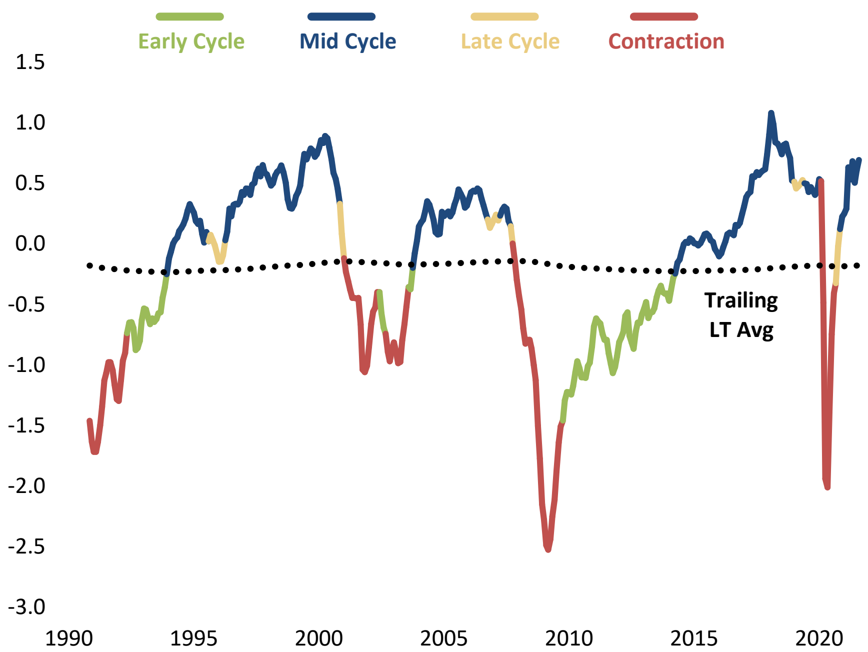
Point #4: We Are Still in the Mid-Cycle Expansion Phase…

This recovery has been much faster and stronger than previous cycles

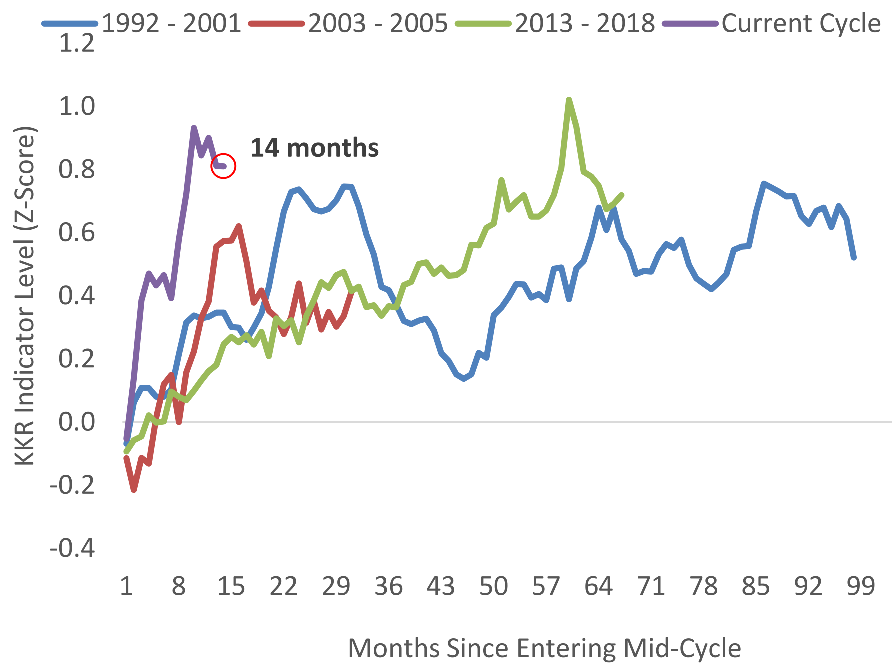
Despite COVID Cross-Currents, Our Regime Indicator Suggests We Are Still Mid-Cycle

KKR Macro Regime Indicator (MRI) (1990-Present, Z-Score)



The Average Length of the Previous 3 Cycles Was 66 Months. This Recovery Has Been At a Frenzied Pace

Speed of Recovery for Previous Mid-Cycle Phases



Our Macro Regime Indicator aggregates data across macro, rates and financial markets to quantify where we are in the cycle:
Early Cycle: indicator is below long-term trend, but the breadth of components (70%) is improving versus its trailing 6-month average
Mid Cycle: indicator is above long-term trend and the breadth of components (70%) is improving versus its trailing 6-month average
Late Cycle: indicator is above long-term trend, but the breadth of components (70%) is deteriorating versus its trailing 6-month average
Contraction: indicator is below long-term trend and the breadth of components (70%) is deteriorating versus its trailing 6-month average

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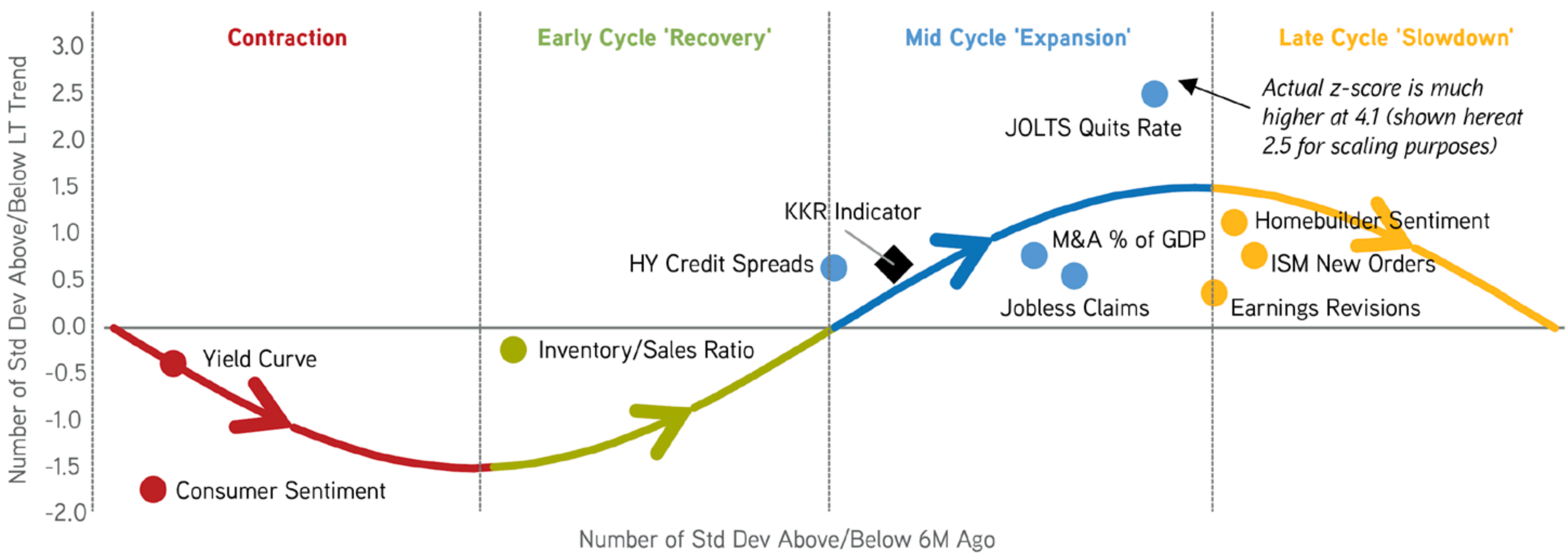
Data as at October 26, 2021. Source: KKR GMAA analysis.

…We Look for a Transition Towards More Late Cycle Characteristics Sometime Around 2024

Inventory levels suggest we are still in a recession, while jobs data suggests we are approaching late cycle

The Four Phases of the Stylized Business Cycle: We Expect the Inventory/Sales Ratio to Move Into Early/Mid-Cycle Through the Course of Next Year

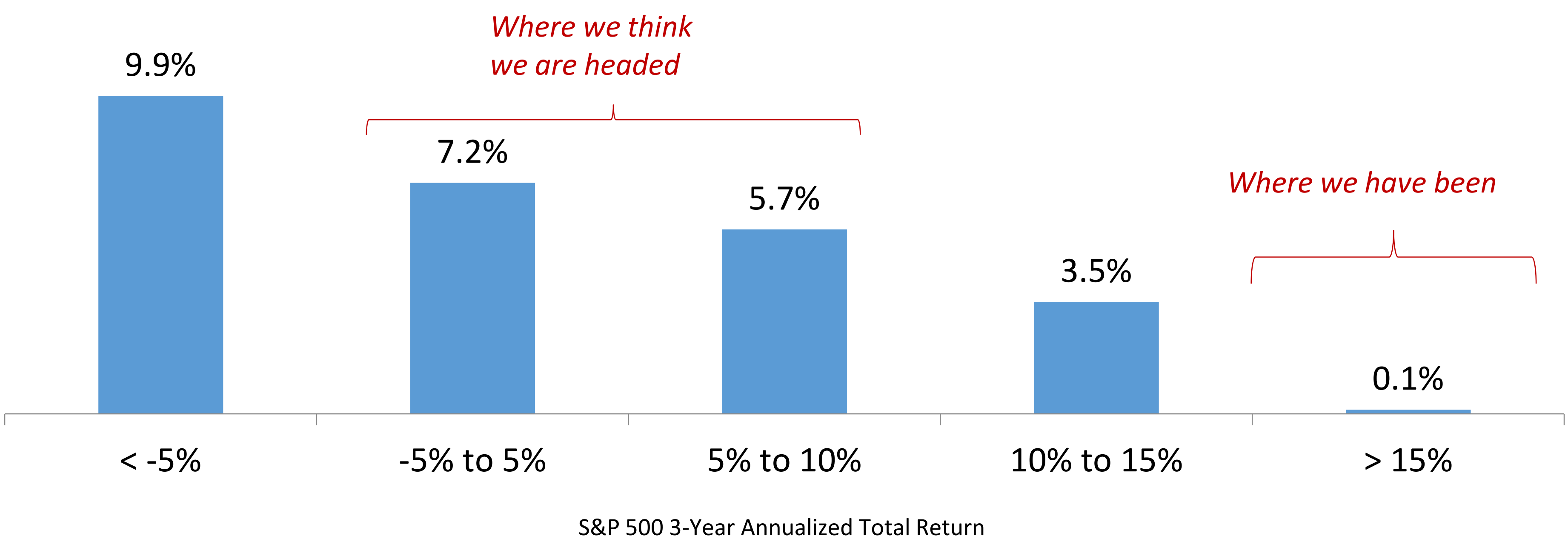


Data as at October 26, 2021. Source: KKR GMAA analysis.

Mid- and Late Cycle Tend to Favor Alternatives

PE tends to show the strongest long-term outperformance at times when public market returns are moderate

Average 3-Year Annualized Excess Total Return of U.S. PE Relative to S&P 500 in Various Public Market Return Regimes



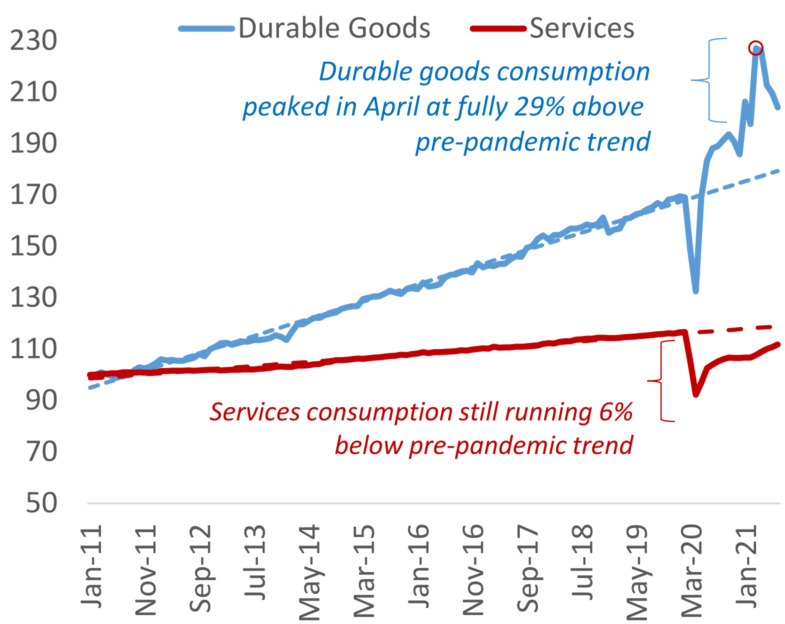
Data as at October 26, 2021. Source: Bloomberg.

Point #5: We Expect Digital Economy to Remain Robust, but We Do See a Shift to Services from Goods in 2022

Services appears ready to rebound, but we expect no cyclical slowdown in digitalization

The Pandemic Catalyzed a Shift Into Goods Over Services Consumption, Which Has Yet to Normalize

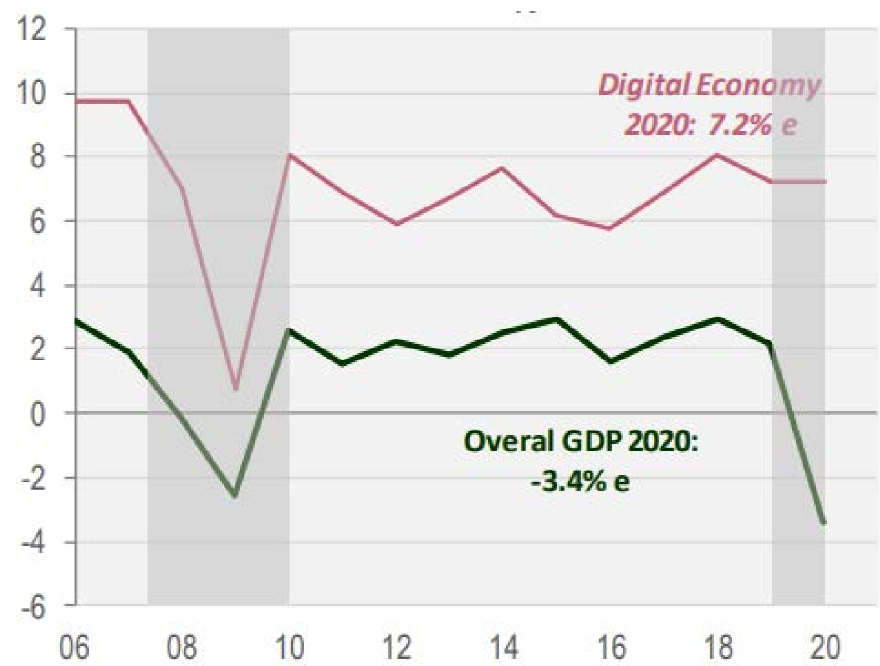
U.S. Real Spending on Goods and Services Relative to Pre-Pandemic Trend



Data as at September 30, 2021. Source: BEA, Haver Analytics.

The Digital Economy Grew by More Than 7% in 2020 While Overall GDP Shrank by 3.4%

U.S. Real GDP, Y/y, %



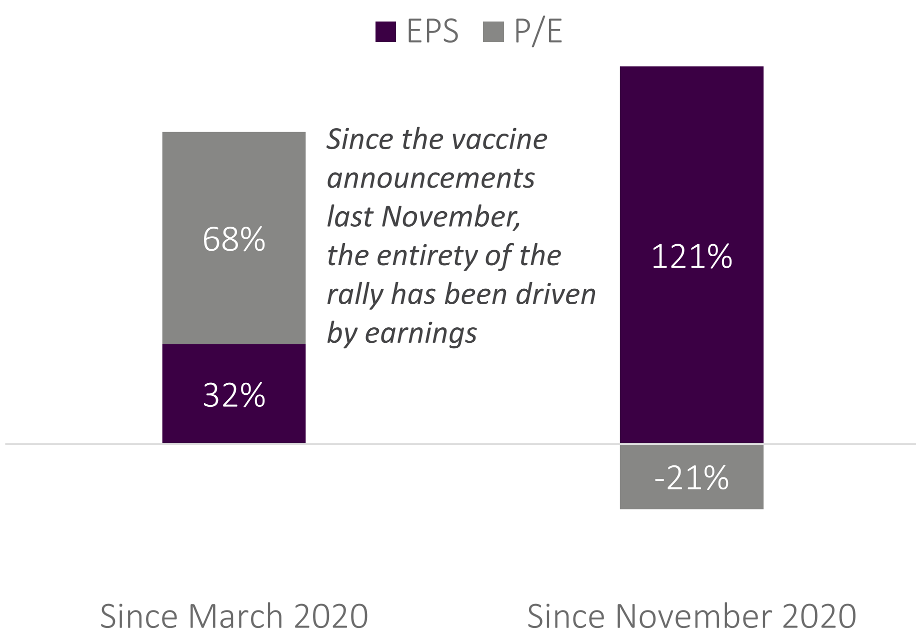
Data as at December 31, 2020. Source: Cornerstone Macro.

Point #6: Looking Ahead, It Is All About Pricing Power and EPS Growth

As financial conditions normalize, we will transition towards an EPS-led bull market

The P/E Expansion Phase of This Cycle Is Now Over

Share of S&P 500 Price Appreciation Contributed by EPS and P/E, %



Data as at September 28, 2021. Source: Goldman Sachs, SPX.

We Need to Find Ways to Buy Down Our Entry Multiple and/or Arbitrage Cash Flow Relative to Financing Costs

	S&P 500 Aggregate Index	
Valuation Metric	**Current**	**Historical Percentile**
U.S. Market Cap/GDP	287%	**100%**
Forward P/E	21.6x	**93%**
EV/Sales	3.4x	**100%**
EV/EBITDA	16.6x	**98%**
Price/Book	4.8x	**96%**
Cyclically Adjusted P/E	34.4x	**95%**
Cash Flow Yield	5.5%	**96%**
Free Cash Flow Yield	3.6%	**60%**
Yield Gap vs. 10-Year UST	597 Basis Points	**58%**
Median Absolute Metric		**96%**

Data as at October 7, 2021. Source: Goldman Sachs Research.

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Point #7: Get More Thematic

Given the sheer amount of liquidity in the system, we will need to be more thematic in nature

Get Long Pricing Power

Own More Collateral-Based Cash Flows

Digitalization/Decentralization

Normalization: Revenge of Services

The Energy Transition

We Have Entered Into a Savings Bull Market

II GLOBAL GROWTH AND INFLATION FORECASTS

We Expect Solid Growth in 2022, Despite Omicron. However, We Do See Inflation Higher in Most Parts of the World

We have factored in ongoing uncertainty in our models

Because of Our More Reflationary Bias, We Are More Constructive On Nominal GDP in Almost All Regions of the World

	2022 Real GDP Growth		2022 Inflation		2023 Real GDP Growth		2023 Inflation	
	GMAA Target	Bloomberg Consensus	GMAA Target	Bloomberg Consensus	GMAA Target	Bloomberg Consensus	GMAA Target	Bloomberg Consensus
U.S.	4.1%	3.9%	5.0%	3.6%	3.2%	2.5%	2.0%	2.3%
Euro Area	4.0%	4.2%	2.5%	2.2%	2.2%	2.2%	1.5%	1.5%
China	4.8%	5.3%	2.5%	2.2%	5.4%	5.4%	2.3%	2.2%
Mexico	2.9%	2.9%	4.9%	4.4%	2.1%	2.0%	3.8%	3.6%

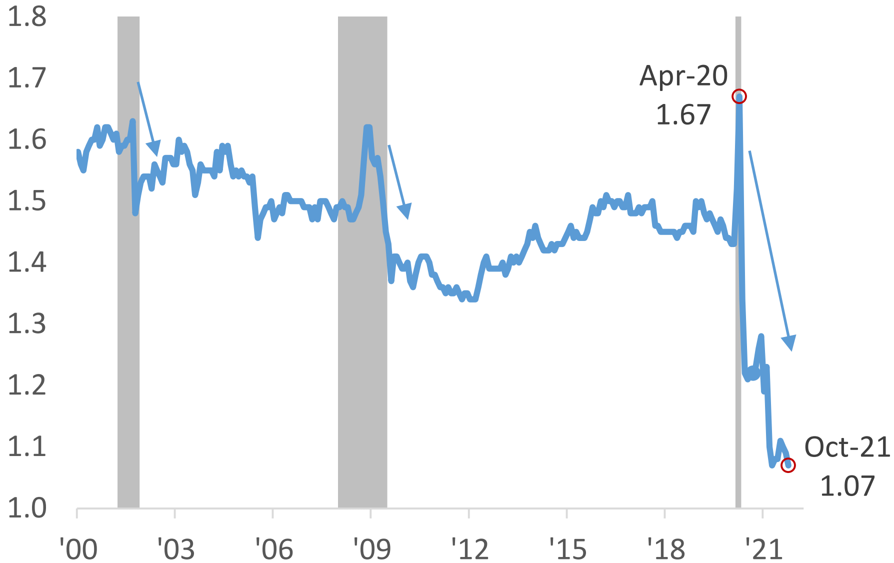
Data as at November 30, 2021. Source: KKR Global Macro & Asset Allocation analysis.

We See Four Fundamental Drivers Powering the Next Leg of the U.S. Expansion

Supply chains will need to restock from historically tight inventory levels

Point #1: Finished Goods Inventories Remain Historically Lean. We See Considerable Scope for Recovery

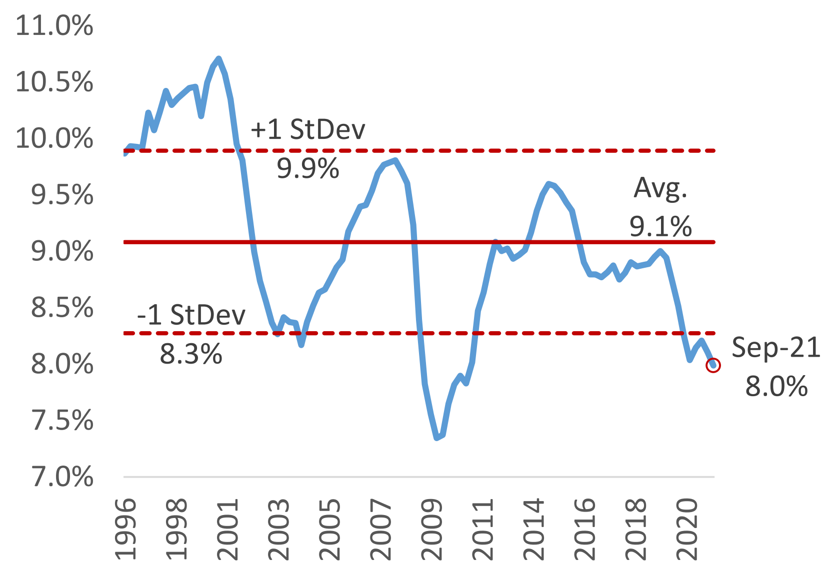
U.S. Retail Inventory/Sales Ratio *(Months of Demand)*



Data as at October 31, 2021. Source: Bureau of Economic Analysis, Census Bureau, KKR Global Macro & Asset Allocation analysis.

Point #2: Capex Is Still in the Early Phases of Bouncing Off of a Cyclical Low

Business Fixed Investment in Equipment and Structures as a % of U.S. GDP



Data as at November 15, 2021. Source: Bureau of Economic Analysis, Census Bureau, KKR Global Macro & Asset Allocation analysis.

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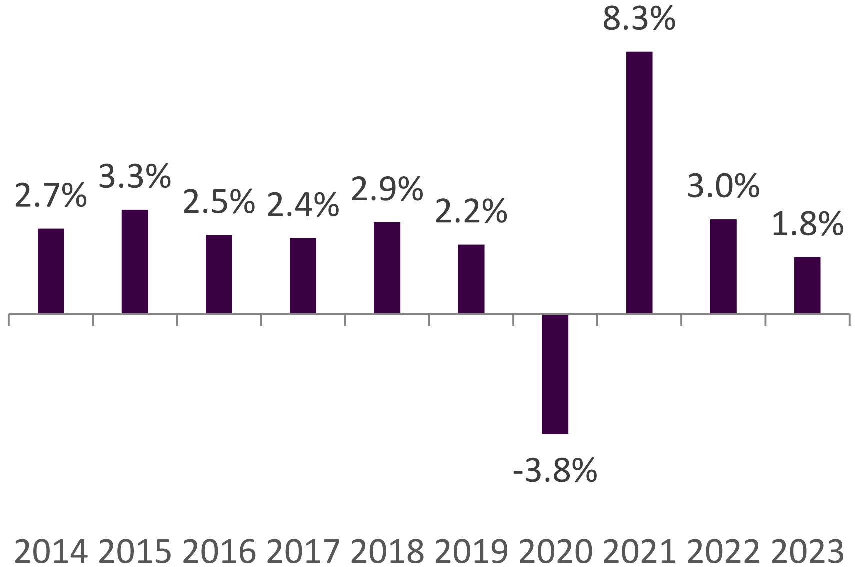
Services Consumption and Exports Are Still in Early Stages of Recovery in the U.S.

We expect tailwinds from pent up demand to support growth

Point #3: Consumption Will Remain Strong in 2022, Despite Higher Oil Prices

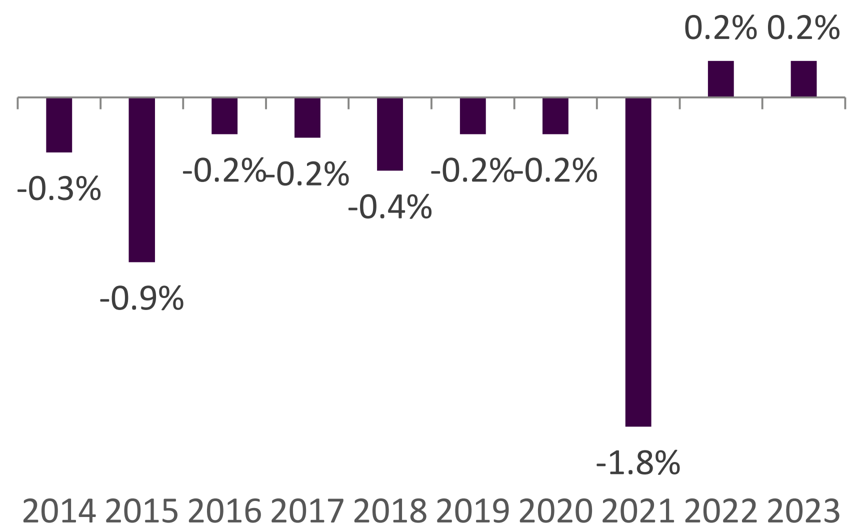
U.S. Real PCE, %



Data as at November 15, 2021. Source: Bureau of Economic Analysis, Census Bureau, KKR Global Macro & Asset Allocation analysis.

Point #4: Net Exports Will Bounce Into Positive Territory. Foreign Tourism Could Further Bolster These Trends

U.S. Net Exports, GDP Contribution, %



Data as at November 15, 2021. Source: Bureau of Economic Analysis, Census Bureau, KKR Global Macro & Asset Allocation analysis.

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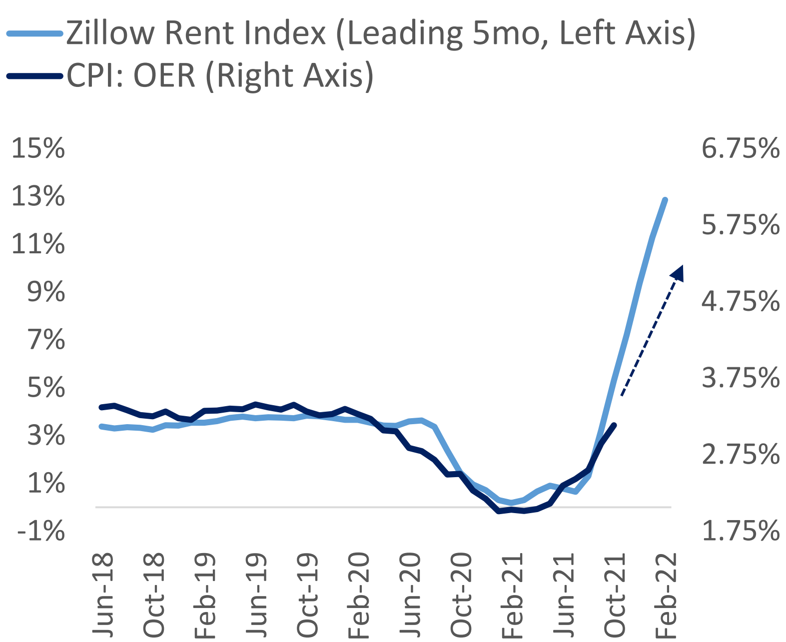
U.S. Goods and Services Inflation Pressures Are Converging Upward in the Near Term

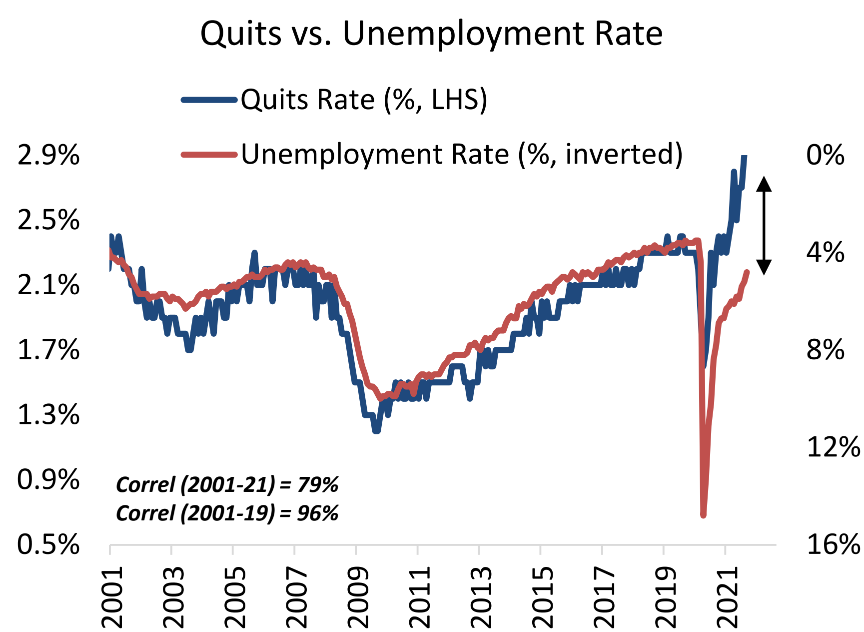
We see U.S. headline CPI running at five percent in 2022, far above the consensus of 3.6%, and up further from 4.7% in 2021

Shelter Inflation, Which Drives 40% of Core CPI, Is Likely Headed Considerably Higher



Data as at November 30, 2021. Source:. Zillow, Haver, Bloomberg, KKR GMAA analysis.

Workers Are Quitting at a Rate Normally Associated With Unemployment of Around 1%



Data as at November 30, 2021. Source:. Bureau of Labor Statistics, Haver, Bloomberg, KKR GMAA analysis..

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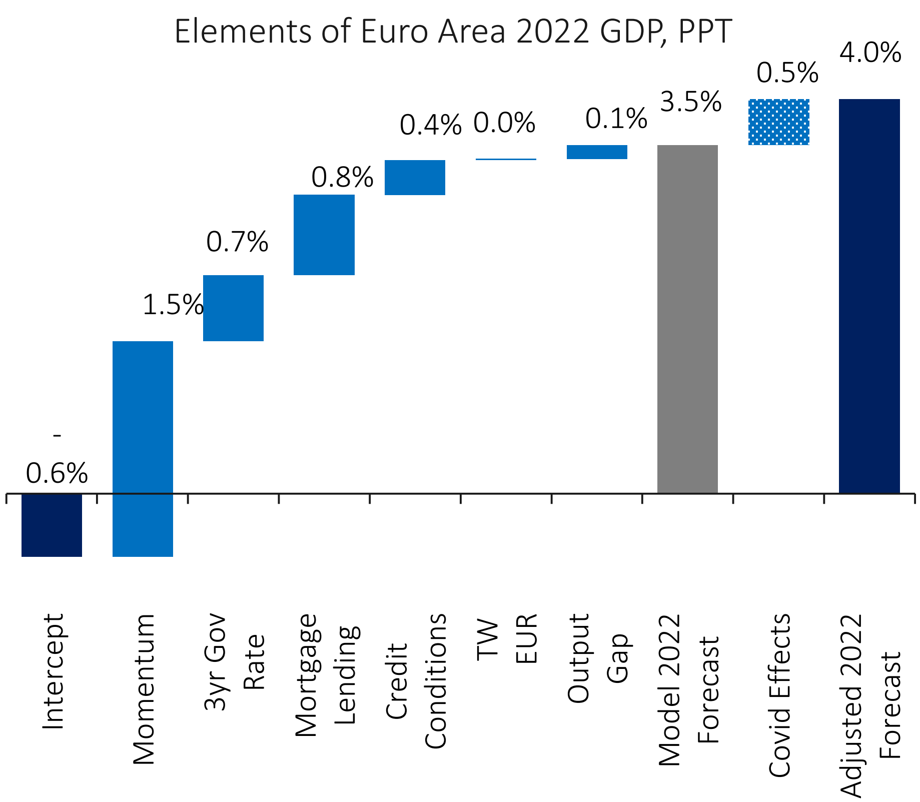
In Europe, Strong Domestic Demand and Expansionary Fiscal and Monetary Policy Will Continue to Be Tailwinds

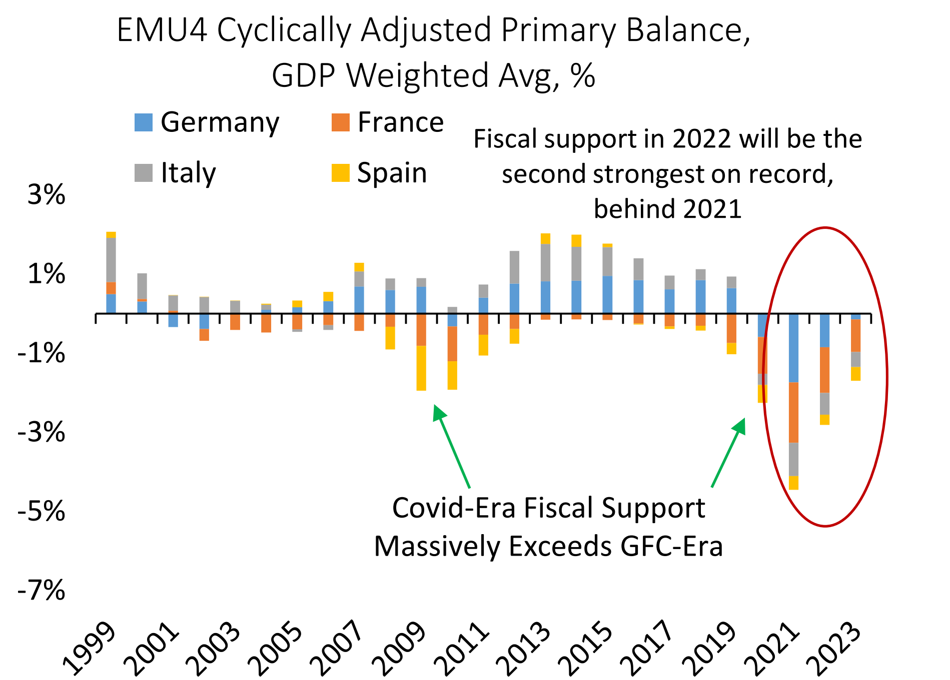
Household consumption in the Euro Area lies some 7% below pre-pandemic levels; yet, future spending expectations are now back to essentially pre-COVID levels

We See Strong Domestic Demand and Expansionary Fiscal and Monetary Policy Continuing to Provide Support



Data as at September 28, 2021. Source: Goldman Sachs, SPX.

We Also See Persistent Fiscal Support Across Europe



Data as at October 31, 2021. Source: Statistical Office of the European Communities, ECB.

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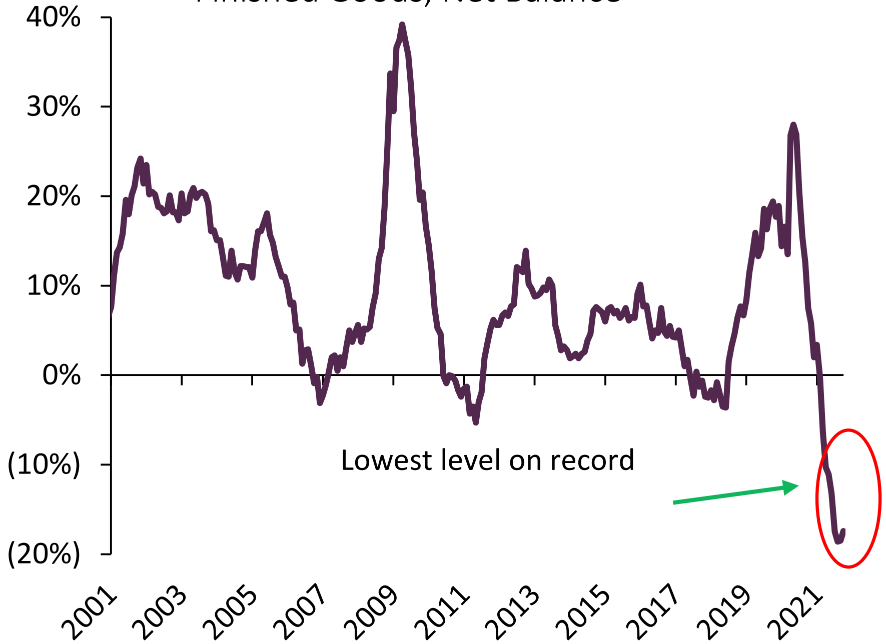
We See Plenty of Room for Catch-up Spending, Particularly When One Factors in High Savings Across Europe

Europe is actually underperforming its near-term potential due to supply chain issues

Supply Chain Pressures Have Led to a Significant Drop in German Manufacturing Inventories

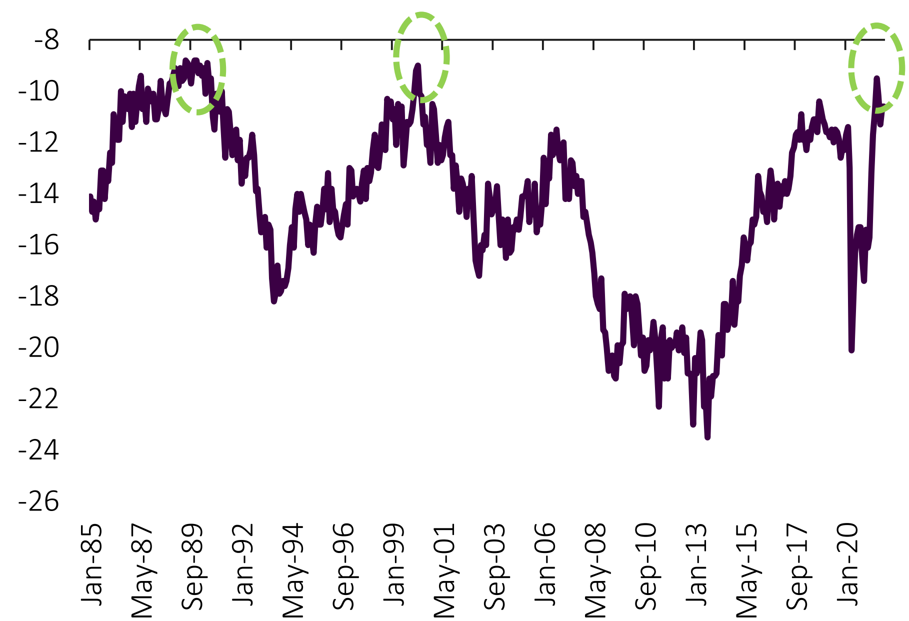
German Manufacturing – Inventory of Finished Goods, Net Balance



Data as at October 31, 2021. Source: Institute for Economic Research, HIS Markit PMI, Haver Analytics.

Eurozone Household Spending Expectations Point to Strong Consumer Demand In 2022

Euro Area Household Spending Expectations, Major Purchases in the Next 12 Months, % Balance



Data as at August 31, 2021. Source: Goldman Sachs Research.

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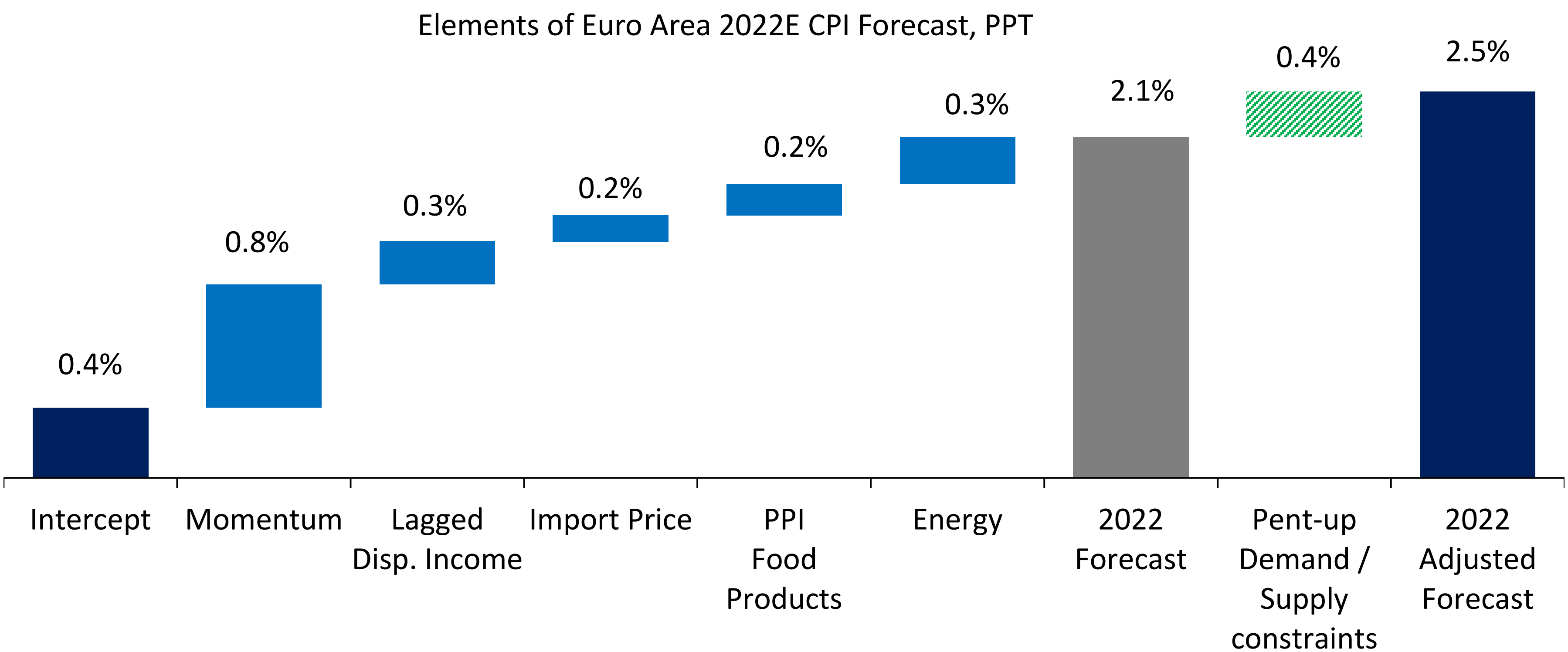
We Expect 2022 Euro Area Inflation to Remain Strong at 2.5%

The current bout of Euro Area inflation is strongly concentrated in volatile items such as energy and commodities, a backdrop we expect to continue for some time

For 2022, We Believe Euro Area Inflation Will Reach 2.5% (Following 2.4% Inflation In 2021), Before Falling Back to 1.5% in 2023. By Comparison, the 5-Year Average Eurozone CPI inflation Leading Up to COVID Was Just 1.0%



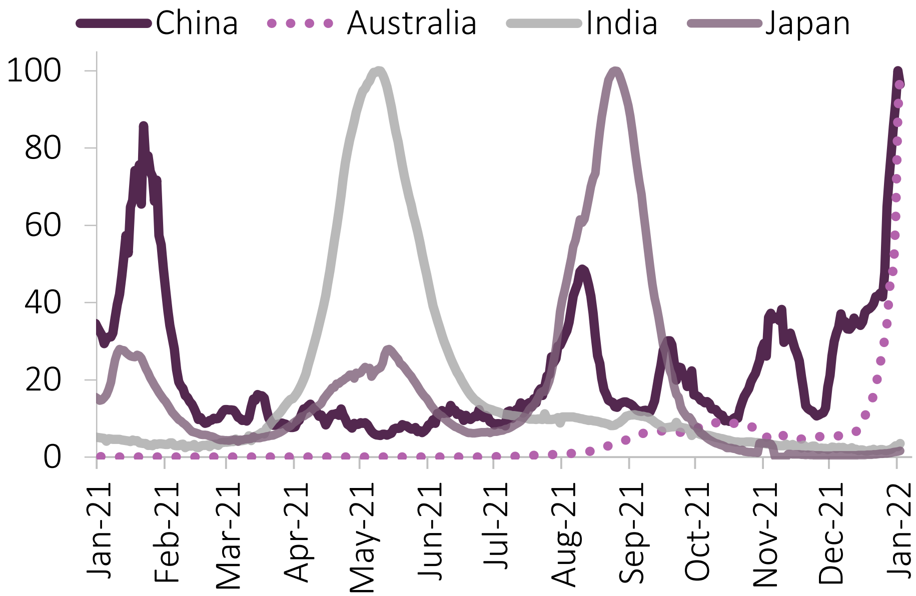
Data as at November 30, 2021. Source: KKR Global Macro & Asset Allocation analysis.

Despite a Jump in Cases, Inflation in Asia Has Been More Tepid Relative to Other Parts of the World

The pace of vaccinations have lagged in Asia relative to the U.S. and Europe

Living With the Delta Wave Has Impacted Growth Across Asia in Different Ways

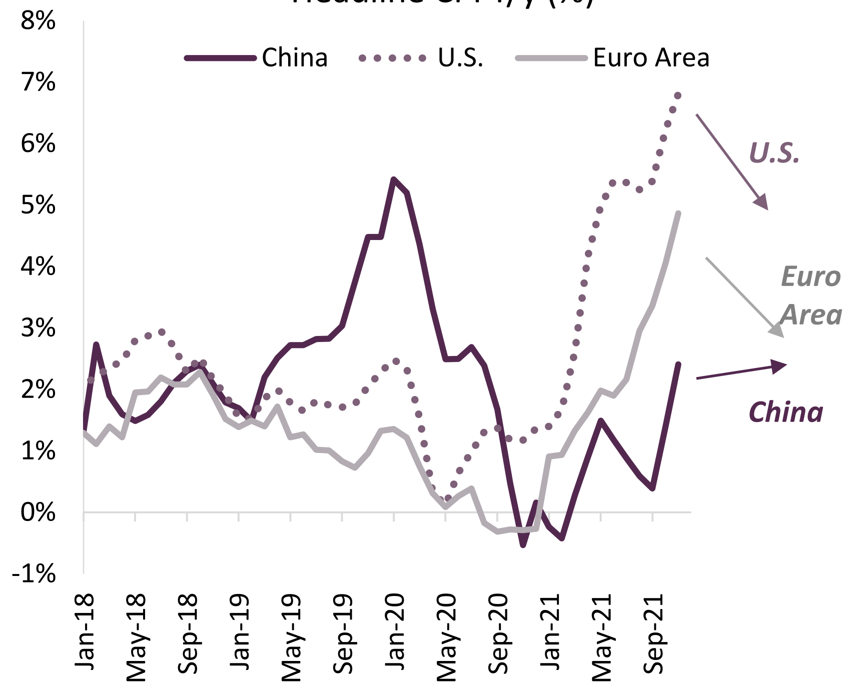
Covid-19: New Confirmed Cases
7dma, Indexed to Peak Since March 2021



Data as at January 3, 2022. Source: Bloomberg, KKR Global Macro & Asset Allocation analysis.

Inflation Is Rising, But More Modestly in Asia, As the Growth Backdrop Is Not As Strong As in the U.S. and Europe

Headline CPI Y/y (%)

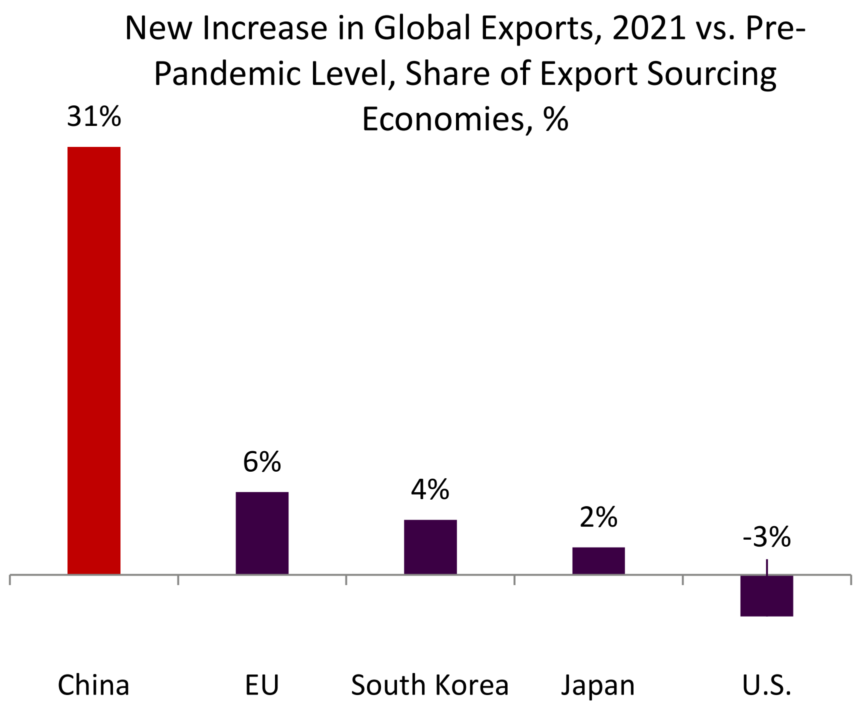


Data as at November 30, 2021. Source: Bloomberg, Haver Analytics, KKR Global Macro & Asset Allocation analysis.

Many Asian Economies That Were the First to Recover in 2020 Are Now Further Along in Their Cycles. Parts of China Are Growing Too

This strong growth early in the cycle has allowed the government to tilt its priorities, including growth in the digital economy as well as exports

Despite Repeated Lockdowns, Fully 31% of the New Increase in Global Trade from Pre-Pandemic Levels Was Captured by China



Data as at November 16, 2021. Source: PBoC, UBS, Bloomberg, KKR Global Macro & Asset Allocation analysis.

The New Economy in China, Which We Estimate to be 20-30% of GDP, Is Still Growing Nicely

Data as at November 16, 2021. Source: China General Administration of Customs, IMF, Haver analytics, KKR Global Macro & Asset Allocation analysis.

Looking Ahead, We Continue to Focus On China As an Important Driver of Growth in the Region As Well As Around the World

We expect 2022 China Real GDP growth to slow to 4.8% in 2022, slightly below consensus of 5.3%, but well below the 8.0% growth enjoyed during 2021

There Is Slowing Growth in China Due to Policy Shifts and New Priorities

China: Real GDP			
	Base	**Bear**	**Bull**
2020	2.3%	2.3%	2.3%
2021e	8.0%	7.8%	8.2%
2022e	4.8%	4.3%	5.3%
2023e	5.4%	4.7%	6.0%
2024e	5.2%	4.2%	6.0%
2025e	4.9%	3.8%	5.8%
2026e	4.8%	3.6%	5.8%
CAGR '21-'26e	5.1%	4.2%	5.8%

Data as at December 6, 2021. Source: KKR Global Macro & Asset Allocation analysis.

Inflation in China Will Rise but Remained Contained Well Below the Three Percent Cap

China: Headline CPI			
	Base	Bear	Bull
2020	2.5%	2.5%	2.5%
2021e	1.0%	0.7%	1.3%
2022e	2.5%	2.0%	3.0%
2023e	2.3%	1.7%	2.9%
2024e	2.3%	1.3%	3.0%
2025e	2.3%	1.3%	3.0%
2026e	2.0%	1.0%	2.7%
CAGR '21-'26e	2.2%	1.4%	2.9%

Data as at December 6, 2021. Source: KKR Global Macro & Asset Allocation analysis.

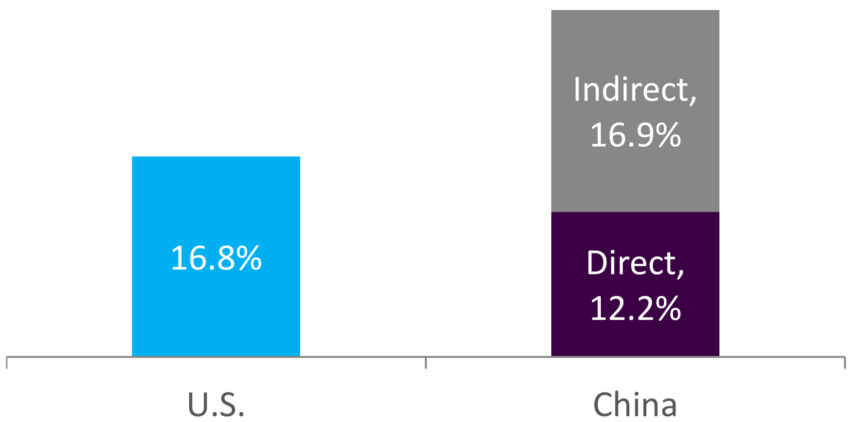
Housing Will Be a Headwind, But We See an Important Transition Occurring Within the Chinese Economy

As mentioned earlier, the Chinese economy is not dependent solely on housing

The Issues in the Property Sector Will Be a Major Headwind for China…

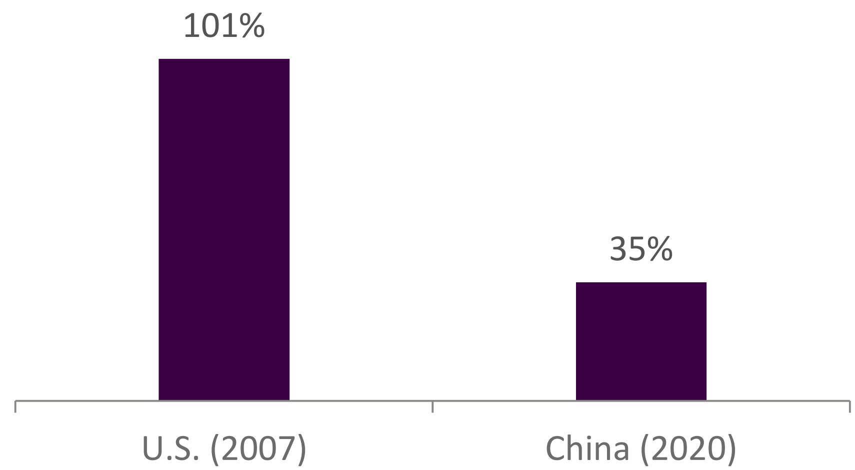
…but We Don't Expect a Bubble Burst for China

Property Share of GDP, %



Data as at November 16, 2021. Source: Wind, Haver Analytics, NBS, CICC, KKR Global Macro & Asset Allocation analysis.

Outstanding Mortgage Loans as a % of GDP, 2007 vs. 2020



Data as at November 30, 2021. Source: Federal Reserve Board, Bureau of Economic Analysis, PBoC, China NBS, Haver Analytics, KKR Global Macro & Asset Allocation analysis.

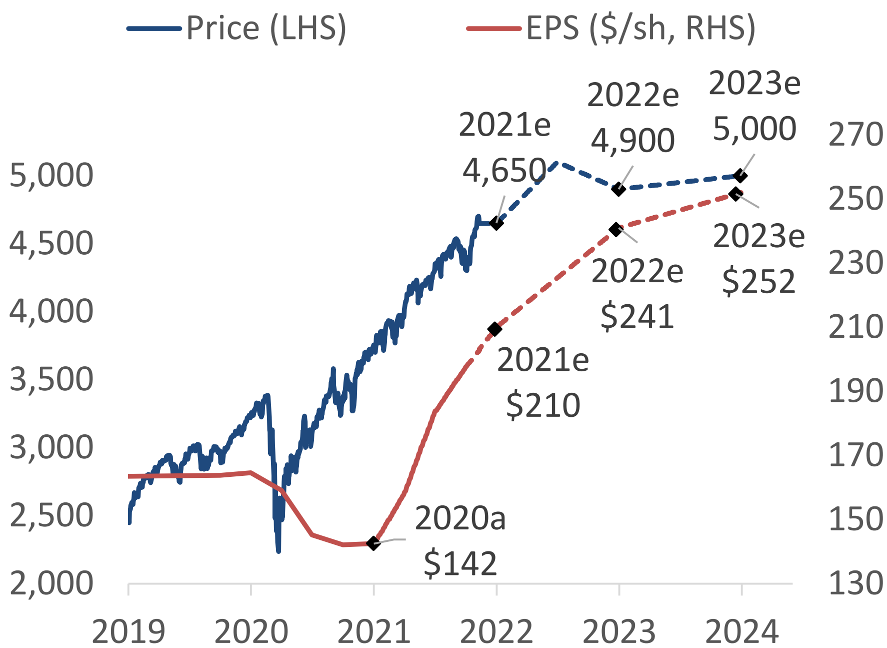
III CAPITAL MARKETS

S&P 500: Against a Backdrop of Higher Earnings but a Lower Peak Multiple, We Expect Equities to Return 6.7% in 2022, Including Dividends

For 2023, both our earnings growth and multiple expansion expectations are much more conservative

Our New Projected Path Has S&P 500 Ending 2022 At About 4,900 on $241 of EPS and Ending 2023 at Around 5,000 on $252 of EPS

S&P 500 Price Target and EPS



Data as at September 28, 2021. Source: Goldman Sachs, SPX.

Our Case for 2022 Assumes That Equities Grind Higher in 2022, Driven by EPS Growth, Not Multiple Expansion

	2021	2022 Scenarios			2023
		Base	Bear	Bull	Base
Price Target	4,650	4,900	4,150	5,600	5,000
y/y %chg		*5.4%*	*-10.7%*	*20.4%*	*2.0%*
EPS ($/sh)	$210	$241	$223	$251	$252
y/y %chg		*14.8%*	*6.1%*	*19.7%*	*4.5%*
LTM P/E	22.1x	20.3x	18.6x	22.3x	19.8x
y/y %chg		*-8.2%*	*-15.9%*	*0.6%*	*-2.3%*
NTM P/E	19.3x	19.4x	16.5x	22.2x	18.9x
y/y %chg		*0.9%*	*-14.6%*	*15.3%*	*-2.8%*

Assumptions	-	-	-	-
10y UST yield	*2.00%*	*2.50%*	*1.50%*	*2.50%*
Implied ERP	*4.70%*	*4.90%*	*4.50%*	*4.70%*

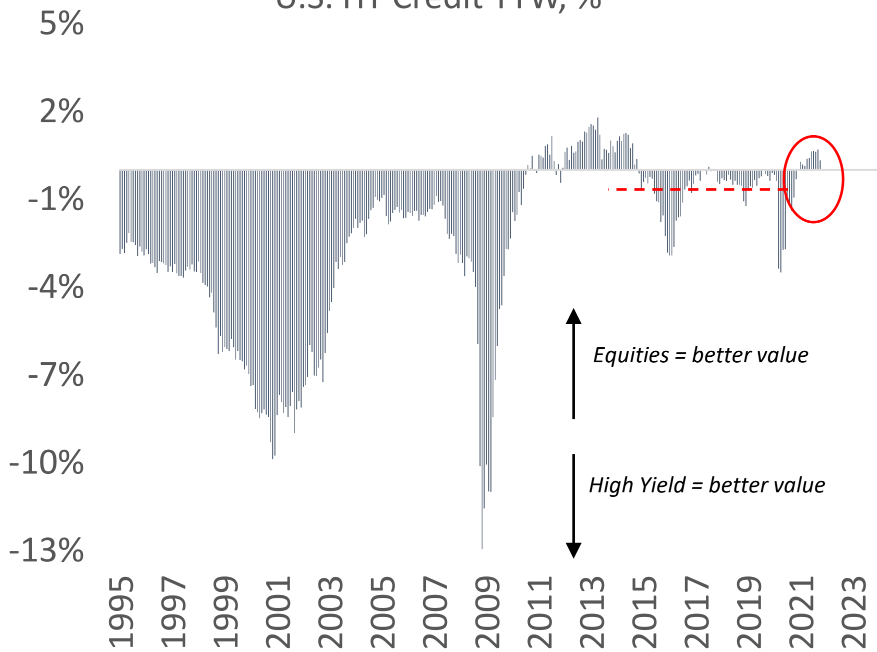
Data as at November 11, 2021. Source: Bloomberg, Factset, KKR Global Macro & Asset Allocation analysis.

Stocks vs. Bonds: The Earnings Yield On Stocks Looks Compelling Relative to the Yield-to-worst Credit Spreads in High Yield

Both the low absolute level of interest rates across all Fixed Income as well as the ongoing improvement in earnings for Equities are both also impacting this relationship

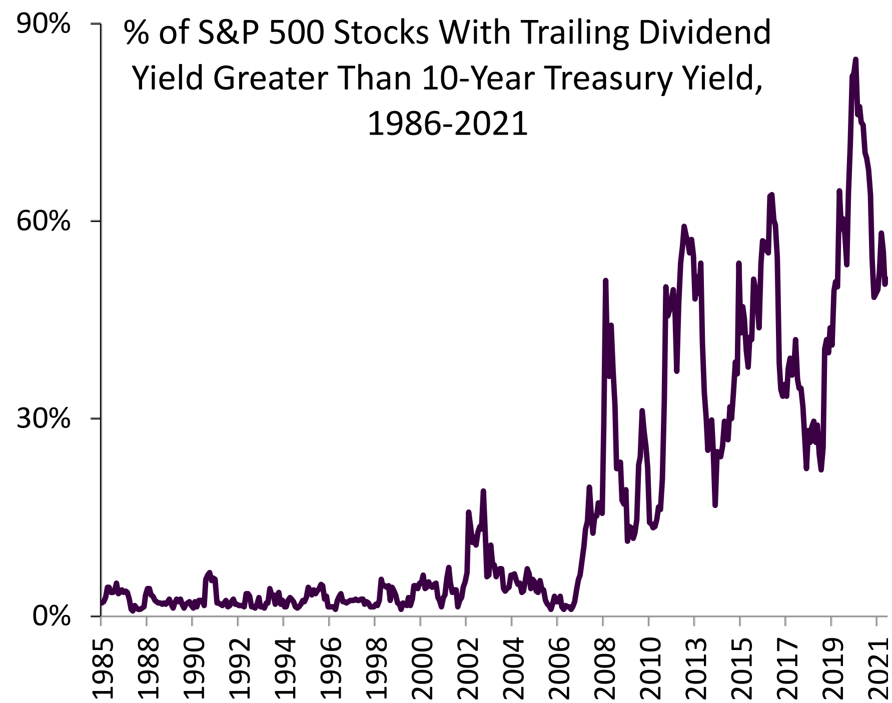
On a Relative Basis, U.S. Equities Look More Attractive Than High Yield Credit by the Widest Margin in Seven Years

Spread of U.S. Equity NTM Earnings Yield vs. U.S. HY Credit YTW, %



Data as at December 31, 2021. Source: Bloomberg, KKR Global Macro & Asset Allocation analysis.

Fully 50% of S&P 500 Companies Have a Higher Dividend Yield Than the 10-Year Yield

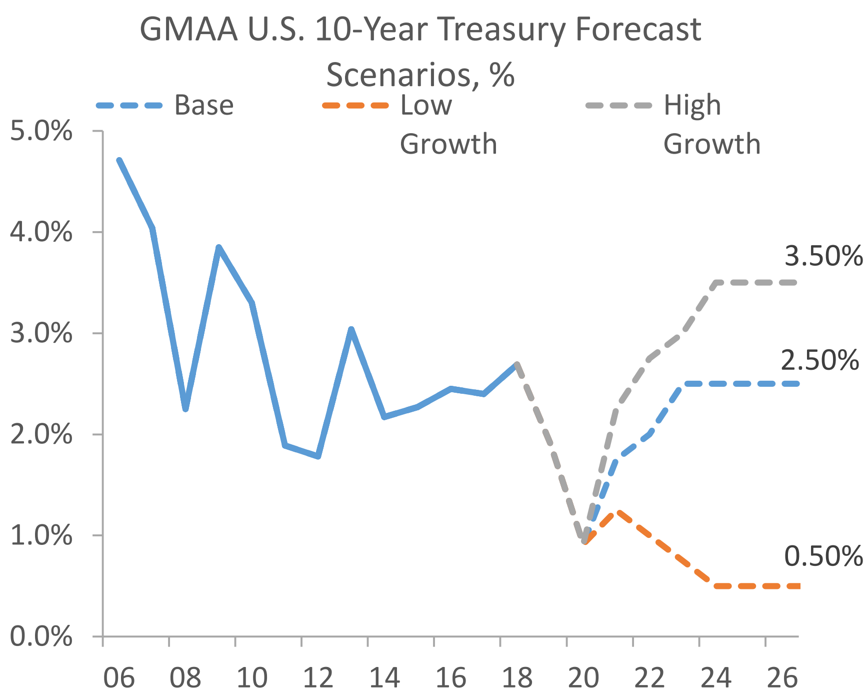


Data as at October 31, 2021. Source: Bloomberg, KKR Global Macro & Asset Allocation analysis.

Interest Rates: We Have Raised Our U.S. 2022 10-year Target to 2.0% from 1.75%, Reflecting Our Accelerated Fed Expectations

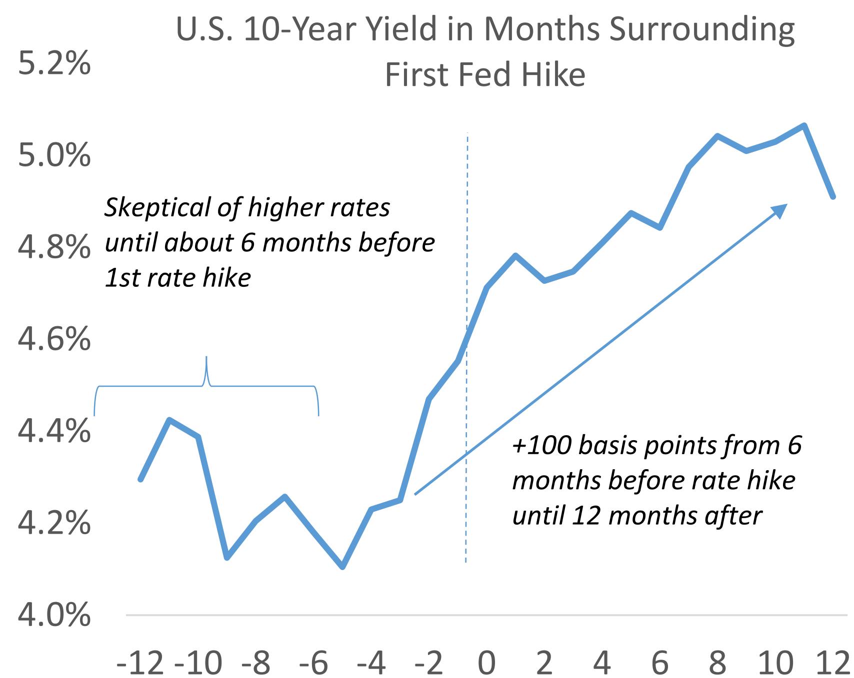
We think, over time, the market will recognize the underlying durability of nominal GDP and price higher equilibrium rates into the long end of the curve

Our Scenario Analysis Now Leads to Wider Tails, Underscoring the Uncertainty of Recent Policy Initiatives



Data as at November 15, 2021. Source: Bloomberg, KKR Global Macro & Asset Allocation analysis.

The Market Tends to Remain Skeptical of Fed Tightening Until About Six Months Before the First Hike



Note: Average of 10-Year yields in months surrounding first Fed hikes in February 1994, June 1999, June 2004, and December 2015. Data as at June 28, 2021. Source: Bloomberg.

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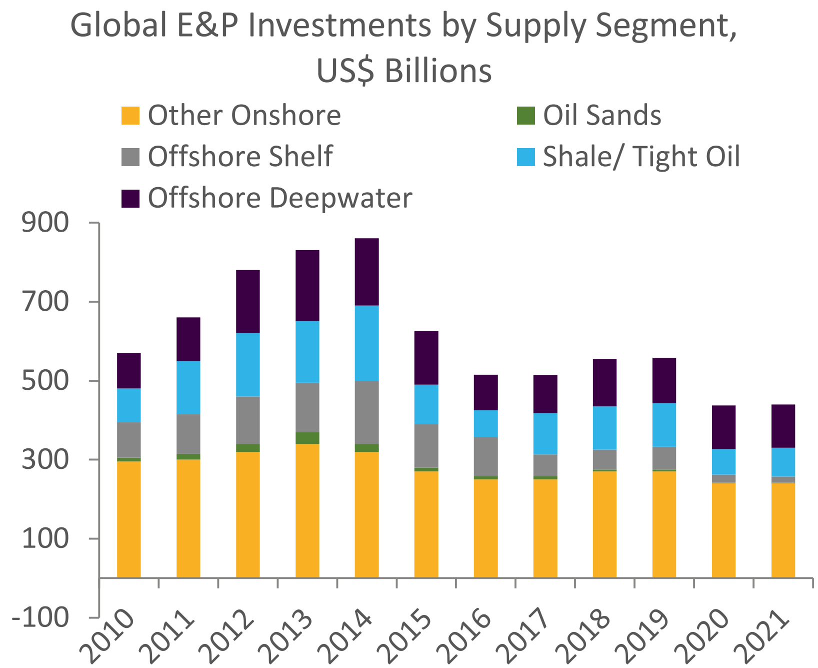
Oil: We Believe the Bullish Oil Price Backdrop Will Likely Prove Durable

Overall, we are observing a structurally altered price versus supply function, primarily due to 1) continued capital restraint; and 2) a surge in climate activism in the post-pandemic era

Oil Exploration and Production Capex Is Down More Than 50% From Its High in 2014



Data as at May 2021. Source: Rystad Energy, UCube, Citi.

We Are Raising Our Price Targets to Reflect Even Higher Conviction in the Structural Improvement Story in Oil

	KKR GMAA (Jan'22)	WTI Futures (Jan'22)	Oct'21 Forecasts GMAA vs. Futures
2019a	**57.04**	**57.04**	**0.0**
2020a	**39.34**	**39.34**	**0.0**
2021a	**68.08**	**68.08**	**0.0**
2022e	**80.00**	**73.64**	**6.4**
2023e	**72.50**	**69.45**	**3.1**
2024e	**67.50**	**65.12**	**2.4**

Forecasts represent full-year average price expectations. Data as at January 4, 2022. Source: KKR Global Macro & Asset Allocation analysis.

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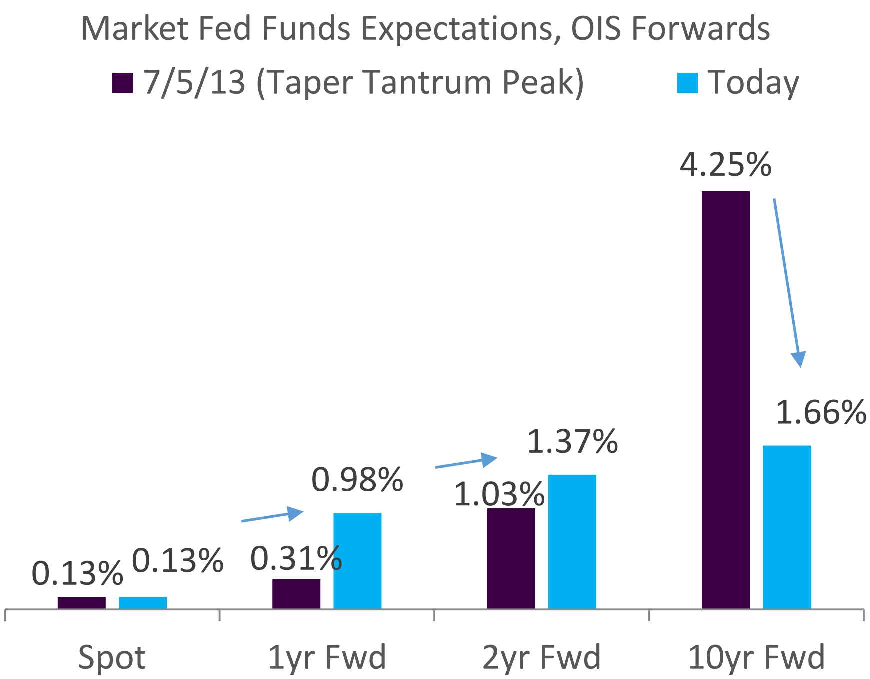
IV KEY RISKS

Concern #1: A Sharp, Unexpected Move in Real and/or Nominal Rates

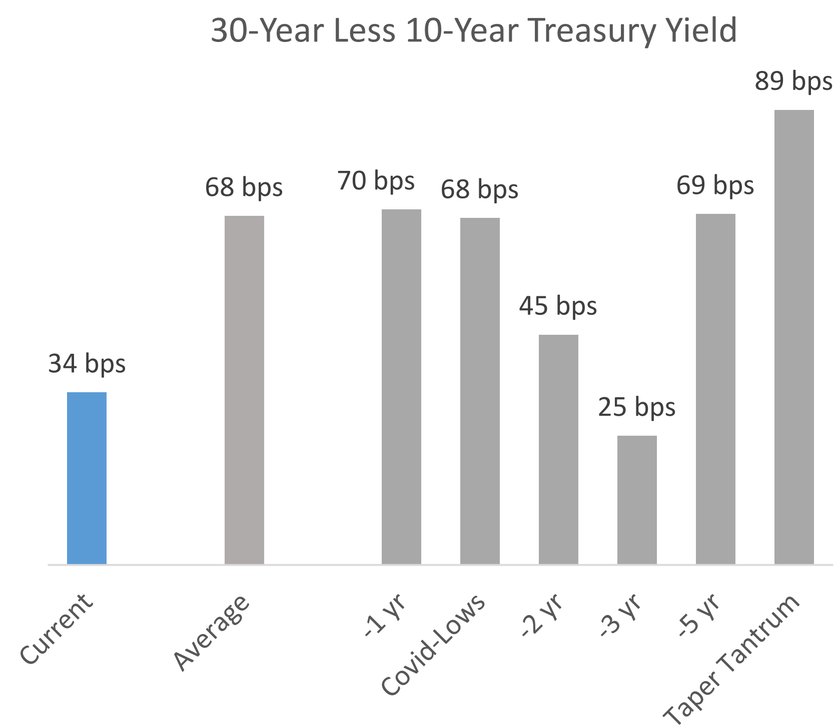
If central bankers did have to withdraw liquidity much faster than expected, then this outcome represents the greater risk to investors, we believe

We Believe the Risk Lies at the Long-End…



Data as at December 31, 2021. Source: Bloomberg.

…Particularly as One Goes Further Out the Curve



Data as at November 23, 2021. Source: Bloomberg.

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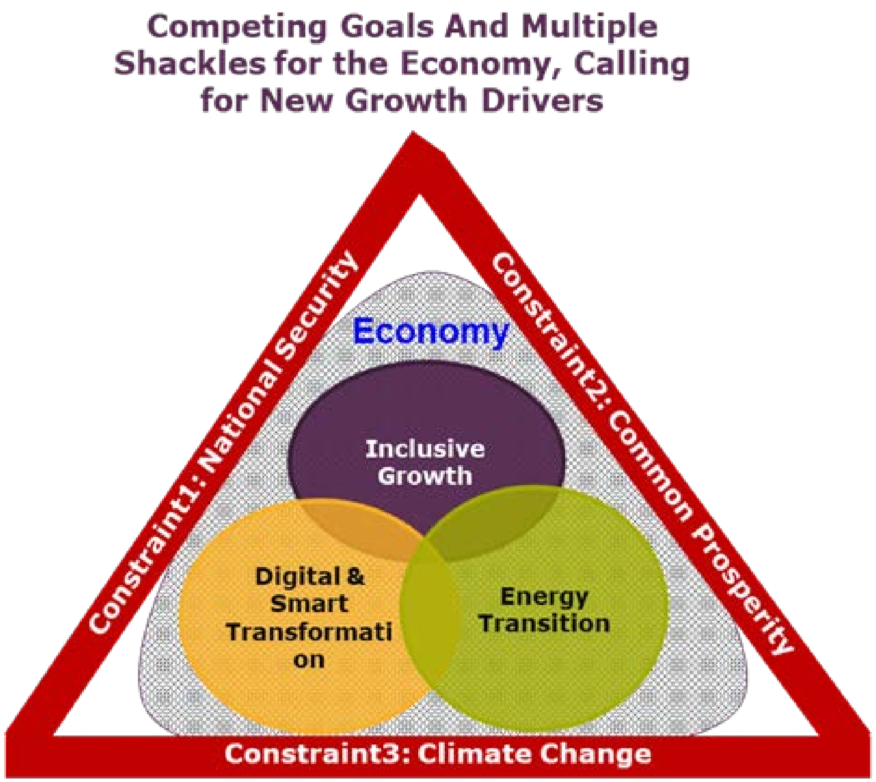
Concern #2: Risks Surrounding Geopolitics

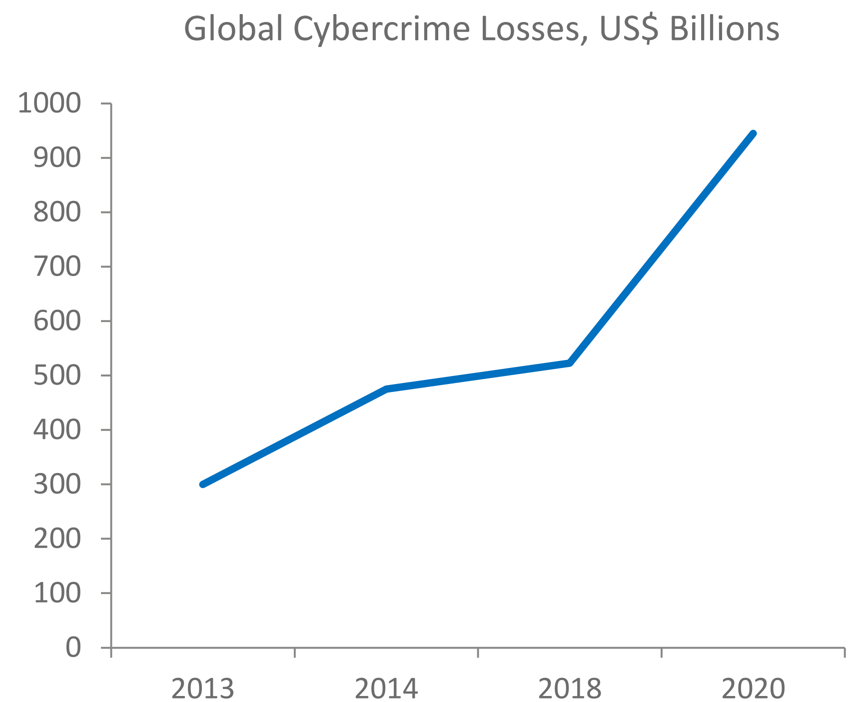
Rule of law issues and data concerns have become increasingly tense across a wide swath of countries

Competing Goals and Multiple Shackles for the Economy, Calling for New Growth Drivers



Data as at November 30, 2021. Source: KKR Global Macro & Asset Allocation analysis.

The Cost of Cybercrime Has Increased More Than 50% Since 2018

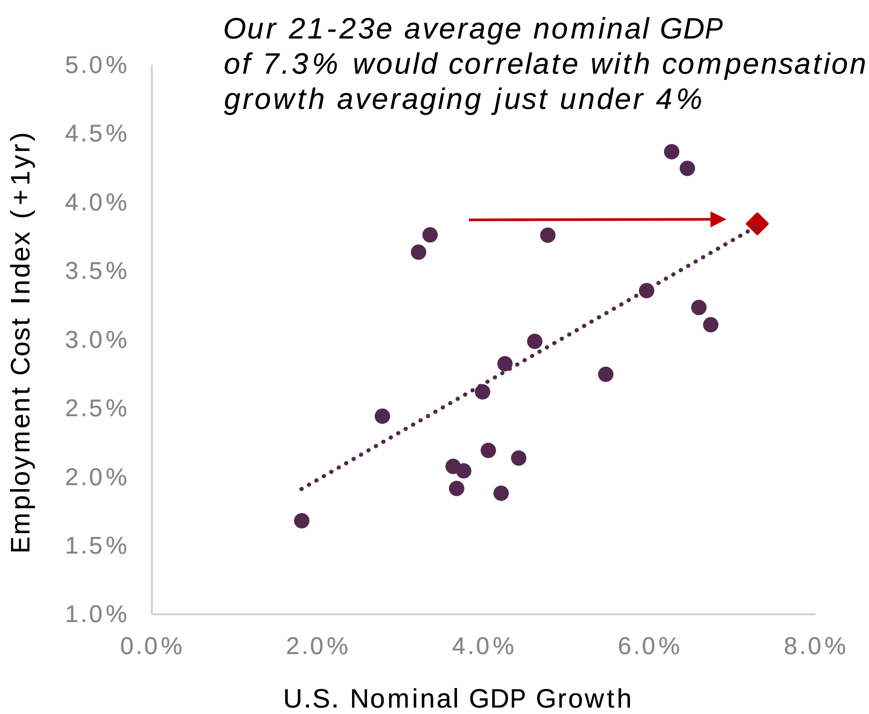


Data as at December 7, 2020. Source: The Hidden Costs of Cybercrime, McAfee and CSIS.

Concern #3: Input Prices, Including Labor and Commodities

Were input costs to rise further from here, it would likely pull forward and intensify the slowdown we are already forecasting for 2023

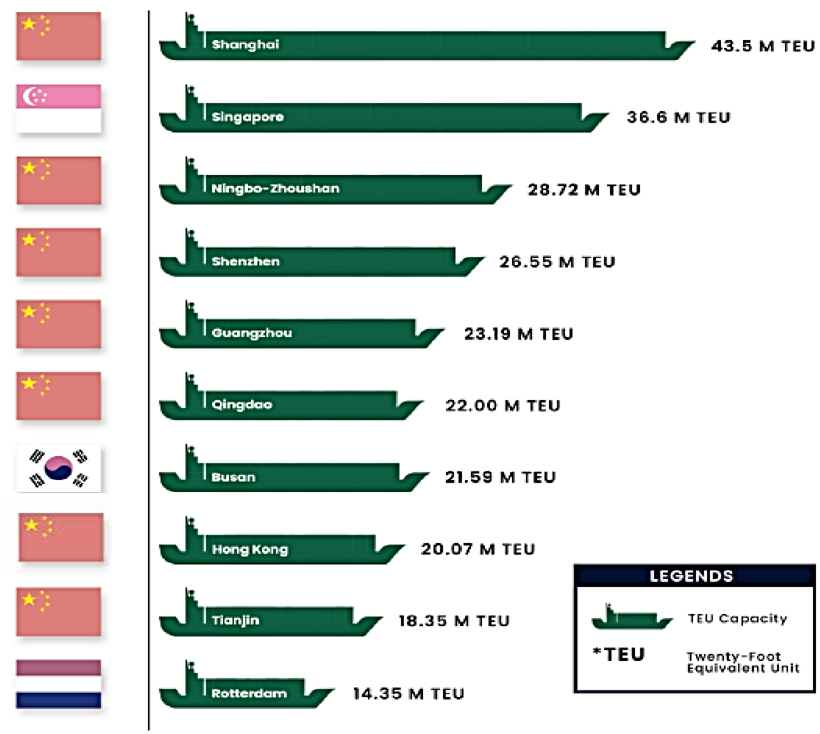
We Anticipate Compensation Growth to Average Just Under Four Percent Thru 2023



Data as at December 31, 2020. Source: BEA, Haver Analytics.

Given China's Zero COVID Policies, These Ports Could Cause Significant Global Supply Chain Disruptions Because of Omicron

Largest Container Ports, 2020, Throughput in Millions of TEUs



TEU = Twenty foot equivalent unit. Data as at December 31, 2020. Source: Abbott. Global, World Shipping Council.

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V KEY CONCLUSIONS

We Remain Pro Risk in Our Positioning

We will make forward progress in 2022, but markets will likely be choppier

01 **Overweight positions in Real Estate Equity, Credit, and Core are still justified**; we also favor a similar approach to the various subcomponents of **Global Infrastructure.**

02 We still suggest an **overweight position towards Public Equities and Private Equity**. We are largely style and region agnostic, though **we do expect Europe and select Emerging Markets as well as Energy, Industrials, and Financials to outperform.**

03 The global energy transition is a mega-theme. Importantly, **we favor both the old economy part of the transition as well as some of the new entrants, particularly on the technology and infrastructure side**. We also see consumer buying patterns changing, as individuals increasingly favor greener vendors.

04 We think the **long-end of the fixed income curve is unattractive**. The spread between 30-year and 5-year yields looks out of balance with the environment we are forecasting.

05 **We support positions in Opportunistic Credit and crossover debt/equity** funds that can seize upon periodic dislocations as well as extend debt to higher quality growth companies that no longer want to dilute their shareholders. **We also like Private Credit opportunities** that can both harness the value of the illiquidity premium and provide hedging with their floating rate structures.

06 **Allocations towards non-correlated assets, including royalties, blockchain technologies, and music rights, could be additive** to one's portfolio.

Picks and Pans

Where we suggest leaning in and out

PICK: We remain overweight Global Equities again this year relative to sovereign debt

PICK: We are overweight almost all investments linked to pricing power and collateral-based cash flows

PICK: Remain long innovation, particularly in the private markets

PICK: Buy some of what is out of favor

PICK: Within Liquid Credit, we still prefer Bank Loans to High Yield; overall, though, we favor Opportunistic Credit

PICK: Own select Commodities. We still favor oil at several spots on the forward curve (e.g., 2024); we also like commodities linked to our energy transition thesis, including aluminum, copper, and lithium as well as derivative plays such as carbon credits

PICK: Capital solutions. Providing unique capital solutions, including convertible preferred shares or PIK/ Equity structures, to private companies in innovation sectors makes a lot of sense to us

---

PAN: Price takers. The current environment most likely is going to lead to multiple and earnings de-ratings for companies that have high leverage levels and the inability to pass through costs, including labor

PAN: Long duration bonds. Last year we talked about the short-end being at risk; this year we think the risk is at the long-end

PAN: Big cap technology stocks

PAN: Turkey and Mexico

TAB 7

OPERF OPPORTUNITY PORTFOLIO ANNUAL REVIEW

January 26, 2022

OPERF Opportunity Portfolio

2021 Annual Review

Mike Mueller, Investment Officer

OREGON STATE TREASURY

Agenda

Section	Page(s)	OIC Investment and Management Beliefs Mapping																	
		1A	1B	1C	1D	2A	2B	3A	4A	4B	5A	5B	6A	6B	7A	7B	8A	8B	9A
Agenda	2																		
Overview	3		■	■	■		■		■		■								
Performance	4				■				■										
History	5				■						■								
Year in Review	6-7				■						■								
Investments as of 9/30/21	8				■		■			■									
Historical Cash Flows & Commitments	9																		
Portfolio Manager Snapshot	10						■		■										
Portfolio Strategy Snapshot	11							■		■									
Portfolio Age Snapshot	12									■									
Portfolio Role & Geography Snapshot	13				■					■									
Portfolio Liquidity Snapshot	14																		
Looking Forward	15				■				■								■		■
Appendix & OIC Policy	16-19																		

LEGEND: OIC INVESTMENT AND MANAGEMENT BELIEFS

1 **THE OIC SETS POLICY AND IS ULTIMATELY RESPONSIBLE FOR THE INVESTMENT PROGRAM**

A. Investment management is dichotomous -- part art and part science.
B. The OIC is a policy-setting council that largely delegates investment management activities to the OST and qualified external fiduciaries.
C. The OIC is vested with the authority to set and monitor portfolio risk. Both short-term and long-term risks are critical.
D. To exploit market inefficiencies, the OIC should be long-term, contrarian, innovative, and opportunistic in its investment approach.

2 **ASSET ALLOCATION DRIVES RISK AND RETURN**

A. Asset allocation is the OIC's primary policy tool for managing the investment program's long-term risk/return profile.
B. Portfolio construction, including diversification and correlation considerations, is essential to maximizing risk-adjusted returns.

3 **THE EQUITY RISK PREMIUM WILL BE REWARDED**

A. Over the long-term, equity-oriented investments provide reliable return premiums relative to risk-free investments.

4 **PRIVATE MARKET INVESTMENTS CAN ADD SIGNIFICANT VALUE AND REPRESENT A CORE OIC/OST COMPETENCY**

A. The OIC can capitalize on its status as a true, long-term investor by making meaningful allocations to illiquid, private market investments.
B. Dispersion in private market investment returns is wide; accordingly, top-quartile manager selection, diversification across vintage year, strategy type, and geography, and careful attention to costs are paramount.

5 **CAPITAL MARKETS HAVE INEFFICIENCIES THAT CAN BE EXPLOITED**

A. Inefficiencies that can be exploited by active management may exist in certain segments of the capital markets.
B. Passive investment management in public markets will outperform the median active manager in those markets over time.

6 **COSTS DIRECTLY IMPACT INVESTMENT RETURNS AND SHOULD BE MONITORED AND MANAGED CAREFULLY**

A. All fees, expenses, commissions, and transaction costs should be diligently monitored and managed in order to maximize net investment returns.
B. External incentive structures should be carefully evaluated to ensure proper alignment with investment program objectives.

7 **FAIR AND EFFICIENT CAPITAL MARKETS ARE ESSENTIAL FOR THE LONG-TERM INVESTMENT SUCCESS**

A. The OIC recognizes that the quality of regulation and corporate governance can affect the long-term value of its investments.
B. The OIC also recognizes that voting rights have economic value.

8 **THE INTEGRATION OF ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) FACTORS, SIMILAR TO OTHER INVESTMENT FACTORS, MAY HAVE A BENEFICIAL IMPACT ON THE ECONOMIC OUTCOME OF AN INVESTMENT AND AID IN THE ASSESSMENT OF RISKS ASSOCIATED WITH THAT INVESTMENT**

A. The consideration of ESG factors within the investment decision-making framework is important in understanding the near-term and long-term impacts of investment decisions.
B. Over time, there has been an evolution of multi-factor, or more holistic approaches, to identify opportunities and remediate risks, in a large globally-diversified investment portfolio.

9 **DIVERSITY, IN ALL ASPECTS, IS ACCRETIVE TO MEETING OIC OBJECTIVES**

A. By embracing and enhancing diversity and inclusion efforts, the OIC ensures that the investment program will be exposed to and informed by a wide range of perspectives, ideas and opinions.

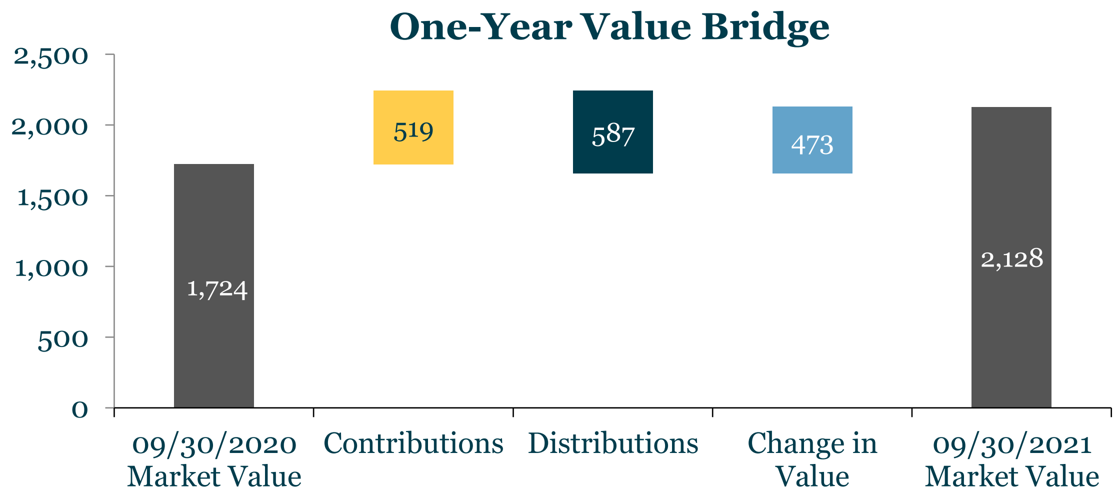
Opportunity Portfolio Overview

- **Primary Role of the Opportunity Portfolio**
  - Enable Staff to consider investments for OPERF that are outside current strategic asset class allocations
  - Provide enhanced, risk-adjusted returns and diversification to OPERF
  - Investments are expected to comprise both shorter-term (1-3 years) and longer-term holdings
  - No strategic target allocation; may comprise no more than 5% of total OPERF assets
- **Objectives**
  - Policy benchmark of CPI + 5%
  - Often uncorrelated with other OPERF holdings
  - Less risk than OPERF public equity component (half the risk, since inception)
  - Historically has incubated new strategies or portfolios (e.g., bank loans & infrastructure)
  - May be non-diversified – concentration up to 25% at time of investment
- **Strategies Types**
  - Niche / innovation oriented (e.g., royalties, reinsurance, intellectual property, direct lending, multi-asset)
  - Tactical / dislocation oriented (historical examples: bank loans, convertible bonds, general credit)

Performance

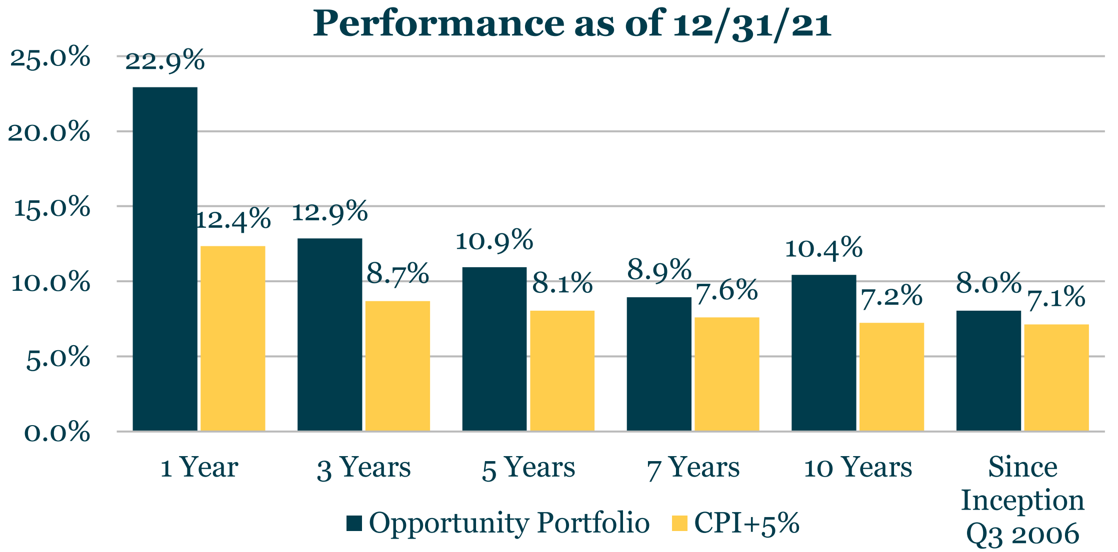
Measure	9/30/21	9/30/20
FMV + Distributions	$5,725 M	$4,734 M
FMV	$2,128 M	$1,724 M
Unfunded Commitments*	$1,512 M	$1,375 M
FMV % of OPERF	2.2%	2.2%
FMV + Unfunded Commitments % of OPERF	3.8%	3.9%
Multiple [(FMV + Distributions)/Drawn]	1.4x	1.3x
IRR Since Inception Q3 2006	8.7%	7.6%

Source: Aksia. Data as of 9/30/21.
*Includes a $100M commitment to Pathlight Capital Partners, made in October 2021.



Time-Weighted Returns	Performance 12/31/2021	CPI+5%	Performance 12/31/20	CPI+5%
1 Year	22.9%	12.4%	10.2%	6.4%
3 Years	12.9%	8.7%	7.4%	6.9%
5 Years	10.9%	8.1%	7.7%	7.0%
7 Years	8.9%	7.6%	7.1%	6.7%
10 Years	10.4%	7.2%	8.3%	6.8%
Since Inception Q3 2006	8.0%	7.1%	7.1%	6.8%

Source: State Street. Data as of 12/31/21.



16-Year History

2005	❖ Opportunity Portfolio inception	
2006	❖ Opportunity Portfolio first investment	
2007	❖ Early market fissures appear	• OPERF early to levered bank loan dislocation
2008	❖ Global Financial Crisis (GFC)	• Full-time Opportunity Portfolio Investment Officer hired • High-water mark in new commitments (number & dollars) • Heavy investment in levered bank loan strategies
2009-2010	❖ Relatively light deployment following significant investment post-GFC	
2011	❖ Three funds moved to seed new Alternatives Portfolio	
2012-2014	❖ Commitments to multi-strategy opportunistic mandates in response to limited staff resources	
2014	❖ Senior Opportunity Portfolio Investment Officer promoted to Director of Alternatives Program	
2015-2018	❖ Relatively stable to light deployment	
2019	❖ Appointment of Investment Officer dedicated to Opportunity Portfolio	
2020	❖ COVID-19 causes widespread market disruption, commitments made to two funds to pursue related investment opportunities	
2021	❖ Closed on four niche investment strategies	

2021 Year in Review

- The Opportunity Portfolio's $2.1 billion market value remained at approximately 2.2% of OPERF over the past year, within the 5.0% OIC Policy limit (see Appendix). Importantly, as shown on Page 14, nearly 30% of the Portfolio is very liquid.
- A key goal is serving as a clearinghouse for any strategy that does not have a strategic allocation "home." As noted on Page 7, a plurality of the 100+ investment opportunities, during 2021, continues to come from private credit strategies, which is not surprising, since "Private credit is the third-largest private capital asset class after PE and real estate."[1]
- The Portfolio is concentrated among five partners comprising approximately 75% of current Portfolio value, and a majority of the Portfolio is in credit related opportunities (see pages 8, 10-11).
- During 2021, the OIC authorized commitments with four new managers including two new private credit-based strategies and two market innovating strategies. Details of the $550 million in new commitments can be found on Page 7.
- The Portfolio has generated net positive cash flows from 2017 to present, detailed on Page 9.
- Two partnerships wrapped up in 2021 and one relationship was terminated, leaving 15 manager relationships in the Portfolio.

[1] 2022 Global Private Equity Outlook, Mergermarket on behalf of Dechert LLP.

2021 Year in Review (cont.)

2021 Opportunity Portfolio Deal Flow

- Scale, brand, existing relationships and open-door policy leveraged to foster solid deal flow
- Broad opportunity set has helped meeting count remain consistent over time; referrals from across team
- Points of contact (in-person or calls) exceeded 150, including over 120 related to prospective investments
- Sizable uptick in the number of private credit/direct lending opportunities as part of the flow (55+)
- Deep dives/further due diligence on opportunities including private equity liquidity solutions, credit opportunities, and sports/media
- Closed on four funds, detailed in table below:

Investment Name	Authorized Date	First OPERF Drawdown	Commitment Amount
Whitehorse Liquidity Partners Fund IV	March 2021	March 2021	$200,000,000
Blue Torch Credit Opportunities Fund II	March 2021	April 2021	$100,000,000
Arctos Sports Partners Fund I	August 2021	October 2021	$150,000,000
Pathlight Capital Fund II	October 2021	December 2021	$100,000,000
2021 Total Authorized			**$550,000,000**

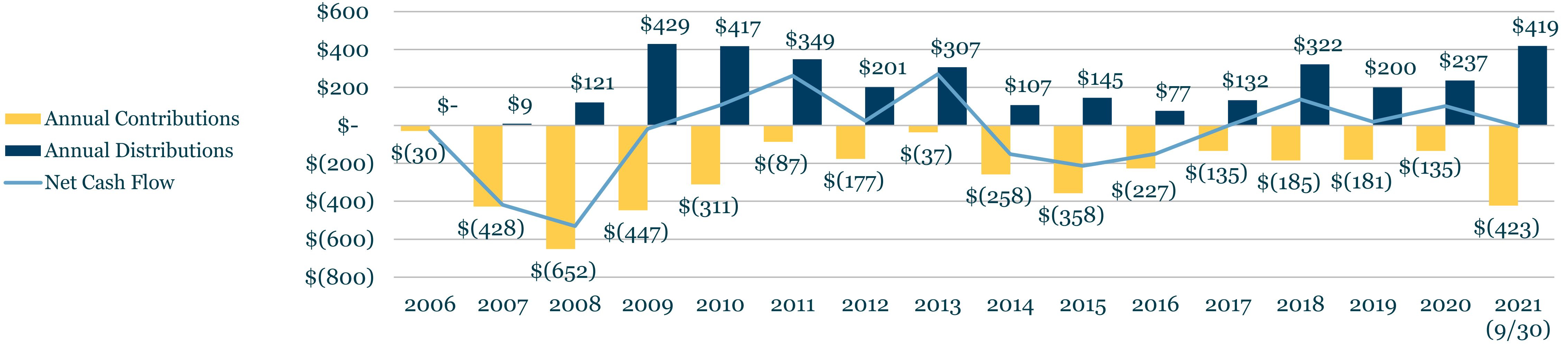
Investments as of 9/30/21

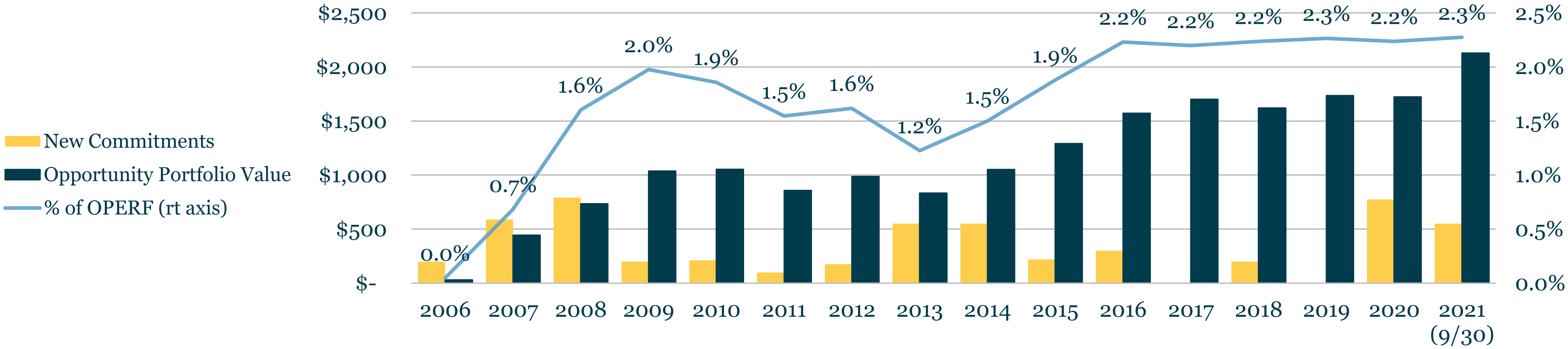
Fund	Vintage Year(s)	Status	Strategy	Sector	Role	FMV as of 9/30/21 ($K)	Commitment ($M)
Fidelity Real Estate Opportunistic Income Fund	2007	Evergreen	Credit	Real Estate	Niche	$ 161,170	$ 100
Providence TMT Special Situations Fund	2008	Dissolution	Credit	Diversified	Tactical	$ 867	$ 100
Sanders Capital All Asset Value Fund[1]	2010	Evergreen	Equity	Diversified	Niche	$ 404,893	$ 200
Nephila Advisors Juniper and Palmetto Funds	2012	Liquidation	Insurance	P&C	Niche	$ 24,601	$ 100
Blackstone Tactical Opportunities[2]	2013	Active	Equity	Diversified	Niche	$ 203,325	$ 500
Galton Onshore Mortgage Recovery Fund III	2013	Dissolution	Credit	Real Estate	Niche	$ 8,041	$ 50
Content Partners Fund III	2014	Harvest	Royalties	Media	Niche	$ 13,469	$ 50
Lone Star Residential Mortgage Fund I	2014	Harvest	Credit	Real Estate	Niche	$ 3,060	$ 43
Sixth Street TAO 2.0/3.0	2014	Evergreen	Credit	Diversified	Niche	$ 419,492	$ 500
OrbiMed Royalty Opportunities Fund II	2015	Harvest	Royalties	Healthcare	Niche	$ 3,598	$ 35
Sixth Street SLE I	2015	Harvest	Credit	Diversified	Niche	$ 34,098	$ 100
Lone Star Fund X	2016	Harvest	Equity	Diversified	Niche	$ 89,810	$ 150
Owl Rock Capital Corporation (BDC) (ORCC)[3]	2016	Evergreen	Credit	Diversified	Niche	$ 190,343	$ 150
Clearlake Flagship Plus Partners, L.P.	2020	Active	Equity/Credit	Diversified	Tactical	$ 53,823	$ 200
OHA Tactical Investment Fund	2020	Active	Credit	Diversified	Tactical	$ 100,923	$ 300
Owl Rock Capital Corporation III (BDC)[4]	2020	Active	Credit	Diversified	Niche	$ 117,897	$ 150
Sixth Street SLE II	2020	Active	Credit	Diversified	Niche	$ 25,109	$ 125
Sixth Street TAO Contingent[5]	2020	Active	Credit	Diversified	Tactical	$ 80,885	$ 200
Arctos Sports Partners Fund I	2021	Active	Equity	Sports	Niche	$ 10,124	$ 150
Blue Torch Credit Opportunities Fund II	2021	Active	Credit	Diversified	Niche	$ 57,412	$ 100
Whitehorse Liquidity Partners Fund IV	2021	Active	Preferred	Diversified	Niche	$ 125,483	$ 200
					Total Opportunity Portfolio:	$ 2,128,423	$ 3,503
					Allocation within OPERF:	2.3%	

1 The Sanders Capital All Asset Value Fund mandate allows multi-asset holdings; however, the portfolio is currently predominately in equity securities.
2 While the fund strategy can pursue a broad range of equity and credit investments in private and public securities and instruments, the majority of fund investments have an equity component.
3 Includes Blue Owl Stock.
4 Includes Owl Rock Capital Diversified Holdings (ORDH).
5 The fund commitment was made in January 2018 and was activated in April 2020.

Source: Aksia and OST Staff.

Historical Cash Flows & New Commitments

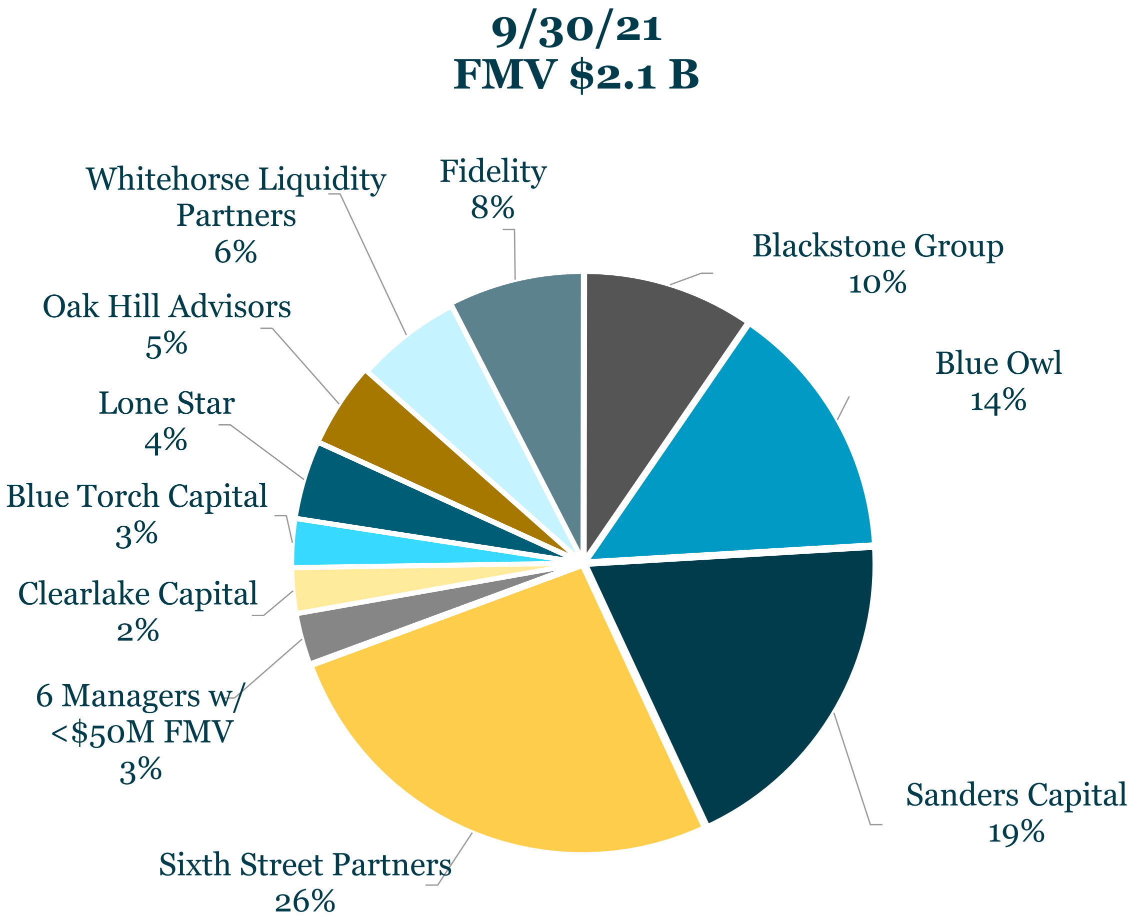


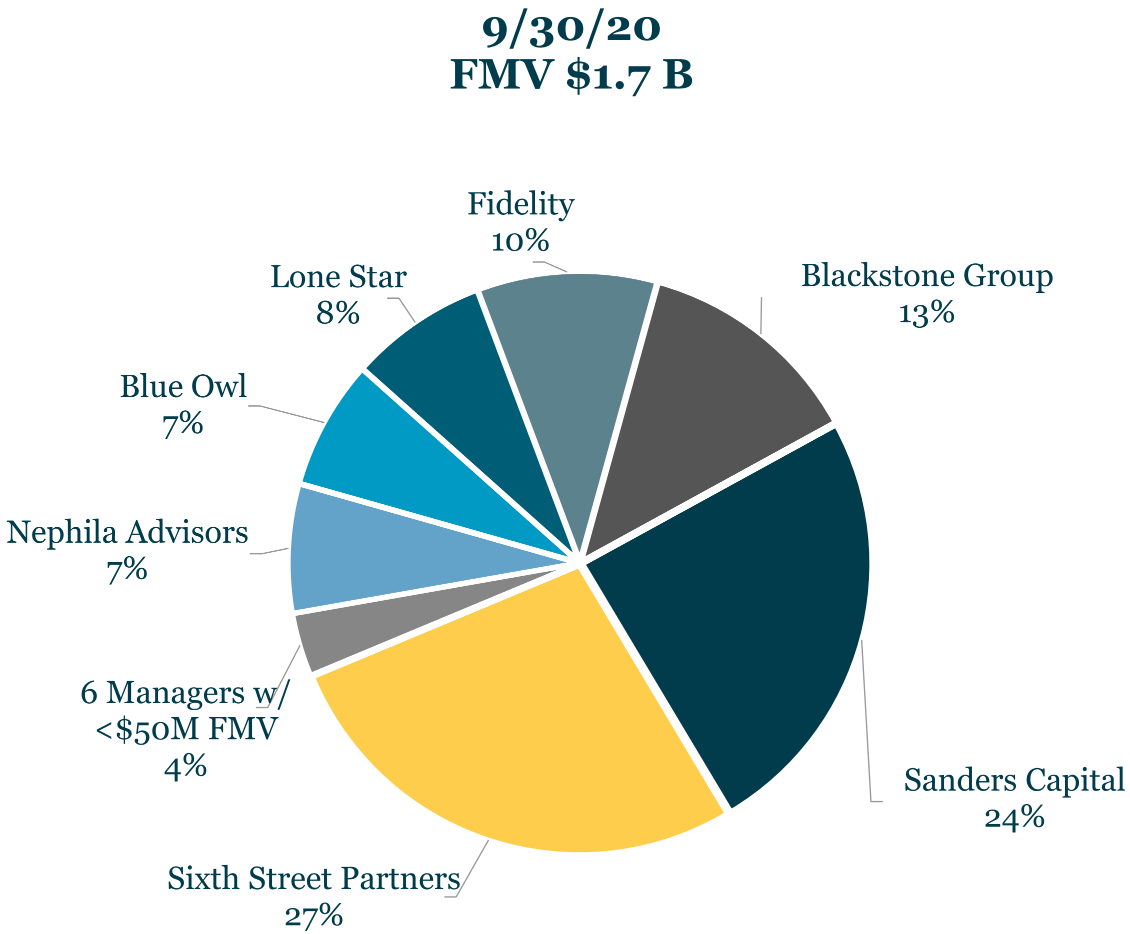


Source: Aksia and State Street. Data as of 9/30/21.

OREGON STATE TREASURY

Portfolio Manager Snapshot

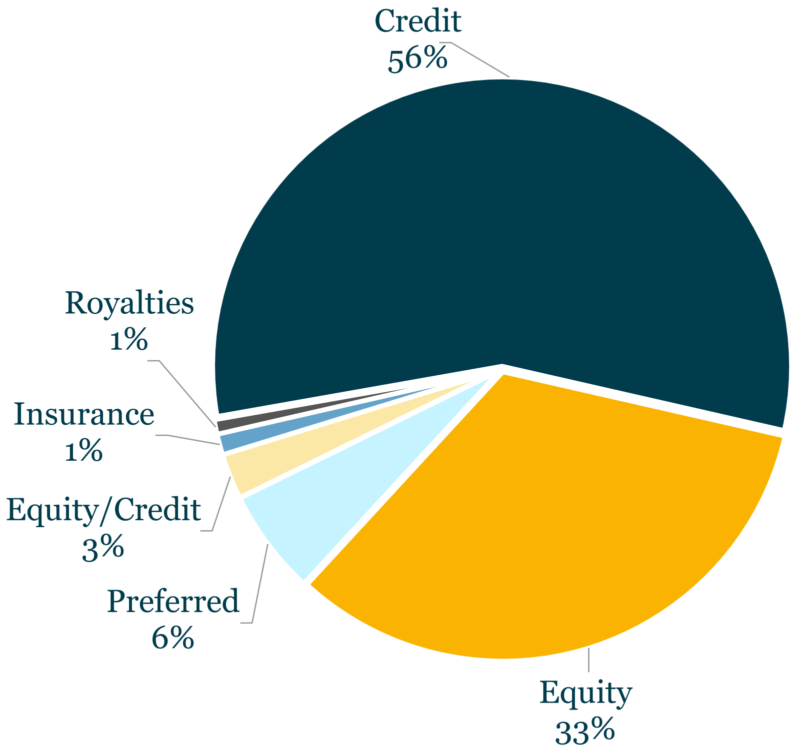




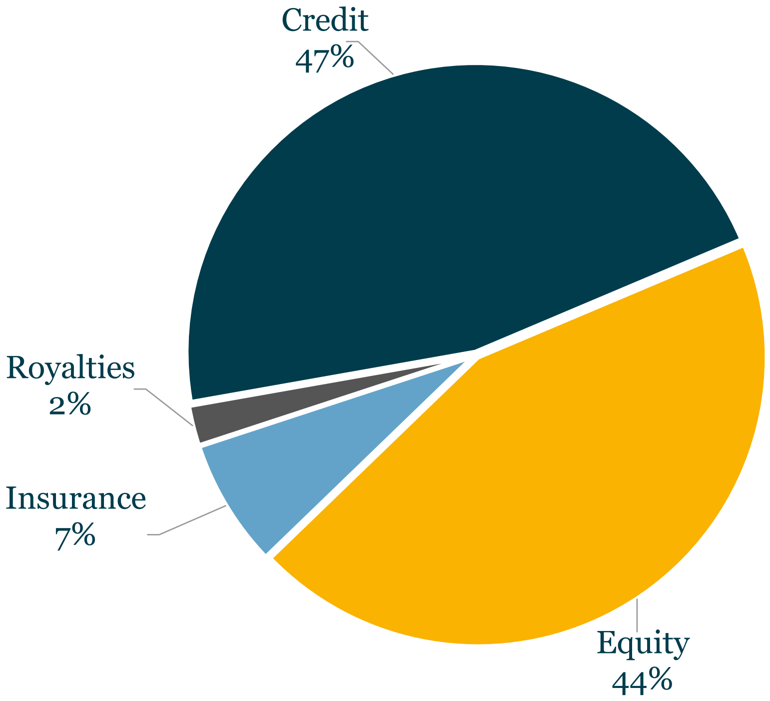
Source: Aksia and OST Staff.

Portfolio Strategy Snapshot

9/30/21
FMV $2.1 B

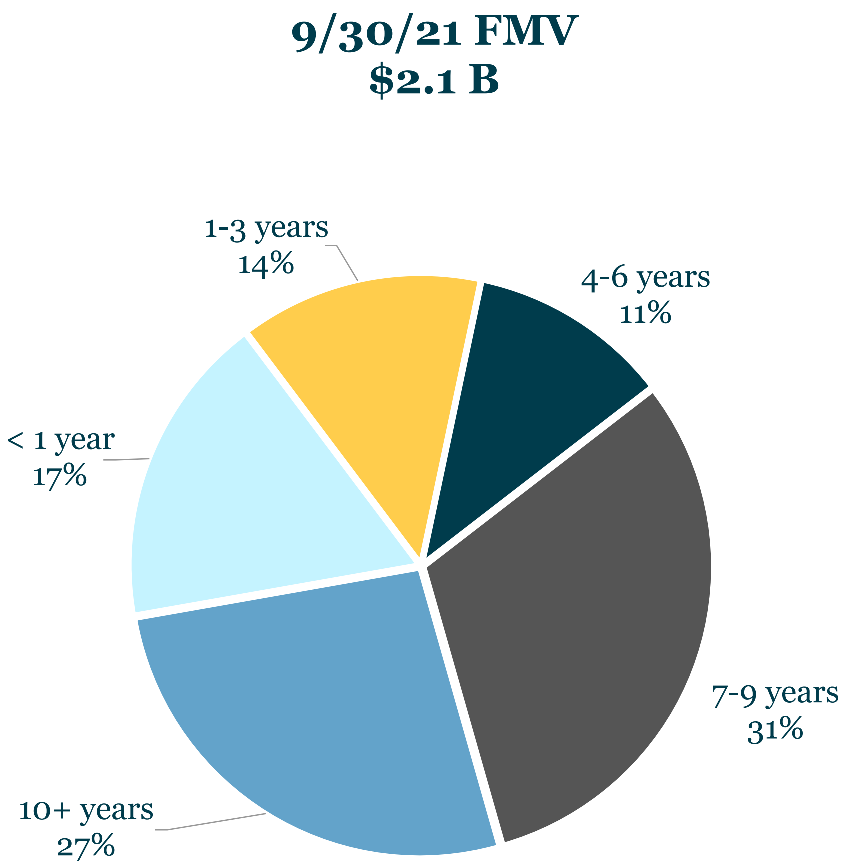


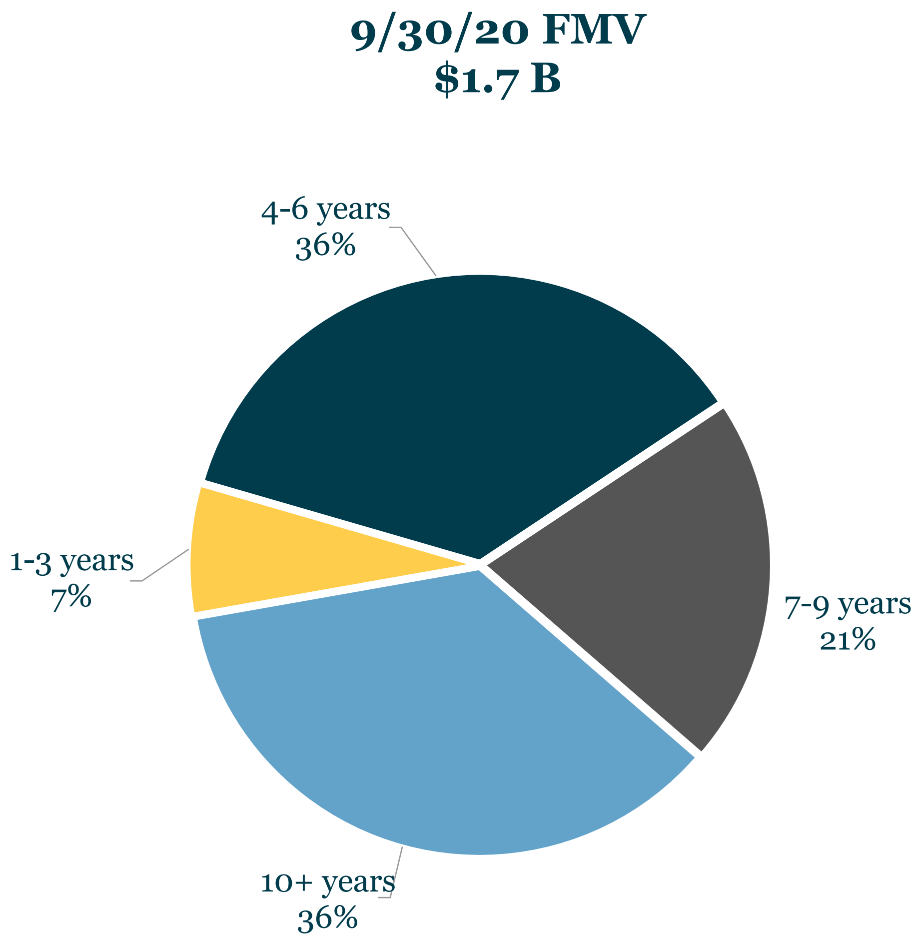
9/30/20
FMV $1.7 B



Source: Aksia and OST Staff.

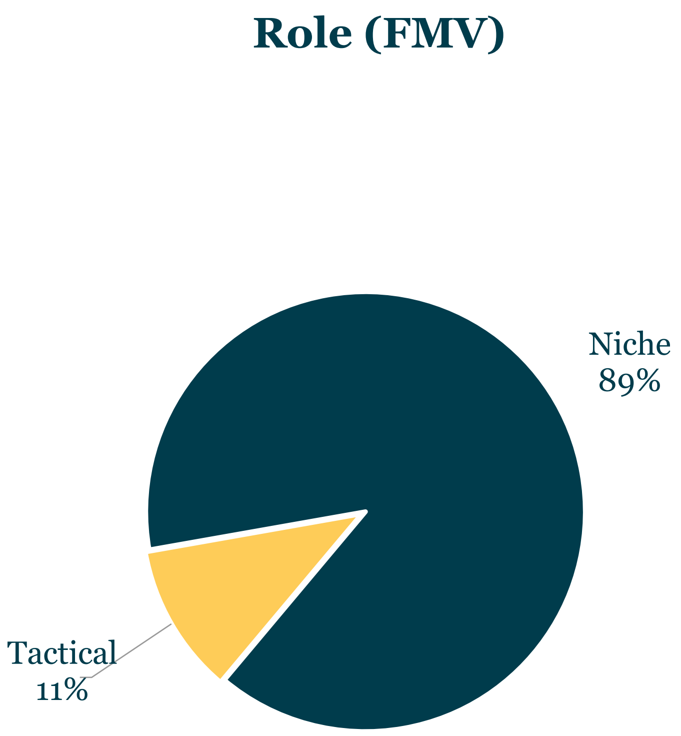
Portfolio Age Snapshot

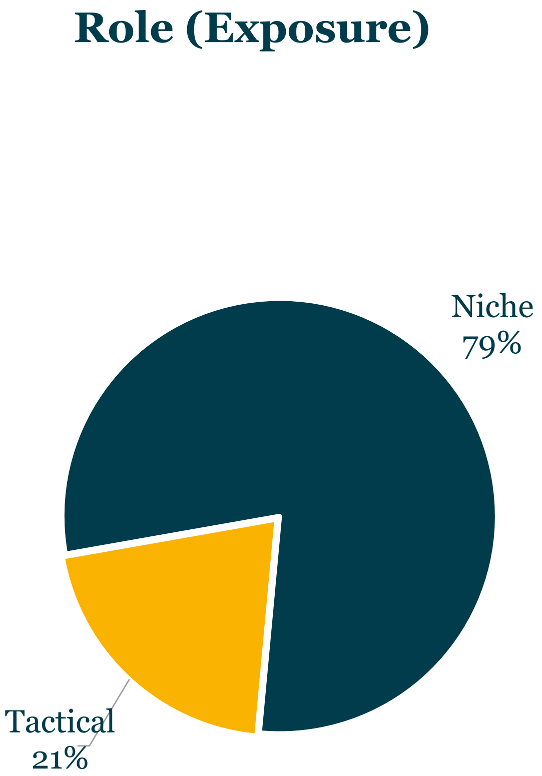


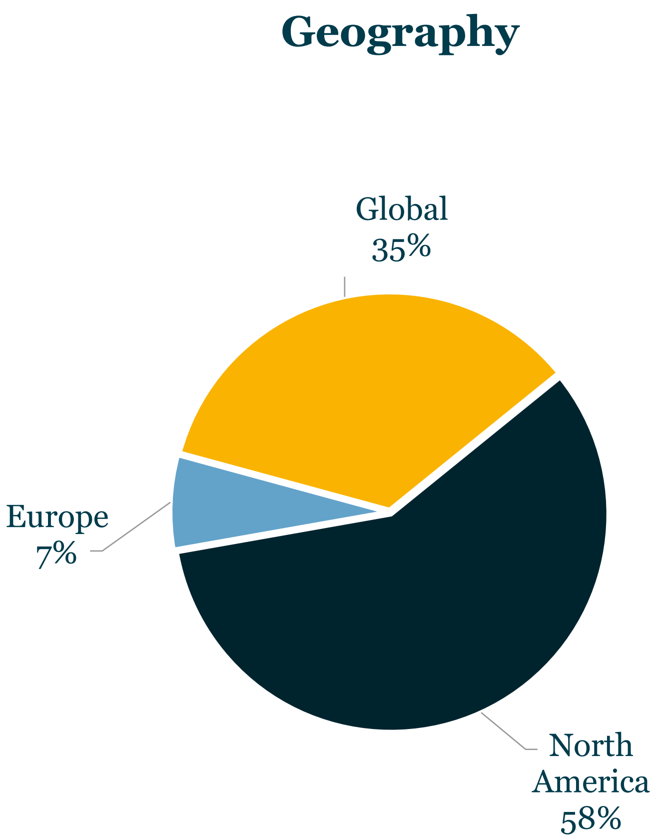


Source: Aksia and OST Staff.

Portfolio Role & Geography Snapshot





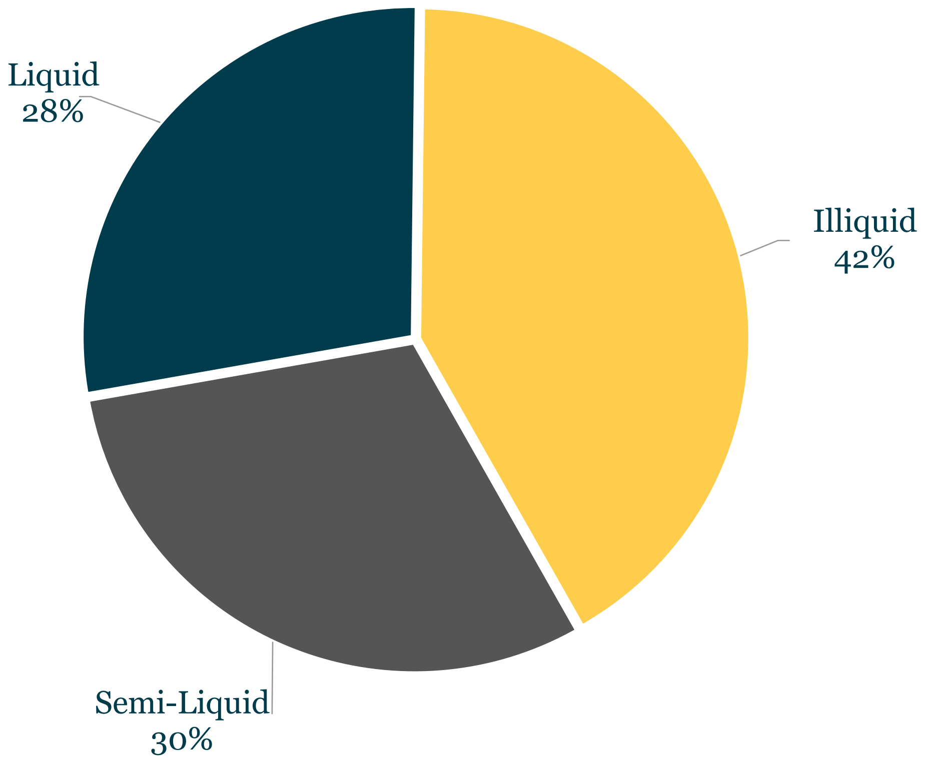


Source: Aksia and OST Staff.

OREGON STATE TREASURY

Portfolio Liquidity Snapshot

- ➢ Liquid – Primarily publicly-traded securities (<1 month).
- ➢ Semi-Liquid – Investments with quarterly or semi-annual redemption rights (1-3 years).
- ➢ Illiquid – Traditional private equity-like investment structures (>3 years).



Source: OST Staff.

Looking Forward

- The Opportunity Portfolio is well-positioned to continue to deploy capital as attractive, niche strategies arise or if presented with new market stresses.
- The Portfolio continues to have significant capacity to invest capital before the 5% policy limit would be exceeded, but we remain mindful of OPERF's overall exposure to illiquid assets, particularly in private equity.
- Given the foregoing, for calendar year 2022, we do not expect to add new relationships to the portfolio but will focus on existing managers that are returning to market with overall commitments not expected to exceed $400 million for the year.
- Aksia's current contract term with the OIC, providing monitoring and due diligence services for the Opportunity Portfolio, expires at the end of 2022; Staff will provide the OIC a recommendation before year-end.

Appendix: Investment Process

- Evaluation framework
  - Very high-level framework summary illustrated below.
  - In practice, a non-linear process with many more variables and numerous feedback channels.

Fit	Skill Assessment	Timing/Opportunity Set	Governance
-Low expected overlap and correlation with other strategies -Sources of risk/return -Scope of mandate -Pacing -Relationship target ***Additive to the Portfolio**	-Firm, team, strategy evaluation -Investment performance evaluation -Differentiated -Culture -Financial discipline -Effective implementation ***Confidence manager will achieve their objectives**	-Valuations -Fundraising activity -Contrarian approach -Asymmetric return profile -Manager assessment of opportunity set ***Awareness of cycles**	-Ownership -Economics -Protections/remedies -Transparency -GP commitment -ESG + D&I ***GP/LP alignment and spirit of partnership**

Internal Review
ATL > CIO > Consultant

Underwriting Package
Scorecard > Reference Calls > Track Record > Memo

Legal Review
Terms and Conditions

Portfolio

Appendix: OIC Policy

Current Status: *Active* **PolicyStat ID:** *9387950*

OREGON STATE TREASURY

Origination:	03/2015
Last Approved:	04/2021
Last Revised:	04/2021
Next Review:	04/2022
Owner:	Mike Mueller: Alternatives Investment Officer
Policy Area:	Investments
References:	OST Policy 4.06.03

INV 703: OPERF Opportunity Portfolio Standards & Procedures

INTRODUCTION & OVERVIEW

Summary Policy Statement

To accomplish the prudent and efficient implementation of investment policies established by the Oregon Investment Council ("OIC" or "Council"), Oregon State Treasury ("OST") created the Opportunity Portfolio (the "Portfolio") as an investment strategy within the Oregon Public Employees Retirement Fund ("OPERF" or the "Fund"). The Portfolio may be populated with investment approaches across a wide range of investment opportunities with no limitation on asset classes or strategies employed, subject to (i) a total current fair market value that is no more than five percent of the Fund's total value and (ii) a reporting requirement at any time that such value exceeds three percent (as described below). The Opportunity Portfolio seeks to achieve its investment objective by making investments and partnership commitments that, for any one or more reasons, do not conform to the guidelines and objectives of the OIC's previously identified asset classes (i.e., public equities, fixed income, real estate, private equity, alternative investments and cash). The Chief Investment Officer ("CIO") shall report to the OIC the Portfolio increase above three percent and not to exceed five percent of the Fund's total value at the next, most feasible OIC meeting.

Purpose and Goals

The goal of this policy is to provide guidance to OST staff ("Staff") and advisors regarding the Portfolio and its investment objectives.

Applicability

Classified represented, management service, unclassified executive service

Authority

ORS 293.726

ORS 293.731

ORS 293.736

POLICY PROVISIONS

Definitions

Advisor: One or more independent third party (consultant) firms retained by the OIC and working in concert with Staff to provide expert investment counsel, due diligence, and ongoing portfolio monitoring.

Benchmark: The Consumer Price Index plus a premium defined as 500 basis points.

Policy Statements

I. GENERAL POLICY

Portfolio investments provide an appropriate complement to OPERF's other investments, and are consistent with OPERF's general objectives, including:

A. Providing a means to pay benefits to OPERF participants and their beneficiaries;

B. Investing to produce a return based on prudent and reasonable levels of liquidity and investment risk;

C. Attaining an adequate real return over the expected rate of inflation; and

D. Complying with all applicable laws and regulations concerning the investment of pension assets.

Portfolio investments should exhibit differentiated (i.e., less correlated) returns relative to other Fund assets and therefore the Portfolio is expected to provide diversification benefits to the Fund.

Staff and the Advisor will provide the OST and OIC with an annual Portfolio investment review.

II. OBJECTIVES

A. Portfolio Investment Performance Objective

The Portfolio's investment performance objective is to generate long-term net returns to OPERF (i.e., after management fees and general partners' carried interest) above the Benchmark. The premium portion of the Benchmark compensates for illiquidity, principal risk and related investment costs and expenses. OST Staff will periodically evaluate the Portfolio's performance objective and the Benchmark.

B. Diversification

1. The Portfolio may be non-diversified, meaning that Staff may concentrate its investments. However, with the exception of cash, the Portfolio's allocation to a particular investment or partnership commitment cannot exceed 25%, at the time of investment..

2. Certain investments may be allocated to the Portfolio for incubation purposes and, if successful, may be recommended for transfer into one of the other, primary OPERF asset classes.

3. Investments will be diversified among a range of commitment sizes, generally with a minimum commitment of $50 million and a maximum commitment equal to 25% of any particular commingled partnership. Staff will document and report to the OIC any deviations from these guidelines.

4. Given the truly opportunistic nature and objective of the Portfolio, Staff expects its investments and partnership commitments may be highly episodic and inconsistent over time.

5. A low correlation between OPERF and Portfolio returns is expected over time.

III. OPPORTUNITY PORTFOLIO COMMITTEE

A. The Portfolio Committee ("Committee") acts on behalf of, and subject to the review of, OST. The Committee is comprised of the following individuals: the Deputy State Treasurer; the CIO; and an OIC member invited by the OST to participate as a voting member on the Committee. OST will consider input from the OIC in extending such invitations.

B. OST, through the Committee, may invest OPERF amounts up to and including $250 million per investment for new general partner, fund sponsor or manager relationships, and an amount up to and including $350 million for existing relationships, consistent with OIC policies (see Appendix B). If consideration of a particular investment opportunity is deemed urgent or otherwise less suited for presentation to the OIC, the CIO may seek OIC approval for Committee consideration of that particular investment opportunity.

C. The Committee will only exercise its investment authority by unanimous vote and acting upon a favorable due diligence determination by the Advisor. The Committee may only consider proposed investments if agreement exists between the Advisor and Staff that the proposed investment is consistent with Portfolio standards. Proposed investments or partnership commitments presented to the Committee are subject to review by OST, which may choose to cancel or refer such proposed investments or partnership commitments to the OIC for broader review and consideration.

D. In connection with a proposed investment or partnership commitment, Staff shall furnish any favorable due diligence determination, including the underlying rationale, market conditions and portfolio impact, to the OIC as soon as practical and at least one week prior to a Committee meeting called for purposes of considering the proposed investment or partnership commitment. If OST objects to the proposed investment or partnership commitment or is advised by any OIC member that he or she objects to the proposed investment or partnership commitment, OST will cancel the proposed investment or partnership commitment and determine whether or not Staff will bring same as a separate agenda item at a subsequent OIC meeting.

E. Staff shall report any investment or partnership commitment made by the Committee at the next, most feasible OIC meeting.

IV. OST STAFF AUTHORITY

The CIO, upon a favorable recommendation from both the Director of Alternative Investments and the Advisor, has authority to accomplish the following:

A. Approve OST administrative activities and guideline exceptions if a plan is established to conform the investment exception(s) to applicable guidelines within a reasonable period of time;

B. Acquire, retain, manage and dispose of investment or partnership interests consistent with the authority granted to the Office of the State Treasurer pursuant to ORS 293.736. Review and approve other activities as necessary to further the interests of the Portfolio consistent with its standards; and

C. Approve up to an additional $50 million, per action, to an existing investment or partnership commitment for the following purposes: (1) recapitalize the investment or partnership with additional equity; (2) acquire all or part of another manager's or limited partner's interest in an investment or partnership; (3) re-balance between or among investments or partnership commitments; or (4) co-invest alongside a partnership in an individual investment. Any such additional investments or partnership commitments shall be on terms equal to or better than the existing terms

D..Staff shall report any of the foregoing activities at the next, most feasible OIC meeting.

V. ADVISOR AND OST REQUIREMENTS

Staff manages the Portfolio in collaboration with the Advisor. Subject to budget limitations, OST will assign an appropriate number of Staff to manage Portfolio design and construction, the Portfolio's investment decision-making schedule and process, and the Advisor's contract. The OIC will retain a qualified, independent Advisor and will delegate to that Advisor substantial duties such as performing due diligence on investment opportunities, monitoring Portfolio investments, performing Portfolio analytics and valuation analyses and preparing performance reports.

Staff retains the primary responsibility to ensure that Portfolio investments and prospective investments receive appropriate due diligence, monitoring, and valuation analyses.

VI. MONITORING

A. **Reports**. The Advisor will furnish Portfolio activity and performance reports to Staff on both a quarterly and annual basis.

B. **Adherence to Strategy**. Staff and the Advisor will evaluate the actual strategy employed by investment managers or general partners relative to stated Portfolio objectives, strategies or other industry standards. The Advisor will interact with investment managers and general partners periodically and as necessary to verify adherence to such objectives, strategies and standards.

Exceptions

None

Failure to Comply

Failure to comply with this policy may be cause for disciplinary action up to and including dismissal.

PROCEDURES and FORMS

Appendix A: OST Procedures for INV 703

Appendix B: OIC/OST Alternative Investments Authority

ADMINISTRATION

Feedback

Your comments are extremely important to improving the effectiveness of this policy. If you would like to comment on the provisions of this policy, you may do so by e-mailing the Policy Analyst. To ensure your comments are received without delay, *please list the policy number and name in your e-mail's subject.* Your comments will be reviewed during the policy revisions process and may result in changes to the policy.

Attachments

Appendix A: OST Procedures for INV 703

OREGON
STATE
TREASURY

Tobias Read
Oregon State Treasurer

16290 SW Upper Boones Ferry Road
Tigard, OR 97224

oregon.gov/treasury

TAB 8

OPERF RISK PARITY PORTFOLIO ANNUAL REVIEW

January 26, 2022

OPERF Risk Parity 2021 Annual Review

Karl Cheng
Senior Investment Officer, Portfolio Risk & Research

OREGON STATE TREASURY

Agenda

		OIC Investment and Management Beliefs Mapping																		
Section	Pages	1A	1B	1C	1D	2A	2B	3A	4A	4B	5A	5B	6A	6B	7A	7B	8A	8B	9A	9B
Agenda	2																			
Risk Parity Strategic Role	3																			
OPERF Risk Parity Performance	4 - 5																			
OPERF Risk Parity Asset Allocations	6																			
Looking Back	7																			
Looking Forward	8																			
Functional Roles of RP Exposures	9																			
Other Considerations of Risk Parity	10																			
Functional Roles of RP Exposures	11 - 14																			

LEGEND: OIC INVESTMENT AND MANAGEMENT BELIEFS

1 **THE OIC SETS POLICY AND IS ULTIMATELY RESPONSIBLE FOR THE INVESTMENT PROGRAM**

A. Investment management is dichotomous -- part art and part science.
B. The OIC is a policy-setting council that largely delegates investment management activities to the OST and qualified external fiduciaries.
C. The OIC is vested with the authority to set and monitor portfolio risk. Both short-term and long-term risks are critical.
D. To exploit market inefficiencies, the OIC should be long term, contrarian, innovative, andopportunistic in its investment approach.

2 **ASSET ALLOCATION DRIVES RISK AND RETURN**

A. Asset allocation is the OIC's primary policy tool for managing the investment program's long-term risk/return profile.
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4 **PRIVATE MARKET INVESTMENTS CAN ADD SIGNIFICANT VALUE AND REPRESENT A CORE OIC/OST COMPETENCY**

A. The OIC can capitalize on its status as a true, long-term investor by making meaningful allocations to illiquid, private market investments.
B. Dispersion in private market investment returns is wide; accordingly, top-quartile manager selection, diversification across vintage year, strategy type, and geography, and careful attention to costs are paramount.

5 **CAPITAL MARKETS HAVE INEFFICIENCIES THAT CAN BE EXPLOITED**

A. Inefficiencies that can be exploited by active management may exist in certain segments of the capital markets.
B. Passive investment management in public markets will outperform the median active manager in those markets over time.

6 **COSTS DIRECTLY IMPACT INVESTMENT RETURNS AND SHOULD BE MONITORED AND MANAGED CAREFULLY**

A. All fees, expenses, commissions, and transaction costs should be diligently monitored and managed in order to maximize net investment returns.
B. External incentive structures should be carefully evaluated to ensure proper alignment with investment program objectives.

7 **FAIR AND EFFICIENT CAPITAL MARKETS ARE ESSENTIAL FOR THE LONG-TERM INVESTMENT SUCCESS**

A. The OIC recognizes that the quality of regulation and corporate governance can affect the long-term value of its investments.
B. The OIC also recognizes that voting rights have economic value.

8 **THE INTEGRATION OF ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) FACTORS, SIMILAR TO OTHER INVESTMENT FACTORS, MAY HAVE A BENEFICIAL IMPACT ON THE ECONOMIC OUTCOME OF AN INVESTMENT AND AID IN THE ASSESSMENT OF RISKS ASSOCIATED WITH THAT INVESTMENT**

A. The consideration of ESG factors within the investment decision-making framework is importantin understanding the near-term and long-term impacts of investment decisions.
B. Over time, there has been an evolution of multi-factor, or more holistic approaches, to identify opportunities and remediate risks, in a large globally-diversified investment portfolio.

9 **DIVERSITY, IN ALL ASPECTS, IS ACCRETIVE TO MEETING OIC OBJECTIVES**

A. By embracing and enhancing diversity and inclusion efforts, the OIC ensures that the investment program will be exposed to and informed by a wide range of perspectives, ideas and opinions.

Risk Parity Strategic Role

The strategic role of OPERF risk parity investments is outlined in *OIC Policy INV 610 – Strategic Role of Risk Parity for OPERF*.

- Risk parity strategies provide levered long-only exposures to a combination of public equity, fixed income, and commodity betas targeting returns approximating that of public equity but with a lower volatility of returns.
- It is expected that this portfolio of exposures, particularly levered exposures to sovereign bonds or interest rates, will improve OPERF's diversification and have better downside characteristics than an equity index investment.

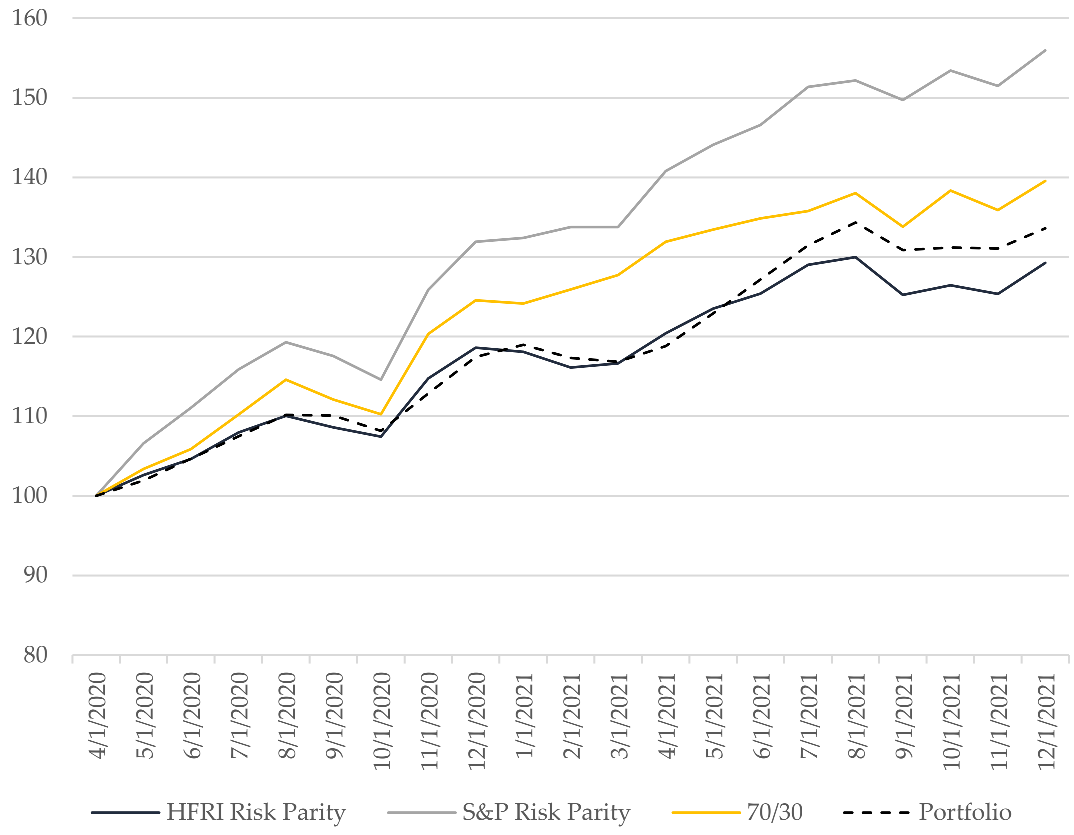
Source: State Street

OPERF Risk Parity Performance[1] (1)

	Market Value ($M)	3 Months	Since Inception (May 2020)
OPERF Risk Parity	**$2,276**	**2.09%**	**18.98%**
S&P Risk Parity (12% Target Volatility)		4.16%	30.57%
Excess Return		**-2.07%**	**-11.58%**

- There is no representative "market" index for risk parity. S&P licensed the proprietary methodology from a third-party firm.
- Nuances with the index construction methodology – greater leverage and more commodity exposures – also led to underperformance.

[1]Portfolio Performance include preliminary December 2021 performance numbers from State Street.



HFRI Risk Parity 12% Vol in an equal-weighted index of all risk parity strategies with AUM of at least $500 million and a target volatility between 10-15%.

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OPERF Risk Parity Performance (2)

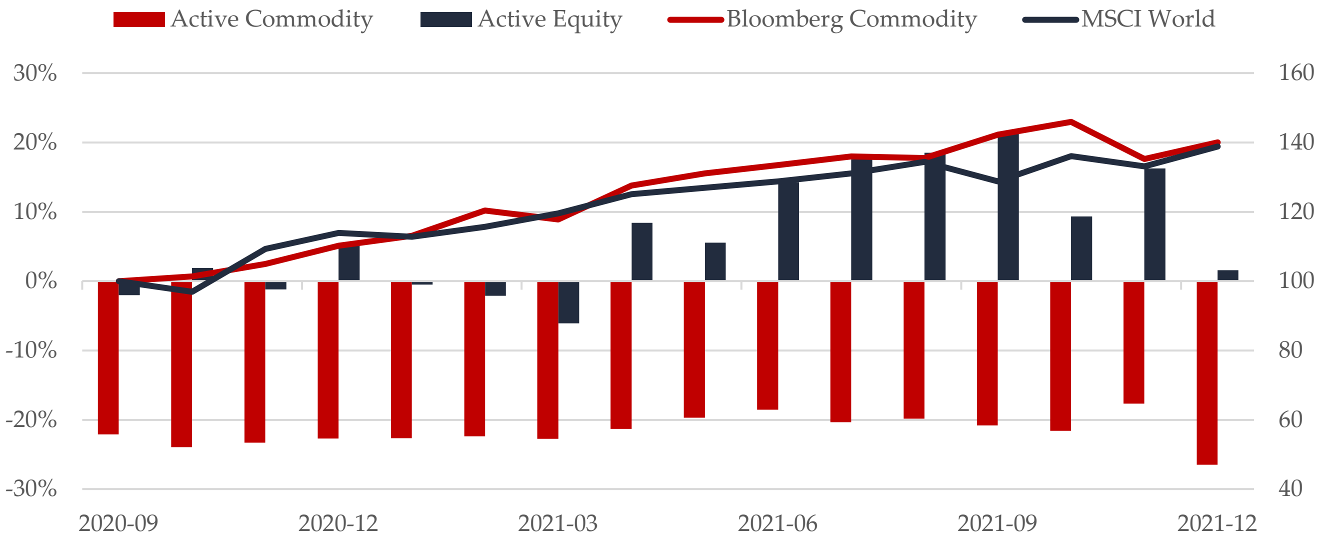
OPERF Risk Parity Portfolio trailed the S&P Risk Parity – 12% Volatility Index in 2021.

- The Portfolio performed better than the average peer, as proxied by the HFR Risk Parity Index.
- The asset allocation of the Portfolio is the major detractor of relative performance.

OPERF Risk Parity Asset Allocations

	Exposure As of 2021-12 (%)		
Asset Class	**Portfolio**	**Benchmark**	**Difference**
Nominal Long Rates	124	219	-95
Inflation-Linked Bonds	45		45
Credit	47		47
Equities	58	45	13
Commodities	27	48	-22
Total	**300**	**311**	**-12**

	Return (%)	
Index	**YTD**	**SI**
Bloomberg Global Treasury	-7	0
Bloomberg Global Inflation-Linked	3	15
HIS Markit CDX NA IG 5-Year	1	2
MSCI World	22	61
Bloomberg Commodity	27	63



Compared to the Benchmark, the Risk Parity Portfolio has an average underweight of 20% to Commodities.

The Portfolio is currently overweight Equities but that was due to changes in positioning in the second half of 2021.

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Looking Back

April 2019	OIC approved a 2.5% target allocation to Risk Parity.
December 2019	OIC approved $650-million allocations to Man AHL TargetRisk and PanAgora Risk Parity Multi Asset.
January 2020	OIC Approved a $650-million allocation to Bridgewater All Weather.
April 2020	OIC approved *INV 610 Strategic Role of Risk Parity for OPERF* which sets the *S&P Risk Parity Index – 12% Target Volatility* as the benchmark for the portfolio.
November 2020	Staff completed funding of risk parity mandates.

Looking Forward

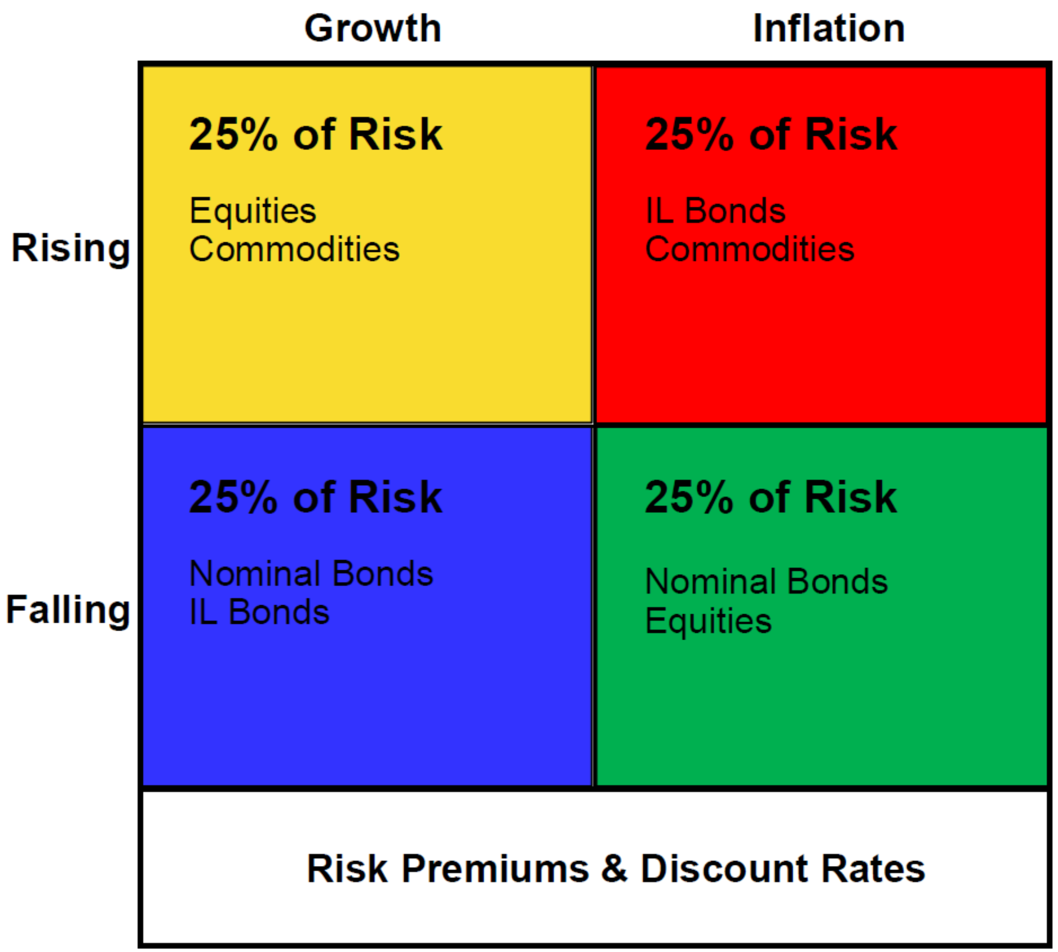
- Continue monitoring the performances and the exposures of the Risk Parity Portfolio.
- Prepare for the upcoming OPERF Strategic Asset Allocation Review.

Functional Roles of Risk Parity Exposures

As of December 31, 2021

Asset Class	Notional Exposure
Interest Rates	124%
Credit	47%
Equities	58%
Inflation-Linked Bonds	45%
Commodities	27%
Total	**300%**
NAV ($M)	**2,276**
Gross Exposure ($M)	**6,835**

Bridgewater's Four-Quadrant Construct



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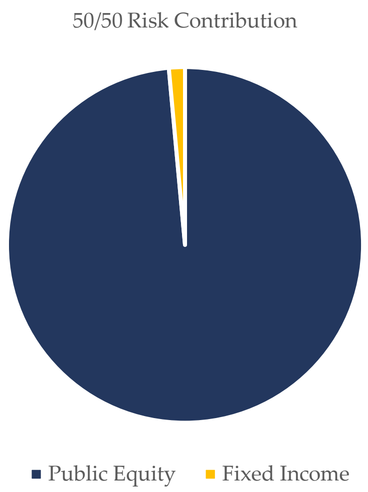
Other Considerations of Risk Parity

- Risk parity is a *multi-asset* portfolio with allocations to equity, fixed income, inflation-linked bonds, commodities, and credit.
  - For every $1 of NAV, OPERF Risk Parity provides approximately $1.20 of interest rate exposure, plus other beta exposures (*see previous slide*).
- The strategy is a trade-off between equity and a diversified, leveraged exposures to interest rates and other asset class exposures.
  - Risk parity typically lags equity in a bull market, e.g., March 2020 to present, but it typically outperforms equity in a bear market, e.g., 2008.
- Asset class weights are roughly static, i.e., while the managers may individually make small adjustments to their portfolios, they do not make macroeconomic calls nor relative valuation tilts between asset classes.

Appendix 1: What is Risk Parity? (1)

Risk Parity is a framework of allocating by *risk* rather than by *capital*.

- Consider a two-asset portfolio that equally allocates capital to public equity and fixed income. Since the volatility of return for public equity is typically multiples that for fixed income, equity contributes the majority of the portfolio risk.



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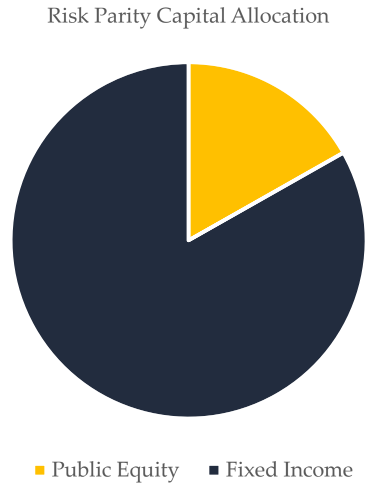
Appendix 1: What is Risk Parity? (2)

- Risk parity attempts to balance the risk among the asset classes using the premise that the Sharpe Ratios[1] of the asset classes are approximately equal. Using the same two asset classes, a risk parity portfolio would allocate most of the *capital* to fixed income so that the *risk contributions* of public equity and fixed income are roughly equal. The result should be a better diversified portfolio [*OIC Investment Belief #2B*].



[1]Sharpe Ratio is the return excess of the risk-free rate divided by standard deviation. It can be interpreted as how efficiently an investor deploys risk.

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Appendix 1: What is Risk Parity? (3)

- Given that equity has a higher return premium than fixed income [*OIC Investment Belief #3*], an *unlevered* risk parity portfolio with a lower equity allocation would have a lower expected return than a 50/50 portfolio. To deliver a return approximate that of the 50/50 portfolio, the risk parity portfolio is levered using liquid exchange-traded futures.
- Despite leverage, the risk parity portfolio is expected to have a lower volatility of return than a 50/50 portfolio since it is better diversified and the leverage is mainly in lower risk fixed income exposure.

	50/50	Unlevered RP	Levered RP
Public Equity	50%	17%	28%
Fixed Income	50%	83%	139%
Total	**100%**	**100%**	**167%**
Expected Return	5.4%	3.7%	5.4%
Std Deviation	9.2%	4.1%	6.9%

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Appendix 2: Correlations of Realized Performances among OIC-Approved Risk Parity Managers

	Bridgewater	Man AHL	PanAgora
Bridgewater	1.00	0.79	0.95
Man AHL	0.79	1.00	0.83
PanAgora	0.95	0.83	1.00

Using monthly returns from June 2020 to December 2021.

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MEKETA INVESTMENT GROUP

Risk Parity Portfolio Review

January 2022

Within an institutional portfolio, multi-asset class strategies present multiple challenges.

- Obscures the true allocations to traditional asset classes.
- Imperfect benchmarks, as there is no passive/market portfolio.
- Portfolio benefits are only evident over full market cycles.

Purpose of Risk Parity, as per policy:

- "…targeting returns approximately that of public equity but with lower volatility."
- "…will improve OPERF's diversification and have better downside characteristics than an equity index investment."

Have these objectives been achieved?

- In Meketa's opinion, it is too early to determine.
- Examining the role and allocation of Risk Parity will be a topic during the asset-liability study.

Considerations going forward

- At a 2.5% portfolio weight, there are very few benefits (and drawbacks) to Risk Parity in the context of the total portfolio.
  - Meketa recommends that the OIC consider eliminating or materially increasing the allocation. This will be explored in the asset-liability study.
- Benchmarks should potentially be re-calibrated to align with volatility targets of managers.
  - This would likely result in a lower volatility benchmark at the class level compared to at the manager level.
- Primary consideration should focus on additive benefits to the total portfolio, net of fees.
- Are there more cost-effective ways to implement (e.g., overlay/implementation manager)?

Disclaimer

WE HAVE PREPARED THIS REPORT (THIS "REPORT") FOR THE SOLE BENEFIT OF THE INTENDED RECIPIENT (THE "RECIPIENT").

SIGNIFICANT EVENTS MAY OCCUR (OR HAVE OCCURRED) AFTER THE DATE OF THIS REPORT AND THAT IT IS NOT OUR FUNCTION OR RESPONSIBILITY TO UPDATE THIS REPORT. ANY OPINIONS OR RECOMMENDATIONS PRESENTED HEREIN REPRESENT OUR GOOD FAITH VIEWS AS OF THE DATE OF THIS REPORT AND ARE SUBJECT TO CHANGE AT ANY TIME. ALL INVESTMENTS INVOLVE RISK. THERE CAN BE NO GUARANTEE THAT THE STRATEGIES, TACTICS, AND METHODS DISCUSSED HERE WILL BE SUCCESSFUL.

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PERFORMANCE DATA CONTAINED HEREIN REPRESENT PAST PERFORMANCE. PAST PERFORMANCE IS NO GUARANTEE OF FUTURE RESULTS.

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TAB 9

ASSET ALLOCATION & NAV UPDATES

Asset Allocations at November 30, 2021

OPERF	Policy	Target[1]	Regular Account $ Thousands	Pre-Overlay	Overlay	Net Position	Actual	Target Date Funds $ Thousands	Variable Fund $ Thousands	Total Fund $ Thousands
Public Equity	25.0-35.0%	30.0%	26,057,619	27.3%	(968,201)	25,089,418	26.2%	1,232,669	420,454	26,742,540
Private Equity	15.0-27.5%	20.0%	25,540,094	26.7%		25,540,094	26.7%			25,540,094
Total Equity	**45.0-55.0%**	**50.0%**	**51,597,713**	**54.0%**	**(968,201)**	**50,629,511**	**53.0%**			**52,282,634**
Opportunity Portfolio	**0-5%**	**0.0%**	**2,222,654**	**2.3%**		**2,222,654**	2.3%			**2,222,654**
Fixed Income	**15-25%**	**20.0%**	**15,799,144**	**16.5%**	**4,686,058**	**20,485,202**	21.4%	2,110,841		**22,596,043**
Risk Parity	**0.0-3.5%**	**2.5%**	**2,233,525**	**2.3%**		**2,233,525**	2.3%			**2,233,525**
Real Estate	**7.5-17.5%**	**12.5%**	**10,506,480**	**11.0%**	**(2,200)**	**10,504,280**	11.0%			**10,504,280**
Real Assets	**2.5-10.0%**	**7.5%**	**6,092,537**	**6.4%**		**6,092,537**	6.4%			**6,092,537**
Diversifying Strategies	**2.5-10.0%**	**7.5%**	**3,392,691**	**3.5%**		**3,392,691**	3.5%			**3,392,691**
Cash[2]	**0-3%**	**0.0%**	**3,769,487**	**3.9%**	**(3,715,657)**	**53,830**	0.1%		6,444	**60,274**
TOTAL OPERF		**100%**	**$ 95,614,230**	**100.0%**	**$ -**	**$ 95,614,230**	**100.0%**	**$ 3,343,509**	**$ 426,898**	**$ 99,384,638**

[1] Targets established in October 2021. Interim policy benchmark effective October 1, 2021, consists of: 30% MSCI ACWI IMI Net, 20% Bloomberg U.S. Aggregate, 20% Russell 3000+300bps (1 quarter lagged), 12.5% NCREIF ODCE net (1 quarter lagged), 7.5% CPI+400bps, 7.5% HFRI FOF Conservative & 2.5% S&P Risk Parity - 12% Target Volatility.

[2] Includes cash held in the policy implementation overlay program.

SAIF	Policy	Target	$ Thousands	Actual
Total Equity	**7-13%**	**10.0%**	**503,040**	**10.1%**
Fixed Income	**80-90%**	**85.0%**	**4,232,191**	**84.7%**
Real Estate	**0-7%**	**5.0%**	**226,902**	**4.5%**
Cash	**0-3%**	**0.0%**	**36,601**	**0.7%**
TOTAL SAIF			**$ 4,998,734**	**100.0%**

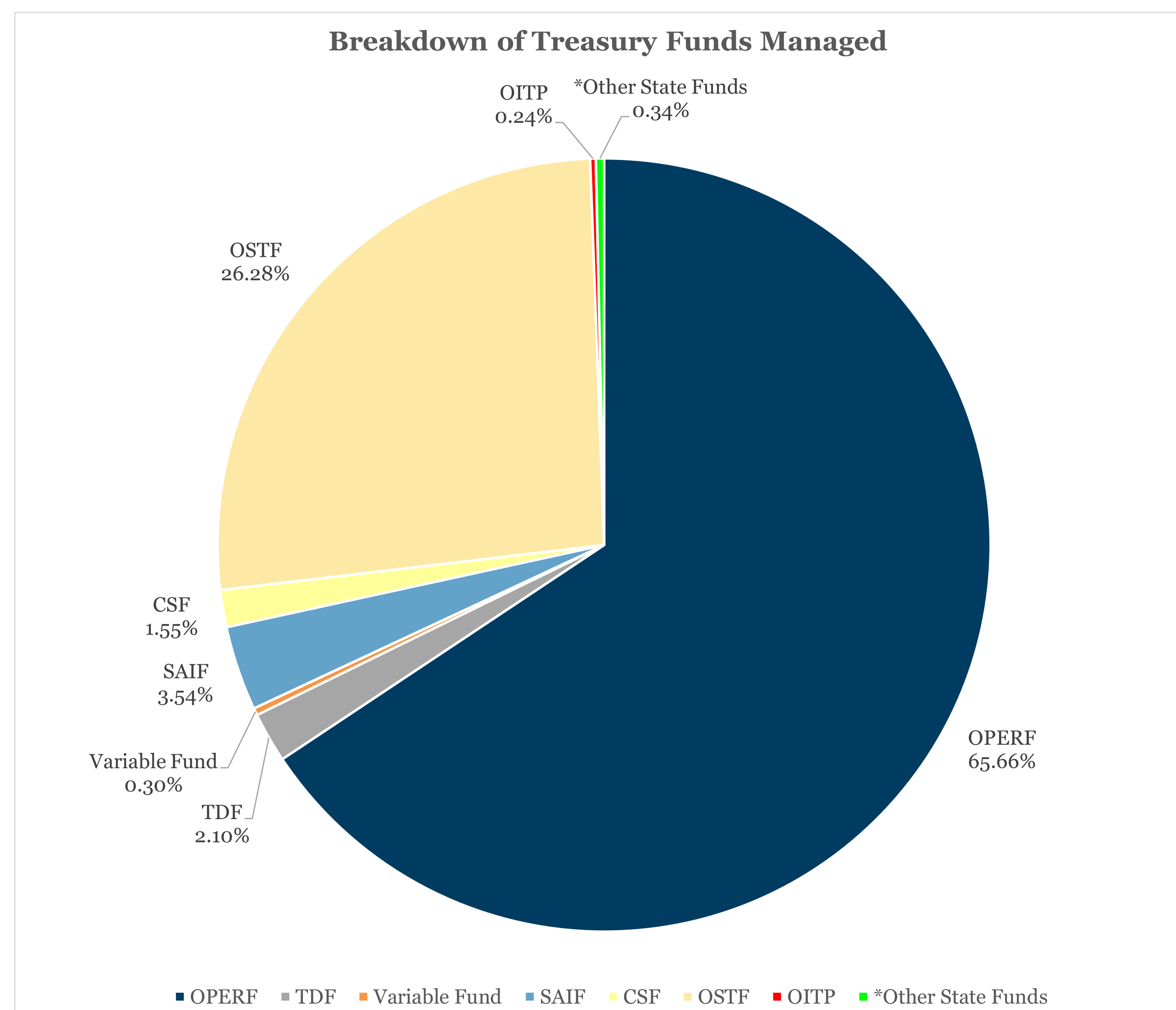
CSF	Policy	Target	$ Thousands	Actual
Global Equities	40-50%	45.0%	1,152,767	51.8%
Private Equity	8-12%	10.0%	228,945	10.3%
Total Equity	**58-62%**	**55.0%**	**1,381,712**	**62.1%**
Fixed Income	**20-30%**	**25.0%**	**523,584**	**23.5%**
Real Estate	**0-12%**	**10.0%**	**160,140**	**7.2%**
Alternative Investments	**0-12%**	**10.0%**	**109,147**	**4.9%**
Cash	**0-3%**	**0.0%**	**49,144**	**2.2%**
TOTAL CSF			**$ 2,223,727**	**100.0%**

SOUE	Policy	Target	$ Thousands	Actual
Global Equities	**0-65%**	**N/A**	2,325	**75.0%**
Fixed Income	**35-100%**	**N/A**	773	**24.9%**
Cash	**0-3%**	**N/A**	2	**0.1%**
TOTAL SOUE			**$ 3,101**	**100.0%**

WOUE	Policy	Target	$ Thousands	Actual
Global Equities	**30-65%**	**55.0%**	1,189	**55.2%**
Fixed Income	**35-60%**	**40.0%**	857	**39.8%**
Cash	**0-25%**	**5.0%**	108	**5.0%**
TOTAL WOUE			**$ 2,155**	**100.0%**

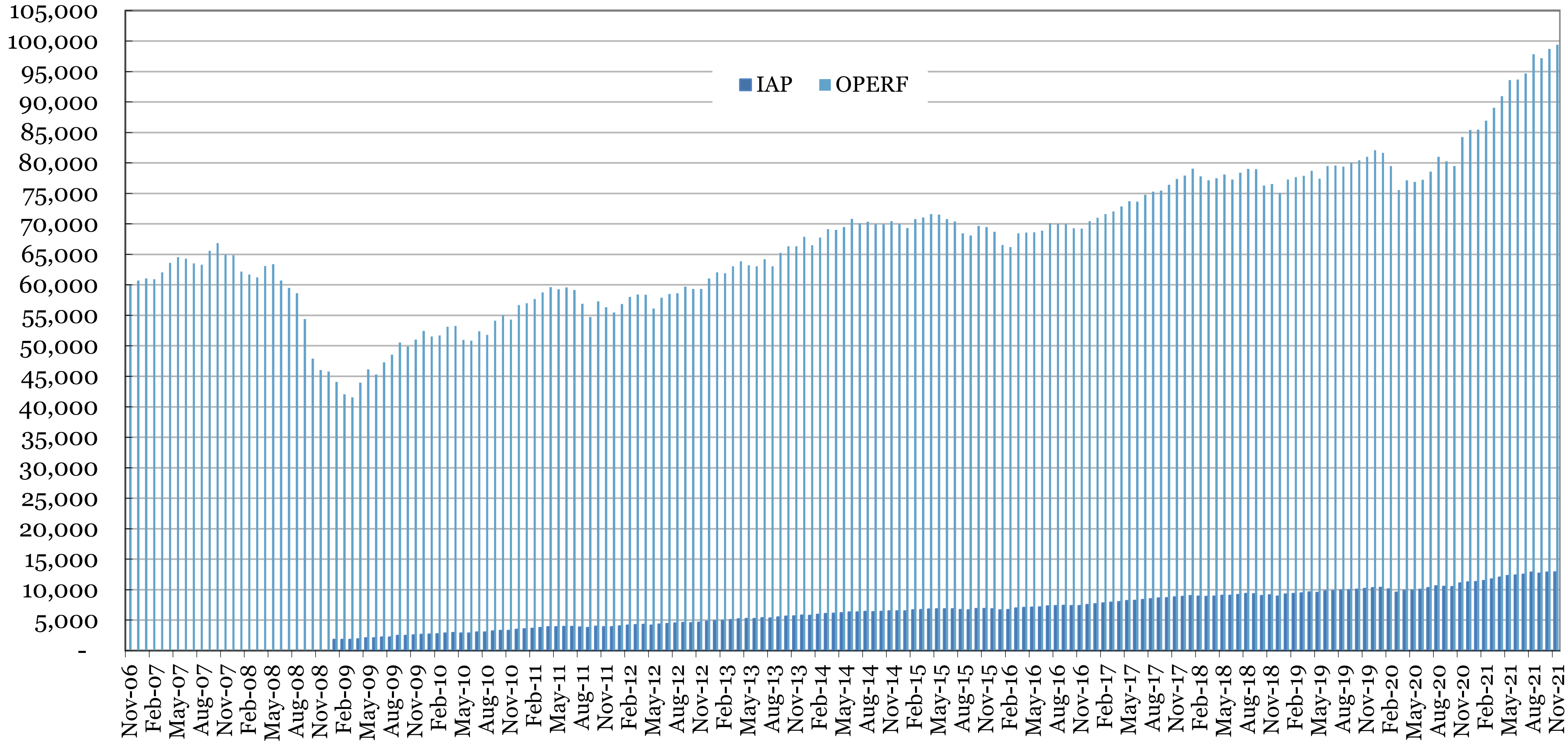
OSTF, OITP & Other State Funds*	$ Thousands	Actual
OSTF	36,885,584	**94.6%**
OITP	370,382	**1.0%**
DAS Insurance Fund	141,079	**0.4%**
DCBS Operating Fund	183,726	**0.5%**
DCBS Workers Benefit Fund	160,877	**0.4%**
DCHS - Elderly Housing Bond Sinking Fund	1,685	**0.0%**
DCHS - Other Fund	16,002	**0.0%**
Oregon Lottery Fund	125,869	**0.3%**
DVA Bond Sinking Fund	111,210	**0.3%**
ODOT Fund	447,115	**1.1%**
OLGIF	247,903	**0.6%**
OPUF	284,117	**0.7%**
Total OSTF & Other State Funds	**$ 38,975,549**	**100.0%**
Total of All Treasury Funds**	**$ 140,336,614**	

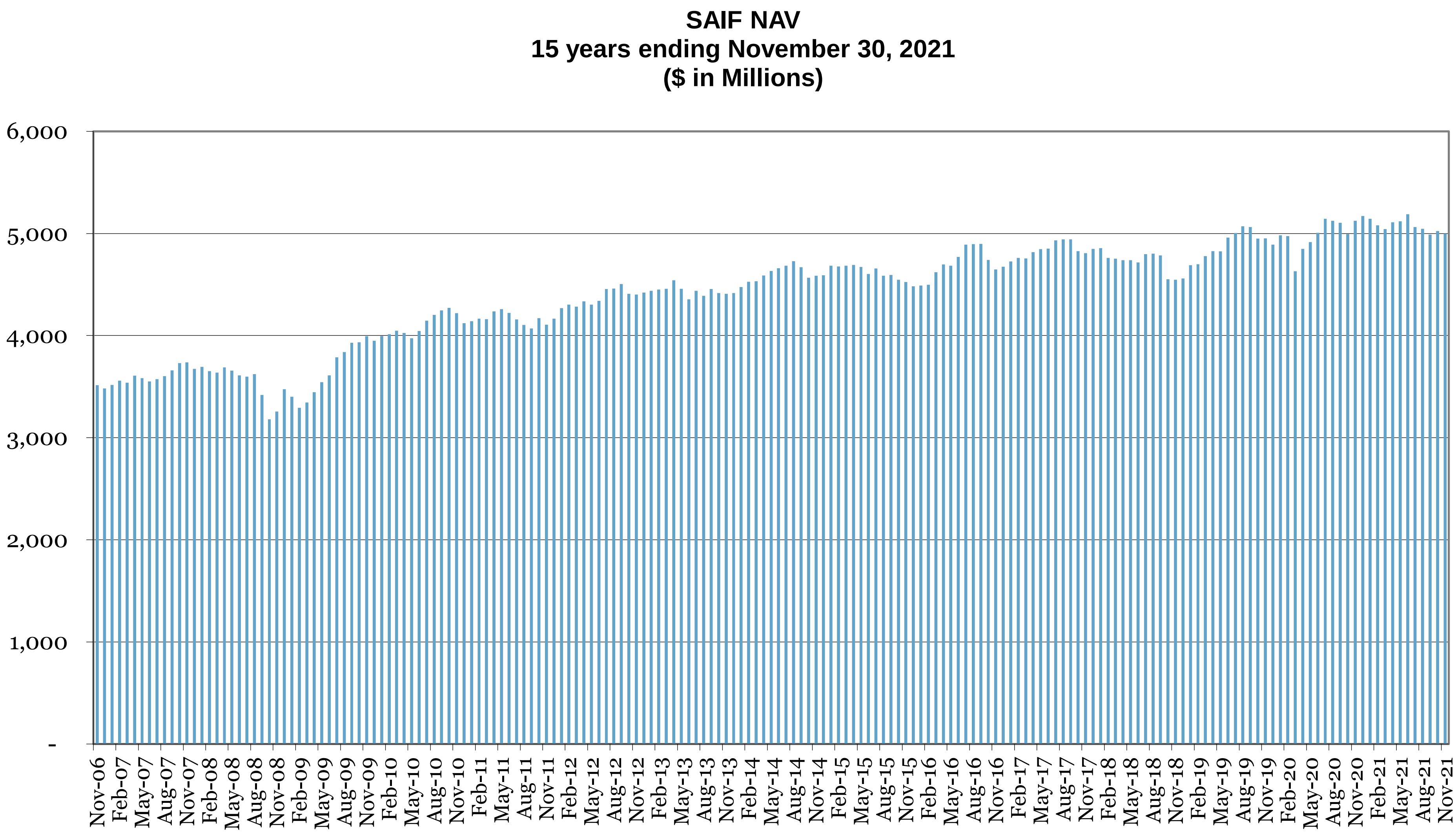
**Balances of the funds include OSTF or OITP investments, which is why total does not foot.



*Other State Funds include DAS Insurance Fund, DCBS Operating Fund, DCBS Workers Benefit Fund, DCHS - Elderly Housing Bond Sinking Fund, DCHS - Other Fund, Oregon Lottery Fund, DVA Bond Sinking Fund, ODOT Fund, OLGIF, & OPUF.

OPERF NAV
15 years ending November 30, 2021
($ in Millions)




SAIF NAV
15 years ending November 30, 2021
($ in Millions)
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5,000
4,000
3,000
2,000
1,000
-
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May-07
Aug-07
Nov-07
Feb-08
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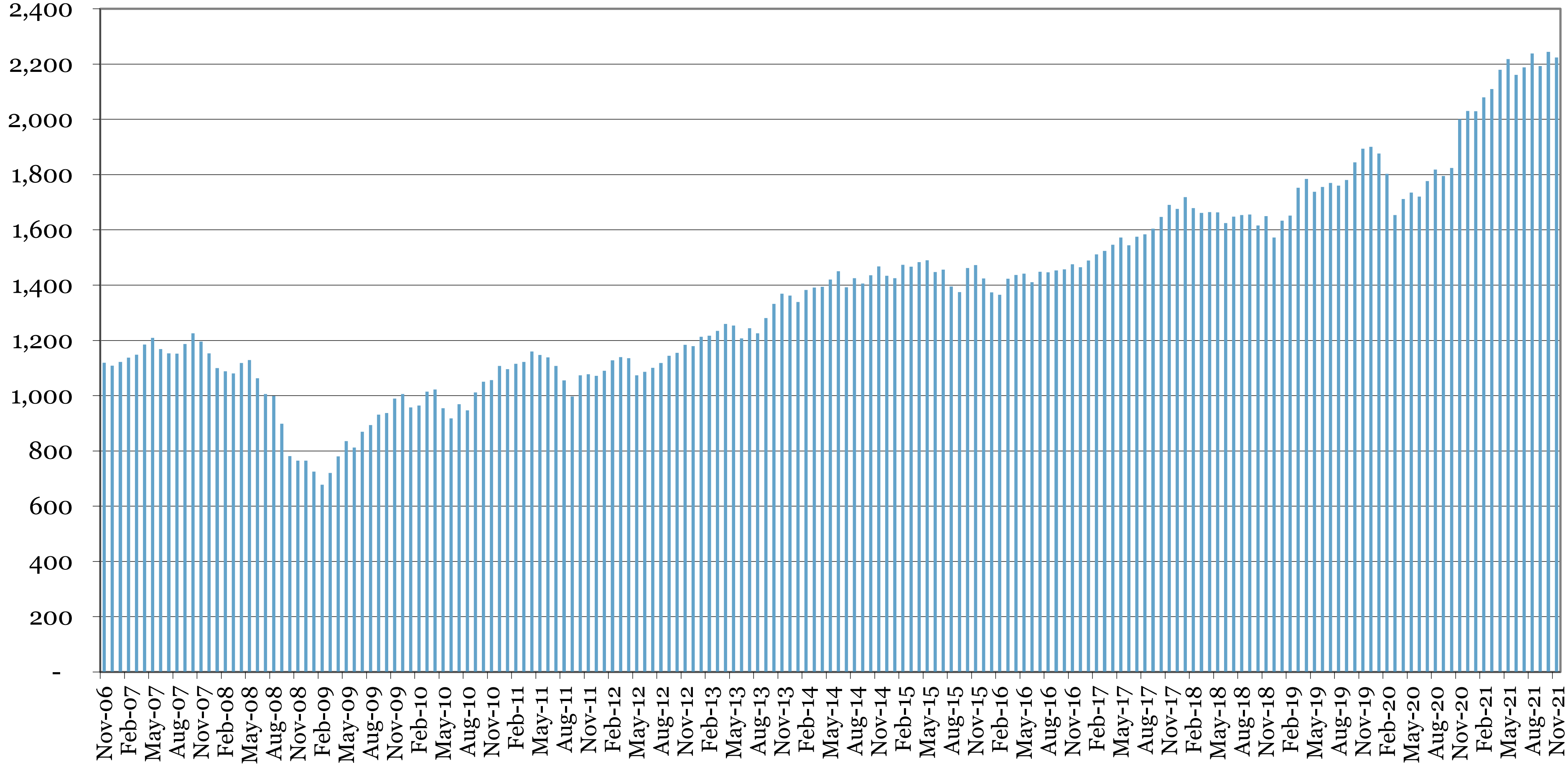
CSF NAV
15 years ending November 30, 2021
($ in Millions)



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TAB 10

CALENDAR – FUTURE AGENDA ITEMS

2021/22 OIC Forward Calendar and Planned Agenda Topics

March 9, 2022	Q4 OPERF Performance Real Estate Portfolio Review Real Assets Portfolio Review Benchmarking Tail Risk Hedging
April 20, 2022	Diversifying Strategies Portfolio Review OPERF Risk Survey OPERF Liquidity Common School Fund Investment Policy Statement
June 1, 2022	Q1 OPERF Performance OPERF Asset Class Selection Capital Markets Assumptions OPERF Leverage
July 20, 2022	Common School Fund Strategic Asset Allocation
September 7, 2022	Joint OIC & PERS OPERF Preliminary Asset/Liability Q2 OPERF Performance
October 26, 2022	OPERF Asset/Liability Study Individual Account Program (IAP) Review SAIF Annual Review Common School Fund Annual Review OSGP Annual Review
December 7, 2022	Q3 OPERF Performance
January 25, 2023	Private Equity Program Review 2024 OIC Calendar Approval

TAB 11

OPEN DISCUSSION

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TAB 12

PUBLIC COMMENTS

Public comments can now be found at the OIC website at:

https://www.oregon.gov/treasury/invested-for-oregon/pages/oregon-investment-council.aspx