PitchBook

Q2 2020

Private Market PlayBook

NOW WHAT?

SPECIAL REPORT ON THE PANDEMIC

Disaster forces venture investors to ditch their usual script
p. 54

How cash-strapped funds bridge liquidity gaps
p. 60

Black Lives Matter
What's our responsibility in this struggle? p. 2

Stars in their IRRs
NBA standout Spencer Dinwiddie has a VC-fueled vision for the future of stardom. p. 8

The great unlocationing
Fully distributed work could be the next megatrend to dramatically reshape the economy. p. 50

Road to Next

A snapshot of the road to IPOs in the COVID-19 era

When the inaugural edition of the Road to Next series was released, the COVID-19 outbreak had yet to transform into a full-fledged pandemic. Now, months later, everything is different. The coronavirus crisis has wrought havoc at an unprecedented scale. But in the throes of any crisis lie the seeds of opportunity. Even amid the intense pressures brought to bear by the far-reaching ripple effects of stay-at-home orders and other emergency measures, some companies are standing out for their resilience. The growth-stage ecosystem is no different.

This infographic is a data-driven snapshot of the latest edition of Deloitte's Road to Next series, which focused primarily on the expansion-stage companies embarking upon the pathway toward an IPO before the crisis emerged.

IPO activity for expansion-stage companies

Source: PitchBook | Geography: US
*As of April 30, 2020

The COVID-19 pandemic has been an accelerant of change that was already happening—businesses have had to adapt and seize opportunities faster than anticipated.

After a boom M&A cycle for venture-backed companies in particular, as well as strategic spending sprees by tech giants, a cohort of expansion-stage companies were set to go public over the next few years.

$276.3M

With a median revenue of $276.3 million, the expansion-stage companies that went public in 2020 through April's end set a new record

Note: Low data counts for 2020

82%

After a record year, 2020 is on pace to record an 82 percent decline in IPO exit value—as of end of April, 2020 is roughly on par with 2009's full-year tallies

$170.2M

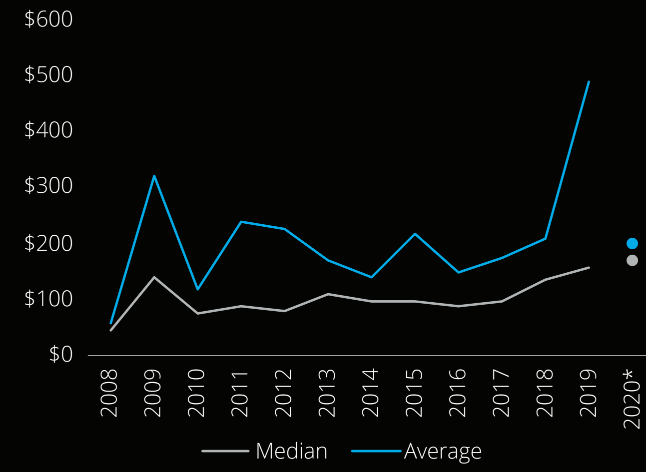
A new record for median VC raised by expansion-stage companies prior to their IPO in 2020

All callouts - Source: PitchBook | Geography: US | *As of April 30, 2020

"What we don't know just yet is how many capital calls made by investors will go unfunded. The emergence of smaller VC funds with lesser-known limited partners over the past decade may incur that potential risk, so this dynamic becomes a more pressing question in this environment. For expansion-stage companies, the question becomes which growth equity firms could, and will, provide aid."

Heather Gates
Audit & Assurance Private Growth Leader
Deloitte & Touche LLP

Median and average VC raised ($M) prior to IPO for expansion-stage companies

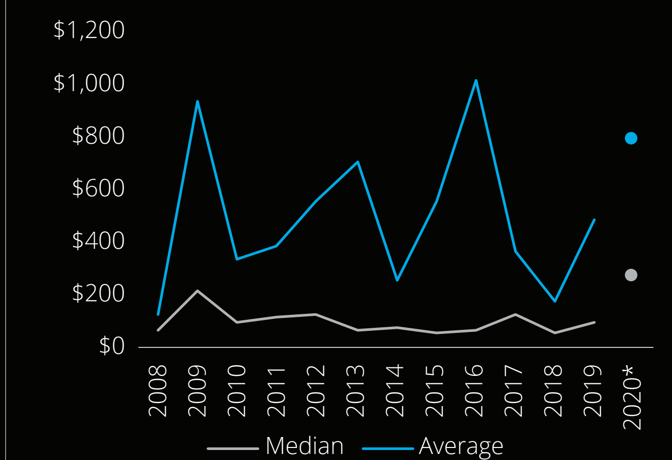


Source: PitchBook | Geography: US
*As of April 30, 2020
Note: Low data counts for 2008, 2009, and 2020

Median and average years from first VC round to IPO for expansion-stage companies

Source: PitchBook | Geography: US
*As of April 30, 2020

Median and average revenue ($M) at time of IPO for expansion-stage companies



Source: PitchBook | Geography: US
*As of April 30, 2020
Note: Low data counts for 2008, 2009, and 2020

Deloitte.

Data provided by PitchBook.

Content
editorial@pitchbook.com

Advertising
mediasales@pitchbook.com

From the Editor

Unprecedented times call for novel ideas.

Around the world, countless companies large and small have hit upon creative ways to ride out the economic chaos unleashed by the largest public health crisis in a century.

It's more than mere zigging in response to a market that's zagging. Some businesses are pivoting in a bid to stay relevant, lest they be forgotten in the dust and fog stirred up by disorienting shifts in customer demand. Some are stepping up to solve virus-related problems, and capitalizing on opportunities from them. But for many others this is nothing less than a fight for survival.

Grit. Vision. Inventiveness. All of these qualities are at work in often inspirational stories of adaptability and resilience. Melitta, the coffee company, took to churning out coffee filter-shaped masks. Some fitness centers are converting to pizzerias. A tulip producer that's unable to get its bulbs to markets built a new business from scratch through mail-order bouquets.

In some ways, the pivoting wave is just a well-established feature of capitalism; the weak are cast aside during boom-and-bust cycles while other companies stay afloat by adapting to new economic conditions. This pandemic, however, has forced businesses across the board to toss out plans and improvise on the fly.

Even here at PitchBook, the quarterly magazine before your eyes has its own story of navigating the shutdown and considering the long-term ripple effects of a major economic downturn.

Reporting for the articles of this edition got underway right as the US started witnessing outbreaks of the coronavirus. Our team recognized the enormity of the unfolding crisis and made this edition into a special report examining challenges posed by the pandemic. We postponed the whole publishing cycle by over a month in the hopes that print editions of this magazine would have a better chance at arriving in the mail as the first employees would start returning to their offices.

When it came to designing the magazine's cover, the task called for a distinct break from typical coverage treatments in favor of something that captured both the drama and the bewildering scale of the crisis. The final concept by PitchBook designer Mara Potter, with its ripped-up cover beneath a cover, visualizes the notion of chucking an existing plan in favor of a brand-new one centering on the eerie reality of a changed world. All that with a headline befitting the uncertainty: "Now What?"

Alexander Davis
Executive Editor

The Feature

Perspectives

Analyst Insights

Quantitative Snapshot

Market Trends

Perspectives

Talk of the workplace: What's our responsibility in this struggle?

By Alexander Davis

A flood of outrage over systemic racism and violence suffered by Black people has overtaken the business world.

It will be some time before we know whether this high-stakes moment will amount to a watershed event that ushers in true change.

But in the meantime, there are signs everywhere that public anger over injustice and inequity has led to an extraordinary—and anguished—wave of introspection in many quarters. Rank-and-file employees. Investors. Boards of directors. Marketers. CEOs. What can we do, many are asking, to take measure of social wrongs and to try to make things right?

Inevitably, corporate and financial players grappling with that must also tackle a daunting question that, in a sign of the changing times, takes on special urgency today: Exactly what responsibility do we have in this struggle?

For investors and companies they back, the answer likely will depend on what mandate or mission their organizations set for themselves. In the data-obsessed times we work in, metrics take priority, but key performance indicators on societal issues don't come easily to a lot of companies. That's especially true for most private capital investors (excluding groups like social impact funds) with a mandate to maximize their ROI.

"Historically, the only color that venture capital cares about is green," said veteran investor John Vrionis, who left Lightspeed to found Unusual Ventures three years ago. "Maybe that's changing; I don't know."

Countless executives and companies have come out publicly to condemn police violence and misconduct, racism and inequality. Many (including PitchBook Data, Inc.) are donating to advocacy groups that promote diversity, opportunity or advancement for people of color. Still others, such as SoftBank and Andreessen Horowitz, have dedicated new venture funds to invest in startups led by people of color.

When Unusual Ventures raised $560 million across its first two early-stage funds, Vrionis and partner Jyoti Bansal aimed to make a positive societal impact by helping endowments of historically Black colleges and groups such as UNCF (formerly the United Negro College Fund) tap into the wealth of the VC ecosystem. Those groups have seldom invested in alternative assets but are now among the main limited partners backing Unusual Ventures.

Private firms and other companies seem to be voicing an unprecedented level of alarm at failings to tackle issues from diversity to social justice. Robert Smith, CEO of Vista Equity Partners, told The New York Times that for the first time he's seeing a commitment by corporate chiefs to act on their outrage, rather than just speak out.

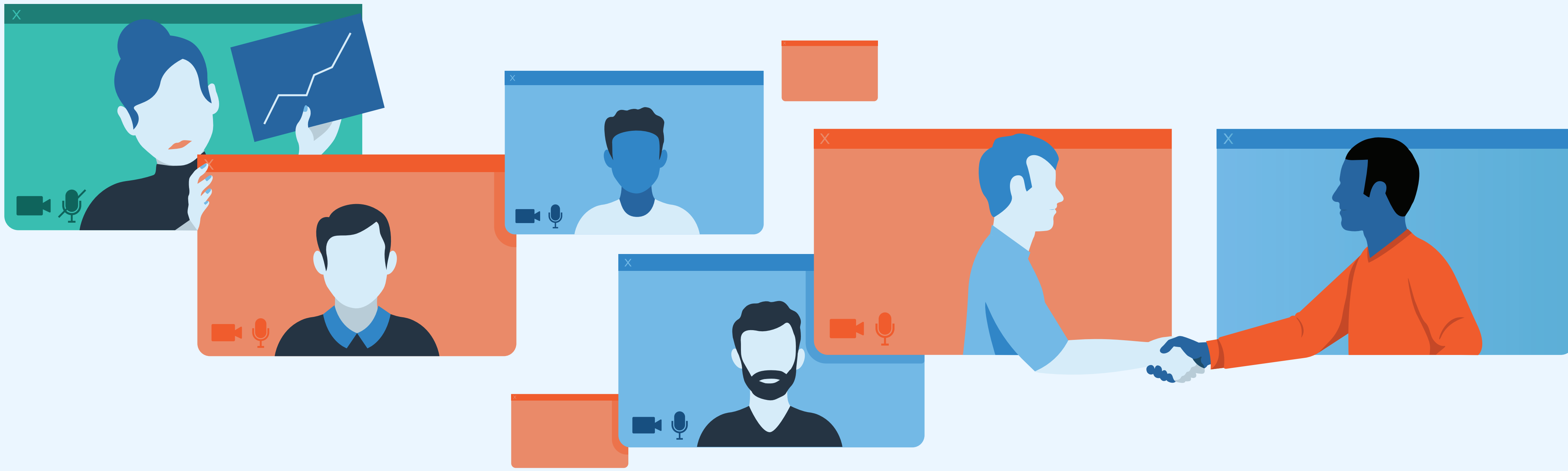
Employees of companies, many taking their views to social media, are pushing their employers to demonstrate a genuine commitment to change.

It is commonplace for Silicon Valley investors or their firms to be outspoken on social and political issues, or to donate to their favorite causes. But most VC or PE firms, along with their LPs, don't formally work such considerations into their investment criteria, citing their mandates as fiduciaries, while the impact investment scene usually claims that role in the market.

But today's atmosphere is raising the stakes with some new forces at work. In particular, employees of companies, many taking their views to social media, are pushing their employers to demonstrate a genuine commitment to change.

"There's a realization that's landed hard and deservedly so, hopefully with everybody, not just the startup and VC community, but everybody," Vrionis said. "The question is: What are they going to do about it?"

Image: Tasos Katopodis/Getty Images



Illustrations: Mara Potter

Female founders face funding hurdles amid the pandemic

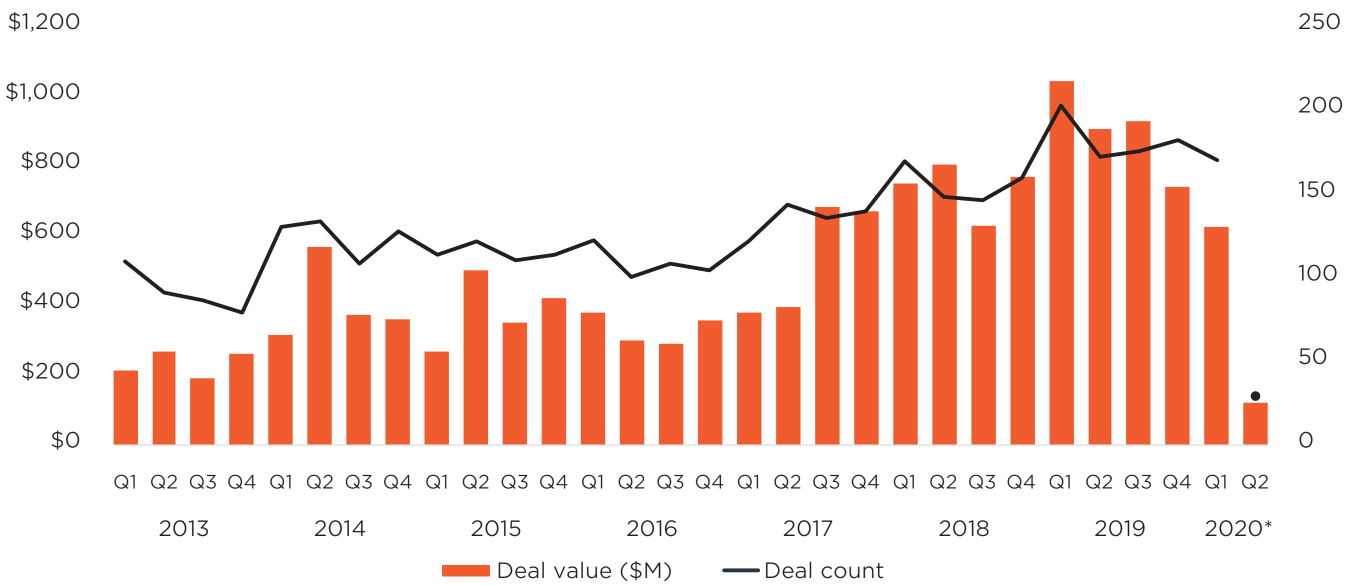
By Eliza Haverstock & Priyamvada Mathur

M.H. Lines was set to kick off a Series A funding round for her marketing software startup, Automaton, at an industry conference in mid-March. Then, the pandemic turned the world upside down. The conference was canceled, as were the bulk of the in-person meetings she had scheduled with investors.

Soon enough, Lines said, investors seemed to be looking for a reason not to invest—a marked change from sentiments a few months earlier. Venture capitalists appeared to barely skim her email pitches, and some backed away, citing previous investments that might compete with Automaton. But to Lines, it was clear that those investors were looking for a reason not to invest—their portfolio companies weren't competitors.

"It was amazing," said Lines, who has shelved fundraising plans. "You could tell people weren't reading them."

VC deal activity for companies founded by women



Source: PitchBook | Geography: US
*As of April 30, 2020

Women, especially first-time founders, have long lagged behind men in raising venture capital for their startups. But in the pandemic's heightened climate of caution, anecdotes from female founders suggest that they face even greater hurdles because VCs are suddenly turning more risk-averse.

After making modest but steady gains in receiving funding the past couple of years, women had a setback just before the pandemic began. VC deals with startups founded exclusively by women dropped to just 4.3% in the first quarter versus 7.1% in Q1 2019, according to PitchBook data. For first-time founders, it could take months or even years to see better fundraising outcomes, depending on how an eventual economic recovery goes.

Repeat founders, by contrast, boast networks and experience rapidly scaling startups—factors that help explain their success getting venture capitalists to place a bet on them.

"You're reducing some of the financing risk not only because they're likely a more seasoned operator than someone who hasn't necessarily been through it before, but also because other investors share that opinion," said Isabelle Phelps, an early-stage investor at Lerer Hippeau in New York.

"It becomes a bit of a self-fulfilling prophecy," Phelps added. "It's easier to fundraise because other investors also value experience, increasing competition and

> In the pandemic's heightened climate of caution, anecdotes from female founders suggest that they face even greater hurdles because VCs are suddenly turning more risk-averse.

de-risking future rounds. But this makes it even more important for investors to be cognizant of bias against first-time and underrepresented founders."

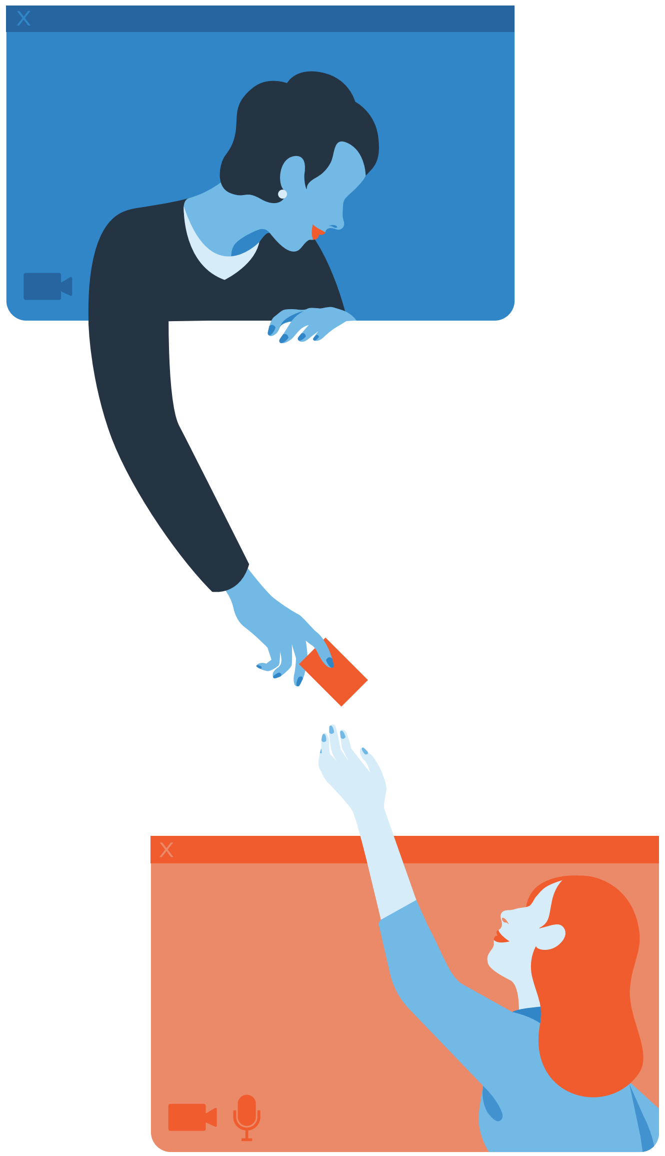
For first-time founders like Jill Angelo, finding a path to fundraising during the isolating climate of the pandemic could also be a daunting task.

But Angelo, the founder of Seattle-based telehealth upstart Gennev, hopes that contacts made in a previous fundraise and during a conference in January will help as she looks to raise more capital for another round later this year.

"I'm continuing to nurture those relationships, and I'm so thankful that I kept relationships going on even after my raise," she said.

Many female founders say they've had no choice but to be capital-efficient from the early days of their

> **"Underrepresented founders are used to thinking about risk in an intelligent way. They are constantly thinking about ways to protect themselves from worst-case scenarios."**
>
> **Elizabeth Galbut,** co-founder & managing partner, SoGal Venures



companies, having been accustomed to more meager funding than their male counterparts receive.

That discipline will be valuable during an economic slump, when investors are tightening controls over spending, said Elizabeth Galbut, co-founder and managing partner of SoGal Ventures, which focuses on minority and female founders. She said SoGal participated in eight funding deals with first-time female founders in March and April.

"Underrepresented founders are used to thinking about risk in an intelligent way," Galbut said. "They are constantly thinking about ways to protect themselves from worst-case scenarios."

Having a track record goes a long way toward gaining the trust—and checks—of investors, even in a growing economy.

Lesley Eccles boasts a battle-ready resume, having closed the Series A for her first startup, sports betting company FanDuel, at the end of 2008, around when Lehman Brothers went bankrupt. Last month, she closed a $5 million Series A for Relish, a relationship-counseling app.

"In terms of getting meetings with VCs in the first place and getting the door open, having founded a company before, and a company that's as well-known as FanDuel, I think that was incredibly helpful," Eccles said. "Once you're in the door, you do have to stand on your own two feet. ...There's no free lunch just because you've done it before."

DEALMAKERS SERIES

Sponsors call for experience and reliability

As middle-market companies and their private equity sponsors seek to navigate the uncertainty brought on by COVID-19, the value of dependable partnerships is increasingly evident.

The private credit market, which prior to COVID-19 was awash with capital, is now experiencing a dearth of dry powder to support direct lending opportunities. In these unprecedented times, it has never been more important to partner with lenders that have the business models, infrastructure, resources, and expertise needed to be dependable when it is most critical.

Twin Brook Capital Partners has always been dedicated to being a reliable, solutions-focused partner that will work hand-in-hand with its PE clients to execute on their value creation strategies and help their portfolio companies navigate both periods of growth and challenging times. This commitment is, and always has been, core to our strategy and is one of the many reasons that we—in partnership with Angelo Gordon—founded Twin Brook.

Our experienced team of nearly 70 professionals —many of whom have worked through multiple market cycles—has committed over $13.4 billion across more than 500 transactions in just over five years, and we have served as the lead or co-lead arranger on 94% of those deals. With more than $800 million of commitments approved since March and ample buying power to support current and future borrowers, we are well-prepared for this uniquely challenging environment and look forward to working together with sponsors through both the difficulties of today and toward the opportunities of tomorrow.

To learn more about Twin Brook and its cash-flow based financing solutions for the middle-market PE community, visit www.twincp.com.

Trevor Clark
Founder & Managing Partner
Twin Brook Capital Partners

Founder and Managing Partner Trevor Clark is a member of Twin Brook's Investment and Executive Committees, responsible for overall operations of the firm since its inception in 2014.

Prior to founding Twin Brook, Trevor was a co-founder and CEO of Madison Capital Funding LLC, a wholly owned subsidiary of New York Life Investments, where he oversaw all operational and strategic activities of the middle market lending operation. Prior to forming Madison Capital, Trevor held various positions in loan underwriting and origination at Antares Capital, GE Capital, and Bank of America. He holds a BA degree from the University of Iowa, Iowa City and an MBA degree from Indiana University, Bloomington.

NBA standout Spencer Dinwiddie has a VC-fueled vision for the future of stardom

By Kevin Dowd

Spencer Dinwiddie is a rising star in the NBA, a silky-smooth guard averaging more than 20 points per game this season for the Brooklyn Nets. Yet that statement only scratches the surface. Dinwiddie is also a blockchain pioneer. He is an entrepreneur. An investor. A geek. He is a 27-year-old who dreams of bridging the gap between sports and venture capital in a way that's never been done before.

But maybe that's getting too complicated. Maybe the statement that best sums up Dinwiddie comes from the bio on his Twitter page:

Just a tech guy with a jumper.

"Don't get me wrong, it's definitely a little tongue-in-cheek," Dinwiddie said of the sly self-description, in a conversation in April while the NBA was on a hiatus caused by the coronavirus. The league is set to resume play at the end of July. "My primary focus on a day-to-day basis is being a great basketball player. … But when I say that, it's truly because I have a certain passion for tech, and because I understand it. I almost fit in with that community a little more than I do with the NBA."

As the VC industry boomed during the 2010s, more professional athletes began venturing into Silicon Valley. These days, everyone from Aaron Rodgers to Serena Williams has their own firm.

Last year, after nearly a decade of biding his time, Dinwiddie got in on the act, teaming with longtime friend and business partner Sherrard Harrington to create Eonxi, a venture firm and startup studio that aims to transform the way athletes and other influencers market themselves. The firm's thesis of star empowerment was exemplified earlier this year, when Dinwiddie put on the market blockchain-based tokens for a share of his $34.4 million NBA contract, essentially allowing accredited investors to buy stakes in his success.

More recently, as protests have swept the globe and the venture industry has reckoned with its history of inequality, that idea of empowerment has taken on added meaning. As their firm gets up and running, Dinwiddie and Harrington are discussing how best to use their platform to support fellow Black founders and investors, and other groups that have historically been sidelined in VC.

It's what Dinwiddie and Harrington have dreamed of doing ever since their paths first crossed. And if it all works out, the rest of the world might start seeing the multifaceted Dinwiddie the same way he sees himself.

In 2011, Dinwiddie was a touted high-school basketball player from Los Angeles, and Harrington was a promising football prospect from Washington. Both decided to pursue the next phase of their lives far from home: at the University of Colorado, Boulder.

The two clicked from the moment they met. For both, the experience of being courted by colleges during the recruitment process was a wake-up call about the power they possessed as athletes. They bonded over shared interests in tech, entrepreneurship and the idea that athletes and other entertainers could be much more than cogs in a machine.

"People always act as if the NBA is where all the value is really retained, and the current dynamic, they try to make it seem that way. But really, they're brokers within the system. The consumer is purchasing access to the asset, and the asset is the athlete."

Spencer Dinwiddie

While still in school, Harrington helped create his first startup, Fanzy, a platform for influencer marketing. Dinwiddie was one of the company's early investors.

"We always spoke on the same page," Harrington said. "From day one."

It was also in college that Harrington and Dinwiddie met another figure who has remained a mentor and friend: Jason Mendelson, an adjunct professor at Colorado and a co-founder of Foundry Group, a mainstay of Boulder's venture scene.

As Harrington remembers it, he had snuck in to sit in on a class about VC finance. Mendelson was the guest speaker. Harrington was intrigued, and afterward he emailed Mendelson: I know I'm not going to be in the NFL, Harrington wrote, and I think I want to be an entrepreneur. I assume the answer is no, but would you be willing to meet?

"And I was like, 'Of course I'd be willing to meet.' I love somebody who's got that moxie," Mendelson recalled. "And I have followed Sherrard ever since. You know those people who, every time you speak to them, you walk away happier? That is Sherrard."

While Harrington was starting out in business, Dinwiddie was launching his career in the NBA. It wasn't always smooth sailing.

He struggled to get on the court after being selected by the Detroit Pistons in the second round of the 2014 NBA draft. But Dinwiddie began to blossom after signing with Brooklyn in 2016: He has increased his scoring average every season of his career, from 4.3 points per game as a rookie to 20.6 per game this season before the league suspended play.

Illustrations: Kelilah King

Throughout his ascent, Dinwiddie's ambitions in tech bubbled just below the surface. But the politics and pressures of the NBA made it difficult to pursue both paths. It was only late in 2018, when he signed his current three-year contract in Brooklyn, that Dinwiddie felt established enough as a basketball player to truly open up about his other aims.

"In the basketball space, one of the things you can't appear to be is non-focused," he said. "Because I was a minimum player for the first four-and-a-half years of my career, you have to be focused, be the workman, be that guy, you know what I mean?

"You can't just go full bore, because you would seem to be, quote-unquote, distracting from the goal of winning. Once you solidify yourself and get to the second, third contract and have a high level of production, now when I speak about these things, it's not seen as a distraction. Because I've already proven myself."

As of June, Eonxi had 11 employees spread across a startup studio in Colorado and its venture unit in New York. Both sides of the firm focus on gaming, sports and entertainment. The partners say they intend to capitalize on a growing consensus about the power that influencers can possess.

"When we first joined the influencer ecosystem, a lot of these brands didn't even know what influencers were," Harrington said. "Our vision is to be that place where influencers and entertainers can come and get the

"Our vision is to be that place where influencers and entertainers can come and get the resources needed to empower what they want to do." Sherrard Harrington

resources needed to empower what they want to do." Dinwiddie and Harrington know they're part of a very small group of Black VCs with check-writing power, and they want to change that. To attack the problem at

"Everything in life is not necessarily going to make sense. But blockchain does." Spencer Dinwiddie

its roots, they're discussing ways to form mentorship programs and partnerships to reach students and young people who are traditionally left out of VC—the sorts of things they themselves never had.

"Growing up in D.C., I never thought of being an entrepreneur, a doctor, a lawyer. Those weren't things that were discussed in my community," Harrington said. "These are new avenues for inner-city children. When someone goes to Spencer's profile, some 13-year-old kid who may not be very good at basketball, they can say, 'Dang, I can be a tech guy.'"

The most notable example yet of the investors' ideas for empowerment came last fall, when Dinwiddie made a startling announcement: He planned to put his $34.4 million NBA contract on a blockchain and turn it into a securitized investment as part of a new platform called DREAM Fan Shares, an early product of Eonxi's startup studio.

It was a complicated plan, but one that ultimately had a simple logic. By selling off stakes in the contract, Dinwiddie could get access to liquidity now that otherwise wouldn't have been available for years—liquidity that could then go toward other investments. And investors in the token would receive annual dividends, with the guaranteed nature of NBA contracts making it a relatively low-risk proposition.

For Dinwiddie, who was integral in crafting the offering, it would also have the added elegance of streamlining a marketplace he sees as rife with inefficiency.

"People always act as if the NBA is where all the value is really retained, and the current dynamic, they try to make it seem that way," he said. "But really, they're brokers within the system. The consumer is purchasing access to the asset, and the asset is the athlete. So the more you can bring the consumer and the asset closer together, the more you bring value to the system."

Initially the league objected to the unprecedented idea, but after a few months of back-and-forth, the two sides found common ground. Dinwiddie launched the token in January, and the DREAM Fan Shares platform hopes to conduct similar offerings in the future for other kinds of influencers.

"Everything in life is not necessarily going to make sense," Dinwiddie said. "But blockchain does."

In broad brushstrokes, Dinwiddie and Harrington know what they want to accomplish in the coming years. In an era when a star like LeBron James can have his own show HBO and streamers like Tyler "Ninja" Blevins can earn more than $10 million a year, new avenues continue to open for stars and influencers to spread their wings. With a mix of capital and marketing expertise, the two young investors believe their firm can be a conduit for exactly that.

Eonxi's venture arm is in the process of raising its first fund from outside investors, a $25 million effort, some portion of which will likely be dedicated to startups led by founders of color. During the pandemic shutdown, Dinwiddie and Harrington kept busy negotiating new deals and making hires. Their journey is still just beginning. But Mendelson thinks their unique backgrounds put them in an equally unique position for success.

"I still think there is a ton of bias against people from non-tech industries playing in this," he said. "The Spencers of the world, who have become experts—and by the way, Spencer's a better basketball player than I will ever be a venture capitalist—they become incredibly excellent at one thing. And so for some reason that's a knock against them, that they can't be excellent at something else? Maybe their ability to be excellent at one thing allows them to be excellent at more than one thing."

At Eonxi, that's Dinwiddie's plan. He is, after all, just a tech guy with a jumper.

Narrative change: VCs are finally ready to talk about menopause

By Eliza Haverstock

Illustration: Julia Midkiff

Two beaming women, ice cream cones in hand. Another woman, giggling on a beach. A glass of lemon-infused water. Zippy taglines accompany the images:

“Laugh more and leak less.”

“Tell your bladder who’s boss.”

These are scenes from a social media ad campaign aimed at women going through menopause. But Facebook rejected many of these ads from Lily Bird, a subscription startup delivering bladder-leakage products to women experiencing this common symptom of menopause.

Several times, the social media mammoth even suspended Lily Bird’s advertising account altogether.

“My interpretation was that Facebook put us in this category of adult products, or something that was taboo,” said Sydney Larson, a Lily Bird co-founder. Facebook did not respond to multiple requests for comment.

So-called femtech startups bring technological solutions to problems related to women’s health. In recent years, the focus and funding has landed on menstruation and fertility—with offerings ranging from organic tampons to egg freezing.

Yet founders and investors say that menopause startups—much like the life stage itself—still largely face societal stigma. Across the world, these startups have raised $254 million to date since the start of 2009; femtech startups as a whole raised more than $498 million in 2019 alone, according to PitchBook data.

Nonetheless, the opportunity can’t be ignored given the vast market size: An estimated 1.1 billion women throughout the world will be postmenopausal by 2025, according to the North American Menopause Society. Many women are between the ages of 40 and 58 when they start experiencing menopause, which can cause a variety of symptoms including bladder leakage, hot flashes and mood swings.

That age range means menopause often hits women at the height of their careers. And many of them, now empty-nesters, have more purchasing power than at any other time in their lives.

“Investors are starting to recognize that menopause is a massive market that’s ripe for innovation,” said Ann Garnier, founder and CEO of Lisa Health, which offers non-hormonal solutions, such as wellness exercises and a symptoms tracker, to help women entering menopause.

About 93% of menopausal women say they’re interested in noninvasive tech solutions, including apps, to manage their symptoms, according to an AARP survey published in January. Some startups, such as Nevada-based Lily Bird, provide care products to ease symptoms. Others are launching virtual clinics, such as New York’s Elektra Health, a telemedicine provider for women in this stage of life.

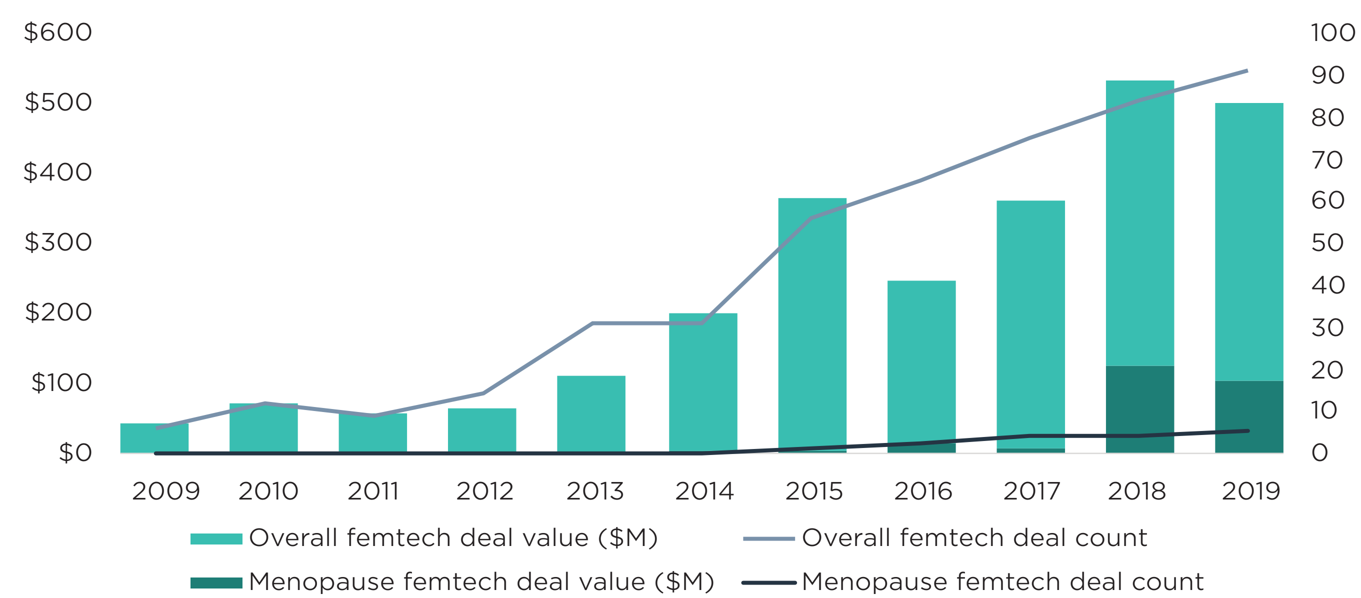
“We hear from women over and over again that it feels like a time of life where things happen to them. It’s very scary. Women feel isolated,” said Elektra co-founder and CEO Alessandra Henderson. “We believe it’s time to change the narrative.”

Lily Bird and Lisa Health, which are self-funded, said they intend to raise venture capital eventually. If so, they could potentially face strong headwinds and have trouble finding partners.

“I think women’s health is not always well-understood by the predominantly male investor community,” Lisa Health’s Garnier said.

The economic uncertainty surrounding the coronavirus pandemic has also curtailed many funding sources.

VC deal activity in menopause tech compared to overall femtech



Source: PitchBook | **Geography:** Global

Until recently, Silicon Valley's youthful investor base has been a tough crowd when it comes to funding for menopause startups. VCs more readily connect with pitches for solutions and products they can relate to, and this is reflected in the healthy amounts of funding enjoyed by parenting, fertility and menstruation startups, according to Vanessa Larco, a partner at NEA.

"With a younger population, those women are much more comfortable talking about the issue, so it's much more out there, and there are a lot of companies trying to talk about it," Larco said of startups tackling issues like parenting and period management.

"With menopause, people aren't as out there."

> *Femtech startups stand in contrast to their men's health peers. Lily Bird and others struggled to mount advertising campaigns. But Hims, a marketplace selling treatments for erectile dysfunction and baldness, plastered New York's subway system with images of phallic bananas and cacti. Hims was valued at about $1.1 billion as of January 2019, according to PitchBook data. The parent company of competitor Roman (which also bought subway ads) was valued at $500 million in June. Roman's parent company sells some menopause products as well.*

For Larco, the best opportunity would lie in an all-encompassing menopause platform that combines customized symptom management with ongoing treatment and wellbeing check-ins—something she hasn't exactly seen yet. Despite the pandemic, Larco remains optimistic about the femtech market and plans to invest in a menopause startup within the next year or two.

Seattle-based Gennev, one company in the femtech space, offers a telehealth platform for booking appointments with physicians starting at $45. A $25 monthly membership allows access to health coaches and discounts on supplements and feminine hygiene products. In response to the pandemic, Gennev has begun offering access to primary care providers.

Appointments with physicians and health coaches increased 35% between March and April, and the

"I think women's health is not always well-understood by the predominantly male investor community."

Ann Garnier, founder & CEO, Lisa Health

startup forecasts continued growth as in-person clinics postpone nonessential care, Gennev co-founder and CEO Jill Angelo said.

Maven Ventures partner Sara Deshpande, whose firm led Gennev's $4 million round in July, said the company's data trove about its members is valuable because it can help Gennev refine medical advice. The startup's free online menopause health assessment collects 72 data points—and nearly 35,000 women took it in 2019, said Angelo. Gennev, though, remains one of just a few menopause-focused startups to secure venture capital, and the road to get there often left Angelo discouraged.

"People would say, 'Why did you pick such a tough business?'" she said. "It's not sexy. No one wants to talk about it. There's no one size fits all. It was a hard slog."

Lily Bird was able to use personal connections at Facebook to gain approval for its bladder leakage ads. Gennev, which also faced resistance to its ads from social media platforms, has started to see less pushback.

"This is essentially a new category that has barely existed in the past," said Whitney Gosden, co-founder and marketing head at Kindra, a startup offering direct-to-consumer menopause care and support, including a line of estrogen-free products.

"We are trying to help change attitudes about menopause, and that starts with talking about it more openly."

Newspapers face uphill battle against big tech in fight to survive a pandemic

By Adam Lewis

Image: Justin Sullivan/Getty Images

A thirst for information about the coronavirus means demand for news has been booming. But the catastrophic effects of the virus on the US economy have hit the newspaper industry hard, with dramatic declines in advertising revenue leading to layoffs, furloughs and other economic distress.

More than 30 newspapers have already closed across the US since the pandemic began. And advertising revenue could decline 45% by the fourth quarter of 2021, according to FTI Consulting, a management consulting firm. Relief funding from the federal government is one potential salve for those financial wounds. But so far, news outlets have struggled to gain access to such funds. In many ways, the industry's future seems bleak.

On Capitol Hill, though, there remain glimmers of hope.

In May, a bipartisan group of senators introduced a bill that would make funds from the Paycheck Protection Program available to hundreds of newspapers and other outlets that are currently ineligible. And the US House of Representatives is considering legislation that would direct Facebook and Google to collectively bargain with news outlets about sharing advertising revenue generated by news content, a move that would follow similar efforts recently undertaken by countries on three continents.

Such a bill would mark a new era for tech giants that currently don't offer licensing fees to news outlets for using snippets of content to draw readers in. It would allow news outlets to tap into the advertising duopoly of Facebook and Google, the two tech giants whose embrace of the ad space helped drive some newspapers to the brink of extinction.

But those fighting for the news industry's survival are quick to caution that such a change is very far from a sure thing.

"We have no leverage, not even The New York Times," said Danielle Coffey, general counsel for the News Media Alliance, an industry lobbying group. "We have to figure out a way to get [Google and Facebook] to come to the table. Not just out of guilt or benevolence, but to actually change the business model."

Echoes of a crisis past

The 2008 global financial crisis was disastrous for newspapers. Revenue declined. Advertising dollars dried up. And thousands upon thousands of jobs were lost. From 2008 to 2019, employment at US newspapers dropped 23%, according to the Pew Research Center.

The industry also underwent a significant stretch of consolidation, led by large conglomerates with connections to hedge funds and private equity, such as Digital First Media and New Media Investment Group. This reshaping of the industry has been controversial, with many newspaper employees excoriating their new owners for slashing costs, selling off real estate and other financial maneuvers. In 2018, The Denver Post published a front-page editorial calling on Alden Global Capital to sell the paper. The headline: "As vultures circle, The Denver Post must be saved."

> **A recent New York Times investigation revealed more than 36,000 news-industry workers have been laid off, furloughed or had their pay cut since the pandemic began.**

The coronavirus pandemic has only exacerbated these struggles. A recent New York Times investigation revealed more than 36,000 news-industry workers have been laid off, furloughed or had their pay cut since the pandemic began. And pressure from private owners could cause more carnage in the near future.

One example is Gannett, a 114-year-old chain that owns USA Today and many major regional newspapers. Last November, New Media Investment completed a $1.4 billion deal to acquire the company in a move that involved three major financial names: New Media's operations are managed by Fortress Investment Group, which is in turn owned by SoftBank. And Apollo Global Management provided a $1.8 billion loan at an 11.5% interest rate to fund the takeover, an especially high figure given interest rates were around all-time lows.

Gannett projected between $275 million and $300 million in savings from the deal, and since revenue was not growing organically, that likely meant layoffs, cutbacks and real estate sales. By the end of February, 29 employees had already been laid off, according to Poynter, a nonprofit journalism school.

Gannett executives demanded another $100 million in savings after the emergence of the coronavirus, and another round of layoffs followed in late April.

Lawmakers take action

The US government has doled out hundreds of billions of dollars in coronavirus relief to struggling businesses, and hundreds of billions more could be on the way. But so far, many newspapers have struggled to access the Paycheck Protection Program and other sources of funding, in some cases specifically because they are part of larger media conglomerates.

Locally owned papers such as The Seattle Times, Tampa Bay Times and Chicago Sun-Times have all tapped into the PPP, but they have been the exception. The Alliance for Audited Media estimates that at least 80% of newspapers were locked out from the initial lending program because of a rule that limited loans to companies with fewer than 500 employees. Nearly every individual newspaper in the US falls below that threshold, but the PPP combines the employee counts at all of an investor's portfolio companies when determining eligibility.

That rule, though, could change. In mid-May, three Democratic senators and two Republican senators introduced new legislation that would increase the PPP eligibility cutoff for local newspapers, broadcasters and television stations to 1,000 employees, citing the many ways journalists have helped communities learn about how the coronavirus will affect their lives.

"The current public health crisis has made the already vital role of local news even more critical," Sen. Richard Blumenthal (D-C.T.) wrote in a recent letter.

Other legislative efforts are focused on finding a longer-term solution for the newspaper industry's woes.

Last year, Reps. David Cicilline (D-R.I.) and Doug Collins (R-Ga.) introduced a bill that would allow news organizations to collectively bargain with Facebook, Google and other large platform providers over sharing advertising revenue. Facebook and Google are where millions of people find and read the news. But historically, neither company has offered much financial compensation to the outlets that produce the news their platforms compile.

A release announcing the proposed legislation noted that Google and Facebook brought in $60 billion in total advertising revenue in 2018, while revenue for news publishers has declined by $31 billion since 2006. A recent study from the News Media Alliance indicates that publishers make as little as 30 cents on the dollar for Google ads appearing on a newspaper's website. Neither Facebook nor Google replied to requests for comment for this story.

The bill continued to gain bipartisan support into this year, winning co-sponsorship in January from Senate Majority Leader Mitch McConnell (R-Ky.). At the time, Cicilline said he hoped both chambers of Congress would vote on the bill sometime this year. It's unclear if the coronavirus outbreak will change that timeline.

Around the world, pressure is mounting on Facebook and Google to change their financial relationship with the news industry. In April, regulators in France and Australia ordered the two companies to begin sharing advertising revenue with media outlets whose content helped drive ad sales. In May, a group of Canadian newspaper executives asked their government to follow suit.

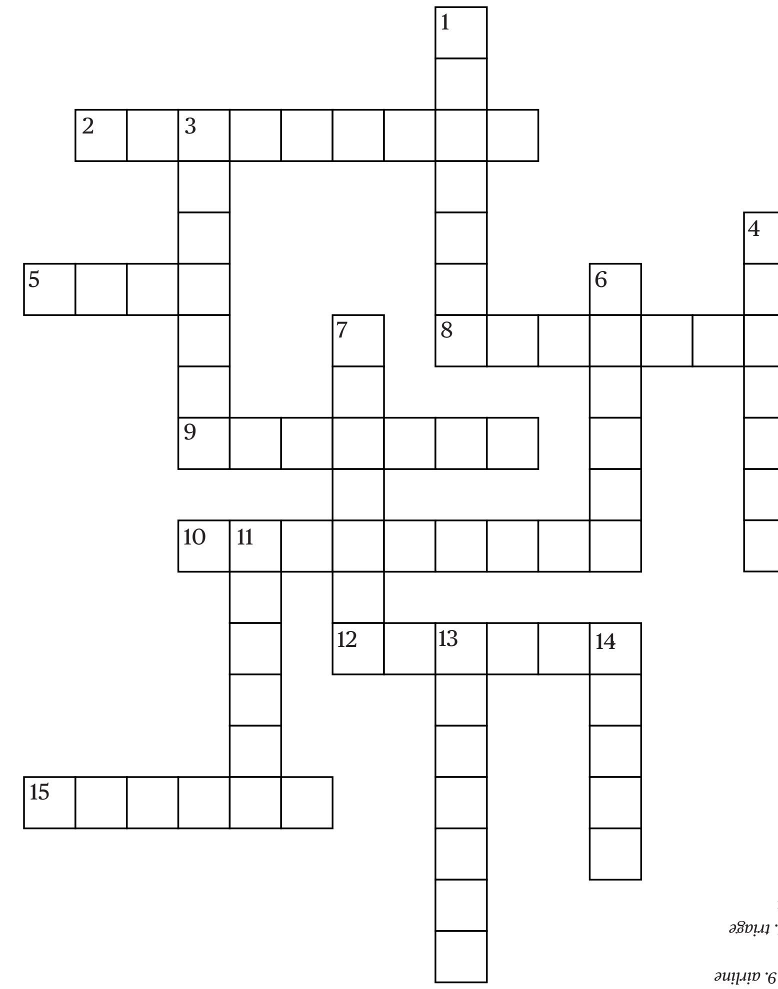
Around the world, pressure is mounting on Facebook and Google to change their financial relationship with the news industry.

Those steps came after Facebook announced in late March plans to invest $100 million in the news industry through a program called the Facebook Journalism Project. Facebook has taken other measures. Last year, the company struck a deal to begin making direct payments to certain news outlets whose content populates Facebook News.
Coffey, of the News Media Alliance, and others in the industry believe that conditions may be right for a major change.

"The US government has maybe been more reluctant, because [Google and Facebook] are homegrown and a poster child for innovation. But I think the shine has definitely worn off," she said. "We have legislation that has bipartisan support."

If Coffey and the newspaper industry succeed, it could provide a lifeline to newspapers at a time when it has never been so sorely needed.

Crossword



Across *2. community 5. PIPE 8. thermal 9. airline 10. arbitrage 12. Gobert 15. valley*
Down *1. ratchet 3. Moderna 4. Teladoc 6. triage 7. holdings 11. remote 13. biotech 14. Tesla*

Across

2. A type of virus spread that also serves as WeWork's adjustment to EBITDA

5. A PE deal variety likely to be smoking hot as a result of COVID-19

8. Type of scanning likely to detect fevers

9. Industry subject to Chamath's wrath

10. A market inefficiency for pizza chefs enabled by DoorDash's heavy discounting

12. The Jazz basketball player that gave the NBA the blues

15. SoftBank's Vision Fund unicorns are not headed into one of these, according to the fund's earnings presentation

Down

1. An investor protection cranking back up on term sheets in Q1

3. Company with COVID-19 vaccine test results that sent markets into a frenzy in May

4. The only pure-play telehealth company publicly listed in the US

6. The painful process of VC and PE portfolio management during a pandemic

7. These periods are likely to end much later in a crisis

11. The preferred workplace and gadget for startup employees in 2020

13. The type of tech undergoing the trials of IPOs most commonly in 2020

14. Automaker that proves that cars and ventilators aren't so different after all

Buyout funds in times of crisis

Examining how buyout funds act and perform during periods of economic duress

By Wylie Fernyhough

Published on April 10, 2020

Introduction

As COVID-19 grips the world, governments are contending with the dual responsibility to save lives and keep the economy afloat, plunging countries around the world into a recession. While we don't yet know how bad this crisis will get, we do know we are headed for trying times. Further, a nationwide lockdown is already causing an unprecedented spike in joblessness, with 9.9 million Americans filing for unemployment benefits in the final two weeks of March alone.[1] Goldman Sachs believes we could see Q2 2020 GDP contract by 34%,[2] while James Bullard of the St. Louis Fed stated that we may see unemployment peak around 30% and GDP drop by 50%.[3] As a comparison, the global financial crisis (GFC) caused US real GDP to decline 4.2% and 8.7 million Americans to lose their jobs.[4] These are truly uncharted waters.

With so much in flux, institutional investors are trying to predict the impact this crisis will have on their portfolios. We looked at our historical data to examine how buyout funds specifically reacted during previous crises, including the recession that followed the tech bubble and 9/11, as well as the GFC. This note examines how buyout fund capital calls, distributions and performance have been affected in previous recessions and provides our predictions for how and why this pandemic-driven crisis may differ.

Capital calls

Buyout funds tend to exhibit high levels of cyclicality, calling down more capital in the years leading up to a crisis and calling down relatively less in crisis-era vintages. We believe LPs should expect less of a slowdown in capital calls than in past crises, and perhaps even a brief increase in calls. A recent survey from Campbell Lutyens suggests that many PE firms are calling capital now to pay off their subscription lines and that some LPs are seeing YoY increases in capital calls in their portfolio.[5] PE firms may also preemptively call down capital to support portfolios already under stress because most PE-backed companies will need "massive infusions of capital" just to survive.[6] PE firms also invest heavily in portfolio companies in a downturn, which led to PE-backed companies gaining market share during the GFC.[7] Beyond portfolio investments, GPs are actively trying to deploy capital through private investment in

1: "'No Words For This': 10 Million Workers File Jobless Claims in Just Two Weeks," Politico, Rebecca Rainey and Nolan McCaskill, April 2, 2020.
2: "Goldman Sees Unprecedented Stop in Economic Activity, with 2nd Quarter GDP Contracting 24%," CNBC, Patti Domm, March 20, 2020.
3: "U.S. Jobless Rate May Soar to 30%, Fed's Bullard Says," Bloomberg, Steve Matthews, March 22, 2020.
4: "2008 GDP, Growth, and Updates by Quarter," The Balance, Kimberly Amadeo, June 12, 2019.
5: "Investor Liquidity: Reading the Runes," Private Equity International, Toby Mitchenall, April 2, 2020.
6: "What Drives Private Equity's Outperformance in a Downturn," iCapital Network, Nick Veronis and Tatiana Esipovich, December 4, 2019.
7: "Update on Small Business and Private Equity with Brent Beshore," Invest Like the Best, Patrick O'Shaughnessy, March 20, 2020.

Average rolling one-year capital call rates for funds 0-5 years old by quarter

Source: PitchBook | Geography: Global
*As of June 30, 2019

public equities (PIPEs), minority deals or add-ons. These deals call for smaller check sizes than platform buyouts but are easier to get done now because wide bid-ask spreads are preventing buyers and sellers from agreeing on price on larger businesses. With all that said, we still expect a mild slowdown in contribution rates, but we believe capital calls may spike in the interim—something capital call data in March supports.[8] Some GPs are already increasing their capital call rates, surprising many LPs that weren't expecting capital calls on their funds until summer 2020.[9] For funds still in the investment phase (funds 0 to 5 years old), LPs should expect annualized contribution rates at 10% to 15% of the total commitment size in the coming quarters instead of the 15% to 20% range we have seen since 2010.[10]

The recent proliferation of capital call facilities—which had come under heavy fire by LPs—may further change how capital calls look in this crisis compared to previous crises. While many GPs are calling down capital to clean up their subscription lines, these credit lines may allow some GPs to complete deals and capital infusions now and put off capital calls for the next three to six months, giving LPs some breathing room and allowing them more time to prepare for these liquidity needs. LPs have varied magnitudes of exposure to credit lines; it is therefore imperative that LPs and GPs communicate around this issue, so each LP knows their cumulative exposure and their GPs' capital call plans.

For LPs looking at their current buyout portfolio, we expect the number of buyout funds in the investment period (zero to five years old) issuing capital calls in any given quarter to remain steady at around 60%. There may even be a brief spike as GPs seek to quickly inject capital into struggling portfolio companies and invest in new ventures at lower valuations. Even during the GFC and after the dot-com boom, the proportion of funds issuing capital calls remained relatively steady. Coming into this crisis, GPs had been stockpiling dry powder to use when prices dipped, and they seem intent on using it. More broadly, the proportion of funds calling down capital has gradually dropped over time; just under 80% of buyout funds in the investment period issued capital calls in any quarter in 2000, falling to just under 60% in 2019. We believe much of this is due to the increased usage of capital call facilities, allowing GPs to issue fewer but larger calls.

Based on previous crises, LPs should expect capital call sizes to fall in the coming quarters as deal activity slows. However, in the interim, call sizes may rise as GPs preemptively call down capital and some repay existing capital call facilities. The average capital

8: "Investor Liquidity: Reading the Runes," Private Equity International, Toby Mitchenall, April 2, 2020.
9: "LP Defaults 'Already Happening.' Here's Why, and What GPs' Options Are," Buyouts Insider, Graham Bippart, March 30, 2020.
10: "Update on Small Business and Private Equity with Brent Beshore," Invest Like the Best, Patrick O'Shaughnessy, March 20, 2020.

LPs should expect a steep drop in the frequency and magnitude of distributions in the coming quarters. We expect the cumulative cut to exceed 50% during this crisis.

call size tends to drop precipitously in recessions because, as mentioned, the deals—PIPEs, capital infusions, minority deals, add-ons, etc.—necessitate smaller check sizes. The average capital call was approximately 5.5% of the commitment size per quarter in 2007 and fell to around 2.5% per quarter in 2009, though we expect this crisis to see less of a decline because of the need for capital infusions into portfolio companies, and GPs are being more proactive about investing at discounted prices. For funds that are still calling capital in recessions, we notice the composition changes as well. In 2006 and 2007, leading up to the GFC, just under 60% of capital calls were more than 5% of the total commitment size. During 2009, that figure fell by about half, and just under 30% of capital calls were more than 5% of the total commitment size.

Distributions

LPs should expect a steep drop in the frequency and magnitude of distributions in the coming quarters. We expect the cumulative cut to exceed 50% during this crisis. Not only are GPs unlikely to sell when prices of portfolio companies are down at least 20% to 30% from their 2019 year-end marks, but with credit markets freezing up, dividend recaps will also become less frequent. Colmore saw distributions to LPs in March 2020 fall YoY by 56% for European funds and 72% for US funds.[11] Since many LPs recycle cash distributions into capital calls for other funds, they should expect to tap their portfolio for liquidity or capital calls. While we expect the cumulative drawdown rate to ease in the coming quarters, distributions are likely to drop even more substantially because GPs will be unwilling to exit portfolio companies at deeply discounted prices. Based on the past, proportional distributions went from approximately 15% to 20% for buyout funds down to the 5% to 10% range. As we see, much of the fall in distributions comes from the declining number of funds distributing, which affects middle-aged funds (four to eight years old) as well as older funds (eight to 12 years old), rather than just a reduction in distribution sizes. In normal times, we expect 50% to 60% of funds four years and older to have distributions in a given quarter. In a recession, however, that drops to around 40%.

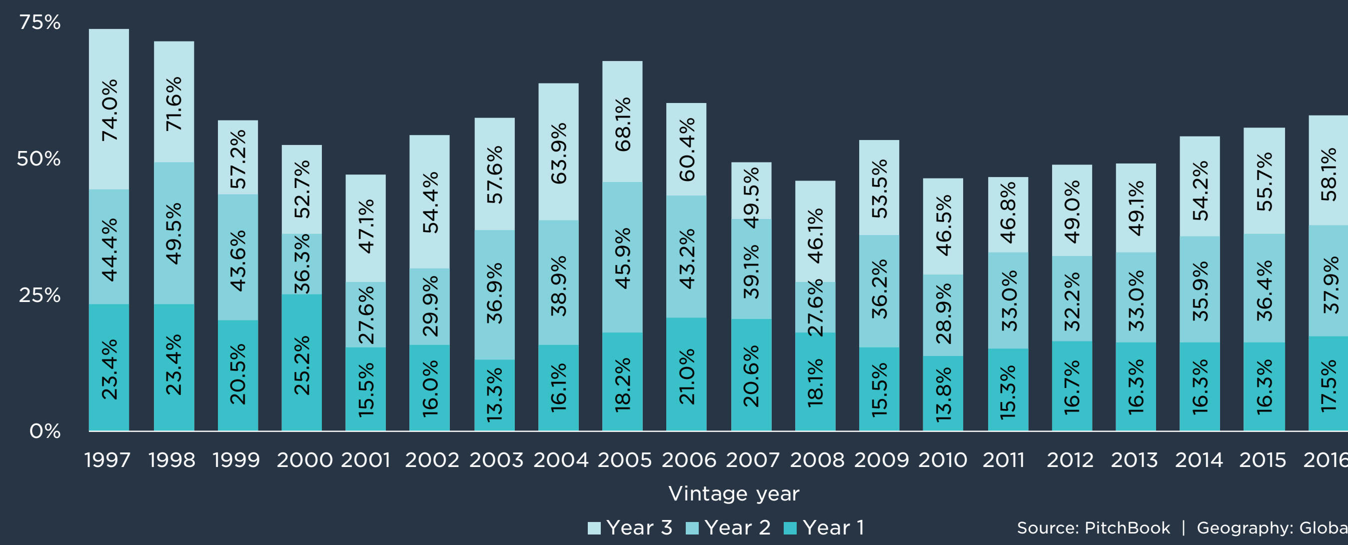
For the buyout funds that do distribute capital back to LPs in a given quarter during recessions, the distribution sizes fall sharply. Leading up to the GFC, more than 60% of distributions were more than 5% of the fund size in funds four to eight years old, and around 50% were greater than 5% for funds eight years and older. That portion dropped to around 10%-15% for both age cohorts in the depths of the GFC. Interestingly, the proportion of distributions by size has been relatively constant since 2010 with around 40% of distributions for all funds four years old and older surpassing 5% of fund size. We think the past financial crisis should serve as a reference point for LPs projecting distributions from buyout funds. Not only should LPs project an approximately 50% cut in the number of funds issuing distributions in a given quarter, LPs must also plan for the distributions they do receive to be a fraction of the anticipated amount. We believe the worst quarters will see 80% of the distributions that do occur drop to 5% or less of the commitment size, with distributions above 10% virtually disappearing.

Portfolio perspective

Whereas we expect a decline in both capital calls and distributions from buyout funds, we believe the decline in distributions will be more severe, likely leading to negative net cash flows for the coming quarters. This is already playing out, according to a recent Campbell Lutyens report that states, “There are real concerns about how subscription lines are increasing the amount of capital being called in a market where distributions are drying up.”[12] Exit and recap activity are likely to grind to a halt while GPs are spending cash keeping portfolio companies afloat and deploying fresh capital in new opportunities. We believe LPs should be ready for capital calls to far outstrip distributions and have a plan for how to fund regular levels of calls during the coming quarters without much assistance from distributions. Numerous GPs are already issuing capital calls to pay down credit lines,

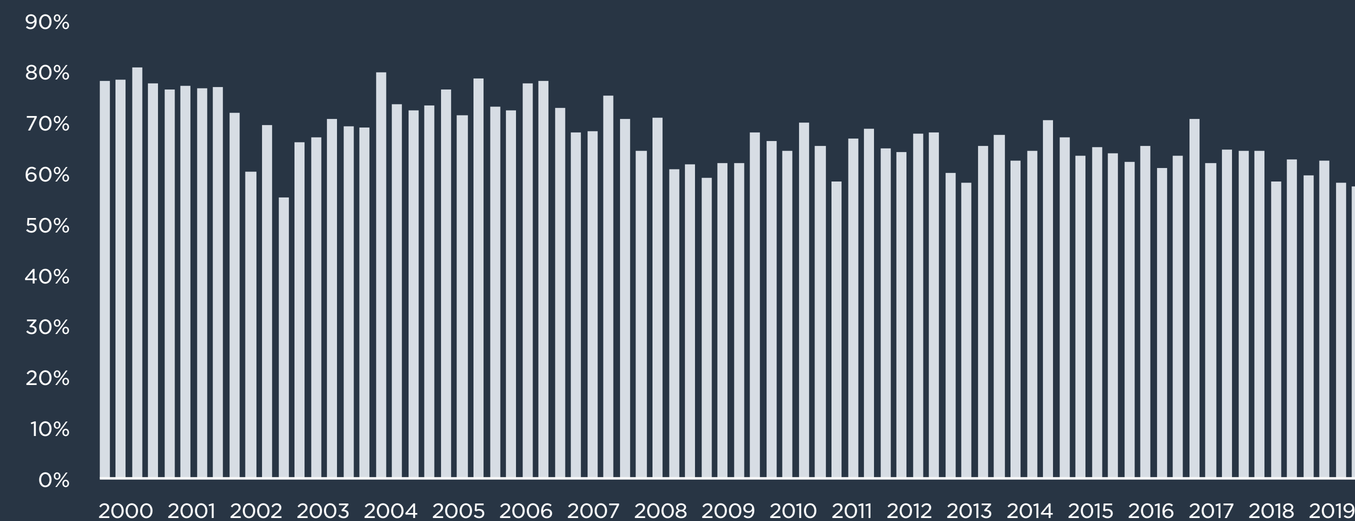
11: “Investor Liquidity: Reading the Runes,” Private Equity International, Toby Mitchenhall, April 2, 2020.
12: “Private Equity Firms Are Wasting No Time in Calling Capital,” Institutional Investor, Julie Segal, April 2, 2020.

Average cumulative capital called as proportion of fund size by vintage year



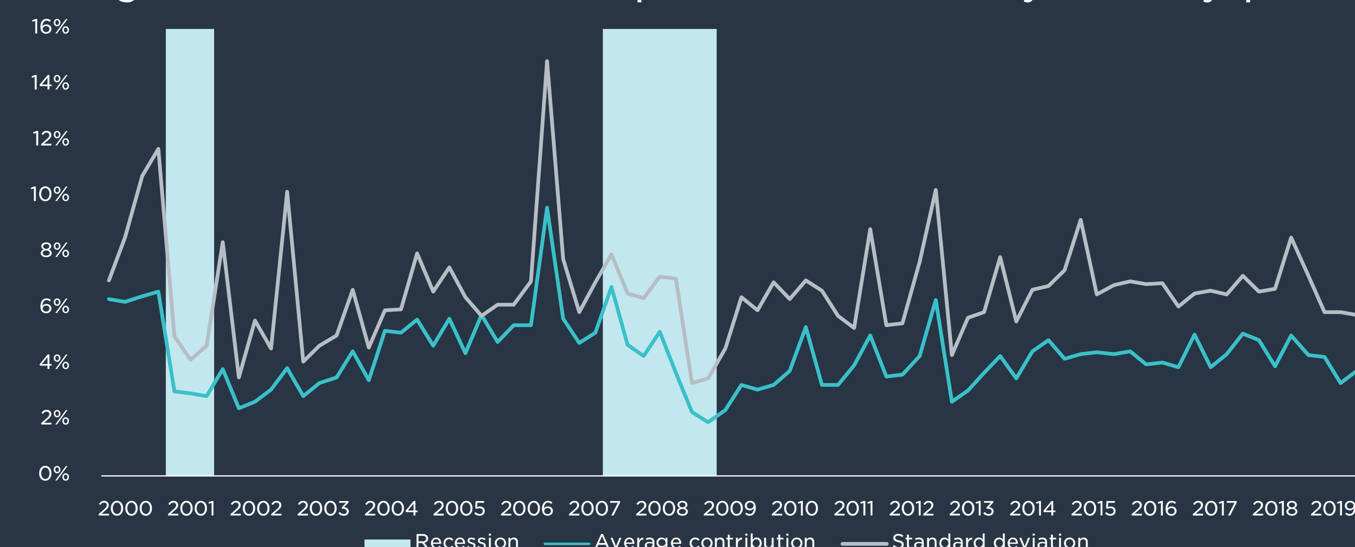
Source: PitchBook | Geography: Global

Proportion of funds with calls in each quarter for funds 0-5 years old by quarter



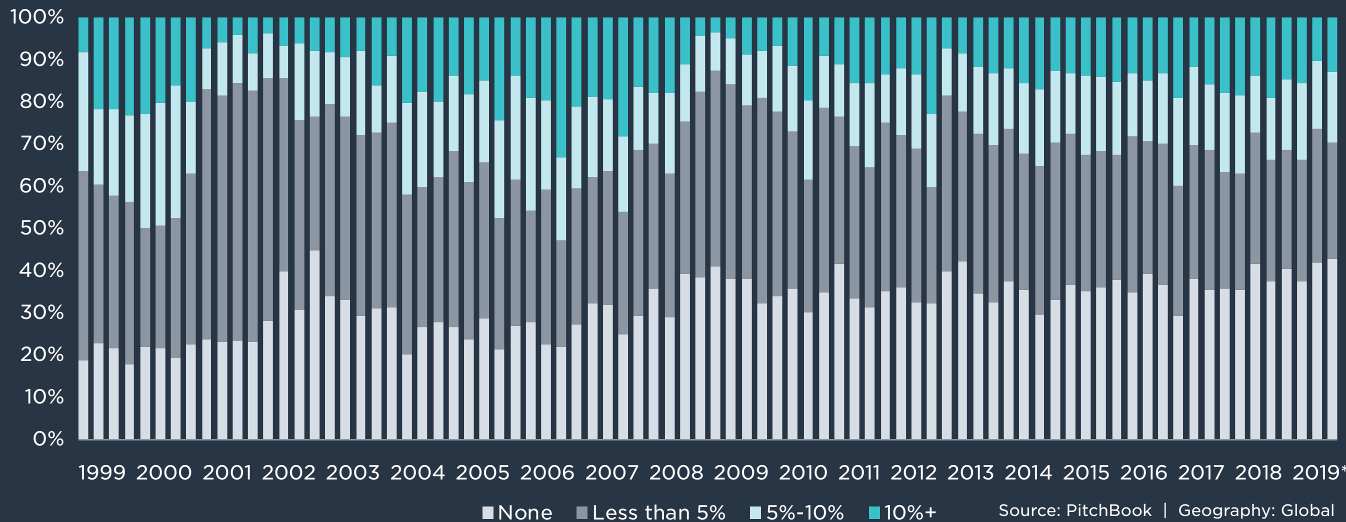
Source: PitchBook | Geography: Global
*As of June 30, 2019

Average and standard deviation of capital calls for funds 0-5 years old by quarter



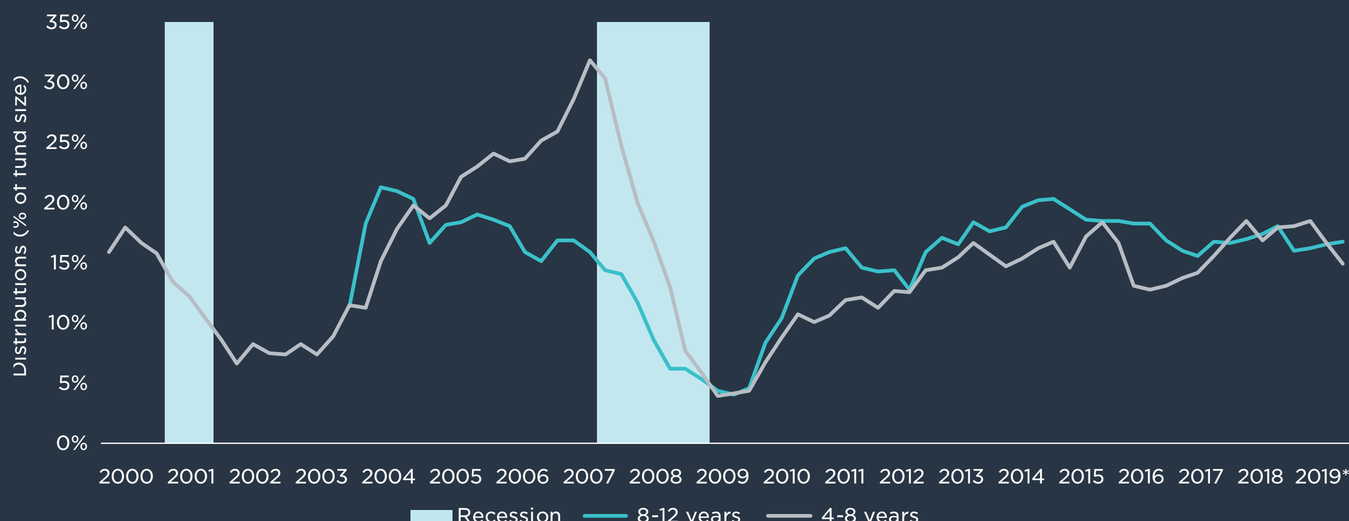
Source: PitchBook | Geography: Global
*As of June 30, 2019

Capital calls (#) by size for funds 0-5 years old by quarter



Source: PitchBook | Geography: Global
*As of June 30, 2019

Average rolling one-year distributions for select buyout age groups by quarter



Source: PitchBook | Geography: Global
*As of June 30, 2019

Proportion of funds with a distribution by age range by quarter

Source: PitchBook | Geography: Global
*As of June 30, 2019

and most LPs will still need to fund capital calls from their portfolios when cash flows from buyout funds trend negative. However, in some cases, GPs' tendency to utilize capital call facilities may delay capital calls for a quarter or two and prevent LPs' buyout allocation from being as much of a cash drag on the portfolio.

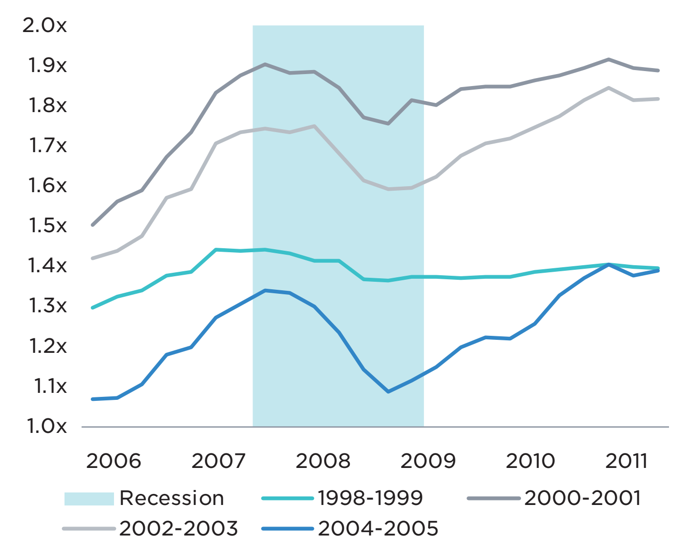
We modeled a theoretical portfolio, assuming a constant commitment to buyout vintages throughout each year, to illustrate how net cash flows from buyout funds differ in a recession. In most years, we see the portfolio of buyout funds is net cash flow positive, with distributions outpacing capital calls. However, during times of crisis, such as the GFC, we see distributions falling dramatically and buyout funds swinging from a net cash flow contributor to a detractor.

Performance

Our research has found that buyout funds demonstrate cyclical behavior in terms of IRRs and cash multiples, though the magnitude of these pricing swings is less severe with buyout funds than in public markets. We focus our analysis on cash multiples because although IRRs may be important, the metric does not affect portfolio weightings—cash multiples do. During each of the past two recessions, TVPI fell just as public equity indices did, though to a lesser extent. In the GFC, we saw pooled TVPI dip by 10% or less for funds four years and older. Younger funds were more affected, with pooled TVPI declining nearly 20%. Funds eight to nine years old when the crisis struck were nearly flat. During the GFC, the S&P 500 fell by more than 50%. LPs should expect younger funds—which are highly sensitive to economic downturns—to drop proportionately more in the coming quarters than older funds, which tend to be more resilient.

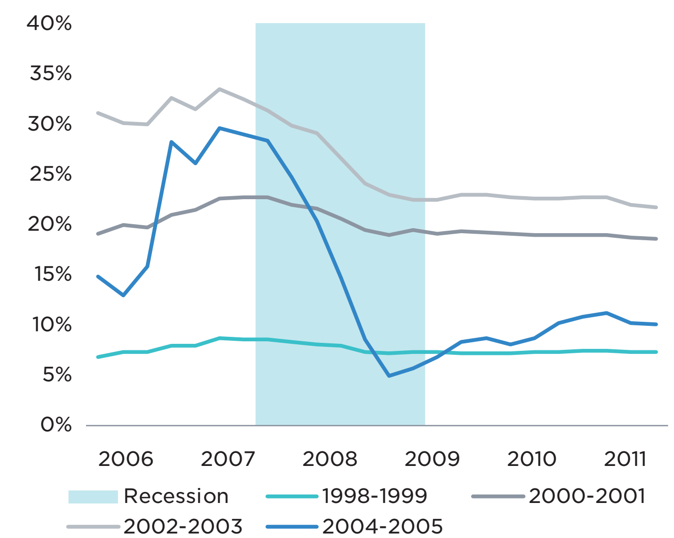
With public markets falling through Q1 2020, we expect buyout funds to mark down portfolio companies in the coming quarters, though to a lesser extent on average than their public counterparts. This means some LPs will run into denominator effect issues in the upcoming quarters when they reweight holdings. In fact, two European LPs have already defaulted on capital calls in recent weeks because of the denominator effect rather than from liquidity issues.[13] However, as many LPs were below their target allocations to private markets heading into the pandemic, we believe defaults will not be widespread and the results from the denominator effect could be muted.[14] Furthermore, following the GFC, many LPs instituted a flexible range for portfolio allocations and built in the ability to forgo portfolio rebalancing by a quarter or two. This gives LPs more control over immediate and longer-term portfolio weightings. For

Pooled TVPI by vintage cohort over time



Source: PitchBook | **Geography:** Global

Rolling pooled IRR by vintage cohort over time



Source: PitchBook | **Geography:** Global

13: "LP Defaults 'Already Happening.' Here's Why, and What GPs' Options Are," Buyouts Insider, Graham Bippart, March 27, 2020.
14: The denominator effect may occur because public equities, which are usually the largest allocation in many institutional portfolios, dropped substantially. This causes portfolio weightings to shift as private market valuations can lag by several quarters. In many cases, PE allocations may go from underweight or at target weight to overweight, causing LPs to pull back allocating to new funds or to liquidate some current PE funds on the secondaries market.

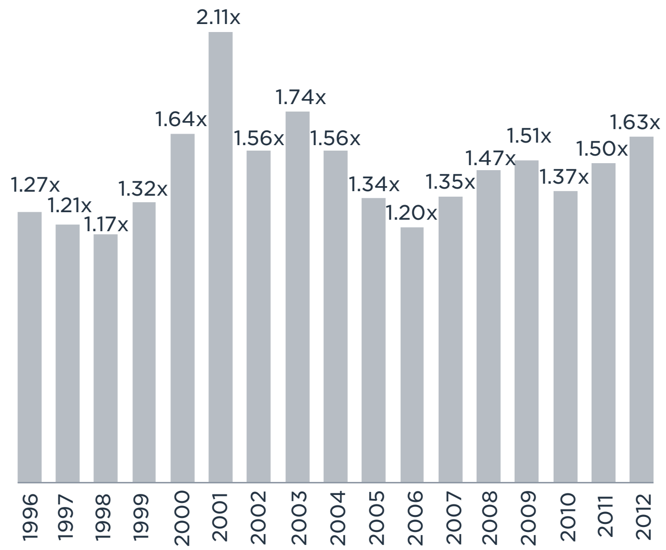
example, the Los Angeles City Employees' Retirement System has temporarily allowed rebalancing to be deferred.[15] While this may prevent LPs from selling at fire sale prices, many institutional investors are going to be focused on triage in their current portfolio rather than on new fund commitments. However, we believe this is a mistake. As our prior data illustrates, crisis-era vintages typically offer the best time to invest in buyout funds. Rather than holding steady or cutting exposure to equities—public or private—LPs should be allocating to the space.

Looking ahead

We believe LPs should be planning for another period in which buyout funds become net cash flow negative in their portfolios. This swing to net cash flow negative territory will probably be more severe than in past crises because of subscription credit lines, and it may not be isolated to PE. It is likely that private market strategies such as real assets and VC will exhibit a similar trend. Because of this, LPs ought to find sources of cash in portfolios to meet capital calls. For institutional investors with predefined liabilities, such as an endowment or pension plan, the need to fund capital calls from investments at depressed prices may wreak further havoc on their portfolios.

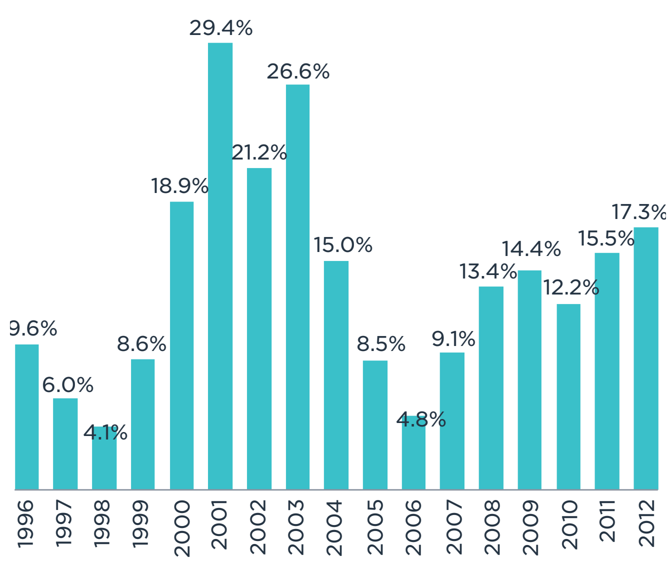
Alternatively, this crisis may present opportunities to LPs that can act quickly and take advantage of the situation. CalSTRS has already confirmed they have cash to invest and will move quickly to take advantage of any opportunities.[16] We know funds that did the bulk of their investing at lower prices in past downturns were able to record higher IRRs. Although the recession did not bottom out until 2009, funds from 2008 also recorded similarly high IRRs, both far exceeding 2005–2007 vintage funds. As we can see, 2001 vintage funds were the best performers in the past 20+ years, and 2008-2009 vintage buyout funds were outperforming the vintage cohort preceding the global financial crisis (2005-2007) seven years in. For this reason, we believe LPs should be heavily allocating to buyout funds at this time, even though they may be overweight because of drops in public equities. This is likely one of the better times in recent history to allocate to PE because GPs are investing at depressed prices; however, many LPs will be unable to move quickly enough to take advantage of it.

Pooled TVPI seven years since inception by vintage year



Source: PitchBook | Geography: Global
As of June 30, 2019

Pooled IRRs seven years since inception by vintage year

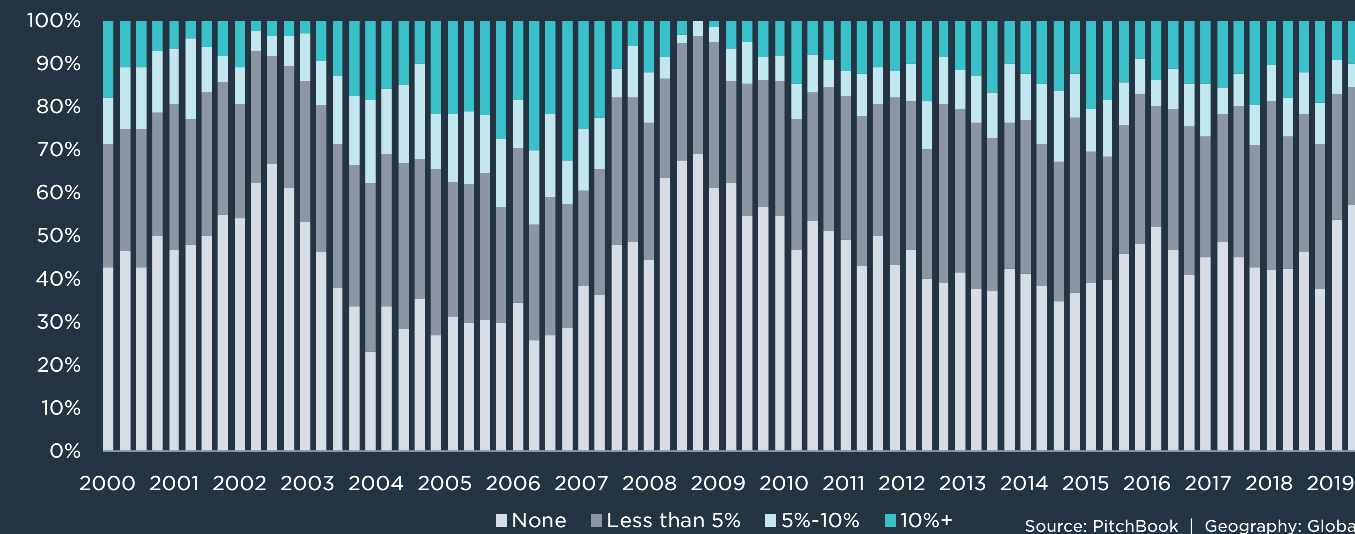


Source: PitchBook | Geography: Global
As of June 30, 2019

This time of duress may also give GPs an opportunity to establish themselves as a preferred partner for LPs by relying on capital call facilities for a quarter or two to meet immediate needs. This would give LPs time to react to the situation and potentially allow other assets in the portfolio to rebound, meaning LPs would be less likely to realize steep losses in other areas of their portfolios. Now, more than ever, it is vital for LPs and GPs to be in constant communication.

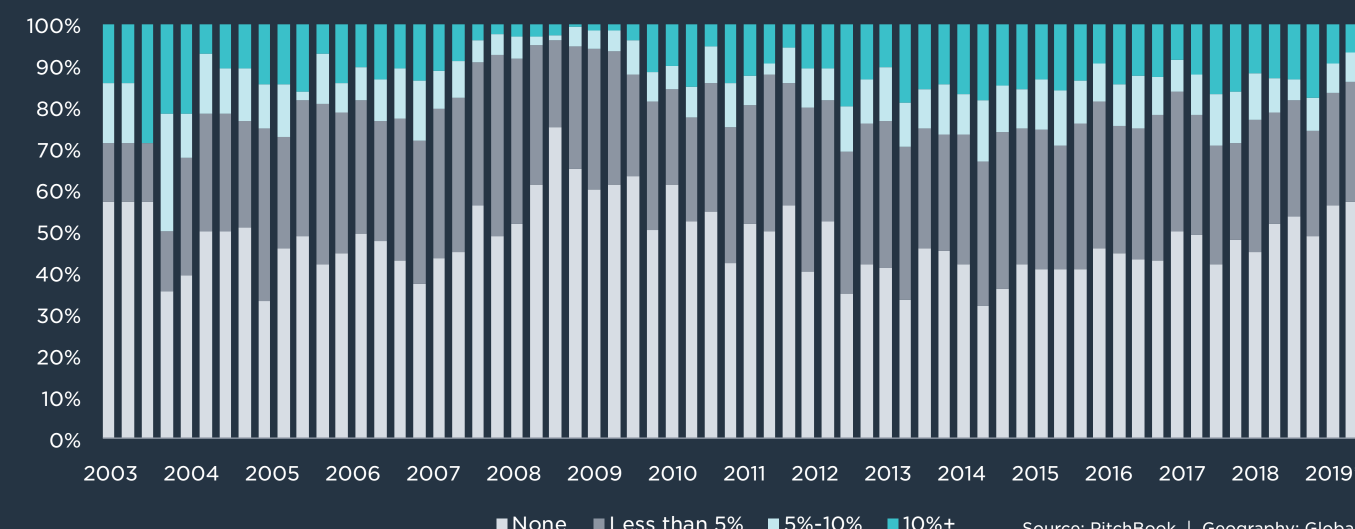
15: "Los Angeles City Employees Temporarily Allows Rebalancing to Be Deferred," Pensions & Investments, Arleen Jacobius, March 27, 2020.
16: "CalSTRS Has the Cash to Pounce on Opportunities in Coronavirus-Fueled Dislocation: CIO," Buyouts Insider, Justin Mitchell, April 2, 2020.

Distributions as proportion of fund size (#) for funds 4-8 years old by quarter



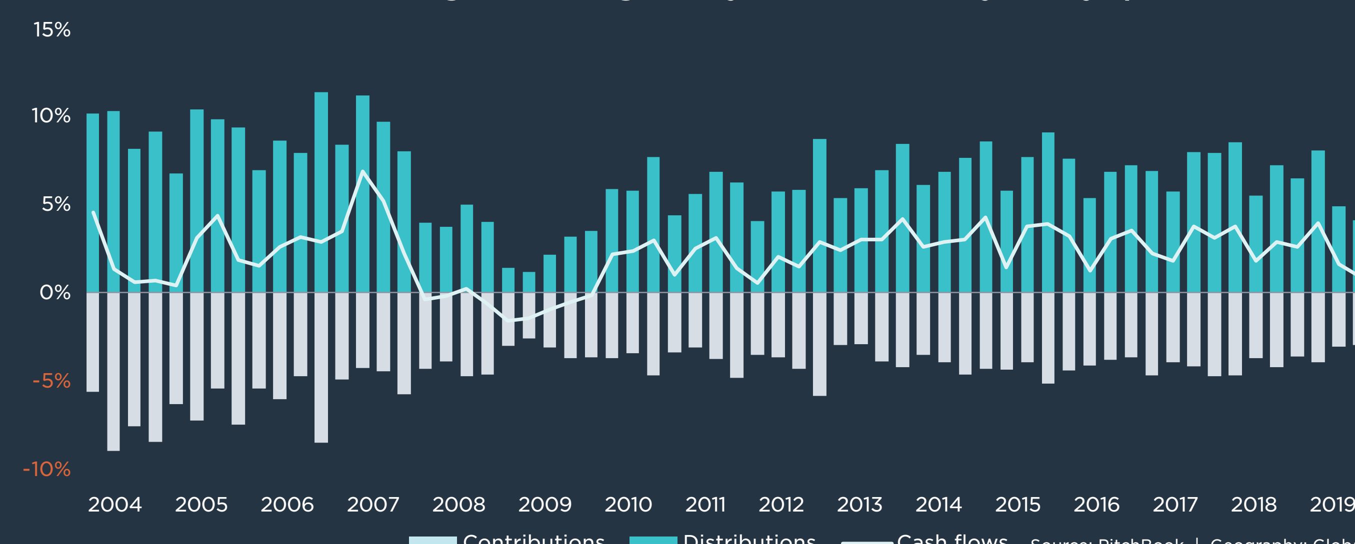
Source: PitchBook | Geography: Global
*As of June 30, 2019

Distributions as proportion of fund size (#) for funds 8-12 years old by quarter



Source: PitchBook | Geography: Global
*As of June 30, 2019

Cash flows for LP investing in "average" buyout fund each year by quarter



Source: PitchBook | Geography: Global
*As of June 30, 2019

Real assets funds in times of crisis

What real assets investors should expect amid the pandemic

By Zane Carmean

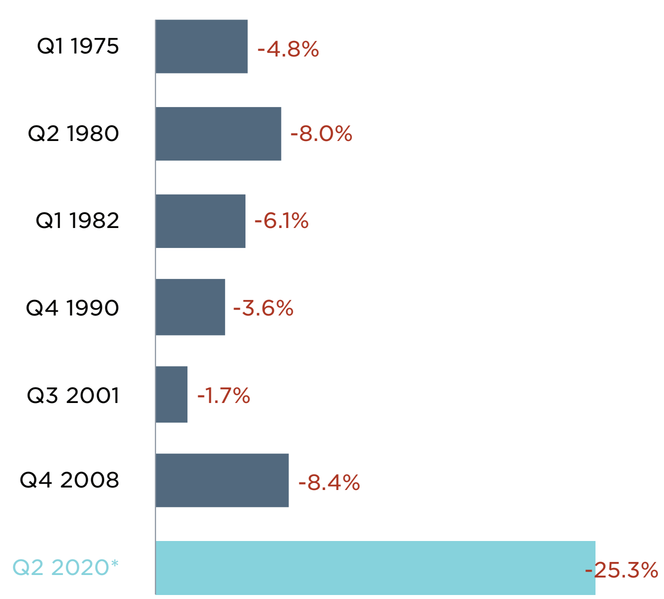
Published on April 28, 2020

Introduction

The COVID-19 pandemic has forced many countries into economic shutdowns, plunging them into recessions and shaking the foundations of virtually every financial market around the globe. A major culprit in the last recession, real estate has already suffered significant collateral damage from the health crisis caused by COVID-19 as whole cities put up “sorry, we’re closed” signs. A severe decline in vehicle traffic and flights has diminished the value of once-stable infrastructure assets such as toll roads and airports. Additionally, demand shock and manufacturing production cuts have hit commodities prices, and with oil producers unable to cut output fast enough, oil prices have collapsed to less than $20 per barrel. It remains to be seen how long these headwinds will last, or what their long-term impact will be, but it is helpful for investors to look to the past for a gauge on the future.

While arising from different circumstances, the crisis of 2008-2009 offers a useful barometer for investors to form expectations around what a sharp drop in economic activity—albeit in a more truncated timeline—will look like. The present crisis has unfurled harder and faster than the global financial crisis (GFC). In the US, over 26 million unemployment claims have been filed in five weeks,[1] indicating that the country will soon confirm a recession, with consensus estimates suggesting the second quarter will see a 25.3% decline in GDP on an annualized basis.[2] To put that in perspective, during the worst quarter of the GFC, annualized GDP declined by only 8.4%. Even if we see a v-shaped recovery following this crisis, its severity will have lasting economic effects.

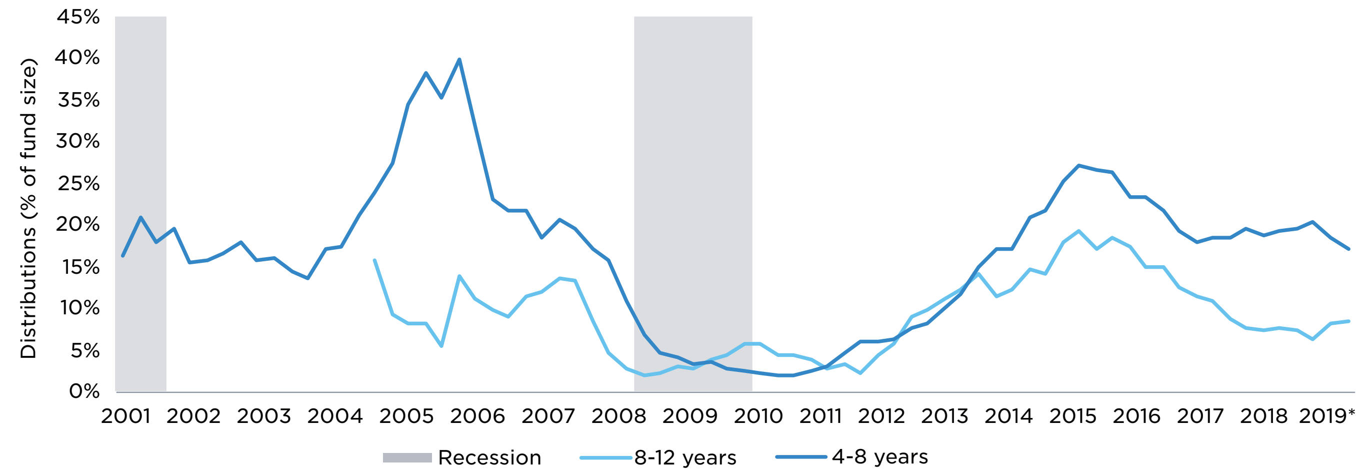
Worst quarter of GDP growth in recent recessions (annualized)



Source: BEA for 1975-2008 figures, WSJ Economic Forecasting Survey for Q2 2020 estimate | Geography: US
*Forecast

1: “Office of Unemployment Insurance Weekly Claims Report,” United States Department of Labor, April 23, 2020.
2: “Economic Forecasting Survey,” The Wall Street Journal, April 1, 2020.

Average rolling one-year distributions for select real estate fund age cohorts



Source: PitchBook | Geography: Global
*As of June 30, 2019

As institutional investors assess the impact on their portfolios, we have dissected our data to analyze how real assets funds have performed during past downturns. We also offer our thoughts on the present crisis versus the last and how outcomes might be different.

Real estate

One only needs to venture outside (socially distanced, of course) in most major metropolitan cities to see the repercussions of the current health crisis. Office buildings are empty, mall parking lots are concrete wastelands, and residential home buying has dried up as buyers and sellers hunker down in self-imposed or mandatory quarantine. This is in stark contrast to just a couple of months ago when the economy was humming along and real estate valuations in most commercial property sectors were at all-time highs. As such, real estate investors are reexamining their strategy in the coming quarters.

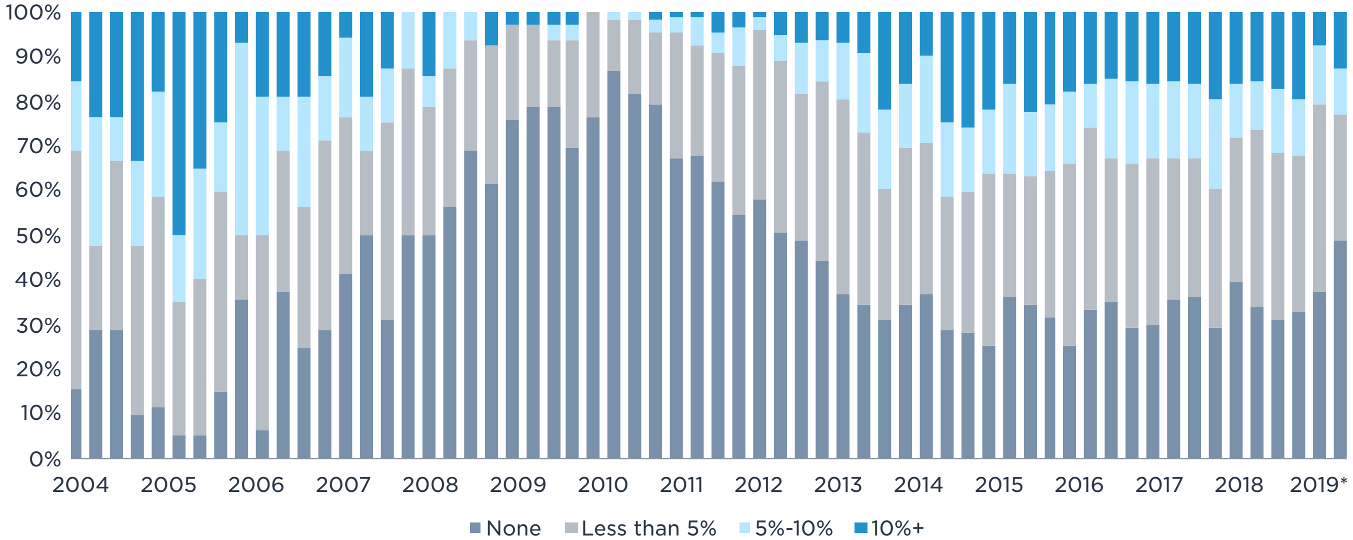
When it comes to cash flow management, institutional investors must know what to expect from the funds in which they are invested. What will distributions reasonably look like? For what capital contributions will the portfolio need to budget? During the GFC, LP investors in closed-end real estate funds saw their distributions dry up substantially. Funds aged between four and eight years, normally in prime harvesting mode, distributed only about 5% of committed capital on average annually between 2007 and 2010. Gone were the boom times when middle-aged funds were distributing 20%+ of commitments per year, as they were from 2003 to 2006. In that period, more than 80% of middle-aged funds on average were making distributions in any given quarter. During the crisis, that figure fell to only 30% or fewer.

We expect a similar pattern to occur in the coming quarters as GPs hold on to properties, not wanting to sell while valuations crater. The US market has already seen cracks forming; transaction volumes across property types fell by double-digit percentages in March as the crisis took hold.[3] With a lack of sales, institutional investors should expect lower and fewer distributions than they typically receive during the average economic upcycle. This will continue the slowdown we have already seen of late.

At the micro level, residential tenants have been pushing for rent concessions and relaxation of payment terms in the wake of their livelihoods upending. Millions have filed for unemployment, and the hardest hit of the population are those with occupations that have not been deemed essential and cannot be conducted virtually. They are also the group most likely to rent and live paycheck to paycheck. Without significant help, many will not be able to make their monthly payments. We have already seen this play out as the National Multifamily

3: US Capital Trends Q1 2020, Real Capital Analytics, April 22, 2020.

Distributions as proportion of fund size (#) for funds 4-8 years old by quarter



Source: PitchBook | Geography: Global
*As of June 30, 2019

Housing Council (NMHC) released data showing only 69% of renters made any payment in the first five days of April. Comparing that to 82% at the same time in 2019 shows purse-string tightening in its early stages.[4] The problem is not unique to just residential tenants. Entire retail chains have publicly announced plans to negotiate relief with their landlords or to not pay rent entirely. Landlords will have to be creative in the foreseeable future in order to meet their own obligations. Analysts expect several retailers to declare bankruptcy in the coming weeks. This will come on top of the secular shift toward ecommerce that has killed dozens of companies already. According to Coresight Research, COVID-19 could cause the permanent closing of 15,000 stores, far surpassing the 9,500 in 2019. Thousands more have been shuttered on a temporary basis for an indefinite time frame.

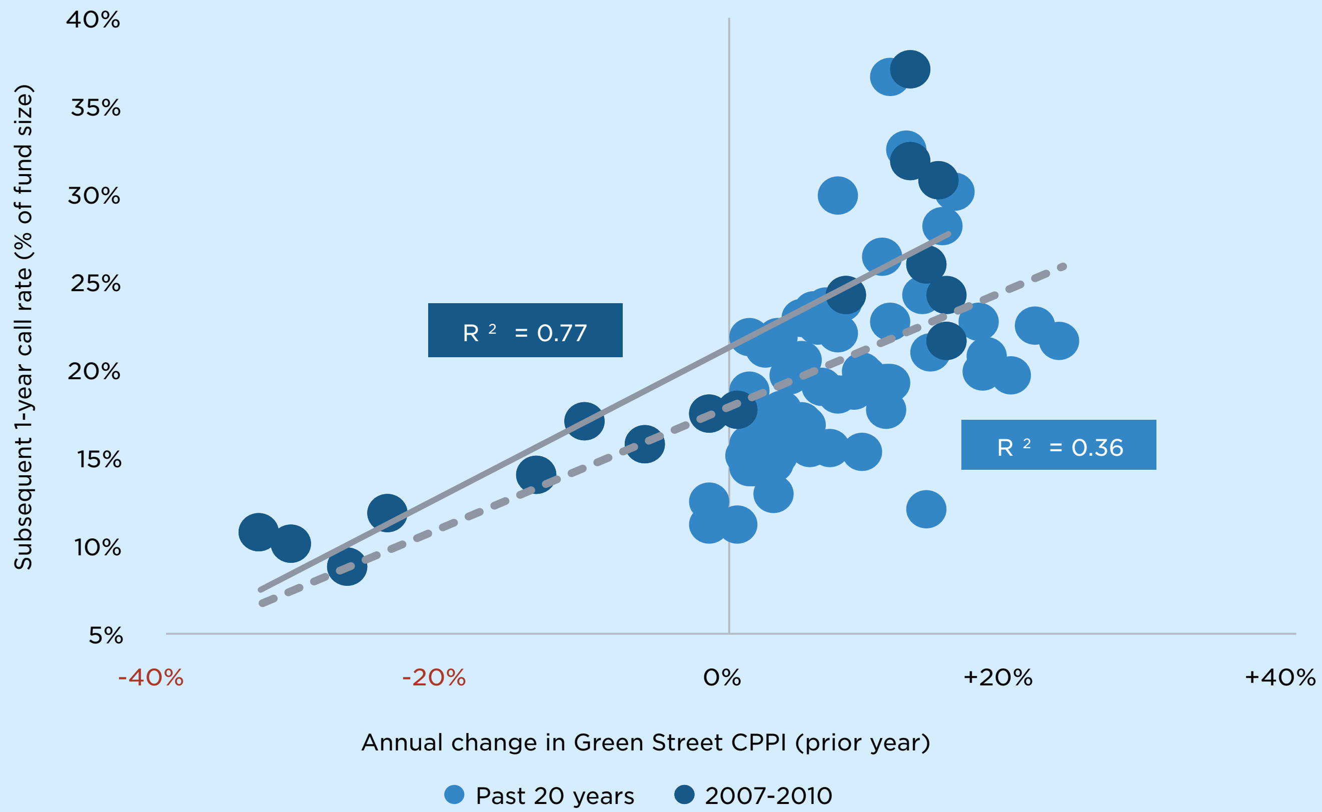
Missed payments will likely create a domino effect as rental income dries up for landlords who are still on the hook for property taxes, utilities, mortgages and management staffing. If a landlord doesn't negotiate, it likely won't find replacement tenants for some time. Around the US, the demand for office space has evaporated in the wake of stay-at-home orders. In Q1, US office leasing experienced a 21% decline QoQ (34% YoY), dipping below 50 million square feet for the first time this cycle.[5] New York was especially battered in the quarter, experiencing the weakest leasing activity in more than 25 years. The waning activity will further dampen the distributions LPs have come to expect from their normally steady real estate holdings.

With all the fear permeating the market, this may present unique opportunities for buyers that have raised recent funds and have dry powder waiting for a better entry point. Capital calls tend to rise after significant appreciation in property values and to decline following periods of depressed prices, coinciding with economic activity as well. The correlation was quite strong around the GFC, as the rolling 1-year price appreciation in commercial properties appears to have led future capital call rates in the subsequent year. In other words, just as prices were falling the fastest, GPs on average were putting less capital to work. On the flip side, only after real estate valuations rebounded significantly did capital calls begin to pick up the pace again. While some of this may be due to anchoring biases of potential sellers, the hesitation to invest until only after prices have recovered can keep buyers on the sidelines for too long.

Anecdotally, GPs have been more aggressive in this crisis than they were following the GFC when moving too slowly proved detrimental to eventual fund performance. We would expect to see capital calls outpace distributions by a larger margin than at the end of last cycle. Giant investment firms targeting real estate, such as Blackstone, Brookfield and Starwood Capital Group, are sitting on billions in committed capital and reportedly are eyeing deals in the most distressed sectors as smaller landlords struggle to make their monthly payments. Blackstone in particular just closed its record $20.5 billion fund and will have

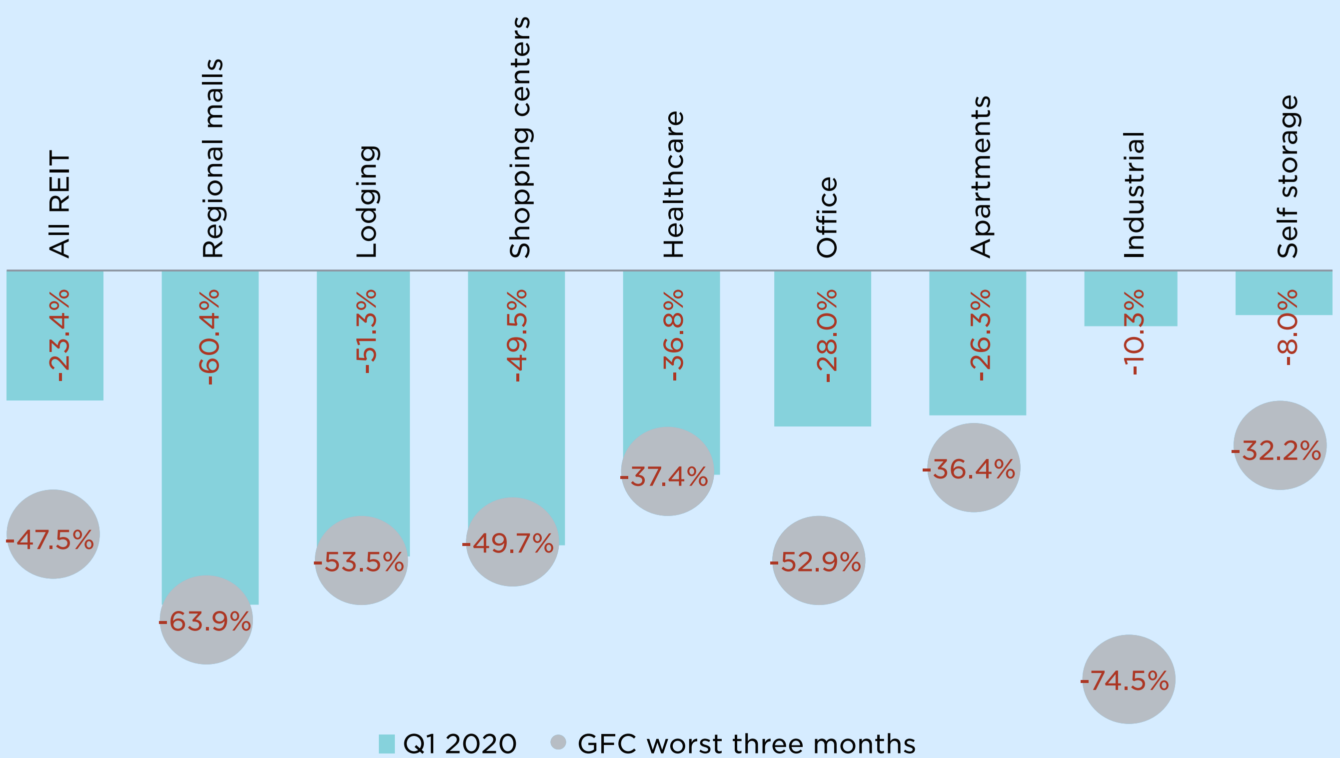
4: "NMHC Rent Payment Tracker," National Multifamily Housing Council, accessed April 22, 2020.
5: United States Office Outlook: Q1 2020, JLL, April 6, 2020.

One-year change in Green Street CPPI versus the subsequent year's average call down rate



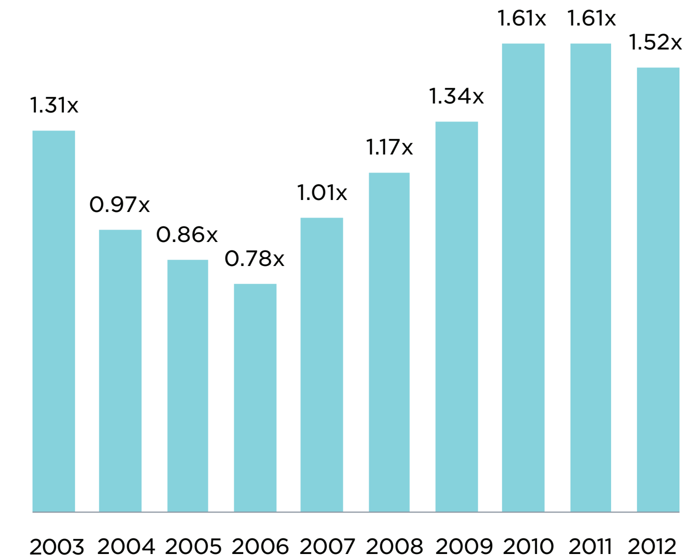
Source: Green Street Advisors and PitchBook | Geography: US
As of June 30, 2019
Note: CPPI = Commercial Property Price Index

Public REIT sector total returns (Q1 2020 versus worst three months during GFC)



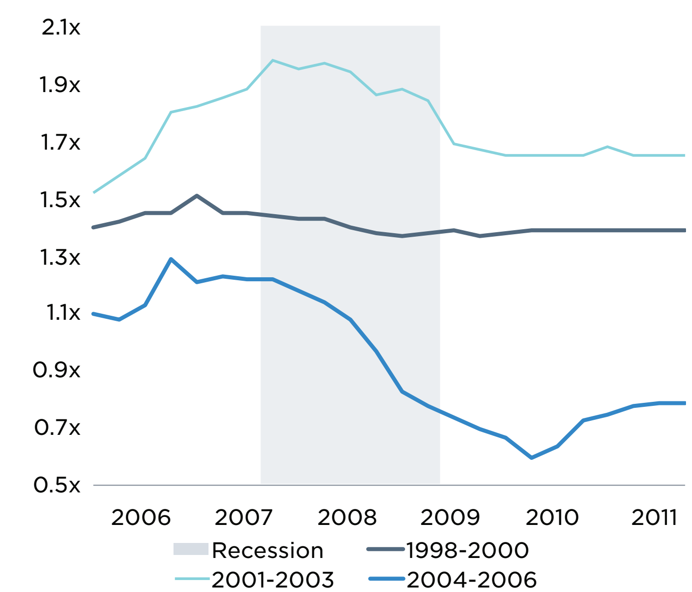
Source: Nareit | Geography: US

Pooled TVPIs for real estate funds, 7 years since inception, by vintage



Source: PitchBook | Geography: Global
As of June 30, 2019

Rolling pooled TVPIs for real estate funds by vintage cohort



Source: PitchBook | Geography: Global
As of June 30, 2019

an additional $17 billion after final closes to its flagship European and Asian opportunistic funds.

History suggests that funds raised during and in the aftermath of crisis periods tend to outperform, meaning many investors will see this sharp downturn as the best opportunity for returns in years. Real estate funds raised during and in the immediate aftermath of the GFC (vintages 2009-2012), for example, have been better performers compared to pre-crisis era funds (2004-2007). Likewise, those raised in recent vintages that have already deployed significant amounts of dry powder may struggle in the downturn and subsequent recovery. Pooled TVPIs for real estate funds in the vintage cohort of 2004-2006 were crushed as the mortgage crisis and GFC caused steep markdowns on assets. Many of these funds went underwater swiftly, with pooled TVPIs falling by half to 0.6x from the end of 2007 to Q2 2010. Despite lengthening holding times, performance for many funds in these vintages never returned to positive territory. Older vintage cohorts (2001-2003 and 1998-2000) were not struck nearly as hard because much of their value had already been realized by the time the crisis unfolded. Vintages 2009-2012, which were deploying capital during the recession and early recovery, had higher pooled IRRs and TVPIs compared to crisis-era funds seven years after inception. LPs that can continue committing to 2020 and 2021 vintage funds will similarly benefit.

The public real estate investment trust (REIT) market provides a useful indication of the direction, if not the magnitude, of levered real estate values. In the first quarter of 2020, hotel REITs fell 51%, nearly matching their worst three-month performance during the depths of the financial crisis. In fact, in Q1 2020 retail, healthcare and lodging REIT indices all essentially matched their worst three-month periods of the GFC. For GPs that own properties in these sectors, the near-term hit to values is likely to be steep, though less pronounced given the propensity of private markets to adjust slowly compared to public equities. Meanwhile, owners of industrial properties (e.g., distribution centers and warehouses) have benefited from the accelerated shift to ecommerce by consumers, millions of whom cannot visit traditional retail centers right now. While values may be down in that sector, shifting demand toward logistics will cushion the blow relative to the collapse seen in the last recession.

The office sector is a mixed bag. On one hand, many businesses that use traditional office space have been able to continue operations off-site and keep making payments. The long-term nature of those lease agreements is a desirable feature in the event of a downturn. On the other hand, leasing activity has ground to a halt, and there is real risk that the work-from-home lifestyle becomes normalized, dampening the need for growing businesses to lease more space. Regional differences will abound, too. Houston office space, for example, has been hit twice, with one punch coming from COVID-19 and the other from outsize exposure to the energy sector. It remains to be seen how long these shocks will last, but investors should continue to focus on high-quality tenants in low-volatility markets to maintain steady cash flows.

Finally, lodging has suffered an unprecedented drop in demand as travel has shut down almost completely. Occupancy rates in early April were less than 25% across the US.[6] Top travel destinations such as Hawaii and New York have been hit even harder. The short-term lease structure of renting hotel rooms leaves the asset type especially vulnerable to demand shocks. Landlords cannot rely on monthly payments, like in the case of office or apartments. As such, average revenue per available room (RevPAR) has shrunk 84% to $15.61 nationally.[7]

Infrastructure

Infrastructure, the other major substrategy under the private real assets umbrella, is likely to weather the present storm better than other private market strategies. These vehicles typically have a longer-term focus and are more defensively positioned than real estate. Additionally, infrastructure funds tend to target long-dated, multibillion-dollar projects such as airports and seaports, train lines and data centers. When the economy rebounds, these assets in most instances will be well positioned for steady cash flows. Many traditional infrastructure projects are localized in nature; there aren't many rival airports popping up in cities to drive competition, for example.

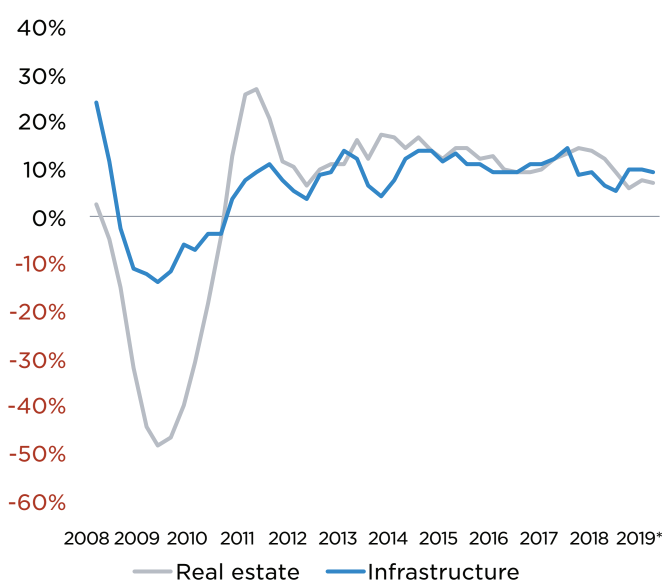
For institutional investors, both distributions and capital calls should be expected to decline during an economic downturn. Infrastructure funds raised in vintages 2008-2010 had only called about 53%-60% of their capital by the end of Year 3, compared to 78% and 63% for 2007 and 2011 vintages, respectively. 2016 vintage funds have already called an average of 83% of their capital. These funds may not have enough dry powder remaining to take advantage of depressed valuations in the event of a prolonged downturn. That said, this could be an interesting time for those infrastructure players with dry powder if cash-strapped municipalities decide to privatize assets to keep afloat.

The steadiness of infrastructure funds has been a remarkable feature of the asset class. Compared to real estate, infrastructure vehicles experienced less of a decline in rolling one-year IRRs during the GFC. While both strategies were over-levered, infrastructure was insulated by being less tied to economic cycles and not being a core source of the crisis itself. At the same time, vintages raised immediately following the GFC went on to have stronger performance than those raised during and prior to the crisis. Vintages 2010-2012 achieved pooled TVPIs of about 1.45x on average by Year 7 since inception, while 2006-2009 vintages only averaged about 1.10x. That has resulted in overall improved IRRs for the more recent vintages in aggregate as well.

Evidence from the GFC suggests that infrastructure funds of more mature vintages tend to preserve LP capital better in a downturn compared to other strategies. The hedge that the infrastructure strategy represents can be seen by looking at a time series of pooled TVPIs for vintage cohorts raised prior to the crisis. It is not surprising that the 2004-2006 and 2007-2009 vintages experienced a decline, but the magnitude of it is smaller than that seen for other strategies of similar vintages, illustrating infrastructure's role as a fairly uncorrelated hedge. In fact, the older cohort of 2001-2003 continued to grow TVPIs on a pooled basis throughout the crisis, though there was a limited number of funds in the sample.

Prior to the crisis, infrastructure in North America was still emerging as a sector. From 2005 to 2008, fundraising in the region grew from $2.6 billion to $18.4 billion. In Europe, established firms such as EQT, Macquarie and Partners Group have all raised

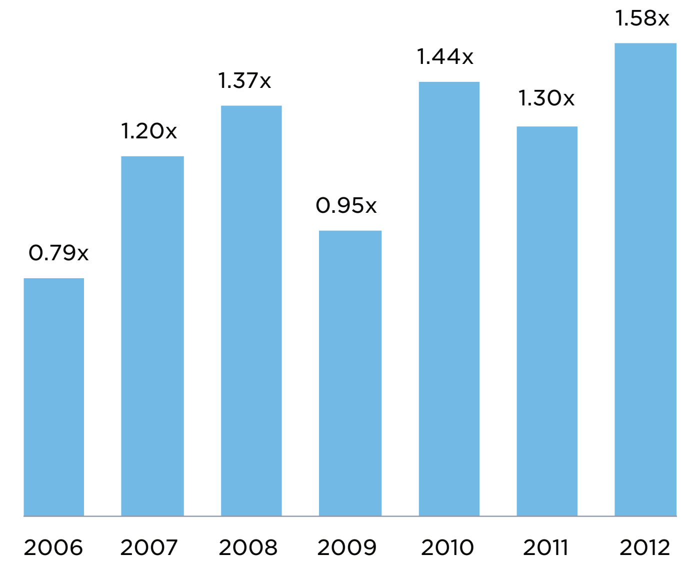
Rolling one-year pooled IRRs for real estate and infrastructure funds



Source: PitchBook | Geography: Global
*As of June 30, 2019

6: "STR: US Hotel Results for Week Ending 11 April," STR, April 15, 2020.
7: Ibid.

Pooled TVPIs for infrastructure funds, 7 years since inception, by vintage

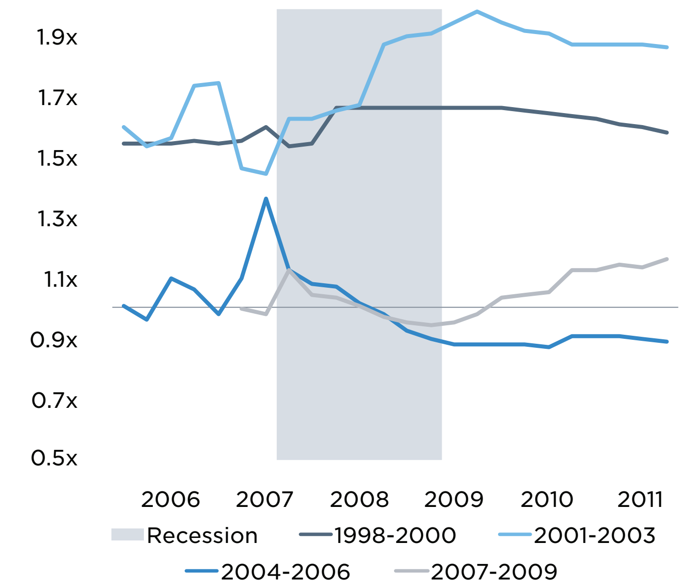


Source: PitchBook | Geography: Global
As of June 30, 2019

multibillion-dollar funds focused on the continent in recent years. Global infrastructure fundraising increased in some part because of the expectation that public-private partnerships (PPP) would make infrastructure spending more appealing to for-profit investors. While there have been successful PPP ventures in various world geographies, in the US a robust infrastructure spending plan has faltered for years. Rumors have surfaced that a new deal may be in the works as a response to the economic troubles stemming from the health crisis, but so far nothing concrete has been unveiled.

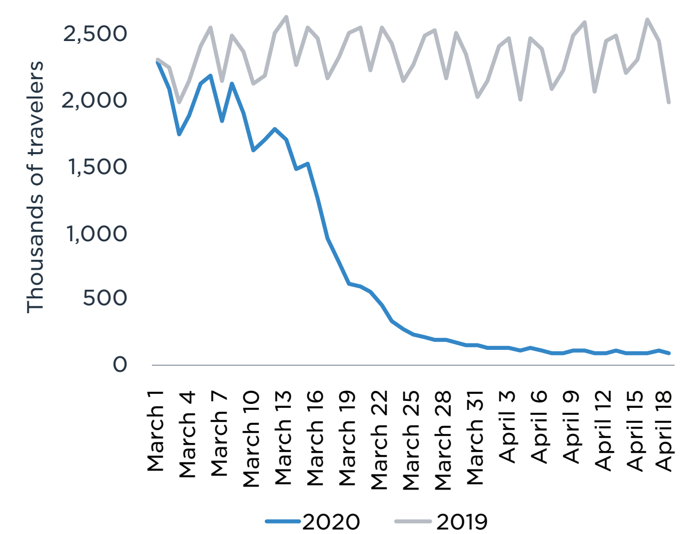
Today's infrastructure funds have ballooned in size, with about 70% of capital raised in 2019 concentrating in mega-funds (vehicles sized $5 billion or more). One such vehicle was the inaugural Blackstone Infrastructure Partners (BIP) fund, which closed on $14 billion. A permanent capital vehicle, it highlights a trend in the space for more long-dated capital lock-ups. With record amounts of dry powder in infrastructure GPs' coffers, deploying it in the current environment may yield significant opportunities. As one example, airports around the world have seen volumes dry up, hurting revenue streams (and likely valuations) in the short term. Airport assets had been trading at sky-high valuations prior to the crisis, according to data from PwC. Between 2016 and 2018, average EV/EBITDA multiples landed at about 22x, up significantly from 15x from 2013 to 2015.[8] Those assets were once considered safe because of generally steady demand for travel and the limited competition in local markets. That thesis is being put to the test now, given the collapse in air travel since the beginning of March. A sharp rebound might be coming, but the possibility of a permanent shift in air travel demand is very much in the cards. Traditional

Pooled TVPIs for infrastructure funds by vintage cohort



Source: PitchBook | Geography: Global
As of June 30, 2019

Daily TSA airport checkpoint travel numbers (2019 versus 2020)



Source: TSA | Geography: US
*As of April 18, 2020

8: "Airport Transactions Taking Off Around the Globe," PwC, Bernard Chow and Colin Smith, n.d.

business activity is now being conducted virtually. The longer that goes on, the more likely companies will be comfortable continuing the practice in the future even after lockdowns end.

Meanwhile, communication-centric investments such as telecommunication towers and data centers have experienced a boon from the flood of online traffic as people work from home and offices go virtual. The need for digital infrastructure will be one constant as virtual communication becomes normalized. This is a unique time in history, as millions of people carry their lives out online, holding meetings via video conferences and streaming everything from college courses to entertainment. Much of this happens in tandem within the same household. All of this has caused strains on internet speeds. If the work-from-home option is ubiquitous post-crisis, flexible work/social relationships will strengthen the tailwinds for investors providing the proverbial pipes. The public markets have clearly recognized the trend, which has been exemplified by the outperformance of the return index for data center REITs in the US compared to the broader market. The niche sector actually gained about 9% during Q1 2020 while measures to combat the virus have expanded, causing both workers and their children to move to at-home solutions.

> With crisis comes opportunity, and the eventual recovery will likely generate significant returns for the institutional investors that are able to strike at the right time and invest in the right assets.

Finally, midstream investments—which are bought by oil & gas funds and as a subset for generalist infrastructure funds, such as Blackstone's—will struggle to generate positive cash flows. They will face difficulty as oil prices stay below levels at which it is profitable to drill and as demand from the economy remains subdued while under shelter-in-place mandates. The market slashed the Alerian Energy Infrastructure MLP Index (AMZ) by 58.2% in the first quarter of 2020, much of this coming just as the pandemic scare began to hit all stocks in late February. This trend will be extended if the collapse in oil prices to sub-$20 per barrel persists. However, pipeline contracts tend to be long-term, insulating some of the cash flows for now. Differences in contract language will be important when choosing projects to pursue. Pipeline contracts that have locked-in minimum volume and pricing will see more stable cash flows than those that are overly reliant on those variables. Percentage-of-proceeds (POP) contracts will have the highest oil price risk for a midstream investment should the supply-demand imbalance continue. An announced agreement on April 9 between oil-producing countries to manage production may lead to a sustained recovery in the commodity, but only if the parties stick to the planned cuts. Still, without a lifting of the lockdowns, demand will remain at historically low levels. Drillers will have no choice but to turn off the spigots until the economy reopens. For natural gas investors, prices have come down in 2020, but not nearly as much as oil. The slowdown in oil drilling should dampen supply levels and cushion prices for natural gas, a byproduct of oil production.

Even when demand for energy returns, the push toward green sources is unlikely to abate, and improvements in a variety of technologies have only made alternative fuels more competitive with oil & gas. LPs with green initiatives will look to clean energy funds to carry the environmental impact reductions they hope to achieve.

Concluding remarks

The effect of the health crisis on the real economy is only just now being felt. Even with the White House releasing plans for an eventual reopening of the economy, consumer behavior will struggle to normalize in the foreseeable future. Already, real estate and infrastructure investments have been walloped by falling cash flows, and LPs should expect to see very limited returns from their fund commitments in the near term. And those funds that have been heavily exposed to retail and travel will feel the impact of COVID-19 long after the crisis abates. With crisis comes opportunity, though, and the eventual recovery will likely generate significant returns for the institutional investors that are able to strike at the right time and invest in the right assets. Industrial properties and telecommunication infrastructure are proving their resiliency in the crisis as the economy shifts quickly into the digital realm. Distressed assets may remain that way only temporarily, opening the door for opportunistic managers that have dry powder at their disposal. GPs are eager to take advantage of the depressed valuations from the crisis, and, with history as a guide, the rewards for doing so could be substantial.

The ripple effects of COVID-19 on emerging technologies

How the crisis is affecting the startup ecosystem

By Paul Condra, Brendan Burke, Robert Le, Alex Frederick, Kaia Colban and Asad Hussain

Published on March 26, 2020

Determinants of survivability

Startups are especially vulnerable when the economy weakens. Heading into a recession, VC-backed companies are unlikely to have significant revenue and may not be profitable. They will face immense challenges as they struggle to ramp up production, operations and sales functions when demand is weak and customers are scarce. While VC helps fuel these initiatives in normal times, investors tend to be more conservative and scrutinize deals more closely during times of economic contraction.

During the Great Recession, our research shows that not only did venture investment slow, but time between investments expanded while valuations declined, suggesting that even companies that did raise money had to bootstrap longer than they may have otherwise. On the positive side, we also discovered that angel & seed-stage deal activity was flat to positive during the recession and that the best-performing VC vintages were those that invested at the depths of a recession and into a recovery.

While expectations are for the current crisis to have a larger near-term economic impact than the global financial crisis, the depth and severity of the recession that follows will have a significant impact on the durability of the startup ecosystem. Were the economy expected to “snap back,” VCs would likely be more willing to backstop current investments in the interim and fund new ventures. A drawn-out recession, however, could have a more widespread impact on VC strategies and portfolio allocations. The nature of the current crisis—a pandemic that has shut down entire industries for an indeterminate period—adds incalculable complexity.

Despite this uncertainty, there are several mitigating factors worth noting. First, relative to the last downturn, the current VC industry is larger, better understood and more liquid. Today’s VC ecosystem includes nontraditional investors such as pension funds, equity hedge funds and corporate VC (CVC); and the development of the secondaries market provides more liquidity opportunities for investors and shareholders. Second, the digital revolution over the past decade will make it easier for new startups to continue operations remotely, as well as introduce new products via digital channels. Lastly, unprecedented federal stimulus in the form of working capital loans, as well as an outpouring of support from vendors to relax payment terms and provide free services, will help lessen the blow. While the full impact of the crisis is unknowable and unfolding quickly, we expect near- and medium-term impacts to be as follows:

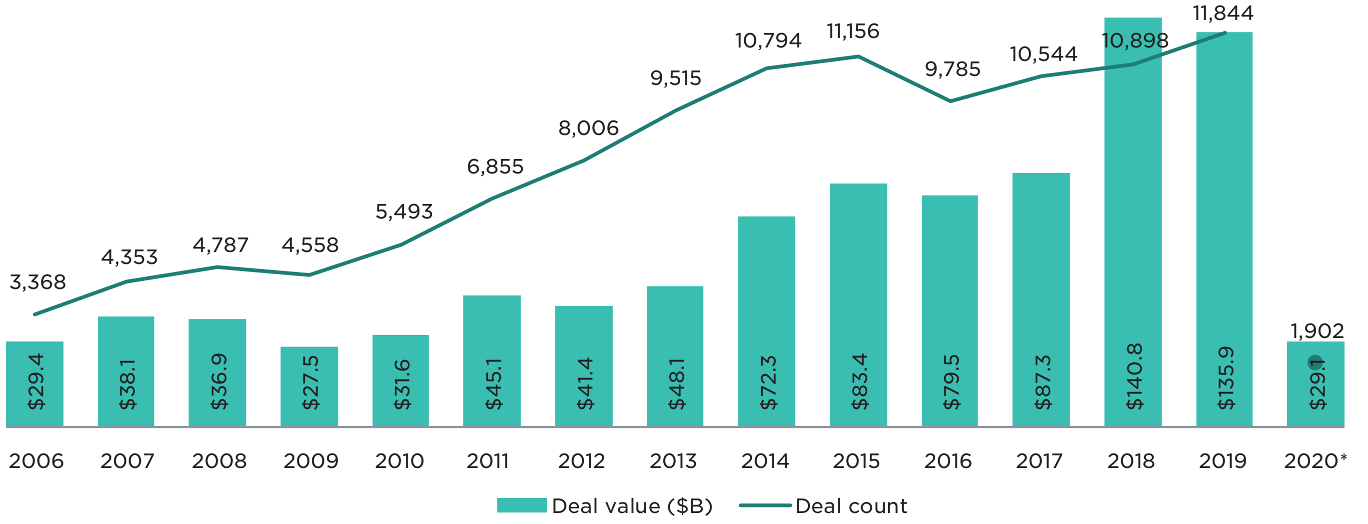
- VCs are more likely to favor enterprise startups that offer longer-term SaaS contracts and easy remote onboarding. Retail transactional businesses may have a harder time finding investors given the massive pullback in consumer activity and the nature of the pandemic keeping people home.

- While nontraditional and crossover venture investors (i.e., pension funds, hedge funds, corporate venture arms) help broaden the capital base, they may be slower to come back to the VC industry given the need to focus on other priorities impacting their portfolios.

- Late-stage startups that have completed many rounds are likely to see the most significant valuation reductions as they are more often valued relative to public markets. These firms will also have to contend with complicated down-round accounting related to liquidation preferences that could make larger deals harder to close. However, these companies will likely have an easier time accessing stimulus-related debt capital or other loans. The “staying private longer” debate is likely to receive more attention as investors focus on whether late-stage startups should have completed an IPO sooner.

- While stimulus efforts could prove to be valuable lifelines for startups, early-stage tech startups may not have the same access to these facilities given lesser ability to provide guarantees.

VC deal activity



Source: PitchBook | Geography: US
*As of March 17, 2020

Venture capital during the Great Recession

US venture funding declined 27.8% during the Great Recession from the peak of $38.1 billion in 2007 to $27.5 billion in 2009. A similar-sized decline from 2019 VC funding levels of $135.9 billion implies the industry could shrink by about $39 billion—larger than the entire market in 2007. While deal value declined, deal count peaked in 2008 and only fell 5.0% in 2009, implying VCs were still active, though deal sizes were generally smaller.

Across all stages, deal count and deal value generally increased for angel & seed-stage startups but declined for both early- and late-stage startups. This is not surprising considering the much lower average size for angel & seed (less than $1 million) relative to early-stage (less than $4 million) and later-stage (about $8 million) deals during the recession. It may also reflect higher failure rates among early- and late-stage startups unable to grow and scale in a weak demand environment. Whereas angel & seed-stage startups may require less funding to stay afloat during difficult times, late-stage startups have higher cash burn rates that VCs may be less willing to support when hockey stick growth appears less likely.

Retail health & wellness tech

By Kaia Colban
Contact: kaia.colban@pitchbook.com

Changing legislation propels telemedicine: Telemedicine startups in the US are experiencing a surge in demand, as the federal government removes restrictions on telehealth services for elderly Medicare patients and health insurers temporarily waive telemedicine costs. The crisis could catalyze longer-term growth in telehealth as adoption grows, providers encourage its use and customers become more familiar with the technology.

Increased government investment in healthtech as legislators prioritize public health over lingering privacy concerns: This could boost investment in centralized disease tracking, telemedicine and health records.

Increased scrutiny of PE-led buyouts of nursing facilities: Currently, 70% of US nursing homes are run for profit, and PE activity in the industry has jumped in recent years.[1] The pandemic has put a spotlight on how PE-driven cost-cutting can affect outcomes at nursing facilities. Studies have shown links between PE buyouts and higher patient-to-nurse ratios, lower-quality care, negative patient health outcomes and weaker performance on inspections.[2]

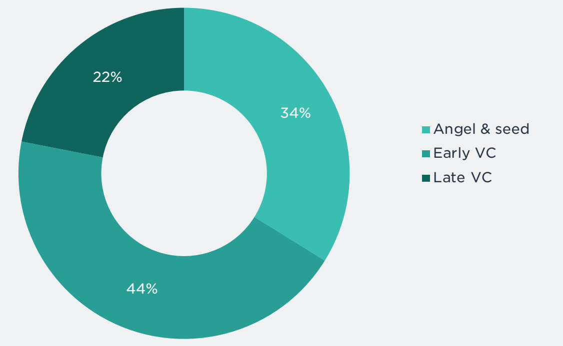
Surge in demand for mental wellness applications as pandemic anxieties worsen: We expect the crisis could help drive long-term interest among corporate clients to provide mental health products to employees.

Marketplace fitness platforms experience a drop in revenue and usage: These platforms have been forced to allow customers to pause their memberships or risk being categorized as having bad customer service.

Closed gyms have increased demand for at-home fitness applications and devices: Several workout applications are offering free trials. While providing free access does not inherently generate revenue, it may result in long-term customers. As consumers adopt at-home workouts, they may be slow to return to gyms after the crisis has passed.

Spike in demand for hospital robotic and remote patient monitoring device innovation: Providers are using BioIntelliSense's BioSticker™ wearable sensor to monitor a patient's respiratory rate, heart rate and skin temperature, as well as the frequency of their coughing, sneezing and vomiting. Providence Regional Medical Center used a telemedical robot called Vici from InTouch Health to take vitals from and interact with the first diagnosed case of COVID-19 in the US. In the near term, we expect telemedical robots will be used in a select few use cases; however, we have a favorable long-term outlook on the technology that promises to streamline basic diagnostic tasks.

Healthtech company count by stage*



Source: PitchBook | Geography: Global
*January 1, 2017-December 31, 2019

Description: Companies that deliver healthcare products and services primarily delivered and/or consumed outside of the hospital or physician's office. These companies offer a wide-ranging suite of B2C offerings, including preventive and monitoring tools for consumers, dietary supplements and products that enable the burgeoning "healthcare at home" movement, which grants patients more flexibility and convenience in how they manage personal care (i.e., telemedicine, blood testing, genomic tests).

Key VC-backed companies: Roman, Before Brands, Thrive Global, Mirror, Singular Genomics, Everlywell, Flo

Coronavirus impact: Significant

1: "Private-Equity Takeover of Nursing Homes Has Reduced Quality of Care at Critical Moment, Research Suggests," MarketWatch, Eleanor Laise, March 14, 2020.
2: Ibid.

Foodtech

By Alex Frederick
Contact: alex.frederick@pitchbook.com

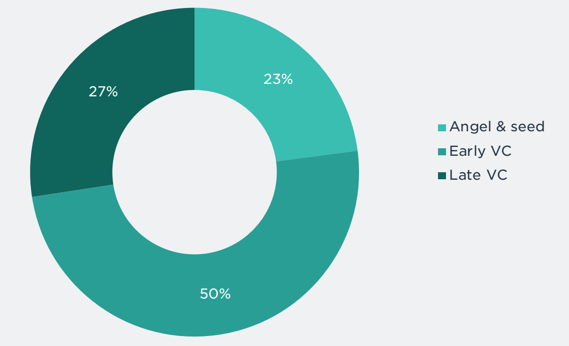
Pandemic a clear catalyst for delivery services: Widespread government-mandated restaurant closures and consumer quarantining are driving unprecedented demand for grocery and food delivery services. While demand for delivery could diminish after the recession, we expect the market will expand permanently as more consumers become accustomed to food delivery. This could increase venture interest across the food delivery ecosystem for technologies that improve the speed, capabilities and efficiency of delivery, such as ghost kitchens, delivery robots and kitchentech.

Online grocery could see permanent share gains: The crisis has driven a surge in demand for online grocery services as consumers are told to stay home and self-isolate. In March, online grocer Farmstead reported 70% growth rates, which the CEO attributed primarily to the current situation.[3] Even shortages of stock and late deliveries will not be enough to deter demand as consumers may have few alternatives, enabling providers to fine-tune business models with less risk of losing customers.

Kitchen robotics and automation offer long-term solutions but little immediate impact from crisis: Kitchen automation and robotics could help reduce labor costs, but high upfront costs and long implementation periods mean it will likely do little to alleviate the immediate demand issues facing restaurants. In the long term, we expect investors to remain committed to kitchentech. Automation tech such as pizza-making robots could still help scale production and cut labor costs. This will be most useful for large chain restaurants that are more likely to survive the pandemic and are capable of rebuilding more quickly than for small mom & pop restaurants.

Meal kits to experience a temporary boost, but long-term risks remain: Meal-kit providers have struggled in recent years as consumer demand has waned. Blue Apron saw its stock price fall from a high of around $29 to a low of about $2 in early 2020. After Blue Apron announced the global pandemic is driving an uptick in demand, its stock has rallied to over $14. The demand for delivery services could breathe life into ailing meal-kit companies, providing a second chance to build a more durable product-market fit with consumers. However, we continue to have longer-term doubts about the sustainability of the business and do not expect a resurgence in VC activity.

Foodtech company count by stage*



Source: PitchBook | Geography: Global
*January 1, 2017-December 31, 2019

Description: Companies that are changing the way food has traditionally been discovered, purchased, delivered, prepared and consumed.

Key VC-backed companies: Kitchen United, Boxed, goPuff, Instacart, DoorDash, Starship, Picnic

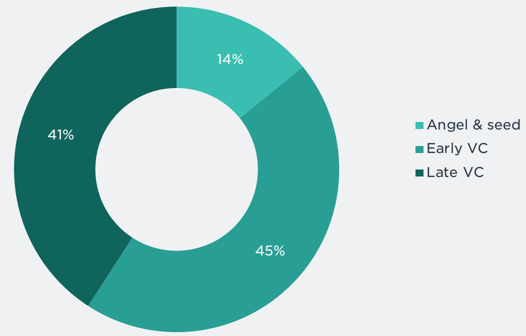
Coronavirus impact: Significant

3: "Online Grocer Farmstead Seeing 70 Percent Growth, Doubling Headcount to Keep Up," The Spoon, Chris Albrecht, March 17, 2020.

Mobility tech

By Asad Hussain
Contact: asad.hussain@pitchbook.com

Mobility tech company count by stage*



Source: PitchBook | Geography: Global
*January 1, 2017-December 31, 2019

Description: Technologies and services disrupting the transportation, automotive and shipping industries, including digital economy, mobile connectivity, electric vehicles and autonomous driving.

Key VC-backed companies: Didi Chuxing, Grab, DoorDash, Bird, Lime

Coronavirus impact: Significant

Long-term secular drivers of mobility tech remain intact despite disruption: We expect the adoption of connected, autonomous, shared and electric technology will continue driving investment into mobility tech. In the near to medium term, social distancing will pressure both incumbents and nascent businesses in this ecosystem.

Ridesharing hit by declining trip volumes, increased costs: Ridership has declined by at least 80% in many markets. The ridesharing industry was already under scrutiny due to its lack of profitability and regulatory concerns regarding its contracted workforce. Now it also faces costs associated with disinfecting vehicles and paying out sick leave. That said, we believe it is in the midst of a turnaround and could benefit from commuters shunning mass transit in favor of hailing private rides. Uber's business in Hong Kong has returned to 80% of its pre-pandemic level, while Didi Chuxing's business in China is back to a normalized level. Ridesharing platforms with exposure into alternative services such as delivery and fintech should be better positioned to weather the crisis.

Despite headwinds in the near term, micromobility could draw commuters from public transit: We believe the e-bike and e-scooter industry could benefit in the long term as economic activity resumes and urban commuters veer away from public transit. China-based Hellobike, Mobike and Didi Chuxing reported normalized ridership levels as COVID-19 cases dwindled and employees began returning to work. This is an opportunity for better-capitalized providers to gain market share as cash-strapped startups suspend operations. In the long term, micromobility could play an important role in helping cities incorporate social distancing practices for commuters, while also solving existing issues related to congestion and emissions.

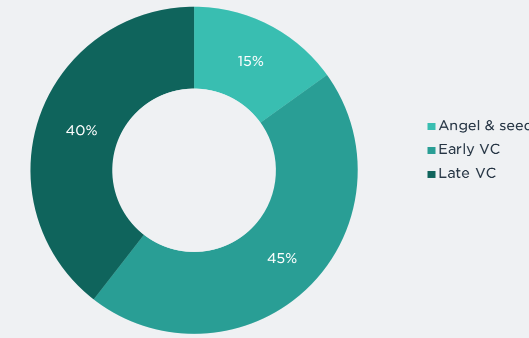
Autonomous vehicles to see near-term impact, long-term thesis intact: Self-driving vehicle companies have already suspended testing due to coronavirus concerns. Some automakers, facing pressure to focus inward on their core businesses, will have limited ability to invest at this time. This pullback will primarily affect providers with shorter cash runways and fewer established partnerships. We expect financial investors and tech companies with strategic interests in transportation will gain more of a foothold in the space by investing in and acquiring talent and technologies at significant valuation discounts. In the long term, we continue to view adoption of autonomous vehicle technology as a stable secular trend.

Government initiatives in Europe and Asia will fast-track electrification of passenger vehicles: Although consumers are likely to evade high-cost discretionary expenditures in the near term, as they return to work, they'll likely use cars as opposed to mass transit to avoid sharing spaces. As a result, congestion is beginning to approach pre-pandemic levels in markets such as Beijing. Some countries are taking actions to combat this trend. The UK, Germany and France have made announcements to ramp up subsidies for electric vehicles. China has increased its target for electric vehicle penetration from 20% to 25% of new car sales by 2025. As a result, we anticipate the share of electric vehicles among global new car sales will increase, even if a decline in consumer expenditure drags overall sales. We maintain our favorable long-term outlook on the space.

Internet of things (IoT)

By Brendan Burke
Contact: brendan.burke@pitchbook.com

IoT company count by stage*



Source: PitchBook | Geography: Global
*January 1, 2017-December 31, 2019

Description: Technology that connects physical places and things to the internet for data collection and analytics. Includes connected healthcare devices.

Key VC-backed companies: SenseTime, Royole, Horizon Robotics, Terminus Technologies, Samsara, Proteus Digital Health, C3.ai, Sigfox, ASR Microelectronics

Coronavirus impact: Significant

Mainstream industrial IoT (IIoT) adoption to be pushed out by several years: IIoT vendors have been developing enhanced value propositions to overcome the historically high failure rate of IoT projects. Implementation problems including cybersecurity and integration with legacy systems have limited the demand for emerging IoT solutions, and the share of enterprises adopting IoT across their organizations has remained below 20%.[4] We believe industrial companies are likely to cut costs in 2020 because of decreased demand from COVID-19, resulting in fewer long-term investments made in IoT projects with questionable ROI. IoT projects that can deliver demonstrable cost savings through reduced employee hours and improved workforce efficiency may be expanded at enterprises that already have confidence in their effectiveness.

Remote patient monitoring to supplement overstretched healthcare systems: In addition to telehealth, remote patient sensors can provide analytics of biomarkers related to COVID-19. The limitations of global healthcare systems to treat low-risk patients could make the technology both a valid personal and clinical response. Remote patient monitoring startups have received VC investment from leading medical device suppliers, including Medtronic, and several startups are targeting COVID-19 symptom detection, including Vivify Health, HGE Health and BioIntelliSense. A mass deployment of remote patient monitoring devices during this global health crisis could lead to longer-term use of the technology for both prevention and treatment.

Corporate investors in IoT startups to pull back: We believe that CVC investors are a core part of the IoT VC ecosystem due to their strategic interests in advancing sensor-based technologies. Intel, Qualcomm, Sony and Samsung were among the most active VC investors in 2019. Enterprise cost-cutting is likely to flow through to R&D budgets and ultimately corporate investment budgets for CVC programs without committed capital. All IoT segments are likely to be affected by decreased CVC activity, especially IoT software, IIoT and connected buildings.

4: "Unlocking Opportunities in IoT," Bain & Company, Ann Bosche, et. al., 2018.

Artificial intelligence & machine learning (AI & ML)

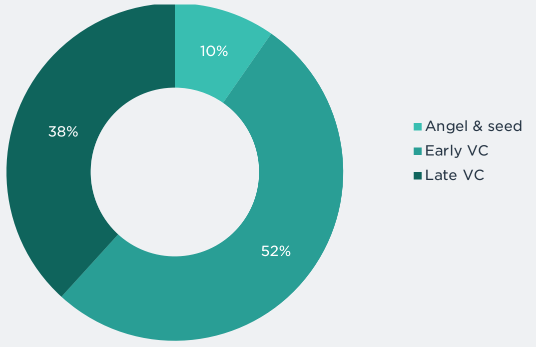
By Brendan Burke
Contact: brendan.burke@pitchbook.com

Automation timelines to be accelerated: AI's ability to streamline workforces is a long-term trend that will likely be accelerated due to enterprise cost-cutting as a result of the economic slowdown. The motivation to make investments in this area has been enhanced by the labor restrictions from COVID-19 and will be further bolstered by the encouragement of shareholders to cut costs as the current crisis unfolds. Manufacturing and physical retail have been hit particularly hard by the virus itself, and we believe enterprises have increased their inquiries into AI-enabled robotics capabilities, particularly in China. Looking ahead, we believe that job cuts will be inevitable among large enterprises and may be cushioned by increasingly prevalent robotic process automation and AI assistants for sales support, marketing optimization and routine back-office tasks.

AI in healthcare to grow in preparation for future public health risks: AI has been deployed in the detection, diagnosis and treatment of COVID-19, and we believe the disease demonstrates the need for improved AI in healthcare. Several AI models, including those of BlueDot and Metabiota, were able to detect the outbreak in Wuhan based on natural language processing of government healthcare reports and news releases. The accuracy of the models' predictions of COVID-19's spread weakened over time but proved to be valid alerts. Furthermore, multiple biotech companies are using AI in the development of vaccines. We believe that COVID-19 has demonstrated the validity of AI-based pandemic response and may catalyze changes in regulations around medical data sharing between companies, healthcare providers and governments for AI training purposes. That shift would unlock numerous opportunities in diagnostics and drug discovery.

AI-first startups to be encouraged by market downturn: The decrease in growth for SaaS startups in 2020 may encourage investors to look to AI-first business models with lower gross margins but higher business value and "winner take all" potential. Early-stage investors may be more patient with the time and cost needed for seed-stage startups to develop AI models given the economy will likely take a long time to recover from the pandemic. Economic downturns tend to reveal which companies provide the best solutions to customer pain points, and we believe that AI-first software platforms are likely to win out over rules-based approaches in the long term.

AI & ML company count by stage*



Source: PitchBook | Geography: Global
*January 1, 2017-December 31, 2019

Description: AI is the area of computer science that focuses on creating intelligent machines that make decisions based on predictive models. ML is a subfield of AI that aims to give computers the ability to learn iteratively, improve predictive models and find insights from data without being explicitly programmed.

Key VC-backed companies: UiPath, Automation Anywhere, Babylon Health, DataRobot

Coronavirus impact: Moderate

Insurtech

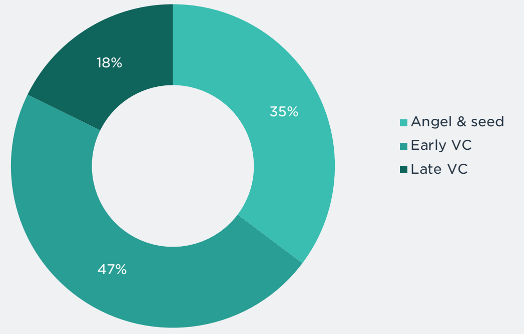
By Robert Le
Contact: robert.le@pitchbook.com

Health, life and commercial insurers face immediate income impact: Dropping interest rates can have a significant impact on revenue and insurers' ability to meet future obligations. They also present risk to the business model. In addition, unexpected large payouts related to COVID-19 also threaten cash flows. In the long term, the insurance industry could likely prove durable, but startups including Oscar (health), Laddar (life) and Newfront Insurance (commercial) will probably struggle in the current environment.

Accelerated demand for claims automation and disease modeling: Insurers are liable to see a substantial rise in claims due to the COVID-19 crisis, a probable catalyst to drive adoption of claims automation and fraud management technology. The nature of this health crisis is also likely to spur interest in risk analytics technologies that incorporate disease and outbreak data to help underwrite policies. Startups such as Metabiota help insurers model infectious disease outbreaks with real-time surveillance data and could drive huge benefits to insurers early in an occurrence.

Renewed debate on public insurance option: COVID-19 has renewed focus on the shortcomings of the US healthcare system, which could recommence efforts to establish a public insurance option—a clear competitive risk to private health insurers.

Insurtech startup company count by stage*



Source: PitchBook | Geography: Global
*January 1, 2017-December 31, 2019

Description: Companies that either sell insurance directly to customers or sell technology and services to the insurance industry.

Key VC-backed companies: Zenefits, Gusto, Root Insurance, Oscar, Bright Health, Lemonade, weFox, Devoted Health

Coronavirus Impact: Moderate to significant

Fintech

By Robert Le
Contact: robert.le@pitchbook.com

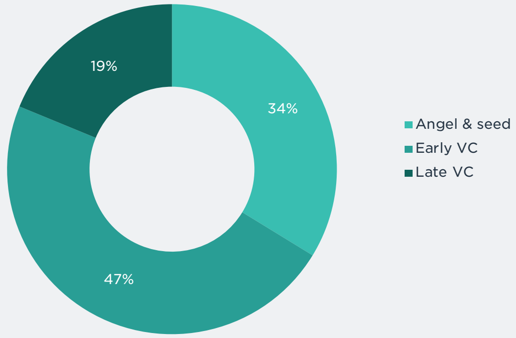
Digital payments benefit from germ-conscious consumers: Digital and mobile payments should see a boost as consumers, especially in the US, rethink cash handling and entering PINs. This could also drive more adoption of and demand for tap and pay cards. We expect an increased adoption of mobile payments with biometric authorization, which is already native within newer Apple and Android phones.

Money transfer services to track macroeconomic contraction: We expect remittances to slow considerably as closed borders decrease migration and job losses mount. Remittance providers such as TransferWise and Remitly will be adversely affected by this contraction. Institutional money transfer providers such as Payoneer and Flywire will also feel the negative impacts as disrupted global supply chains slow cross-border transactions. We anticipate these services will pick back up as the crisis softens.

Robo-advisors and digital brokerages face cyclical test: The falling stock market will lead to reduced AUM for fintech investment providers. A large portion of their revenues come from AUM fees and/or interest on uninvested cash. Robo-advisors—which emerged during the bull market cycle—are facing their first significant test on how they perform during a downturn. Digital brokerages, such as Robinhood, struggled as unprecedented trading volumes have led to outages. Even so, the company saw record new account openings and net deposits.

Current monetary policies hamper neobanks and fintech lenders: Near-zero interest rates decrease the ability of neobanks to offer high-yield deposit accounts. This has been an important differentiator in recent years as incumbent banks have primarily maintained low interest rates. While some neobanks such as Varo and Chime have sought to maintain high APY accounts, the spread over incumbents is likely to diminish. This will also contract contribution margins. In addition, fintech lenders will see competitive interest rate offers become less of a differentiator while stimulus efforts pump low-interest loans through traditional bank channels. As credit markets tighten up, traditional lenders will benefit from having a larger and more established customer base possessing a stronger credit profile.

Fintech company count by stage*



Source: PitchBook | Geography: Global
*January 1, 2017-December 31, 2019

Description: Companies that provide financial services through online and other digital channels to consumers and businesses.

Key VC-backed companies: Stripe, Ripple, Chime, Revolut, Toast, SoFi, N26, TransferWise

Coronavirus impact: Moderate to significant

Increased credit defaults and tighter securitization market: Business shutdowns and increased unemployment will likely drive substantial credit defaults and losses for fintech companies focused on small business and consumer lending. These providers will see significantly reduced loan volume as the securitization market locks up and fewer customers meet credit criteria.

Supply chain tech

By Asad Hussain
Contact: asad.hussain@pitchbook.com

Coronavirus crisis could catalyze long-term investing in supply chain tech as companies seek to diversify value chains: We expect coronavirus to negatively affect supply chain tech deal activity in the near term as VCs adopt a "wait-and-see" mentality. However, we believe coronavirus-related supply chain disruptions are highlighting the need for technologies that can help ensure business continuity and mitigate the impacts of economic shocks.

Risk management and freight tech startups could see boost: In the long term, we expect increased investments in technologies that expand the ability of management teams to track the journey of parts, components and products from manufacturing to delivery. Risk management platforms offer data analytics and real-time monitoring services that enable companies to identify and react quickly to anomalies. Freight platforms provide valuable visibility into where high-value goods are in transit, streamlining processes and reducing friction in the supply chain.

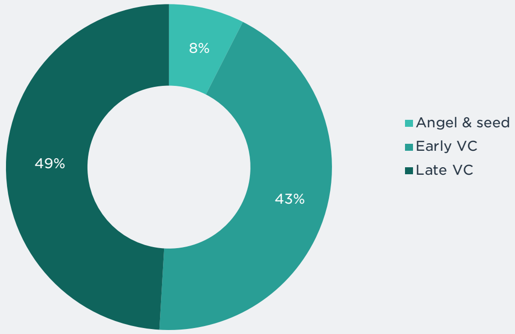
Warehousing startups could also prove helpful: Retail and medical supply chains have come under duress as consumer demand for household items and physician visits increase. Flexible on-demand warehousing marketplaces can help add flexibility and scalability for small businesses, enterprises and other shipping intermediaries, so they can maintain steady operational performance during periods of fluctuating inventory demand. They enable companies to proactively stockpile inventory as needed without making prohibitively large investments in warehousing space.

Autonomous tech ensures continuity of labor: In the near term, we expect the industrial automation industry to face headwinds as companies pull back on capital expenditure-heavy projects. However, in the long term, we believe companies will seek to invest in robots and autonomous technologies that can help maintain continuity of operations during labor shortages, reducing disruptions to the flow of goods to consumers. Providers of subscription-based, full-service solutions as opposed to individual unit sales should be better positioned to serve the needs of capital-constrained customers.

Last-mile delivery apps a focal point of corporate and VC investment: Online grocery and food delivery apps have seen major surges in demand. This is providing a revenue tailwind to some providers. With that said, many of these platforms have reduced commissions charged to restaurants and begun offering free delivery services in a bid to draw consumers and mitigate the impacts of restaurants ceasing operations. These initiatives are likely to pressure margins in an industry that is already highly unprofitable.

Coronavirus to catalyze automated delivery investment: Prior to this crisis, investors and management teams primarily viewed autonomous delivery as a means to reduce delivery costs. The pandemic has revealed a new use case; increasing safety for consumers and helping providers ensure service continuity.

Supply chain tech company count by stage*



Source: PitchBook | Geography: North America & Europe
*January 1, 2017-December 31, 2019

Description: Companies that provide technologies and services that are changing how domestic and global supply chains are managed and operated. The emerging digital economy is stressing the traditional global supply chain in new and unexpected ways, driving demand for better visibility across delivery and supply channels, quicker shipping capabilities and the ability to source products on-demand.

Key VC-backed companies: Resilinc, Project44, Flexe, Fetch Robotics, Realtime Robotics

Coronavirus impact: Moderate

Cloudtech & DevOps

By Paul Condra
Contact: paul.condra@pitchbook.com

DevOps insulated from near-term impacts: DevOps is likely one of the more insulated industries from the near-term supply and demand shocks affecting the global economy. Software development initiatives are likely to remain mission-critical, and quickly changing demand environments could cause firms to increase investment in current digital products or pivot to new ones, particularly those involved in online commerce.

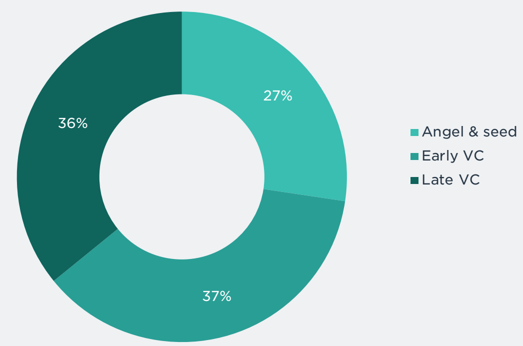
Economic slowdown could moderately reduce demand: A potentially longer-term recession could tighten budgets, reduce headcount growth of DevOps teams and drive current teams to rely more on open source tools, reducing spend on VC-backed paid tools. The overall pullback in industry conferences could also reduce sales opportunities. However, we expect digital initiatives to remain core drivers of enterprise spend over the long term.

Work-from-home orders could benefit DevOps: From a continuity perspective, DevOps workers tend to be highly mobile and able to work remotely with little disruption. The need for organizations to develop work-from-home capabilities could drive short- and long-term demand for DevOps collaboration and communication tools, as well as IT automation tools that help scale infrastructure. In fact, infrastructure automation provider HashiCorp closed a $175 million round in mid-March as the crisis was unfolding. DevOps teams that now must work remotely may also see increased value in centralized code repository and deployment tools, or CI/CD tools that help automate the management of software development.

Focus on freemium opportunities: SaaS providers are ramping up giveaways to help existing customers and attract new users. We view this as a wise long-term strategy that carries relatively little cost for providers. Zoho (collaboration tools), Microsoft Teams, Webex, LogMeIn, Zoom and Atlassian, among others, have all made certain products free since the start of the crisis.

Data protection remains critical focus: As DevOps teams work remotely, this will put further stress on efforts to ensure data protection and security as more information travels through cloud data centers.

Cloudtech & DevOps company count by stage*



Source: PitchBook | Geography: Global
*January 1, 2017-December 31, 2019

Description: Companies focused primarily on the opportunity to provide products and services that help developers and IT teams build, run and manage software applications. The rush to create more digital IP within organizations is driving investment in developer capabilities, creating demand for better digital tools.

Key VC-backed companies: HashiCorp, Asana, Sysdig, UiPath, Gitlab

Coronavirus impact: Low

Information security (infosec)

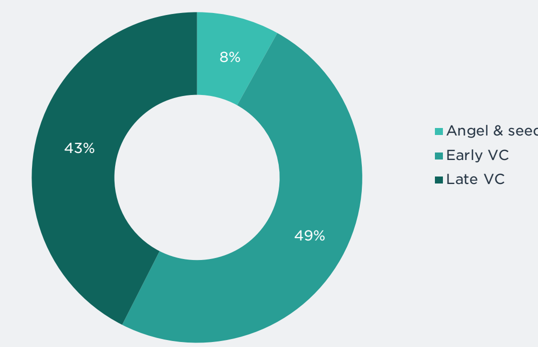
By Brendan Burke
Contact: brendan.burke@pitchbook.com

Infosec spending likely to be affected by low growth in IT spending in 2020: IDC has reduced its IT spending forecast for 2020 from 5% in January to -5.1%. Infosec is a subset of IT and may decrease in parallel, though we believe that legacy security appliances such as firewalls will be affected more heavily than cloud-native security offerings. Given the existing challenges to growth for incumbents such as McAfee and Symantec, we expect infosec incumbents to exhibit low or flat growth during calendar year 2020. Unprofitable market leaders including Crowdstrike, Palo Alto Networks, Okta and Zscaler may face pressure to cut costs in the short term, but we believe they have sufficiently strong balance sheets and customer relationships to maintain growth. Likewise, late-stage private companies that have raised VC recently should benefit from the continued need of enterprises to protect their assets, and we believe they will maintain their growth.

Advanced phishing tools required for distributed workforces: Given the high degree of concern around COVID-19, hackers have created new phishing attacks, which refer to fraudulent communications intended to steal data or install malware. A prominent version of these phishing attacks is disguised as a COVID-19 tracker, mimicking popular resources such as the Johns Hopkins COVID-19 map. We believe that the anti-phishing market is mature but that existing tools do not utilize predictive analytics to determine zero-day phishing attacks. Because of the increase in distributed workforces, we believe that enterprises may adopt advanced anti-phishing capabilities offered by emerging startups including Ironscales, Avanan and Inky.

Product churn likely to increase: Because of budget uncertainty, we believe that organizations will be more likely to replace existing systems with lower-cost or more holistic platforms. There is already an industry trend toward consolidation of infosec toolchains, and we believe this slowdown could accelerate it. Endpoint security platform SentinelOne has offered its platform to remote workers for free and can take advantage of this trend given its ability to integrate cloud, on-premise and edge device security with one endpoint security solution. Furthermore, the increasing availability of open source security tools may accelerate the transition to developer-led security, shifting infosec budgets toward application security and tools offered by public cloud hosts.

Infosec company count by stage*



Source: PitchBook | Geography: North America & Europe
*January 1, 2017-December 31, 2019

Description: Vendors of technology and services that protect enterprises from digital threats to business operations. The infosec industry evolves constantly in response to emerging threats, generating innovation opportunities for legacy vendors and startups alike.

Key VC-backed companies: Tanium, Netskope, Cybereason, Pango, Sumo Logic, Illumio, SentinelOne

Coronavirus impact: Low

The great unlocationing

Fully distributed work could be the next megatrend to dramatically reshape the economy

By Paul Condra

Published on May 1, 2020

The COVID-19 pandemic has set the stage for a new era of fully remote VC-backed startups without central offices that could serve as a model for growth and innovation over the next decade. Compared to the pre-pandemic era, distributed startups are likely to find themselves more favorably positioned in the current environment when it comes to attracting VC and recruiting highly skilled workers. At the onset of the crisis, distributed businesses were likely able to more quickly adapt to stay-at-home measures while keeping expenses low relative to location-based peers. As the recovery ensues, these characteristics could support higher private valuations, helping lure increased VC and creating the conditions for distributed businesses to become key innovators during the next economic cycle. Over time, institutionalization of distributed organizations could have significant economic, social and political impacts as businesses adopt new approaches to work, and as employees and capital become untethered from specific locations.

Distributed startups have been nascent, but success stories exist

Distributed businesses represent a more extreme version of traditional work-from-home models, where organizations maintain central offices but allow employees to work from home part-time while a limited number of employees do it full-time, often in different cities. Of the roughly 5 million workers in the US who work from home full-time (excluding sole proprietor businesses), we estimate about 1 million of them work for fully remote organizations, representing about 1% of the total working population.[1]

Knowledge- or tech-based jobs are easier to do remotely, and there are several notable venture-backed startups that are fully distributed. Perhaps the most successful example is the coding platform GitLab, which was founded in 2011, has since raised $414 million and was valued at $2.8 billion in September 2019. The company has more than 1,000 employees in over 50 countries and is estimated to be generating over $100 million in annual revenue.

The fully distributed model has been debated at great length among venture investors. While startups often begin at a founder's home without central offices, investors have questioned how well a business can find its footing and grow—especially in its early days—without close, personal collaboration among employees. Similarly, as organizations scale, the distributed model is often viewed as an impediment to that growth, which has made it harder for companies using it to raise money. For venture investors, the ability to see a company's physical offices, meet the team and witness firsthand the central hive of day-to-day activity is a key part of regular due diligence.

1: This estimation is based on BLS data and GitLab survey data.

Compared to the pre-pandemic era, distributed startups are likely to find themselves more favorably positioned in the current environment when it comes to attracting VC and recruiting highly skilled workers.

GitLab's co-founder and CEO Sid Sijbrandij has commented in the past that while some early-stage investors expressed interest in the company, they chose not to invest because of its distributed model.

Pandemic legitimizes distributed models and could catalyze investment

The pandemic is shining a spotlight on remote work in a new way that in many cases is likely to force its acceptance among skeptics. As practically every tech startup has shifted to at-home work, VCs have found they are de facto investors in a portfolio of quasi-distributed startups. VCs are also becoming more distributed themselves, finding ways to remotely manage portfolios, perform due diligence and make investments, with some expressing the view that a return to the office may be unnecessary.

Investors are completely rethinking the value of telework. Once a novel oddity, fully remote businesses are suddenly in vogue, and they will likely be more popular among early-stage investors seeking profitable startups with minimal pandemic exposure. Distributed startups are likely weathering the downturn more easily than their location-based peers, as they didn't have to transition to a remote format, nor do they have high ongoing facilities costs for unused office space. They are also well positioned to continue hiring into a favorable global labor market as more startups lay off employees. This could drive a virtuous cycle effect; as more investors place higher value on remote work models, distributed startups will benefit from higher valuations, improving their ability to attract capital and grow. This could lead to a new class of fully distributed startups that emerge from the crisis in a relatively stronger position.

Necessary infrastructure and tools emerging

The pandemic has provided a real-time test kitchen for how well current digital infrastructure can hold up amid surging demand for remote work—and it has done exceedingly well. The spike in web traffic, VPN use, streaming video and gaming has driven few, if any, notable outages, and service providers have strategically throttled download speeds or adjusted product release dates to avoid demand bottlenecks. Network providers continue to make infrastructure improvements, with Akamai reporting consistent network load time throughout the transition to working from home.[2] The majority of issues that have arisen do not relate to any significant infrastructure issues, but to "last-mile" connectivity, where there may be capacity issues when connecting from the network to an individual home, or an inability to schedule service owing to health-related precautions.

From a consumer perspective, the pandemic experience has demonstrated the strength and resiliency of the ecommerce infrastructure built up over the last decade, easing the transition to fully remote. Delivery networks, social networks, digital entertainment and digital services have gone on largely uninterrupted. Gaps in digital education and health services have appeared but are likely to be areas of investment and improvement over the next decade. Over the next five to 10 years, advances in 5G wireless technology, improved wifi, internet of things (IoT) and edge networking will further strengthen the distributed grid, opening the door to new digital products and services, and enabling more work to be completed virtually.

Traditional location-based enterprises forced to work from home are making significant investments in distributed capabilities. This includes hardware (microphones and laptops), infrastructure improvements (VPNs and cloud storage) and increased digital endpoint security. SaaS-based collaboration and work tools are also experiencing a surge in demand. Over the course of a few weeks, Zoom grew from a niche-enterprise provider to a common household verb. This will likely drive more investment into emerging derivative products that strengthen this budding ecosystem. For example,

2: "The Network Impact of the Global COVID-19 Pandemic," The New Stack, Mary Branscombe, April 14, 2020.

Fully distributed VC-backed startups

Company	Industry/product	Last VC deal close date	Deal size ($M)	Post-money valuation ($M)
GitLab	Software development	September 17, 2019	$268	$2,750
Automattic	Publishing platform	December 26, 2019	$381	N/A
InVision	Design platform	December 11, 2018	$115	$2,000
Digits	Fintech	December 20, 2019	$32	$167
Toptal	Freelancer network	July 1, 2012	$1	N/A
Zapier	App integration	November 25, 2014	$1	N/A
Close.io	CRM	March 5, 2015	N/A	N/A

Source: PitchBook | Geography: Global

startup Grain provides the capability to capture Zoom video snippets and redistribute them. Other virtual collaboration tools gaining attention include Notion Labs, which recently achieved a $2 billion valuation; and Figma, which is reportedly in talks to close a deal at a similar $2 billion valuation.

While many of these investments were initially viewed as continuity solutions, enterprises will nonetheless seek to extract as much ROI as possible, increasing the chances their use will persist well into the economic recovery. To the extent that forced adoption and integration of remote-work capabilities improve productivity among location-based organizations, this will further strengthen the argument in favor of fully distributed models. Over time, allocating budget to distributed and remote capabilities could emerge as an ongoing investment priority, similar to the digital transformation initiatives of the past decade.

Organizational advantages of being remote

Traditionally, employers who allow remote work have justified the practice as a flexibility and convenience option for employees who need to work remotely some of the time. However, allowing remote work occasionally is not the same thing as strategically deciding to be a fully distributed organization. For these employers, the benefits of being fully remote outweigh the alternative. These include the cost savings from not having central facilities; improved morale by giving employees ultimate flexibility and the ability to live in less crowded or less expensive locations; and the ability to hire from a global talent pool without having to compete for candidates in dense cities. These justifications could become more acute in the near term as organizations seek ways to reduce costs and improve productivity during lean economic times.

When it comes to hiring, demographic trends are clearly supportive of distributed businesses. As millennials increasingly begin to start families and prioritize space and quality of life, this could reduce their preference to live in dense urban locations (a trend already supported by census data). Post-pandemic, trends supportive of remote work will include ongoing fears of future virus outbreaks, as well as a growing environmental focus as workers view remote work and the ability to eliminate lengthy commutes as conducive to reducing carbon footprints. While employees who work from home may have historically hesitated to relocate to smaller towns for fear of finding themselves unemployed in a city with few alternatives, a robust distributed employer base will help decrease this risk.

Despite these cost and recruiting advantages, few employers have been able to make a convincing argument that remote work actually results in a better product, or that it creates the conditions where something could be created that could not be done in an office. Yet once the distributed economy passes the tipping point, this view may change. As remote ecosystems are built and companies become fully distributed, this will drive new product opportunities and changes to corporate culture that could lead to new levels of productivity. In the same way the era of digital transformation enabled digital-first companies to disrupt their nondigital counterparts (as we saw with ecommerce versus retail and ridesharing versus taxis), distributed organizations could find they have an inherent edge over location-based companies.

Wide-ranging impacts of distributed work

To the extent that the next class of venture-backed distributed startups ushers in a new era of increased remote employment, the social, economic and political implications could be significant. The removal of geographical constraints on business formation and job location would likely drive a long-term trend of de-urbanization of labor and capital. These impacts are likely to be most widely experienced in large cities, where skilled labor and investment capital is largely concentrated. As employees spread out to rural locations, they will take their salaries with them, decreasing the tax base of cities and causing a decline in economic activity. Rural areas will be the beneficiaries of these trends, as the influx of employed workers drives more economic activity and attracts investment capital.

As remote ecosystems are built and companies become fully distributed, this will drive new product opportunities and changes to corporate culture that could lead to new levels of productivity.

Politically, the trend of blue-staters in the US relocating from technology hubs and potentially diffusing across red states has the potential to reduce the stark geographic divisions between the Democratic and Republican parties, dramatically reshaping the current political landscape.

From an environmental perspective, much research has been conducted about the positive impacts of telework, which could curtail lengthy commutes that create traffic and congestion in cities. It's also likely that work travel could decline as employees take fewer work trips in favor of virtual meetings.

A study by the National Bureau of Economic Research released at the onset of the COVID-19 pandemic estimated that up to 37% of US jobs could feasibly become fully remote.[3] This implies an upper bound of roughly 39 million jobs, a significant increase from the current 5 million remote workers. While not all new remote jobs would result in employees moving to new locations, the scale of these numbers is significant enough that even a fractional impact would likely have significant and long-lasting implications.

3: "How Many Jobs Can Be Done at Home?" The National Bureau of Economic Research, Jonathan Dingel and Brent Neiman, April 2020.

NOW WHAT?

Disaster forces venture investors to ditch their usual script

By James Thorne & Priyamvada Mathur

To be a venture capitalist is to be a perennial optimist. Optimistic that the best is yet to come. That no problem is too big for brilliant entrepreneurs. That technological innovation will make the world a better place.

But as the US economy slowly begins reopening, it is clear that the pandemic is testing the resolve of optimists across the industry. It has prompted many VCs to flip the script and rethink their strategy, or at least their top priorities.

The coronavirus-driven turmoil isn't only an existential threat to the emerging crop of successful, young founders-turned-investors. Even seasoned general partners, battle-hardened by the dot-com bust and the global financial crisis, are reassessing their approach.

Post-pandemic, the new playbook for venture investing calls for a slower and more defensive approach—a sharp about-face to years of frenzied dealmaking, often at lofty valuations. It will also redraw the lines around areas of opportunity, picking winners and losers for a world that has changed dramatically in the short term, and in some ways permanently.

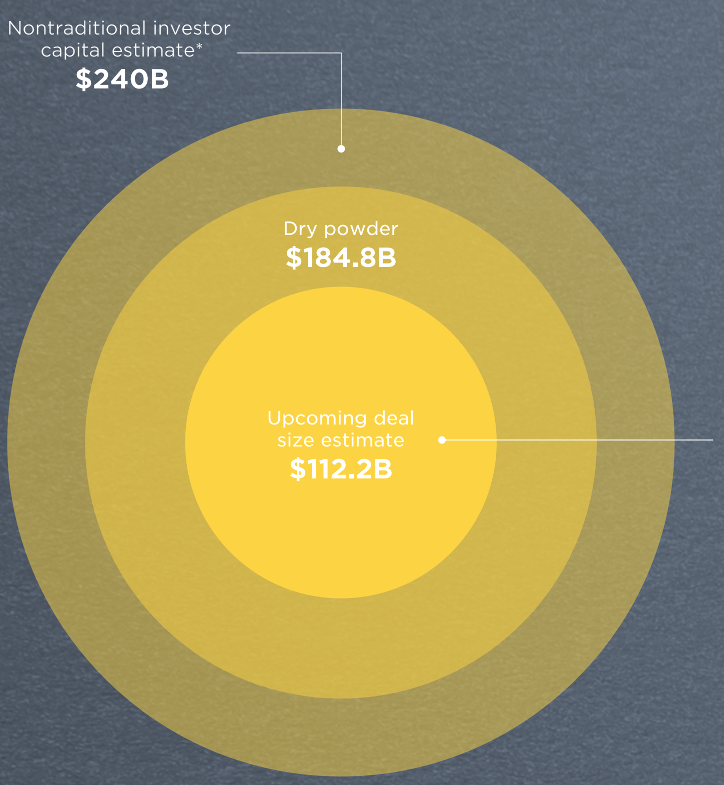
"Coronavirus is going to break the time-series data. It's going to throw off all the charts," said Rob Stavis, a partner at Bessemer Venture Partners. "I think the only time I remember that happening was in 1987, after the stock crash."

Economic fallout from the pandemic has been astonishing, from widespread business shutdowns to historic levels of unemployment to stalling deal flow. And it remains uncertain how long the disease and its economic impact will linger.

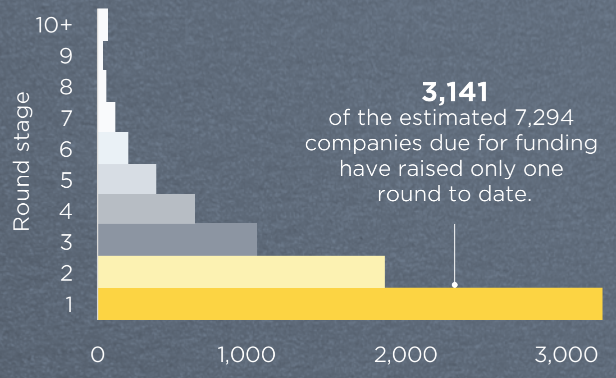
Venture investors guarding reserves

Facing an array of unknowns, many venture investors say they expect to write fewer checks well into next year. For a wide range of VC firms, their own fundraising cycles are likely to be delayed or endangered as their limited partners grapple with liquidity problems or other disruptions to their allocation models.

Capital outlook: Supply and demand



Companies due for funding by VC deal count



Source: PitchBook | Geography: US
*Based on latest available data through Q3 2019
Nontraditional sources of capital include asset managers, corporations and sovereign wealth funds.

"[VC investors are] going to tighten up on making sure that every dollar of reserves that gets invested and deployed is the right decision, and to avoid the risk of throwing good money after bad," said Gautam Gupta, a partner at M13, a venture firm that invested in food-delivery startup Thrive Market and scooter-sharing company Bird.

Even as many portfolio companies have struggled, investors are holding on to cash needed for follow-on rounds and bridge financing to support those that still show promise. Unprecedented curbs on travel and face-to-face interactions are encouraging investors to focus on the entrepreneurs and companies they know well.

But the bar has also been raised for which assets seem viable—and not all startups are passing muster.

Early in the current crisis, New York-based Corigin Ventures did "full triage sessions, every single portfolio company, voting on them from top to bottom about where we want new dollars to go," said David Goldberg, general partner at the firm, which invests in consumer, marketplace and real estate-focused tech startups.

Cost cuts by portfolio companies underscore a more cautious approach to capital deployment. From March 11 through the end of May, 244 VC-backed startups in the US had laid off more than 17,450 workers, according to estimates by Layoffs.fyi, a project that tracks tech layoffs.

Some nontraditional investors—often dismissed by venture capitalists as "tourists"—may reduce their allocation to the venture market as a way to limit risk. Corporate venture arms, in particular, get more jittery about how every dollar is spent during an economic downturn.

"Many corporates are in a difficult situation and are struggling financially," said Max Brickman, founder of South Bend, Ind.-based Heartland Ventures, which invests in startups looking to expand in the US Midwest. "Their venture capital arm is one of the first things they're going to cut."

Concerns over the availability of VC funding have been tempered somewhat by historically high levels of dry powder. The amount of cash on hand for investments reached $184.8 billion as of last October, according to PitchBook research. That doesn't even include the investable capital on hand among nontraditional venture investors like corporations and asset managers, a figure that PitchBook analysts estimate is at least $240 billion and could be as high as $340 billion.

But funds have been calling down those dollars at increasingly higher rates over the past decade. For funds launched between 2012 and 2015, investors had called down 70% to 75% of the capital after just four years. As the prospects dim for raising new funds, VCs are likely to pump the brakes on their deployment of old ones.

"I think we're headed into a period where capital is going to be a lot more scarce," said Ravi Mhatre, co-founder of Lightspeed.

Bargain buying

"Never let a good crisis go to waste" is an adage attributed to Winston Churchill, and later invoked by Rahm Emanuel, President Barack Obama's chief of staff, during the mortgage meltdown. With today's crisis giving it fresh relevance, the line has become something of a mantra among venture investors, ever in search of opportunities to back game-changing innovations.

The recession of 2008-2009 killed many businesses but also gave rise to Airbnb and Uber. For opportunistic investors, falling valuations now represent a chance to buy into promising startups at a steep discount—allowing investors to claim their desired ownership stakes at prices not seen in many years.

Indeed, this crisis has thrown an array of industries into a tailspin, especially those that require face-to-face interactions. Looking ahead, investors are angling to ride out the downturn by betting on startups that can adapt to the new reality. Some are bullish on the future of vertical SaaS, including startups that enable traditionally analog industries such as insurance and real estate to move toward digital transformation.

That has resulted in more existing incumbent software companies being pushed to do business using state-of-the-art platforms, digital signatures and video conferencing.

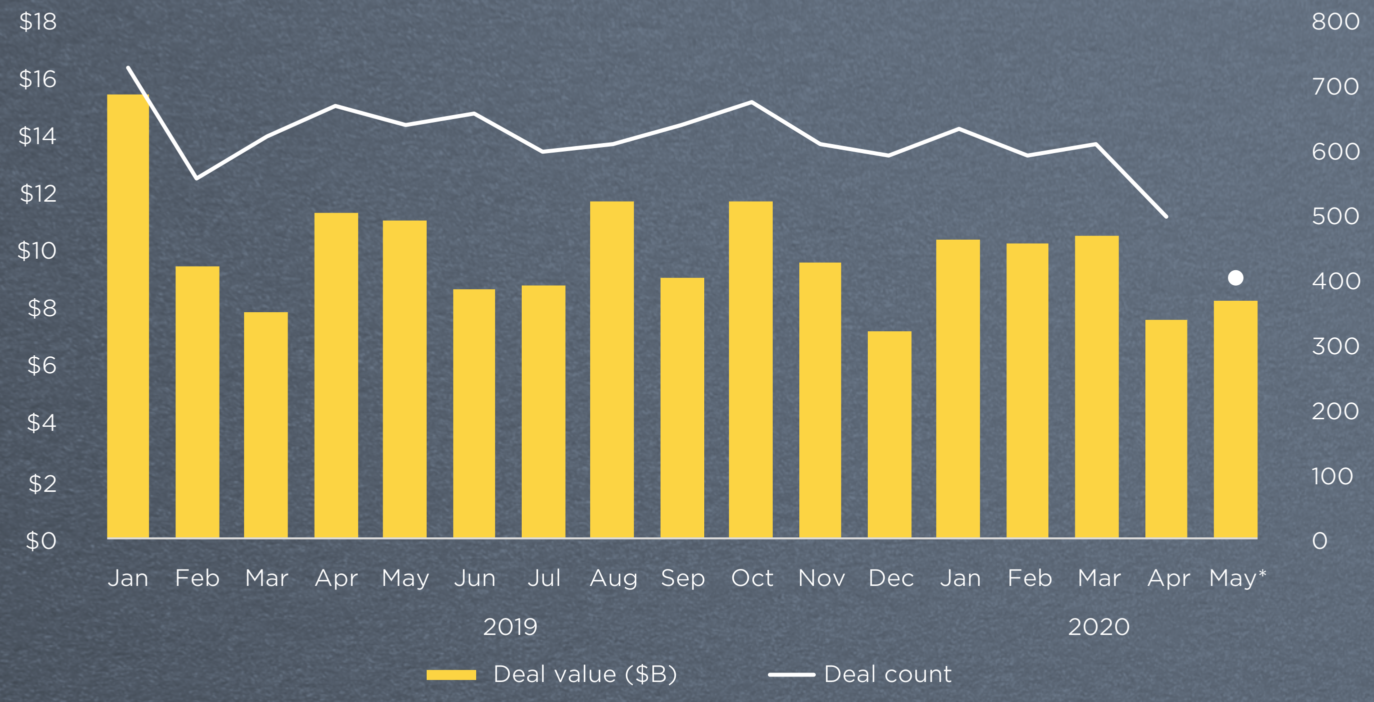
"What's really being changed by [the pandemic] is that we're suddenly deskless workers," said Alex Niehenke, partner at Scale Venture Partners. "Many small and medium-sized businesses will be challenged, and that destruction will create an opportunity for new companies to enter the markets."

Startups that allow people to use their mobile phones to get access to office buildings might experience a blip in business operations during shelter-in-place orders. But to prepare for a post-coronavirus world, Niehenke said companies

> "VC investors are going to tighten up on making sure that every dollar of reserves that gets invested and deployed is the right decision, and to avoid the risk of throwing good money after bad."
>
> **Gautam Gupta,** partner, M13

Funding in question

Follow-on fundraising deal flow for VC-backed companies in the US has declined recently



Source: PitchBook | Geography: US
*As of May 24, 2020

are desperate to find safe ways to allow employees to get in and out of buildings, such as elevators and doors that can be operated by smartphones or other remote controls.

And some companies are poised to build on that trend. Proxy, a creator of keyless entry technology for workplaces, raised $42 million in March from investors including Scale Venture Partners and Kleiner Perkins. Last year, Apple added several US universities to its program that enables students to access campus facilities via Apple Wallet.

One of the most searing outcomes of the crisis has been an unprecedented wave of layoffs. But Brickman, from Heartland Ventures, said he's optimistic about the next big shift in labor—when millions of people eventually will go back to work in the same quarter. Human-resources business software could be an avenue for VCs to scout startups geared toward connecting candidates with employers or using AI to vet job applicants.

"You can overtake people on the curves, not on the straightaways," said Lightspeed's Mhatre. "An environment like this represents a hairpin curve. … Businesses have to adapt and get creative."

Tilting the scales of power

For several years, investors have had to hustle to win deals—often doing so under founder-friendly terms while capital was abundant. In the months leading up to the pandemic, however, some VC investors began to reassert control, and the tables may now be turning.

Since the crisis began, a growing number of startups find themselves in dire financial straits, accelerating a shift in the dynamics of dealmaking.

A crowd of capital-hungry companies may soon be competing against each other to tap into the venture market at an inopportune moment. As of early May, an estimated 7,200 US startups were either due to raise or soon would be seeking new funding based on the time of their last round, according to PitchBook data.

"Most external opportunities coming our way are of companies who are in really tough situations and are suddenly being forced to raise," Niehenke said. The number of follow-on funding rounds for VC-backed companies has been declining since March, PitchBook data shows.

Already in this economic crisis, investors have begun flexing their power by demanding deal terms designed to limit risk.

After years of doing all-cash funding rounds, investors and entrepreneurs can expect to see more contingencies built into deals, such as earnouts that are pegged to financial milestones, said Fiona Brophy, a partner at law firm Perkins Coie. They're also seeking anti-dilution preferences as a hedge against future down rounds.

Some venture capitalists have sought to further protect their investments by securing veto powers for board members, strengthening operational controls and, in rare cases, instituting pay-to-play incentives to prod other investors to participate in current or future funding rounds, said Rachel Proffitt, a partner at the law firm Cooley.

The overall goal isn't to punish founders or fellow investors, but to gain more oversight of spending and to ensure others are aligned around a direction for the company. As Proffitt put it, "Investors may feel like they want a tighter finger on the pulse."

At the same time, some venture capitalists are wary of bringing back the draconian terms seen in previous economic downturns, such as full-ratchet anti-dilution preferences, which give early investors protection against downside risk in the event of a future down round.

"In a lot of ways, [onerous preference terms] really harm businesses in the long run to raise capital," said Larry Aschebrook, managing partner at growth-stage firm G Squared, which invested in 23andMe, Instacart and Lyft. Rather than imposing such terms, he said, investors may prefer to finance companies with convertible equity, which can act like a discount to a future round.

> “
> **I think we're headed into a period where capital is going to be a lot more scarce.**
>
> **Ravi Mhatre,** co-founder, Lightspeed ”

In the near term, investors say they are shying away from companies whose business models have been upended by the pandemic, such as those serving restaurants or the travel industry.

More broadly, the outbreak has hastened the pace of a host of long-running business trends, like the rise of remote work, the proliferation of cloud computing and the demise of brick-and-mortar retail.

In the startup world, the crisis also has added fresh urgency to an already-increasing emphasis on concerns like sustainability and profitability rather than growth at all costs. Under pressure from investors, companies have extended their runway by cutting costs and taking a hard look at their unit economics and path to profitability.

"In the pre-COVID environment, there were some companies that succeeded with really aggressive growth models where the business models were really unprofitable, but the businesses reached scale," said Lightspeed's Mhatre. "And then they figured out a way to raise more capital and ultimately drive some convergence. But that's not a winning strategy in a post-COVID world."

CREATIVE CAPITAL

How cash-strapped funds bridge liquidity gaps

By Andrew Woodman

An enduring myth about private equity is that the asset class is immune to economic downturns.

Patient capital may be better insulated than more liquid alternatives in the long run, but when things go sour, it is still vulnerable. This was evident at the start of May when Apollo Global Management, the firm headed by master contrarian Leon Black, reported a $2.3 billion loss in the first quarter, citing the impact of the COVID-19 crisis. That same day, fellow buyouts behemoth The Carlyle Group said it lost $612 million in the quarter.

Like many other sectors, private equity is stuck between a rock and a hard place as the pandemic upends the world economy. More than ever, general partners of PE firms are in need of capital—not only to support their ailing portfolio investments but also to invest in and take advantage of new opportunities. That's equally true for general partners of venture capital firms. And yet, at the same time, many limited partners have taken a hit in the public markets, and now face pressure to reduce their exposure to alternative investments like PE and VC.

While the situation has echoes of the global financial crisis, GPs may be better positioned to weather hard times than they were over a decade ago. Today they're armed with more elaborate financial ammunition to help their funds go into battle despite adverse market conditions. GPs who find themselves in a bind are resorting to financing tools like subscription credit lines, borrowing against their fund with various asset-backed securities or simply negotiating other options with their limited partners.

"As soon as there is a sign of the crisis, people worry that the same sort of events are going to play out, but I think that the playbook is a little bit different this time around," said Janet Brooks, a London-based partner at placement agent Monument Group. "Both LPs and GPs learned a lot from the 2008-2009 crisis."

Nevertheless, GPs—facing uncertainty surrounding the pandemic—are already exploring several creative funding tactics to bridge the gap as LPs and GPs work through liquidity constraints. Some investors in the past have questioned whether the two sides' interests are adequately aligned when practices such as subscription lines come into play.

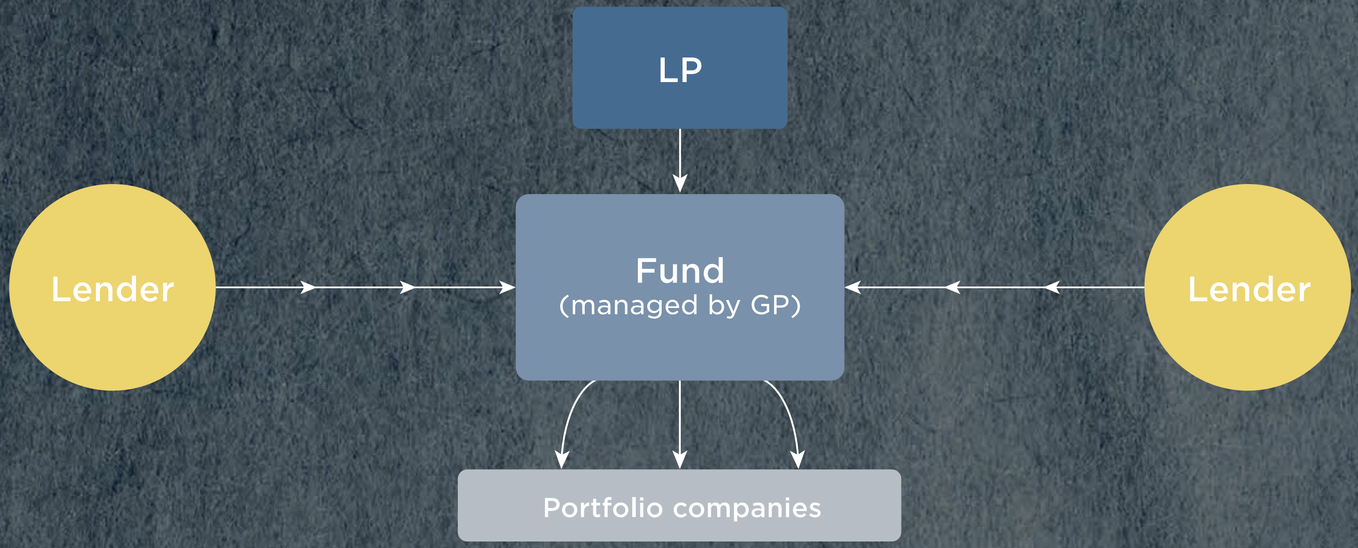
Then and now

While there are parallels between the global financial and present crises, there are also some key differences. A decade ago, two trends played out: First, as bank financing dried up, so did the deal flow. Then capital calls declined. However, distributions fell even faster as exits failed to materialize, causing net distributions to turn negative.

Also in the 2008 financial crisis—and again today—LPs were buffeted by the so-called denominator effect. The public market downturn reduced the value of their equities relative to their alternative investments. While some investors were able to review their asset allocations, many LPs, bound by their mandates, were forced to reduce their exposure to the private market, typically by exiting their previous commitments through the secondaries market.

Similar pressures have reappeared. Once again, capital calls are expected to exceed distributions. Distributions have been in the decline since their peak in 2017, and now net cash flows look likely to turn negative, according to PitchBook data, even before the pandemic took shape. Although new investments may have slowed, GPs may increase drawdowns to shore up portfolio companies dealing with the fallout from stay-at-home orders during the pandemic. Meanwhile, mezzanine and special situation-focused firms may want to increase capital calls to take advantage of distressed-asset opportunities.

Financing options for general partners



Today's private markets are much larger, better-funded and more developed than they were just 12 years ago. The industry had a record $1.2 trillion of dry powder available globally as of Q3 2019, according to PitchBook data. Moreover, LPs—many of whom experienced the last crisis—have more confidence in the asset class' ability to mitigate the damage from an economic downturn.

Credit lifelines

Subscription lines of credit, which have at times sparked controversy, are seeing increased use. Private fund managers typically obtain these specialized forms of credit lines from a bank or an alternative lender, using the LP commitment as a security, to delay calling capital. Barely known during the last financial crisis, subscription lines are being applied more broadly for various purposes. For example, they give GPs flexibility to complete deals without having to go to their investors each and every time cash is needed. LPs, meanwhile, are able to deal with fewer capital calls from the GP and the accompanying administrative burden.

There are other benefits, too. By delaying the capital call, a GP can essentially use subscription lines to boost a fund's internal rate of return. This is part of the reason subscription lines—benefiting from low interest rates—have gradually extended well beyond their traditional 90-day repayment terms. This hasn't always gone over smoothly in the LP community. In 2017, the Institutional Limited Partners Association expressed concern over what the industry group called a lack of transparency regarding LPs' overall exposure to credit lines. The ILPA issued guidelines that sought to rein in the practice. Nevertheless, subscription lines remain in use, especially in the context of the current crisis.

> **The crisis has forced GPs to consider their options a little bit more and look at what other types of products might be available in the fund finance space. That may mean these will be used more going forward.**
>
> **Cameron Roper,** fund finance lawyer, Proskauer

"We do think that there may well be an increase in GPs using their credit lines, as opposed to calling on LP capital," said Tom Pinnell, a London-based associate director at fund administrator Langham Hall. Pinnell said some LPs may even ask their GPs to use their credit lines rather than calling capital if their liquidity gets constrained.

Cameron Roper, a fund finance lawyer at Proskauer, said some GPs now using credit lines have already sought to expand their use by borrowing additional capital, or in some cases, extending their repayment period. So far, Roper said, banks are being supportive of existing borrowers.

GPs tend to draw upon subscription lines early on in the life of a fund. Funds in later stages of deployment may have the added pressure of supporting their existing portfolio and are therefore more likely to consider alternatives. One way is to use the proceeds of an exit to support portfolio companies.

However, if their limited partner agreements don't allow for this practice, known as recycling provisions, the GP would have to renegotiate terms with their investors. Alternatively, managers have the option of borrowing against the fund.

"This might involve using an asset-backed facility secured by the underlying assets of the fund," said Proskauer's Roper. "There's quite a lot of innovative products in this space."

Asset-backed facilities—also called net asset value lines—offer another liquidity crutch for GPs with fewer uncalled commitments available.

Obtaining such credit is typically easier for funds that can secure the financing against a diverse pool of portfolio companies. However, lenders can usually tailor a package according to the needs of the GP—depending on the stage of the fund. This includes the issue of hybrid facilities that use a combination of uncalled commitments and underlying assets as collateral.

"The crisis has forced GPs to consider their options a little bit more and look at what other types of products might be available in the fund finance space," Roper said. "That may mean these will be used more going forward."

Pure debt isn't the only course of action. Another niche solution gaining favor is preferred equity financing, which allows an outside funder to have extra skin in the game through access to fund distributions. Equity financing can be put in place more quickly as they don't have the same sort of controls that a bank would seek in a typical credit deal. The trade-off is that the overall economics are more expensive than debt.

> **Adding more leverage may not be the only answer to current issues.**
>
> **Eamon Devlin,** lawyer, MJ Hudson

Eamon Devlin, a London-based lawyer and partner with asset management consultancy MJ Hudson, said that it can be difficult in the current environment to gauge a GP's capital needs. That's especially a concern while firms are unsure whether US or European government programs will take any pressure off their portfolio investments. In any case, Devlin said, GPs should be considering options beyond debt.

"There is significant leverage throughout the system," he said. "And adding more leverage may not be the only answer to current issues."

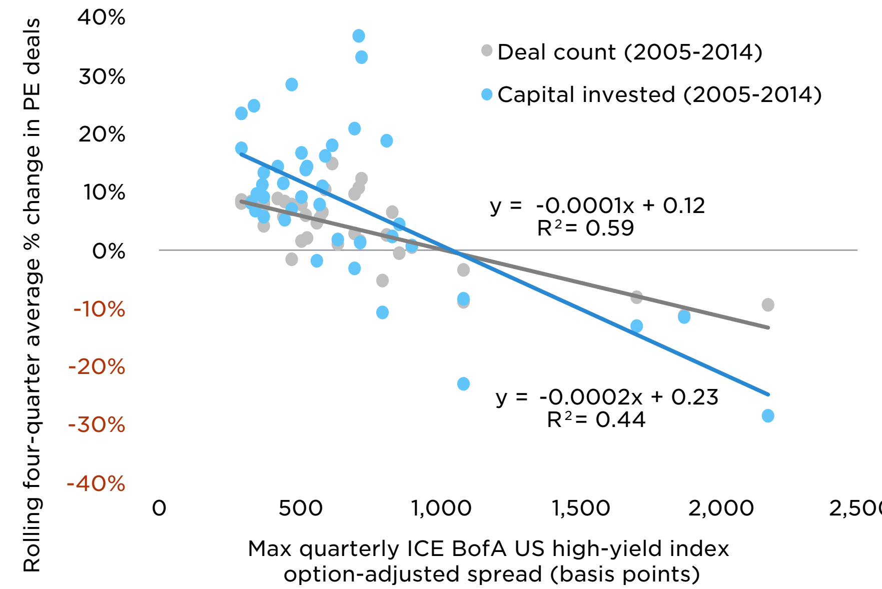
Quantitative Snapshot

A visual tour of US private equity through economic turmoil

By Nizar Tarhuni, Daniel Cook, CFA,
Andy White and Zane Carmean

Published May 1, 2020. This data-driven snapshot is a compilation of key insights and segments from the first edition of PitchBook's brand-new series, Quantitative Perspectives. The Quantitative Perspectives series will explore trends across private markets, emphasizing more technical analysis of classic and new PitchBook datasets to complement existing qualitative macro research.

Projecting deal flow: comparing high-yield corporate bond spreads to average trailing four-quarter changes in deal flow



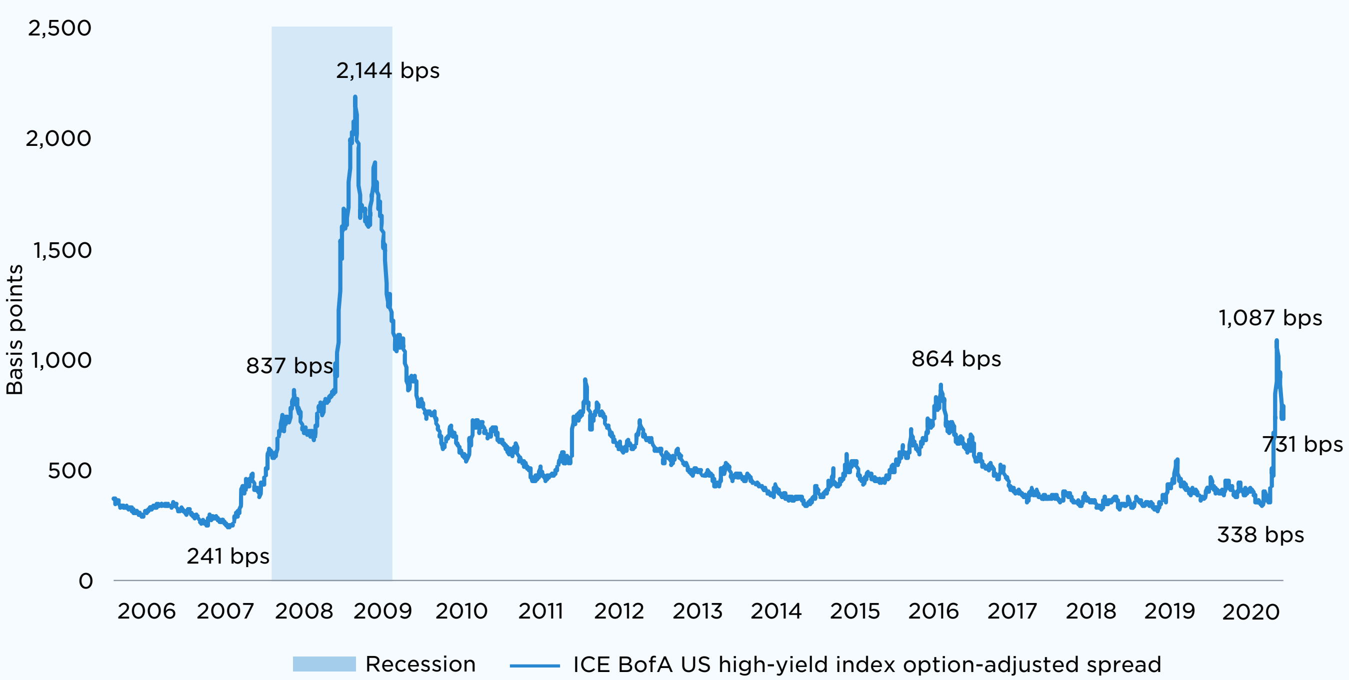
Source: PitchBook | **Geography:** US
*As of June 30, 2019

While it is impossible to predict what lies ahead for the private equity industry, we can look to the past for clues based on prior periods of distress.

Given that private equity deal flow relies on debt financing, often at credit ratings less than investment grade, it is useful to examine deal flow with respect to high-yield corporate bond spreads, with a specific focus on the economic turmoil in the lead up to, and the recovery from, the GFC.

Corporate bond spreads

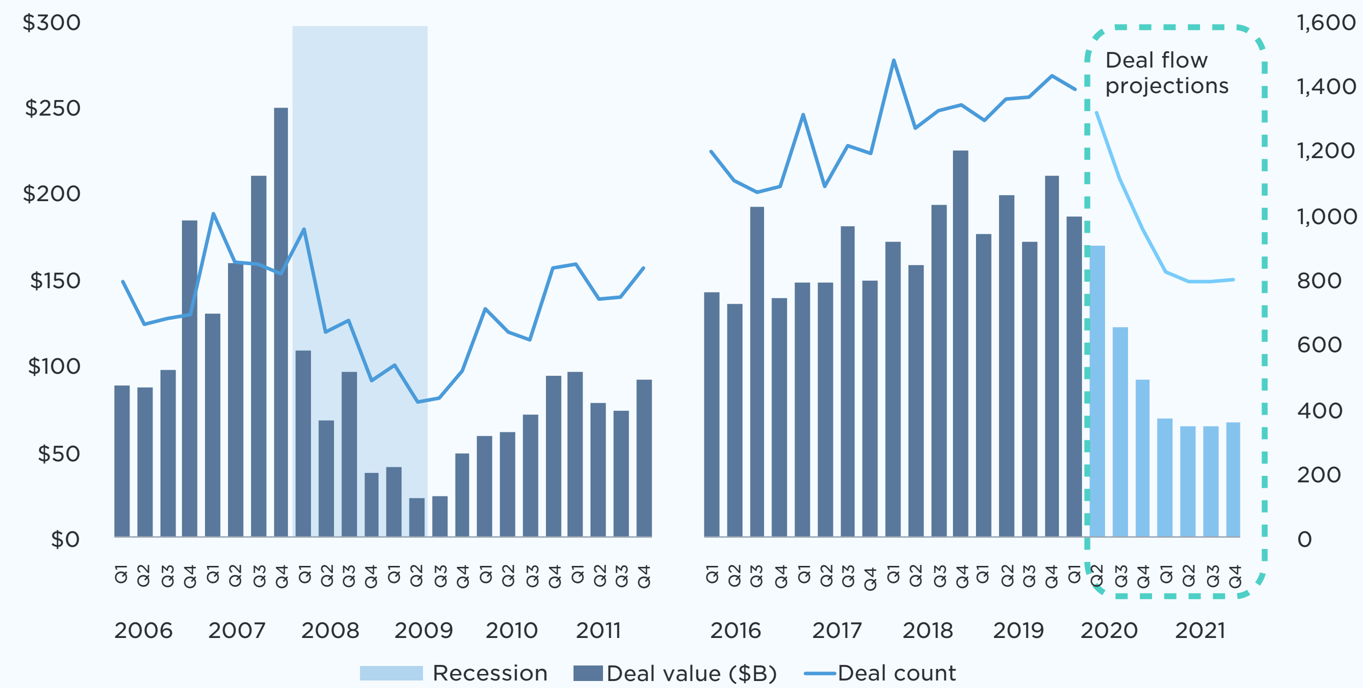
High-yield bond spreads began to spike during the GFC as Lehman Brothers collapsed. COVID-19 has caused a much more abrupt shock across the entire credit spectrum.



Source: PitchBook | **Geography:** US
*As of April 21, 2020

US PE deal flow

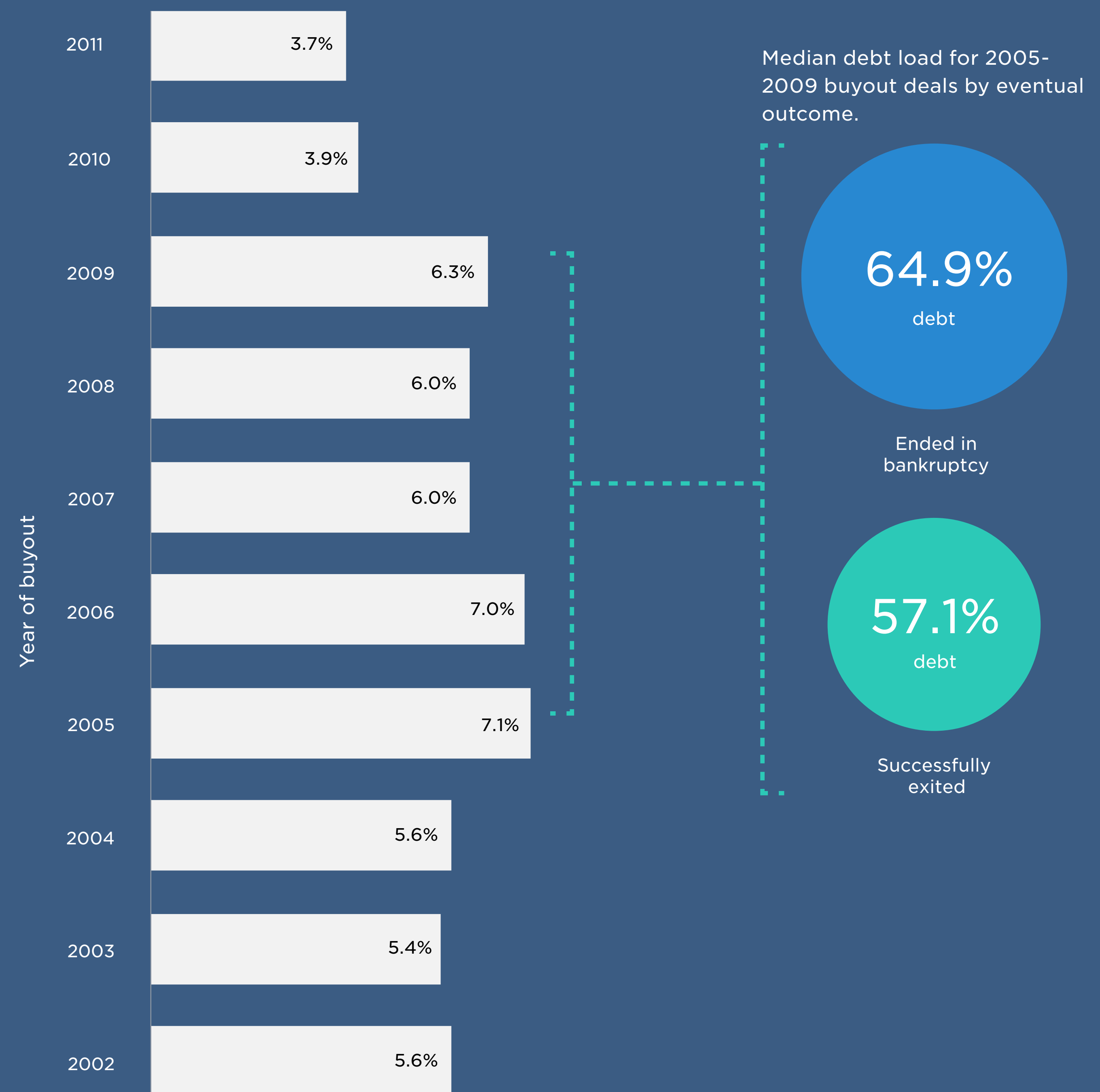
We expect significant declines in deal flow as credit spreads increase and access to leverage becomes tighter. A similar pattern was seen during the GFC.



Source: PitchBook | **Geography:** US
*As of March 31, 2020

Percentage of PE-backed companies that went bankrupt

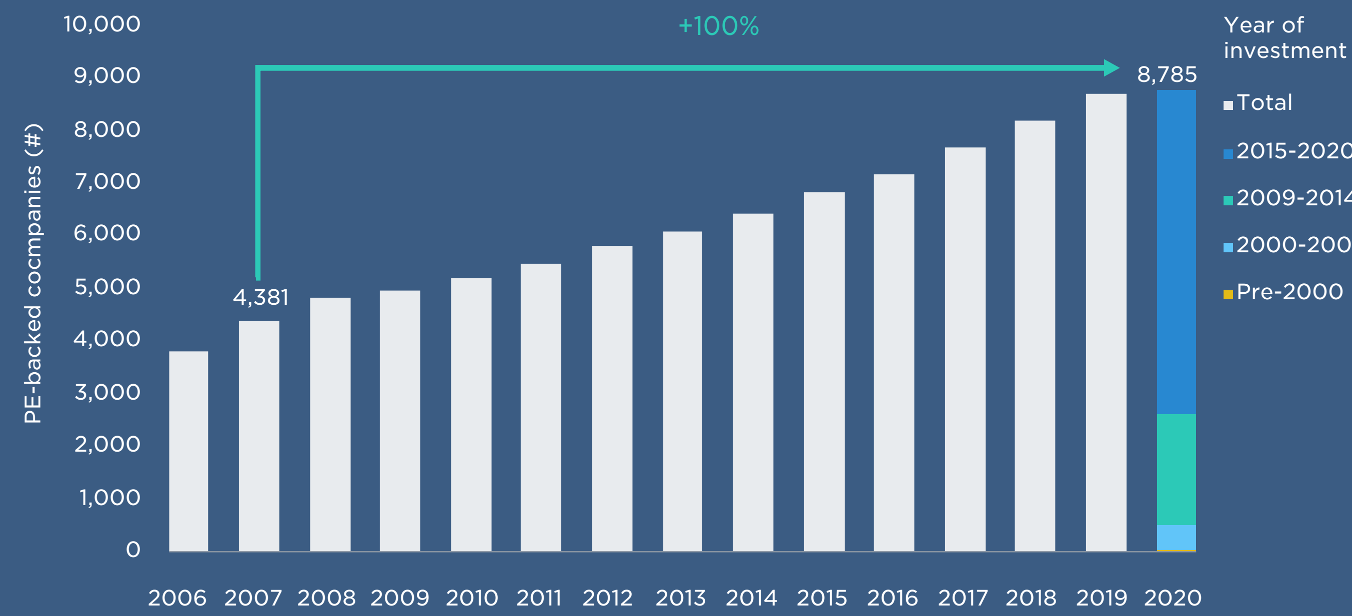
Short-term dry spells in revenue can materially deprive operating income and scarily enhance leverage ratios, and as witnessed in the GFC, these messy balance sheets can lead to increased bankruptcies.



Source: PitchBook | **Geography:** US
*As of March 31, 2020

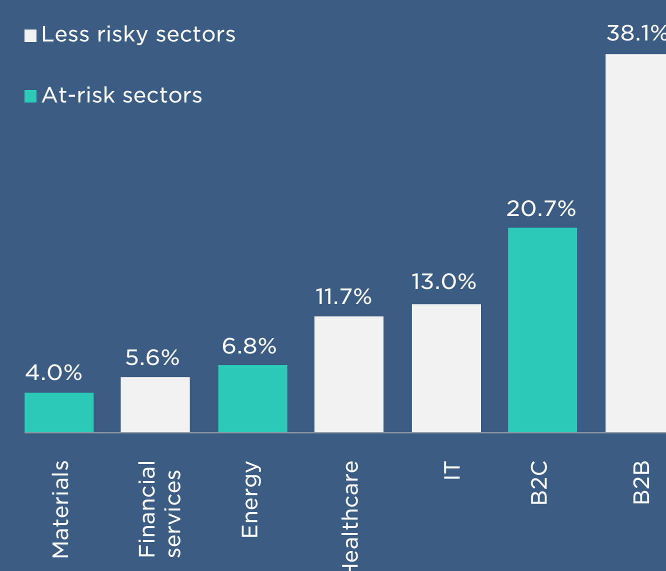
US PE company inventory

Given US PE Inventories have doubled since 2007, the sheer number of companies that could be in danger of bankruptcy is significant.

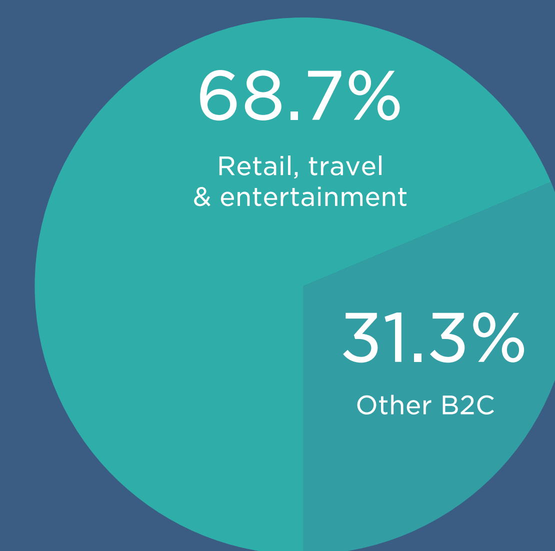


Source: PitchBook | **Geography:** US
*As of March 31, 2020

The most directly impacted industries (retail, travel & entertainment) represent a sizable share of companies held by PE firms.



Over two-thirds of B2C holdings are in directly impacted industries (14% of total inventory).



Source: PitchBook | **Geography:** US
*As of March 31, 2020

Market Trends

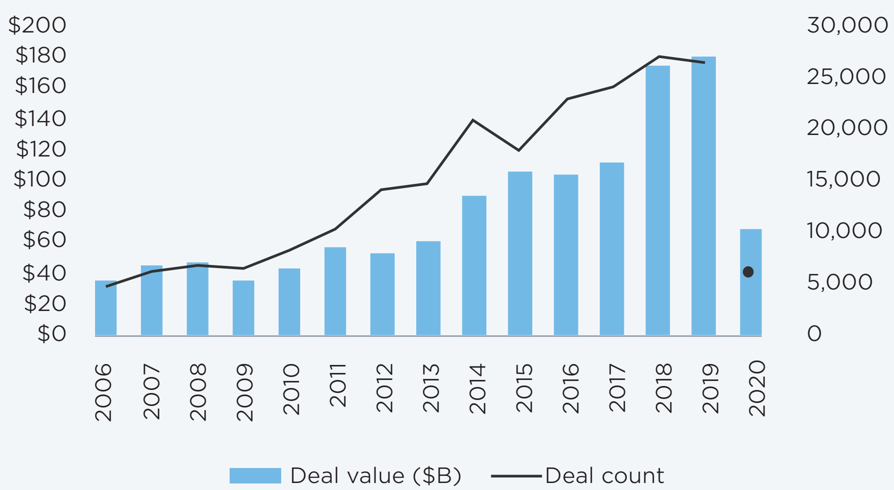
Venture capital

For this special edition of the PitchBook Private Market PlayBook, given the extraordinary circumstances that dealmakers are experiencing, we opted to present a more concise snapshot of private market activity among principal geographies, with data through late May. This was done in order to focus on higher-level takeaways rather than overly emphasize more localized trends that could potentially shift in coming months.

Data for all charts as of May 21, 2020 | Geography: North America & Europe

Fundraising statistics for venture paint a puzzlingly robust picture amid general declines. At $45.3 billion in capital commitments closed through late May, it's evident that the largest fund managers have had little to no trouble closing their vehicles thus far. Especially for venture, nascent fund managers without the benefit of a track record will struggle if not ultimately fail as LPs seek safer harbors. What fundraising tallies will further reflect as 2020 winds on should be significant concentration among larger funds.

VC deal activity

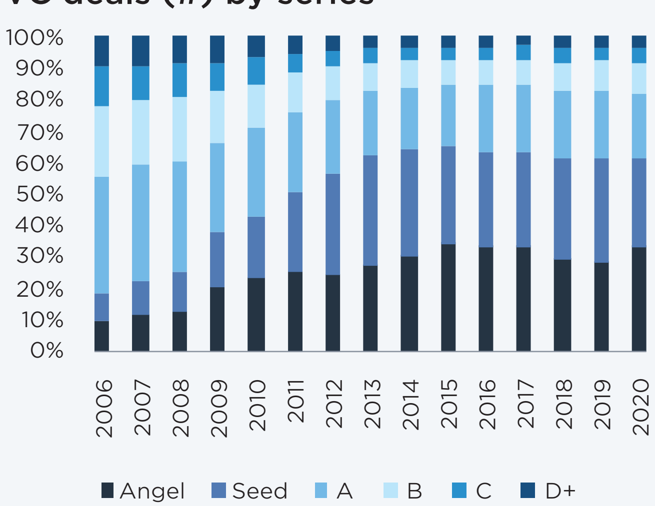


$45.3B
Funds raised have hit nearly half of 2018's record tally already, across far fewer vehicles

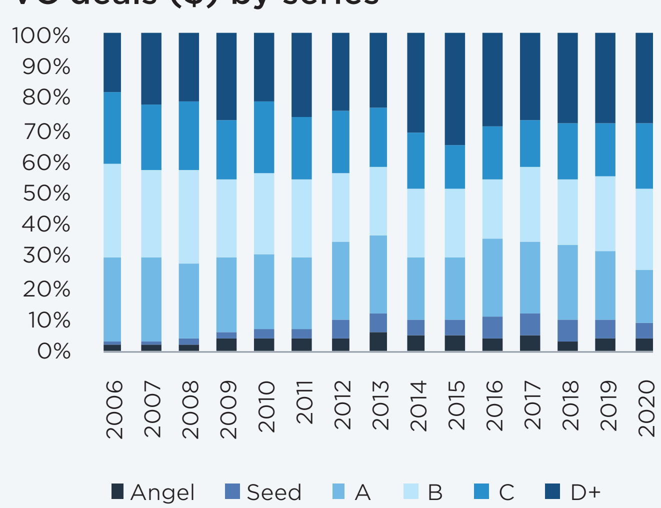
$60.1M
Late-stage pre-money valuations have yet to slide as companies seek alternate funding sources to avoid down rounds

$36.0M
The median Series C financing size hit a new high amid a competitive yet cautious environment

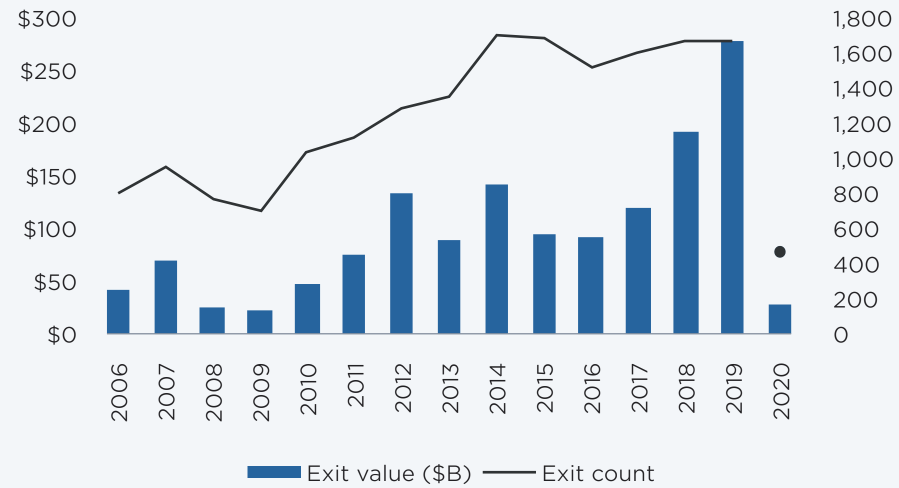
VC deals (#) by series



VC deals ($) by series

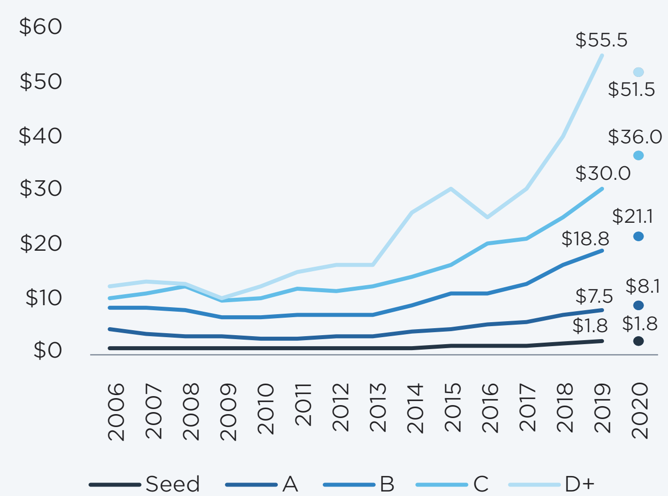


VC exit activity

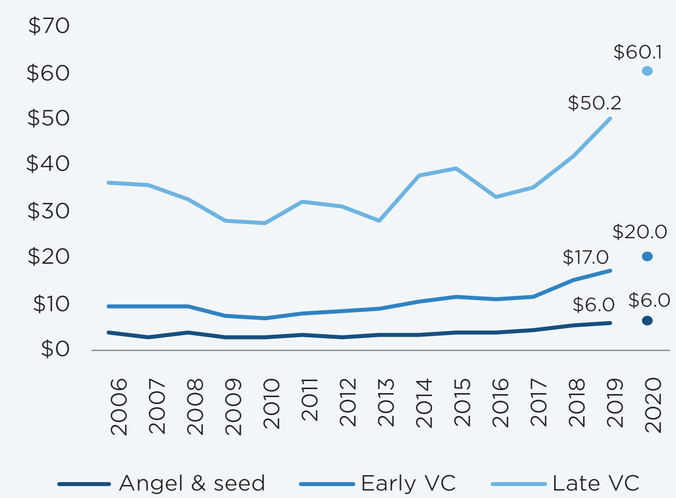


Aggregate VC invested has stayed more resilient than anticipated at $68.7 billion through late May, or close to 40% of 2019's record near $180 billion. However, VC deal volume fell precipitously to notch less than a quarter of 2019's tally across the same timeframe. VC mega-deals ($1 billion+) can still close, but even they are fewer and farther between as founders and investors grapple with the impact of the COVID-19 pandemic. Venture deal sizes have yet to retrench, buoyed by ample supplies of dry powder and the fact that the businesses that can close deals in this environment tend to be outperforming.

Median VC deal size ($M) by series

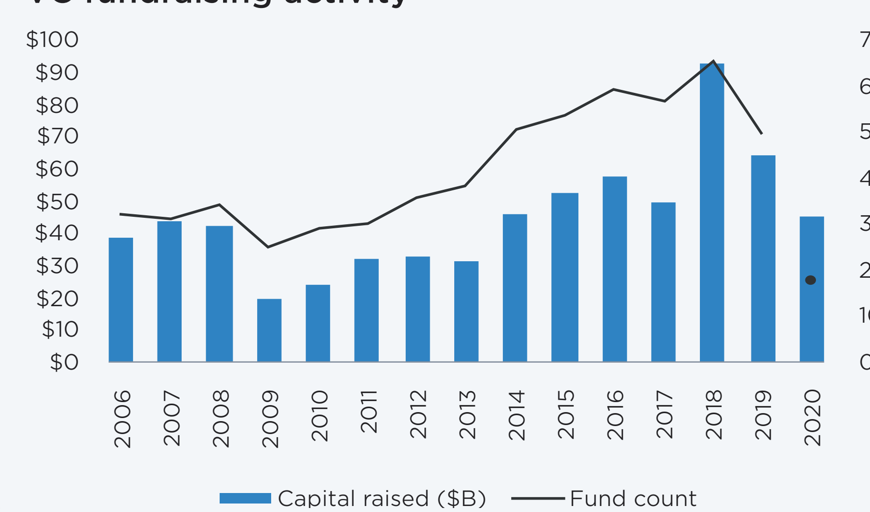


Median VC pre-money valuation ($M) by stage



Venture-backed exits have plummeted. Significant selloffs and rapid rises in equity markets have created one of the more volatile and uneasy environments on record, discouraging prospective IPOs. Acquirers meanwhile have shied away from any M&A that, due to the degree of risk, could be perceived as potentially pricier than anticipated. Even as public markets have recovered much of their March 2020 decline, the overall exit environment looks muted for liquidity going forward, although it is possible that as down rounds and mark-downs in valuations occur, some VC portfolio companies could become more attractive targets for prospective buyers.

VC fundraising activity



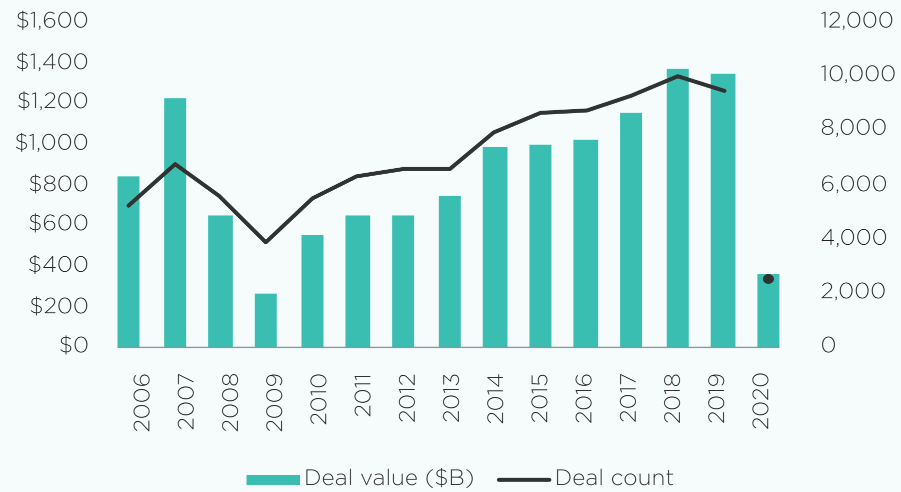
Private equity

Data for all charts as of May 21, 2020 | Geography: North America & Europe

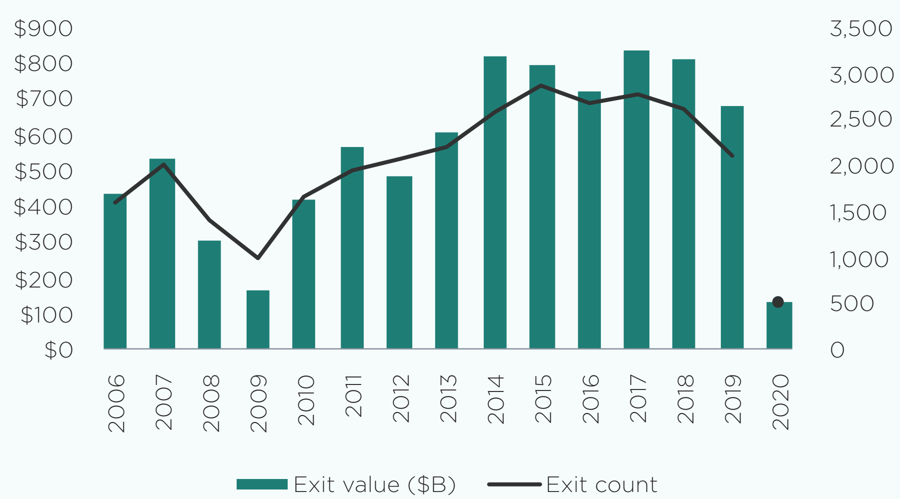
PE has pulled back to a significant degree this year. Through late May, deal volume and value stood at roughly a quarter of 2019 tallies, representing a strong deceleration after back-to-back record-breaking years. The median PE deal size slumped after a record 2019 even as the average notched a new high, indicating that larger deals were still closing even in an environment fraught with uncertainty. However, buyers were judicious, pulling back slightly on transactional multiples paid. Volume is likely to fall even further as fund managers focus on portfolio management.

Exits by PE fund managers have nosedived due to the degree of uncertainty spanning global economies and markets. Sponsor-to-sponsor sales have even reversed their growth in proportion of exit volume, indicating a general retrenchment as fund managers look to avoid incurring any discounts to expected valuations in sales processes. Instead, portfolio managers seem set to extend holding times in hopes of a calmer environment to come.

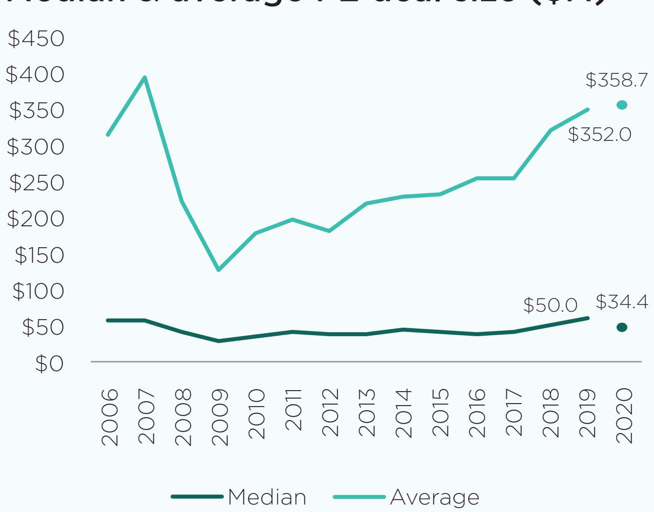
PE deal activity



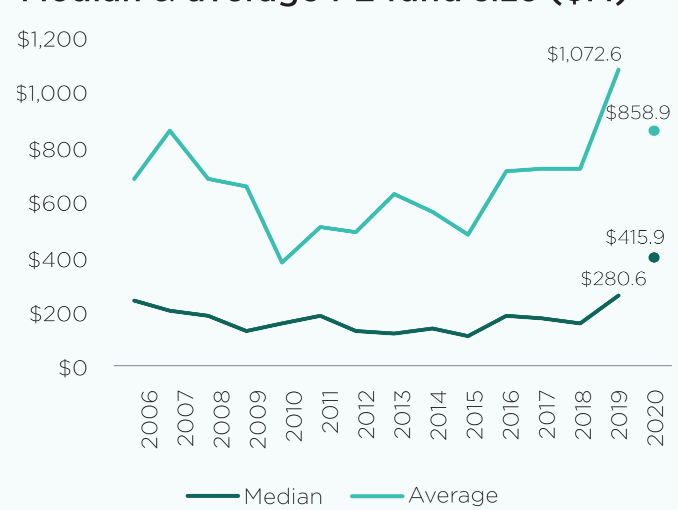
PE exit activity



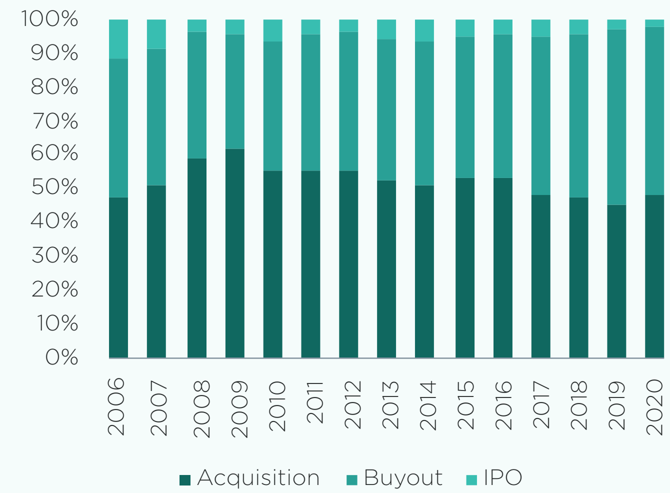
Median & average PE deal size ($M)



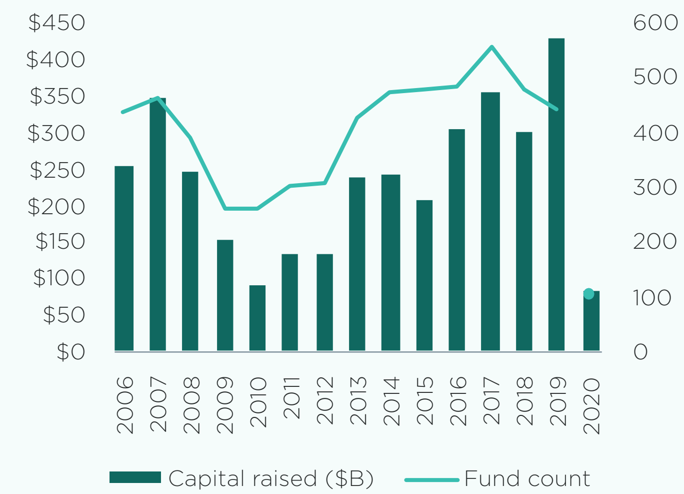
Median & average PE fund size ($M)



PE exits (#) by type



PE fundraising activity



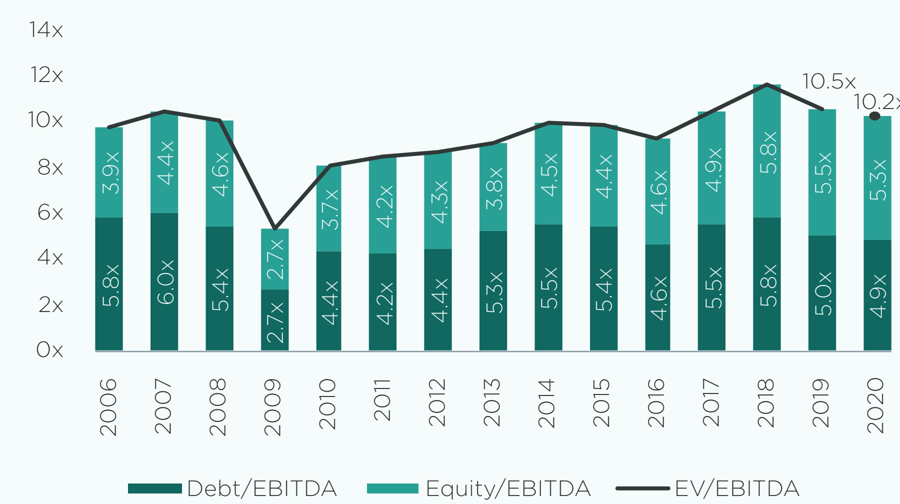
20%
Exit value by late May stands at just a fifth of 2019's tally

$358.7M
The second-highest average PE deal size since the pre-GFC heyday

48%
Median PE fund size has surged by 48% over the prior high notched in 2019

Intriguingly, the median PE fund size increased even as the average slid steeply in 2020 through late May. Unpacking this convergence, it's clear that the largest, most established fund managers can bank on reputations and track records to close vehicles; it's also likely that funds near to closing were able to conclude processes. However, fundraising forecasts are considerably gloomier as limited partners assess their array of capital calls and degree of exposure to stressed arenas, and many fund managers without the benefit of robust investor bases or longer track records protract their efforts.

Median PE buyout EV/EBITDA multiples



These figures will likely be revised upward, drawing from additional estimates, in our quarterly market updates due out in the first month of Q3 2020.

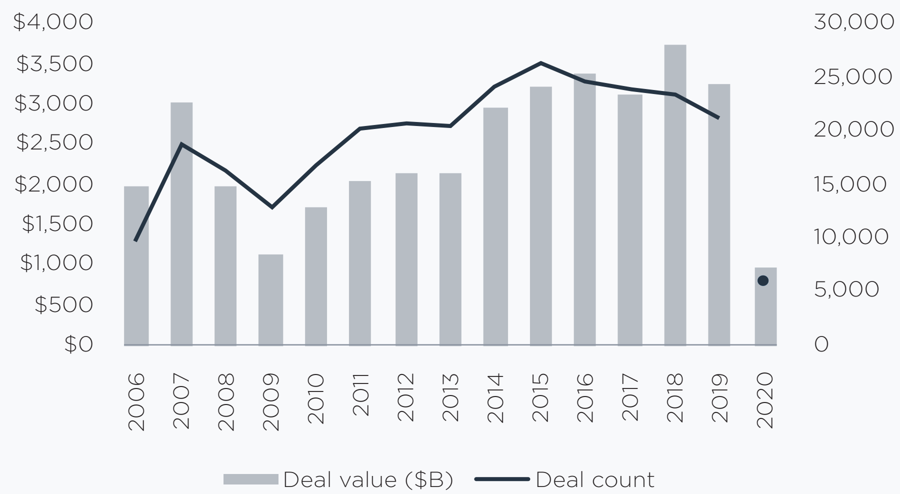
M&A

Data for all charts as of May 21, 2020 | Geography: North America & Europe

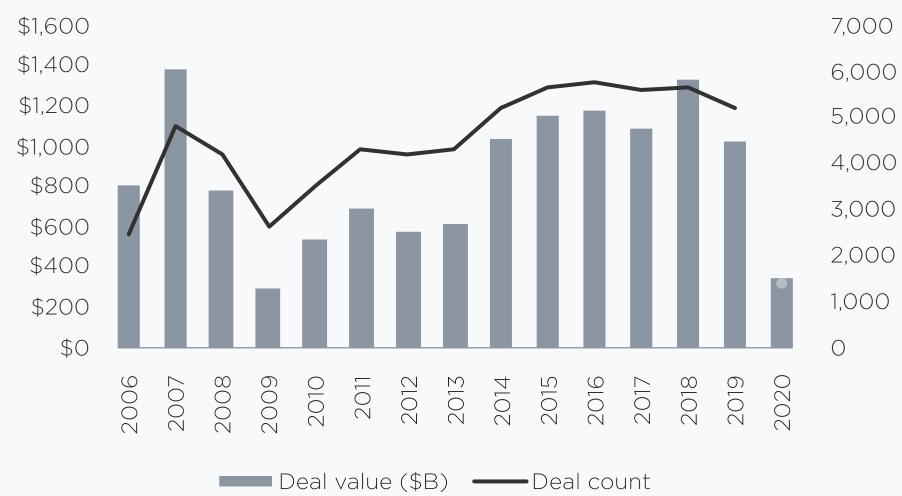
Across Europe and North America, mergers and acquisitions (M&A) volume and aggregate value remained in a slump through Q2 2020. By late May, total M&A value stood at $970.1 billion, or just under 30% of 2019's entire tally; volume likewise came in below 28% of the final count recorded in 2019. Although trajectories remain unpredictable for the remainder of 2020, this total puts the year on pace to amass around $2.5 trillion in M&A value across less than 15,000 transactions—tallies unseen since the start of the 2010s.

Both financial and strategic acquirers have retreated significantly in dealmaking, with private equity (PE) firms cutting proportionally fewer deals relative to the heights observed in 2018 and 2019. However, as observed across multiple asset classes, large deals are still closing—at $331.5 billion in aggregate buyout value, 2020 has seen approximately 26% of the cumulative $1.3 trillion logged in 2019. It remains to be seen if this trend holds as buyers across the market continue to emphasize occasional opportunism and security rather than risk overspending in a volatile market.

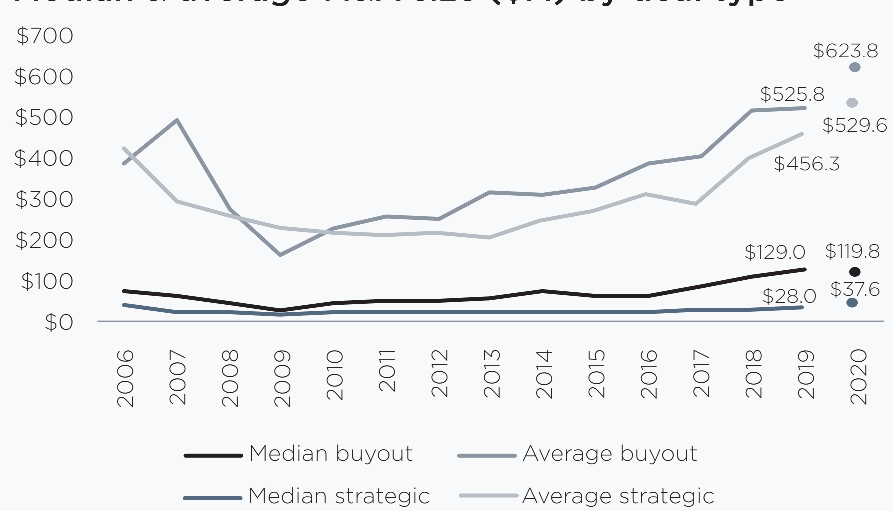
M&A activity



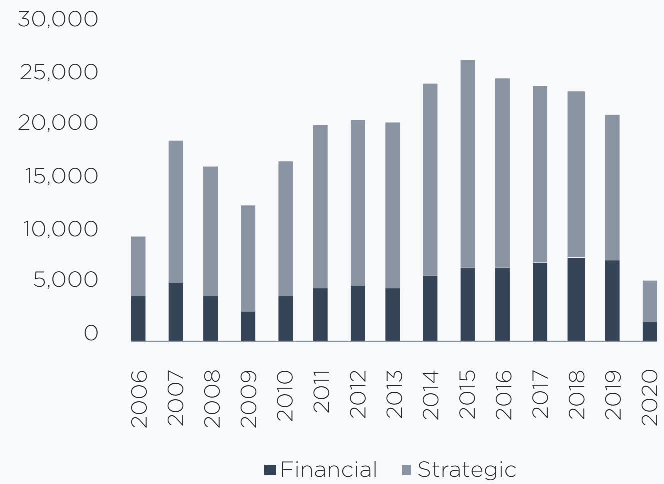
Cross-border M&A activity



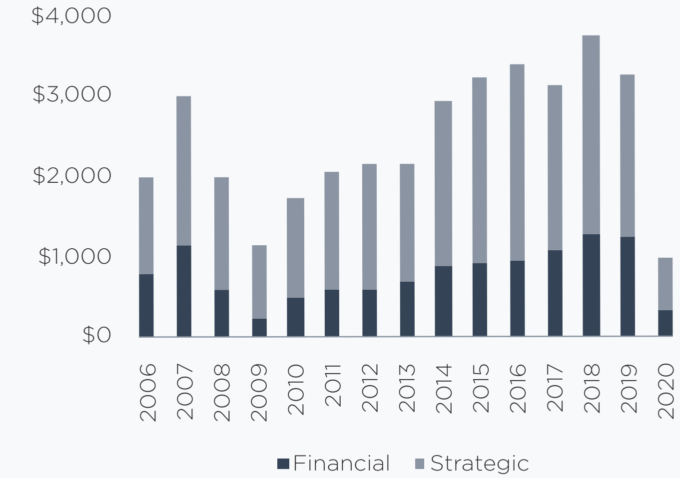
Median & average M&A size ($M) by deal type



M&A (#) by type



M&A ($M) by type



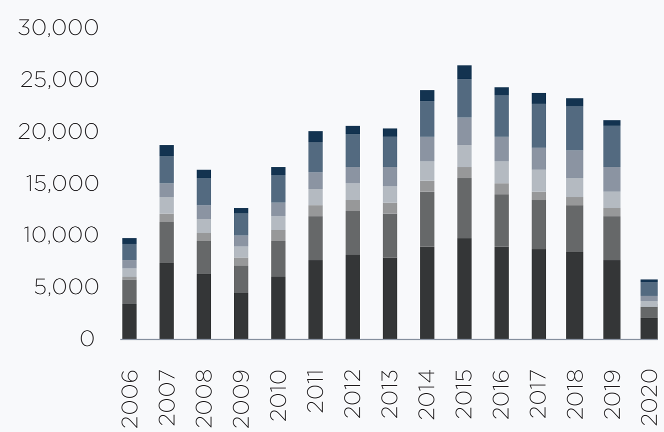
<15,000
2020 is on pace to record fewer than 15,000 M&A transactions–the fewest since the 2008-2009 recession

$623.8M
Average buyout sizes soar to new heights in 2020 as market volume thins and outliers persist

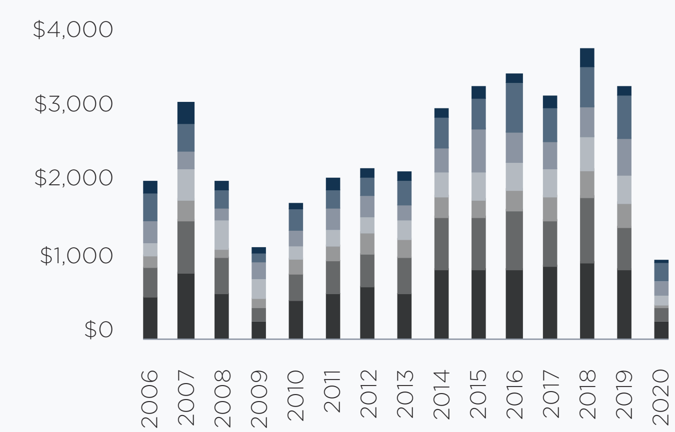
>30%
Cross-border M&A deal value remains unexpectedly robust at more than 30% of 2019's tally, but volume's slide bodes ill

Among sectors, information technology remains marginally the most resilient in terms of M&A activity across a downbeat year to date. Healthcare and IT have recorded the largest relative spending on the part of acquirers, due to large deals closed earlier in the year. Although some resiliency in healthcare and IT is to be expected relative to other areas more affected by pandemic-related actions such as lockdowns, consolidation is also carrying over from longer-running trends that began earlier in the 2010s.

M&A (#) by sector



M&A ($M) by sector



B2B B2C Energy Financial services Healthcare IT Materials & resources

These figures will likely be revised upward, drawing from additional estimates, in our quarterly market updates due out in the first month of Q3 2020.

Stand out in front of top private equity leaders with PitchBook Media

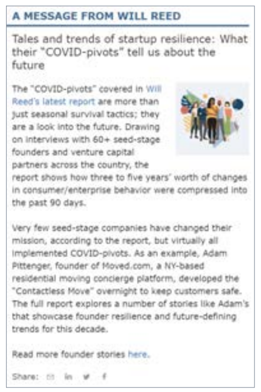
Newsletter

Five editions. 910,000+ subscribers. The top-performing ad buy in the deal community

Website

The new and improved News & Analysis website reaches 300,000+ unique monthly readers

Sponsored Content



The place to share your industry knowledge, expert insights and thought leadership

Magazine

Featuring key industry trends, in-depth cover stories, analyst insights and more, PitchBook's magazine is becoming the go-to resource for players in the private markets

Industry Reports

50+ reports published annually featuring data and analysis on fundraising, dealmaking, exits and more within the PE, VC and M&A markets

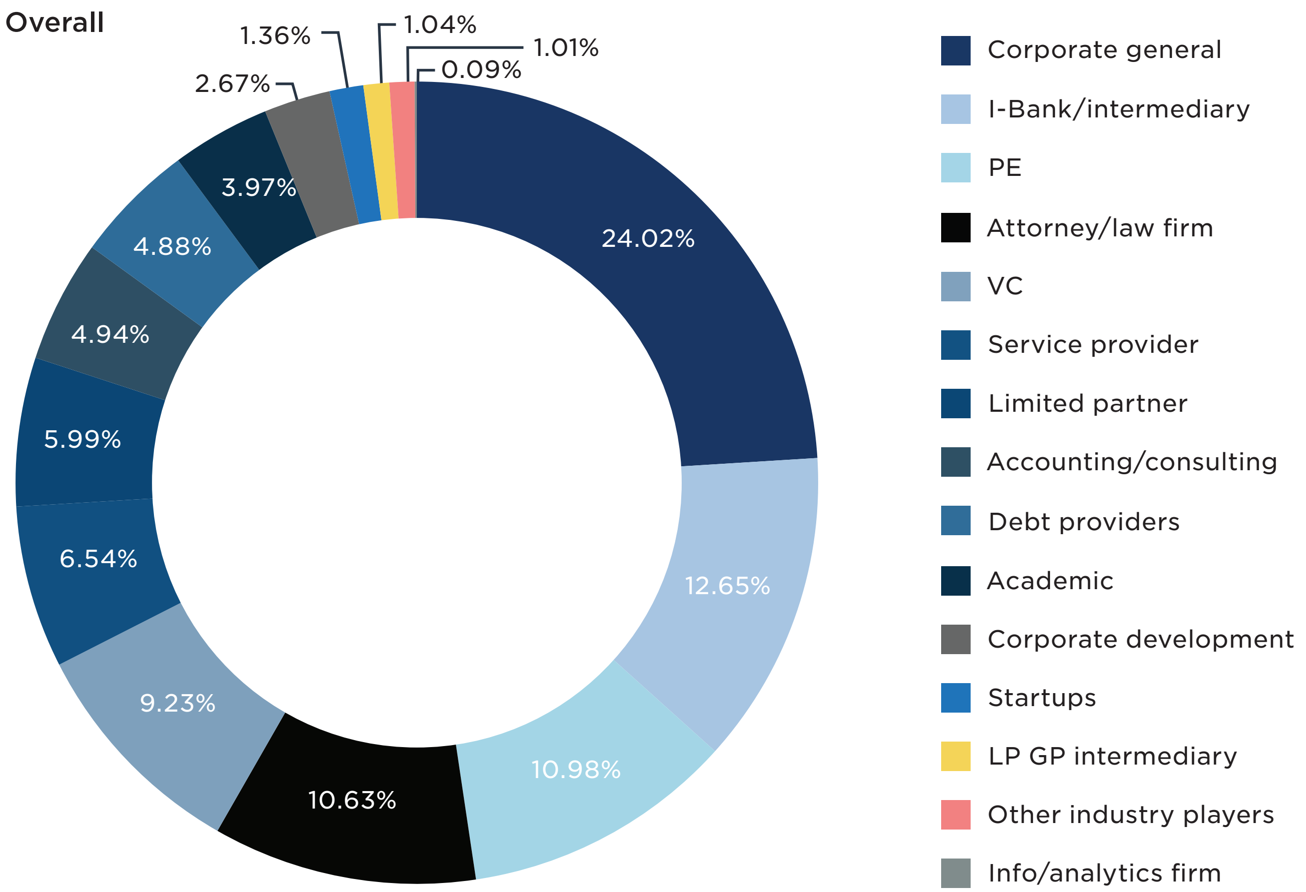
Custom Content

Showcase your thought leadership, drive leads and engage clients with custom content options built for every need and budget

Overall readership by title

MD/Partner : **27.90%** | C-level or President : **28.80%** | VP, SVP/EVP **14.00%** | Manager or Attorney : **10.70%**
Analyst/Associate : **7.50%** | Founder/Owner : **6.90%** | Chairman/Board Member **4.20%**

Overall



For details and pricing, contact mediasales@pitchbook.com