SFERS
San Francisco Employees' Retirement System

City and County of San Francisco
Employees' Retirement System

RETIREMENT BOARD CALENDAR SHEET
Retirement Board Meeting of July 8, 2020

To: The Retirement Board

Through: Jay Huish
Executive Director

William Coaker, Jr. – CFA, CFP, MBA
Chief Investment Officer

From: Tanya Kemp, CFA, CAIA
Managing Director, Private Markets

Justin Lo, CFA
Senior Portfolio Manager, Private Equity

Ed Comerford, CFA
Director, Private Equity

Cynthia Wong, CFA
Analyst, Private Equity

Date: July 8, 2020

Agenda Item:
Private Equity Strategy Update

Background:
As of December 31, 2019, the Private Equity Portfolio had approximately $5.9 billion of NAV (or 21.6% of total Plan assets) and total exposure (NAV + unfunded) of $9.2 billion (or 33.6% of total Plan assets). Since inception, the Private Equity Portfolio has generated a net IRR of 16.1% and a TVPI of 1.6x.

Staff and Cambridge Associates will present an update including a review of the Portfolio's strategy, performance, and composition. Additionally, Staff and Cambridge Associates will discuss the current market environment, opportunities, and initiatives.

Recommendation:
This item is for discussion only.

Attachments:
Executive Summary of SFERS Private Equity Strategy
Staff Presentation
Consultant Presentation – Cambridge Associates
Consultant Presentation – Aksia (TorreyCove)

San Francisco City and County
Employees' Retirement System
Chief Investment Officer

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William J. Coaker Jr., CFA, MBA

DATE: July 8, 2020

TO: Retirement Board

THROUGH: Jay Huish
Executive Director

FROM: William J. Coaker Jr. – CFA, MBA
Chief Investment Officer

SUBJECT: Executive Summary of SFERS Private Equity Strategy

1 – Objective
The investment objective of the Private Equity portfolio is to provide a substantial return premium (300 basis points or more) over public equity markets (75% Russell 3000/25% MSCI ACWI ex-US) over rolling 10-year periods.

2 – Strategy
The strategy we deploy to achieve our objectives emphasizes the following: 1 – Manager selection, particularly managers with unique or niche strategies and specialist skill; 2 – Managers with specialty skill in technology, software, the digital transformation, biotech, disruptive innovation, and China. Co-investments are an emerging strategy to further boost returns.

3 – Portfolio Construction
The Private Equity portfolio has a substantial overweight to Technology at 50%. We also have strong tilts toward Health Care, Consumer Discretionary, and China. Tech and Health Care are backed by innovation and strong demand, while China is a rapidly modernizing economy backed by robust innovation and an unusual number of high growth companies in areas of powerful secular growth. We are overweight Venture Capital and Growth (64% of the Private Equity portfolio, and underweight Buyout strategies (32%), due to significant appreciation of our Venture Capital and Growth portfolio over the past several years and recently completed secondary sale.

4 – Performance
The performance of the Private Equity portfolio has been exceptional with all strategies delivering positive returns since inception. The portfolio produced long-terms returns of 15.1% and 14.7% over the past 5 and 10 years and excess returns over the benchmark of 2.3% and 0.4%. Since inception excess returns are 3.8% annualized translating into $3.3 billion in additional value-creation. As of December 31, 2019, PE weight stood at 21.6% of total Plan.

12/31/2019	Net IRR 1 YEAR	3 YEAR	5 YEAR	10 YEAR	20 YEAR	ITD	Multiples DPI	TVPI
Program Totals	19.4%	17.9%	15.1%	14.7%	13.7%	16.1%	0.97x	1.64x
Custom Benchmark[1]	31.6%	16.4%	12.8%	14.3%	8.7%	12.3%	NA	NA
Difference	*-12.3%*	*1.5%*	*2.3%*	*0.4%*	*5.0%*	*3.8%*	*NA*	*NA*

The Table below shows the performance report prepared by NEPC and furnished to the Retirement Board. The Private Equity portfolio has posted excess returns over our benchmark of 5.17% the past 5 years, outperformed our peers by 5.62% over the past 1 year, and topped our peers by 2.95% annualized over the past 5 years.

		Through March 31, 2020											
Private Equity	Wt	**1q2020**	**Rank**	**FYTD**	**Rank**	**1 Year**	**Rank**	**3 Years**	**Rank**	**5 Years**	**Rank**	**10 Years**	**Rank**
SFERS	23.0%	4.80%	10	11.25%	20	18.49%	11	16.97%	24	14.50%	25	14.49%	13
Benchmark		-20.88%		-12.08%		-8.05%		5.93%		9.33%		14.60%	
Excess Returns		**25.68%**		**23.33%**		**26.54%**		**11.04%**		**5.17%**		**-0.11%**	
Median Peer		2.56%		7.31%		12.87%		13.18%		11.55%		12.05%	
Excess Returns		**2.24%**		**3.94%**		**5.62%**		**3.79%**		**2.95%**		**2.44%**	

5 – Actions Planned

Actions planned are as follows:

1-Rebalance the portfolio by adding to our buyout exposure. The recently completed secondary sale in late 4Q2019 created an underweight; hence, rebalancing is a key goal over the next few years.

2-Continue building our co-investment program;

3-Add internal resources, to continue achieving high returns as our liabilities grow to $40 billion by 2030;

4-Become cash flow positive within five years, to provide liquidity back to the Trust as our cash outflows for pension benefits increase over the next decade.

Private Equity Update

Tanya Kemp, CFA, CAIA, Managing Director
Edward Comerford, CFA, Director
Justin Lo, CFA, Senior Portfolio Manager
Cynthia Wong, CFA, Security Analyst

July 8, 2020

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Agenda

- 2019 activity
- Portfolio performance
- Portfolio exposures and tilts
- Preview of Q1 2020 performance
- 2020 initiatives

2019 Year in Review

- Very active year across all metrics:
  - $1,235 million in new commitments to 24 managers:
    - 17 existing relationships, 7 new; $75 million in co-investments
    - 77% North America, 10% Asia Pacific, 13% Other
    - 50% Buyouts, 30% Venture, 20% Growth
  - $1,102 million in capital calls
  - $928 million in distributions
  - $968 million in net portfolio value appreciation (20.3% increase in NAV)
  - $5,920 million in NAV; $3,289 million in unfunded commitments; 21.6% of Plan Assets

2019 Year in Review (cont.)

- Completed a secondary sale
  - Sold 59 PE funds, $541 million in NAV

- Transferred active opportunistic credit investments to Private Credit portfolio
  - 17 funds, $105.2 million in NAV

- Hired a stock distribution manager
  - $85.4 million in stock distributions since September 2019

2019 Year in Review

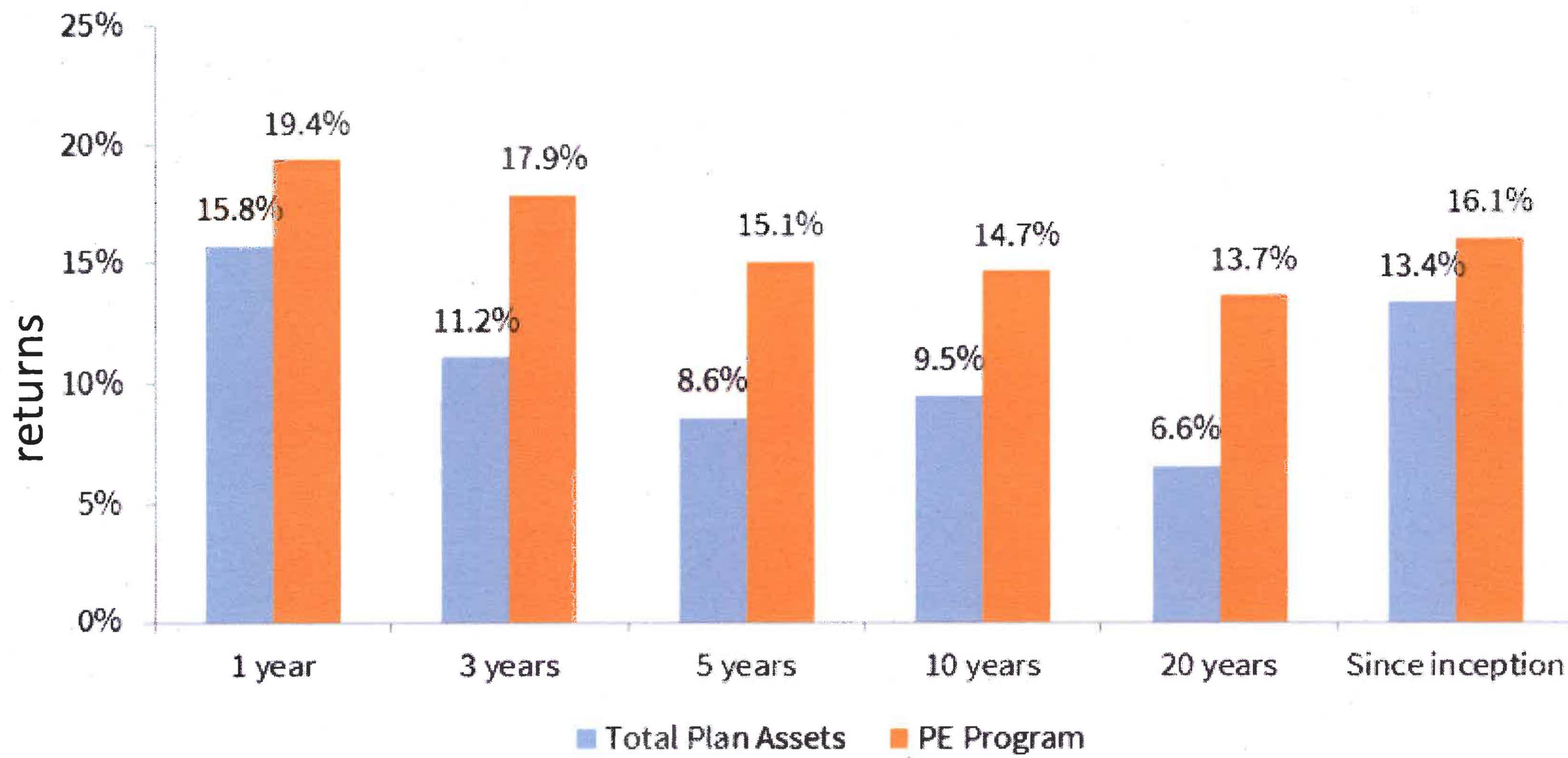
- Reviewed early-stage venture portfolio:
  - Conducted diligence on over a dozen early-stage managers
  - Did not reup with several existing managers
  - Added two new managers
  - Added new separate account

- Expanded buyout portfolio:
  - Shifting focus toward middle market managers
  - Added dedicated industrial and healthcare exposure
  - Expanded relationships in consumer, tech, and distressed sectors

- Co-investments:
  - Deployed $75 million in 3 co-investments with the existing managers

Private Equity Performance

As of December 31, 2019



PE program has added significant value to overall Plan returns

Source: Aksia and BNY Mellon

Private Equity Performance

As of December 31, 2019

	1 yr	3 yrs	5 yrs	10 yrs	20 yrs	ITD	DPI	TVPI
Buyout	18.2%	16.7%	14.5%	14.1%	14.1%	15.4%	1.2x	1.7x
Growth	17.4%	20.3%	17.9%	16.2%	11.4%	12.4%	0.6x	1.5x
Venture	20.9%	17.1%	14.3%	15.6%	14.7%	21.8%	0.8x	1.7x
Co-investments	33.3%	23.1%	NA	NA	NA	21.8%	0.4x	1.3x
Special Situation	27.2%	20.1%	14.4%	12.0%	11.1%	12.8%	1.1x	1.6x
Other	8.3%	16.9%	9.8%	11.7%	15.9%	18.1%	1.6x	1.6x
Private Equity Total	**19.4%**	**17.9%**	**15.1%**	**14.7%**	**13.7%**	**16.1%**	**1.0x**	**1.6x**
Cambridge Associates	17.9%	16.2%	13.0%	14.1%	10.5%	13.9%	1.1x	1.7x
Policy Benchmark	31.6%	16.4%	12.8%	14.3%	8.7%	12.3%	NA	NA

Private Equity added **$3.3 billion** in additional value since inception and over **$1.7 billion** over the past 5 years

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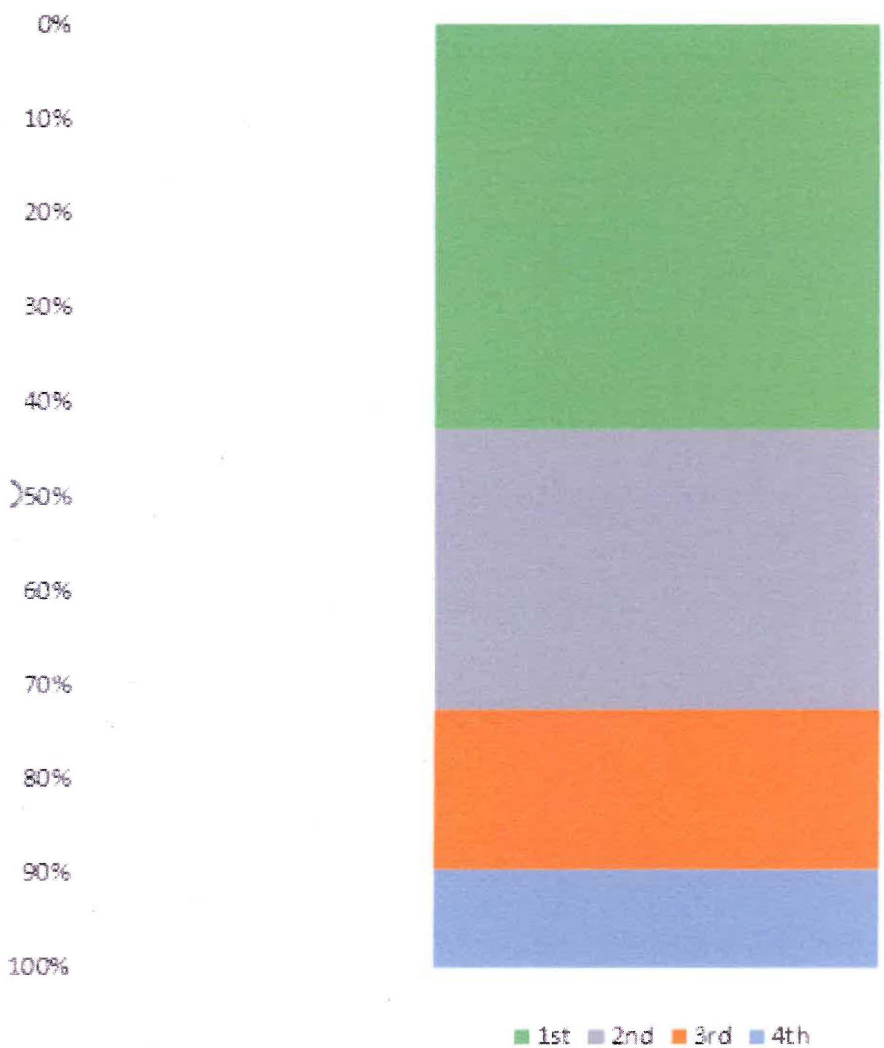
Quartile Rankings by Market Value



73% of all Private Equity funds are in the first or second quartiles of Cambridge's benchmarks

Manager selection is critical

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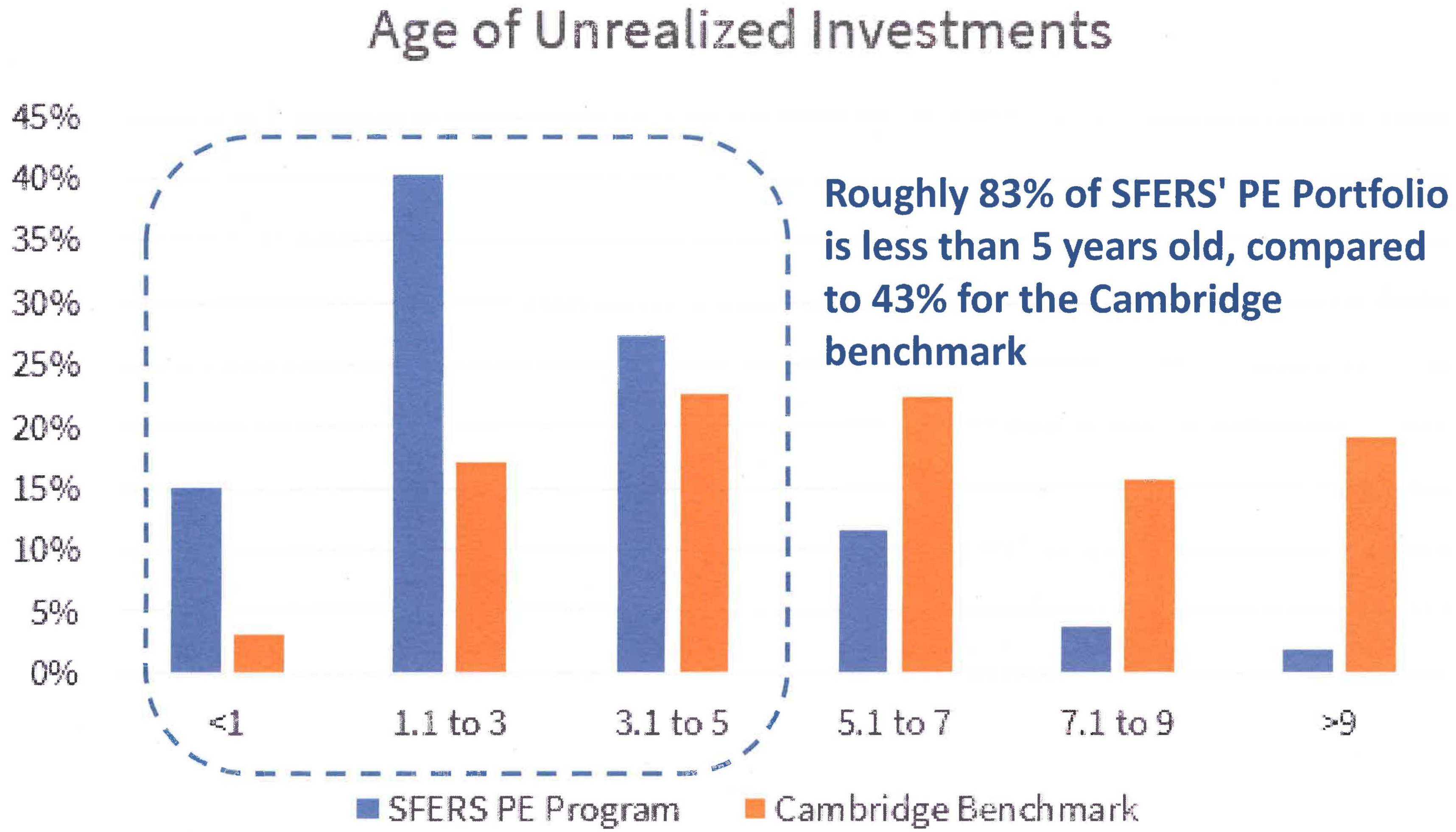
Annual Deployment Pace

Year	% of Plan	$ Deployed
2015	12.60%	$1,192 million
2016	14.09%	$1,229 million
2017	15.20%	$1,020 million
2018	20.20%	$1,270 million
2019	21.30%	$1,235 million

Target deployment pace is $700-900 million/year over the next 3 years

	# Funds	Committed	%
Buyout	38	$2,161,968,975	36%
Growth Capital	53	$1,786,800,000	30%
Venture Capital	27	$1,715,200,000	29%
Co-investments	3	$185,000,000	3%
Other	4	$96,116,183	2%
Total (2015-2019)	**125**	**$5,945,085,158**	**100%**

SFERS Age of NAV vs. CA Benchmark



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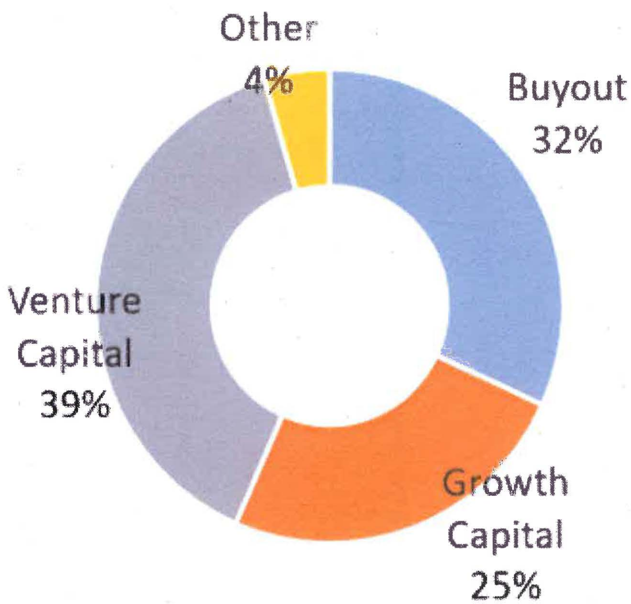
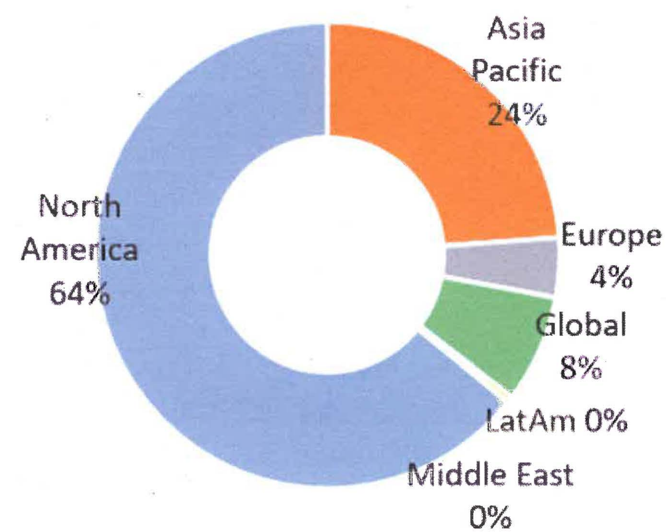
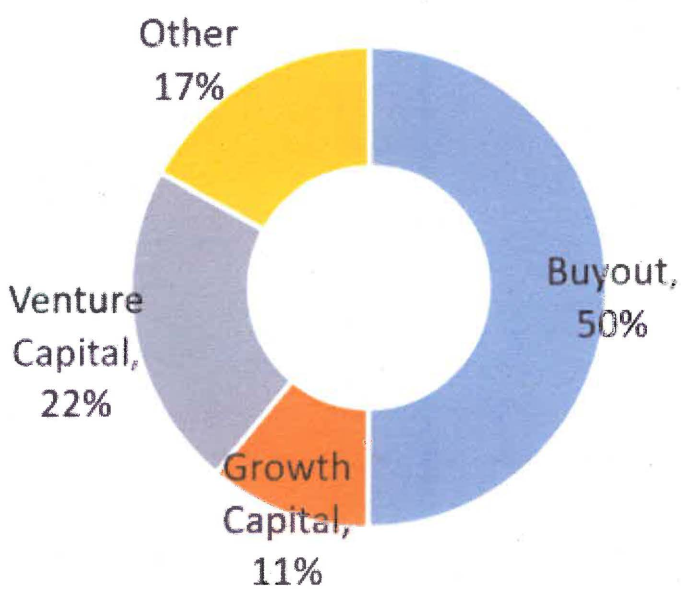
5 Year Exposure Snapshot

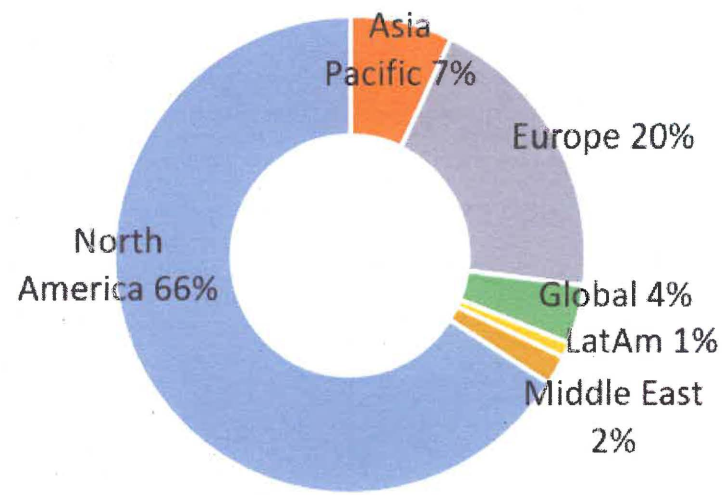
2019





2014

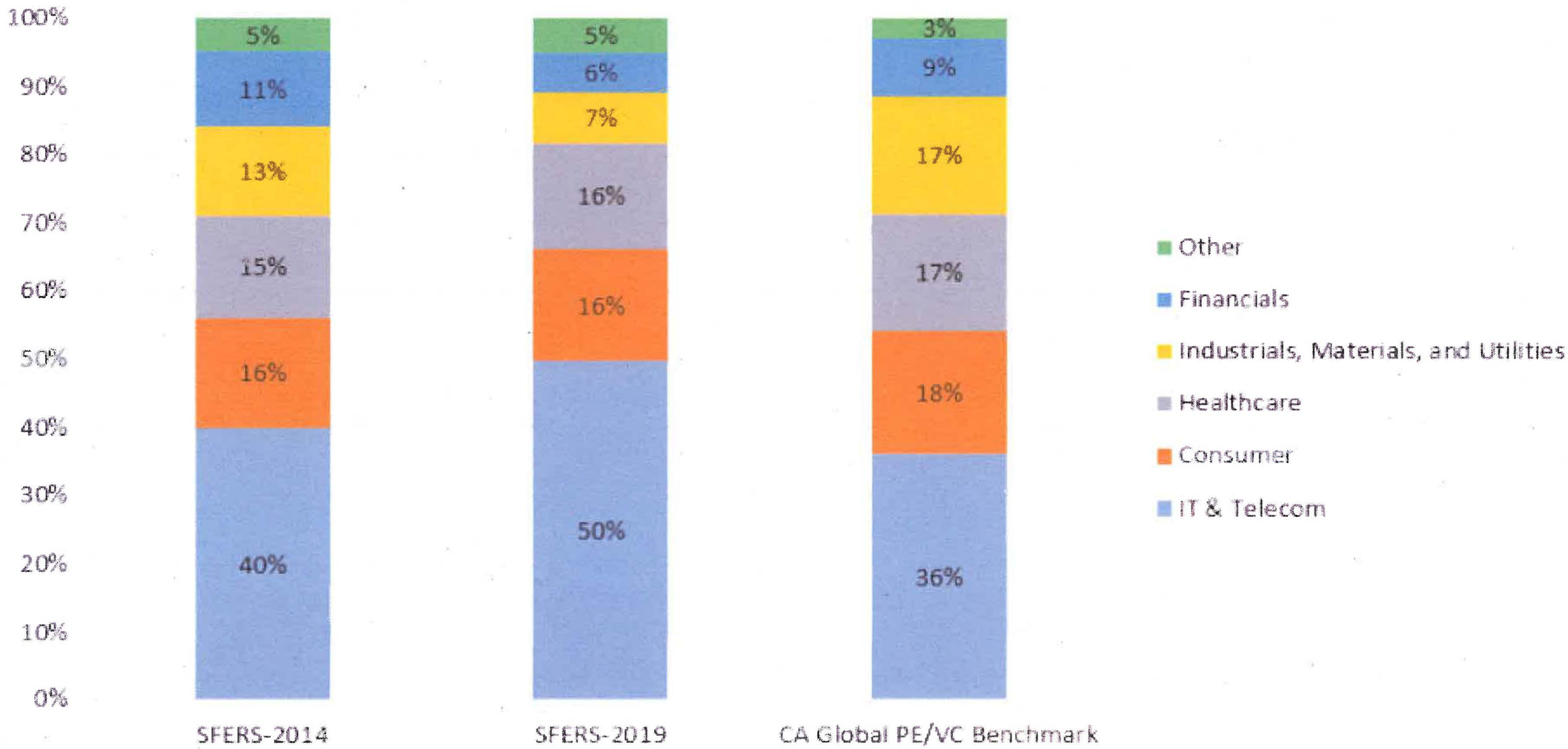




Current portfolio tilts

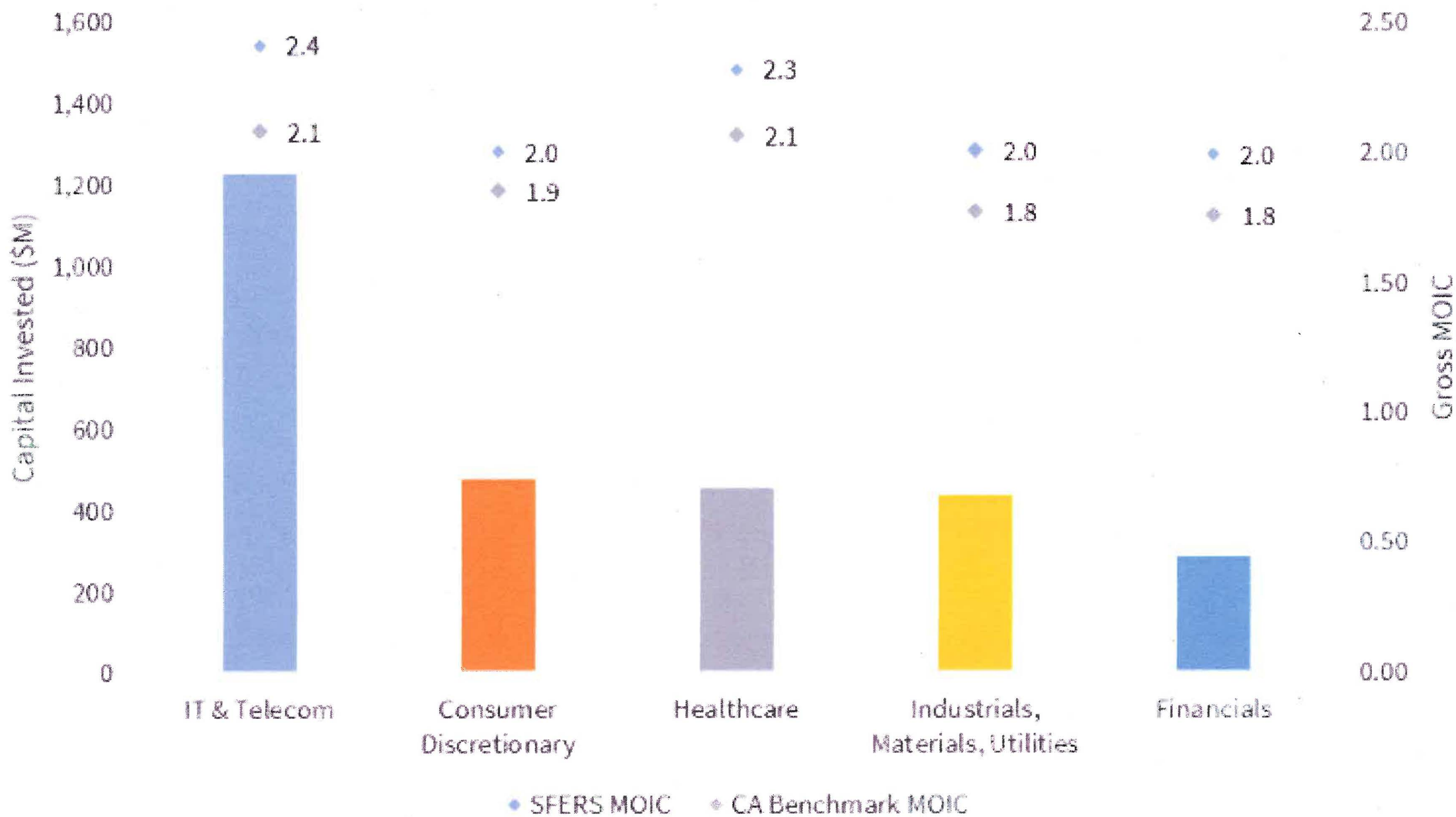
- Technology
- Venture/Growth
- Asia

PE Portfolio - Sector Exposure by NAV



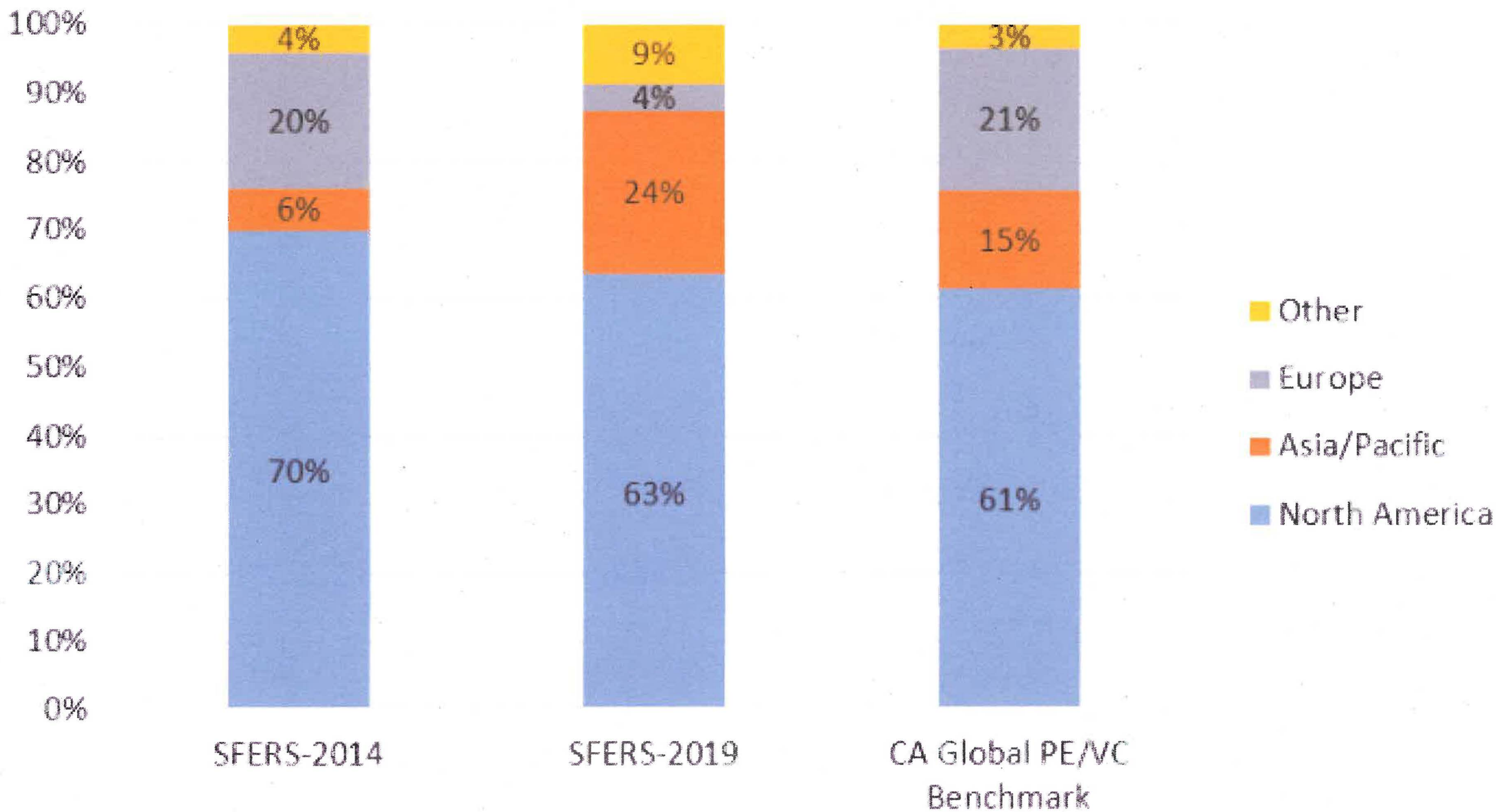
Source: Cambridge and Aksia

PE Performance by Sectors



Source: Cambridge and Aksia

PE Portfolio - Geographic Exposure by NAV



Source: Cambridge and Aksia

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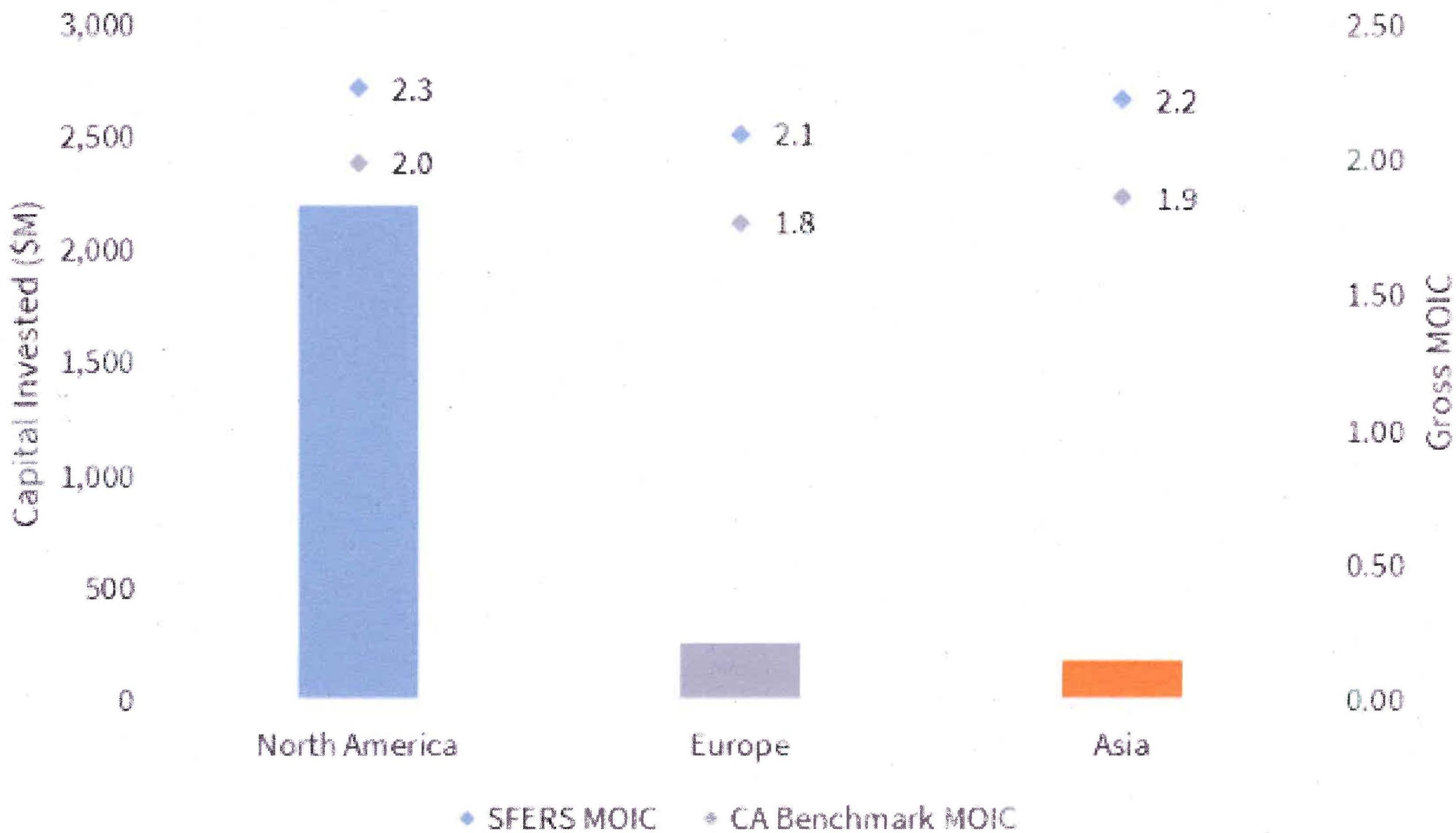
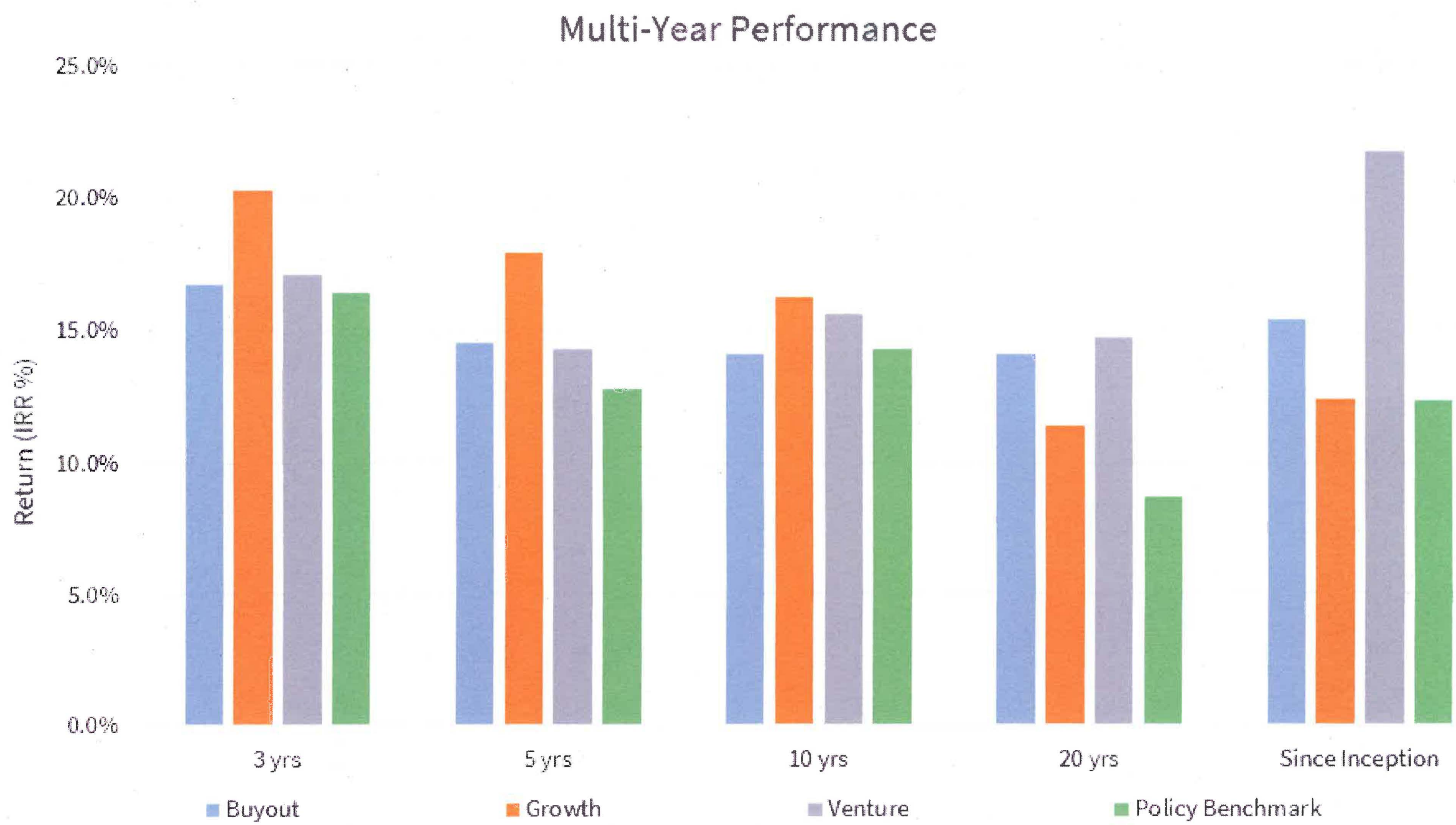
PE Performance by Geography



Source: Cambridge and Aksia

Performance by Strategy



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Co-investments

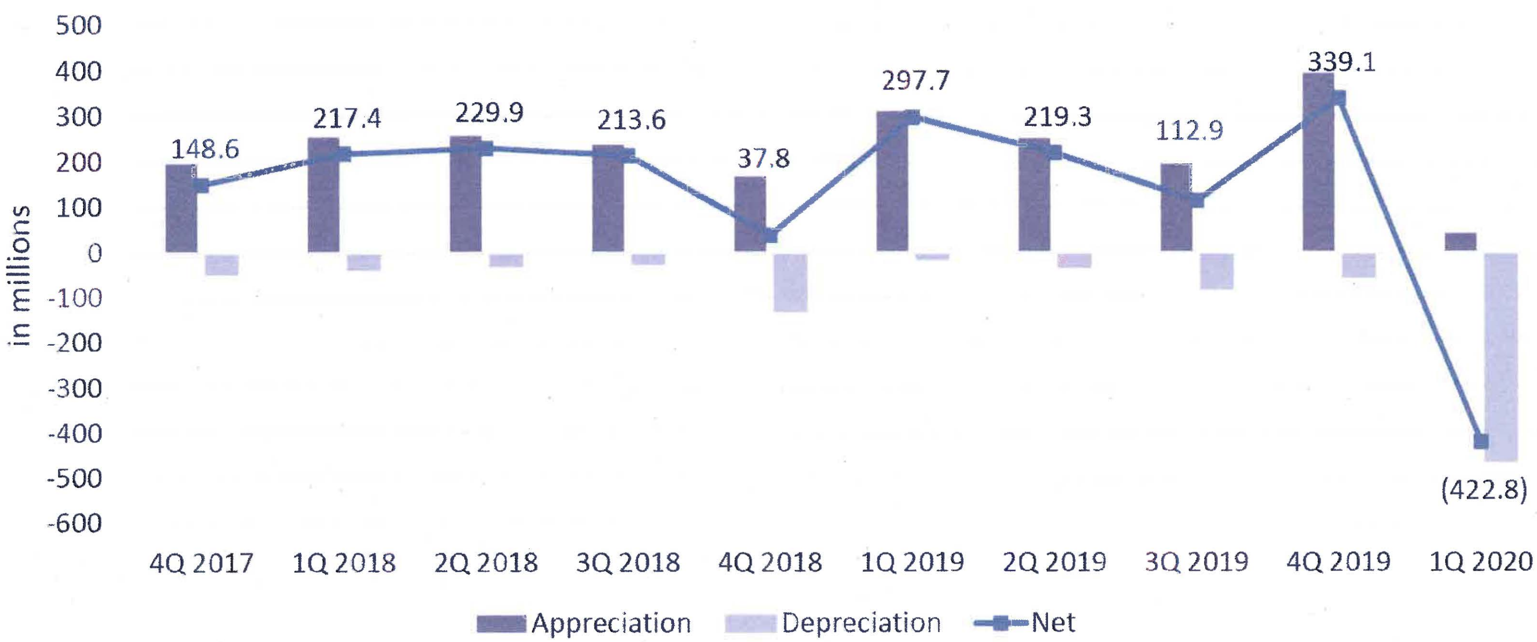
Number of Co-investments	Total Invested	Market Value	IRR	TVPI	DPI
13	$199.3 M	$168.3 M	17.8%	1.36x	0.51x

- 3 new deals totaling $75 million added in 2019
- 2 deals have been fully realized with an aggregate DPI of 1.47x
- Of the 13 co-investments, 10 are valued above cost, one is valued at cost, and two are valued below cost
- Weighted Average of Co-investments is just 2.3 years

Preview of Q1 2020 performance

	ITD IRR at 12/31/2019	ITD IRR at 3/31/2020[1]
SFERS - PE	16.1%	15.7%

- The Special Situations, Buyout and Growth strategies have experienced depreciations during Q1 2020 of 11.0%, 10.3% and 9.8%, respectively.



[1]As of June 24, 2020, 85.2% of data has been received.

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Private Equity 2020 Initiatives

- Rebalance portfolio post-secondary sale:
  - Buyouts
  - Europe
- Continue emphasis on higher value-add strategies on a global basis (smaller managers, specialized strategies, differentiated exposures)
  - Growth Equity
  - Deep Value/Turnaround
- Continue building co-investment program
- Increase engagement and collaboration with other verticals within SFERS
- Hiring Resources
- Consultant RFP

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CONFIDENTIAL & TRADE SECRET

SAN FRANCISCO EMPLOYEES' RETIREMENT SYSTEM

PRIVATE EQUITY PORTFOLIO UPDATE

PRESENTED BY ANITA NG, INVESTMENT MANAGING DIRECTOR, SCOTT MARTIN, INVESTMENT MANAGING DIRECTOR, AND KELLY JENSEN, SENIOR INVESTMENT DIRECTOR

CAMBRIDGE ASSOCIATES

JULY 2020

CAMBRIDGE
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Introduction

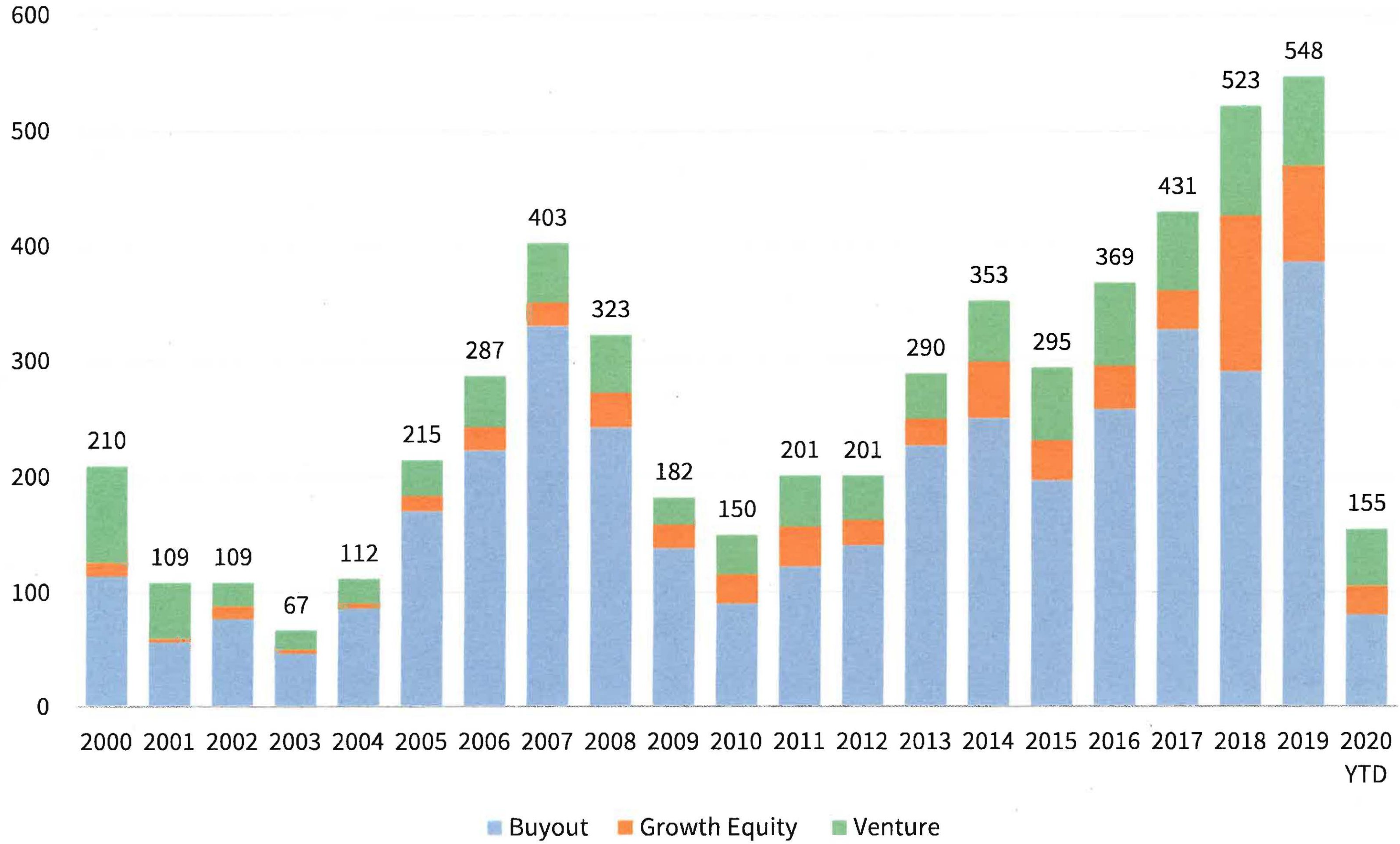
- SFERS PE program continues to perform well on an absolute basis and relative to public markets. It has been significant contributor to overall Plan returns over the short- and long-term.
  - 2019 was particularly strong, returning 19.4% for the year.
- The PE program is roughly 21.5% of total Plan[1] assets, above the 18.0% target allocation, due in large part to significant outperformance over public markets in recent years.
- 2019 was another productive year for the PE program:
  - $1,235 million in commitments to 24 managers – 17 existing relationships, 7 new; $75 million in co-investments.*
  - Record year of $928 million in distributions for the program, on the heels of 2018's prior peak.
  - Completed secondary sale of 59 non-core venture and buyout funds totaling approximately $541 million of NAV[2].
- SFERS has benefitted from cultivating relationships with top-tier investment managers in advance of fundraising and continued to secure access to oversubscribed managers.
- The COVID-19 pandemic is an evolving situation that has and continues to affect businesses and private market portfolios, although the degree and shape of that impact remain unknown.
  - Aside from managers focused on distressed opportunities, new deal activity is expected to slow in the near term.
  - Capital calls and distributions are likely to be reduced in the near-term as investment and exit activity decline.
  - Valuations are expected to reset, though most private equity markets remain frothy.
- Given current market volatility, we recommend a target annual pace of $700 million, appropriate even under a deep stress scenario. However, we advise maintaining flexibility with this target and being guided primarily by opportunities in the market.

* Reflects closed commitments that were approved in 2019. Manager count reflects number of manager relationships. In some cases, SFERS has invested or co-invested across multiple strategies managed by the same firm.
[1] Based on total Plan value of $27.4 billion as of December 31, 2019.
[2] As of March 31, 2019 reference date.

Fund Commitments [Were] at All-Time Highs

GLOBAL BUYOUT, VENTURE CAPITAL, AND GROWTH EQUITY TOTAL CAPITAL RAISED

2000–2020 • US Dollar (billions)



Sources: Cambridge Associates LLC and PitchBook.
Notes: As of May 12, 2020. Data includes 5,116 buyout funds, 7,791 venture capital funds, and 1,536 growth equity funds raised between 2000 and 2020.

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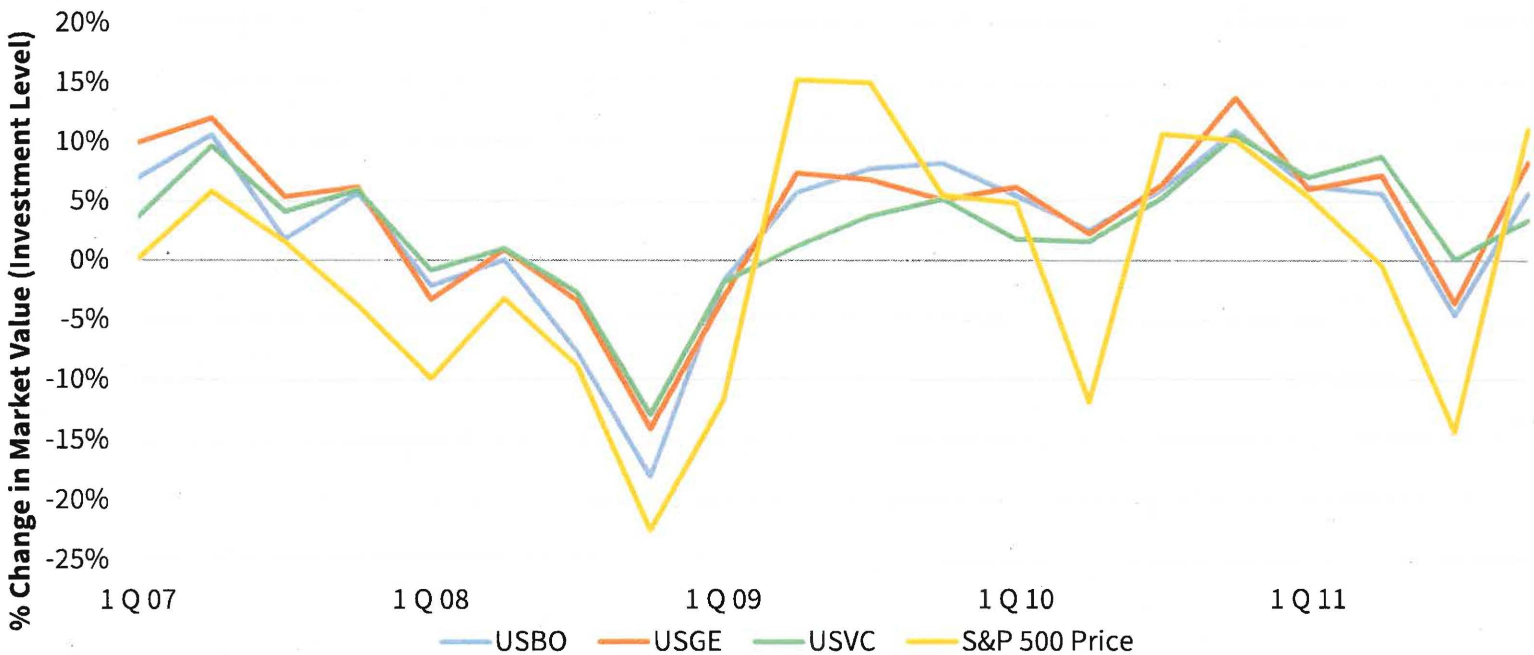
During the GFC, Private Investment Valuation Fluctuations Were Less Volatile Than Those of the S&P 500

U.S. BUYOUTS, GROWTH EQUITY, AND VENTURE CAPITAL QUARTERLY MARKET VALUE FLUCTUATIONS VS. S&P 500 PRICE RETURN

January 1, 2007 - December 31, 2011



	1Q 07	2Q 07	3Q 07	4Q 07	1Q 08	2Q 08	3Q 08	4Q 08	1Q 09	2Q 09	3Q 09	4Q 09	1Q 10	2Q 10	3Q 10	4Q 10	1Q 11	2Q 11	3Q 11	4Q 11
USBO	7%	11%	2%	6%	-2%	0%	-8%	-18%	-2%	6%	8%	8%	6%	3%	6%	11%	6%	6%	-5%	6%
USGE	10%	12%	5%	6%	-3%	1%	-3%	-14%	-3%	7%	7%	5%	6%	2%	6%	14%	6%	7%	-4%	8%
USVC	4%	10%	4%	6%	-1%	1%	-3%	-13%	-2%	1%	4%	5%	2%	2%	5%	11%	7%	9%	0%	3%
S&P 500 Price	0%	6%	2%	-4%	-10%	-3%	-9%	-23%	-12%	15%	15%	5%	5%	-12%	11%	10%	5%	0%	-14%	11%

Sources: Cambridge Associates LLC Private Investments Database and Standard & Poor's.
Notes: Data as of September 30, 2019. Returns shown for private investments are the quarter-over-quarter (end-to-end) percent change in total market value for investments made by U.S. buyout, growth equity, and venture capital funds in each time period and are gross of fees and expenses. S&P 500 return represents quarter-over-quarter price return for the S&P 500 Index and excludes returns from dividends and interest.

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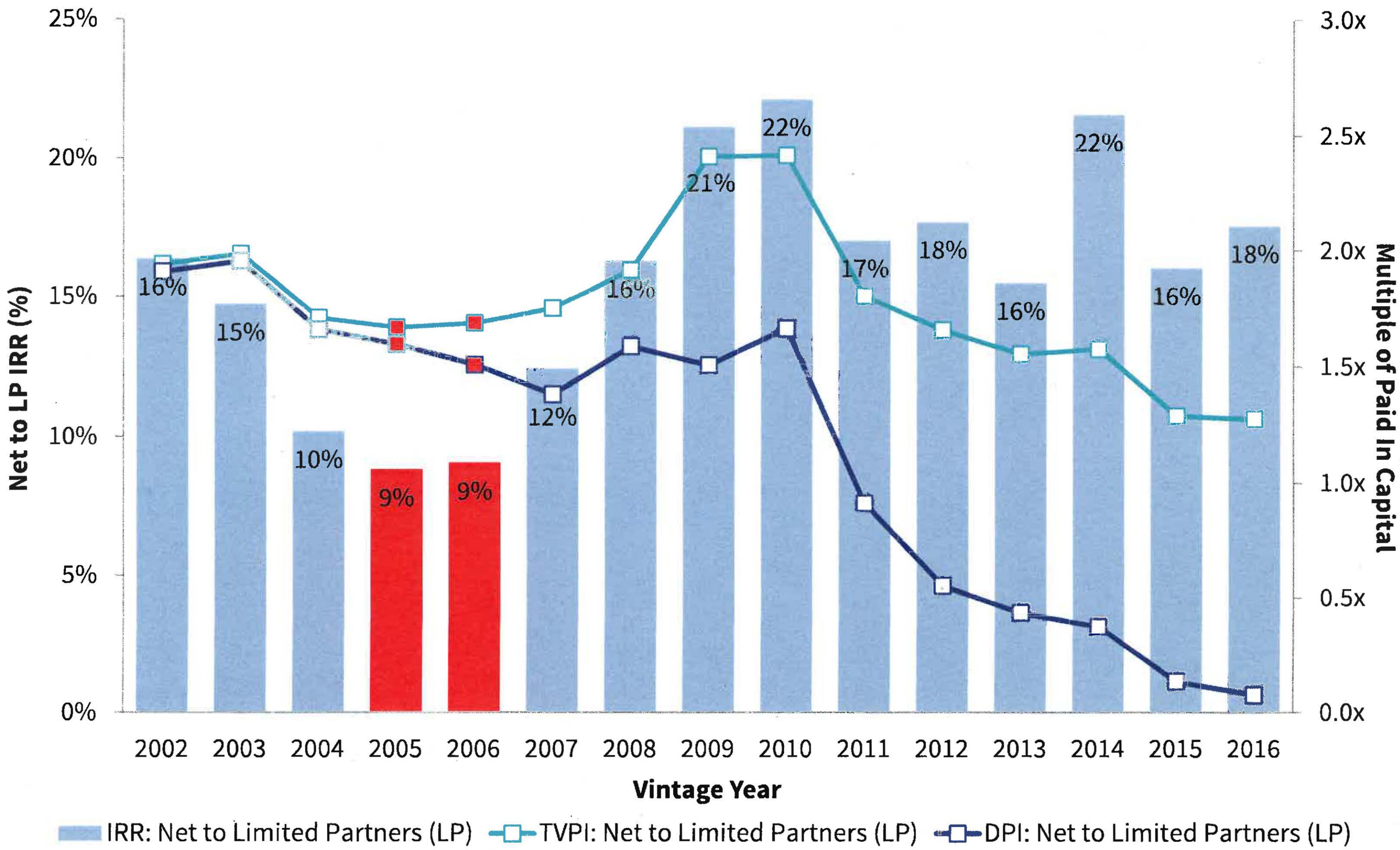
Vintages Fully Invested Now are Most at Risk; PE Funds Raised During and Coming Out of the GFC Have Been Strong Performers

U.S. PRIVATE EQUITY: NET POOLED IRRS AND FUND MULTIPLES BY VINTAGE YEAR

As of September 30, 2019



Source: Cambridge Associates LLC Private Investments Database.
Notes: Based on data compiled from 710 US buyout and growth equity funds, including fully liquidated partnerships, formed between 2002 and 2016. Internal rates of return are net of fees, expenses and carried interest. CA research shows that most funds take at least six years to settle into their final quartile ranking, and pervious to this settling they typically rank in 2-3 other quartiles; therefore fund or benchmark performance metrics from more recent vintage years may be less meaningful.

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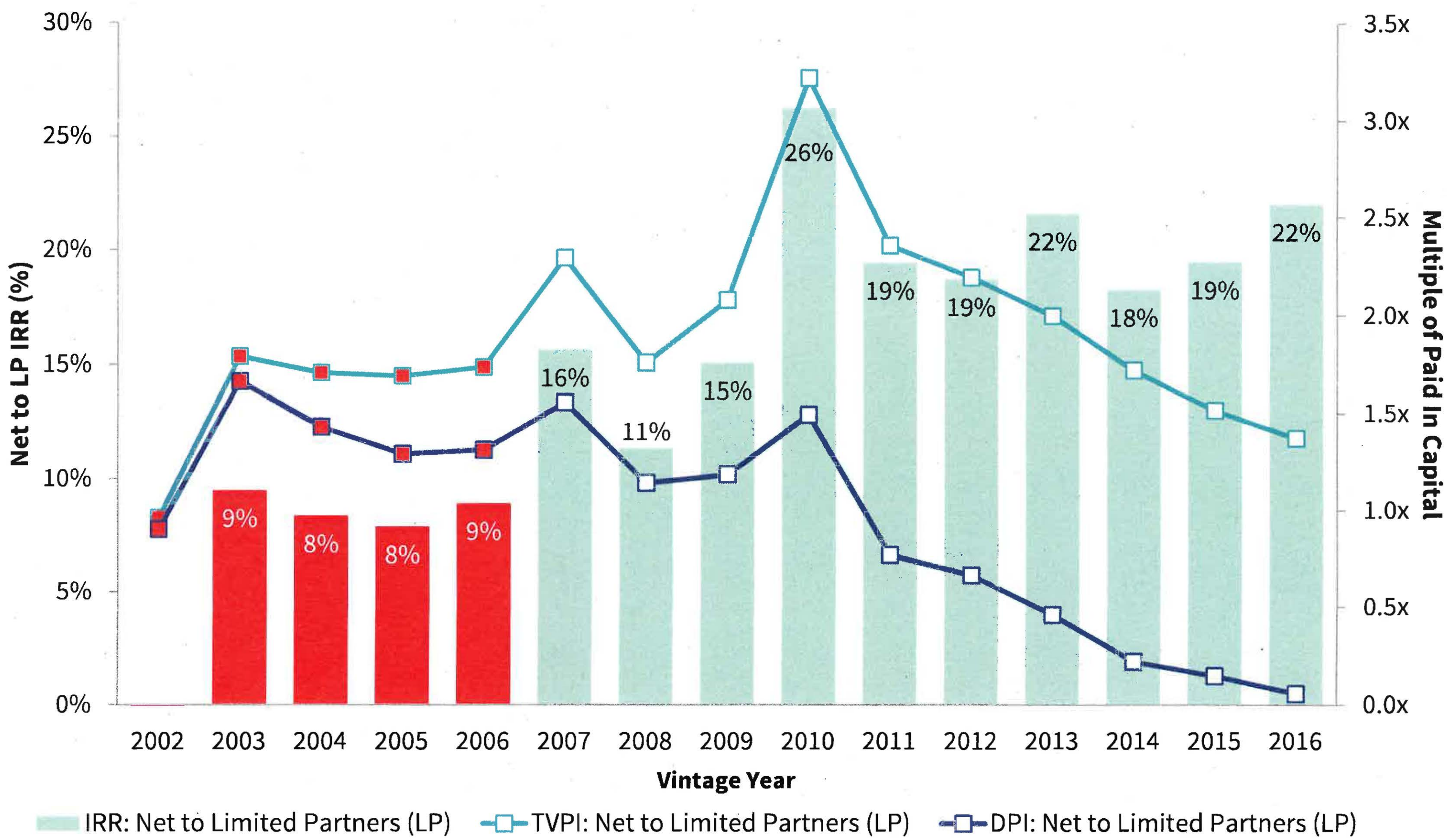
In Venture, Funds Raised During the GFC and its Aftermath Have Posted Double-Digit Returns

U.S. VENTURE CAPITAL: NET POOLED IRRS AND FUND MULTIPLES BY VINTAGE YEAR

As of September 30, 2019



Source: Cambridge Associates LLC Private Investments Database.

Notes: Based on data compiled from 863 US venture capital funds, including fully liquidated partnerships, formed between 2002 and 2016. Internal rates of return are net of fees, expenses and carried interest. CA research shows that most funds take at least six years to settle into their final quartile ranking, and pervious to this settling they typically rank in 2-3 other quartiles; therefore fund or benchmark performance metrics from more recent vintage years may be less meaningful. 2002 return is -0.6%. Axis minimum held at 0% for formatting purposes.

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Current Private Equity Market Conditions

Impact on Asset Class	▪ Managers are bracing for the impact of Q2 2020 marks. ▪ Deals agreed to before COVID-19 have been subject to repricing. ▪ The amount of capital needed to support existing portfolio companies could be meaningful. ▪ Recession, record unemployment likely to have longer term impact on recovery.
What Managers are Saying and Doing	▪ Assessing remaining available commitments, reserves with a view towards preserving existing holdings. ▪ Reducing cash burn at their companies to sustain zero revenue for 60-90 days. ▪ In the near term, new platform investments are expected to be limited. ▪ Some software and healthcare companies have benefitted. ▪ Deal activity will pick back up at some point, but will be delayed until the risks are better understood. There is still substantial dry powder to deploy.
Outlook & Opportunity Set	▪ Buyout firms are well positioned to put capital to work by pursuing add-ons. ▪ Most Buyout managers are pushing back fundraising timelines and focusing on existing portfolios. ▪ Special Sits groups are starting to fundraise. Deal activity here likely to pick up as the need for capital forces the hand of the company or asset owner/lender. GPs with larger pools of capital have begun putting money to work. ▪ Managers that just closed their funds have ample capital ready to deploy.

Current Venture Capital Market Conditions

Impact on Asset Class	▪ Venture managers saw a low-to-moderate impact on their portfolios in Q1. Managers are bracing for the impact of Q2 2020 marks. ▪ Late stage marks are likely to be more impacted than early. ▪ Recession, record unemployment likely to have longer term impact on recovery.
What Managers are Saying and Doing	▪ VC-backed companies are much better financed than they were going into the GFC. ▪ Managers are focusing on pipeline deals, stress testing current platform companies, ensuring companies have 12-18 months of runway. ▪ Enterprise tech enabling remote work, virtual healthcare, deliveries, and online education have seen a surge in traffic. Clinical trials have been delayed.
Outlook & Opportunity Set	▪ High quality managers have not slowed down fundraising but others may be pushing out deadlines. ▪ Tech-enabled companies have been able to adapt and manage through this crisis better. This crisis has accelerated the adoption of several long-term trends such as remote work and virtual healthcare, and these business models are likely to influence the post COVID-19 market. ▪ While uncertainty prevails, Asia appears to be stabilizing. Sponsor sentiment is optimistic for Venture Capital. Moreover, VC firms seem less impacted than PE firms.

Sectors Impacted to Varying Degrees

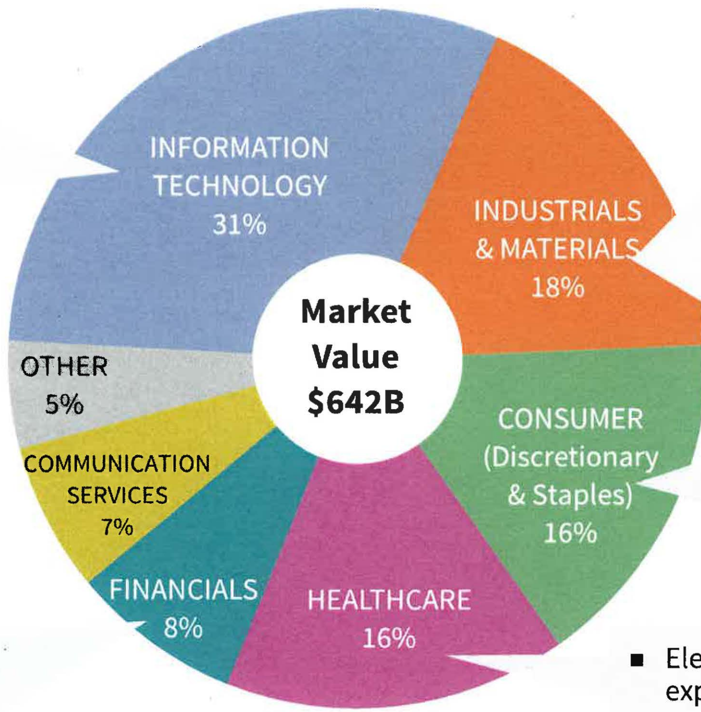
US PRIVATE EQUITY BY GICS SECTOR

As of September 30, 2019 – Percent of Market Value

Businesses with the lowest cost structures, low(er) levels of debt, and access to liquidity, have the best chance of surviving six months of zero revenue.

- Recurring revenues help sustain software companies in a zero (i.e., new) revenue environment
- Enterprise, education, and consumers accelerating drive to online, cloud

- Anticipate pandemic-related disruption
- Some level of recurring revenue should persist from enterprise and consumer customers in many subsectors
- Online/contactless payment usage expected to increase



- **MANUFACTURING:** Industry dependent. Some supply chains disrupted
- **SERVICES:** Customer dependent. Postponements likely
- **AEROSPACE/DEFENSE:** Consumer aerospace suffering significantly from halted travel, defense expected to emerge relatively unscathed
- Oil services/producers could suffer as oil prices decline/fluctuate, will impact derivative businesses

- Discretionary travel and leisure, brick and mortar dependent business models hit **HARD**
- Many may not recover

- Elective medical/dental care delayed, expecting bounce back post crisis
- Telehealth services in test drive now, if reimbursed, expect increase

Sources: Cambridge Associates LLC Private Investments Database.
Notes: CA Index weights for US private equity are based on market value of investments made by US private equity funds at 9/30/2019. "Other" sectors of the CA benchmark include energy, utilities, real estate, fund of funds investments, and multi-industry investments. Private equity includes buyout and growth equity funds.
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Current Areas of Opportunity

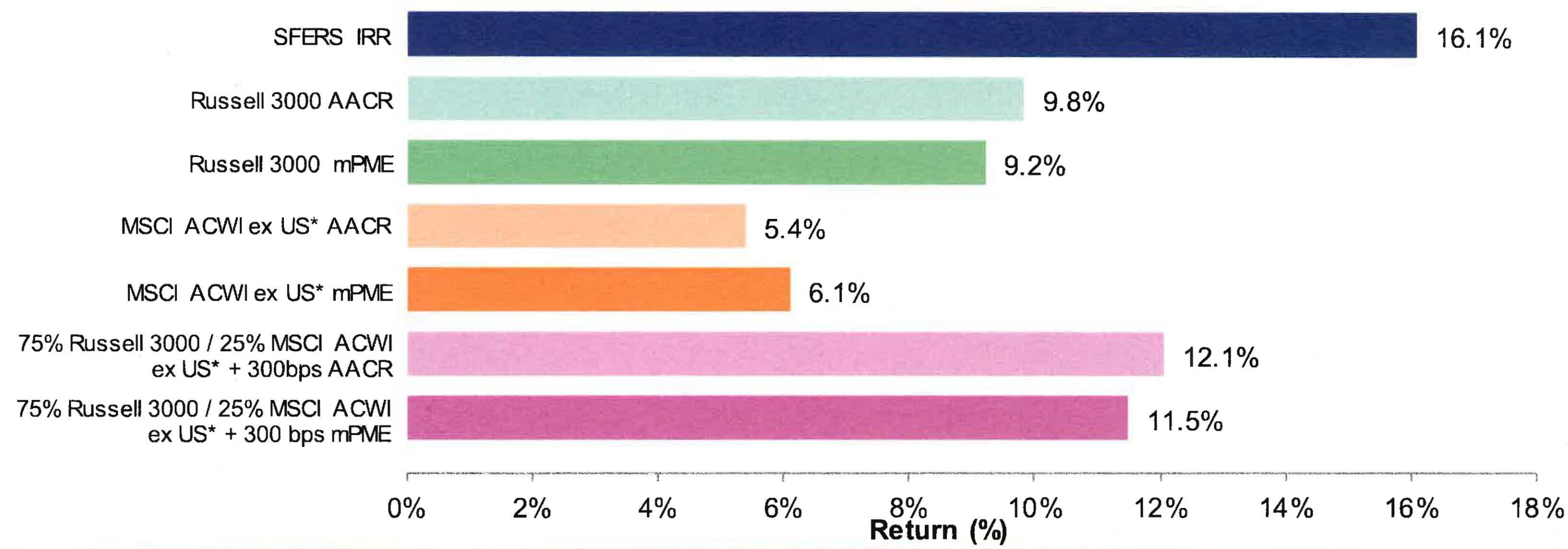
Early Stage Venture Capital	• Next generation companies consistently formed during recessions as they solve flaws in current economy / technical issues. • Expected valuation reset should benefit LPs.
Mid Cap Buyouts	• Expected valuation reset should create better investment opportunity. • Many sectors will present buy-and-build opportunities.
Growth Equity	• Generally proven, profitable business models, with most GPs focusing on technology and/or healthcare. • Less capital chasing Asian and European opportunities. • Flexible capital structures allow for creativity.
Secondaries	• Discounts should increase as forced sellers look to shed relationships to deal with denominator and/or asset allocation issues.
Deep Value / Turnaround	• Bankruptcies, restructurings, rescue finance, reconstruction, and turnaround opportunities will be available (and required).

Program Performance

As of December 31, 2019

- SFERS PE program has performed well in comparison to both public markets and peers.
- PE portfolio has generated a 16.1% net IRR since inception in 1987, outperforming the blended mPME benchmark (75% Russell 3000 / 25% MSCI ACWI ex US + 300 bps) by 460 bps.

Private Equity Program and Index Returns Since Inception



SFERS consistently ranks in the top ten of pension PE returns. According to InvestorForce, SFERS' ten-year PE return was 420 basis points higher than the median, placing SFERS at #5 amongst defined benefit plans.

Note: SFERS performance data reported by Aksia as of 12/31/2019. The mPME methodology attempts to create a dollar-weighted return measure using quarterly returns on public indices for direct comparison to the internal rate of return (IRR) used to measure private investments performance. The methodology assumes that inflows to the modified Public Market Equivalent ("mPME") are equivalent in size and timing to contributions to the private portfolio. Distributions, on the other hand, are assumed to occur at the same time as in the private portfolio, but instead of at the same size, they are assumed to be of the same proportion to the NAV of the PME as the distributions in the private portfolio are to its NAV. NAV, meanwhile is grown at the rate of return of the public index. This figure was calculated using Aksia historical cash flow data. The InvestorForce Public DB net of fee universe contains 63 observations.

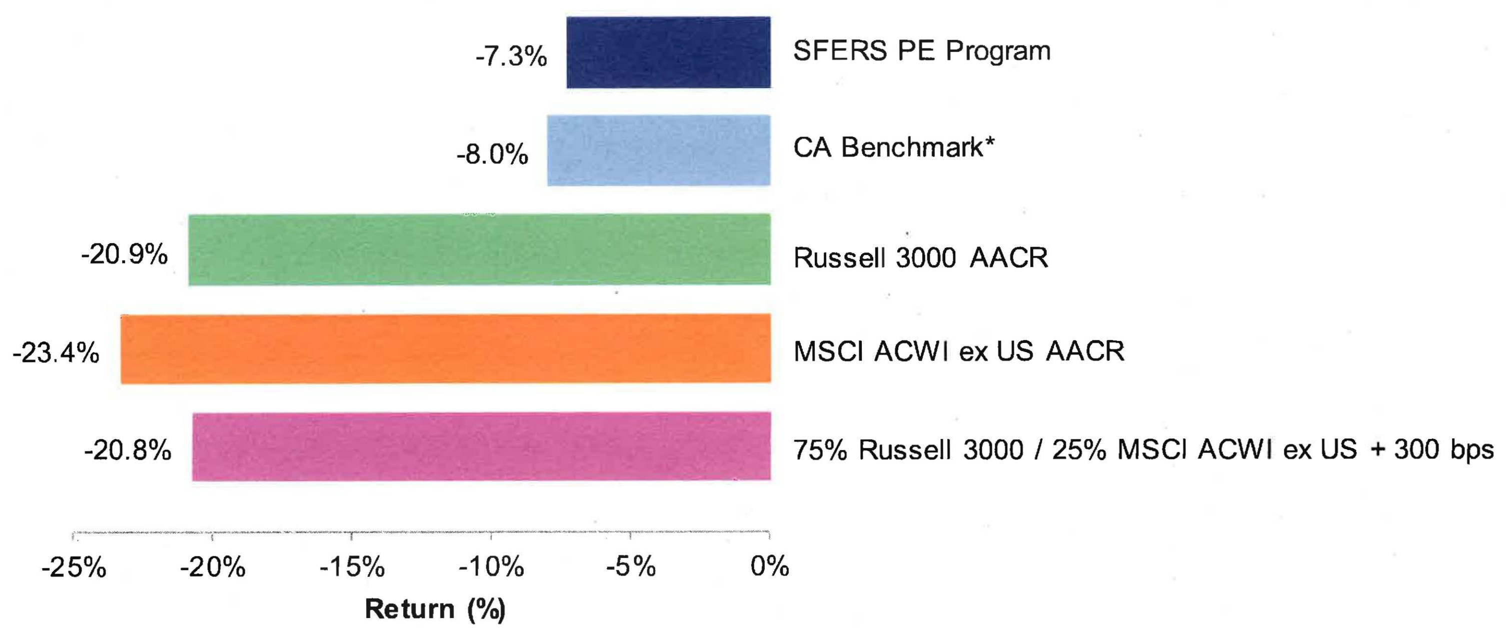
*MSCI ACWI ex US represents MSCI ACWI ex US (net) returns from 12/31/2018 back through 3/31/2001, backfilled with MSCI ACWI ex US (gross) returns through 3/31/1988, and MSCI World ex US (net) returns through 12/31/1987.

Program Performance (Cont'd)

Preliminary Q1 2020 Performance

- In market dislocations, private investment valuations have historically been less impacted than public markets, helping reduce overall plan volatility.
- SFERS PE program held up well during the first quarter, outperforming the blended benchmark by roughly 13% and outperforming the CA Benchmark by roughly 70 bps.

Preliminary Q1 2020 Private Equity Program and Index Performance



Note: SFERS performance data reported by Aksia as of 3/31/2020 based on 85.2% of data (by fund count) reporting. CA Private Benchmark data is preliminary as of March 31, 2020 and represents net pooled IRRs.
* Benchmark includes Cambridge Associates' Private Equity, Venture Capital, Distressed, and Secondaries benchmarks.

Market / Portfolio Observations

- Buyouts
  - SFERS buyout program has been the largest driver of value creation for the PE program since inception.
  - As a result of strong relative distributions ($390 million in 2019 alone), SFERS is underweight buyouts; this is a current area of focus, and exposure will increase given SFERS' $1.4 billion in existing dry powder.
  - Within Europe, favor middle-market regionally- and country-focused funds with established sector and operational expertise.
  - Within Asia, small- and mid-cap developed market buyouts continue to be attractive given the limited competition, reasonable valuations, prudent use of leverage, and strong exit markets.
  - Managers with ample dry powder should be well positioned when deal activity returns in the wake of the COVID-19 crisis. Those targeting resilient business models in sectors such as healthcare and technology—both areas where SFERS has a healthy dose of exposure—should fare relatively better than others.

Market / Portfolio Observations (Continued)

- Growth Capital
  - Since inception returns have not been as strong as other sub-strategies, but recent momentum has picked up with strong 3- and 5-year net IRRs (20.3% and 17.9%, respectively).
  - Distributions reached a peak of $223 million in 2019.
  - In 2019, SFERS committed $239 million to four existing and established global growth equity managers pursuing diversified and IT-focused strategies.
  - Growth companies with strong business models (i.e., low cost structures, low levels of debt, high recurring revenues) should be well positioned to weather the current environment and capitalize on trends accelerated by the COVID-19 crisis.
- Venture Capital
  - SFERS' venture capital program has been the program's strongest driver of performance over time (since inception net IRR of 21.8%).
  - 2019 was another active year with over $130 billion of capital invested in the US venture market and $199 billion raised in IPOs driven by the listing of a number of large companies (such as Uber, Slack, and Lyft).
  - Within Asia, look for opportunities over time to upgrade maturing tech VC firms and add complementary sector specialists. Continue to favor early-stage venture opportunities in China.
  - Look to selectively add European venture where it may be complementary and additive through regional or country-focused managers.

Market / Portfolio Observations (Continued)

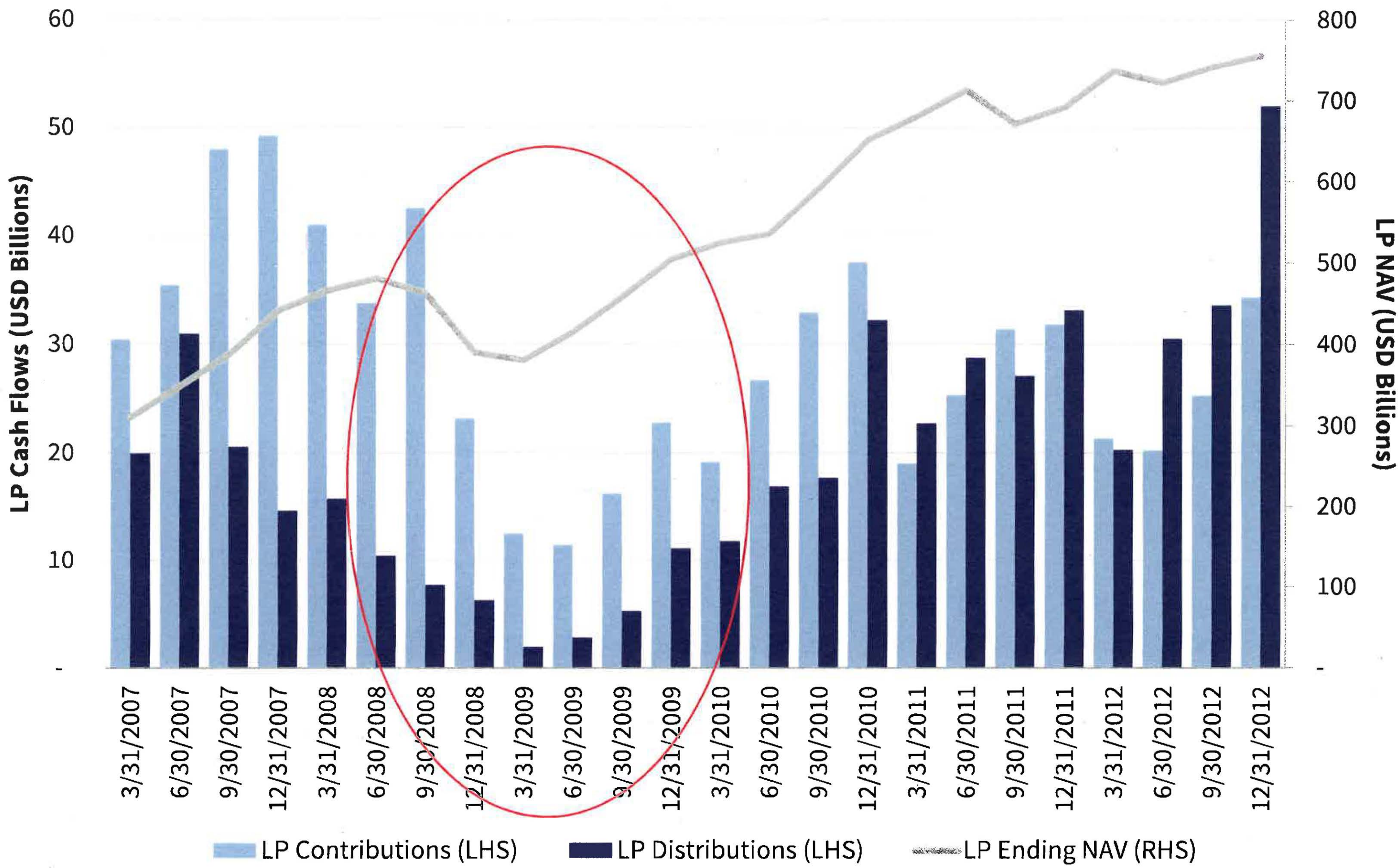
- Special Situations
  - SFERS has benefitted from managers that take advantage of market dislocations and should continue to do so through the COVID-19 related pandemic and its aftermath.
- Emerging Markets
  - SFERS has made meaningful strides over the years in increasing its exposure to emerging markets, specifically emerging Asia.
  - SFERS has benefited from strong performance from its Asia portfolio, with 3-year and 5-year net IRRs at 17.0% and 14.6%, respectively. SFERS' China portfolio has performed particularly well, generating a 20.2% net IRR since inception.
  - In the medium-term, general weakness in EM currencies and public markets volatility could dampen returns, especially in USD terms.
- Co-Investments
  - Co-investments continue to offer SFERS the opportunity to enhance returns, reduce economic leakage to GPs, and target select sector and geographic exposure.
  - SFERS' exposure is diversified by manager, investment type, and geography.
  - SFERS saw robust private equity co-investment deal flow and reviewed a number of opportunities in 2019. However, SFERS remains highly disciplined and selective in the opportunities it pursues

APPENDIX

If History Repeats Itself, We Should See Fewer Capital Calls but Subscription Lines Add Complexity

GLOBAL PRIVATE EQUITY: LP CASH FLOWS AND NAV – CALENDAR YEARS 2007-2012

As of September 30, 2019



Source: Cambridge Associates LLC.

Notes: Includes funds formed between 2000-2012 based on date of legal inception. Private equity includes buyout and growth equity funds. Cash flows are net of recallable returns of capital.

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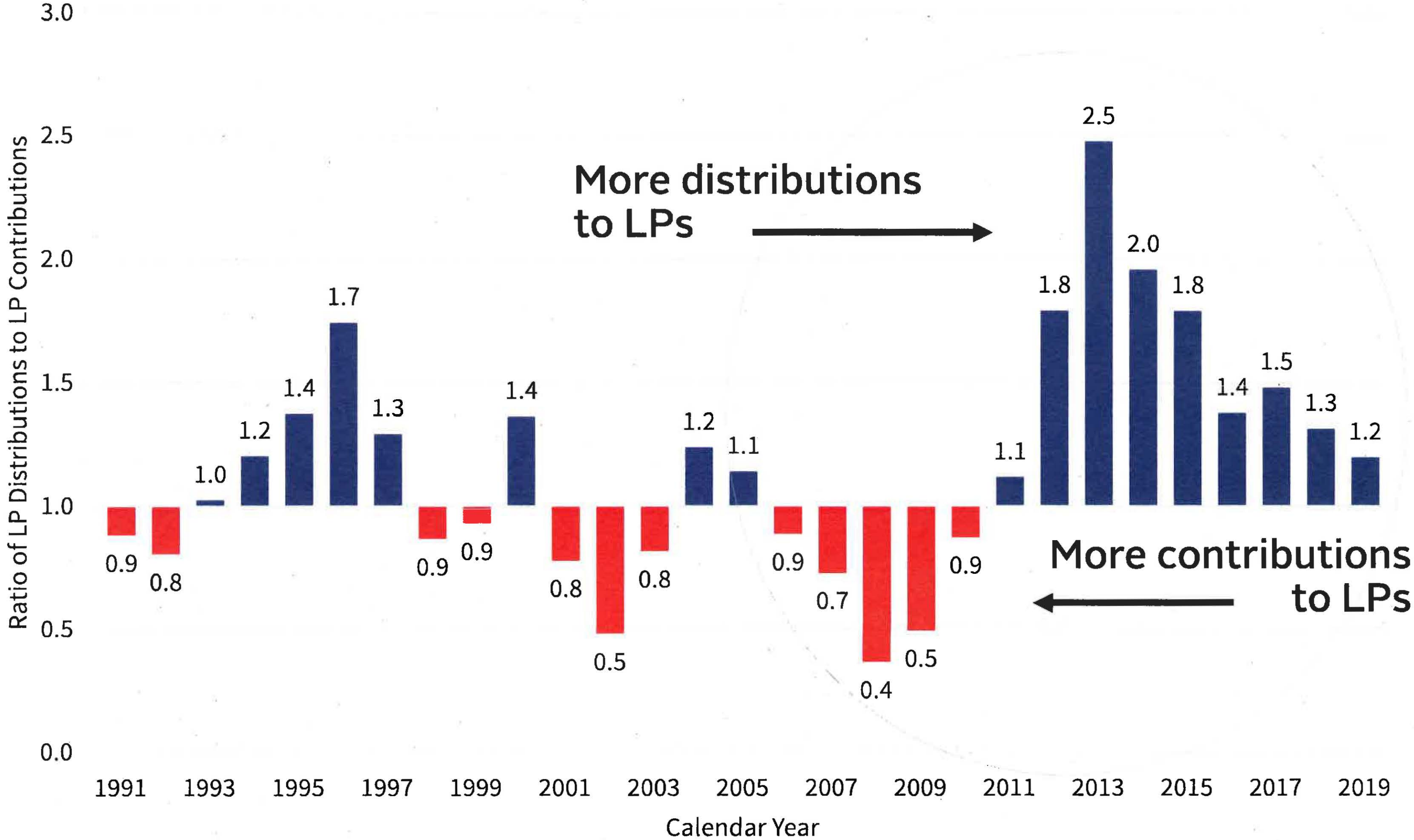
Cash Flow Cycle Has Seemed Destined to Turn

CASH FLOW CYCLE – U.S. PRIVATE EQUITY AND VENTURE CAPITAL 1991-2019

As of September 30, 2019 • Ratio of annual LP distributions to LP contributions



Source: Cambridge Associates LLC Private Investments Database.
Note: Cash flow ratio is LP distributions divided by LP contributions. Distributions are net of recallable returns of capital. Private equity includes buyout and growth equity funds. 2019 data reflect activity for the first nine months of the year and are through September 30, 2019.

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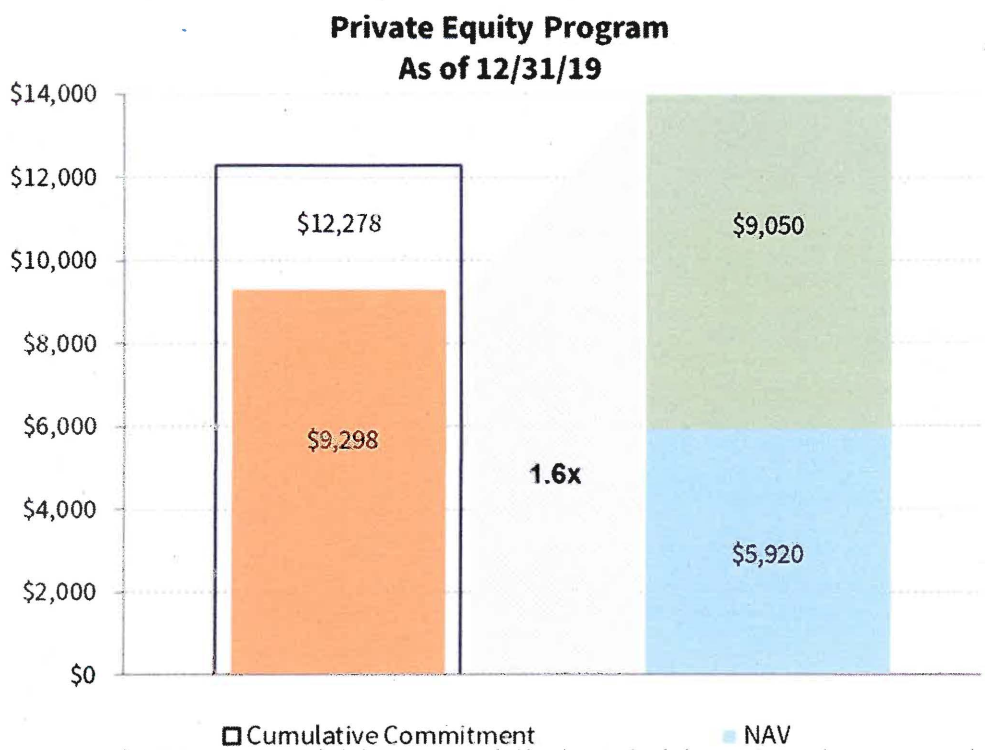
Program Snapshot

As of December 31, 2019

- Since inception in 1987 through December 31, 2019, SFERS committed $12.3 billion to 386 funds. SFERS investment managers have called $9.3 billion, or 75.6% of total commitments.
- The portfolio has a total value to paid-in multiple of 1.6x, generating $5.7 billion in value creation (net of fees and carried interest).
- Current portfolio NAV stands at $5.9 billion, or 21.5% of total Plan[1] assets. Unfunded commitments of $3.3 billion will be contributed to the portfolio over a period of several years (and offset by portfolio distributions).

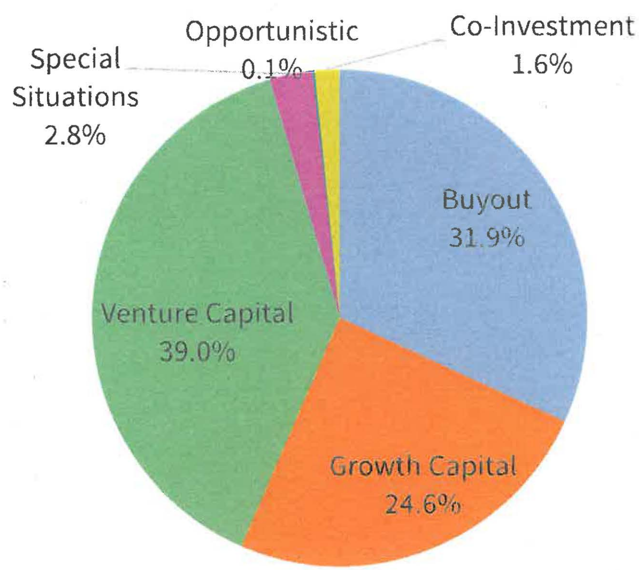


Note: Commitments made subsequent to December 31, 2019 are not included. Figures provided by Aksia. Unfunded commitments do not tie to cumulative commitments minus cumulative paid-in due to recallable distributions and currency conversion.
[1] Based on total Plan value of $27.4 billion as of December 31, 2019

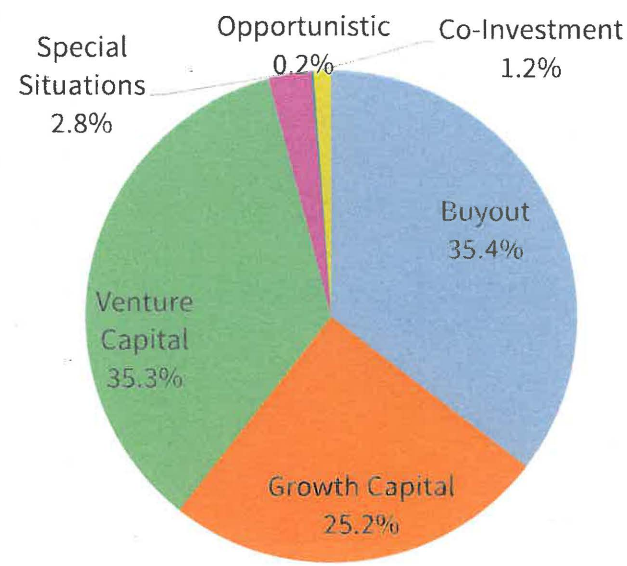
Portfolio Construction

As of December 31, 2019

EXPOSURE BY NAV
$5,920 million



EXPOSURE BY NAV + UNFUNDED
$9,208 million



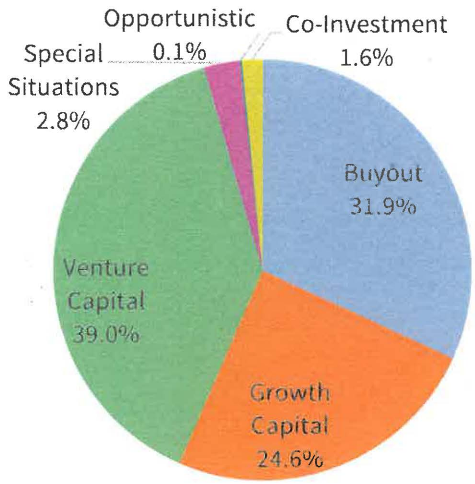
- Current NAV exposure tilted towards venture capital given companies staying private longer, strong mark-ups within the asset class and strong distributions/exit activity from buyouts.
- "In the ground" exposure likely to tilt toward buyouts in coming years given uncalled commitments.

Note: Exposure data reported by Aksia as of 12/31/2019. Asset class exposures reported at the fund level. Commitments made subsequent to December 31, 2019 are not included.

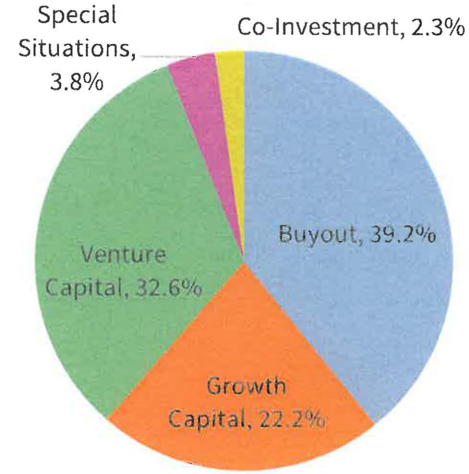
Five-year Commitment Snapshot

Continued balance within buyout, growth, and venture exposure with an increased emphasis on Asia over the last five years

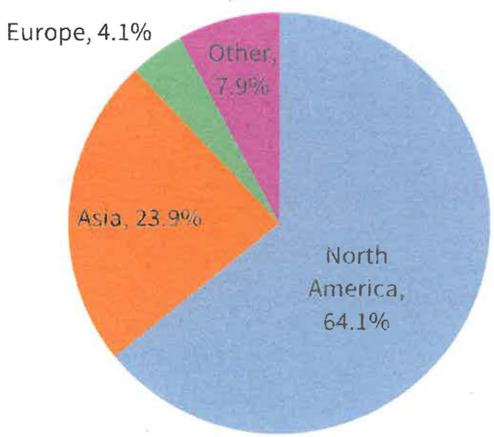
CURRENT NAV BY SUB-STRATEGY



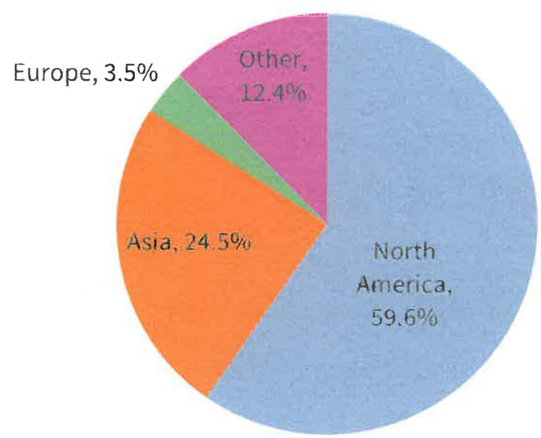
COMMITMENTS BY SUB-STRATEGY 2015-2019



CURRENT NAV BY GEOGRAPHY



COMMITMENTS BY GEOGRAPHY 2015-2019

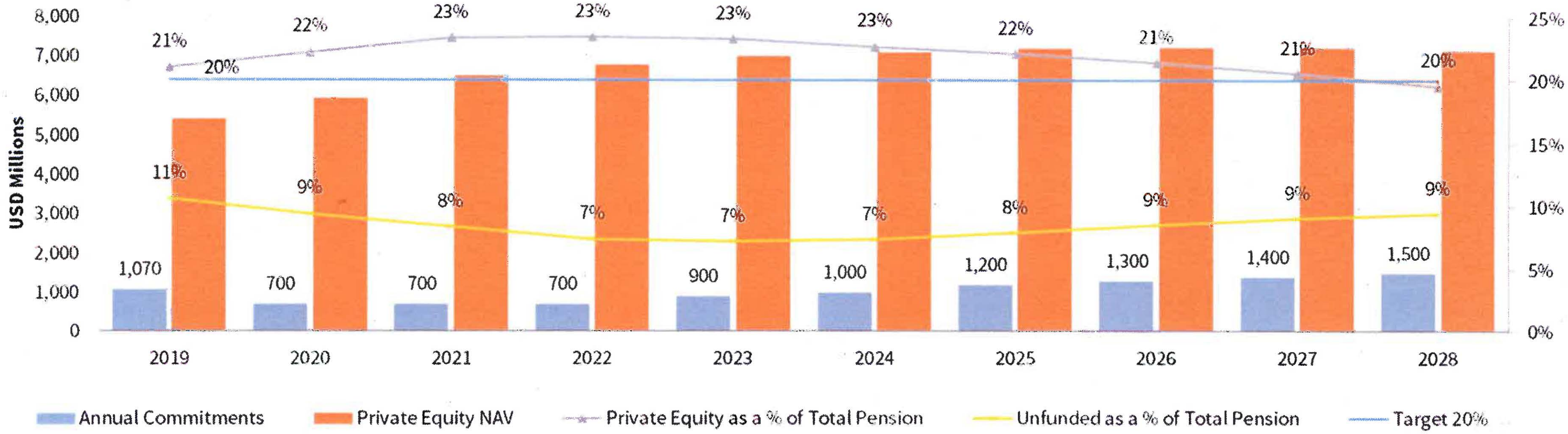


Note: NAV strategy exposure data is provided by Aksia, reported at the fund-level as of 12/31/2019. NAV geographic exposure data is provided by Aksia, reported at the investment level as of 12/31/2019. Both 2015-2019 commitment pie charts use data provided by SFERS and Cambridge Associates, and are bucketed according to Cambridge Associates classifications. Commitments made subsequent to December 31, 2019 are not included. "Other" Geographic exposures include Middle East, Latin America, and funds CA classifies as Global.

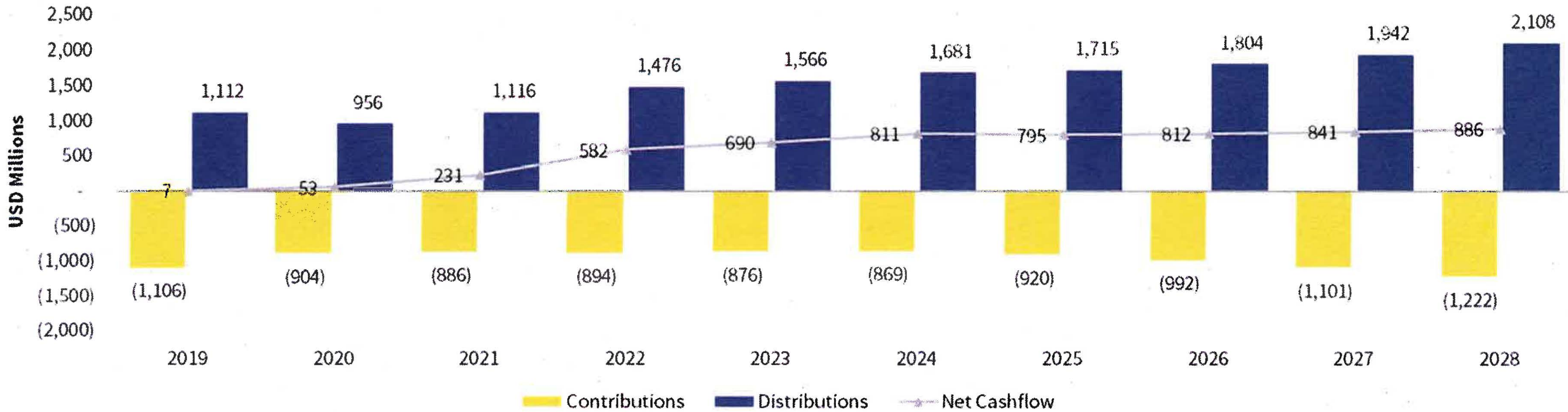
Base Case (4% Pool Growth)

For Illustrative Purposes

COMMITMENT PACE



ESTIMATED ANNUAL CASH FLOWS

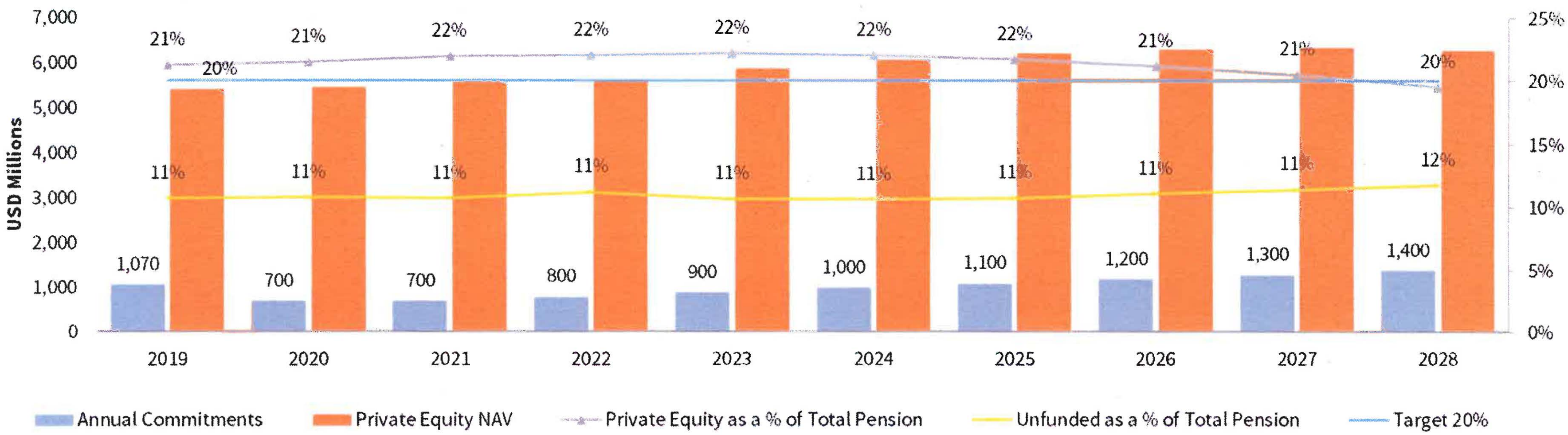


Note: Model populated with historical portfolio data as of September 30, 2019. Commitments closed during 4Q 2019 are included in the 2019 projection. Projected cash flows and allocations are based on C|A modeling and proprietary assumptions. Modeling is intended to be used as a guideline; actual capital calls, distributions, and exposure may differ materially from projections, depending on macroeconomic and fund-specific variables.

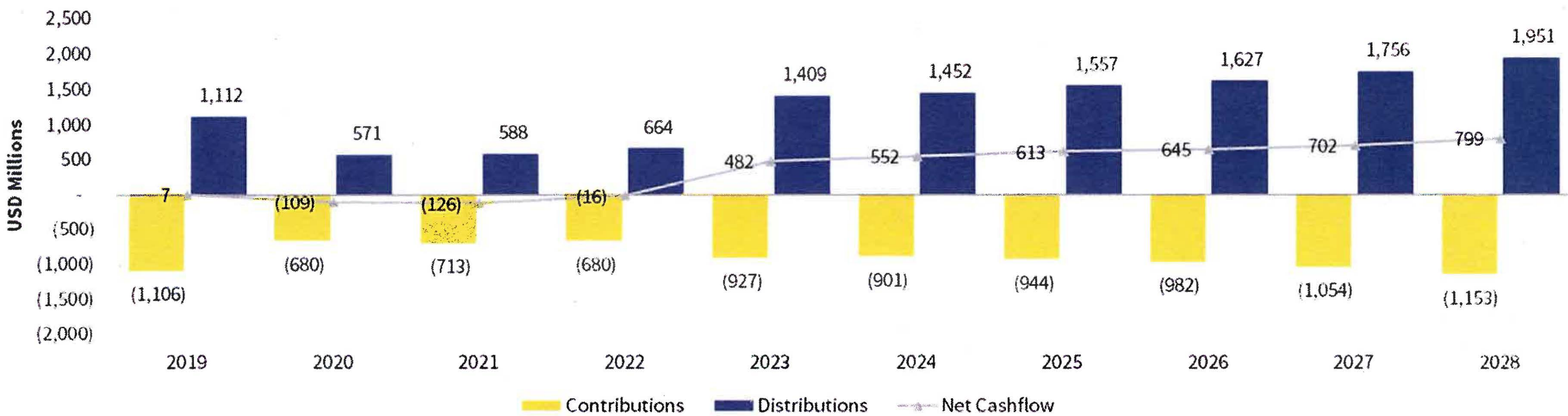
No Growth Stress Case (0% Pool Growth, 2020-2022)

For Illustrative Purposes

COMMITMENT PACE



ESTIMATED ANNUAL CASH FLOWS

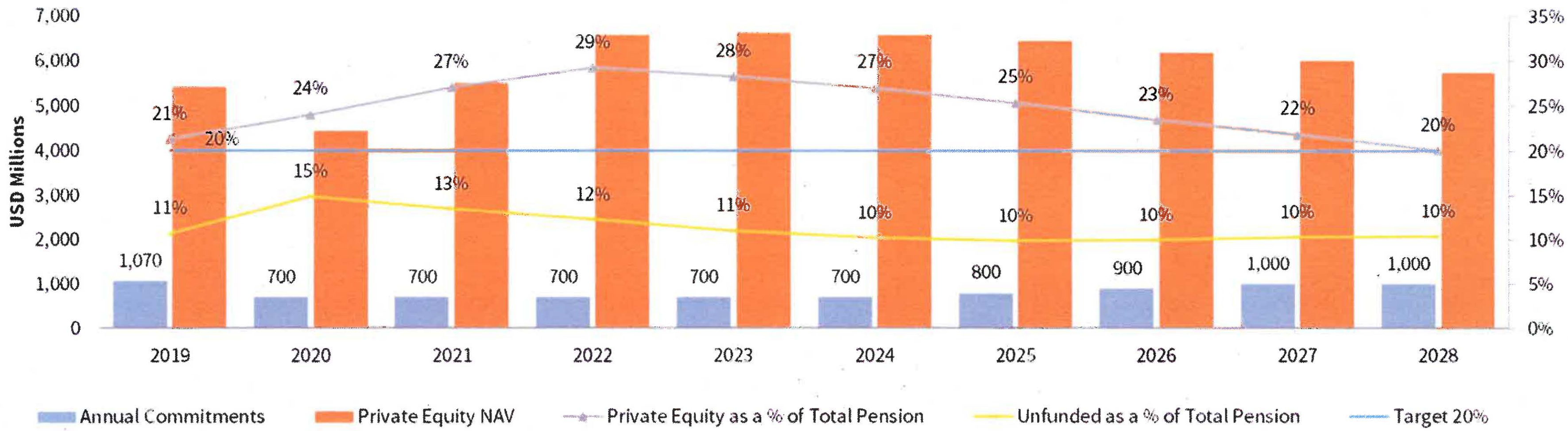


Note: Model populated with historical portfolio data as of September 30, 2019. Commitments closed during 4Q 2019 are included in the "2019E" projection. Projected cash flows and allocations are based on C|A modeling and proprietary assumptions. Modeling is intended to be used as a guideline; actual capital calls, distributions, and exposure may differ materially from projections, depending on macroeconomic and fund-specific variables.

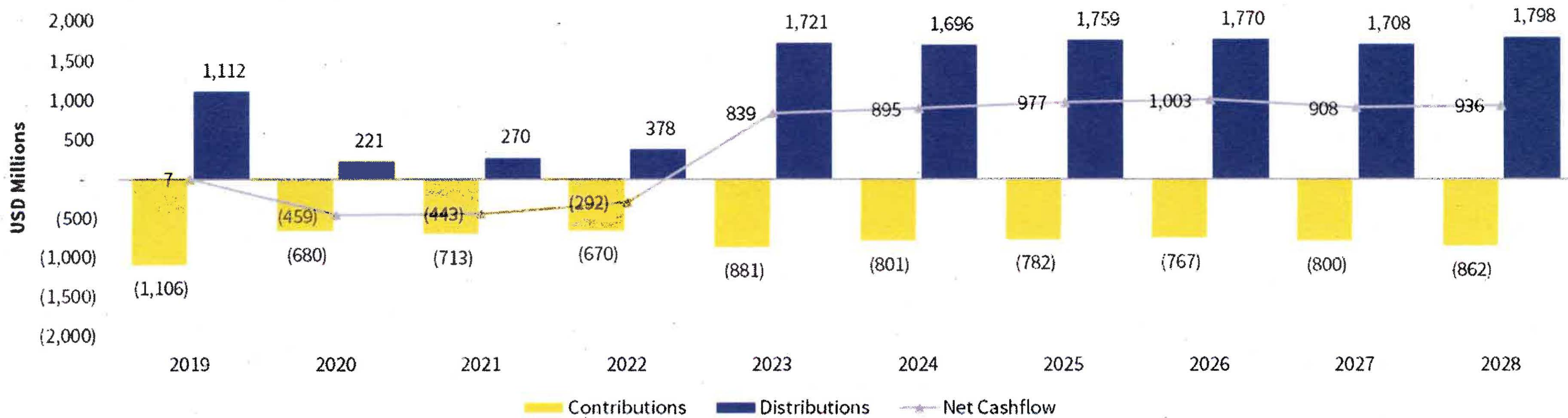
GFC Stress Case

For Illustrative Purposes

COMMITMENT PACE



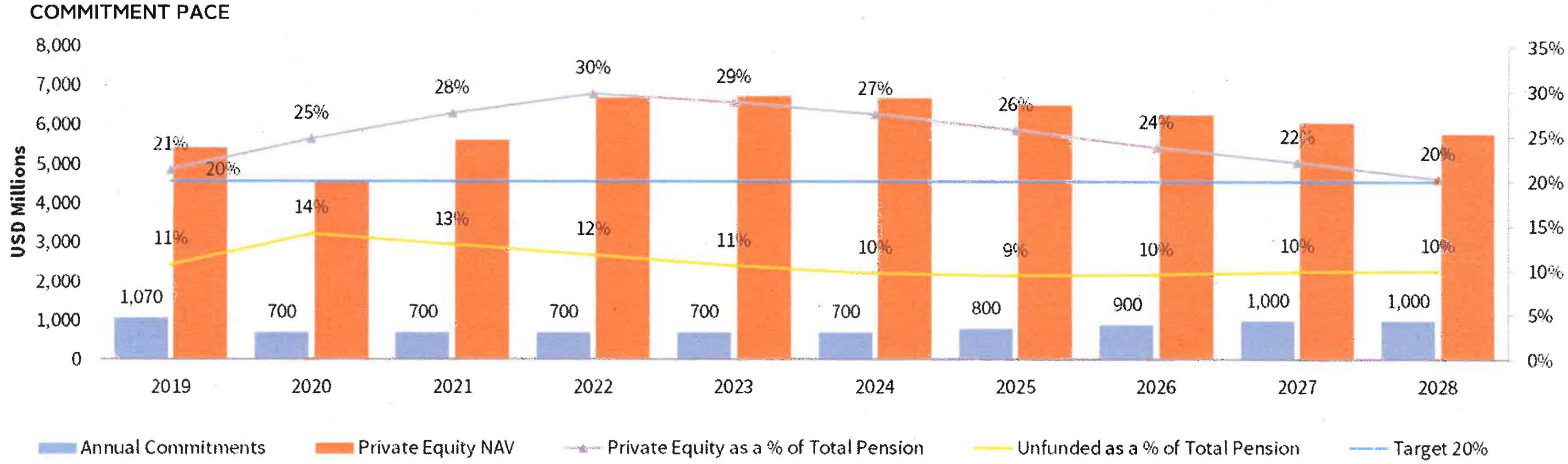
ESTIMATED ANNUAL CASH FLOWS

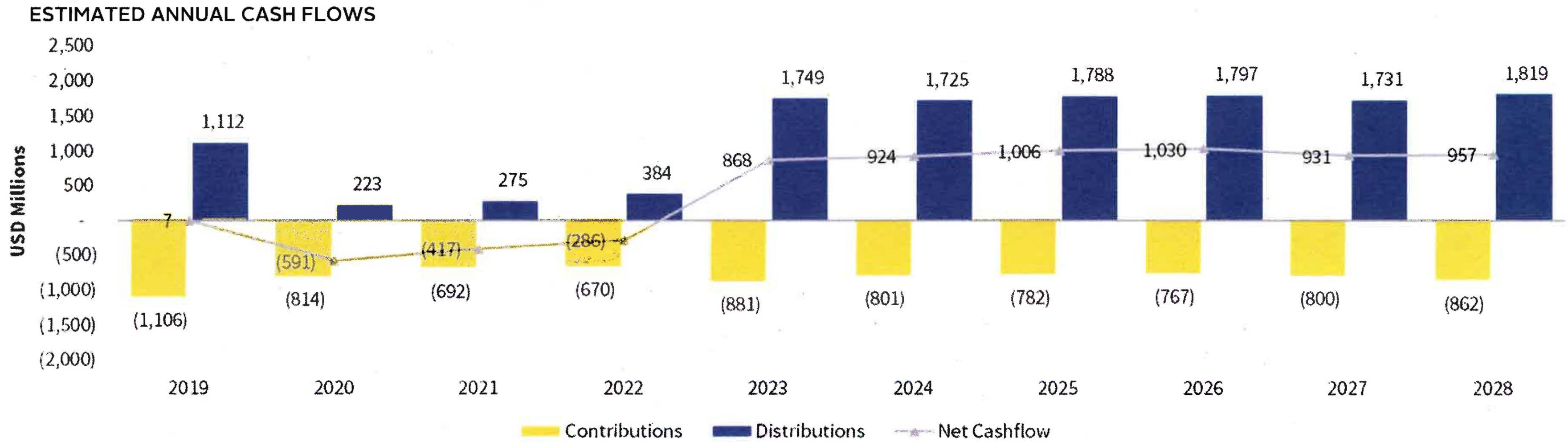


Note: Model populated with historical portfolio data as of September 30, 2019. Commitments closed during 4Q 2019 are included in the 2019 projection. Projected cash flows and allocations are based on C|A modeling and proprietary assumptions. Modeling is intended to be used as a guideline; actual capital calls, distributions, and exposure may differ materially from projections, depending on macroeconomic and fund-specific variables.

GFC Deeper Stress Case

For Illustrative Purposes



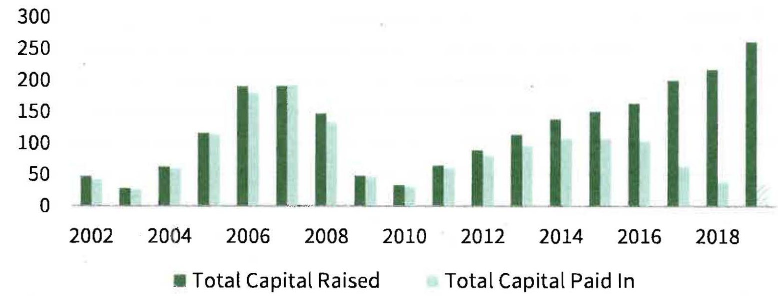


Note: Model populated with historical portfolio data as of September 30, 2019. Commitments closed during 4Q 2019 are included in the 2019 projection. Projected cash flows and allocations are based on C|A modeling and proprietary assumptions. Modeling is intended to be used as a guideline; actual capital calls, distributions, and exposure may differ materially from projections, depending on macroeconomic and fund-specific variables.

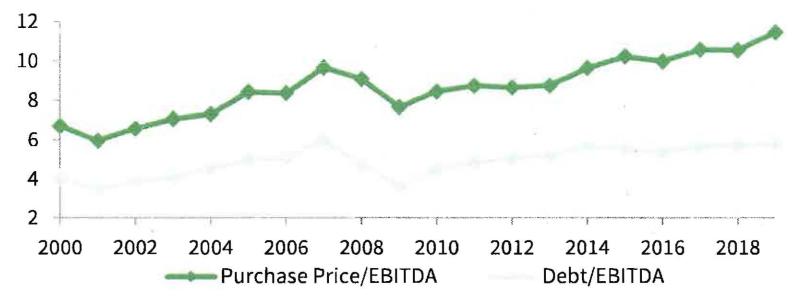
US Private Equity
Facts & Figures

- In 2019, fundraising hit a new high, again exceeding $200 billion for US-based buyouts and growth equity. Fundraising in 2020 is expected to slow.
- Heading into the COVID-19 crisis, more than half of the USPE dry powder resided in large- and mega-cap funds ($5B and more in size) and about 70% of it was held in vintages 2018 and 2019, positioning those funds to invest in a lower valuation environment.
- On average, purchase price multiples (PPMs) for all transactions climbed steadily from 2009 to 2019; leverage multiples remained fairly constant from 2014 to 2019. The small number of transactions completed in the first four months of 2020 indicate that both have declined.
- PPM figures for 2019 are driven by large company transactions as there were limited deals involving mid- and small-sized businesses (enterprise values between below $500 mm). Large company valuations in 2019 hit historic heights at 11.6x EBITDA.
- For the year, 2019 leverage multiples for middle-market (< $50 mm EBITDA) were a bit higher than they were in 2018 (5.9x compared to 5.5x) while those for large companies were 6.2x, roughly the same level as in 2018.
- From 2014 to 2018, average equity contributions for middle-market companies were about 44% and they reached nearly 50% in 2019. This reflects, at least in part, a larger increase in purchase prices than in leverage multiples.
- By number, PE-backed exits declined year-over-year in 2018 and in 2019 but by value, they increased.

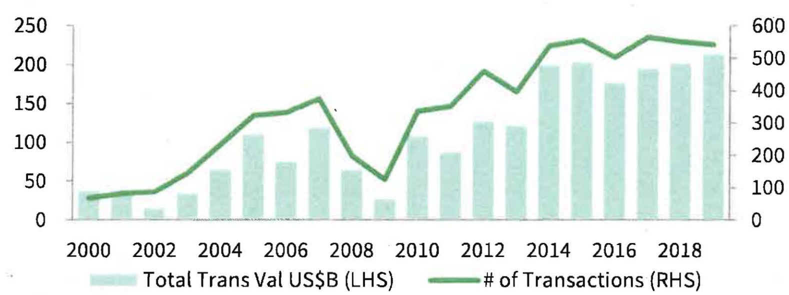
US PRIVATE EQUITY FUNDRAISING AND PAID-IN CAPITAL
Vintage Years 2002–19 • US$B



AVERAGE PURCHASE PRICE AND DEBT MULTIPLES: US PE
2000–19 (Dec 31)



EXIT ENVIRONMENT: US PE-BACKED M&A
2000–19 (Dec 31)



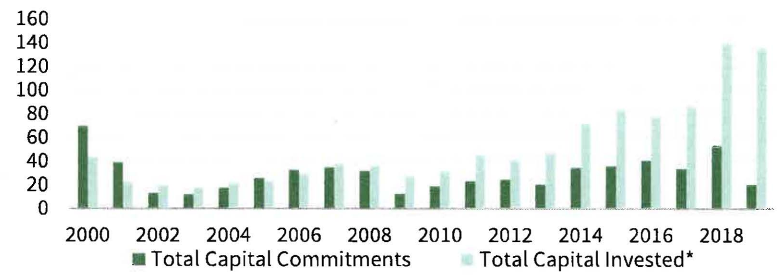
Sources: Cambridge Associates LLC, Dealogic, Dow Jones VentureSource, and Standard & Poor's LCD.

Updated Fourth Quarter 2019

US Venture Capital
Facts & Figures

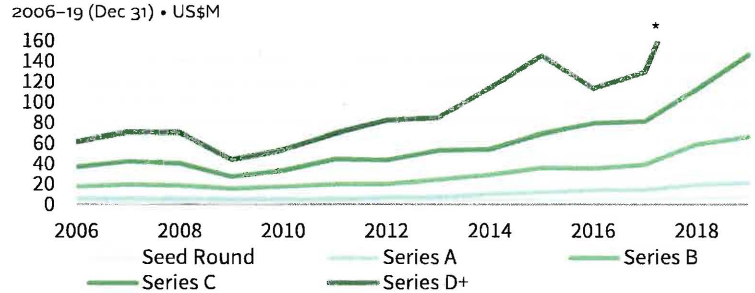
- Based on capital invested, 2018 and 2019 were historically active periods, but 2019 was a slower year than 2018 for fundraising. The first quarter was a strong fundraising period but the COVID-19 crisis is expected to slow investment and commitment paces.
- Across the board, pre-money valuations continued their rise in 2019. Since 2017, valuations for all stages except for seed have risen by around 50% or more. The increased valuations likely contributed to the historic levels of investment in 2018 and 2019.
- Elevated pricing is at least in part due to the choice to remain private (as opposed to going public or seeking an M&A transaction) and to raise capital from new sources of late-stage financing both in and outside the United States. For color, as of September 30, 2019, about 30% of the market value of the investments in the CA USVC Index was in companies that had been held for at least seven years.
- The IPO market in 2019 was especially strong for venture capital-backed companies. While the number of IPOs was slightly lower than it had been in 2018, the value of the IPOs was nearly two and a half times as high in 2019, due to the listing of a number of large companies (such as Uber, Slack, and Lyft). By number and value, M&A activity dropped slightly from 2018 to 2019. Private equity buyouts of venture-backed companies numbered roughly 200 in 2018 and 2019.
- It is not clear how the COVID-19 crisis will impact venture capital but in the short term, industries like telemedicine, online education, and video conference tools have benefited.

CAPITAL COMMITMENTS AND INVESTMENTS: US VC
2000–19 (Dec 31) • US$B



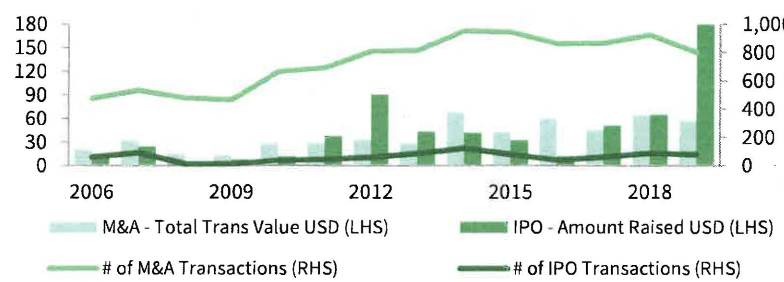
*Includes capital invested by funds, crossover investors, and corporate venture arms.

MEDIAN PRE-MONEY VALUATIONS BY STAGE, ALL SECTORS
2006–19 (Dec 31) • US$M



* Scale capped at 160. The median pre-money valuation for Series D+ deals in 2019 was $320.

EXIT ENVIRONMENT: US VC-BACKED IPOS AND M&A
2006–19 (Dec 31) • LHS in Billions



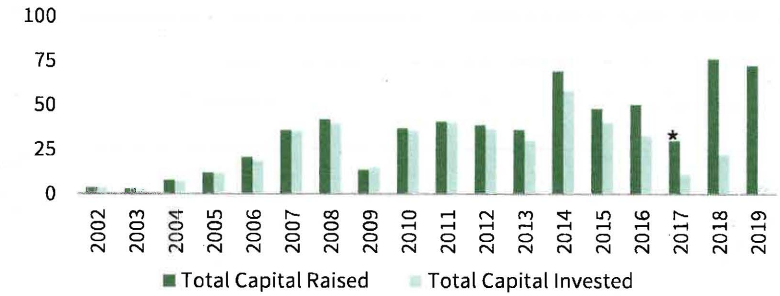
Sources: National Venture Capital Association and PitchBook.

Updated Fourth Quarter 2019

Asian Private Equity
Facts & Figures

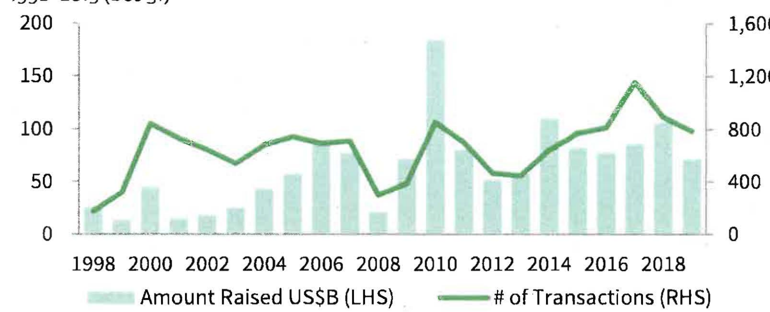
- While fundraising data vary across different sources, according to Pitchbook, PE/VC fundraising averaged about $55B per year from 2014–18, driven largely by 2014 and 2018 totals. The activity in the first six months of 2019 suggests that the year will fall under that average.
- According to APER, fundraising, investing, and exits have all slowed in 2019. Chinese venture and growth equity funds continued to garner the largest share of new capital commitments but many attribute the declines across the investment cycle to the new regulations (CFIUS) and the ongoing trade war between the US and China.
- According to Dealogic, IPO values rose steadily from 2016–18 but if the first half is an indication, 2019 will end up being a slower year with respect to both number and value of IPOs.
- After peaking in 2015, M&A activity and values were relatively stable between 2016 and 2018. First half 2019 appears to indicate that the year will be slower.
- Public equity valuations for healthcare are relatively expensive, given the limited number of companies listed and investor demand for defensive sectors. The opportunity set for private equity investors is much larger, with a growing universe of dedicated specialist funds. However, competition has also increased private valuations.

ASIAN PE AND VC FUNDRAISING AND PAID-IN CAPITAL
Vintage Years 2002–19 • US Dollar (Billions)

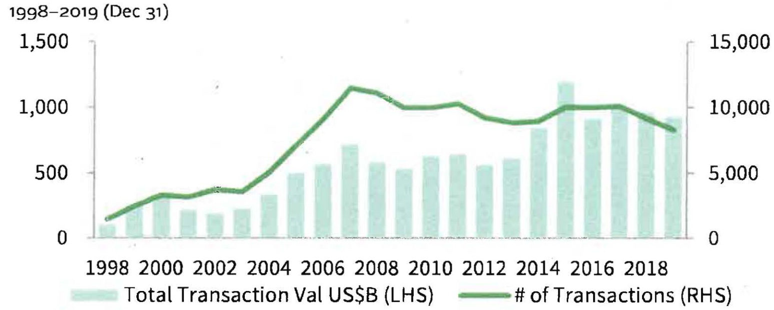


*Excludes the SoftBank Vision Fund, which raised $100bn.

EXIT ENVIRONMENT: ASIA PACIFIC IPOS
1998–2019 (Dec 31)



EXIT ENVIRONMENT: ASIA PACIFIC M&A
1998–2019 (Dec 31)



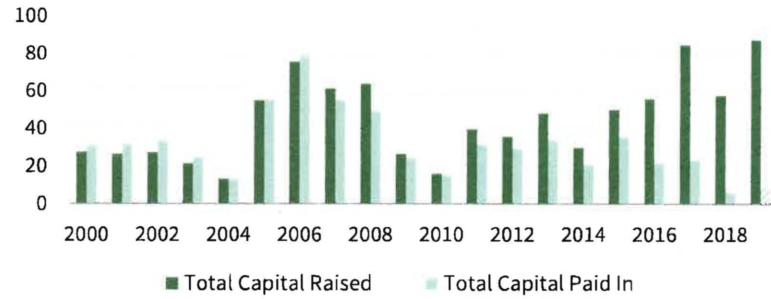
Sources: Cambridge Associates LLC., Dealogic, and PitchBook.

Updated Fourth Quarter 2019

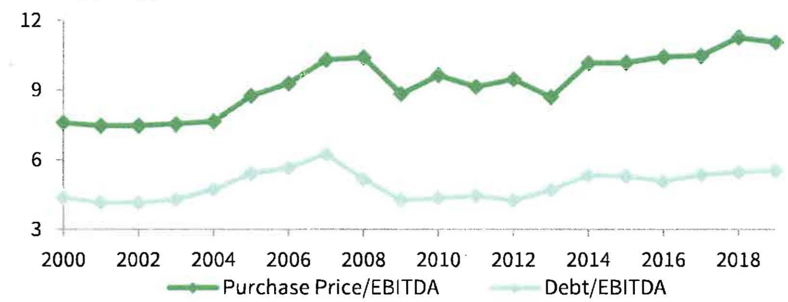
European Private Equity
Facts & Figures

- According to Pitchbook, fundraising activity steadily increased from 2014 to 2017 when it peaked. First half 2019 commitments nearly equaled the full year 2018 level, putting this year on pace to match or exceed 2017.
- The pricing environment observed since 2014 has remained intact, with generally rising purchase price multiples (PPMs), accessible credit, and elevated leverage multiples. PPMs fell slightly in the first six months of 2019 amid geopolitical uncertainty, particularly surrounding Brexit. Leverage multiples have inched up over the past few years and in 1H 2019, they averaged 5.6x EBITDA, the highest level since 2007. Equity contributions to leveraged buyouts (LBOs) averaged 44.8% in 2013–18, falling to 41.6% in 1H 2019.
- PPMs for large- and mid-size transactions hit historical highs in 2018 and in both, prices have fallen a bit in the first six months of 2019. For large transactions, those worth more than €1 billion, company valuations were 11.7x EBITDA in 2018 and dropped slightly to 11.3x EBITDA in the first six months of 2019.
- The average trailing 12-month PPMs for transactions greater than or equal to €500 million have been north of 10x EBITDA since 2014 and reached 11.3x EBITDA in 2018. Prices in 2019 have fallen slightly but were 11.0x in 1H 2019. PPMs were much lower (8.7x EBITDA in 2018) in smaller transactions (those worth between €250 million and €500 million).

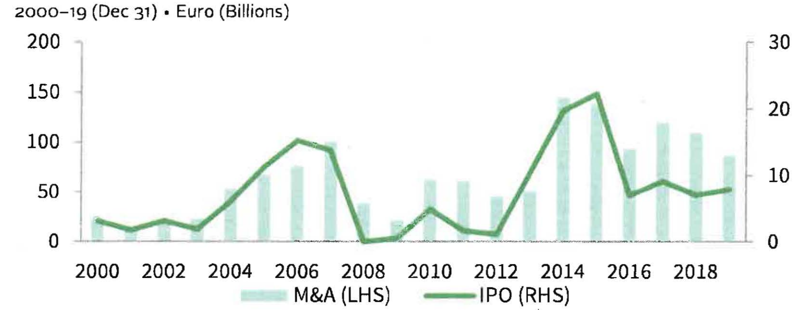
EUROPEAN PRIVATE EQUITY FUNDRAISING AND PAID-IN CAPITAL
Vintage Years 2000–19 • Euro (Billions)



AVERAGE PURCHASE PRICE AND DEBT MULTIPLES: EUROPEAN PE
2000–19 (Dec 31)



EXIT ENVIRONMENT: EUROPEAN PE-BACKED IPOS AND M&A
2000–19 (Dec 31) • Euro (Billions)



Sources: Cambridge Associates LLC, Dealogic, PitchBook, and Standard & Poor's LCD.

Updated Fourth Quarter 2019

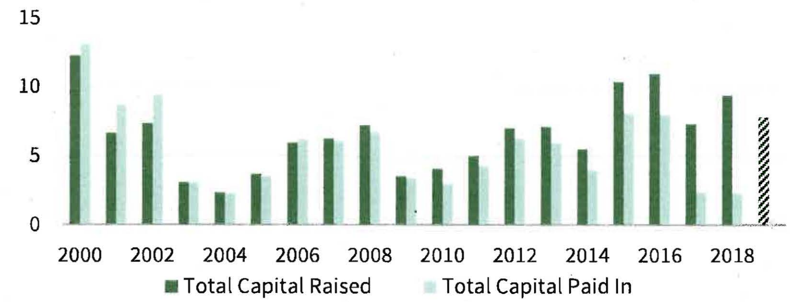
European Venture Capital

Facts & Figures

- With the exception of 2000, fundraising hit a high in 2015 and has remained healthy in the years since. Activity in 1H 2019 puts the year on par with 2015. According to Pitchbook, early-stage venture funds represented about 20% of the capital and funds raised in 2018 and 1H 2019.
- From 2015–18, annual investment activity averaged approximately €7 billion per year. Almost €8 billion was invested in 1H 2019 alone.
- Similar to in the US, late-stage valuations have increased dramatically since 2017. Early-stage median pre-money valuations have also climbed but at a more rational pace. Seed-stage deal valuations dropped in 1H 2019.
- In the recent and current market, larger and later deals are more prominent in investments being made and exited in Europe and fund sizes have also increased.

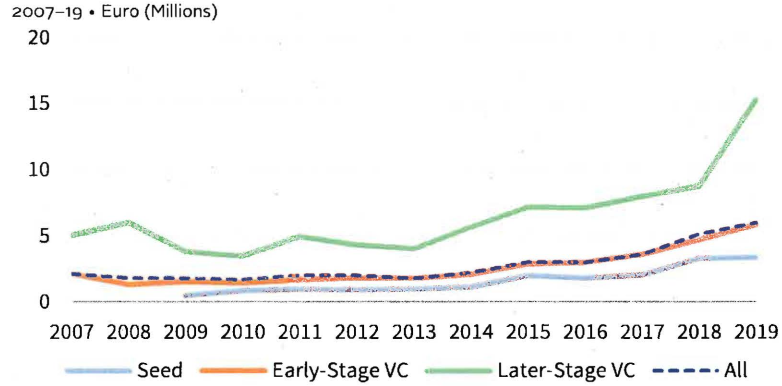
EUROPEAN VENTURE CAPTIAL FUNDRAISING AND PAID-IN CAPITAL

Vintage Years 2000–19 • Euro (Billions)



MEDIAN PRE-MONEY VALUATIONS BY ROUND

2007–19 • Euro (Millions)



Sources: Cambridge Associates LLC and PitchBook.

Updated Fourth Quarter 2019

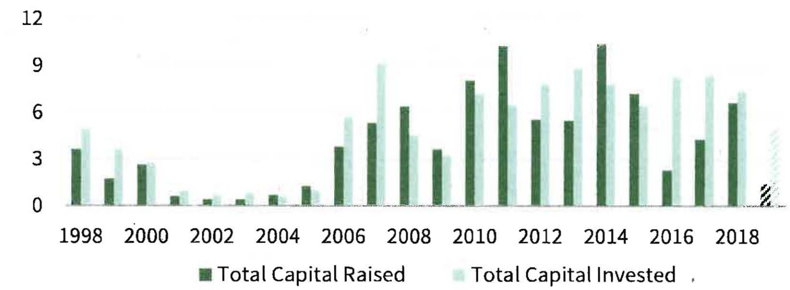
Latin American Private Equity

Facts & Figures

- After a slow 2016 and 2017, fundraising activity picked up in 2018. According to the Latin American Venture Capital and Private Equity Association, Latin American–focused funds raised $6.7 billion in the first half of the year, a 55% increase over total-year fundraising activity in 2017. Notably, almost 70% of the capital was raised by funds with pan-regional strategies, and only 9% by funds focused on Brazil.
- Investment activity, on the other hand, was slightly slower than the prior two years, in terms of capital invested. In 2018, $7.4 billion was deployed, representing a 12% decrease relative to 2017. However, the number of transactions increased by 44% in the same period, indicating that venture capital and mid-market activity continued to be strong.
- In fact, in 2018, 463 venture capital transactions were completed across the region, representing $2.0 billion of invested capital, increases of 86% and 73% versus 2017, respectively.
- Brazil continues to be Latin America's most active country in terms of capital invested and number of deals. Additionally, due to the growing venture capital industry, technology now clearly represents the most active sector in Latin America in terms of number of deals and capital invested.
- The M&A and IPO environment remained less active than peak years. IPO activity, historically driven by Brazil, was consistent with 2017 after a very slow 2014–16.
- The economic recession of 2015–16 in Brazil resulted in a record number of distressed credit situations, offering investors a set of new, differentiated, and potentially attractive investment opportunities. Fundraising and investment activity in the space, though harder to quantify, has been growing strongly.

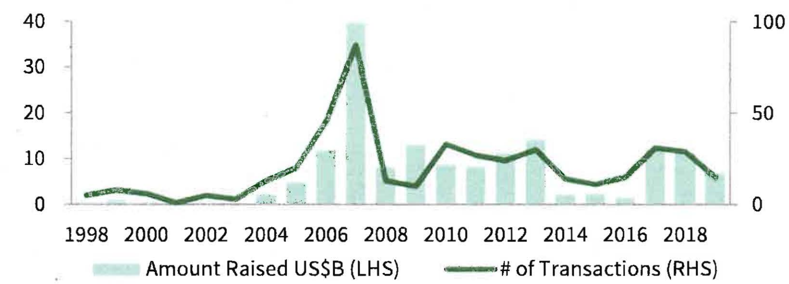
CAPITAL RAISED AND INVESTED IN LAT AM/CARIBBEAN PE FUNDS

1998–2019 (Jun 30) • US$B



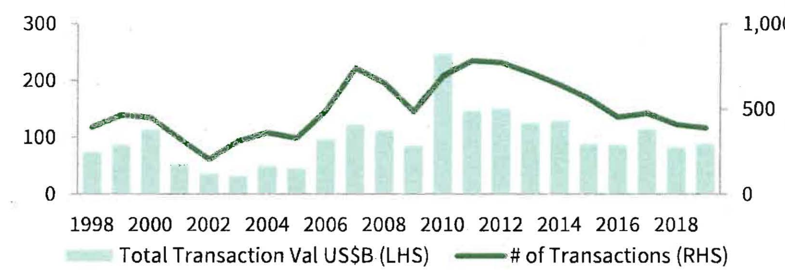
EXIT ENVIRONMENT: LATIN AMERICA/CARIBBEAN IPOS

1998–2019



EXIT ENVIRONMENT: LATIN AMERICA/CARIBBEAN M&A

1998–2019



Sources: Dealogic and Latin American Private Equity & Venture Capital Association.

Updated Second Quarter 2019

City and County of San Francisco Employees' Retirement System

Annual Private Equity Performance Update
July 2020

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PRIVATE & CONFIDENTIAL

Portfolio Overview

As of December 31, 2019

- Since inception (1987) SFERS has committed $12.28 B to 386 investments.
- SFERS has received $9.05 B or 97.3% of contributed capital.
- The private equity portfolio has generated a since inception net IRR of 16.1% and a TVPI[1] of 1.64x.
- The current market value of the portfolio is $5.92 B.
- There are 107 active managers overseeing 267 funds holding over 2,800 underlying portfolio companies.

1 TVPI is calculated using contribution and distribution amounts net of recallable capital. Contributions and distributions above are gross of recallable capital.

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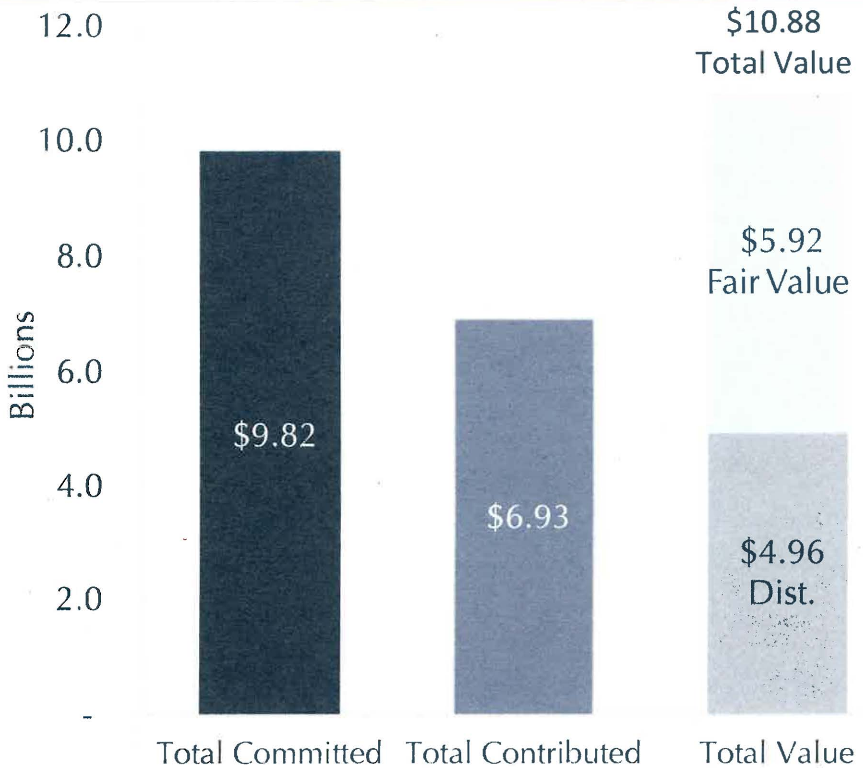
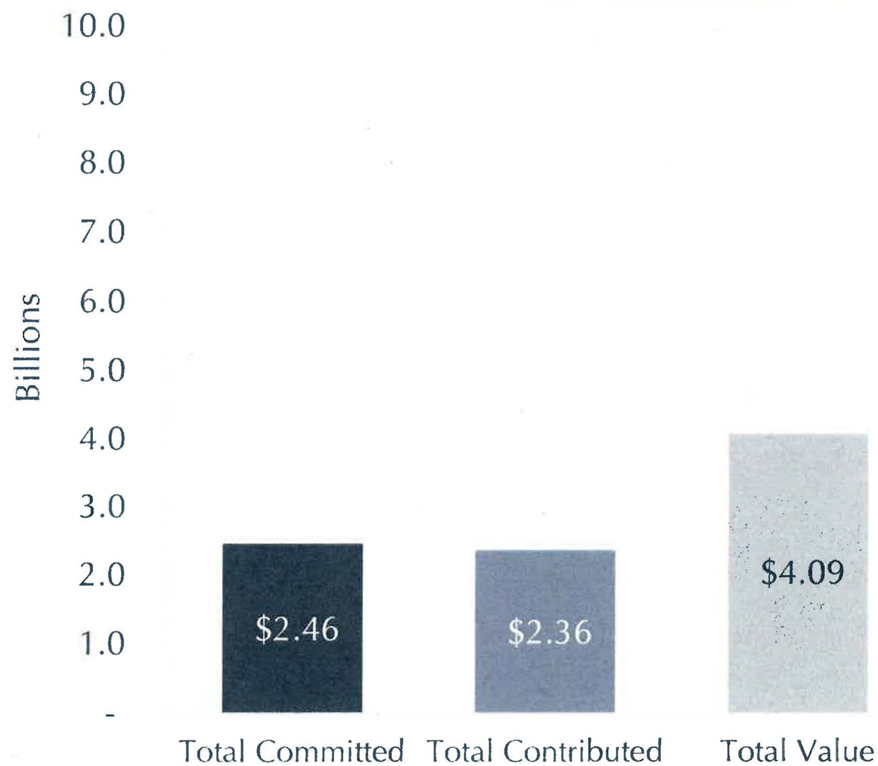
Portfolio Overview

As of December 31, 2019

Active Portfolio:
Net IRR 12.2%; TVPI[1] 1.60x; 7.9 Years WAA[2]; 267 Investments



Exited Portfolio:
Net IRR 19.7%; TVPI[1] 1.75x; 14.9 Years WAA[2] ; 119 Investments



1 TVPI is calculated using contribution and distribution amounts net of recallable capital. Contributions and distributions above are gross of recallable capital.
2 WAA = Weighted Average Age; weighting based on contributions through December 31, 2019.

2019 Year in Review

- As of December 31, 2019, the private equity allocation relative to the total pension assets was 21.6% versus a target of 18.0%. This represents a 130 basis point increase compared to 2018 year end allocation of 20.3%.
- The weighted age of the portfolio decreased by 1.5% declining to 9.7 years from 9.8 years at year-end 2018; the program's investment pace continues to exceed the aging of the portfolio.
- During 2019, the portfolio closed on a total of $1,235 M in commitments.
  - Commitments to Buyout and Venture Capital strategies accounted for 50% and 30%, respectively.
  - Commitments were primarily focused in North America accounting for 77%; followed by Asia Pacific focused investments (10%) and Other (13%).
- Through 4Q19 and early 2020, 59 funds with $541 M in net asset value were sold in a secondary sale.

Performance - Portfolio

- Relative to the blended benchmark of the Russell 3000 and MSCI ASWI +300 bps, the portfolio exceeds returns every period except over 1 year.
- The portfolio has performed in line with or exceeded the custom Cambridge Associates Index in all periods across all performance metrics except DPI and TVPI.
- Venture Capital, Buyout and Growth Capital Strategies contributed to annual returns appreciating by 20.3%, 18.9% and 17.5% respectively, over year end 2018 fair market values.
- Funds focused on the North America region appreciated 22.7% over the year while Asia Pacific funds appreciated by 13.5%.
- The largest ten managers (42.9% of total exposure) contributed to portfolio returns with an aggregate ITD net IRR of 22.9%.
- Of the 325 investments with vintage years 2017 and older, 257 have generated 1.25x invested capital or greater; 98 have a multiple of 2.0x or greater.

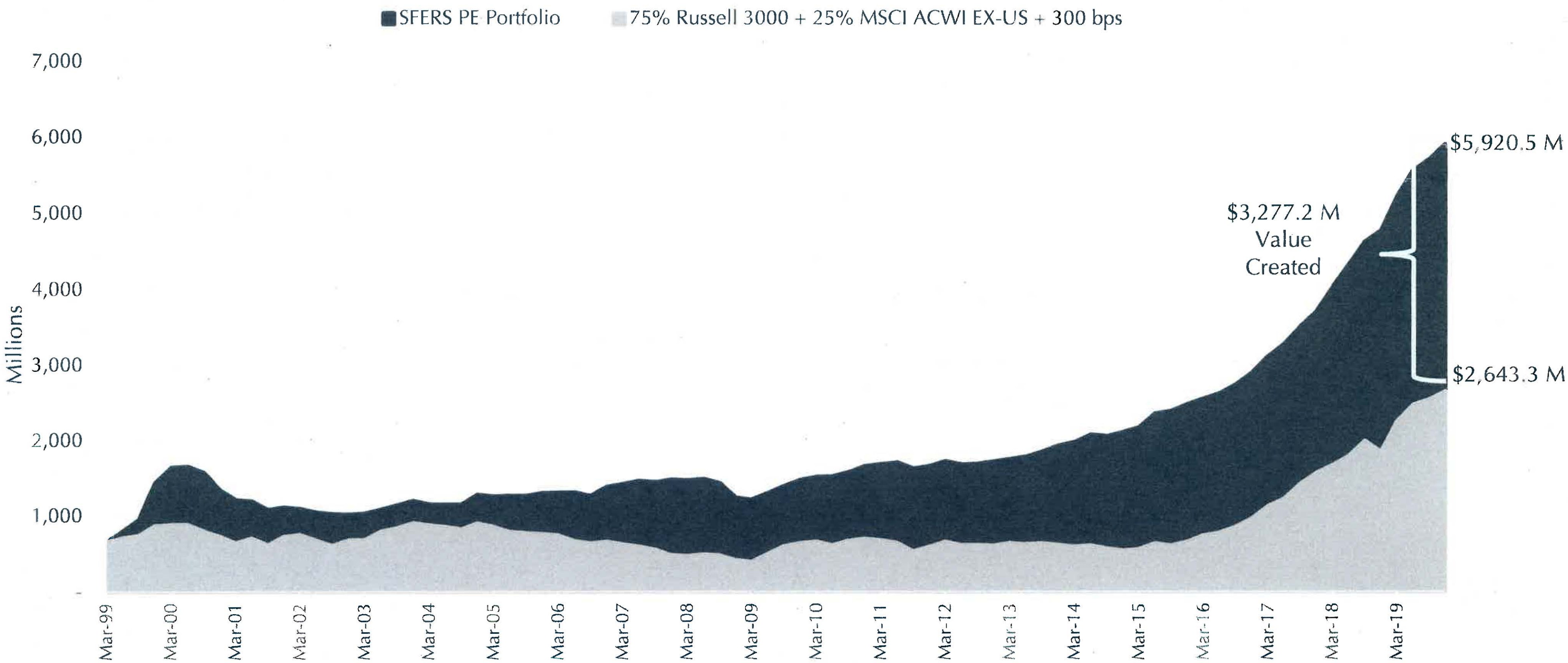
	Net IRR						Multiples	
12/31/2019	1 YEAR	3 YEAR	5 YEAR	10 YEAR	20 YEAR	ITD	DPI	TVPI
Program Totals	**19.4%**	**17.9%**	**15.1%**	**14.7%**	**13.7%**	**16.1%**	**0.97x**	**1.64x**
Custom Benchmark[1]	31.6%	16.4%	12.8%	14.3%	8.7%	12.3%	NA	NA
Difference	*-12.3%*	*1.5%*	*2.3%*	*0.4%*	*5.0%*	*3.8%*	*NA*	*NA*
Cambridge Associates[2]	17.0%	16.2%	13.0%	14.1%	10.5%	13.9%	1.13x	1.66x
Difference	*2.3%*	*1.7%*	*2.1%*	*0.7%*	*3.2%*	*2.2%*	*-0.16x*	*-0.02x*

1 Represents a 75% weighting of Russell 3000 + 25% weighting of MSCI ASWI ex-US + 300 bps. Index returns are time weighted rates of return.
2 Cambridge Associates pooled IRR and TVPI: All private equity funds (excluding timber, real estate, private equity energy, upstream energy & royalties, credit, and infrastructure) inclusive of vintage years through 2019 in the U.S., Canada, Europe, Global and Asia/Pacific markets as of December 31, 2019. Cambridge Associate's data is continually updated and is subject to change. The portfolio does not have commitments to vintage years 1988 and 1989.

Performance – Portfolio PME[1]

SFERS Portfolio vs 75% Russell 3000 + 25% MSCI ACWI EX-US (+ 300 bps)

As of December 31, 2019

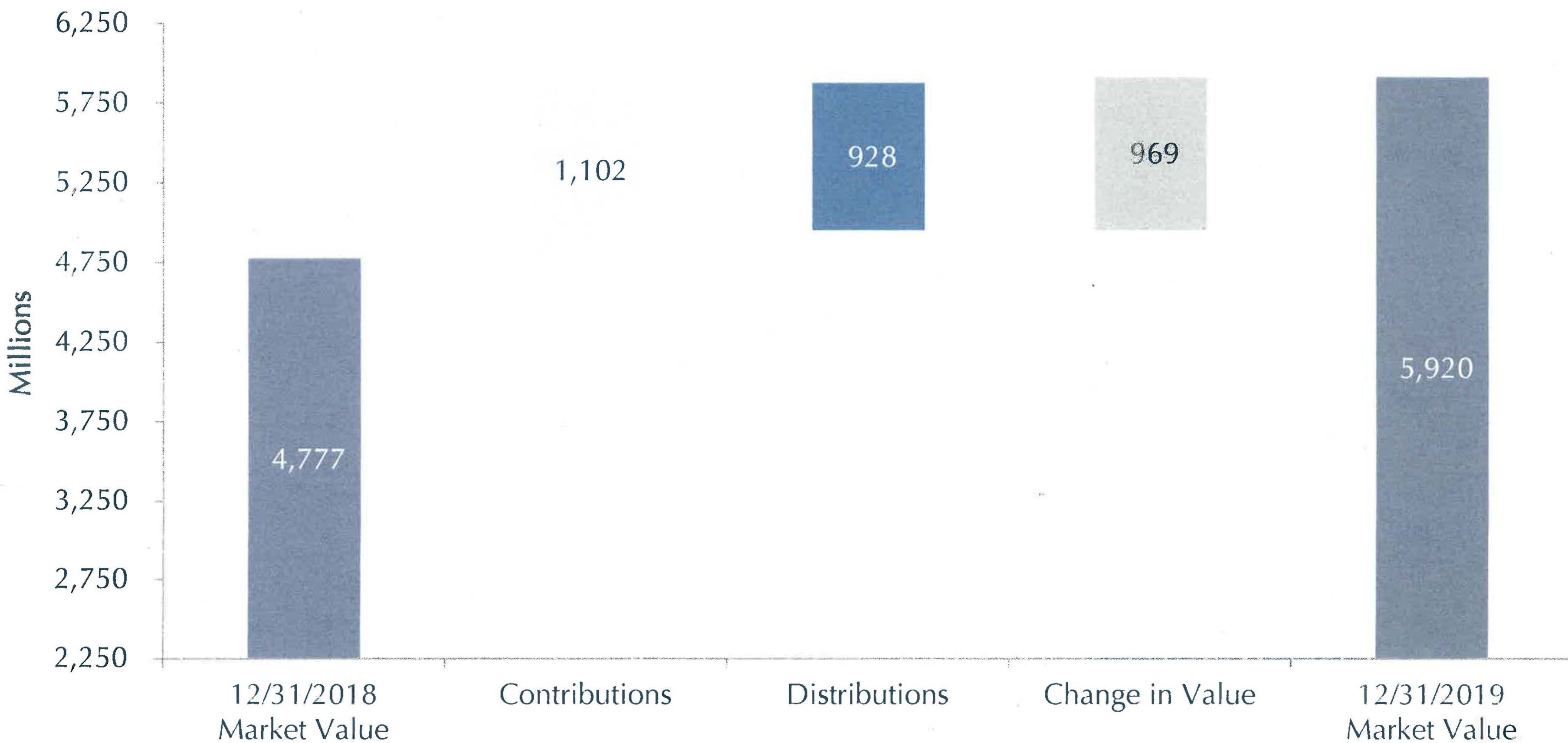


1 The portfolio PME is a dollar-weighted Long-Nickels calculation of quarterly changes in blended benchmark of 75% Russell 3000 total return index + 25% MSCI ACWI ex-US total return index + 300 basis point

2 Custom Index is based on 100% weighting of Russell 3000 + 300 basis points through 1998 (prior to inception date of MSCI ACWI ex-US) and 75% Russell 3000 + 25% MSCI ACWI ex-US + 300 basis points thereafter.

Portfolio Value Bridge

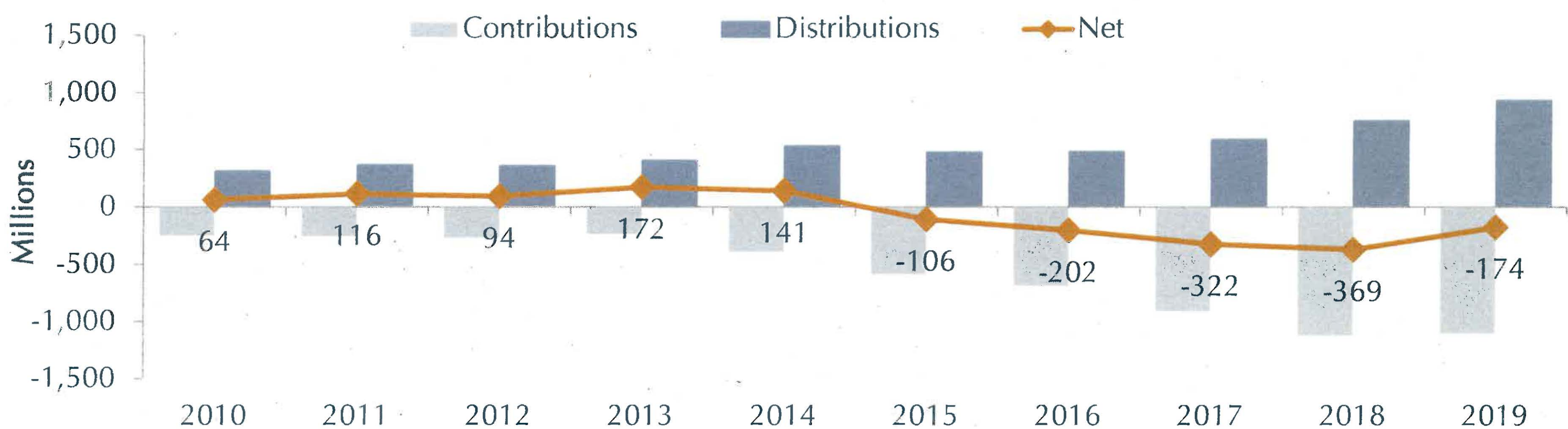
December 31, 2018 through December 31, 2019



Annual Cash Flows

As of December 31, 2019

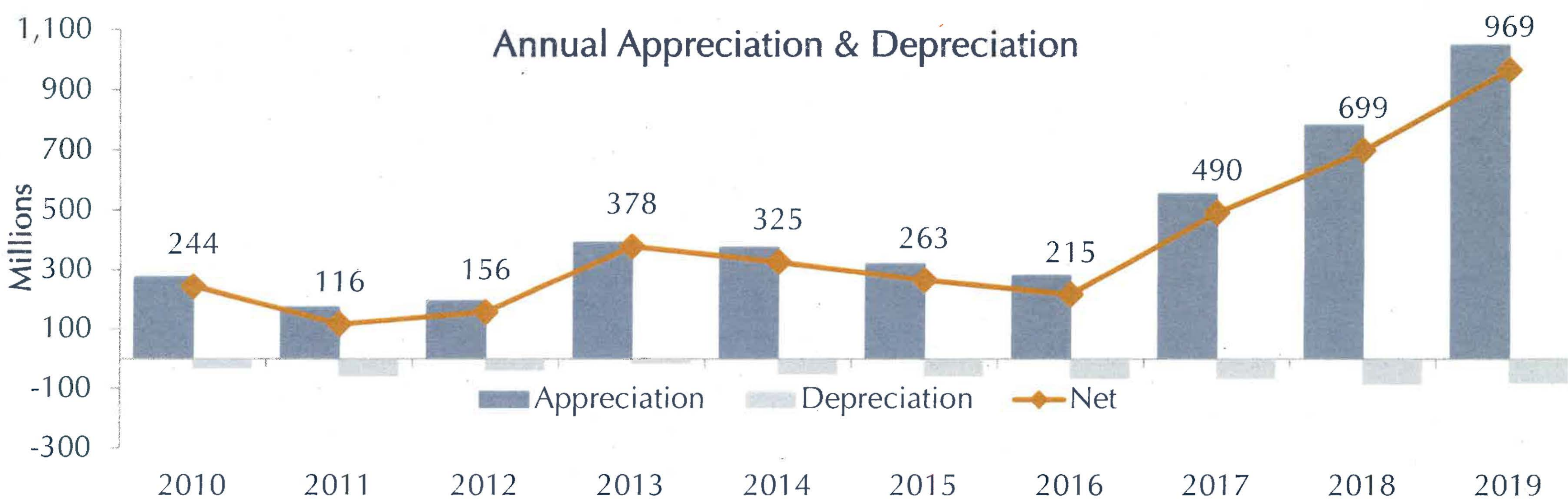
- Contributions continued to exceed distributions over 2019; however, the trend over the previous 5 years of steadily lower net cash flows was reversed due to the secondary sale that occurred in December.
- The Buyout strategy distributed the greatest amount at $390.0 M (42.0% of total distributions). On a relative basis, compared to 2018 fair value, the Other Opportunistic strategy distributed the largest amount of capital at $39.5 M (92.0% of fair value).
- Special Situations contributed the largest amount of capital relative to 2018 unfunded amounts at 56.7% ($50.5 M). On an absolute basis, the Buyout strategy contributed the most capital at $436.7 M (39.6% of total contributions).



Annual Appreciation & Depreciation

As of December 31, 2019

- Over 2019, a total of 187 funds appreciated and 104 funds depreciated for a total net appreciation of $969.0 M.
- Venture Capital strategy funds drove the appreciation for the year accounting for 40.1% of net appreciation; Buyout and Growth Capital followed at 30.9% and 22.4%, respectively.
- Appreciation for 2019 was concentrated in funds with vintage years between 2014 and 2017 which account for 78.0% of net annual appreciation.



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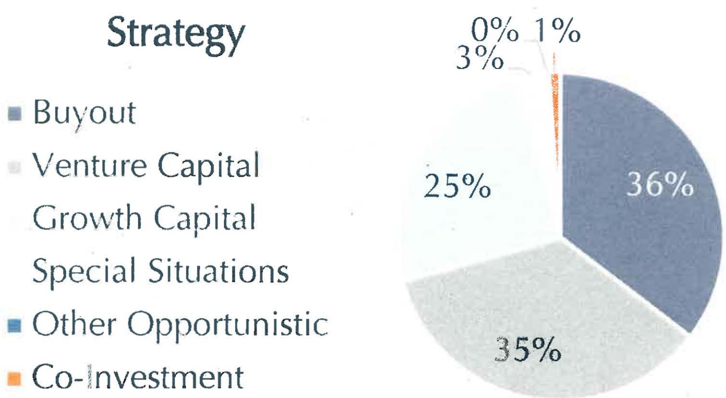
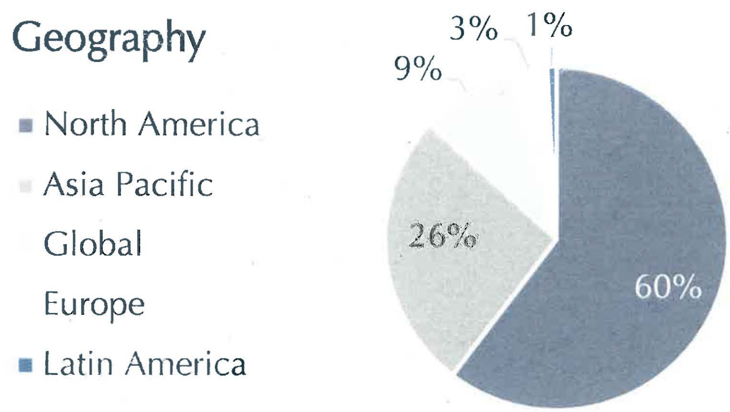
Exposure* – Fund Level

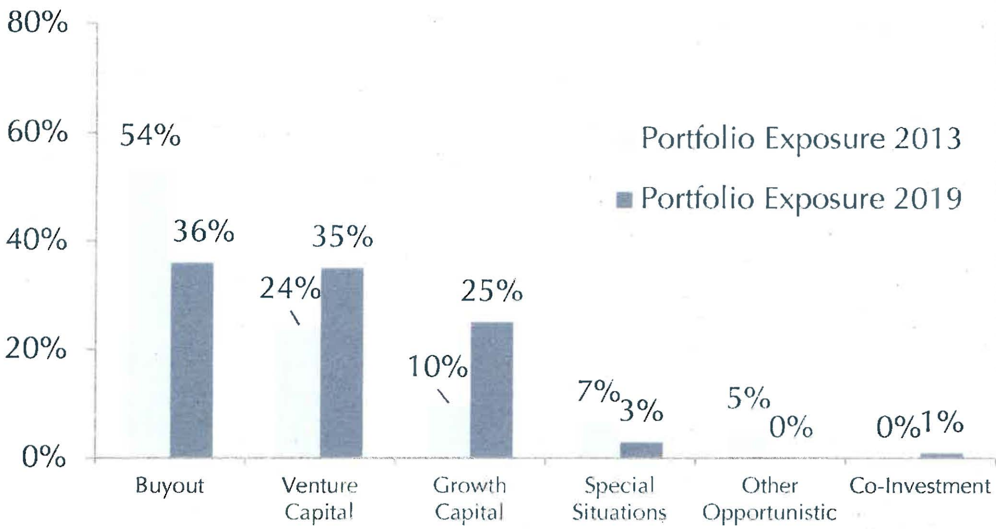
As of December 31, 2019

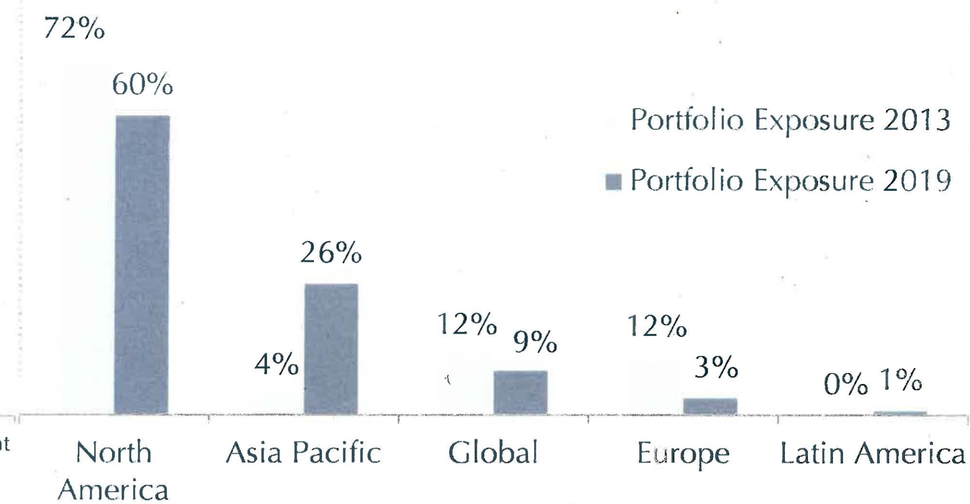
Strategy



Geography







*Exposure = FMV + Unfunded

Appendix A

Performance – Strategy Net IRR

As of December 31, 2019

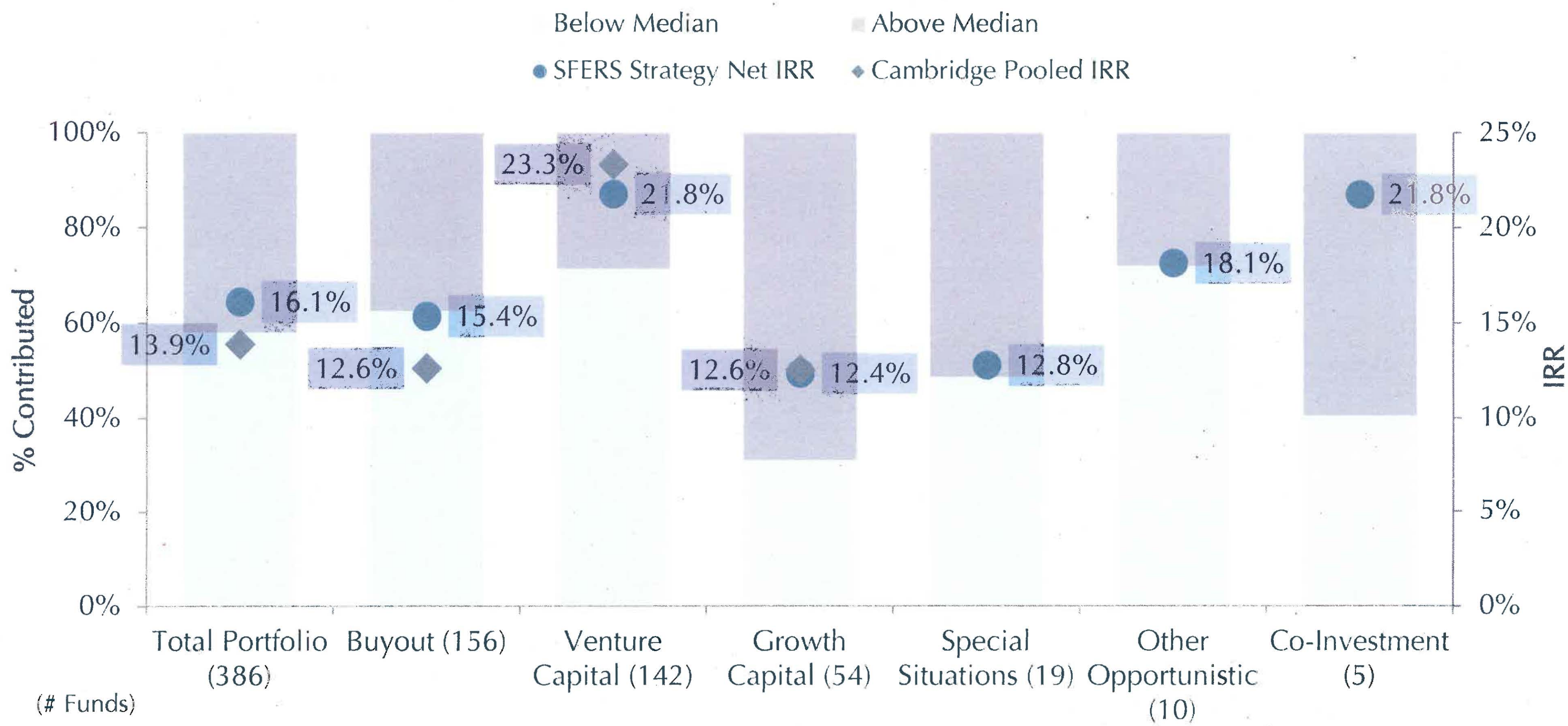
	Net IRR						Multiples		WAA
	1 YEAR	3 YEAR	5 YEAR	10 YEAR	20 YEAR	ITD	DPI	TVPI	WAA (YR)
Buyout	18.2%	16.7%	14.5%	14.1%	14.1%	15.4%	1.19x	1.68x	10.4
Cambridge Associates[1]	17.0%	16.2%	13.5%	14.2%	11.9%	12.6%	1.17x	1.63x	
	1.1%	*0.5%*	*1.0%*	*(0.1%)*	*2.2%*	*2.7%*	0.02x	0.05x	
Venture Capital	20.9%	17.1%	14.3%	15.6%	14.7%	21.8%	0.80x	1.68x	10.0
Cambridge Associates[1]	18.4%	16.9%	13.2%	15.2%	7.1%	23.3%	1.07x	1.83x	
	2.5%	*0.3%*	*1.1%*	*0.4%*	*7.6%*	*(1.6%)*	*(0.26x)*	*(0.14x)*	
Growth Capital	17.4%	20.3%	17.9%	16.2%	11.4%	12.4%	0.64x	1.53x	7.1
Cambridge Associates[1]	18.2%	17.2%	13.9%	13.9%	11.0%	12.6%	0.86x	1.63x	
	(0.8%)	*3.1%*	*4%*	*2.2%*	*0.4%*	*(0.2%)*	(0.22x)	(0.09x)	
Special Situations	27.2%	20.1%	14.4%	12.0%	11.1%	12.8%	1.13x	1.59x	10.6
Other Opportunistic	8.3%	16.9%	9.8%	11.7%	15.9%	18.1%	1.55x	1.58x	14.5
Co-Investment	33.3%	23.1%				21.8%	0.38x	1.25x	1.2
Total	19.4%	17.9%	15.1%	14.7%	13.7%	16.1%	0.97x	1.64x	9.7

1 Cambridge Associates pooled IRRs as of December 31, 2019. Cambridge Associates strategy benchmarks are comprised of similar regions and vintage years for each respective strategy in the SFERS portfolio. No comparable benchmark data is available for the co-investment, Special Situations, or Other Opportunistic strategies.

Performance – Strategy

Cambridge Associates Index[1]

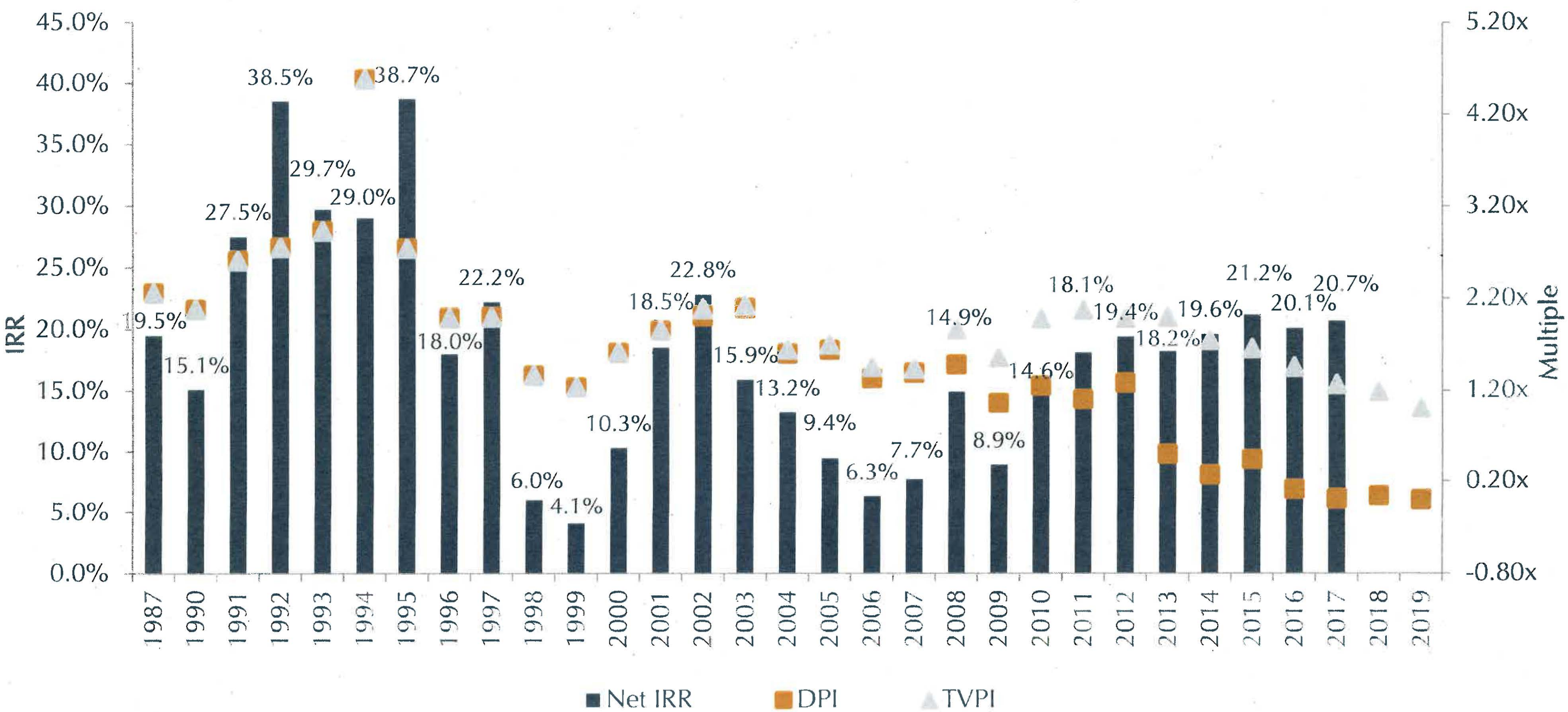
As a % of Contributed Capital | December 31, 2019



1 Cambridge Associates pooled IRRs as of December 31, 2019. Cambridge Associates pooled IRR comprised of similar regions and vintage years for the portfolio and each respective strategy in the SFERS portfolio. Above and below median data excludes funds that could not be benchmarked due to age (younger than two years) or lack of available Cambridge Associates data. Benchmark data for Special Situations, Other Opportunistic, and Co-Investment strategies is not available.

Performance – Vintage Year[1]

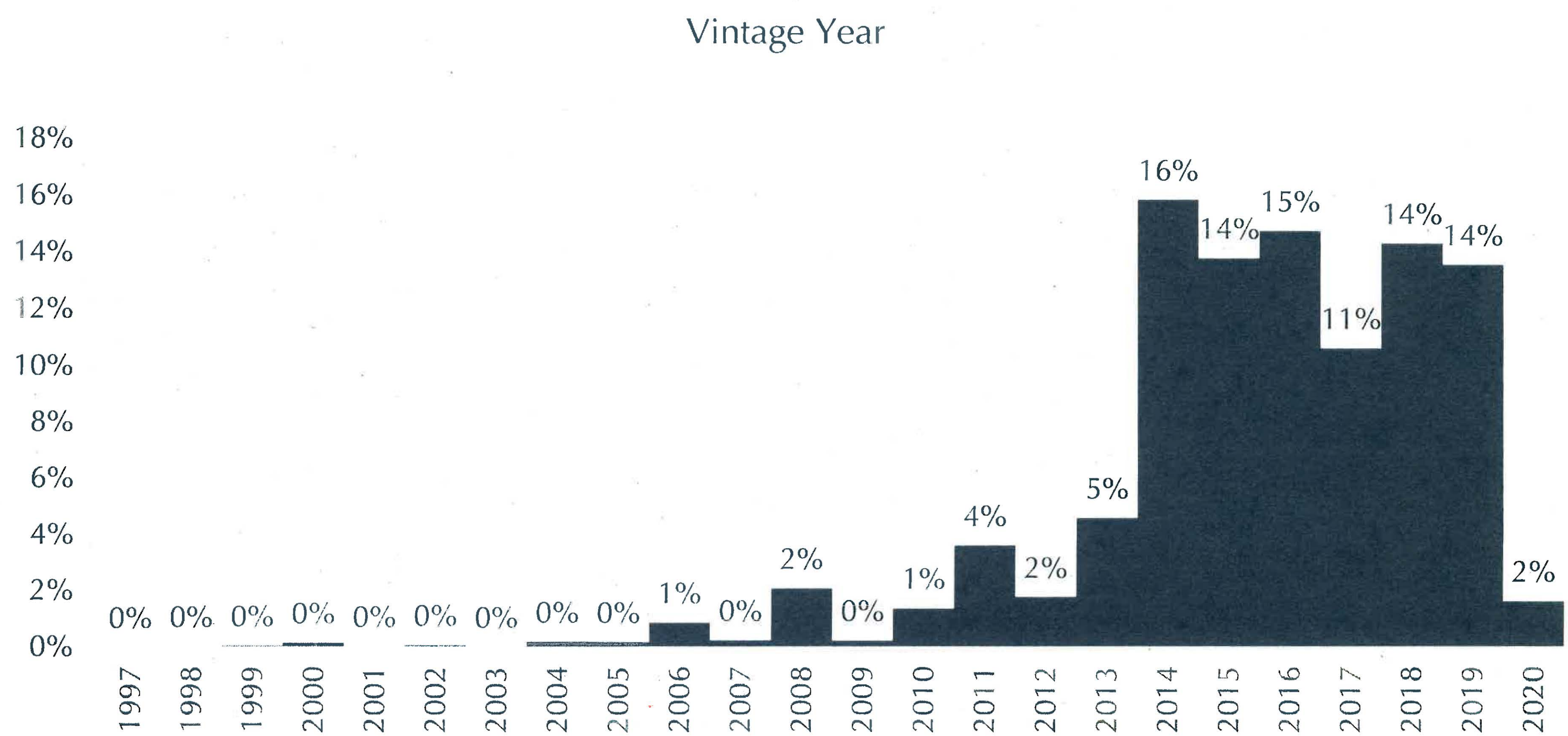
As of December 31, 2019



1 Performance of investments held less than two years is generally not meaningful and therefore the IRRs have been excluded.

Exposure* – Fund Level

As of December 31, 2019



*Exposure = FMV + Unfunded

Co-Investment Performance

As of December 31, 2019

Number of Co-investments	Total Invested	Market Value	Total Distributed	IRR	TVPI	DPI
13	$199.3 M	$168.3 M	$102.1 M	17.8%	1.36x	0.51x

- Of the 13 co-investments, 10 are valued above cost, one is valued at cost, and two are valued below cost.
- Two of the co-investments have been fully realized with an aggregate DPI of 1.47x.
- YTD, one direct co-investment has been made in the amount of $25 M. In 2019, three direct co-investments were made amounting to aggregate commitments of $75 M.

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Transparency Report (AB 2833)[1]

	2019 Annual				Since Inception				
	Net MF	Realized Carry	Portfolio Company Fees	Other Exp.	Total Gains[3]	Total Commits	1 Year Gross IRR[5]	1 Year Net IRR	ITD Net IRR
$ Millions[2]	74.3	40.3	3.2	21.5	5,673.1	12,277.9	22.0%	19.4%	16.1%
% of Commitments[4]	*0.8%*	*0.5%*	*0.06%*	*0.3%*					

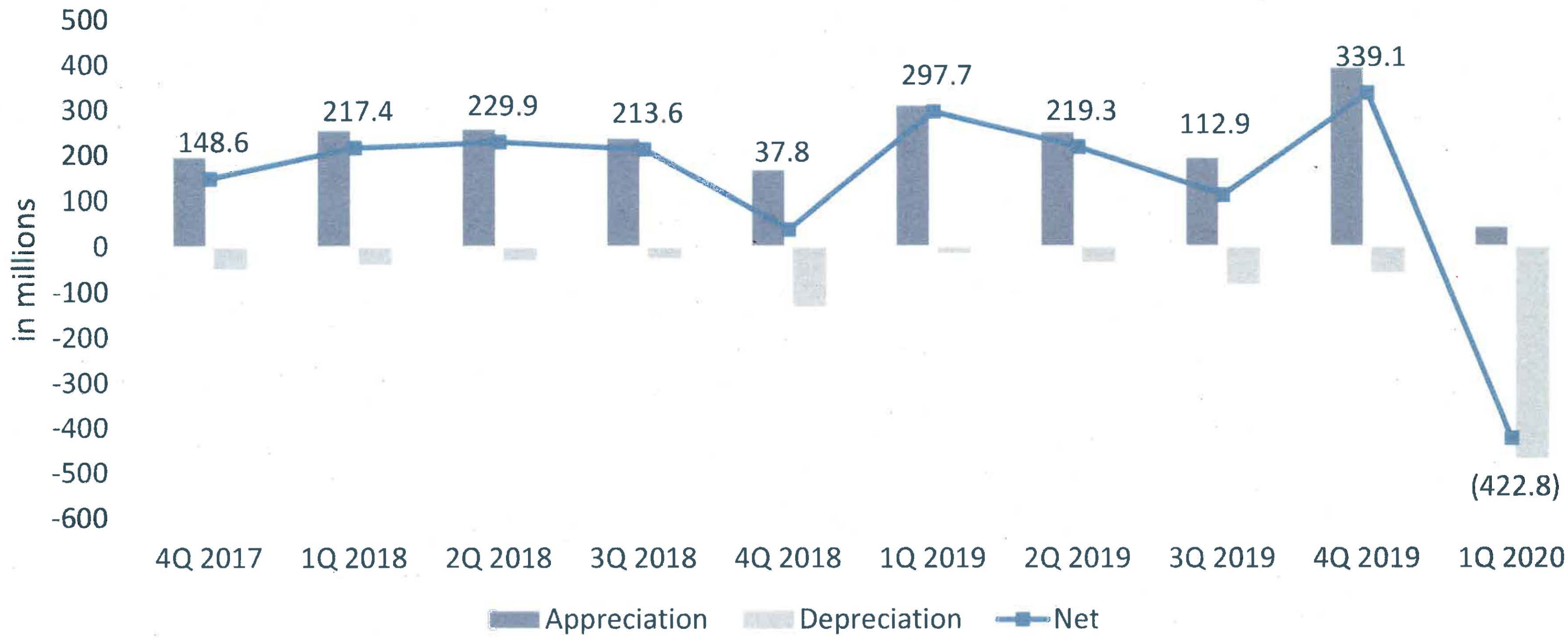
- In 2019, a total of $74.3 M in net management fees were paid across $9.1 B in active commitments[4]; since inception, the portfolio has resulted in $5.7 B of gains. Net management fees for the year were 0.8% of commitments.

1 In aggregate, 86.2% of funds reported net management fee data, 70.0% of funds reported realized carry data, 51.7% of funds reported portfolio company fee data, and 72.8% reported other expense data. Analysis includes all active funds at year end and funds sold in secondary sales.
2 Foreign currency values converted at the 12/31/2019 spot rate.
3 Total gains = fair market values + distributions – contributions. Gains reported are net of fees.
4 Commitment denominator includes commitments related to funds that provided data for each respective category.
5 Gross IRR is calculated by reversing the impact of reported realized and unrealized carry amounts, organization expenses, and net management fees.

Covid-19 Impact on Performance (Preliminary)[1]

	ITD IRR at 12/31/2019	ITD IRR at 3/31/2020[1]
SFERS - PE	16.1%	15.7%

- The Special Situations, Buyout and Growth strategies have experienced depreciations during Q1 2020 of 11.0%, 10.3% and 9.8%, respectively.



[1]As of June 24, 2020, 85.2% of data has been received.

Performance – Strategy Net IRR (Preliminary)[1]

As of March 31, 2020

	Net IRR							Multiples	
	QTR	1 YEAR	3 YEAR	5 YEAR	10 YEAR	20 YEAR	ITD	DPI	TVPI
Buyout	(10.2%)	1.7%	11.3%	12.1%	12.6%	13.7%	15.1%	1.23x	1.63x
Venture Capital	(3.3%)	11.0%	14.2%	12.2%	14.8%	14.2%	21.6%	0.82x	1.64x
Growth Capital	(10.0%)	(1.3%)	13.9%	13.7%	13.5%	10.2%	11.2%	0.64x	1.43x
Special Situations	(10.5%)	3.2%	13.1%	11.1%	9.6%	10.6%	12.6%	1.17x	1.55x
Other Opportunistic	(0.6%)	1.9%	18.1%	10.2%	12.0%	15.9%	18.1%	1.56x	1.58x
Co-Investment	(5.9%)	18.4%					14.8%	0.32x	1.16x
Total	**(7.3%)**	**4.7%**	**13.2%**	**12.4%**	**13.3%**	**13.2%**	**15.7%**	**0.99x**	**1.58x**

[1] As of June 24, 2020, 85.2% of data has been received.

Appendix B

- Market Overview & Commentary

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1Q 2020 Private Equity Market Overview

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Buyouts

- 1Q commitments: $41.9 billion across buyout and mezzanine firms, a 2.6% decrease from 1Q19 ($43.0 billion), and a 37.6% decrease from 4Q19 ($67.1 billion).[1]
- As of March 2020, funds targeting over $5.0 billion had received 33.0% of capital, followed by funds targeting $1.0 to $5.0 billion with 30.7%.[1]
- The total funds raised LTM 1Q20 ($251.4 billion) outpaced LTM 1Q19 ($169.4 billion), representing an increase of 48.4%.[1]
- Brookfield Infrastructure Fund IV is the largest fund raised so far in 2020 and is also the only fund raised this year at or over $15.0 billion with $20.0 billion raised.[1]
- Considering only industry-focused final closings, the technology sector raised $63.7 billion through 1Q20, followed by diversified, with $46.6 billion raised. The next three are property, energy, and oil & gas, respectively with $25.9 billion, $20.9 billion, and $15.6 billion raised.[1]

Venture Capital

- 1Q commitments: $26.4 billion, a 13.3% increase from 4Q19 ($23.3 billion) and a decrease of 1.9% from the year prior ($26.9 billion).[2]
- The number of fund-closings totaled 1,271 during 1Q20, representing a 9.1% decrease from 4Q19 when 1,399 funds closed fundraisings.[2]
- Nine first-time funds have raised $1.1 billion in 1Q20.[3]
- 1Q20 median fund size increased by 42.9% over 2019 (from $70.0 million to $100.0 million). This represents the second highest level since 2007, when median fund size was $133.0 million.[3]

Special Situations

- Distressed / Turnaround Debt: $7.9 billion of fundraising was disclosed during the quarter, an 8.2% decrease from 4Q19 ($8.6 billion) and a 371.9% increase from 1Q19 ($1.7 billion).[4]
- Mezzanine: : $0.7 billion of fundraising was disclosed during the quarter, a 69.7% decrease from 4Q19 ($2.1 billion) and a 64.0% decrease from 1Q19 ($1.9 billion).[4]
- Fund-of-Funds / Secondary Funds: $10.8 billion of fundraising was disclosed, a 182.5% increase from 4Q19 ($3.8 billion) and a 262.5% increase from 1Q19 ($3.0 billion).[4]

Note: Data above may not directly correlate to data in Figure 3 due to a transaction being included in all categories that apply .

Largest U.S. Fund Closings through 1Q20

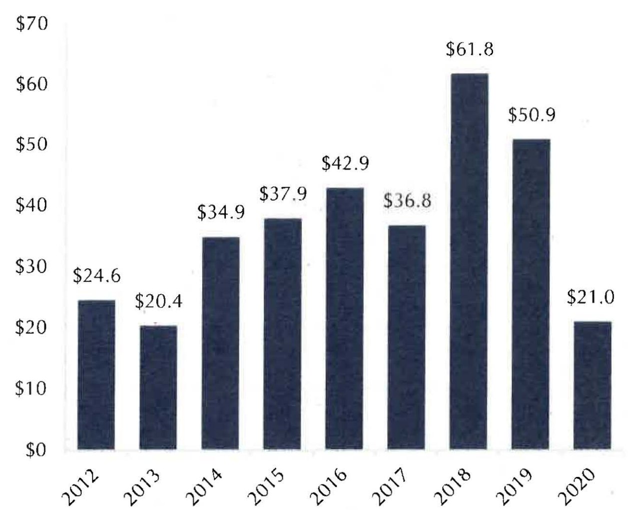
		Fund Size
Buyout	Platinum Equity Capital Partners Fund V	$10.0 billion
	Trident VIII	$7.0 billion
Venture Capital	Tiger Global Private Investment Partners XII	$3.8 billion
	New Enterprise Associates 17	$3.6 billion
Mezzanine	Balance Point Capital Partners IV	Undisclosed
Distressed/Turnaround	AIC Credit Opportunities Partners Fund II	$0.4 billion
Fund of Funds	HarbourVest Partners XI	$2.6 billion

Source: Preqin Ltd., as of March 2020

Figure 1: Buyout + Mezzanine Fundraising | $ Billion

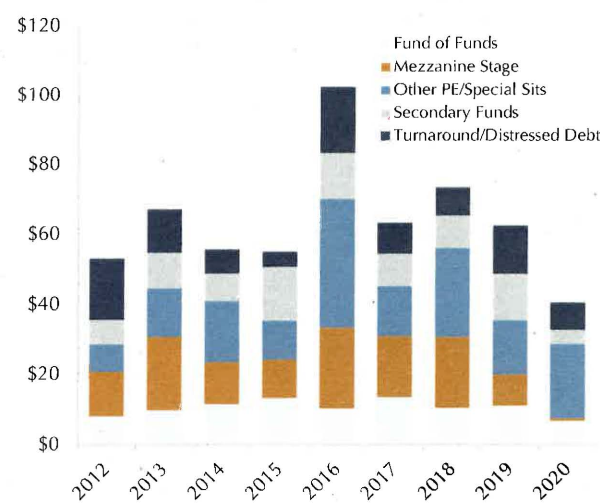
Source: Preqin, as of June 2020

Figure 2: Venture Capital Fundraising | $ Billion



Source: Pitchbook & National Venture Capital Association, as of March 2020

Figure 3: Special Situations Fundraising | $ Billion



Source: Thomson Reuters, as of March 2020

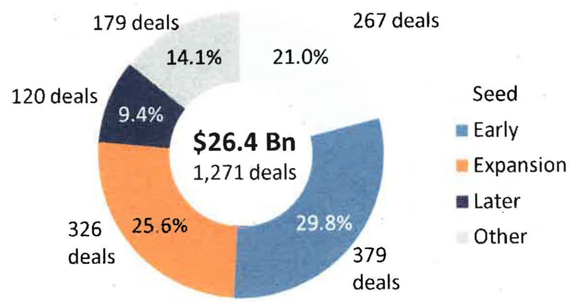
Buyouts

- Disclosed deal value totaled roughly $49.9 billion in 1Q20, up 12.0% compared to 4Q19, when disclosed deal value totaled $44.5 billion.[1]
- The largest U.S.-sponsored deal to close in 1Q20 was the $18.9 billion acquisition of Thyssenkrupp Elevator AG, executed by Advent International, Cinven, Abu Dhabi Investment Authority, and RAG Stiftung.[1]
- The most active dealmaker of 1Q20 was KKR, with eleven deals closed during the quarter, followed by Genstar Capital Partners (ten deals closed), Audax and Incline Equity Partners (eight deals closed each), and Carlyle Group and TPG (seven deals closed each).[1]
- The consumer & retail sector led 1Q20 with 9 deals closed during the quarter. Information technology followed with 8 deals, while consumer discretionary rounded out the top three, also with 8 deals closed.[1]
- LBO purchase price multiples were 11.2x EBITDA by the end of 1Q20, a 2.7% decrease when compared to 11.5x EBITDA at the end of 2019.[5]

Venture Capital

- Venture capitalists invested $34.2 billion in 2,298 deals in 1Q20, up 10.0% in value compared to 4Q19, when $31.1 billion went into 2,800 deals.[3]
- The software industry led all sectors during the quarter, garnering $9.9 billion through 739 deals. Software deals were followed by pharma & biotech with $5.7 billion of capital invested through 218 deals.[3]

Figure 4: U.S. 1Q20 Venture Investment by Stage



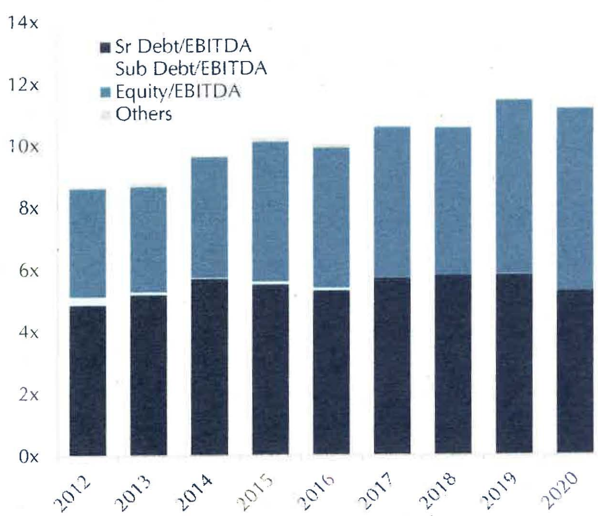
Source: "MoneyTree Report," PwC/CB Insights, as of March 2020

Special Situations

- Distressed / Turnaround Debt: There were 33 distressed/turnaround investments during 1Q20 for a disclosed deal value of $2.8 billion, representing a decrease of 23.3% in deal count and a decrease of 24.8% in value compared to 4Q19 (43 deals for $3.8 billion).[4]
- Mezzanine: There were 35 mezzanine investments during 1Q20 for a disclosed deal value of $0.9 billion, representing a decrease of 38.6% in deal count and an increase of 29.0% in value compared to 4Q19 (57 deals for $0.7 billion).[4]
- Fund-of-Funds / Secondary Funds: There were 24 fund-of-funds and secondary fund investments during 1Q20 for a disclosed deal value of $0.1 billion, representing a decrease of 38.5% in deal count and a decrease of 69.8% in value compared to 4Q19 (39 deals for $0.5 billion).[4]

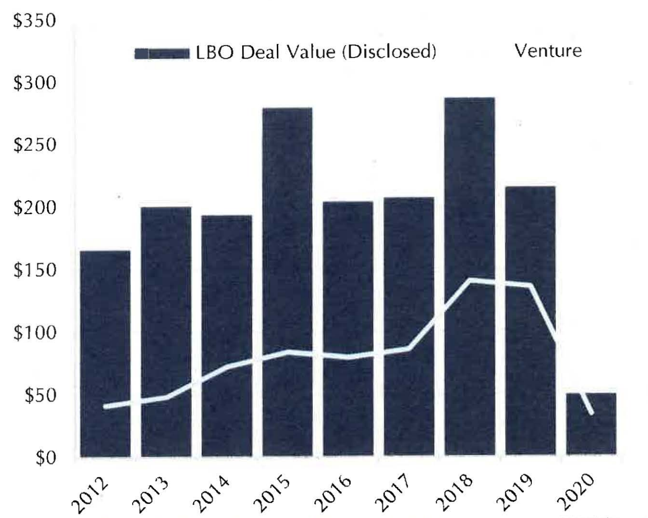
Note: Data above may not directly correlate to data in Figure 7 due to a transaction being included in all categories that apply.

Figure 5: LBO Purchase Price Multiples



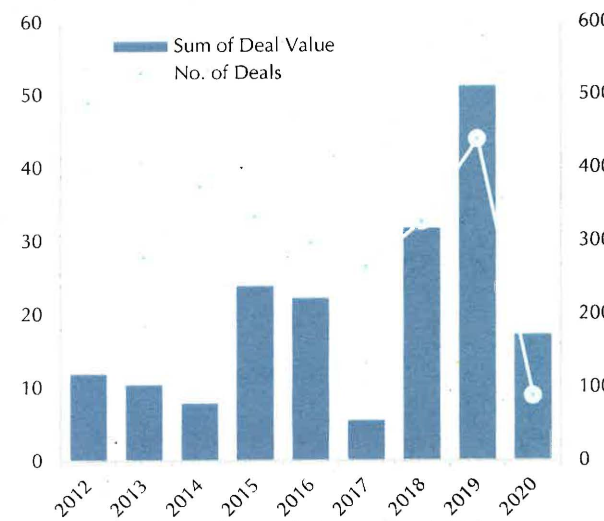
Source: S&P M&A Stats – March 2020

Figure 6: U.S. LBO & VC Investment Activity | $ Billion



Source: Preqin, Pitchbook & National Venture Capital Association, as of March 2020

Figure 7: Special Situations Activity | $ Billion



Source: Thomson Reuters, as of March 2020

Exits

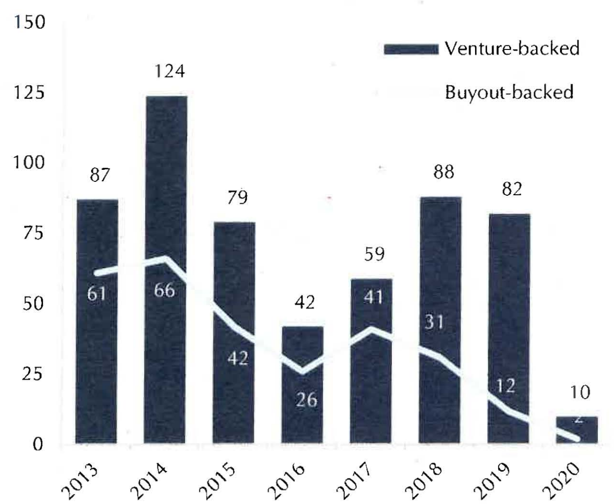
- There were two buyout-backed IPOs valued at $3.0 billion in the U.S during 1Q20.[1]
- There were 203 buyout-backed M&A exits in 1Q20 with a total valuation of approximately $42.0 billion. Of the 42 deals with disclosed value, the exit of Univision by a consortium including Madison Dearborn Partners was the largest at $9.7 billion.[1]
- Consumer & retail accounted for 21.4% of buyout-backed M&A exits during 1Q20. Information technology & business services were the second and third largest by deal count with eight deals. Materials and industrials came in fourth and fifth with four deals.[1]
- There was a decrease of 76.7% in deal count and a decrease of 71.8% in deal value during 1Q20 compared to 4Q19.[1]
- U.S. venture-backed M&A exits totaled 173 in 1Q20 with disclosed value of $19.3 billion. This represents a 20.2% decrease in value and 14.9% decrease in deal count when compared with 4Q19 (215 deals, $24.2 billion).[3]
- There were 10 U.S. venture-backed IPOs during Q1 2020 valued at $5.6 billion. This compares to 82 IPOs valued at $197.2 billion in all of 2019.[3]

Largest U.S. Liquidity Events in 1Q20

	Sponsors	Company	Value
PE-backed IPO	*Carlyle Group, Hellman & Friedman*	Pharmaceutical Product Development (Nasdaq:PPD)	$1.6 billion
VC-backed IPO	*(Multiple Sponsors)*	One Medical (Nasdaq: ONEM)	$0.2 billion
PE-backed M&A	*(Multiple Sponsors)*	Univision	$9.7 billion
VC-backed M&A	*(Multiple Sponsors)*	Credit Karma	$7.1 billion

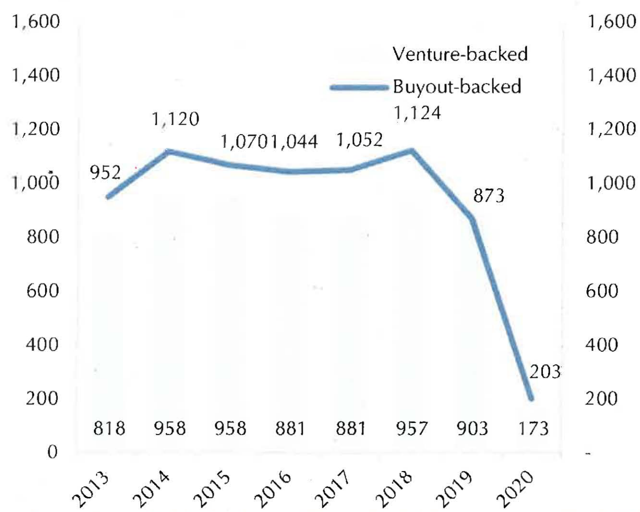
Source: Preqin Ltd., as of March 2020

Figure 8: Number of U.S.-based IPOs



Source: Preqin, Pitchbook & National Venture Capital Association, as of March 2020

Figure 9: Number of U.S.-based M&A

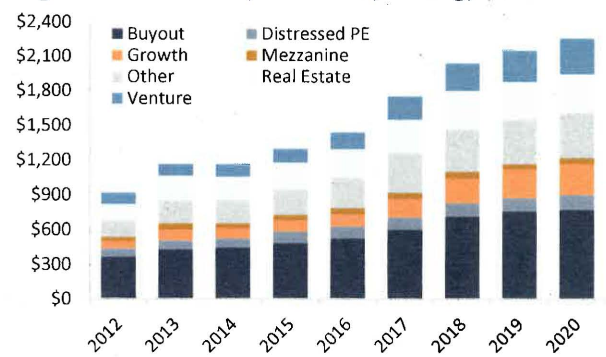


Source: Preqin, Pitchbook & National Venture Capital Association, as of March 2020

Dry Powder

- SoftBank Investment Advisors currently has the largest amount of dry powder at $39.6 billion, followed by the Carlyle Group with $36.9 billion and KKR with $25.8 billion.[1]
- 17 of the top 25 fund managers by dry powder are based in the U.S.[1]

Figure 10: Global Dry Powder by Strategy | $ Billion

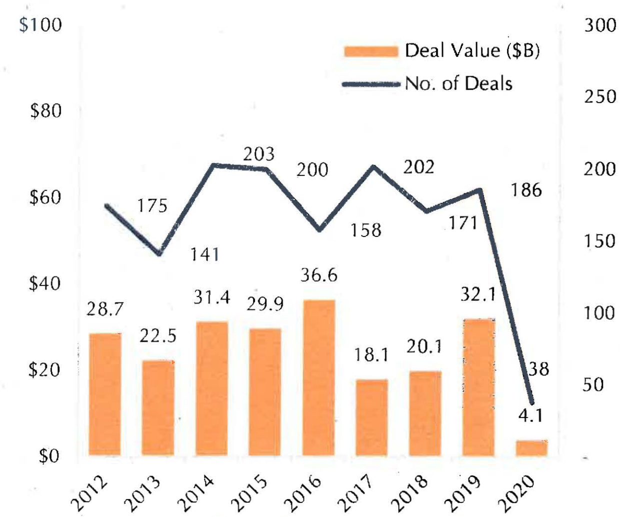


Source: Preqin Ltd., as of June 2020

Secondary Buyouts

- 38 secondary buyout transactions were completed during 1Q20 for an aggregate deal value of $4.1 billion.[4]

Figure 11: Secondaries



Source: Thomson Reuters, as of March 2020

Fundraising

- 1Q20 commitments: $26.7 billion, representing a 0.6% decrease from 4Q19 ($26.9 billion) and a 41.0% decrease from 1Q19 ($45.3 billion).[4]
- The U.K. accounted for 69.0% of funds raised in Europe during 1Q20, followed by Luxemburg (12.8%), and France (8.8%).[4]
- The small decrease in funds raised during the quarter stems from a decrease in fundraising in Germany, $0.2 billion compared to $3.2 billion in 4Q19, while Luxemburg increased fundraising to $3.4 billion compared to $1.5 billion.[4]
- Additionally, Czech Republic, Estonia, and Sweden saw no fundraising activity, despite raising $0.1 billion, $33.0 million, and $0.7 billion respectively, in the quarter prior. This was offset by Norway, which increased funding to $0.9 billion from $0.5 million.[4]
- The largest fund to achieve a final closing during the quarter was Blackstone Real Estate Partners Europe VI ($10.6 billion), a Luxemburg-based RE fund, followed by iCON Infrastructure Partners V ($2.1 billion).[1]

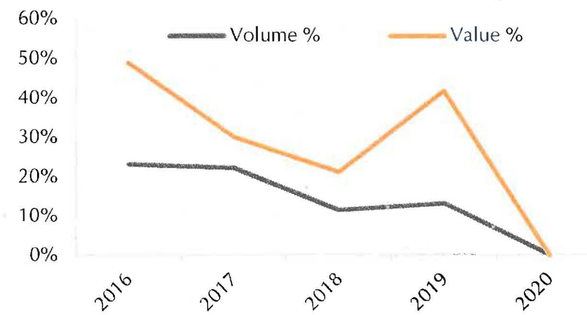
Investing

- Disclosed deal value totaled $45.2 billion across 580 deals in 1Q20, up 12.8% in deal value ($40.1 billion) and down 27.7% in deal count (802) from 4Q19.[4]
- Germany accounted for 42.1% of deal value in Europe during 1Q20, followed by the U.K. and Switzerland with 41.3% and 11.1%, respectively.[4]
- The largest PE deal disclosed in Europe was Thyssenkrupp AG-Elevator Technology Business, which builds and maintains elevators in the U.S. It was acquired by a consortium of Advent, Cinven and Germany's RAG foundation ($18.9 billion).[4]
- Another notable transaction involved Cobham Ltd, a U.K. based, global defense and aerospace company, acquired by Advent International ($5.3 billion).[4]
- The semiconductor/electricity industry garnered $18.9 billion of new investment in 1Q20, followed by the computer software industry with $9.2 billion.[4]

Exits

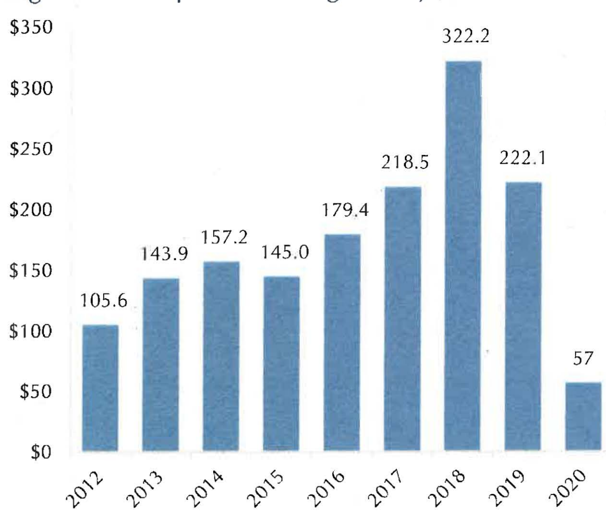
- There were zero PE-backed IPOs in 1Q20 compared with five during 4Q19 and zero during 1Q19.[4]
- European IPO markets nearly ceased activity altogether due to COVID-19 and the joint oil price collapse, which combined to introduce unprecedented volatility compared to any prior years. There were a total of twenty-three IPOs between Europe, the Middle East and Africa combined in 1Q20 with $.9bn of activity in Europe.[8]

Figure 12: Europe | PE-Backed IPOs as % of Total IPOs



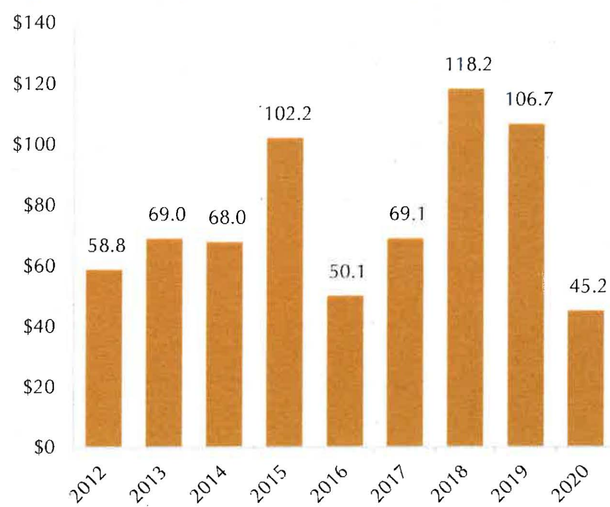
Source: PwC, as of March 2020

Figure 13: Europe Fundraising Activity | $ Billion



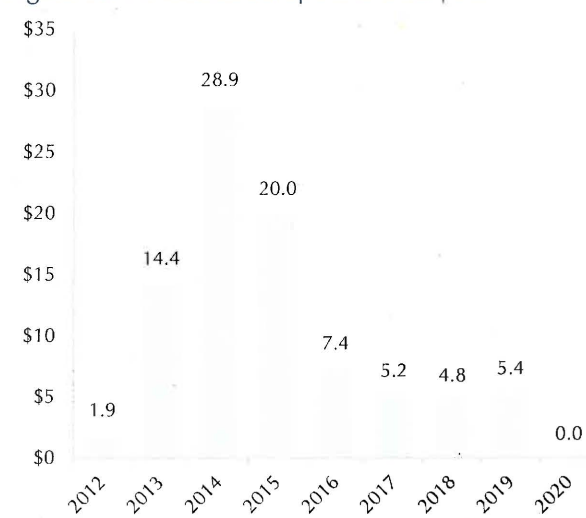
Source: Preqin, as of June 2020

Figure 14: Europe Investment Activity | $ Billion



Source: Thomson Reuters, as of March 2020

Figure 15: PE-Backed Europe IPO Exits | $ Billion



Source: Thomson Reuters, as of March 2020

Fundraising

- 1Q20 closing commitments: $16.7 billion. A 52.8% decrease from 4Q19 ($35.4 billion) and a 40.1% decrease from 1Q19 ($27.9 billion).[1]
- China accounted for 21.5% of funds raised in Asia during 1Q20, followed by Japan (18.6%) and India (11.6%).[1]
- The decrease in funds' final closings this quarter was largely due to China, which closed on $3.6 billion of commitments in 1Q20 compared to the $17.5 billion from 4Q19.[1]
- The largest PE fund to reach a final closing was Carlyle Japan Partners IV, L.P. ($2.4 billion), a Hong Kong based growth fund, followed by Gaw Education Fund ($1.5 billion), and ADIA - Shapoorji Pallonji Separate Account ($1.2 billion).[1]
- In 1Q20, Growth was the most popular strategy, by amount closed, in Asia accounting for 30.1% of the total, followed by Venture (26.2%) and Buyout (17.9%).[1]

Investing

- Disclosed and completed deal value of Asia funds totaled $2.5 billion across 61 deals in 1Q20, down 42.8% in deal value and up 29.8% in deal count compared to 4Q19.[1]
- Japan accounted for 71.0% of the total investments in Asia during 1Q20, followed by India and China with 10.6% and 5.9%, respectively.[1]
- One of the largest disclosed PE deals in Asia was the $0.8 billion investment in Showa Aircraft Industry, an aerospace manufacturer based out of Japan, by Bain Capital to take the company private. Another major deal was Mitsui's sale of SOGO Medical Holdings for $0.6 billion to PSM Holdings Inc.[1]
- The aerospace industry generated $0.8 billion of disclosed deal value in 1Q20, followed by medical devices at $0.6 billion.[1]

Exits

- In Asia, there were two PE-backed IPOs reported in 1Q20 valued at $1.5 billion, up 65.5% in value and no change in count from 4Q19.[1]
- There were 9 disclosed Asian PE M&A (ex-IPO) exits in 1Q20 valued at $0.8 billion, down 79.8% in value and down 25.0% in count from 4Q19. Japan had the largest number of exits in the market with 40.0% of the total 25 exits.[1]

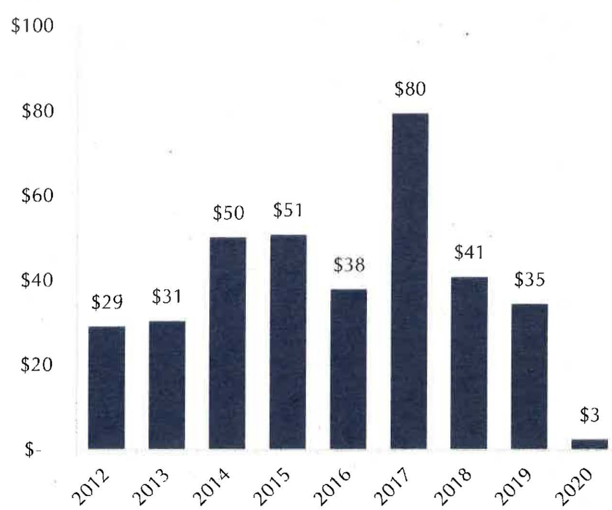
Figure 16: Asian IPO Exits | $ Billion

Source: Preqin Ltd, as of March 2020

Figure 17: Asian Fundraising Activity | $ Billion

Source: Preqin Ltd., as of June 2020

Figure 18: Asian Investment Activity | $ Billion



Source: Preqin Ltd., as of March 2020

Figure 19: Asian M&A Exits | $ Billion

Source: Preqin Ltd., as of March 2020

Fundraising

- Through 2019, investors approached the Latin American region (excluding Brazil) with caution, ranking it sixth out of ten on EMPEA's list of the most attractive emerging markets for GP investments in 2019; Brazil ranked fourth. According to the report, the highest weighted factor likely affecting investments in Latin America within the next two years is currency risk, at a 52.0% deterrent.[9]
- Eight funds with a focus on Latin America held final closes in 1Q20 for a total of $1.2 billion in committed capital. Of the eight funds, two are located in Central America, representing 40.3% of the total commitments ($0.5 billion).[1]
- The largest fund, Fideicomiso Promecap Capital de Desarrollo ($0.3 billion), will focus on investing in Mexico. Proeza Ventures I ($50.0 million), will be focused on investing in the Americas (North and South) and was also included in the totals.[1]

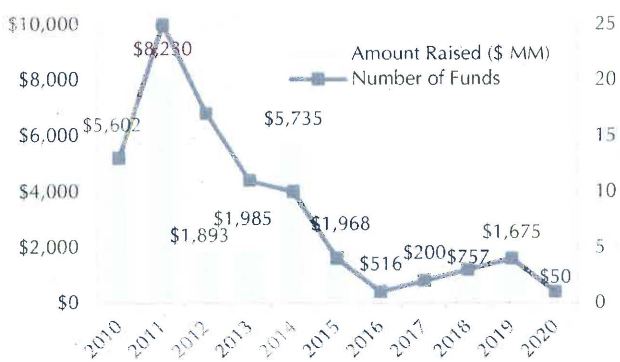
Investing

- 53 VC deals were closed in 1Q20, a 12.8% increase compared to the 47 deals in 1Q19. 18 buyout deals closed in 1Q20 represented a 28.0% decrease compared to 1Q19's 25 deals.[1]
- The largest disclosed deal in 1Q20 was CVC Capital Partners Fund VII's $0.2 billion buyout deal, Hermes Transportes Blindados S.A., a provider of detective and armored car services in South America. The largest disclosed VC deal in Q1 2020 was a $0.2 billion investment in Loft Brasil Tecnologia Ltda., a portal, content provider, and information services provider in Brazil. A number of VC funds participated.[1]
- During the quarter, the disclosed deal value for Latin American-based funds with domestic and international investment strategies totaled $0.8 million from one deal based in Chile.[4]

Exits

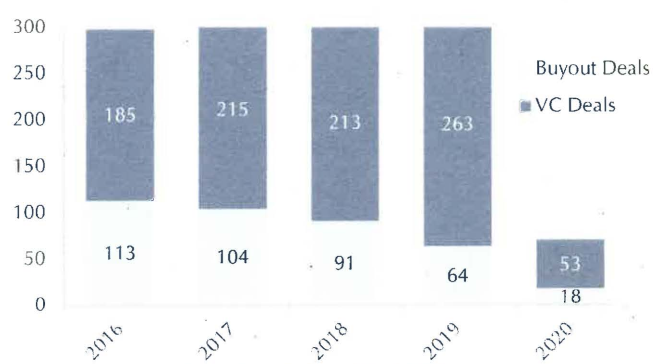
- There were seven buyout exits and one VC exit disclosed in 1Q20, resulting in a 46.7% decrease or seven fewer exits compared to the fifteen total exits during 1Q19.[1]
- One of the most notable exits in 2020 was the February IPO of Sumeru sponsored Locaweb Serviços de Internet S.A. (BVMF:LWSA3), a Brazil-based web hosting company that specializes in B2B services. The company's debut on the São Paulo stock exchange raised $0.2 billion at R$17.3 per share.[10]
- The South American IPOs were concentrated in Brazil, with four IPOs occurring in 1Q20 for total proceeds of $0.8 billion, representing a 100% increase from the zero IPOs in 1Q19. All four IPOs took place on the B3 stock exchange, Brazil's largest exchange located in São Paulo.[11]

Figure 20: Fundraising Activity | $ Million



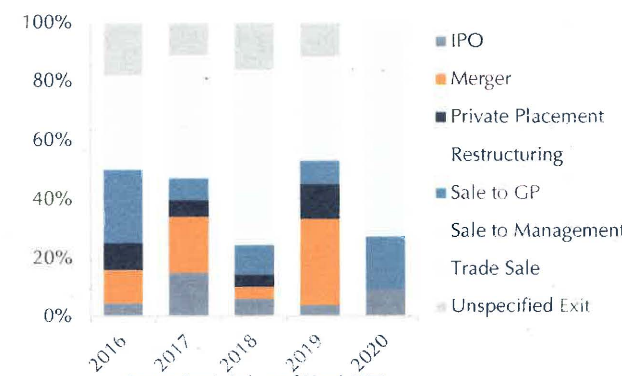
Source: Thomson Reuters as of March 2020

Figure 21: Investment Activity | # of Deals



Source: Preqin Ltd., as of March 2020

Figure 22: Exits Activity | % of Exit Type



Source: Preqin Ltd., as of March 2020

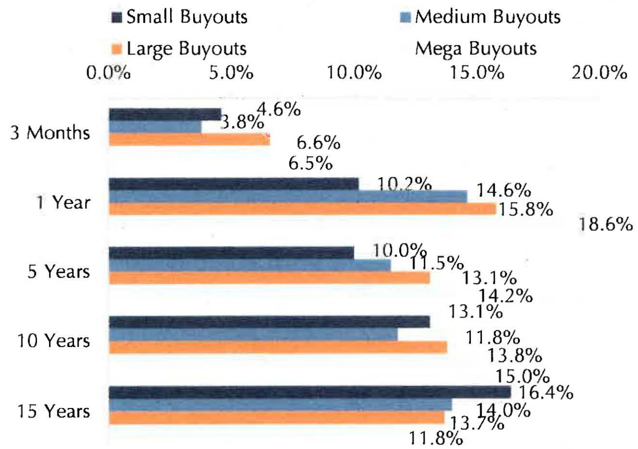
SPOTLIGHT: Fintech in Latin America

With 100% of South America's population projected to have access to the internet by the end of 2020 and investments in Latin American startup companies quadrupling since 2016, significant growth in the fintech industry is expected in the coming years. As one of Latin America's fastest growing industries, fintech has gone from less than $50.0 million to $2.1 billion across 139 deals in six years.[12] In 2019, Brazil set a new annual record high of $0.9 billion in fintech funding and participated in two large VC deals in 1Q19, VTEX for $140.0 million and Neon for $94.0 million. Latin America's largest fintech deal of 2019 was Advent International's buyout of Prisma Medios de Pago, an Argentina-based financial transaction processing company, for $0.7 billion.[13] During 1Q20, SoftBank announced an additional $1.0 billion in commitments will be added to its $5.0 billion Latin American Innovation Fund focused on fintech, healthcare, and digital commerce with investments primarily in Argentina, Chile, Columbia, and Mexico.[14] Looking forward, Latin American fintech has strong projected growth due to the increased digitization of services spurred by the coronavirus shelter in place mandates. Along with cyber security and anti-money laundering sectors, particularly strong focus is anticipated in the payments and lending spaces in 2020 in Latin American fintech industries. With 78 unique investors and 128 fintech startups raising funds in 2019, we can expect a surge of investments as private equity and VC investments continue to grow in Central and South America.[12]

Private Equity Returns by Asset Class	5 Year	10 Year	15 Year	20 Year
Venture Capital	12.9%	15.1%	11.4%	7.2%
Growth Equity	13.6%	13.9%	13.2%	11.5%
Buyout	13.3%	14.1%	12.8%	11.8%
Subordinated Capital	10.2%	11.3%	10.4%	8.3%
Control-Oriented Distressed	8.2%	10.8%	9.9%	10.5%
Private Equity Energy	0.2%	3.8%	6.3%	7.3%
Total	**11.8%**	**13.3%**	**12.1%**	**10.4%**

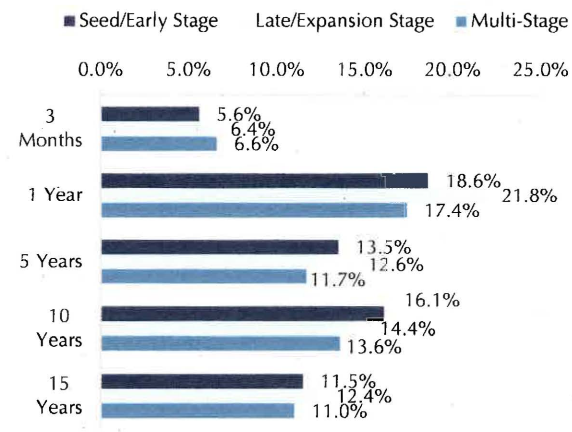
Source: Cambridge Associates (via Thomson Reuters) Pooled IRR: All Private Equity Funds excluding Real Estate, Fund-of-Funds, Infrastructure, and Secondaries, as of December 2019

Figure 23: **Buyout Returns**



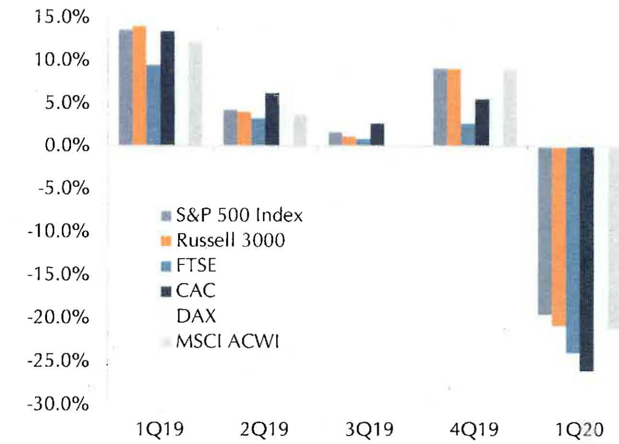
Source: Cambridge Associates via Thomason Reuters, as of December 2019

Figure 24: **Venture Capital Returns**



Source: Cambridge Associates via Thomson Reuters, as of December 2019

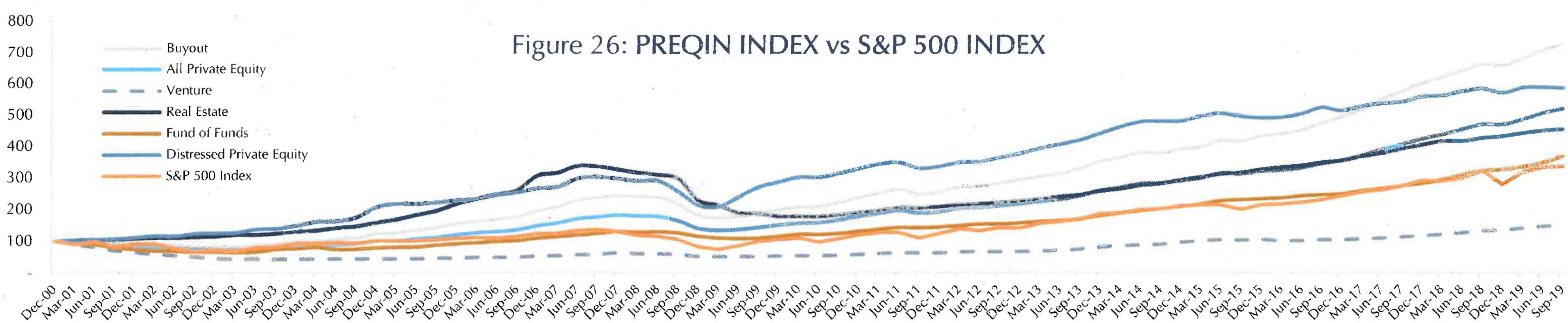
Figure 25: Market Returns



Index	1Q19	2Q19	3Q19	4Q19	1Q20
S&P 500	13.6%	4.3%	1.7%	9.1%	-19.6%
Russell 3000	14.0%	4.1%	1.2%	9.1%	-20.9%
FTSE	9.5%	3.3%	0.9%	2.7%	-24.0%
CAC	13.4%	6.2%	2.7%	5.5%	-26.1%
DAX	9.2%	7.6%	0.2%	6.6%	-25.0%
MSCI ACWI	12.3%	3.8%	0.1%	9.1%	-21.3%

Source: Bloomberg, as of March 2020.

Figure 26: **PREQIN INDEX vs S&P 500 INDEX**



Source: Preqin, Cambridge Associates, Bloomberg; Russell Investment Group, as of September 2019. Russell Investment Group is the source and owner of the trademarks, service marks and copyrights related to the Russell Indexes.

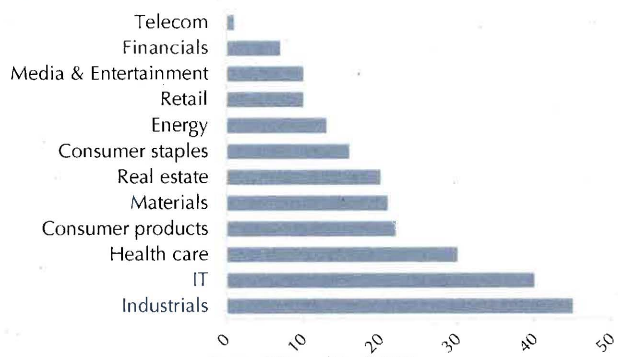
Sector Overview

- The healthcare sector of the S&P 500 was down 2.8% YoY and 13.1% during 1Q20; however, it outperformed the broader S&P 500 by 693 basis points during 1Q20.[5] This is largely due to increases in volatility and uncertainty on the economic outcome following the COVID-19 outbreak. Equity market volatility has spiked to levels not experienced since the global financial crisis, particularly in March 2020. Sectors such as IT, consumer staples, and healthcare have been the least affected as they are least exposed to a near-term contraction in consumer spending due to COVID-19.[15]
- The healthcare sector accounted for 30 out of 235 IPOs during 1Q20, which ranked third across all sectors globally. Healthcare IPO proceeds for the quarter were $5.6 billion or 19.6% of total proceeds.[8]
- Global IPO activity in the first two months of 2020 was 29% higher by deal numbers and 242% higher by proceeds compared with the same time period in 2019, largely driven by Asia-Pacific and U.S. exchanges. Following this period, there was a sudden drop in equity indices across multiple markets along with news of the outbreak.[11]
- 399 healthcare M&A deals closed globally during the quarter, totaling $8.4 billion. While dollars invested increased, the number of deals decreased from 441 in 4Q19.[16]
- Of the 399 M&A deals made in 1Q20, 219 deals closed in North America ($6.2 billion), 100 deals in Asia ($1.3 billion), and 80 deals in Europe ($0.9 billion).[16]

Figure 27: Sector Performance | TTM Quarterly Returns

Source: S&P Global., as of April 2020

Figure 28: 1Q20 Global IPO Activity



Source: E&Y, as of March 2020

- The disruptors that may impact investment activity in the healthcare sector include the 2020 election, shift to value in healthcare, paying for innovation in life sciences, new market entrants, and social determinants of health, which can all yield both opportunity and risk.[19]
- The healthcare sector has experienced a mixed impact from COVID-19. Despite disruptions by the pandemic, earnings during current recession are likely secure and valuations are relatively attractive which supports an out performance for this sector.[18]

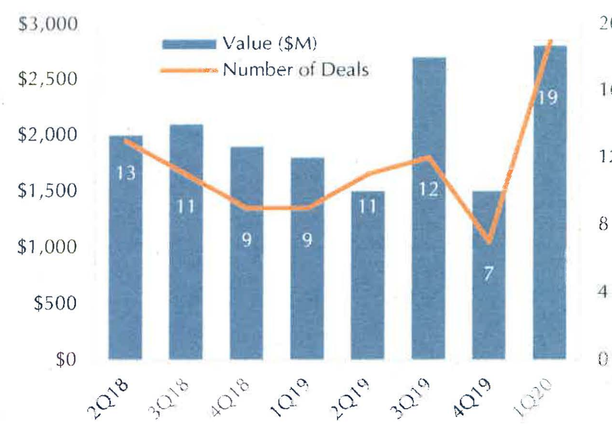
Sector Outlook

- Prior to COVID-19, global healthcare spending relative to GDP was expected to remain around 10.2% through 2023. This is largely due to economic improvements and the health systems' efforts to contain costs. However, with rapid population growth (8.5 billion by 2030), combined with increased efforts to expand public health systems, health spending is expected to rise at a CAGR of 5% in the next few years, up from 2.7% in 2014-18.[17]
- Although healthcare reform has become a focus in the 2020 election, the risk of major legislative changes is thought to be relatively low.[18]

Market Analysis

- Pharma and Biotechnology
- 2019 was a growth year for oncology, immunology and rare disease deals, which saw several deals that closed above $1.0 billion. The acquisition of Celgene by BMS was the largest deal, closing at $74.0 billion.[19]
- Innovation in pharma is at an all-time high, as focus has shifted to personalized/precision medicine and nucleic-acid-based technologies for cancer and rare diseases. Approximately 75% of the oncology pipeline today qualifies as precision medicine. In 2019, there were 58 deals in cell/gene therapy, with 17 full acquisitions. However, legislation to control drug prices could potentially advance, which may have a negative impact on investment in the future.[10]
- Globally, $4.5 billion was invested into the biotechnology industry in 1Q20, a 27% increase from 4Q19, and deals increased quarter over quarter from 112 deals in the prior quarter to 124 deals in 1Q20.[16,19]
- In the U.S., the biotechnology subsector led the healthcare sector, raising $2.7 billion, a 13% increase from 4Q19, in which $2.4 billion was raised. Of the 67 deals closed, 9 were mega-round deals which represented $1.5 billion invested. The largest deal was GSK's acquisition of Lyell Immunopharma, a transaction closing at $0.4 billion.[16]

Figure 29: U.S. Healthcare Mega Rounds



Source: PwC, as of March 2020

SOURCES:

1) Preqin Ltd., as of March 2020.
2) "MoneyTree Report," PwC/CB Insights, as of March 2020.
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