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MEMORANDUM

TO: Members of the Investment Committee, CalPERS
FROM: Meketa Investment Group
DATE: September 14, 2020
RE: Private Equity Annual Program Review and Semi-Annual Review as of June 30, 2020

Purpose

Fulfilling our obligations as the Board Private Equity Consultant, Meketa Investment Group ("Meketa") conducted the following two reviews of the Private Equity Portfolio (the "Portfolio") for the period ending June 30, 2020:

- Semi-Annual Performance Review; and
- Annual Program Review.

This year the two reviews have been requested for the same Investment Committee meeting and so we have combined them into this single deliverable. Our reviews are based on data for the period ended June 30, 2020[1] provided by State Street, and selected reports from Staff. This memorandum organizes our coverage of the combined Semi-Annual Performance and Annual Program Reviews into the following topical areas:

- Summary of Review Findings
- Portfolio Performance
- Implementation
- Investment Policy
- Staffing and Resources
- Investment Beliefs
- Conclusion

[1] State Street's CalPERS Private Equity performance analysis for the period ended June 30, 2020, reported with a 1-quarter lag.

Summary of Review Findings

The impacts of COVID-19 have made the last several months extremely challenging for Staff as they dealt with the disease's health risks and the historic volatility in the financial markets, all while adapting to a work-from-home environment. Despite these issues, Staff remained engaged and functioning at a high level throughout. As detailed below, during the fiscal year staff committed over $10 billion to commingled funds and separate accounts, executed two co-investments alongside core managers, made the first investment in a secondary fund, and successfully deployed capital to two "credit trigger" funds designed to opportunistically participate in "stressed" investments. All years refer to fiscal years ending June 30, unless otherwise noted.

- **Portfolio Performance**: The Program's five-year return of 6.6% exceeded the Policy Benchmark[1] by 1.0%. Additionally, the Program exceeded the Policy Benchmark for each of the 1, 3, and 10-year periods.
- **Implementation**: The Net Asset Value ("NAV") was $24.6 billion, down $1.8 billion, or 6.8%, compared to the December 31, 2019 NAV of $26.1 billion. Current NAV is 6.3% of the Total Fund. Staff approved $10.1 billion to 15 funds, three Separate Managed Accounts, two co-investments, one secondary fund, and two "credit trigger" funds during the 2019-2020 fiscal year.
- **Investment Policy**: The Private Equity Portfolio complies with all policy guidelines.
- **Staffing and Resources**: The Private Equity Unit staffing had 29 positions at the end of the fiscal year. Subsequent to the fiscal year end, Sarah Corr moved from Private Equity to become MID of Real Assets. There are six current vacancies.
- **Investment Beliefs**: In our view, the Private Equity Portfolio, as implemented by Staff, supports many CalPERS' Investment Beliefs. We note that the increased investment pace as well as the broadening of strategies should assist CalPERS in achieving its long term target exposure to the private equity asset class.
- **Conclusion**: The Private Equity portfolio's recent performance, like all asset classes, was affected by issues related to COVID-19. Private Equity has delivered strong returns for CalPERS and is expected to remain an important contributor of returns going forward. CalPERS has many advantages including large size and an experienced Staff. Staff will need to continue its work in developing creative alternatives as outlined in the strategic plan discussion below for deploying capital in attractive investments at scale.

[1] The current Policy Benchmark is a Custom FTSE Global All Cap ex-Tobacco Net of Tax Index + 150 basis points, lagged by one quarter. Previous benchmark was blend FTSE US + FTSE AW ex US + 3% lagged 1 quarter from September 2011 to June 2018, Wilshire 2500 ex-tobacco +3% between July 2009 and September 2011, and the Custom Young Fund Index prior to July 2009.

Program Performance

Private Equity, as well as other financial assets, experienced significant volatility in 2020 with both the CalPERS' Portfolio and the Policy Benchmark producing negative returns for the 1-year period. Performance of the Portfolio and the Policy Benchmark across the longer time periods were also impacted by recent volatility, but remained positive. The Program's performance exceeded the Policy Benchmark for each of the 1, 3, 5, and 10-year periods. As a reminder, the Policy Benchmark was changed to the Custom FTSE Global All Cap +150 basis points beginning in July 2018.

	1 Year (%)	3 Year (%)	5 Year (%)	10 Year (%)
CalPERS PE Program[1]	-5.1	5.9	6.6	10.4
Policy Benchmark[2]	-11.0	3.2	5.6	10.2
Cambridge Associates All PE Global[3]	2.2	10.8	10.5	12.8
FTSE Global All Cap + 150 bp[4]	-11.0	2.8	4.4	7.4
Excess vs. Policy Benchmark	↑ 5.9	↑ 2.7	↑ 1.0	↑ 0.2
Excess vs. CA All PE Global	↓ -7.2	↓ -4.9	↓ -3.9	↓ -2.4
Excess vs. FTSE Global All Cap + 150 bp	↑ 5.9	↑ 3.1	↑ 2.2	↑ 3.0

As we have noted in other reports, private equity performance is reported with a significant delay compared to publicly traded assets. As such, the Program and the Policy Benchmark performance as of June 30, 2020 are each reported with a one-quarter lag (e.g., values as of March 31, 2020) which was near the low point of public equity values. Additionally, private equity asset values tend to be less volatile, both in up as well as down markets, compared to publicly traded asset values. In other words, private equity assets tend to fall less in declining public equity markets, and increase more slowly in rapidly rising public equity markets. As such, because public equity markets have recently rebounded, subsequent reports may show the PE Program's performance lagging against the Policy Benchmark.

The Portfolio's NAV as of June 30, 2020, was $24.6 billion, a decrease of $1.8 billion (net of cash flows) compared to the December 31, 2019 NAV of $26.1 billion. The current NAV represents 6.3% of the Total Fund, compared to the 8.0% target. As we noted above, the Program's NAV is calculated based upon March 31, 2020 values, while the overall CalPERS portfolio includes publicly traded assets valued as of June 30, 2020. We would expect that when June 30, 2020 private equity values are received, the Program's NAV will have an uplift from March 31 values.

[1] Source: State Street. CalPERS returns are reported as time-weighted.
[2] The current Policy Benchmark is a Custom FTSE Global All Cap ex-Tobacco Net of Tax Index+150 basis points, lagged by one quarter. Previous benchmark was blend FTSE US + FTSE AW ex US + 3% lagged 1 quarter from September 2011 to June 2018, Wilshire 2500 ex-tobacco +3% between July 2009 and September 2011, and the Custom Young Fund Index prior to July 2009.
[3] Returns as of March 31, 2020. Figures are IRR.
[4] Figures are one quarter lagged, time weighted. FTSE Global All Cap returns are based on the FTSE Global All Cap Index + 150 basis points through October 2011, the FTSE Global All Cap Net of Tax (US RIC) Index + 150 basis points through March 2015, and thereafter on the FTSE Global All Cap ex-Tobacco Net of Tax Index + 150 basis points.

Strategy[1]

	NAV ($ mm)	1 Year (%)	3 Year (%)	5 Year (%)	10 Year (%)
Buyouts	16,876	-6.3	6.7	7.8	11.1
Credit	1,532	-16.4	-3.4	-2.0	6.7
Growth/Expansion	3,678	1.7	7.8	8.8	11.5
Opportunistic	1,983	0.2	6.7	9.2	11.6
Venture	478	11.2	10.9	3.5	6.9
Other[2]	6	NA	NA	NA	NA
CalPERS PE Program	**24,553**	**-5.1**	**5.9**	**6.6**	**10.4**

The impact of COVID-19 is evident in the credit program as debt markets have recently experienced significant turmoil due to anticipated economic uncertainty. However, the more technology-focused portions of the portfolio, Venture and Growth/Expansion, have performed better in recent periods. Overall, the Program has been, and will continue to be, driven by the Buyouts strategy which have provided attractive returns over the long term.

Performance by Geography[3]

	NAV ($ mm)	1 Year (%)	3 Year (%)	5 Year (%)	10 Year (%)
United States	16,954	-7.4	4.5	5.4	10.2
Canada	114	4.3	16.0	15.2	12.9
Developed Asia	67	-36.2	-25.1	-8.9	-2.7
Europe	4,991	3.1	13.9	14.1	13.2
Emerging Markets	2,421	-3.4	3.5	5.1	8.8
Other[4]	6	NA	NA	NA	NA
CalPERS PE Program	**24,553**	**-5.1**	**5.9**	**6.6**	**10.4**

While the Program has been primarily driven by the U.S. investments, Europe has been a strong contributor of returns over time. Certain managers in the region have provided particularly strong performance over the years.

1 Source: State Street. All trailing returns included in this report are time-weighted.
2 Includes currency and stock holdings.
3 Source: State Street.
4 Includes currency and stock holdings.

Implementation

For the first half of 2020, Staff completed 20 commitments totaling $9.0 billion[1], and 23 commitments totaling $10.1 billion from July 2019 through June 2020. This was a very active period for the Program, done while maintaining a high level of engagement despite transitioning to a "work-from-home" status. Also during this period, Staff expanded the range of investment types beyond comingled funds. Shortly before the impacts of COVID-19 were being realized, Staff completed two "credit-trigger" funds designed to take advantage of attractive stressed or distressed investments that may become available. Additionally, Staff re-initiated the co-investment program and completed two co-investments alongside certain core managers. Finally, Staff completed a commitment to a secondary fund which should be well positioned to make attractive investments in the near term.

Historically, CalPERS annual commitment pace has varied dramatically since 2005.[2] Going forward, the Program will continue to need to deploy capital in a steady manner and at scale in order to reach the 8% allocation target for Private Equity. Staff is beginning a strategic review that will seek to position the Program for future success. While this review is in its initial phases, there are several objectives and areas of focus. Each of these areas will be expanded and developed over the coming months.

- **Improve returns:** Investing in the highest performing managers is particularly important in private equity given the large interquartile spreads on returns. Staff has been actively seeking to commit larger amounts to its highest conviction managers.
- **Reduce costs:** Co-investments and separate managed accounts represent ways that the Program can reduce or even eliminate fees and carried interest on a portion of its investments. As these forms of investment scale, the aggregate cost savings would be significant.
- **Increase diversification:** Staff will seek to add diversification to risk profiles within the private equity portfolio, which is heavily focused on large and mega buyouts in North America. The addition of the credit trigger funds and secondary investments represent some initial steps to increase diversification. Also, Staff is considering ways to efficiently invest in mid-market buyouts as well as expanding the Program's exposure to non-US managers.
- **Invest at scale:** CalPERS experience, team, and ability to commit large amounts of capital provide access to opportunities unavailable to other private equity investors. Staff has pursued customized investment accounts that allow CalPERS to focus the vehicle's investment profile as well as offer lower fees.

The Board, Staff, and Meketa are aware of the challenges facing the Program in making attractive investments in scale. Staff is making efforts to address these challenges thorough the development of the Program's strategic plan. Going forward, we recommend that the Board continue to seek regular updates on these initiatives.

[1] See Appendix for list of investments completed in the first half of 2020.

[2] Commitments based on vintage year of investment.

Investment Policy

The Portfolio is compliant with key parameters related to strategy diversification as demonstrated in the table below.

Strategy	NAV[1] ($ mm)	Percent of Total NAV (%)	CalPERS Target (%)	Target Range (%)
Buyout	16,876	68.7	70	60-80
Credit	1,532	6.2	5	0-10
Growth/Expansion	3,678	15.0	15	5-20
Opportunistic	1,983	8.1	10	0-15
Venture	478	1.9	1	0-7
Other[2]	6	<0.1	NA	NA
Total Program	**24,553**	**6.3[3]**	**8**	**+/- 4%**

Meketa reviewed all commitments during the 2019-2020 fiscal year and each commitment complied with CalPERS investment policy and limitations.

Each of the Total Fund and Private Equity Policies were modified during the fiscal year. The Total Fund Policy was modified in September to reflect updated requirements for Prudent Person Opinions. The Private Equity Policy was modified in December 2019 and June 2020 to adjust the definition of a Customized Investment Account and the Private Equity strategy ranges, respectively. Specifically, the target ranges for Buyouts and Credit were modified to more closely reflect the opportunity set available for the Program. As per the letters we provided the Board, we concurred with the changes proposed by Staff.

Staffing and Resources

As of July 1, 2020 the Private Equity Program had a total of 28 positions and 6 vacancies. Staffing level has been relatively consistent recently, but below the staffing level in prior years. We note that Sarah Corr, one of the two Investment Directors, recently transitioned to become the Managing Investment Director of Real Assets.

While we believe the staffing levels are sufficient to execute on the current investment strategy, we expect that the private equity program will continue to become more complex, leading to the need for additional skills among the Staff to identify, execute and monitor the portfolio.

[1] Source: State Street.
[2] Includes currency and stock holdings.
[3] PE program NAV as a percent of total CalPERS portfolio as of 6/30/2020.

Investment Beliefs

In our view, the Private Equity Program, as implemented by Staff, is aligned with CalPERS' Investment Beliefs and remains largely in line with our observations last year. We highlight several Beliefs that are particularly important to the private equity asset class.

- **Liabilities must influence the asset structure (Belief #1):** Private Equity managers tend to hold investments for multi-year periods in order to generate their returns.
- **A long time horizon is a responsibility and an advantage (#2):** Private Equity is a long-term asset class and matches well with CalPERS' long term liabilities and time horizon.
- **Strategic asset class allocation is the dominant determinant of portfolio risk and return (#6):** CalPERS Private Equity exposure is currently slightly below the Interim Target. At current investment pacing the Program may fall short of the investment target.
- **CalPERS will take risk only where we have a strong belief we will be rewarded (#7):** CalPERS' Private Equity Program has historically produced strong long-term returns.
- **Costs matter and need to be effectively managed (#8):** Private equity is an expensive asset class.
- **Risk to CalPERS is multi-faceted and not fully captured through measures such as volatility or tracking error (#9):** The private equity asset class has additional risks including illiquidity, transparency, leverage, and currency.
- **Strong processes and teamwork and deep resources are needed to achieve CalPERS' goals and objectives (#10):** The appointment of the new MID was an important step in continuing the development of CalPERS' private equity program. The Program will likely require additional staffing and skills to effectively manage the increasingly complex portfolio.

Conclusion

The Private Equity Portfolio's recent performance, like all asset classes, was affected by issues related to COVID-19. Staff maintained a high level of engagement while transitioning to a work-from-home environment and working closely with the underlying managers to monitor the health of the Portfolio, which has largely remained resilient. Importantly, Staff closely monitored the Program's overall liquidity profile as driven by capital calls and distributions from the underlying investments. The Program's investment pace remained strong and Staff expanded the strategies to include co-investments, a secondary fund, and credit-trigger funds.

Private equity remains a difficult asset class in which to invest. CalPERS faces challenges in building the Program, but also has opportunities given its scale, experience, and large investment team. The recent expansion of strategies should provide additional avenues for returns as well as for fee mitigation.

Please do not hesitate to contact us if you have questions or require additional information.

SKH/SPM/jls

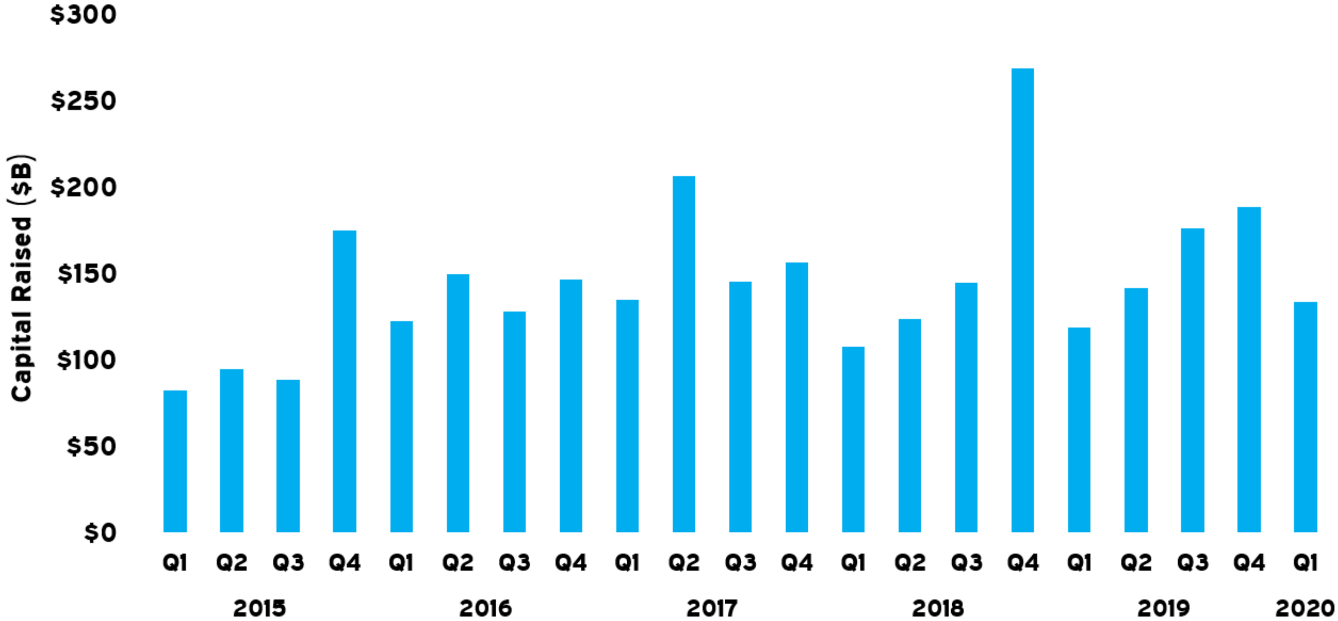
Appendix

CalPERS Private Equity Completed Investments – H1 2020

Investment	Date Signed	Geography	Strategy	Commitment ($ mm)
Insight Partners XI	January 2020	US/Europe	Growth Equity	400
Grandval II (SMA)	January 2020	US	Growth Equity	200
OHA Black Bear	February 2020	Global	Distressed Credit	1,000
Oaktree Latigo Investment Fund	March 2020	Global	Distressed Credit	1,000
Blackstone Core Equity Partners II	March 2020	Global	Buyout	1,000
CVC Capital Partners Asia V	March 2020	Asia	Buyout	200
Ardian Secondary Fund VIII	March 2020	Global	Buyout	300
Co-Investment	March 2020	Global	Buyout	40
Clayton, Dubilier & Rice XI	April 2020	US/Europe	Buyout	500
Francisco Partners VI	April 2020	US	Buyout	250
Francisco Partners Agility II	April 2020	US	Buyout	50
General Atlantic	April 2020	Global	Growth Equity	750
Co-Investment	May 2020	Asia	Growth Equity	95
Ares Corporate Opportunities Fund VI	May 2020	US	Buyout	250
Silver Lake Partners VI	May 2020	US	Buyout	800
KKR Asian Fund IV	June 2020	Asia	Buyout	300
Vitruvian Investment Partners IV	June 2020	Europe	Growth Equity	327
Forecastle, L.P. (SMA)	June 2020	Global	Growth Equity	500
CVC Capital Partners VIII	June 2020	Europe	Buyout	850
Q-Street Capital (SMA)	June 2020	US	Buyout	150

Private Equity Market Commentary – Q1 2020

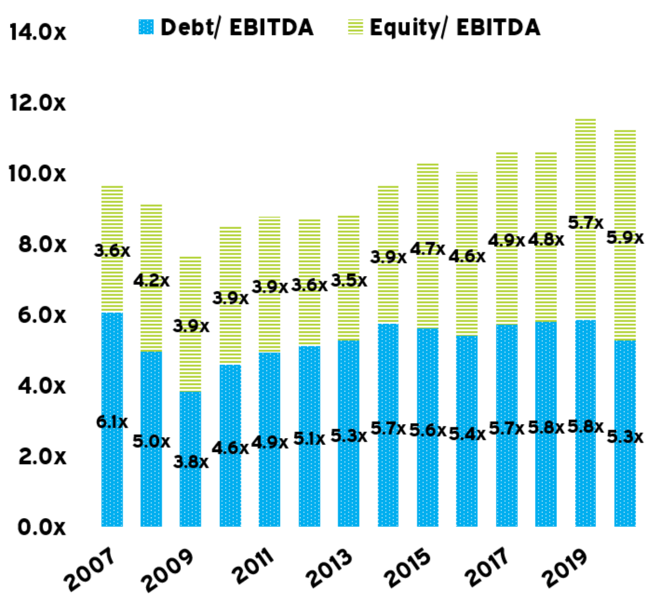
Private Equity Global Fundraising[1]



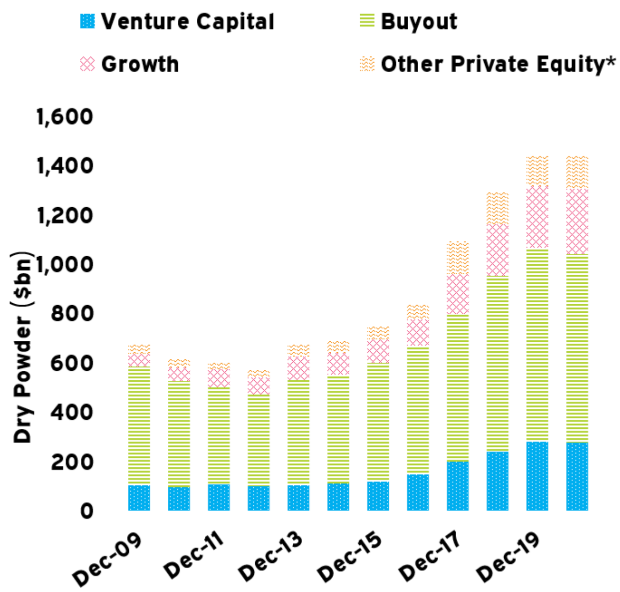
Fundraising activity for private equity funds in the first quarter of 2020 was below that of the prior three quarters, at $133 billion raised. In general, fundraising is typically slower during the first quarter of the year, with the amount raised in line with the first quarter of 2019. Appetite for the asset class remained strong despite the COVID-19 pandemic and potential headwinds for the global economy as total capital committed exceeded levels in the first quarter of 2019 despite fewer funds closing. Overall, fundraising is showing signs of slowing as more funds are taking longer to close despite the number of funds in market and the amount of capital targeted remaining in line with the highs of January 2019. The proportion of funds closing quickly remained the same, however, suggesting that investors continue to support established fund managers.

[1] Source: Preqin.

Purchase Price Breakdown, All LBOs[1]

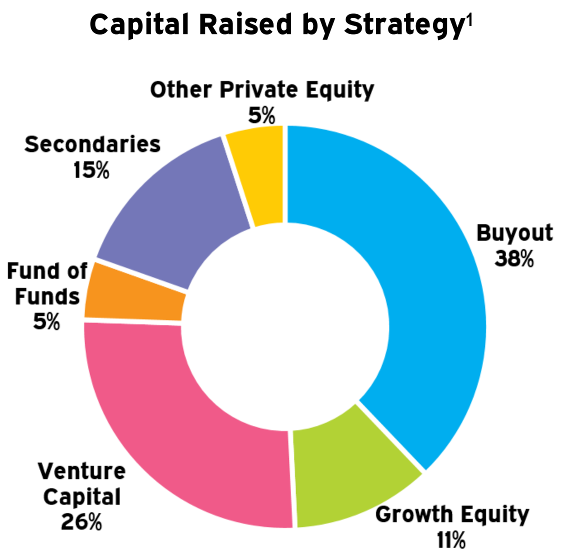


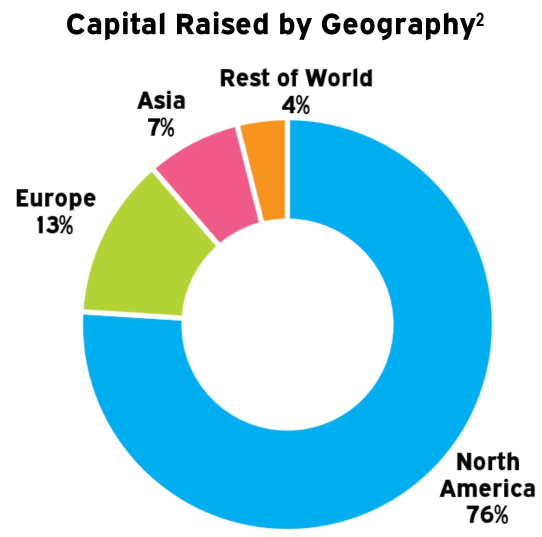
Dry Powder by Fund Type[2]



Private Equity purchase price multiples in the first quarter of 2020 slightly decreased compared to those of 2019 but remained near all-time highs. Notably, equity contribution (relative to total purchase price) increased, causing purchase prices to lean slightly in favor equity over debt. Elevated prices were supported by a continued record level of dry powder, which remained at a similar level as the previous year. Dry powder levels will remain high as long as more capital is being raised than is being deployed, and investors are expected to continue to see high purchase prices as a result of the high levels of capital competing for deals. Capital concentration, along with larger sized funds, should be expected to contribute to increasing levels of dry powder as well, with larger funds taking longer to deploy all capital. TMT (66%), Services & Leasing (18%), and Healthcare (5%) were the three largest sectors targeted for LBOs, collectively making up nearly 89% of all LBO deals during the first quarter of 2020.[3]

[1] Source: S&P.
[2] Source: Preqin.
[3] Source: S&P.





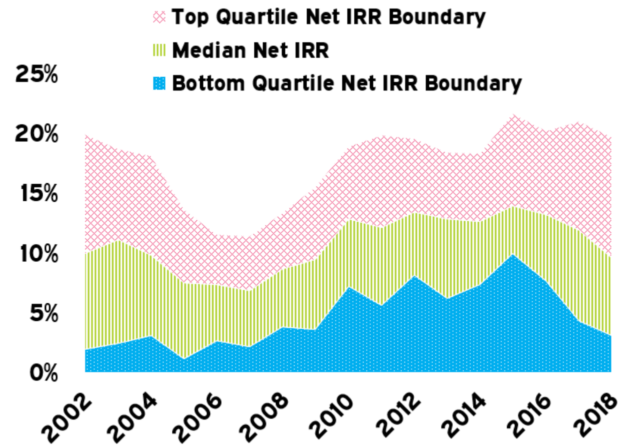
Buyout funds continued to be the most popular private equity strategy with 38% of all private equity capital raised dedicated to Buyout funds in the first quarter of 2020. However, Venture Capital funding increased from last quarter, rising from 15% in Q4 2019 to 26% in 2020. Growth Equity experienced a slight decrease of 6% from last quarter. Fund of Funds and Other Private Equity such as co-investments and hybrid vehicles stayed relatively consistent at 5% as Secondaries jumped from 4% of capital raised to 15% since last quarter. North American focused vehicles continued to be a majority of all funds raised in the first quarter of 2020, representing 76% of the capital raised, which is a significant increase from the 61% in the prior quarter. Capital raised in Asia dropped from 19% to 7%. Overall, private equity investors favored commitments to developed markets in North America- and Europe-focused funds over Asia and Rest of World.

[1] Source: Preqin.
[2] Source: Preqin.

Top Quartile Private Equity Performance by Horizon[1]

Horizon	Private Equity	Buyout	Venture Capital	Fund of Funds
1 Year to Mar-20	9.7	5.6	14.5	8.3
3 Years to Mar-20	16.7	17.4	20.4	13.1
5 Years to Mar-20	15.3	17.4	16.3	12.0
10 Years to Mar-20	17.6	19.2	19.8	13.6

Private Equity Performance by Vintage Year[2]



Recent aggregate private equity returns have dropped, driven largely by a decrease in one-year performance of Buyout funds to 5.6% over the last quarter. All Private Equity is generating a 9.7% IRR over the past year compared to the high teens returns at the end of 2019. In general, performance has been strong in each vintage year since the Global Financial Crisis. Buyout and Venture funds have generally both performed well over the various horizons on an absolute basis, with Venture funds significantly outperforming Buyout funds over the past year. The spread between first and third quartile performance in private equity has grown consistently since the Global Financial Crisis; 2007 vintage funds reported a 10% spread while 2017 vintage funds reported a 17% spread.

1 Source: Cambridge Associates.
2 Source: Cambridge Associates.