THE PRESENT & FUTURE OF PROPTECH

CAPITALIZING ON CURRENT VOLATILITY

Valley

Data provided by PitchBook

CONTENTS

INTRODUCTION

The real estate market remains the prime concentration of wealth in the world, with its aggregate value reaching into the hundreds of trillions of dollars[1] This behemoth of a sector has seen as much of an impact from technological advances, however slow-moving, as any other segment of the economy over the past decade. As the 2020s unfold, it is clear that although private investment in proptech has grown substantially in years past, it still has yet to truly transform many facets of both commercial and residential real estate across transactions, financing, construction, utilization, and more. Founders and investors, among other players in the proptech ecosystem—including financiers bridging the gap between traditional real estate and technology—are still working on evolving that state of affairs.

In this report, Valley builds on the inaugural edition released a year ago, examining not only how private investment trends have fared in the tumultuous year since—focusing on venture capital—but also refreshing and reexamining the broader industry trends shaping the space beyond the flow of capital. The march toward curbing emissions of greenhouse gases and improving sustainability across all aspects of real estate seems inexorable, for example. As a result, although the technical challenges are complex and immense, players are exploring and embracing innovation on all fronts. Builders are deploying more sustainable concrete and recycling waste into usefully adjacent products, such as gravel on construction sites and fill; property managers are updating monitoring systems to better improve energy consumption in residences and common areas; brokers are investing in more secure and transparent portals with improved visualizing and modeling systems; and remodelers are utilizing recycled wood and novel designs. These examples and more, spanning other arenas of proptech, continue to deliver opportunities for both innovation and investment, which this report provides an overview to inform and provide a springboard for planning and taking action.

> Increasingly stringent regulations around environmentally friendly construction and curbing of emissions has led to a push for energy consumption monitoring hardware, recycled materials construction, and improved sensor arrays to further empower smart homes.

1. The total value of global real estate," Savills, Paul Tostevin, September 2021

ABOUT US

VALLEY BANK

Valley Bank is a regional financial institution with approximately $56 billion in assets and more than 200 branches located throughout New Jersey, Manhattan, Brooklyn, Queens, Long Island, Florida and Alabama. Valley was founded in 1927 on the simple principle of creating better banking opportunities for our customers and helping communities grow and prosper. For over 90 years, our professional banking associates have embraced this spirit by providing a full range of retail and commercial banking services, home mortgage and commercial lending, wealth, insurance and estate planning solutions to help our customers and communities achieve financial success. We believe that better banking begins with a conversation. That's why we work hard every day to provide personalized financial solutions that help our clients address their toughest challenges and embrace their greatest opportunities. In September of 2021, Valley National Bancorp entered into a merger agreement whereby Valley will acquire Leumi, the US subsidiary of Bank Leumi Le-Israel B.M., and parent company of Bank Leumi USA. This combination further solidifies Valley's position as a top tier, relationship-focused commercial bank. The pro forma company will be the 29th largest publicly traded U.S. bank by assets, and will be well-positioned for strong, sustainable, and diversified growth.

Camber Creek

Camber Creek is a venture capital firm providing strategic value and capital to operating technology companies focused on the real estate market. Camber Creek contributes in a direct and significant way to the success of its portfolio companies by leveraging the real estate expertise, operating experience, and portfolio of assets of its partners, investors, and advisors. Our investment team has investing, operating, and technology experience and expertise across a range of real estate businesses, including construction, property management, development, and leasing. Our investors own, operate and manage billions of square feet of real estate in the U.S., giving us a unique competitive advantage as an investor and value-added partner in the real estate technology space. The firm manages close to $1 billion in assets.

Jeffrey E. Berman, General Partner, Camber Creek

Jeffrey Berman has more than two decades of executive management experience and deeply rooted relationships in the start-up, real estate, and venture capital ecosystems. Prior to Camber Creek, he was a principal at one of the Washington DC area's largest privately held real estate development and management companies.

Greenpoint Partners

GreenPoint is an alternatives investment firm that invests at the intersection of real assets, technology and sustainability. Founded in 2019 by Chris Green and headquartered in New York, the firm is deploying complementary strategies across technology investing and private equity to integrate the disparate worlds of real assets and technology. Green has 20 years of real assets experience, including 16 years at Macquarie Capital where he was the global head of real estate. The firm's activities are supported by a team of investors and operating partners who bring decades of experience in technology, real estate investing and operations at top firms. GreenPoint's investors include strategic real asset operators, pension funds, family offices and industry senior executives who collectively own/manage over $500 billion in global real assets with an additional $125 billion development pipeline. By combining tech venture capital investing real estate private equity, and sustainability solutions, GreenPoint can deliver unique and transformative insights into a rapidly changing industry. Visit us at **www.greenpointpartners.com.**

Chris Green, Founder & CEO, Greenpoint Partners

Chris Green is the founder and the Chief Executive Officer of Greenpoint Partners. He is also on the board of Goodman Funds Management Ltd., Goodman Ltd., Goodman Group and Goodman Industrial Trust. Chris was previously the global head of real estate for Macquarie Group and has worked as a consultant in a range of companies like Kingfisher, GAP and Hackett.

Nine Four Ventures

Nine Four Ventures is an early-stage proptech VC that supports startups impacting the people, processes, and ecosystems that interact with the built world. The firm leverages a team with track records operating in built world industries and concentrates on business models that create efficiencies across the life cycle of an asset, from development and construction through operation, management, renovation/repurposing, as well as the financial transactions that happen between and across those phases.

Kurt Ramirez, General Partner, Nine Four Ventures

Kurt Ramirez is a Founding Partner at Nine Four Ventures. Kurt has been active in the proptech space since 2015, and previously worked with a Chicago-based real estate technology accelerator and fund, where he was a member of the investment team and ran firm diligence and operations. He's invested in 50+ proptech companies targeting real estate, insurance, mortgage, and home services. Prior to founding Nine Four, Kurt was a consultant at Bain & Company, an investor at Cue Ball Capital, a venture capital firm focused on consumer and information media investments, and Greenfield Partners, a real estate private equity firm.

Built Technologies

Built is the leading provider of construction and real estate finance technology. By providing a centralized platform for all stakeholders, Built enables increased efficiency, collaboration, transparency, and business agility—with decreased risk—allowing customers to improve the way that the communities around them are built and managed. The Built platform is used by more than 250 leading North American lenders and asset managers, and thousands of developers, home builders and contractors. To learn more, visit **www.getbuilt.com**.

Chase Gilbert, Co-Founder & Ceo, Built Technologies

Chase Gilbert co-founded Built in 2014 with the goal of leveraging technology to improve outcomes within construction and the broader real estate industry. Chase and his co-founders had a particular focus on improving collaboration, transparency, and cash flow among key stakeholders. Before starting Built, Chase launched his career in the restaurant industry as an owner-operator, where he experienced the value of utilizing systems to drive better outcomes.

Big V Property Group

Big V Property Group is a vertically integrated real estate investment and property management company whose partners have over 80 years of combined experience in real estate investment management, commercial property management and leasing.

Bryan Kallenberg, Vice President, Capital Markets

Bryan Kallenberg is Vice President of Capital Markets where he manages the execution of the company's capital needs. His daily responsibilities include actively managing companies loan portfolio, sourcing and implementing new capital initiatives. Prior to his role at Big V, Bryan was a Vice President at Meridian Capital specializing in the financing of commercial assets. Throughout his career, Bryan has closed nearly $2 billion worth of CRE transactions.

EXECUTIVE SUMMARY

The real estate market faces a complex confluence of factors in 2023, from growing debt loads amid a higher interest rate environment, to the implementation of mandated sustainability measures. Those same challenges, however, occur in tandem with promising signs, namely, incremental technical advances and growing demand in some segments for different residential and commercial use cases, even as formerly popular segments fall into disfavor.

Private investment—primarily concentrated in venture given proptech's maturation is ongoing—remains a key force in propelling the digitalization of many real estate workflows, which is still the main arena for the sector on the whole. Although innovations are occurring in technically challenging arenas such as materials, the bulk are incremental substitutions—such as usage of recycled wood—for key ingredients in materials like cement, gravel, concrete, and more. Although, even these investments will need to clear higher return hurdles.

Investment dynamics in private markets for proptech remained more resilient than expected given the sheer volatility of 2022. Quarterly tallies evidenced slowing momentum, however, so this year will remain key in determining whether the sector's resilient factors outweigh any market jitters. Financing metrics suggest a significant uptick in caution overall coupled with ongoing capital availability, though, at greater intensity of investor discretion.
Popular segments held strong, from property management to transaction solutions. Especially in a cautious, complicated environment, investment in tech that is seen as readily accretive to the bottom line will continue to attract capital.

Although the macro environment remains challenging, proptech players may enjoy more of a respite than other tech segments as inexorable market pressures push toward greener building and usage of real estate; moreover, consumer demand for autonomy and ease compel further adoption of and investment in proptech.

MACRO TRENDS

The economic picture remains as complex as ever, with initial predictions for real US GDP growth concentrating around a weak tally of 0.8%.[2] More recent forecasts predict slightly better results by the final quarter of 2023.[3] Limited clear consensus, beyond ongoing uncertainty, emphasizes the need for flexibility among dealmakers and executives.

Mortgage rates continued a slow retreat to approximately 6.2% in mid- to-late January, relative to 3.2% in January 2021.[4] As the Federal Reserve and other central banks could slow the pace of interest rate hikes, that could further mitigate the high level of interest rates, which could encourage demand for loans and housing starts. The specter of recessionary impacts still looms, however, which could drag on demand even if mortgage rates look somewhat more favorable relative to recent years—despite demand continuing to fall.[6]

Institutional allocation targets to real estate are on the rise after the strategy performed better as of late.[10] Given volatility in public markets and constant fears around lingering inflation, it is likely asset allocators will continue to hedge by exposure to real assets; this could consequently entail a steady stream of capital to real estate-focused private funds, which endured a rare down year in terms of capital raised in 2022. That downturn, however, was more likely driven by consecutive years of strong fundraising in the back half of the 2010s.

Increasingly stringent regulations around emissions and overall sustainability impact of commercial real estate—even though paced out over the next decade—could produce significant cost implications for current owners and prospective investors.[9] That in turn could represent a significant opportunity for real estate-focused funds if many decide to abandon or sell their properties, as well as the most cost-effective technical solutions or offset providers.

As workplaces continue to evolve with workers remaining stubbornly against any return-to-office mandates, there is much talk of converting commercial buildings to residential spaces.[11] That said, conversion will run into classic supply-demand imbalances, especially against the backdrop of tightening sustainability standards. As a result, mixed-use buildings are potentially likelier to replace pure office space, especially as tech companies decentralize yet retain some token presence in key metropolises.

Any slowdown in rates will also be welcome to those holding the approximately $175 billion in distressed real estate debt worldwide.[7] The ripple effects of contending with such a debt load could well contribute to a recession's severity; but at the same time, major players continue to emphasize the longer term and make significant infrastructure plays.[8] A delicate equilibrium could be achieved as rate increases taper and private capital funds look to hedge long-term portfolio exposure by supplying capital where needed.

The technical frontier of proptech continues to push forward. Solutions to expedite both physical and digital accessibility remain popular, although security persists as clearly a concern as noted in the previous edition of this report. Sustainability is much more heavily emphasized now, even more so than a year ago, with every aspect of proptech—from greener materials to offsetting add-ons like solar panels or living rooftops. For example, a recent office tower made entirely from timber debuted in London, producing 37% less carbon compared to using concrete.[12] The World Economic Forum continues to push curbing emissions via circularity of construction materials,[13] which aligns well with more practical steps, such as utilizing cementitious materials generated from waste as opposed to traditional cement.

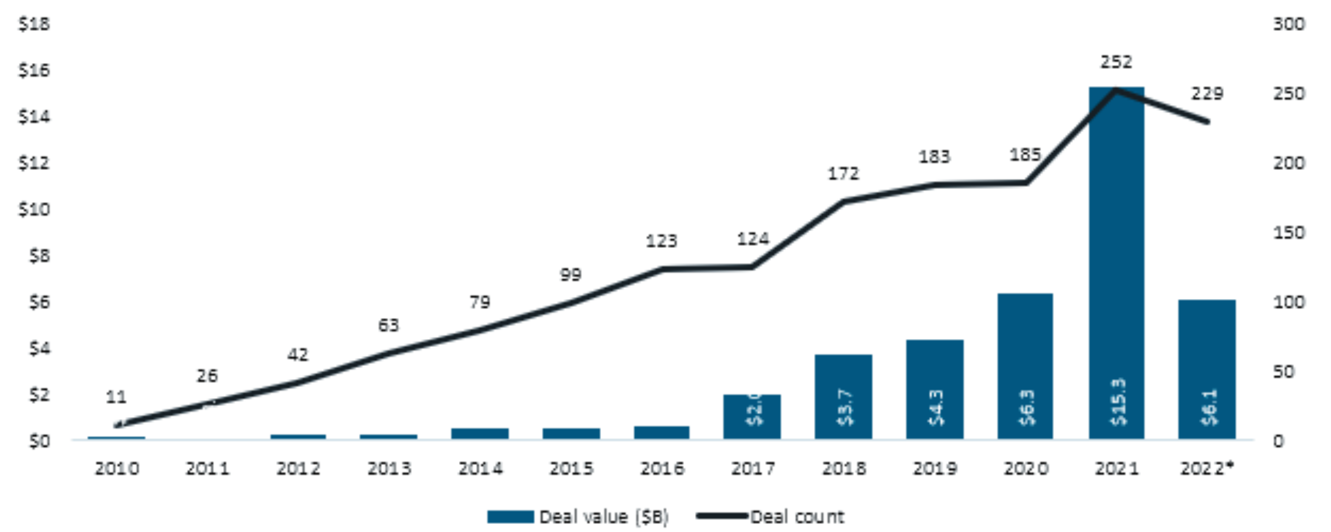
2. "Weaker GDP Growth, Inflation Uncertainty Dim U.S. Economic Outlook," Federal Reserve Bank of St. Louis, Kevin L. Kliesen, November 23, 2022.
3. "2023 Outlook: 5 Finance Risks to Monitor This Year," CFO, Vincent Ryan, January 23, 2023.
4. "U.S. Mortgage Interest Rates Fall to Lowest Levels Since September, MBA Says," Reuters, Lindsay Dunsmuir, January 18, 2023.
5. "Mortgage Rates Chart: Historical and Current Rate Trends," The Mortgage Reports, Peter Miller, February 1, 2023.
6. "Home Sales Tumbled More Than 7% in November, the 10th Straight Month of Declines," CNBC, Diana Olick, December 21, 2022.
7. "Global Property Market Faces $175 Billion Debt Spiral," BNN Bloomberg, Neil Callanan, January 19, 2023.
8. "No Amount of Economic Turmoil Can Faze Brookfield," Institutional Investor, Jonathan Kandell, January 17, 2023.
9. "Rigorous New Targets for Green Building Revolution," GOV.UK, Ministry of Housing, Communities & Local Government and The Rt Hon Christopher Pincher MP, January 19, 2021.
10. "Home Sales Tumbled More Than 7% in November, the 10th Straight Month of Declines," CNBC, Diana Olick, December 21, 2022.
11. "Are Residential Conversions the Future for Underused Office Towers?" Metropolis, James McCown, January 17, 2023.
12. "London's Newest Office Tower Was Built Entirely From Timber," Robb Report, Abby Montanez, January 25, 2023.
13. "How Circularity Can Increase Profits in Cement and Concrete," World Economic Forum, Jorgen Sandstrom, et al., January 11, 2023.

MARKET TRENDS

Unexpected resilience in dealmaking volume—for now

After a record year, 2022 saw private and public markets alike grapple with significant levels of volatility. Proptech was no exception, having enjoyed a record tally of $15.3 billion invested across private capital volume of 252 completed transactions. In 2022, however, proptech saw a stark divergence in dealmaking trends, as deal value plummeted due to a lack of blockbuster transactions; even so, volume remained healthy at 229 completed transactions. Despite the sheer level of turbulence last year, including layoffs across multiple tech companies, widespread concerns over a possible recession, the implosion of the cryptocurrency space, and more, proptech investment activity stayed healthy all in all, especially on a historical basis.

US Private Capital deal activity



Source: PitchBook

MARKET TRENDS

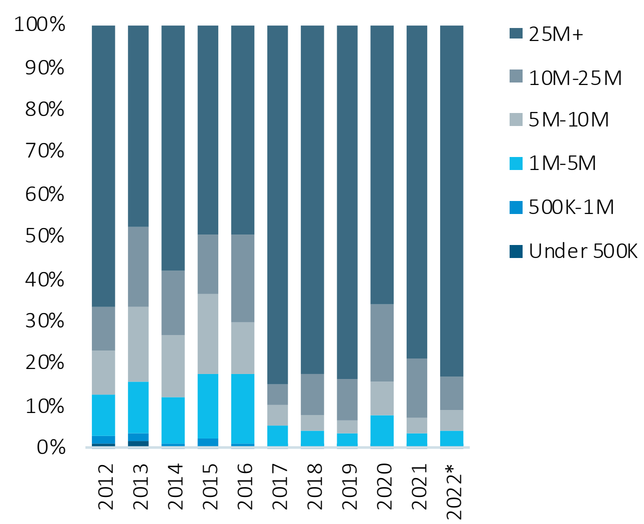
Proptech benefiting from several competing factors helps explain resiliency

Although commercial and residential real estate faced headwinds similar to other sectors—with financing affected by rising interest rates—in turn those same rises encouraged further development and improved revenues on the part of lenders. It must also be noted that although home sales have been decreasing in response to rising mortgage costs, overall mortgage rates remain near historic lows. Against this backdrop, renting can often seem more alluring, which has benefited proptech companies as nationwide residency giants look to court prospective buyers and renters with the latest in technological innovation, along with other amenities and perks. Furthermore, increasingly stringent regulations around environmentally friendly construction and curbing of emissions has led to a push for energy consumption monitoring hardware, recycled materials construction, and improved sensor arrays to further empower smart homes, to name a few examples. Key deals that exemplify these intertwining trends include:

- A $700 million infusion of capital from a bevy of private investors into Lineage Logistics, a provider of warehouse climate control solutions, in December 2022
- ICON, which develops construction tech for 3D printing homes at scale, raising $392 million in Series B funds in early 2022
- Alternative loan platform Hometap closing on $245 million of development capital in January 2022
- Rental rewards platform Bilt Rewards raking in $150 million of Series B funding in October 2022
- Knock, operator of a real estate bidding platform, closing on $220 million of venture funding in a Series D round combination of debt and equity in June 2022

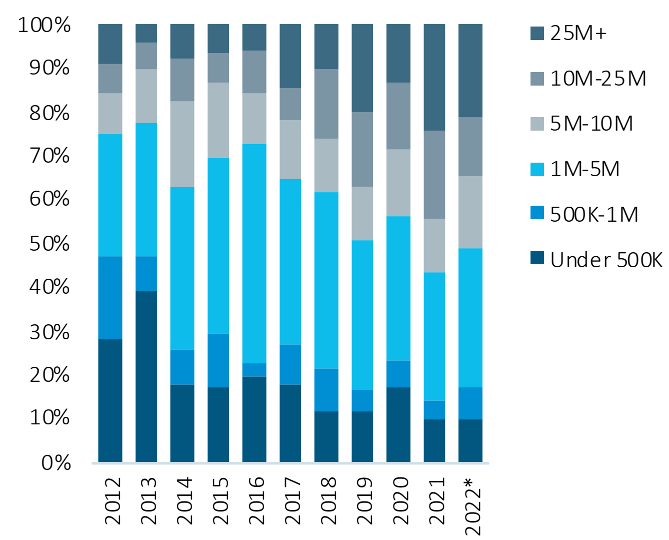
As a result, it's little surprise that more immediately accretive proptech segments, such as transaction solutions, property management, and finance & investments, raked in the most deal volume proportionally—although outliers skew deal values in property management as a handful of large acquisitions occur.

US VC deal activity ($B) by size



Source: PitchBook

US VC deal activity (#) by size



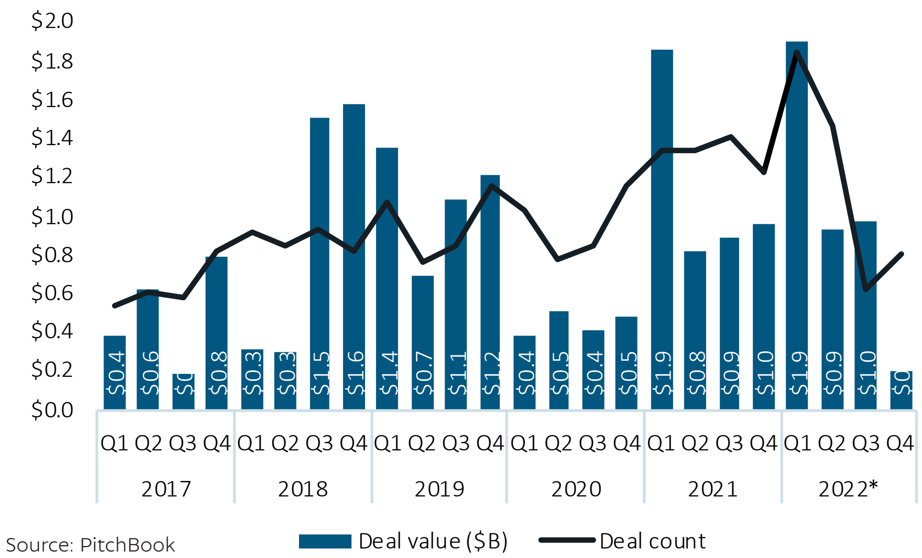
Source: PitchBook

MARKET TRENDS

Venture remains prime arena for proptech dealmaking

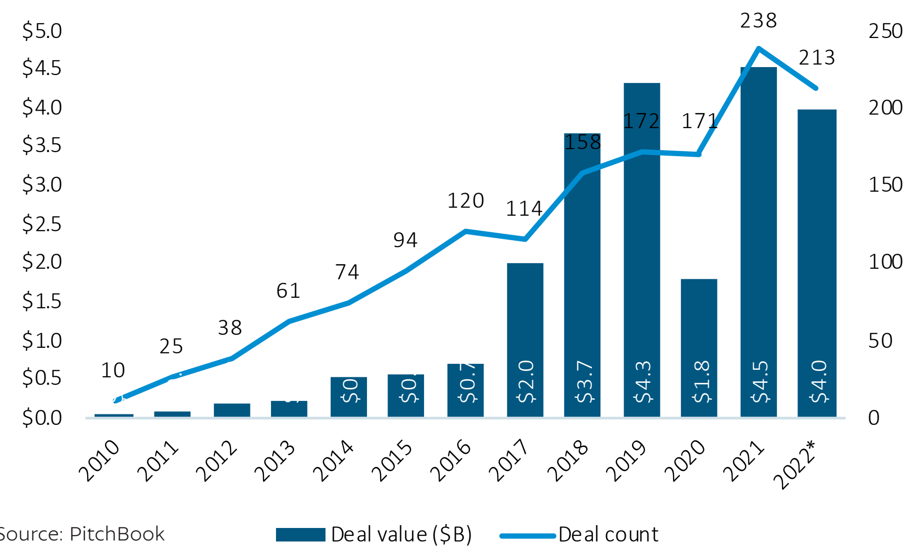
As much of this technology is still in relatively fledgling stages—though maturing fast—the vast bulk of all proptech investment activity has been concentrated within the realm of venture capital. 213 venture deals closed in 2022 for a combined value of $4 billion, comparing favorably to prior years' tallies. All in all, quarterly tallies show a slowing of momentum in the back half of the year, so it remains to be seen if activity will slump further in 2023. Similar to 2021, transaction solutions and property management combined for a plurality of deal volume, yet deal value proportionally spiked in construction and maintenance. Asset utilization remained relatively healthy in deal volume as well. It makes sense that both transaction solutions and property management remain popular, especially in the current landscape, as adoption of cheaper or more efficient ways to conduct transactions can both render workflows easier and potentially impact return on investment more swiftly. Property management tools can usually cut down on operating expenses by either outsourcing more tedious tasks or empowering existing employees. As for asset utilization, it is likely that should a recession come, businesses and investors alike are looking for more flexible tools that can help them monetize existing real estate holdings in any way possible. Much like the current discourse on converting former offices to residential or mixed-use spaces, any tools to enable usage in novel ways to continue revenue-generating activity is welcome.

US VC deal activity



Source: PitchBook

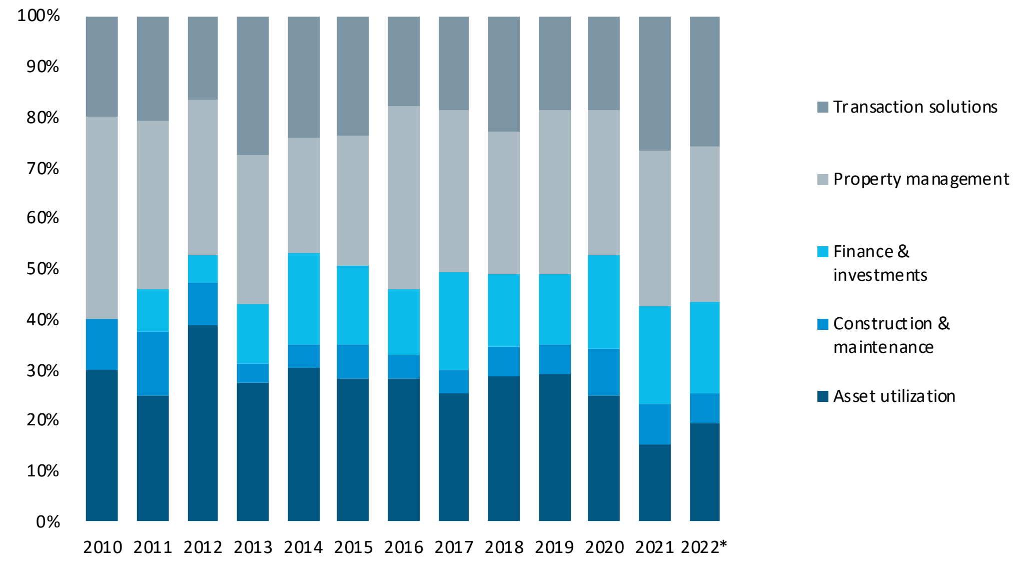
US VC deal activity



Source: PitchBook

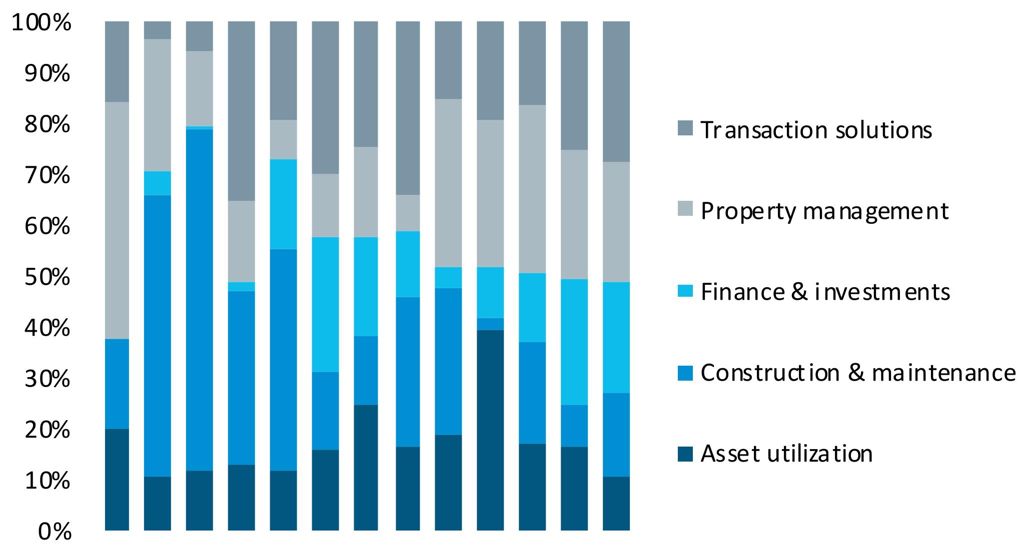
MARKET TRENDS

US VC deal activity (#) by segment



Source: PitchBook

US VC deal activity ($B) by segment



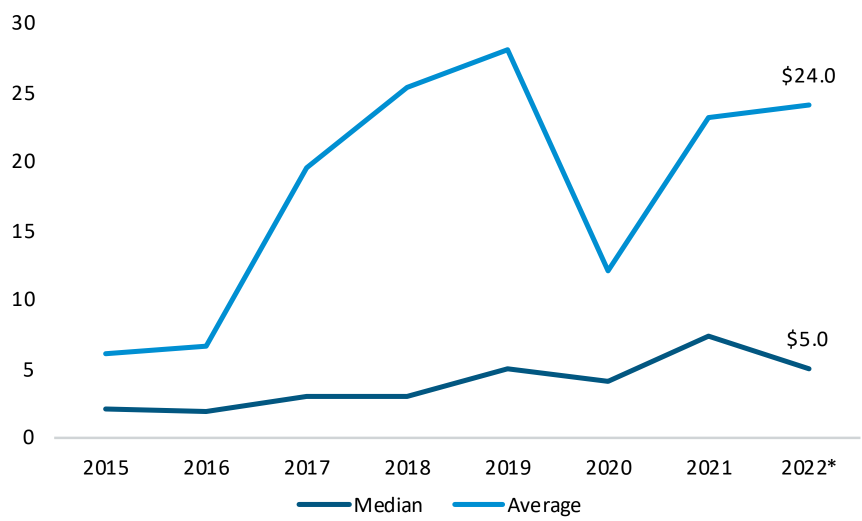
Source: PitchBook

MARKET TRENDS

Financing metrics paint a nuanced picture

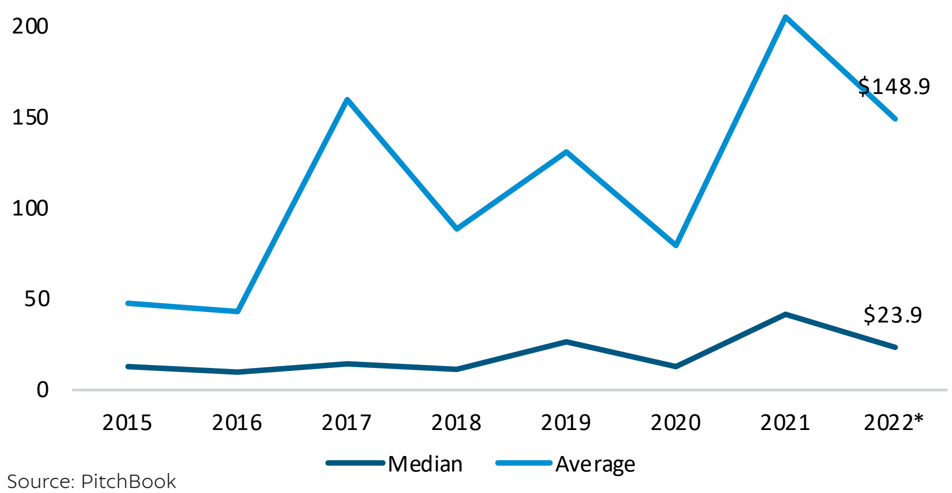
Interestingly, the median deal size and pre-money valuation in venture both dipped between 2021 and 2022, while the average deal size stayed elevated and the average pre-money valuation fell considerably—although averages in general remain quite variable year over year. These four figures' trends in tandem suggest general caution rising—hence the decline in medians year over year—while outliers still persist due to availability of capital and compelling cases made by a handful of firms, resulting in resilience in average deal sizes. The decline in average pre-money valuations, however, does suggest that rich valuations were considerably fewer. Investors are understandably rattled at worst and hesitant at best given the complex, murky market rife with jitters and markdowns, which are undeniably making an impact on private valuations overall. Startups are still competing for capital in the proptech market, but it is likely to be more difficult to obtain than in the recent past when valuations and spirits were headier.

Mean & median - VC deal value ($M)



Source: PitchBook

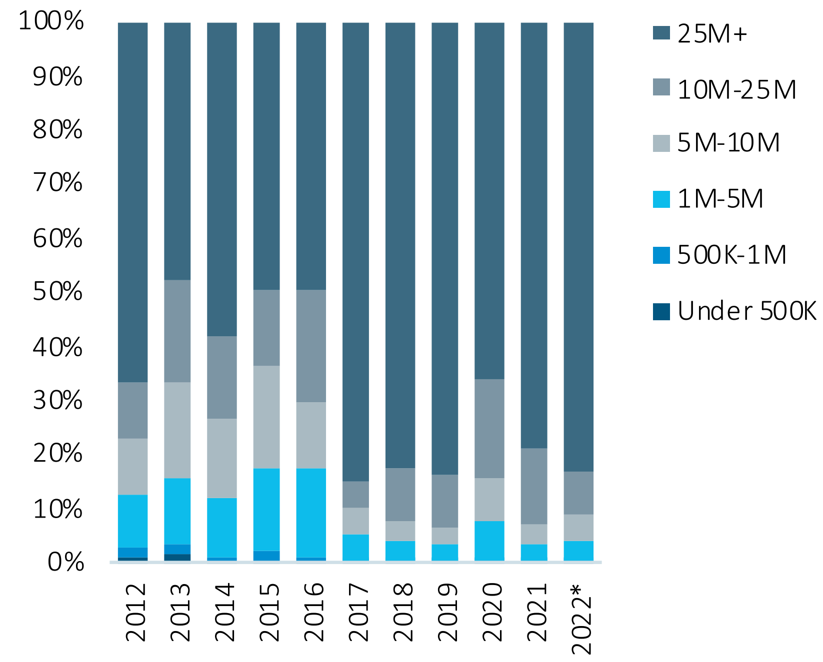
Mean & median - VC pre-money valuations ($M)



Source: PitchBook

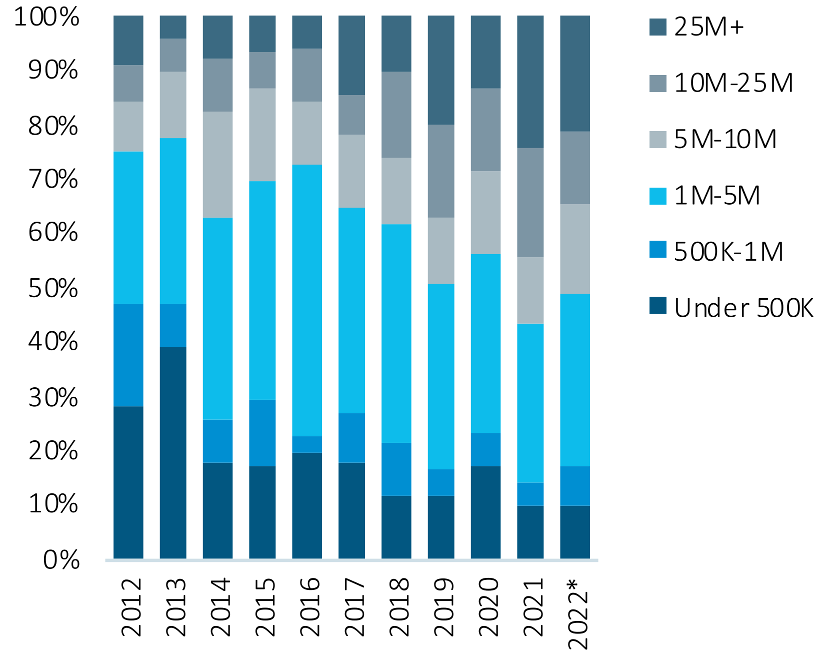
MARKET TRENDS

US VC deal activity ($B) by size



Source: PitchBook

US VC deal activity (#) by size



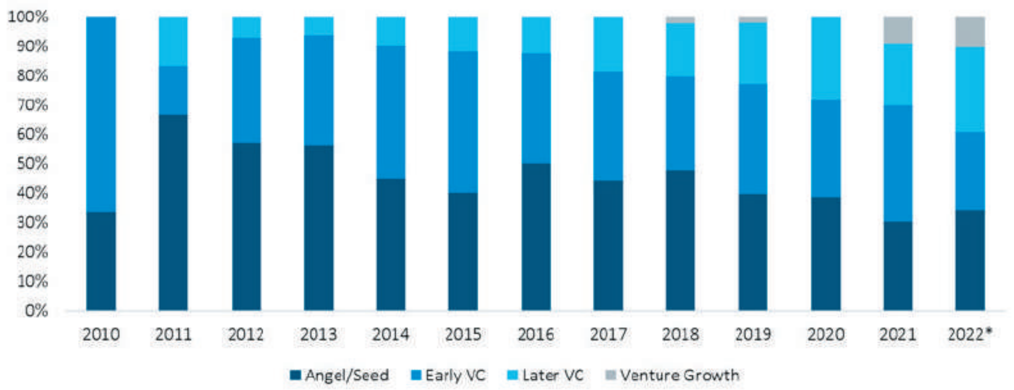
Source: PitchBook

MARKET TRENDS

Key proptech segments see maturation in deal count if not yet deal value

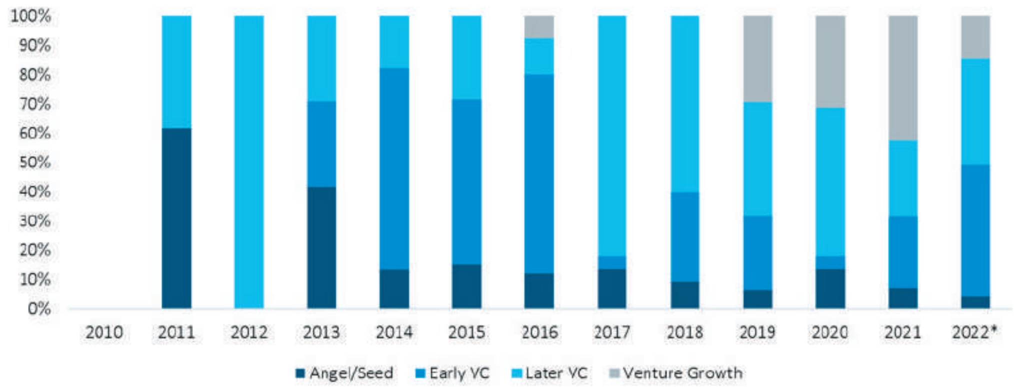
By analyzing breakouts of venture financing activity by proptech segments, it is clear that some segments are seeing maturation in both VC invested and deal count. Asset utilization experienced some lumpiness in venture growth funding in the past two years, but it has not yet become a definite trend, whereas its steadily growing proportion of VC financing volume trending toward the later stages speaks to the maturation of the market. Conversely, finance and investments have seen some proportional growth in the early stages of VC invested, after some years of growth within the relative portions of VC invested at the growth stage. This is likely more attributable to sheer fragmentation and niches within the market, as there still remains significant competition for the best routes to broaden retail investor access to real estate beyond traditional modes, and financing models remain yet to be significantly disrupted. Property management has seen slow but choppy growth in proportions of deal volume overall tilting toward later stages, signaling maturation within the market, albeit at a slower pace. Transaction solutions appears to be a more rapidly consolidating market, given the preponderance of both later-stage and growth deal count and overall capital invested majorities concentrated in those arenas as well.

US VC deal activity by stage (#) - Asset Utilization



Source: PitchBook

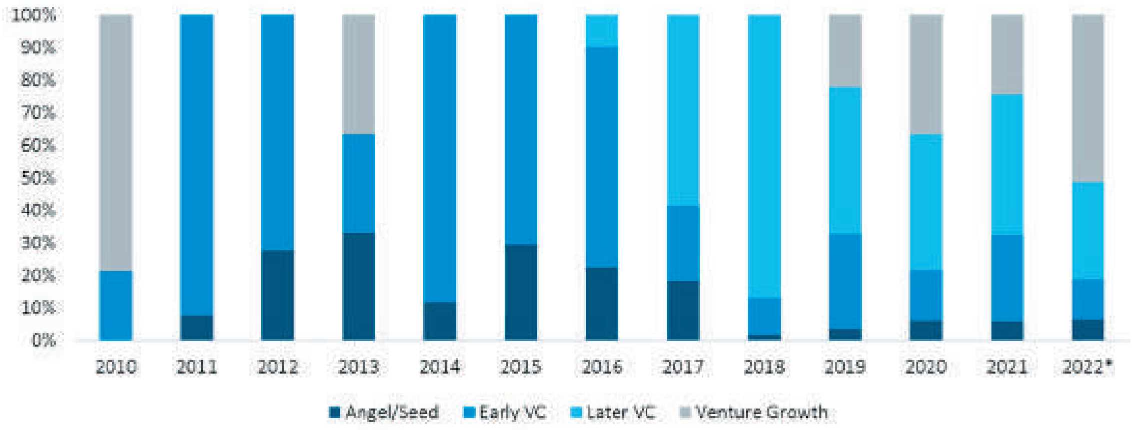
US VC deal activity by stage (#) - Transaction Solutions



Source: PitchBook

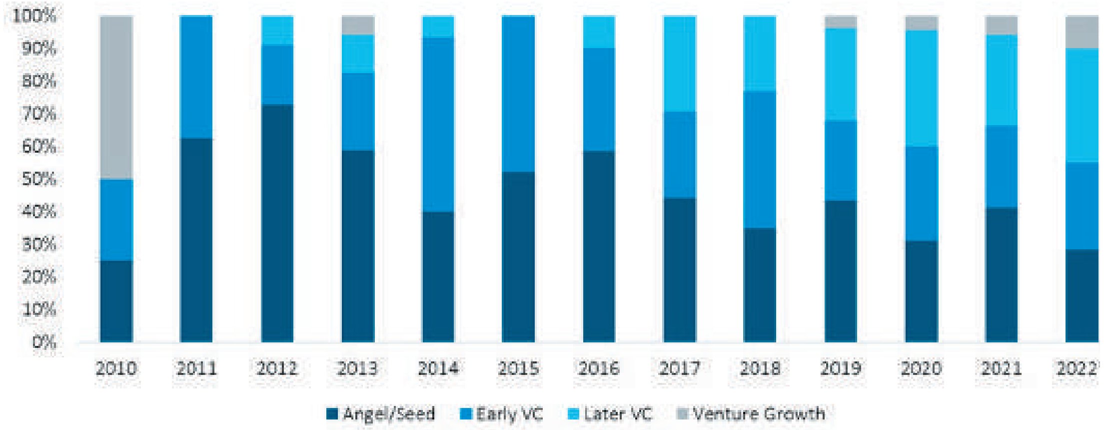
MARKET TRENDS

US VC deal activity by stage ($M) - Property Management



Source: PitchBook

US VC deal activity by stage (#) - Property Management



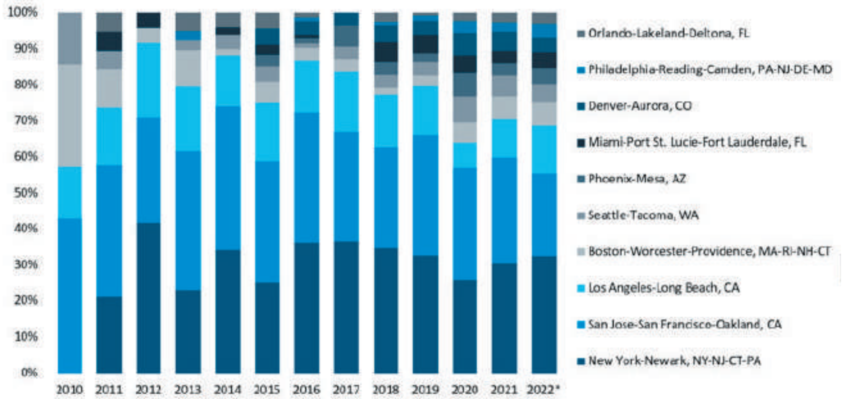
Source: PitchBook

MARKET TRENDS

A slight shift in proptech deal volume to relatively smaller hubs

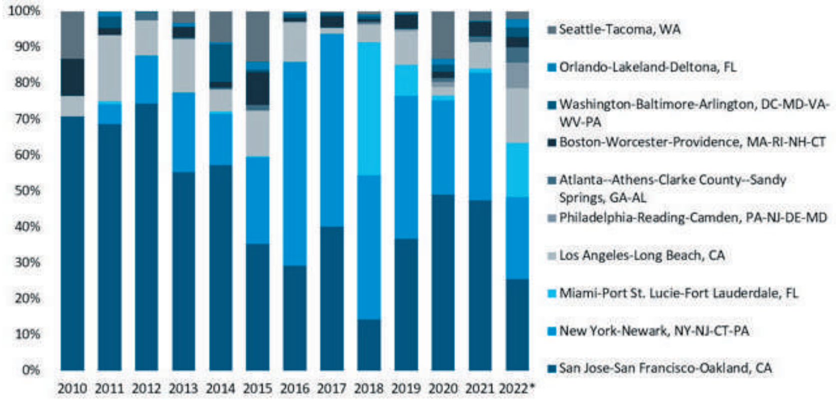
By and large, proptech venture activity has been concentrated in major tech and/or real estate hubs for the duration of the 2010s. The lion's share of all deal flow and dollars invested went to the Bay Area and New York City. Some outlier transactions skewed annual tallies occasionally, but only for a single year. However, breaking out proptech venture deal counts by major metros does produce evidence of a slight, if very gradual, growth in the proportion of deals that occurred in metro areas beyond those two primary hubs, since approximately the mid-2010s. Especially beyond Los Angeles, there has been steady growth in proptech venture dealmaking in the likes of Seattle, Philadelphia, and others. This is more attributable to the maturation of those given venture ecosystems than any seismic changes in the proptech industry; but it does also indicate a broadening of geographic scope by investors and founders alike, especially as valuations grew overly pricey in many market segments, and thus firms diversified their approaches.

US VC deal activity (#) by CSA



Source: PitchBook

US VC deal activity ($M) by CSA



Source: PitchBook

$1.85 BILLION

US corporate players joined in the largest aggregate of capital invested yet in a single year for proptech, exceeding even the $1.7 billion invested in 2019.

86

Nontraditional players pulled back to some degree, although not much, in 2022 relative to the heights of 2021—likely due to overriding caution and overall portfolio allocation concerns given equities turmoil.

$3.1 BILLION

After a monster year for exits in 2022, liquidity trends returned to historically healthy levels at just over $3 billion in 2022, which remains an impressive figure relative to longer-running trends.

30.5%

Close to a third of all VC deals invested in 2022 were within the property management segment, suggest investors are focused on businesses more immediately proffering value-adds to a largely non-digitized market, which could generate actual revenues faster in a volatile, cautious market.

16

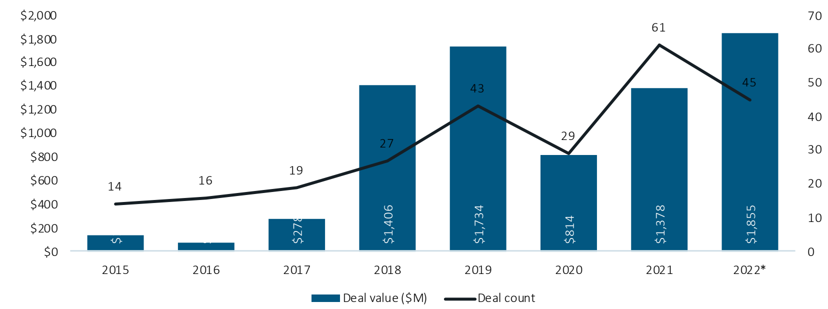
PE buyers only notched a handful of deals again, but still the most on record within proptech. As they continue to grow their penetration of real estate markets, especially given the economic pressures now extant within key segments, it is possible PE firms only become even more active as they look to revamp their existing holdings with updated tech.

MARKET TRENDS

Corporates and nontraditional players remain active and boost dealmaking

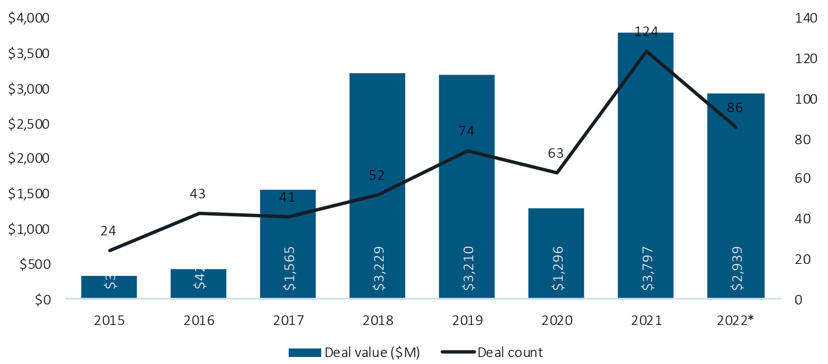
Corporate players staying active even as the volume of their completed financing declined year over year was a keystone in proptech venture financing in the past—particularly in the later stages. Nontraditional investment firms, like hedge funds and asset managers, among others, did likewise. Corporates joined in 45 completed venture transactions that aggregated well over $1.8 billion, while nontraditional players participated in 86 deals for nearly $3 billion in total deal value. These figures compare favorably to the past, indicating that although they may join in fewer deals during tumultuous times, they will still participate in larger deals for more mature, established businesses—much like they have in the past. Corporate venture players' motives are both financial and strategic, while nontraditional players are certainly seeking financial returns while also considering broader portfolio implications, hence their ability to remain somewhat unaffected by broader factors believed to be shorter term.

US VC CVC deal activity



Source: PitchBook

US VC NTI deal activity

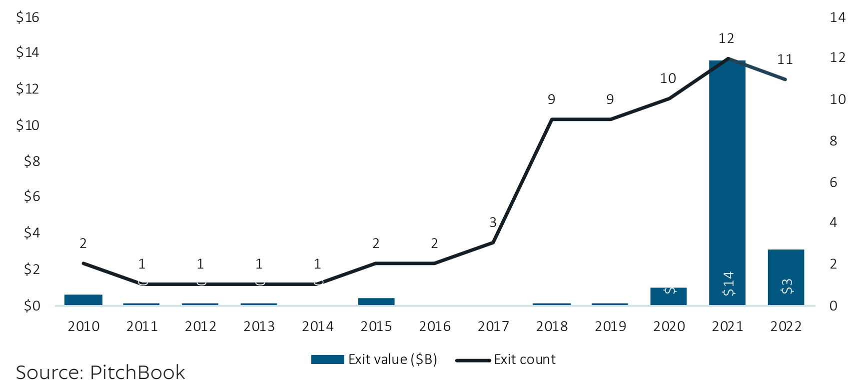


Source: PitchBook

Consolidation potentially in the offing as liquidity concerns mount

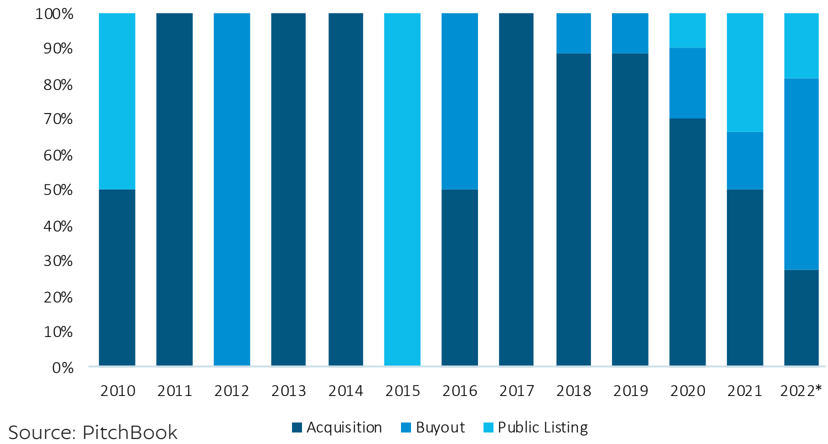
Across the broader venture market, exits have grounded to a near halt in the US. As of yet, such a liquidity crunch might not be grounds for major concerns, especially as heavily funded, more mature companies may still eventually elect to go public regardless of a down market. Should it become protracted, players are likely to grow more nervous and selective; in turn, however, buyers are likely to grow more opportunistic. Proptech has yet to see either significant liquidity or much of a slowdown in the steady trickle of exits that have occurred on an annual basis. Moreover, consolidation has consisted of a few large deals and otherwise classic plays by established incumbents. Given the broader economic and market environments, it is most likely that a buying spree has yet to occur within proptech, while the latest-stage crop of companies—that launched years ago and have raked in plenty of venture financing since—are biding their time before a significant liquidity event, citing current market concerns. Consolidation, however, could be on the uptick eventually, should valuations decline to attractive levels.

US VC exit activity



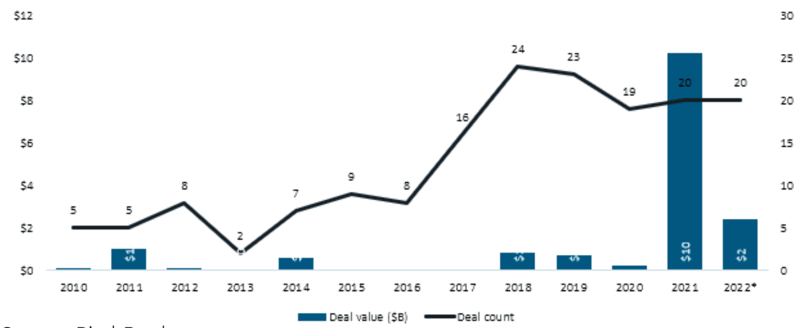
Source: PitchBook

US VC exit activity (#) by type



Source: PitchBook

US M & A activity



Source: PitchBook

PROPTECH MARKET MAP

PROPERTY MANAGEMENT

Commercial tenant management
Building Engines, MRI Real Estate Software, VTS, sms assist

Building operations, analytics, operations
Zerv, Logical Buildings, fetch

Security deposit alternatives
Rhino, Obligo, LeaseLock

Residential tenant management
Daisy, home365 Property Management, Guesty, HAPPYCO, entrata, Pronto Housing, SmartRent

CONSTRUCTION, MAINTENANCE & PROJECT MANAGEMENT

Project management
Versatile, PROCORE, SiteAware, BUILDOTS

Construction robots
BUILT Robotics, CANVAS, Dusty Robotics, Mighty Buildings

Modular construction
blu Homes, BOXABL welcome home, Factory_OS, Veev

Architecture, design & planning
IRISVR, OPENSPACE, BEAMUP, houzz, REPLICA

ASSET UTILIZATION

Co-working & flexible workspace
BOND Collective, EXPANSIVE workspace, MINDSPACE, saltbox, ility, deskpass

Residential
Culdesac, TRIPALINK, Vacatia

Event Space
LYRIC, peerspace, convene

Retail
Cloud Kitchens, Fabric

Industrial/Logistics
metropolis, Infinium Logistics, Aura

Co-living & Homesharing
venn, BUNGALOW, Common, kasa, TRIPALINK

FINANCE & INVESTMENTS

Investment platforms
PeerStreet, L3 Capital, CADRE, Sharestates, agora, FUNDRISE

Commercial lending & financing
Matterport, SKYLINE, PLUM, dv01, built

Mortgage tech
snapdocs, Valon, STAIRCASE, Vontive, Reggora, TOMO

Insurance
TensorFlight, honeycomb.io, obie, Policygenius, Archipelago, STEADILY

TRANSACTION SOLUTIONS

Homebuying/Selling
Orchard, knock, Divvy, ribbon, Sundae, STOA

Marketing
findspace An MRI Software Company, buildout, FUNNEL, Bankrate

Agent tech & tools
Propertymate, bowery, side

CRE marketplaces
CREXI, BuildingBITS

Data & analytics
Juniper Square, cherre, CoreLogic, Inspectify, REAL Capital Analytics

The companies in this market map are intended to be representative of each given segment and do not constitute an exhaustive list given the volume of companies present within each space overall

Q&A

Q What are the key trends in proptech that stood out to you the most in the past year?

A Chris Green: Within a hyper challenged environment for tech companies this year, pockets of opportunity did stand out, particularly climate and sustainability tech. Asset owners and operators, as well as other players in the real asset ecosystem—such as lenders—are making substantive decarbonization commitments. To execute on these commitments, technology that allows for the measurement, reduction, and offsetting of carbon emissions is increasingly in demand. There is a rising intersection between fintech and proptech, where entrepreneurs are starting to look at the payment volume around real assets as a large untapped opportunity. Trillions in construction payments and rent payments remain under-digitized and antiquated, leaving large opportunities to digitize and add value through embedded banking, rewards, and lending.

Kurt Ramirez: A key trend that I am watching is a transition for founders and investors to focus on building startups nimble enough to survive and thrive in a cyclical real estate environment, where interest rates rise and fall and dictate transaction volumes. In addition, the opportunity to streamline the flow of funds across the lifecycle of a real asset, from construction through operation and management, and ultimately resale/renovation. Another thing we're seeing is a tipping point in ESG momentum, with attention and appetite from regulators, founders, investors, owners, managers, and builders for solutions capturing carbon and creating reportable data at the asset level. And lastly, working through the early innings of consolidation. As VC dollars slow and operational bars for startups rise, we're expecting more consolidation to carry through
2023 and beyond.

Stuart Cook
Chief Innovation Officer
Valley Bank

Ori Kaufman-Gafter
Head of International & Tech
Valley Bank

Jeffrey Berman
Partner
Camber Creek

Chris Green
Founder & CEO
Greenpoint Partners

Vince Chillura
Commercial Real Estate Division Head
Valley Bank

Kurt Ramirez
General Partner
Nine Four Ventures

Q & A

Q To combat inflation that has meaningfully outpaced stated targets, central banks have been aggressively tightening monetary policy. These policy changes have had a broad effect on the global economy. How has proptech been impacted by these actions to date, and how do you see the segment being impacted going forward?

A **Ori Kaufman-Gafter:** To get ahead of future interest rate increases by central banks, markets have begun to price in higher interest rates. This has accelerated the deflationary effect on market valuations and slowdown in general market activity that central bankers have been looking to achieve. That said, the interest rate environment that we currently find ourselves in trends very close with historical averages, so this is not something novel for experienced industry veterans. The effects on the real estate market, and in turn proptech, will be greater deal discipline and potentially. a longer fundraising cycle for new projects—as well as a search for and implementation of tools designed to identify and remedy operational inefficiencies.

Jeffrey Berman: When money is cheap, everyone's a genius. Deals get done quickly. Money gets spent on talent, marketing and free food. Now that money is expensive, there are two immediate effects: one, valuations are tumbling; two, startups are grappling with belt tightening as they acknowledge that the bar has been raised for successive rounds. And on the operator side of the equation, real estate owners and operators are carefully scrutinizing expenditures sifting between the 'need to haves' and 'nice to haves'. A lot of 'stuff' is going to end up on the cutting room floor.

Q With a potentially seismic shift away from flagship/marquee headquarters toward more decentralized, hub-and-spoke models, do you foresee any transformations for former office spaces? How does that interplay into proptech aiding transformations?

A **Vince Chillura:** Fully remote models seem to be enduring a bit of a backlash for a variety of reasons. However, major tech companies are settling around an equilibrium for now of two to three days in office and the rest worked remotely. It remains to be seen how that may shift depending on economic fortunes, as it is easy for some to link productivity concerns with the greater stakes of in-person monitoring. That said, the perks of working remote as a way to grapple with life challenges remains hefty enough that many surveys indicate workers will quit and even accept lower wages to maintain that flexibility. As a result, former office spaces downtown are likely to remain semi-used, but ultimately will have to be retooled around that occupancy reality. Proptech can aid in that by simply upgrading and digitizing certain features, such as timed access, climate control, and more that can enable more responsive uses. Retrofitting is expensive, but not untenable, and could be seen as worthwhile, ultimately, rather than losing out on most real estate investments. A balance has yet to be struck between these competing concerns. .

Jeffrey Berman: There will certainly be substantial opportunities in geographies whose economic drivers are less dependent on collaborative work. And there will be a concomitant amount of pain for (potentially) over-levered owners of commercial office properties that are seeing higher tenant turnover, lower persons – per – foot requirements and higher costs of capital.

Q From a lending perspective, what underrated or underappreciated market factors should proptech players be monitoring?

A **Ori Kaufman-Gafter:** The turbulence in the economic climate, interest rate trends and recession indicators are creating a cautious lending environment. This means, among other, that hurdle rates for investors will be higher and the ability to service debt loads will be scrutinized. PropTech companies will need to plan around these realities for their client bases and as a going concern.

Q & A

Q Given the current market environment, which financing types are better suited for proptech companies than in the past?

A **Kurt Ramirez:** An area that we believe has potential in 2023 is around net-term financing. "Net terms" is used to describe deferred payment terms offered to customers seeking extended periods of time to pay for goods or services. This is real estate's version of the tech industry's Buy Now Pay Later (BNPL) and is a frequently used credit product offered by suppliers, distributors, and OEMs to contractors. Given the weeks and months between contractors buying materials and getting paid back by owners, net terms provide the credit needed to "float" contractors until they can pay suppliers for materials.

Q On the consumer side, which end-user trends do you think have the potential for the most return on investment from a developer/property manager?

A **Vince Chillura:** Flexibility in multiple ways. Developers are looking for mixed-use features with the capacity to accommodate potential needs and tenants that aren't even on the horizon yet. At the same time, they are looking to blend down costs where possible by investing in low-maintenance, longer-term, tech enabled buildings and more sustainable materials that could offset recurring costs if possible — as long as the upfront investment isn't untenable.

Kurt Ramirez: Given the increase in remote, hybrid, and work-from-home models, we've witnessed a noticeable shift from longer-term leases and larger footprints to shorter leases and smaller footprints. As a result, furnished offices are growing in popularity, so tenants don't have to wait three months for furniture and pay higher prices from a lack of economies of scale. Office furniture companies like Branch Furniture are helping solve this challenge with shorter lead times, lower prices, and quality products.

Q On the transaction front, which key innovations are you watching most closely, and why?

A **Stuart Cook:** Integration, security, and flexibility are all top of mind for transactional concerns in proptech. That doesn't pertain solely to financial transactions, but even to logistical transactions such as delivery of packages to remotely monitored doorways that can record a snapshot of the delivery and the time to generate an automated notification to owners. Integration with multiple fintech apps or at least capabilities to build into budgeting apps or financial institutions is also popular. And overall, security of information flow and records of transactions are also increasingly a concern for players.

Q & A

Q Construction with more sustainable materials also seems to be emphasizing longer-lasting, more resilient structures—do you foresee more innovation on the materials or design sides accordingly in the next few years?

A **Chris Green:** Materials are becoming clearer to the market as (1) difficult to abate, (2) hard to measure carbon impact, and (3) hard to change when it sits in your scope 3 supply chain. Fortunately, global warming potential (GWP) is becoming more prevalent on product data sheets for construction materials, especially for finish materials that are most visible and apparent to the end occupier as being sustainable—for example, wood products instead of plastic, or laminated timber instead of concrete-encased steel. The "hidden" materials remain both hard to abate and influence—concrete and steel. Fortunately, there are innovations that are greatly reducing the environmental impact of how these materials are produced; some innovators are using silica-based Portland cement alternatives that have the exact same performance and process used in traditional concrete. Steel can be produced using hydrogen as the smelting energy source, and upstream there are big leaps in green hydrogen production. Demand will increase as downstream consumer expectations shift and more corporates look at their scope 3 supply chains with a higher degree of scrutiny, and this will only work to accelerate the shift toward better climate technology within the difficult-to-abate materials supply chain.

Jeffrey Berman: Certainly; decarbonization of the real estate industry is a prescient topic and innovation in materials is going to play a large part in the decarb effort. We're actively looking at a variety of alternative building materials companies. However, I offer two caveats: one, this is a science problem requiring massive amounts of R&D and investment in hardware. That's difficult for a lot of investors. Two, any innovation in space must either be less expensive than the status quo OR mandated legislatively (which will then have the knock-on effect of being more expensive for consumers and businesses).

CONCLUSION

The future may not be quite as murky for proptech as it is for other segments, such as crypto. However costly, the shift toward sustainably built new structures and retrofitting existing assets is either in progress or being planned for extensively by owners and investors. For existing proptech companies that raked in plenty of capital and were still able to fundraise last year, there is runway to prepare for any trying times economically. Investors are likely to still remain active, given broader dynamics and longer-term horizons at play in regard to real estate. For example, even as home building remains expensive given supply chain issues and raw materials' prices, demand could rebound as companies decentralize offices into spoke-and-hub models. Plenty of dry powder remains on the sidelines for venture, while real estate fundraising in private markets had a subdued 2022 but is still coming off a longer-term hefty stretch of lucrative years in terms of capital commitments collected.

Macro factors also paint a somewhat rosier picture than may be guessed given current market tumult, as demographics are likely to encourage a shift to the suburbs by millennials, thus bringing demand for similar technological conveniences and digitalized home ownership experiences as seen in 2010s luxury urban apartments. Financing conditions are currently revenue generating for lenders, but a newer equilibrium with interest rates' growth slowing somewhat could also help demand tick back up for new starts and purchases overall. In short, the future remains nuanced, tinged with caution yet also with streaks for optimism.

METHODOLOGY

Proptech was defined using a custom mix of keywords and industry verticals within the PitchBook Platform to arrive at five distinct segments: construction, maintenance & renovation, asset utilization, property management, finance & investments, and transaction solutions. Subsegments for each include: construction & maintenance (project management, architecture, design and planning, modular construction, and construction robotics); asset utilization (co-working and flexible workspace, residential, co-living, homesharing, retail, events, and industrial); property management (residential tenant management, commercial tenant management, building operations and analytics, and security deposit alternatives); finance and investments (investment platforms, commercial lending and financing, mortgage tech and insurance); and transaction solutions (home buying or selling, agent tech, marketing, data and analytics, and commercial real estate marketplaces). All five of the principal segments were then pooled to arrive at the entire population of companies that were deemed as proptech, with each segment being deduped so that there was no duplicate counting for any overall datasets. Each distinct segment was deduped from the other in descending order from largest to smallest, for its individual breakout datasets. PitchBook's standard venture, M&A, and PE methodologies otherwise applied to all transaction types and datasets. The market map had additional segmentation below the five main proptech segments, which were not broken out in terms of datasets, but were utilized to identify relevant, prominent companies within each proptech subsegment to represent a given subsegment, such as mortgage tech, in the market map. Only completed transactions were included. As proptech within this report has a custom definition based on a curated population of companies, these figures are more accurate and differ from other estimates of proptech financing activity. Corporate were defined as private or public companies, not institutional venture firms. Real estate companies were defined likewise, with their primary industry having to be tagged a real estate within PitchBook—based on a group of related industry codes. Other nontraditional investor types included hedge funds, sovereign wealth funds, and asset managers.

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