PitchBook

EMERGING TECH RESEARCH

Fintech

Q2 2020

Contents

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This Emerging Technology Research report is updated on a quarterly basis to reflect changes in venture capital deal activity and other market related updates deemed valuable by the research analyst. The previous quarterly report can be accessed **here.**

Q2 2020 highlights & updates

VC ACTIVITY

- In Q2 2020, fintech VC deal value in North America and Europe decreased slightly to $6.3 billion from $6.6 billion in Q1. This was also lower than the $7 billion of invested capital in Q2 2019.
- Only 360 deals closed in the fintech space during the quarter, the lowest since Q2 2017.
- After posting a record deal value of $3.5 billion in 2019, consumer finance companies continued the momentum, raking in almost $3.6 billion in the first half of 2020.
- Fintech VC exit activity continued its strong pace after a promising Q1 that included announced acquisitions of **Plaid** and **Credit Karma**. Announced exits of around $1 billion or more in Q2 include **Galileo**, **Personal Capital**, **Finicity**, **Lemonade** and **nCino**.

Q2 2020 DEALS

- **SoFi** announced an acquisition of **Galileo** for $1.2 billion in cash and equity. **Galileo** provides payments and banking infrastructure services to fintech companies including **Chime**, **Robinhood** and **Revolut**, direct competitors of **SoFi**.
- **Stripe** raised an $850 million Series G in a deal led by Andreessen Horowitz, General Catalyst and Sequoia. The deal is the largest US fintech VC deal since **SoFi**'s $1 billion Series F in August 2015.
- **Robinhood** raised a $430 million Series F in a deal led by Sequoia (the deal ultimately extended to $600 million in Q3). Despite technical outages during extremely high market volatility in March and April, the company has largely benefited from new account signups and increased trading.

NOTABLE NEWS

- The Paycheck Protection Program (PPP suffered bottlenecks as traditional banks tasked with distribution relied on manual and sometimes paper-heavy processes. Fintechs with highly automated processes stepped in to support banks or to distribute funds themselves.
- **Goldman Sachs** continues to expand its retail banking operations in a partnership with **Amazon** to offer lines of credit to marketplace merchants. Goldman will have direct access to merchant data, adding to its underwriting data capabilities that already included consumer loans and revolving credit.
- Uber's head of Uber Money has stepped down as the company scaled back its financial service ambitions, which included a digital wallet and a credit card.

TRENDS & OBSERVATIONS

- **Online buying surges: Visa**'s latest 8-K filing showed that US payment volume for physical card transactions is down roughly 25% YoY as of May 31, 2020, while online transactions (excluding travel) is up almost 40%.
- **Wirecard scandal heightens focus on fintech accounting:** The Wirecard scandal could negatively affect other public fintech companies or those looking to publicly list as investors or regulators take a closer look at accounting conventions.
- **Traditional FIs and fintechs see strong growth:** The "flight to quality" debate, which states that during a downturn capital will flow to the safety of traditional financial institutions from newcomers such as fintechs, continues during the economic slowdown.

Executive summary

Since the global financial crisis (GFC), fintech has been one of the most well-funded and fast-growing areas of emerging technology. The expansion of the sector was largely a technological response to the shortcomings of the traditional financial services industry, which came under extreme pressure during and after the global financial crisis. Yet as the COVID-19 pandemic appears likely to spark another recession, the traditional financial industry as well as newer fintech startups appear well prepared to weather this crisis. Widespread regulations and financial reforms enacted since the GFC, the creation of oversight committees, ongoing stress testing and capital requirements have left the financial system more prepared to handle the violent economic disruption it is experiencing today. This has been aided by federal efforts to shore up liquidity in the financial system while rapid stimulus and loan programs have helped borrowers meet loan obligations amid an environment of rising defaults. While it is still early and the full impact on consumers is not clear, accommodative measures by financial service providers (payment forgiveness, loan modifications, deferrals and insurance rebates) are likely to help contain the fallout at least in the near term.

The financial industry is broad and the impact of the downturn on certain services will be more severe than on others. Decreased consumer spending will be negative for payment service providers but increased ecommerce could benefit online payments providers. Commercial insurtech providers will struggle with increased payouts, but pandemic-related protection could drive new product opportunities. Trading and capital market platforms will benefit from temporarily increased market volatility but still face ongoing secular challenges of commoditization. While lending is likely to decline precipitously as underwriting standards tighten and economic activity slows, government stimulus and monetary intervention programs are likely to prevent the credit markets from locking up. Lastly, despite the probable acceleration of demand among banks for digital transformation, spending on new technology initiatives could remain muted until the economy recovers.

Despite these mixed headwinds and the pandemic-related challenges facing the industry, we believe the long-term opportunity to provide innovative digital financial services remains intact. Much of the world's financial services are still provided by a relatively small group of legacy providers and we view this as a long-term disruption opportunity. In H1 2020, cumulative global investment activity across VC, PE and M&A for fintech companies was just under $28 billion, much lower than the $39.4 billion observed in the first half of 2019. M&A, typically the core driver of investment, posting only $6.4 billion in overall value in the half. Global fintech VC reached almost $20 billion. While 2020 will likely see a pullback in deal activity and a shakeout among the lesser capitalized startups, we expect continued VC focus on the long-term secular opportunity.

This report provides an overview of the VC-backed fintech landscape in North America and Europe. While the fintech market is large and complicated, we have segmented the industry based primarily on end-market use case. We acknowledge some startups could belong in multiple segments or subsegments, but we have placed them within the categories that match our understanding of their primary use case. The accompanying market maps consist of VC-backed fintech companies in North America and Europe that have raised a significant amount of capital and gained considerable traction within their respective categories.

Key takeaways

Alternative lenders face critical challenges: Alternative lenders originally focused on the consumer market. However, the dwindling availability of prime borrowers in recent years caused them to shift their focus to subprime and small and medium-sized business (SMB) borrowers. These lenders helped pioneer new SMB lending models—such as revenue-based financing—that quickly gained traction among borrowers that may not have been eligible for traditional financing, such as VC or bank loans. In the current economic downturn, tighter credit availability and higher defaults and delinquencies are likely to reduce loan volume and put pressure on these models even as demand will increase.

Banks partnering to counter disruptive threat: Early fintech disruption focused more on retail services such as lending, payments and money transfer. However, fintech companies are increasingly targeting the corporate banking opportunity with technologies aimed at capital markets, regulatory and compliance services. This is driving incumbent financial institutions to be more proactive in partnering and investing in fintech startups..

Fintech platforms and infrastructure products lowering barriers to entry: The barriers to entry have been significantly lowered for both fintech and non-financial companies to offer financial services to customers or other end users. Off-the-shelf financial platforms and infrastructure—such as Banking as a Service (BaaS)—are making it easier to develop integrated financial products and services and bring them to market through existing channels. We expect this trend to enable more specialization in the financial services industry, favoring providers that can access specific customer groups as opposed to offering broad one-size-fits-all products.

Regulation remains key barrier to growth: For many fintech companies, regulation remains the key obstacle impeding scalability and growth. This is driving many fintech and insurtech startups to find ways to partner with incumbents to effectively outsource this burden to banks that already have regulatory and compliance structures in place. While this quickens a company's time to market, it also introduces channel conflict that could complicate growth strategies down the road. While some startups are pursuing bank charters to own the whole financial stack, this is likely to remain a long and costly process, and we don't expect the compliance burden will be meaningfully lifted any time soon.

Fintechs will step up pursuit of federal banking charters: Fintech companies have long recognized the advantages of obtaining a federal bank charter, including the ability to directly access payment systems, use stable FDIC-insured funds, operate across state lines and borrow via the Federal Reserve Bank's (FRB) discount window. With **Varo**, **Square** and **LendingClub** recently obtaining federal charters and a new rule issued by the Federal Deposit Insurance Corporation (FDIC) that codified requirements for industrial loan companies (ILCs), we believe the precedent pathway has been set for more fintech companies to obtain federal bank charters.

VC activity

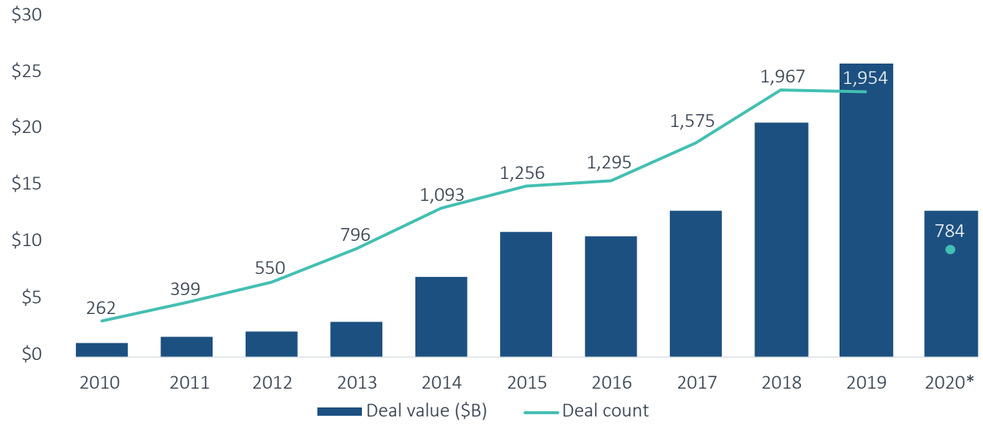
In Q2 2020, fintech companies in North America and Europe raised $6.3 billion in VC across 360 deals—down from $6.6 billion and 424 deals in Q1. Overall deal value in the first half of the year stood at $12.9 billion, which is also down from $13.6 billion during H1 2019. Late-stage companies secured 73.1% of the capital in H1 2020 as investors have continued to favor more established players with greater market share.

On a global scale, total fintech VC deal value declined about 12% from H2 2019 in H1 2020 to $20 billion. This was primarily attributed to major reductions of investment into China-based fintech companies as the COVID-19 crisis took hold. One interesting deal that closed in late March was a ¥300 million ($42.7 million) Series C1 for **Cloud Helios**, a business travel and reimbursement platform. Although this company is facing significant challenges during the coronavirus crisis, we believe investors are focused on long-term opportunities and will continue making deals that are the antithesis to the current environment.

The median pre-money valuation for VC-backed, late-stage fintech companies in North America and Europe continued to climb to $150 million in Q2 after reaching $143 million in Q1 2020. 2019 saw a record full-year high of $130 million, which 2020 is on pace to surpass. The early-stage median in H1 2020 came in high at $24.8 million compared to the $20 million full-year median in 2019. Valuation multiples have also continued to climb, posting a decade peak at 18.3x revenue so far in 2020, which is on pace to beat the previous high of 14.8x in 2017.

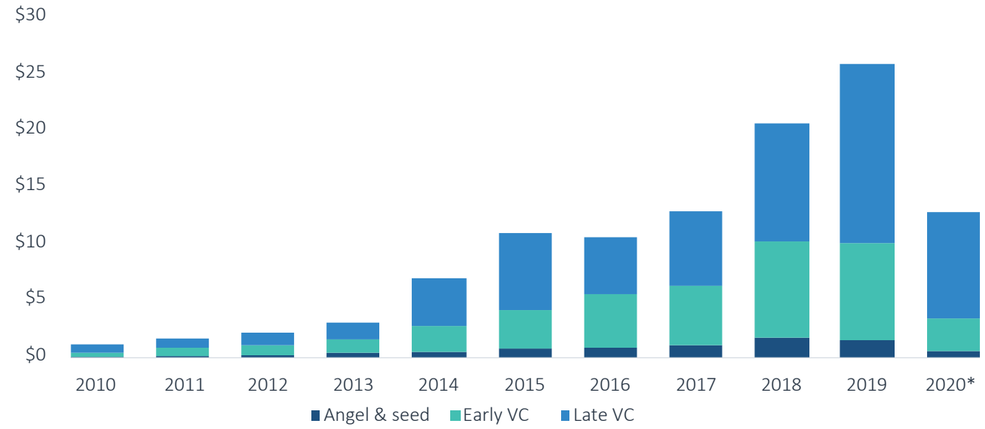
Total exit value for VC-backed fintech companies across North America and Europe jumped to $5.6 billion in H1 2020, which is already greater than all of 2019 primarily due

Figure 1. FINTECH VC DEAL ACTIVITY



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 2. FINTECH VC DEALS ($B) BY STAGE



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

VC ACTIVITY

to the $5.3 billion acquisition of **Plaid** by **Visa**. This figure does not include announced exits that have yet to close, including the $7.1 billion acquisition of **Credit Karma** by Intuit, **Galileo**'s $1.2 billion acquisition by **SoFi**, **Personal Capital**'s $1 billion acquisition by **Empower Retirement** and **Finicity**'s almost $1 billion acquisition by **Mastercard**. Furthermore, the sentiment seems to be changing for fintech IPOs against volatile public markets due to the COVID-19 crisis and tenuous investor interest for fintech companies in recent years. **Lemonade** and **nCino** filed to go public in Q2 2020 (and both going public at the beginning of Q3) with remarkably high interest from investors. **nCino**'s orderbook was almost 50x oversubscribed according to its lead bankers.

Fintech market map

Alternative lending

Real estate lending
Opendoor, lendinvest, LendingHome, ribbon, EASY KNOCK, better mortgage, Flyhomes, Patch of Land, POINT, hometap

Microlending
TALA, branch, Katapult, earnin, WAGESTREAM, brigit

Commercial lending
Kabbage, iwoca, BlueVine, CLEARBANC, Biz2Credit, FUNDBOX, october, The Credit Junction, taulia, ezbob, lendio, INTERNEX CAPITAL, Spotcap, MARKETFINANCE, FundThrough, bynk.

Retail & marketplace lending
SoFi, fair, Prodigy Finance, AVANT, ZOPA, commonbond, lendingUSA, PROSPER, FUTURE FINANCE, LendUp, lendbuzz, upgrade, Lendify, lendstreet, Upstart, Happy Money, College AVE STUDENT LOANS, SALARY FINANCE, YIELDSTREET, CLIMB

Underwriting & credit scoring
Monedo, blend, zest finance, nav, PAYJOY, CREAM FINANCE, aire, PEERIQ

Insurtech

Health & life
OSCAR, bright HEALTH, Clover, Health IQ, alan, ottonova, ETHOS, Ladder

Automotive
ACKO, ROOT, metromile, Clearcover, Cuvva

Commercial
NEXT INSURANCE, Pie Insurance, Coalition, Newfront INSURANCE, vouch, at bay

Enablement technology
zenefits, gusto, wefox, JUSTWORKS., BOUGHT BY MANY, COVERHOUND, BIMA, The Zebra, snapsheet, GetInsured, CLARK, HealthCare.com, mylo, SURE.

Home
Hippo, trōv, kin., ANCHOR INSURANCE, Rhino, TheGuarantors

Money transfer

Institutional
Payoneer, flywire, Currencycloud, pingpong, veem, iBanFirst

P2P & remittance
TransferWise, Remitly, WorldRemit, satispay, AZIMO, transferGo, PAYSEND, currencyfair, pangea

Consumer finance

Consumer credit
Klarna., affirm, Mission Lane, Petal, deserve, Uplift, Katapult, boro

Wallets
CURVE, Numbrs, Lydia, twisto

Digital banking
monese, N26, OakNorth Bank, chime, MoneyLion, Revolut, monzo, VARO, STARLING BANK, TANDEM, dave, digit, KOHO, Klar

Management tools
credit sesame, tally, dailypay, nerdwallet, Even, fintonic, Borrowell, PayActiv

Loyalty & rewards
ibotta, DOSH, FIVESTARS, yoyo, payForward, Thanx

Wealthtech

Investment tools & platforms
raisin., Vestmark, tastytrade, HARVEST, StockTwits

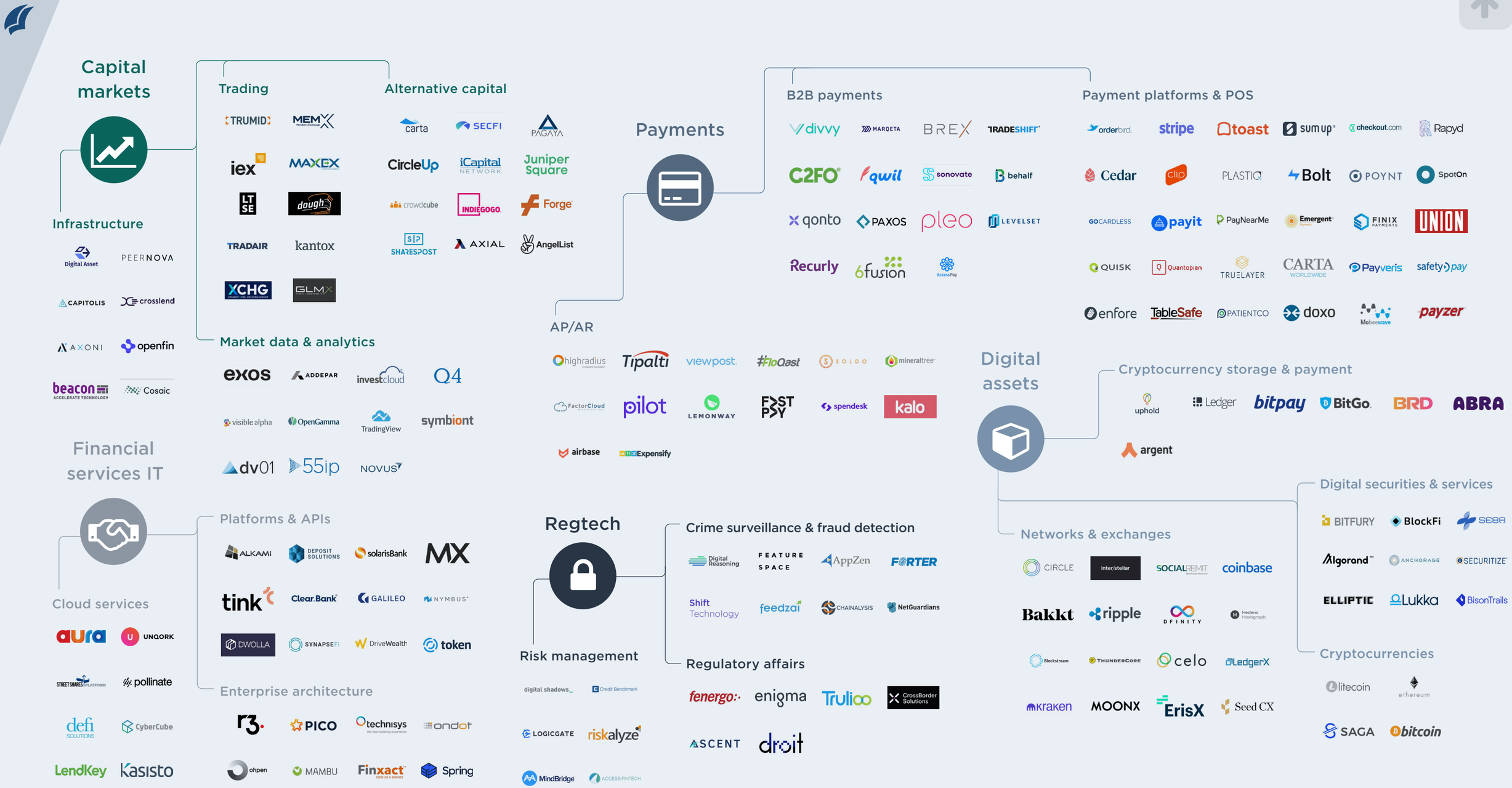
Retirement planning
FIGURE, Aspiration, Aspiration Do Well. Do Good., nextcapital, Guideline, Vestwell

Digital advisory
PERSONAL CAPITAL, STASH, acorns, Betterment, wealthfront, Wealthsimple, nutmeg, moneyfarm, SIGFIG, ELLEVEST, Albert

Brokerage
robinhood, eToro, TRADE REPUBLIC, M, Freetrade, Public

Alternative investments
CADRE, roofstock, PeerStreet, EXPORO, FUNDRISE, REALTYMOGUL.com

Companies included are VC-backed companies in North America and Europe that have raised substantial capital and gained significant traction within their respective categories.



Companies included are VC-backed companies in North America and Europe that have raised substantial capital and gained significant traction within their respective categories.

SEGMENT DEEP DIVE

Alternative lending

Overview

Alternative lending consists primarily of non-bank companies or platforms that provide a range of consumer loans, business loans and related underwriting services. This does not include companies that offer point-of-sale financing services, which we include in our consumer finance segment. Alternative lending providers often utilize AI & ML, data mining and predictive modeling technologies for loan underwriting and incorporate alternative data (such as education history and phone records) into credit risk models. In addition, limited regulations for these lenders (such as capital reserve requirements) and the lack of legacy infrastructure (i.e. physical branches) provide significant competitive advantages over legacy banks. These advantages include the ability to offer lower fees and competitively priced interest rates. While distribution channels and service delivery (i.e. fast application processes, instant funding) were early differentiators for alternative lenders, we believe primary differentiators in today's market include pricing, customer demographic and ancillary product offerings.

Early alternative lenders, such as **LendingClub**, leveraged online platforms to connect borrowers and individual retail investors. This came to be known as marketplace or peer-to-peer (P2P) lending and evolved in the same spirit as Uber and Lyft, utilizing internet technology to more efficiently match supply with demand. While **LendingClub** still provides a marketplace for consumer loans, the company never materialized as the disruptive juggernaut traditional lenders feared. We attribute this to **LendingClub**'s inability to differentiate itself from other online lenders and industry regulation that prevented scaling at the same rate as other online marketplace products such as Uber. Today's alternative lending landscape is diverse, and while it includes many front-end

consumer-facing platforms that distribute loans, the financing side is largely dominated by traditional institutional investors as opposed to individual consumer lenders

Industry barriers

Lower regulatory barriers: The alternative lending space is less regulated for non-bank lenders (less limitation on capital requirements, for example), allowing these companies to more quickly enter the market and scale.

Focus on traditionally ignored market: These companies target a large, untapped base of no-file and thin-file borrowers due to banks' unwillingness to lend to various consumers and small and medium-size businesses (SMBs).

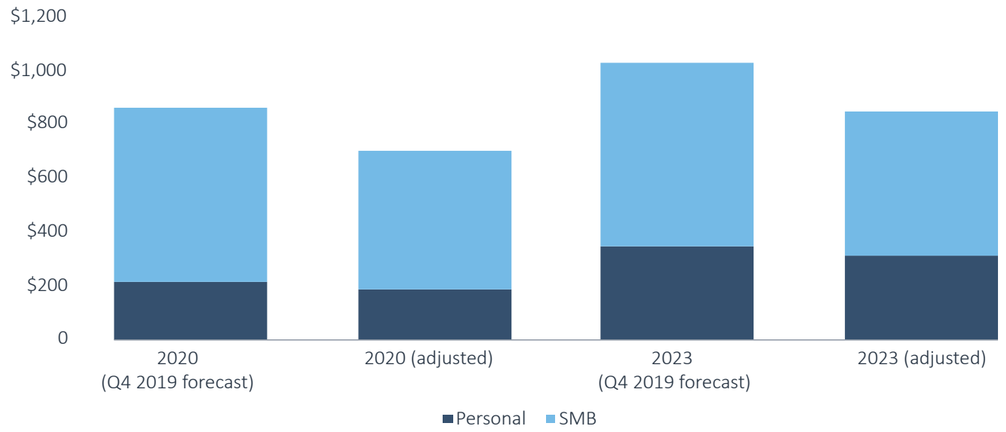
Better underwriting data available: The increased availability and access to alternative underwriting data have enabled these lenders to service the customer base without increasing capital risk.

Low interest rate environment: Long-term low-interest environments have led to high capital availability, driving institutional investor demand for alternative higher-yield asset classes.

Market size

Based on our original estimates, the US lending market, measured by combined personal and SME outstanding loan balances, was projected to reach $862 billion in 2020. However, we now expect these loans to contract this year due to defaults and tighter credit requirements, reaching around $700 billion. This estimate does not include SBA-backed loans offered via the Paycheck Protection Program (PPP). Our new forecasts expect loan balances to surpass the original 2020 projections by 2023.

Figure 3. ALTERNATIVE LENDING MARKET SIZE ($B)



Source: OECD, TransUnion, PitchBook estimates | Geography: US
Note: This represents total estimated outstanding personal and small to mid-size business loan debt.

COMMON INDUSTRY KPIS FOR ALTERNATIVE LENDING COMPANIES

- New originations (volume and dollar amount)
- Origination margin
- Cost of capital
- Pricing (APR)
- Credit risk (average credit score of new applications and approved applications)
- Default rates
- Approval rates
- Unpaid principal balance
- Customer acquisition cost (sales and marketing as a % of originations)

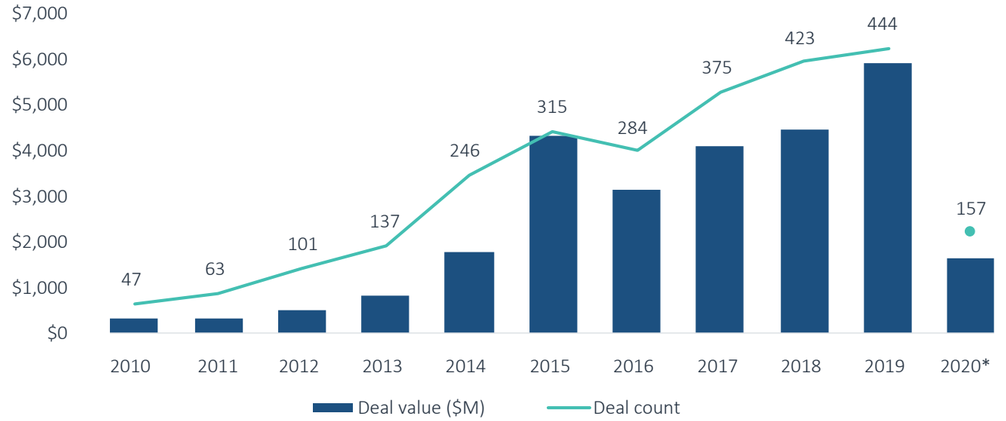
Business model

Companies in the space monetize principally by originating loans and charging origination and related securitization fees. Other revenue sources include take-rate for marketplace lenders, loan servicing fees and SaaS-based models for underwriting and credit-related services.

VC activity

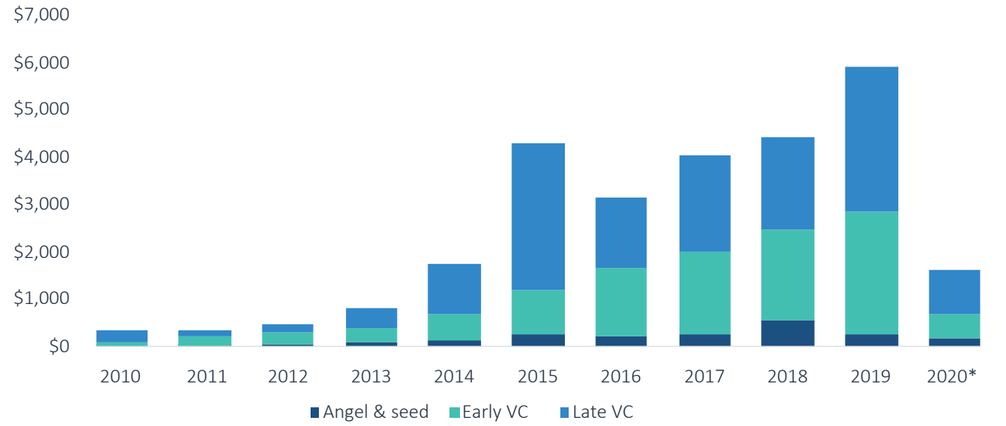
The alternative lending space saw a significant contraction in invested dollars, drawing $1.6 billion in the first half of 2020 compared to $3 billion in the first half of 2019. As credit to consumers and SMBs tighten during the COVID-19 crisis and appetite for loan securitizations from capital markets decrease, we expect investment activity int this space to decrease in the midterm. Many of the early movers in this segment have already exited via the public markets (for example, **LendingClub**, **OnDeck** and **Funding Circle**). We believe the next alternative lenders to publicly list could include **Zopa**, the first P2P lending company, and **LendInvest**, a P2P mortgage lender.

Figure 4. ALTERNATIVE LENDING VC DEAL ACTIVITY



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

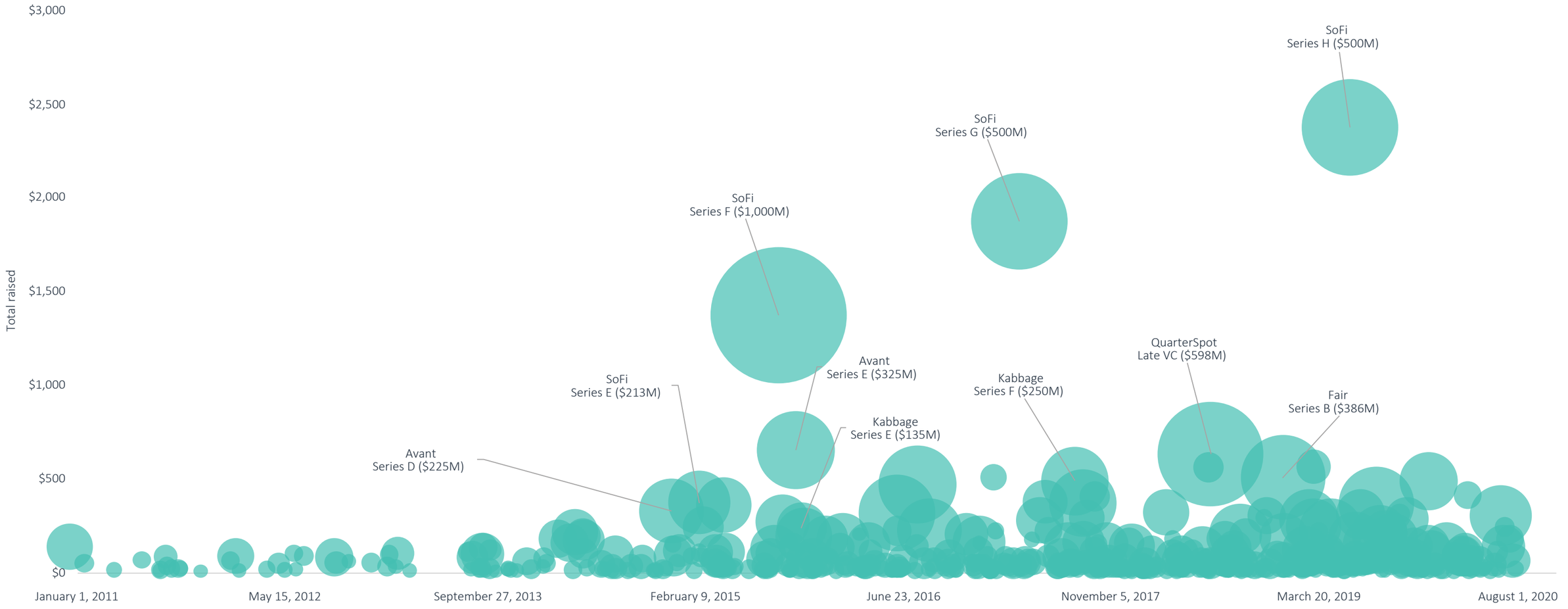
Figure 5. ALTERNATIVE LENDING VC DEALS ($M) BY STAGE



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 6.

VC-backed alternative lending landscape ($M)



Source: PitchBook

ALTERNATIVE LENDING

Figure 7.

Notable alternative lending VC deals

COMPANY	CLOSE DATE	SUBSEGMENT	DEAL SIZE ($M)	STAGE	LEAD INVESTOR(S)	VALUATION STEP-UP
CLEARBANC	July 31, 2019	Commercial lending	$300.0	Series B	Highland Capital Partners, Arcadian Fund	N/A
Fundbox	May 26, 2020	Commercial lending	$200.0	Series C	N/A	N/A
ZOPA	December 3, 2019	Retail & marketplace lending	$180.5	Late-stage VC	N/A	N/A
better mortgage	August 8, 2019	Real estate lending	$160.0	Series C	Citigroup, Healthcare of Ontario Pension Plan, American Express Ventures, AGNC Investment, Ping An Insurance (Group) Company of China, Ally Ventures, Activant Capital	3.29x
lendbuzz	July 15, 2019	Retail & marketplace lending	$150.0	Early-stage VC	83North	N/A

Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 8.

Notable alternative lending VC exits

COMPANY	CLOSE DATE	SUBSEGMENT	EXIT SIZE ($M)	ACQUIRER/INDEX	VALUATION STEP-UP	VALUATION METRIC
Advanon	May 25, 2020	Commercial lending	N/A (raised $13.3)	CreditGate24	0.4x	N/A
OPORTUN	September 26, 2019	Retail & marketplace lending	$330	NASDAQ: OPRT	0.4x	N/A
toborrow	January 22, 2020	Commercial lending	$1	Marginalen	N/A	N/A
VALENDO	October 7, 2019	Commercial lending	N/A ($2 VC raised)	Creditshelf	N/A	N/A

Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Opportunities

Automated underwriting models and processes: New entrants in the alternative lending space are leveraging technology to disrupt legacy bank lending models. Emerging alternative lenders are focused on making significantly faster credit decisions for consumers and businesses while providing services that are fully online and more automated compared to traditional banks. New methods assessing the credit risk of a borrower have boosted much of this disruption. For instance, **Aire Labs** provides lenders with an algorithmic credit scoring platform that combines traditional credit risk factors, which are based only on historical data, with forward-looking factors such as stability or financial resilience. This allows lenders to gain a more holistic view of the applicant and can lead to increased credit acceptance without increasing risk. We believe the underwriting processes of many lenders are still biased, paper-based and complicated. For this reason, lenders are seeking better analytical capabilities and advanced automation. In Q3 2019, **ZestFinance** announced that housing giant Freddie Mac has begun testing its underwriting software to help improve risk prediction models. We believe that investors interested in this space should seek to deploy capital to companies with potential to create these similar partnerships.

Supplying the demand for higher yielding alternative loan securitizations: Through 2018, the seven top US marketplace lending companies including **LendingClub**, **Prosper** and Upstart have issued a cumulative $35.6 billion in securitized consumer and student loans with overall marketplace lending securitizations increasing 52% YoY last year.[1]

Securitization is the process of bundling thousands of small loans into a single security. The securities are then divided into a few tranches based on the risk profiles of the underlying loans. The tranches with high-risk profiles (i.e. loans from borrowers with low credit scores) generate higher yields, and vice versa. The investors who buy any tranche of the securities are paid back via the cash flows generated from the loans as the individual borrowers pay them back. This asset class has, so far, returned above-average, risk-adjusted yield (higher Sharpe ratios).[2,3] We expect demand for these assets will continue to grow, driven by a heightened desire among institutional investors for diversification and higher-yielding assets. Furthermore, many marketplace lenders are obtaining official ratings from credit rating agencies such as **Fitch**, **Moody's**, **S&P** or **DBRS**, further increasing the appeal of the securitizations.

Platform opportunity drives cross-selling and stickiness: Digital alternative lending platforms provide unique cross-selling opportunities. As customers complete the underwriting process, alternative lenders can also offer targeted ancillary financial products. We expect more alternative lenders to pursue product diversification as consumers seek to manage finances in a single location. For example, **SoFi** has expanded beyond refinancing student loans and now offers deposit accounts, investment products, mortgages and insurance. We also see opportunities for alternative lenders with underwriting and distribution technologies to help power the loan services of traditional lenders such as retail banks, mortgage lenders and car dealerships. We are seeing this trend starting to take shape with **OnDeck**'s recent launch of ODX, which helps banks digitize small business lending, as well as with **Kabbage**'s white-label lending platform.

1: "Marketplace Lending Securitization Tracker," PeerIQ, 2019

2: "Orchard US Consumer Online Lending Index," Orchard Platform, 2019
3: "An Introduction to Alternative Lending," Morgan Stanley, May 2019

We note **Kabbage** approved over $3.5 billion in PPP loans for 110,000 small businesses in less than three months.

Considerations

Credit cycles and rising interest rates can hamper growth: As alternative lending heavily relies on equity and debt investors (instead of traditional consumer deposits), we believe less capital will be available during an economic downturn. Additionally, the nontraditional underwriting models of alternative lenders have generally not been tested through cycles, which could result in higher default rates or less willingness among investors to supply capital. The pandemic-related downturn will likely result in decreased credit spreads (primarily a result of actions by the Federal Reserve), reduced demand for risky alternative lending securities and increased demand for traditional asset classes such as corporate bonds. The impending recession from the COVID-19 pandemic will lead to an increase in delinquencies for both consumer and commercial debt. As a two-sided market, marketplace lending requires a sufficient pool of investors and borrowers, and with a potentially shrinking pool of investors, these lenders could struggle to survive as loans go unfunded.

Limited regulatory environment may change: Traditional providers of consumer and commercial loans are subject to extensive laws and regulations (e.g. data security, privacy and money laundering laws) from state, federal and other non-governmental consumer protection agencies. While we believe there is a lower threshold for compliance for marketplace and alternative lending businesses (also known as shadow banks), this light-touch regulatory environment could change in the face of political whims or if these products cause any significant harm to consumers or investors. New or increased regulation could be a significant barrier to entry for scrappy startups that lack the time and resources to ensure compliance.

High competition in a crowded marketplace: Because lending products are inherently difficult to differentiate on anything other than price, we believe competition presents significant challenges for smaller players. While alternative lenders have gained market share from incumbent banks, credit unions and other traditional lenders (alternative lenders are now originating over one-third of personal loans in the US),[4] we believe this space is becoming extremely crowded. In addition, companies in this space are facing increasing competition from new entrants and established alternative lenders. For example, **Goldman Sachs**' Marcus consumer lending unit was launched in 2016 with a strong balance sheet and has already lent out almost $5 billion in consumer loans.

Outlook

Maturing industry may flush out weaker companies as cycle is tested: Investor enthusiasm for marketplace lending faded in 2018 following record M&A in 2017 and several high-profile scandals from both public and private alternative lenders (including **LendingClub** and **SoFi**). Still, despite these setbacks, loan volume growth has continued to expand, and alternative models continue to proliferate. Given the many potential business model efficiencies of alternative lenders (i.e. automated data collection, streamlined decision making and technology-powered credit decisions), we expect this segment will continue to grow inimportance. However, as many of these businesses have yet to operate during

4: TransUnion consumer credit database, 2018

a recession, we believe this leaves investors somewhat cautious as to the long-term durability of alternative lending models, which could lead to a scale back in investment capital. Companies such as **Kabbage** have already started to feel the repercussions of the current downturn and have furloughed or laid off 50% of its workforce.

Supply-demand imbalance could lead to higher risk taking: We believe that the growth of this space is constrained by borrower demand. Although there is plenty of capital available to lend to borrowers, especially from institutional investors, there aren't enough credit-worthy borrowers to take in the capital surplus. Alternative lenders may therefore seek new ways to incent prospective borrowers, which could lead to an increase in customer acquisition costs (CAC) or a relaxation in underwriting standards as companies pursue higher-risk customers.

Regulations will drive consolidation: While regulatory oversight of alternative lending has remained relatively muted, we expect a gradual increase in regulatory scrutiny. Last year, different branches of the Federal Reserve released dichotomous viewpoints of the industry. For example, while the Cleveland Federal Reserve stated that lending practices are "predatory" and need "additional regulation," the Chicago and Philadelphia Federal Reserve stated alternative lenders provide "significant value to consumers and small business owners."[5] In the EU, the European Banking Authority has stated that it recommends legislators provide clarity on laws related to lending-based crowdfunding. We expect further regulatory clarity over the near to midterm with more explicit regulatory oversight. This may increase alternative lenders' compliance costs, pressuring margins and ultimately driving more consolidation.

5: "Financial Lending: Financial Inclusion, Risk Pricing, and Alternative Information," Julapa Jagtiani & Catherine Lemieux, June 16, 2017

SEGMENT DEEP DIVE

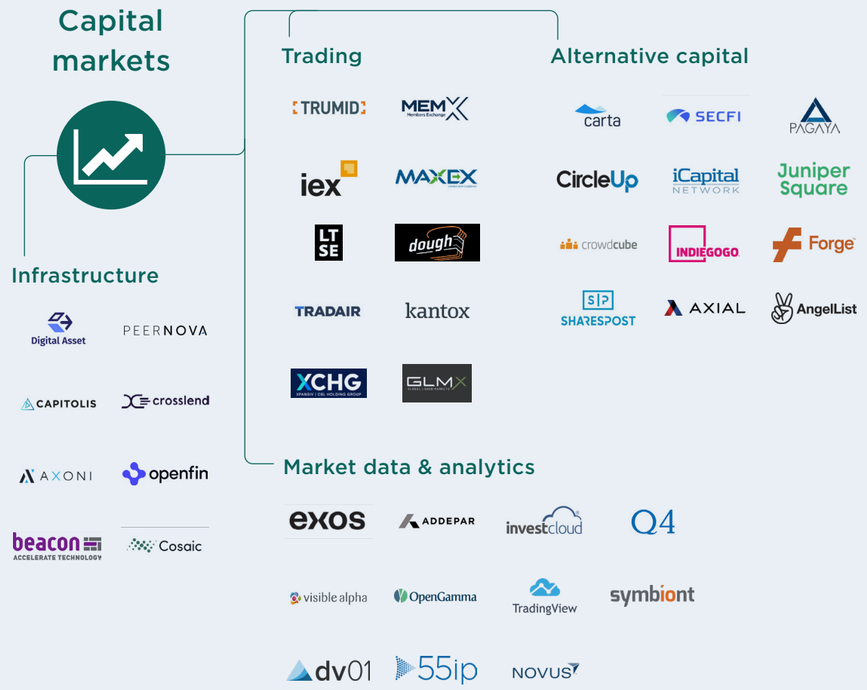
Capital markets

Overview

The capital markets industry primarily consists of large institutional firms that engage in the buying and selling of public equities, private equity, debt, bonds or other securities for businesses, individuals and governments. Functioning capital markets are an important feature of functioning economies, with open-market asset exchange systems tracing their roots back to the earliest days of commerce. The largest stock exchange in the world, the NYSE, has a market cap of $23 trillion dollars, and the US bond market amounts to upward of $40 trillion in asset value.

Participating in capital markets and ensuring they function correctly is a complex undertaking. Traders and investors utilize a byzantine system of global technologies and networks, both private and public, designed to ensure transactions are completed, settled and accounted for in a quick and regulatory-compliant manner. While several market participants rely on innovative technologies—such as high-speed trading systems—to give them an edge, we believe many of today's capital market participants still rely on antiquated technologies and processes that may be slow and prone to error or that lack features and functionality. We believe this aging infrastructure adds to costs, increases regulatory risk and reduces strategic opportunities.

Capital market participants are under increasing pressure to modernize their technology to offset rising competition and macro headwinds. Revenues and ROI among the largest global banks have been stagnant for years as the industry adopts new capital and regulatory requirements. Smaller and more nimble boutique firms are challenging the hegemony of legacy financial institutions for wealth management and advisory business. In addition, automation in bond and equity markets is pressuring fee-based trading businesses and driving more capital to low-fee passive investment strategies.



To offset these secular pressures, capital market incumbents are increasing their investment into technologies with the potential to improve strategic capabilities. It is estimated that spending on capital market technology amounts to roughly $12.7 billion and is expected to increase at a CAGR of roughly 13% as financial firms continue to pivot from what has traditionally been a relationship-based business toward a new technology-driven service.[6] Areas of investment include high-speed trading capabilities, transaction routers and AI-based algorithms, pre-trade analytics, order execution, post-trade processing, debt and equity **issuance** and portfolio management. Other services include providing access to alternative asset classes, market data and analytics tools. Startups in this space target both primary (corporate issuers, buy-side and sell-side investment banks and public accounting firms) and secondary (traders, exchanges, brokers and clearing houses) capital market participants.

Industry drivers

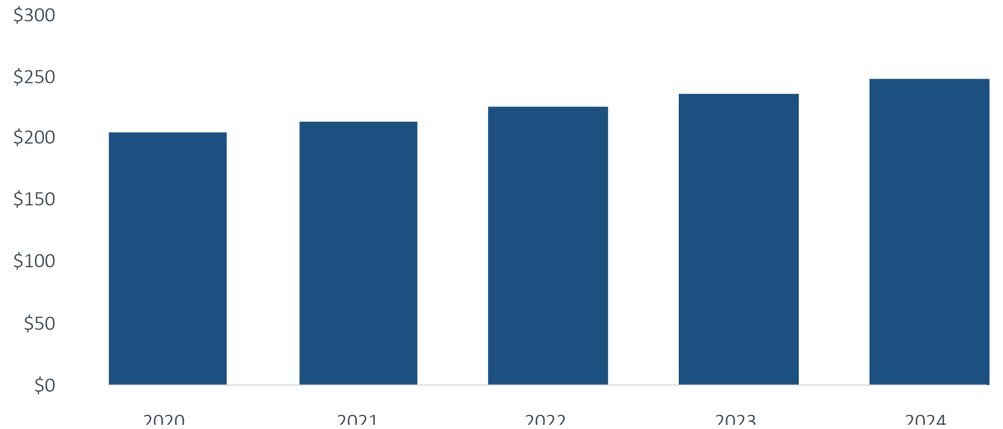
Stagnant or declining revenues: Since the financial crisis, capital market institutions have been suffering falling revenues due to fee compression and stagnant volumes.

Increased regulatory burden: Incumbents are proactively seeking emerging technologies that can enhance regulatory compliance capabilities with improved transparency and reporting capabilities.

Increased competition: The fintech era has unleashed a wave of competition from boutiques and non-banks that use technology to provide services at lower prices or reduce internal costs.

6: "Capital Markets Technology: 2022," Accenture Consulting, 2018

Figure 9. CAPITAL MARKETS MARKET SIZE ($B)



Source: McKinsey, Pitchbook estimates | Geography: Global
Note: This represents estimated revenue of capital market infrastructure providers.

COMMON INDUSTRY KPIS FOR CAPITAL MARKETS COMPANIES

- Customer retention
- Customer penetration
- Switching costs
- Churn rate
- Viability ratio (LTV/CAC)
- Return on equity (ROE)

Market size

Capital markets infrastructure providers (CMIPs) are the intermediaries within the capital markets including trading venues, interdealer brokers, clearing houses, information services and technology providers, securities depositories and servicing firms.[7] We estimate the CMIPs market size, based on global revenues, to be $194 billion in 2019 and grow to $236 billion by 2023, which represents a 5% CAGR.

Business model

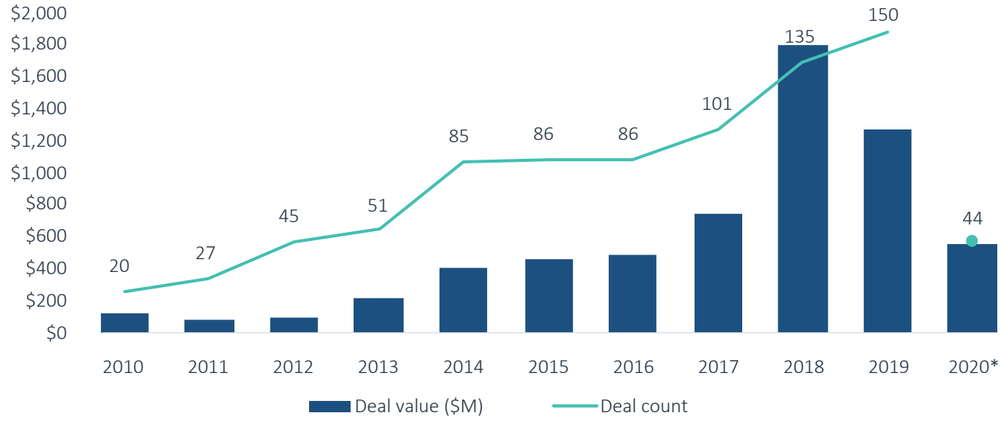
Capital market participants in this space generate revenues principally through software licensing for deployment on client servers and systems, cloud-based SaaS or fee-based usage such as percentage per trade or per dollar.

VC activity

VC investment into fintech companies that serve capital markets has increased dramatically since the global financial crisis, growing to $1.3 billion in 2019 from just $397 million in 2014. Investors have deployed $345.8 million into these companies through Q2 2020 ($543 million was invested in H1 2020). We expect increased focus on cost and efficiency will continue to drive investment dollars as capital market incumbents seek new technological solutions. While a large number of capital market startups are still in the early stages of the venture lifecycle, we expect investors to gain further optimism and invest more capital as these companies mature and build strong relationships with incumbents.

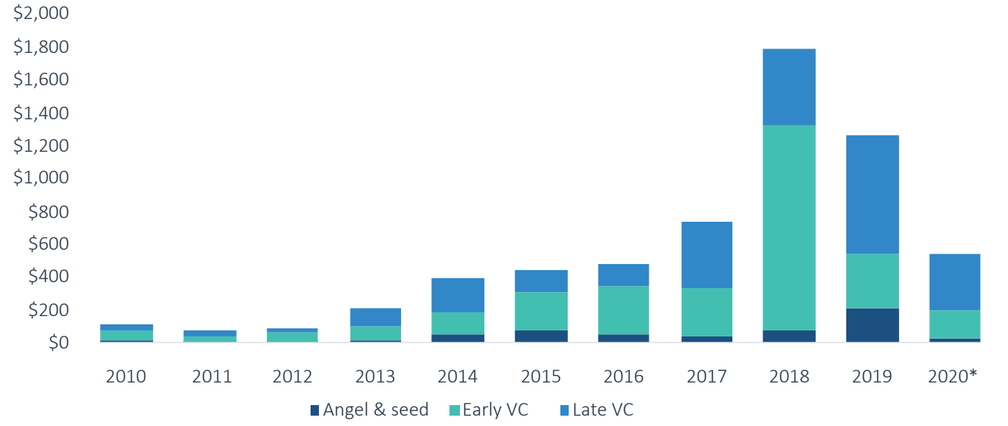
7: "Capital Markets Infrastructure: An Industry Reinventing Itself," McKinsey, 2017

Figure 10. CAPITAL MARKETS VC DEAL ACTIVITY



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

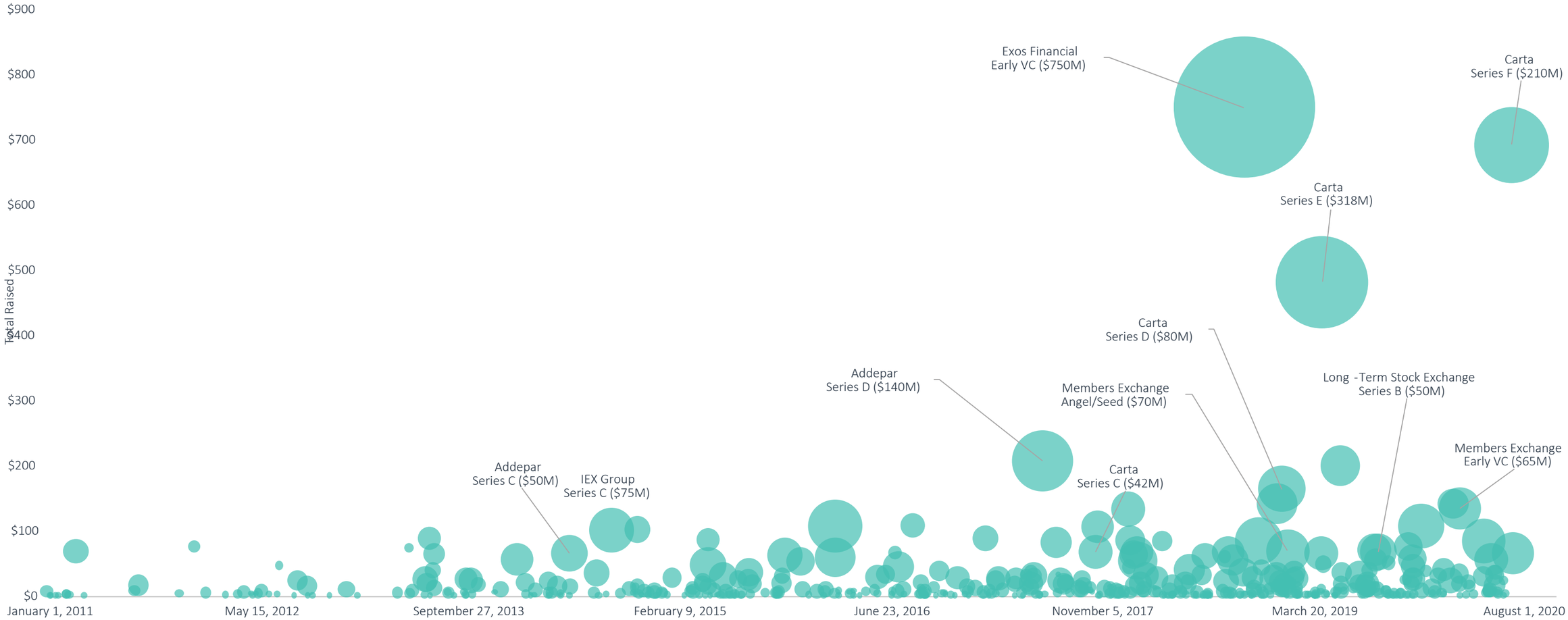
Figure 11. CAPITAL MARKETS VC DEALS ($M) BY STAGE



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 12.

VC-backed capital markets landscape ($M)



Source: PitchBook

Figure 13.

Notable capital markets VC deals

COMPANY	CLOSE DATE	SUBSEGMENT	DEAL SIZE ($M)	STAGE	LEAD INVESTOR(S)	VALUATION STEP-UP
carta	June 23, 2020	Alternative capital	$210.0	Series F	Tribe Capital, Lightspeed Venture Partners	1.71x
Juniper Square	November 21, 2019	Alternative capital	$75.0	Series C	Redpoint Ventures	2.47x
MEMX Members Exchange	February 20, 2020	Trading	$65.0	N/A	The Goldman Sachs Group, Jane Street Capital, J.P. Morgan	N/A
LTSE The Long-Term Stock Exchange	August 13, 2019	Trading	$50.0	Series B	Founders Fund	N/A
CAPITOLIS	August 1, 2019	Infrastructure	$41.9	Series B	Silicon Valley Bank, Spark Capital	1.76x

Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 14.

Notable capital markets VC exits

COMPANY	CLOSE DATE	SUBSEGMENT	EXIT SIZE ($M)	ACQUIRER/INDEX	VALUATION STEP-UP	VALUATION METRIC
AdvisorEngine	May 6, 2020	Infrastructure	N/A (raised $63.5)	Franklin Templeton Investments	N/A	N/A
clearpool	April 8, 2020	Trading	N/A (raised $26.5)	BMO Financial Group	N/A	N/A
fig.co	April 17, 2020	Alternative capital	N/A (raised $12.5)	Republic	N/A	N/A
HARBOR	February 18, 2020	Alternative capital	N/A ($38 VC raised)	BitGo	N/A	N/A
solovis	March 9, 2020	Market data & analytics	N/A ($26 VC raised)	NASDAQ	N/A	N/A

Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Opportunities

Reducing counterparty margin expenses: Central counterparties (CCPs) are highly regulated financial institutions that take on counterparty credit risk when parties trade securities, options, currencies or derivatives. Due to increasing regulations, these institutions are required to post higher margins to clear these trades, resulting in higher financing costs. However, a top global CCP was able to leverage **OpenGamma**'s platform to source trade recommendations, leading to a 5.5% reduction in cleared margin costs. Other similar capabilities (i.e. cloud-based data analytics platforms, trading software, alternative stock exchanges) and technologies are still being developed. The capital markets are highly intermediated (e.g. buyers and sellers in the OTC markets cannot directly trade with each other but rather through a dealer), and we believe that there are still significant undiscovered opportunities for new entrants to develop and sell cost-saving disintermediation solutions.

Incumbents willing to form partnerships: Capital market incumbents are increasingly viewing fintech companies as strategic partners and seeking ways to cooperate and develop products via collaboration and/or investment. Incumbents have recognized that partnerships are a cheaper and less risky way to improve time to market. It has also allowed fintech startups to quickly deploy and validate their business models while integrating into the capital markets value chain. For instance, **Axoni**, developer of data infrastructure based on distributed ledger technologies, has partnered with the Depository Trust & Clearing Corporation (**DTCC**) to help re-platform its credit derivatives trading and settlement platform. Although the results for the recently completed testing phase have not been released, the platform is expected to go live sometime in 2019.

Furthermore, **Axoni**'s Series B round, closed late last year, also includes a laundry list of capital market incumbents including **Citigroup**, **Franklin Templeton**, **HSBC**, **Goldman Sachs**, **JPMorgan**, **NEX** and **Wells Fargo**.

Industry-wide platform services: We believe digital solutions within this segment are still largely fragmented as capital market firms test various emerging technologies. The **DTCC** and **Axoni**'s test partnership is an example. However, solutions and technologies widely adopted by major capital market participants (e.g. bulge bracket banks) can become standardized across the industry as participants seek to coordinate processes, controls and protocols to protect their respective businesses and mitigate potential systemic risks (a unique pain point of the financial industry). We can see this potentially playing out with the rollout of **Capitolis**' FX novation service (a completely new practice of swapping counterparties within an existing FX trade), which recently launched with over 20 leading capital markets institutions on board including **Citigroup**, **HSBC**, **Deutsche Bank**, **Nomura** and **Societe Generale**. As similar solutions mature and as the segment becomes less fragmented, market leaders will likely emerge with standardized, scalable applications that could result in a "winner takes most" environment.

Next-generation securities trading venues: In the past decade, the private markets have grown by $4 trillion, representing a 170% increase. The public markets in that same timeframe have grown by 100%, while the number of public companies has remained relatively flat.[8] As companies continue to remain private longer, servicers are seeing greater opportunities in the private securities market. **Nasdaq** entered the market by acquiring SecondMarket in 2015 (and subsequently renaming the service **Nasdaq** Private Market), **Carta** is working on its own exchange called CartaX, and **Forge Global** and

8: "A New Decade for Private Markets," McKinsey Global Private Markets Review 2020, McKinsey & Company, February 2020.

SharesPost announced a merger in Q2 2020 to better compete. **LTSE** (long-term stock exchange) is a public market exchange that seeks to differentiate from **Nasdaq** and NYSE by focusing on long-term value creation and sustainability. **LTSE** aims to give companies a new alternative route to going public and a voting structure that gives long-term investors more voting power.

Considerations

Complexity leading to longer sales cycles: With the deployment of any new technology into a highly specialized and regulated ecosystem, there will be many challenges and uncertainties. Startups will have to navigate regulatory hurdles as well as the inner workings of complex financial organizations. This may lead to substantial decision and onboarding time—extending sales cycles—and higher barriers to adoption. In addition, fintech startups may struggle to negotiate with capital market incumbents due to the latter's long procurement cycles, making sales cycles seem secular rather than cyclical.

Challenge of software integration: Many incumbent capital market firms have existed under decade-old or even century-old business models, which can result in workplace cultures that are resistant to change or technology infrastructures that are difficult to update. While firms are making efforts to help transform internal cultures, this transformation may not be quick enough for fintech companies with ready-to-deploy technology. Fintech startups need clarity of purpose and an ability to work within these legacy environments. For example, software startup **Mismi** developed an algorithmic trading platform to provide enhanced portfolio execution capabilities. While the product was designed for quick onboarding and easy integration, traders were not able to incorporate the software as quickly due to internal legacy processes. The company subsequently went out of business after raising $14 million in VC.

Vendor risk management a major hurdle: The adoption and implementation of new technology comes with substantial data security, compliance and reputational risks for capital market institutions. Firms without proper vendor risk management in place may be more resistant to adopting new solutions, which creates a barrier to entry for fintech companies looking to sell to those firms. Even with proper vendor risk management in place, fintech startups will still need to overcome the hurdle of proving the concept, most likely within sandbox environments, and demonstrate a compelling value proposition. The time and exertion spent to achieve this may be fruitless if these sandbox tests yield results that are not to the satisfaction of capital market incumbents.

Outlook

Collaboration, not competition: As digital ecosystems within the capital markets continue to evolve, we expect incumbent capital market participants to continue to invest, partner or acquire fintech startups that fit the incumbents' digital innovation strategies. We consider collaboration as the best approach for both fintech companies and incumbents in this segment. For instance, **FastMatch**, a foreign exchange trading communication network platform, was launched in 2012 with an initial 38% investment stake from Forex Capital Markets (FXCM). The company's technologies allow for high-quality FX trading execution with the highest speeds (acknowledgement times for binary <30ms) in the market. Five years later, it was acquired by Europe's largest stock exchange, Euronext. Furthermore, we also expect incumbents to execute strategic technological initiatives

in an agile fashion, which will lead to increased acceleration in the adoption of solutions provided by fintech companies.

Incumbents outsource whole functions with business process outsourcing (BPO): In some cases where technological implementations may be too costly, complicated or time consuming, we expect capital market incumbents will outsource entire operational functions within their organizations that do not add differentiated capabilities to the core business. These services could include post-trade settlement or compliance processes. While large legacy BPO providers can offer many of these services, we believe fintech startups may be well positioned to benefit from this trend.

SEGMENT DEEP DIVE

Consumer finance

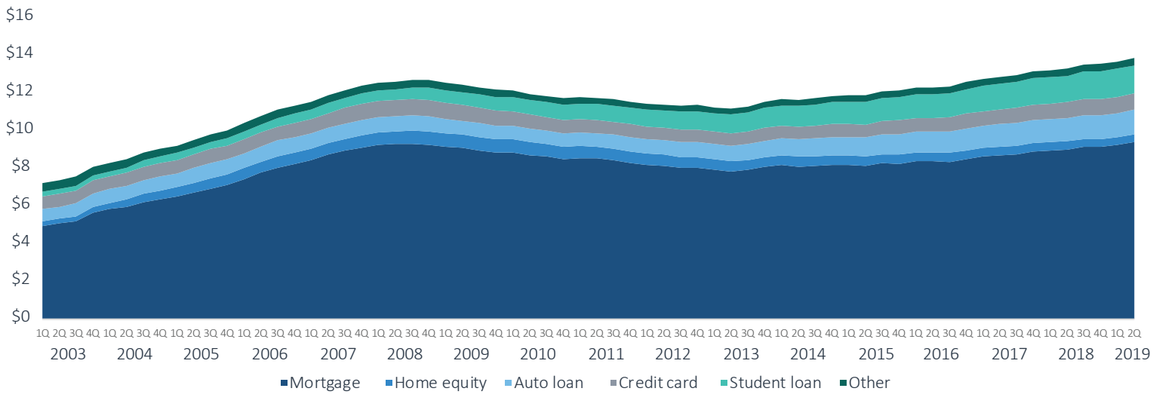
Overview

The consumer finance industry includes everyday consumer financial services such as checking and savings accounts, debit cards, credit cards and other point-of-sale credit products. Startups in this space provide services similar to traditional retail banking and for personal financial management (PFM). PFM tools are designed to help users manage, spend and budget their expenses. Some companies also may provide other revolving credit accounts or loyalty and rewards services. Companies in this segment differentiate primarily by focusing on distinct customer demographics and by providing personalized offerings.

Startups in this space are focused on providing specialized financial services that can be tailored to the needs of individual consumers. This differs from the traditional approach of incumbent retail banks, which generally provide one-size-fits-all products. Today's

Figure 15.

Household debt ($T) by type



Source: New York Fed Consumer Credit Panel/Equifax

consumers are more discerning when it comes to choosing financial products and value the ability to easily compare things such as savings account interest rates, credit card offers and mortgage rates. Information aggregators such as **NerdWallet** or **Credit Karma** that provide market information in one central platform provide more transparency for consumers. These services allow consumers to continuously monitor credit scores, uncover personal spending insights and obtain personalized recommendations for other products and services. Digital aggregators also provide valuable distribution arms for fintech companies, enabling them to scale and acquire new customers at a relatively lower cost.

Industry drivers

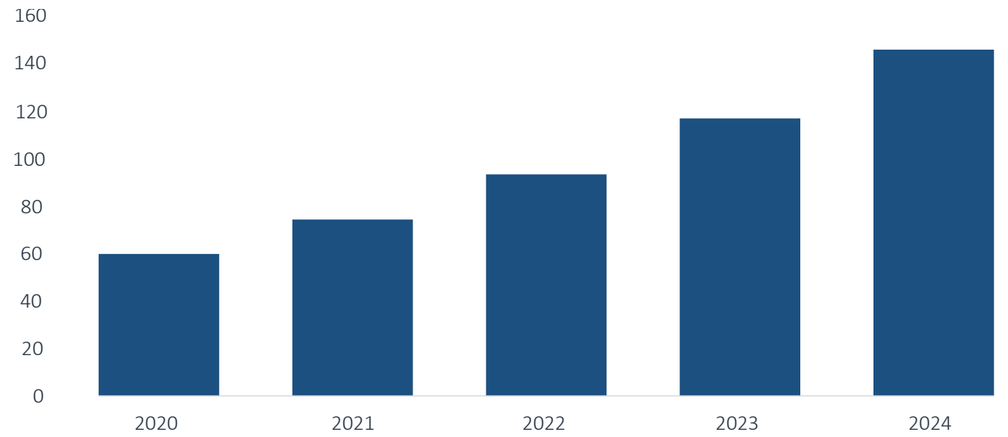
Digital adoption: The continued migration of personal financial services to online and mobile are changing how consumers spend, borrow and save money, and this is creating opportunity for new providers to gain market share. These services have been enabled by new banking infrastructure and business models, allowing decreased development costs and increased speed to market.

Reverberations of financial crisis: We believe the impacts of the financial crisis are still being felt today as consumers at the time lost trust for large incumbent banks and become more willing to use alternative financial services.

Demographic shift: Relative to older generations, younger generations are less likely to select banks based on physical locations, putting digital-only banks on a more even playing field when it comes to new customer acquisition.

Low interest rate environment: The persistently low interest rate environment has driven many consumers to seek out digital startup banks that typically offer savings accounts with higher interest rates or lower fees relative to incumbents.

Figure 16. CONSUMER FINANCE MARKET SIZE (MILLIONS)



Source: : Pitchbook estimates | Geography: North America & Europe
Note: This represents estimated customers of challenger and alternative banks.

COMMON INDUSTRY KPIS FOR CONSUMER FINANCE COMPANIES

- Lifetime value (LTV)
- CAC
- Conversion rate (freemium/paid)
- Revenue or profit/customer
- Products/customer
- Growth rate
- Default rate

Higher debt levels and financial awareness: Younger consumers with school loans or credit card debt are more likely to use financial services that address their specific needs as borrowers, creating opportunity for challenger banks to provide relevant services, such as debt consolidation.

Market size

Challenger and neobanks are major players in this space and have gained millions of customers in recent years. We estimate that in 2020, there will be almost 60 million customers in North America and Europe that have an account with a nontraditional financial service provider. We expect this growth to continue at a CAGR of 25% through 2024 to surpass 145 million customers.

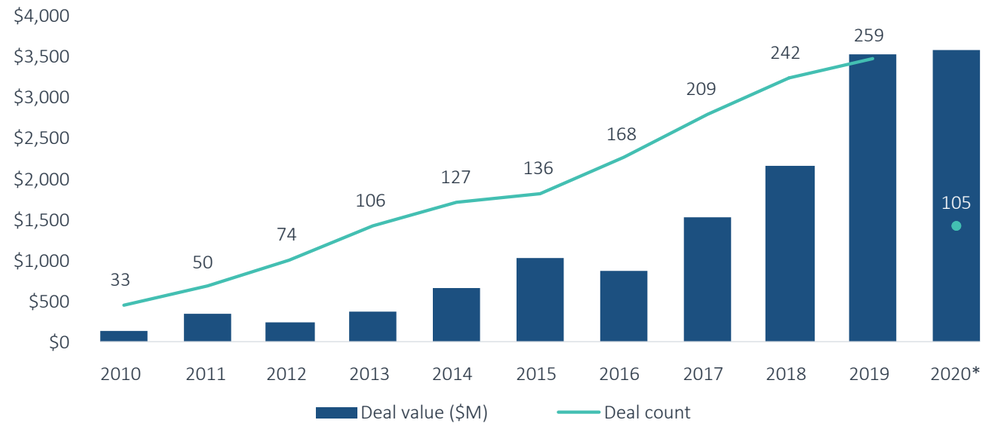
Business model

The business model is similar to that of retail banking, in which revenue is generated through interest earned on cash deposited in mobile bank accounts, transaction fees and interest charged on revolving credit accounts. Some of the personal finance managers and account aggregators generate revenues through kickbacks for partnerships with traditional banks and credit providers.

VC activity

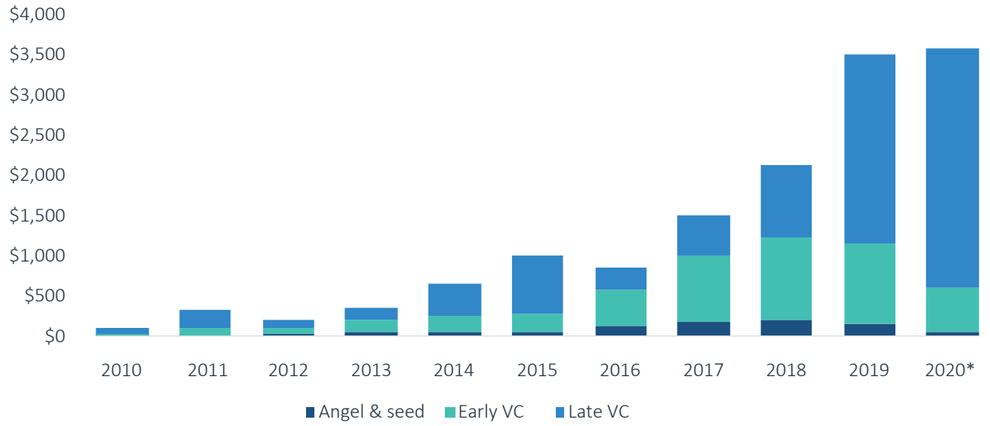
VC investment into consumer finance companies has risen significantly over the past few years, with $2.1 billion invested in 2018 and $3.5 billion in 2019. So far, 2020 has already closed almost $3.6 billion in deals, with neobanks continuing to lead the way. In Q2 2020, **N26** and **Varo** both closed VC mega-rounds at $570 million and $241 million, respectively. We anticipate investor appetite in consumer finance companies to remain strong with potentially large venture raises in 2020 by **Affirm**, **Dave** and **Dosh Holdings**.

Figure 17. CONSUMER FINANCE VC DEAL ACTIVITY



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

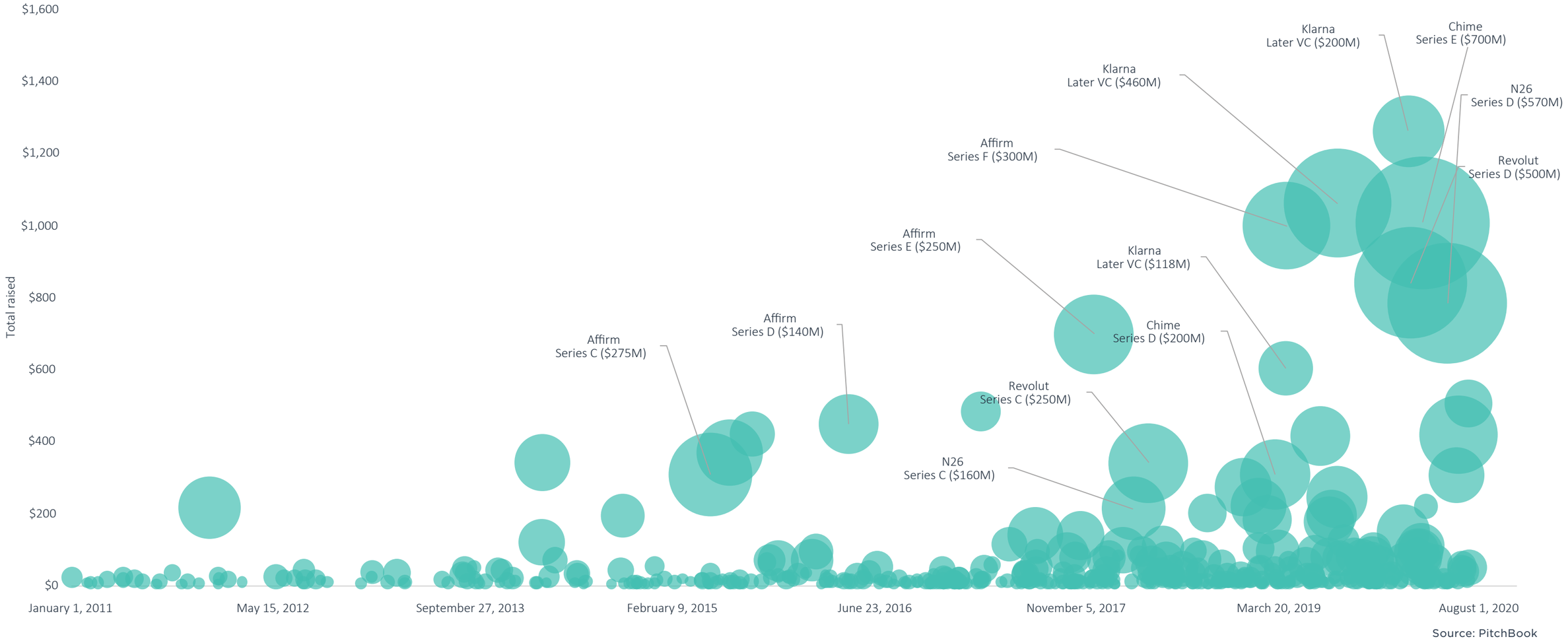
Figure 18. CONSUMER FINANCE VC DEALS ($M) BY STAGE



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 19.

VC-backed consumer finance landscape ($M)



Source: PitchBook

Figure 20.

Notable consumer finance VC deals

COMPANY	CLOSE DATE	SUBSEGMENT	DEAL SIZE ($M)	STAGE	LEAD INVESTOR(S)	VALUATION STEP-UP
chime	March 5, 2020	Digital banking	$700	Series E	DST Global	4.08x
N26	May 5, 2020	Digital banking	$570	Series D	N/A	N/A
Revolut	February 5, 2020	Digital banking	$500	Series D	TCV	2.94x
Klarna.	August 6, 2019	Consumer credit	$460	Late-stage VC	Dragoneer Investment Group	1.46x
Varo	June 3, 2020	Digital banking	$241	Series D	The Rise Fund, Gallatin Point Capital	N/A

Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 21.

Notable consumer finance VC exits

COMPANY	CLOSE DATE	SUBSEGMENT	EXIT SIZE ($M)	ACQUIRER/INDEX	VALUATION STEP-UP	VALUATION METRIC
Shine	June 30, 2020	Digital banking	N/A (raised $12.4)	Société Générale (PAR: GLE)	N/A	N/A
ANNA™	May 12, 2020	Digital banking	$21.8	ABH Holdings	N/A	N/A
STACK	May 28, 2020	Digital banking	N/A	Credit Sesame	N/A	N/A
LOANZ	May 26, 2020	Consumer credit	N/A (raised $2)	LendingArch	N/A	N/A
Airfox	February 12, 2020	Digital banking	N/A ($11 VC raised)	Via Varejo	N/A	N/A

Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Opportunities

No-fee financial accounts: As digitization and automation promise to unbundle traditional banking services, the door has opened for providers of monoline digital financial services, such as mobile savings accounts, investment accounts and spending accounts, that offer lower costs than a traditional provider. For instance, **Chime** does not charge fees for monthly service, overdrafts, foreign transactions and withdrawals from non-**Chime** ATMs. We believe there is strong appetite from consumers for these alternative banking products and expect steady demand. Furthermore, challenger banks in this space, especially those from Europe such as **Revolut**, **Monzo** and **N26**, have gained millions of new accounts in a short period of time. These new banks could challenge incumbent retail banks as they target the younger demographic that prefers branchless and mobile-native banking. Additionally, the steady growth of assets of current users could drive higher monetization opportunities among the existing customer base.

Combined loyalty and financial account products: The rise of ecommerce and omni-channel commerce has enabled merchants to discover new business models for customer loyalty and rewards. Discount coupons have been around for decades, but new data analytics capabilities have allowed for targeted discounts and rewards, leading to better UX for customers and increased ROI for merchants. We believe that the natural progression will be integrations of loyalty and reward features with payments systems, which is already the primary touchpoint between a customer and the merchant. **Square**'s Loyalty Program is one example of engagement features being implemented on top of a payments platform/POS. We also believe that the POS revolving credit/short-term financing providers such as **Affirm**, **Klarna**, **Behalf**, Bread or Sezzle (which exited via IPO in July 2019) could potentially integrate similar engagement features into its platforms.

Large unbanked and underbanked customer base: We see significant opportunity for alternative banks and PFM providers to penetrate the unbanked (households without a bank account) and underbanked (households that have a traditional bank account but also obtain financial services from a non-bank provider such as payday lenders) populations. In 2017, the Federal Deposit Insurance Corporation (FDIC) estimated that roughly 7% of US households were unbanked and 19% were underbanked. Globally, 1.7 billion adults are unbanked despite the fact that over two-thirds of them own mobile phones.[9] Although many startups in this space aim to target this large untapped customer base, we believe that investors should pay the most attention to those providers that have developed a strong understanding of that customer base and have built goodwill through its products and services. An example of such a company is **MoneyLion**, which has remained focused on a core customer base of low- to middle-income consumers averaging $50,000 in household income. The ability to target, attract and service this group of consumers has allowed the company to amass a userbase of over five million in about five years.

Considerations

Customer acquisition and retention are challenging: The need to educate customers about the various benefits of digital financial services, coupled with the fact that financial habits take time to change, poses a unique challenge to fintech providers. Fintech companies are seeking to make products that are easy for consumers to adopt;

9: "The Global Findex Database 2017," World Bank Group, Asli Demirguc-Kunt et. al., April 2018

however, they are inherently not very sticky, making it easy for customers to switch to other services. This is evidenced within the digital banking space: Millions of customers have opened bank accounts, yet the majority of those accounts are used as secondary accounts (customers typically still hold a primary bank account at an incumbent bank). This dispensability, combined with the high CAC, can cause low viability ratios (customer lifetime value over customer acquisition cost), ultimately leading to unsustainable business models over the long term.

Relying on third parties and bank charters: Fintechs currently provide banking services either by partnering with chartered banks (typically smaller community banks) that already have a banking licenses or by obtaining a banking license. This first approach can be limited by the ability of the partner bank to scale, and digitally connecting the two organizations can cause problems. In October 2019, **Chime**'s 5 million customers could not access their accounts when the company experienced outages related to its technology provider, **Galileo**. The problem also affected **Varo**, which also relies on **Galileo**. While **Varo** has since obtained a banking charter, this is an expensive multi-year process. The approvals from the OCC and the FDIC can take several years. In the UK and EU, proactive regulation has made it easier for these digital banks to obtain banking licenses, though the process can still take up to a couple of years.

Competition from incumbents and new entrants: Growing consumer demand for personal financial management has attracted many new mobile banking, online revolving credit and money management platform providers. We believe this sector is highly competitive and crowded with relatively low barriers to entry and high risk of product commoditization. Further, prominent incumbent banks have considerable advantages given generally larger technology investment budgets and extensive client bases.

Outlook

Reversing the unbundling trend: Many fintech startups begin as monoline service providers, but we expect they will start offering more bundled products as their customer bases grow and will present a greater competitive threat to retail bank incumbents. We expect sustained growth in this segment as consumers continue to seek alternative financial products and services that are better suited to their personal financial management goals.

Regulations to become more favorable: We believe regulatory authorities will increasingly view fintech companies as beneficial for consumers, which will help support a more conciliatory regulatory environment. Some regulators, such as the Financial Conduct Authority (UK), have already taken measures to remove or lower the regulatory barriers of entry for fintech companies. Although authorities in the US are slower to allow innovation in this space, the tide is changing. Last year, the OCC began accepting fintech charter applications for non-bank companies to obtain a special banking license—though this charter is currently being challenged by state regulators.

Neobanks with fresh funding rounds could weather COVID-19 crisis: The current environment has led to a focus in digital user experiences, and many neobanks that have recently closed venture rounds, such as **Chime**, **Revolut** and **Lunar**, could benefit. Expanded balance sheets could help accelerate customer acquisition at higher rates relative to pre-crisis levels as acquisition costs have gone down. This is primarily due to decreased CPCs and CPMs on platforms such as Google and Facebook. This could cause market consolidation among startups with more capital.

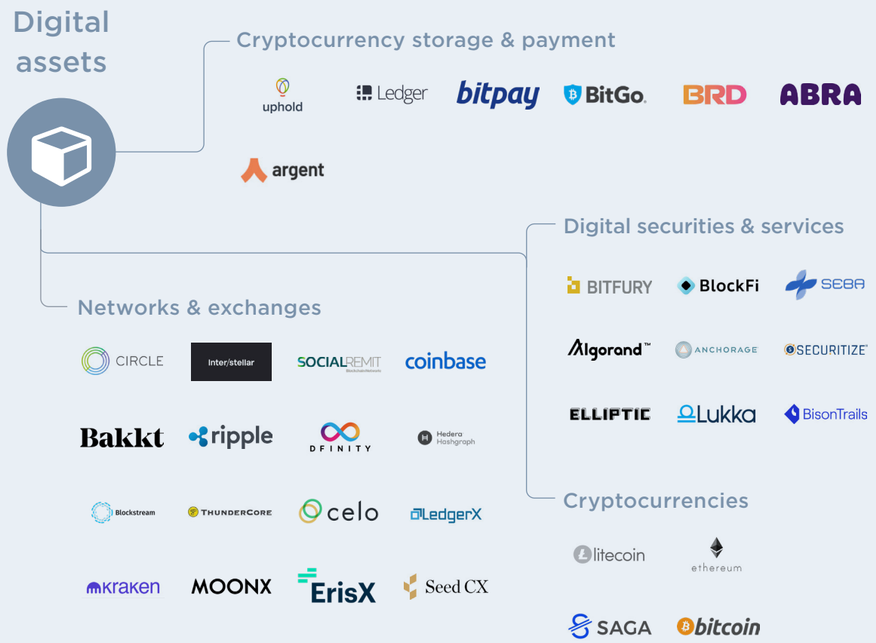
SEGMENT DEEP DIVE

Digital assets

Overview

While digital assets refer mainly to digital currencies and cryptocurrencies, the ecosystem has grown significantly and includes cryptocurrency wallets, payments, networks, exchanges and other services. Cryptocurrencies and other types of digital currencies provide an alternative to traditional fiat exchange, presenting a decentralized, low-fee, instant settlement solution that functions via the internet and is available to just about anybody with an internet connection. Digital currencies have the potential to improve how money is traditionally used by reducing fees associated with cross-border payments, providing real-time settlement of transactions and reducing the costs of handling cash. Digital assets could also revolutionize how goods are traded and exchanged, providing more transparency and eliminating costs associated with middle-man services.

While digital asset technologies remain complicated and controversial with minimal adoption, we believe they pose a unique opportunity for investors given the long-term potential to become a more permanent fixture of the global financial ecosystem. Several exchanges and custody service providers have emerged in recent years to help facilitate activity in the space, but it remains relatively small and speculative. In October 2019, **Fidelity** launched crypto custody and trading services, marking the first full-scale entrance by a traditional financial firm into the space. Given its large client base and network of independent advisors, we expect **Fidelity**'s move to help confer legitimacy on the industry and potentially catalyze wider adoption.



Industry drivers

Potential use cases as currency or asset management: In this very nascent space, many early-stage companies are rapidly exploring wide-ranging potential use and business cases, including as a currency or other type of asset management or tracking tool.

Investor speculation: Cryptocurrency exchanges have experienced strong volume as digital asset prices fluctuate. Continued speculation around future value of digital assets will likely continue to drive investment and trading.

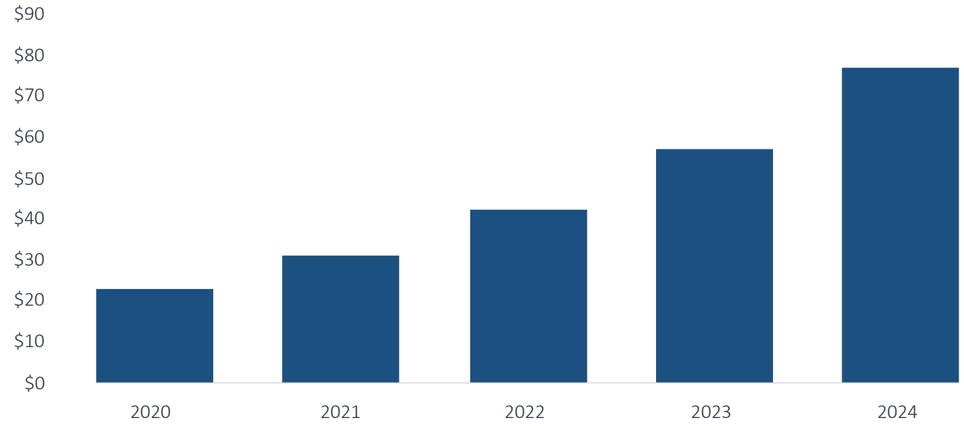
Growth of digital economy: The continued digitization of economies and the need for secure and rapid electronic movement of assets or payments could drive adoption of digital asset systems. Regional economic crises can also serve as catalysts as digital assets could prove a more stable financial system (e.g. hyperinflation in Venezuela). Furthermore, businesses and governments are beginning to recognize the potential benefits of digital-only payment schemes.

Improved digital asset management: Cryptocurrency exchanges and digital asset management systems continue to improve, increasing the willingness of more traditional investors to allocate resources to this asset category.

Market size

The estimated market size of this space, based on the global revenues of cryptocurrency service providers, is $17 billion in 2019, and growing at a CAGR of 35% to reach $77 billion by 2024.

Figure 22. DIGITAL ASSETS MARKET SIZE ($B)



Source: Infoholic Research | Geography: Global
Note: This represents estimated revenue of cryptocurrency service providers.

COMMON INDUSTRY KPIS FOR DIGITAL ASSETS COMPANIES

Cryptocurrencies

- Price volatility
- Hash rate
- Velocity (daily, quarterly)
- Fee percentage
- Transactions/block
- Output value

Cryptocurrency servicers

- Transaction volume
- Operating margin
- Churn
- Viability (LTV/CAC)

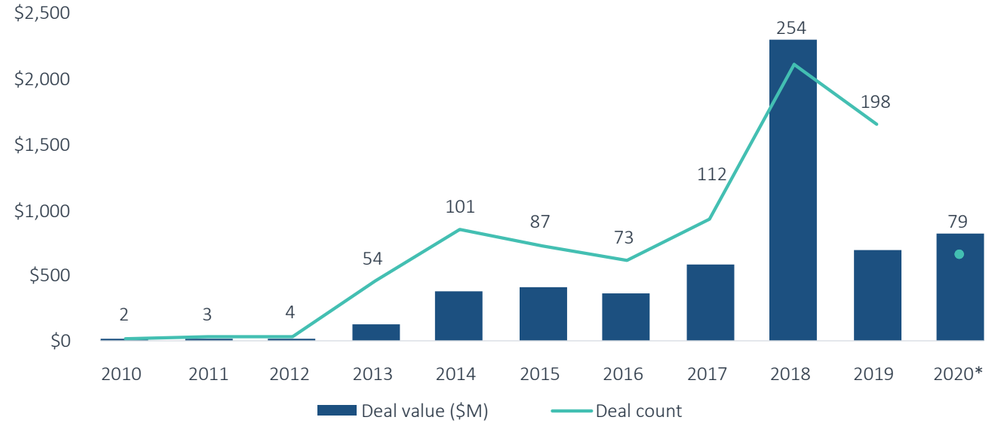
Business model

While new business models continue to proliferate with the digital asset ecosystem, companies currently generate revenues by enabling services that store, transfer or process cryptocurrencies and charge purchase fees or recurring service fees. The networks and exchanges that process cryptocurrency transactions charge transaction fees that range from 1% to 10%. Some companies raise capital through the sale of utility or security tokens with return to investors via services or early access (if utility) or value accretion (if security).

VC activity

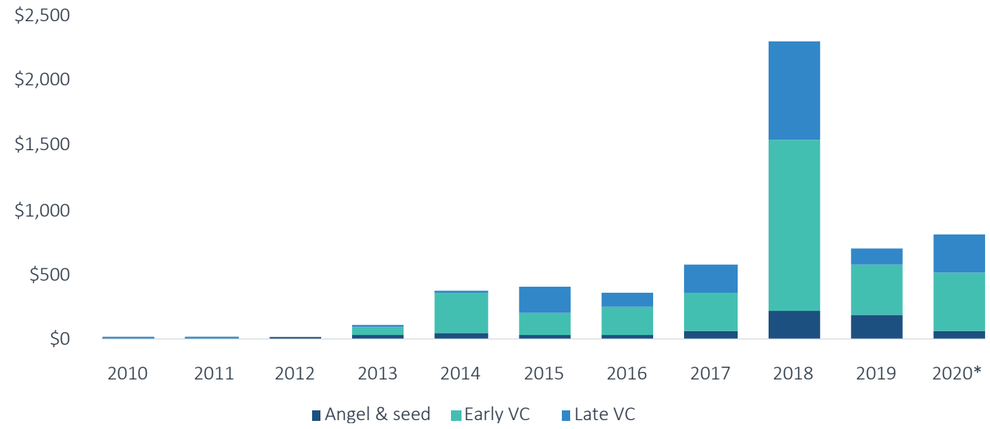
After an explosion of VC investment into digital assets in 2018 wherein companies lured $2.3 billion, digital assets companies received only $697 million in VC in 2019. However, 2020 is off to a strong start, with $809 million invested in the first half. This was primarily driven by two mega-deals in the first quarter: $300 million by **Bakkt** and $200 million by **Ripple**. Companies in this space are often still in the experimental phase and use cases have yet to turn into business cases. To that end, many financings in this space have been seed or Series A rounds. As these early-stage companies find product-market fit and begin to scale, we expect them to pursue follow-on funding, which should eventually help advance the total amount of VC invested in this space.

Figure 23. DIGITAL ASSETS VC DEAL ACTIVITY



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

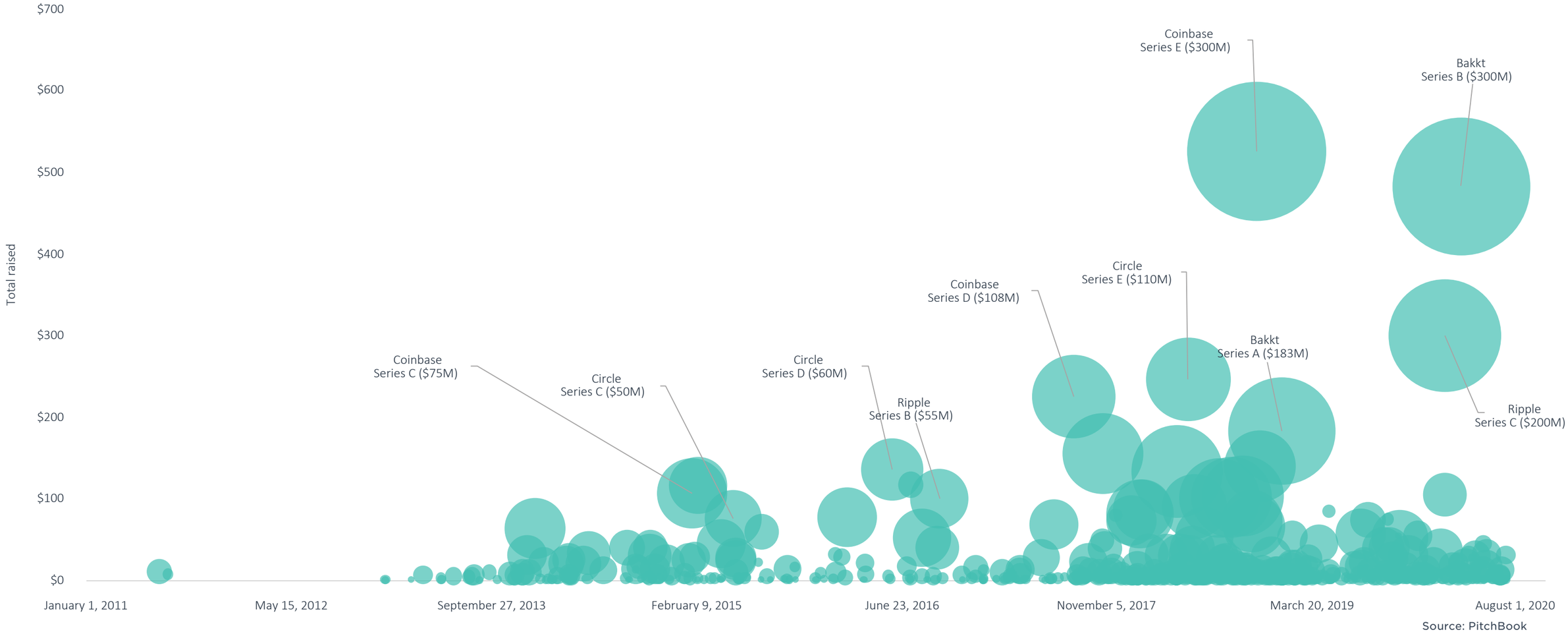
Figure 24. DIGITAL ASSETS VC DEALS ($M) BY STAGE



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 25.

VC-backed digital assets landscape ($M)



Source: PitchBook

DIGITAL ASSETS

Figure 26.

Notable digital assets VC deals

COMPANY	CLOSE DATE	SUBSEGMENT	DEAL SIZE ($M)	STAGE	LEAD INVESTOR(S)	VALUATION STEP-UP
Bakkt	March 13, 2020	Networks and exchanges	$300	Series B	N/A	N/A
ripple	February 1, 2020	Networks and exchanges	$200	Series C	Tetragon Financial Group	N/A
L1	October 15, 2019	Digital securities and services	$50	Series A	Peter Thiel	N/A
ANCHORAGE	July 10, 2019	Digital securities and services	$40	Series B	Visa Ventures, Blockchain Capital	N/A
celo	January 22, 2020	Networks and Exchanges	$30.7	Early-stage VC	Andreessen Horowitz	N/A

Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 27.

Notable digital assets VC exits

COMPANY	CLOSE DATE	SUBSEGMENT	EXIT SIZE ($M)	ACQUIRER/INDEX	VALUATION STEP-UP	VALUATION METRIC
LUMINA	April 16, 2020	Digital securities & services	N/A (raised $4)	BitGo	N/A	N/A
AIRSWAP	May 22, 2020	Networks & exchanges	N/A	ConsenSys	N/A	N/A
xapo	August 15, 2019	Cryptocurrency storage & payments	$55	Coinbase	N/A	N/A
Merkle Data	January 15, 2020	Digital securities & services	N/A ($3 VC raised)	Anchorage	N/A	N/A
LOGOS	September 27, 2019	Consumer credit	N/A ($3 VC raised)	Ripple	N/A	N/A

Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Opportunities

Derivative and options trading platforms: While early crypto-exchanges such as **Coinbase** and Poloniex (originally acquired by **Circle** but spun off in 2019) grew by offering spot trades for cryptocurrencies, we believe new exchanges and clearinghouses that facilitate derivative trades—such as options, forwards, futures or swaps—will gain market traction. The providers of spot market exchanges have raised significant VC (**Coinbase** and **Circle** are both unicorns) while derivative exchange providers such as **ErisX** have recently closed early-stage rounds. The digital assets derivatives market gained significant validation when traditional derivative heavy weights—the Chicago Board Options Exchange (**Cboe**) and **CME Group**—launched bitcoin futures last year. However, during Q1 2019, **Cboe** pulled back bitcoin futures trading due to low trading volumes. We view this as favorable for startups where relatively lower trading volumes can still be a significant business opportunity. Additionally, while futures contracts from the Chicago exchanges are based on cash settlement, new exchanges including **ErisX** or **LedgerX** can settle in the relevant digital asset, meaning they may have more product flexibility because they don't need to facilitate cash-based settlement.

Secure wallet hardware and software: Cryptocurrencies and other forms of digital assets have not been around long enough for the development of reliable protection mechanisms. For instance, in the US, cash in a traditional stock brokerage account is protected from loss by the Securities Investor Protection Corporation (SIPC), while cash in deposit accounts is protected by the FDIC. Without insurance-style protections available for cryptocurrencies, we believe secure wallet applications and devices will be the most viable solutions to help protect these assets. These applications typically allow for the secure storage of digital assets and enable initiation of instant payments and assets transfers. For instance, **Xapo** currently provides these features with its advanced cryptographic wallet. Although some established companies in this space, such as **Coinbase**, offer similar wallets, we believe trust among users is weakened by the irreversible nature of blockchain-based transactions. Some form of a hybrid model that offers both protection and insurance could be a compelling opportunity in the digital asset storage space. **KNØX Industries**, a provider of Bitcoin custody for fiduciaries, provides insurance against key loss, theft or internal collusion.

Decentralized finance projects: We see growing interest in decentralized finance (DeFi), or conventional financial services delivered via open-source protocols and built on blockchain technologies. DeFi projects do not rely on traditional financial services infrastructure. For instance, payment provider **Stripe** built its massive payments services largely on traditional infrastructure and payment rails that have been around for decades. **Stripe**'s DeFi equivalent, Request, provides similar payment processing and gateways that are completely disconnected from these legacy payment rails. We believe DeFi applications most likely to succeed initially will be hybrid models that provide blockchain-based applications in addition to traditional financial services. We view companies such as **BlockFi**, which allows users to take out crypto-backed loans or earn interest on their cryptocurrency holdings, represent an example of hybrid DeFi/traditional financial service model.

Considerations

Regulatory uncertainty is growing: Given the lack of clear regulation and guidance, we view regulatory uncertainty as a major industry concern. Governmental regulatory bodies, such as the US Securities and Exchange Commission (SEC) or the Financial Stability Board (FSB), are generally reactive rather than proactive when it comes to regulation. The SEC currently maintains

a relatively neutral tone for cryptocurrencies, stating that some are securities while others are not (based on the Howey Test, which sets out criteria to define a security). It also requires online platforms that offer trading of these securities to register with the SEC as a national securities exchange. Meanwhile, the FSB recently stated that while "crypto-assets do not pose a material risk to global financial stability at this time it recognizes the need for vigilant monitoring."

Technological limitations and use-case viability: Scalability remains a key obstacle to cryptocurrency adoption. For example, the creation of blocks on the bitcoin blockchain are limited in size and frequency (based on inter-node latency logarithmic limits), which restricts transaction processing rates to a maximum range of only three to seven transactions per second. This is extremely slow when compared to current payment systems, such as **Visa**, which processes about 1,700 transactions per second and has a theoretical limit of 24,000 transactions per second. Additionally, many current blockchain-based financial applications do not provide any real-world benefits compared to traditional financial services. While many blockchain applications allow users to send money to each other instantly, the advantages these products have over incumbents such as **PayPal**'s **Venmo** or **Square** Cash are minimal. Anonymity may be useful in some cases, but we do not believe these features are desired by a large population of consumers.

Numerous other risks prevent viable usage: Operational failures, security breaches, fraud and the perception that cryptocurrencies are primarily used for illicit activities present significant barriers to adoption. While all these issues don't need to be fully resolved before consumers use cryptocurrencies, they will need to appear more resolved before the industry experiences any amount of large-scale adoption. These hurdles may be more meaningful in developed economies with stable financial systems, whereas countries that lack substantial financial infrastructure may view cryptocurrency systems as more viable.

Outlook

Governments will become stakeholders: We expect that governments will become more involved with technologies in this segment; they will likely at least assess the advantages of potentially switching to digital central bank currency as well as consider the regulation of existing cryptocurrencies. Countries such as Sweden and Japan have already started delivering and deploying some form of digital currency that will trade one-for-one with their traditional fiat currencies. The People's Bank of China (PBOC), China's central bank, became the first major central bank in the world to issue a digital currency. The currency would replace China's monetary base, or M0, meaning it would replace the current cash in circulation and not increase its money supply—therefore not affecting monetary policies. These centralized digital currencies could be better protected than current cryptocurrencies against issues such as theft and fraud.

Regulation will promote innovation: We expect the current generation of cryptocurrencies in the market to remain highly volatile for the foreseeable future, with many "alt-coins" disappearing as further regulations, scale and survival-of-the-fittest effects take hold. In addition, the volume of initial coin offerings (ICOs) to slowed from a record in 2017 and 2018 as regulators issued additional rules. We see regulation as healthy since it could bring transparency and fairness to the market while reducing fraud and crime. We believe reasonable, coherent rules and guidelines will draw in more entrepreneurs and investors who are sitting on the sidelines due to regulatory uncertainty.

SEGMENT DEEP DIVE

Financial services IT

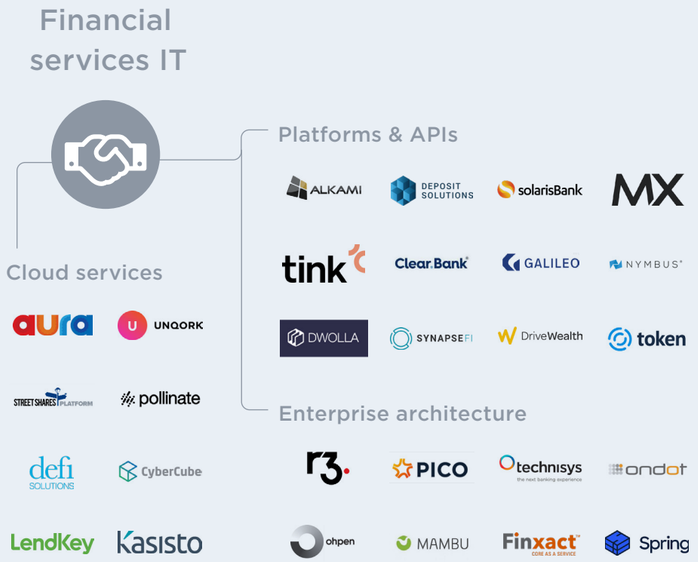
Overview

Financial services IT includes companies that provide core banking and other software solutions to help retail banks and other financial service providers improve internal operations and offer modern digital banking products to customers. Some companies in this space provide products and services that enable non-banks to offer banking products (i.e. debit cards, deposit checking and savings accounts) to their customers. Products include cloud-hosted banking platforms, online and mobile banking applications, infrastructure modernization services and BaaS.

Industry drivers

Favorable regulation permits new product creation: While some regulation has stalled growth, other regulation has presented significant opportunities for startups and incumbents to offer new financial services, improve customer experiences and discover new revenue opportunities. The EU's recent open banking rules, also known as the revised payment services directive (PSD2), oblige banks to make customer data available to permissioned users in a secure, standardized format via APIs. Making data a more consumer-owned asset, as opposed to a bank-owned asset, levels the playing field and open the door for fintech innovation.

Rise of non-bank financial products: BaaS has opened the door to a new banking business model that allows non-banks to easily and quickly launch banking products without needing to obtain banking licenses or shoulder the burden of regulatory oversight. Importantly, while BaaS provides the front-end consumer engagement platform, traditional banks are often sitting behind these platforms, providing the regulated product.



Updating of legacy tech: While banks have made strides in modernizing the front-end consumer experience (i.e. online and mobile banking), there remains a lot of heavy lifting when it comes to modernizing the middle- and back-office processes and operations. These operations, such as loan processing, suitability testing, compliance and HR are often manual or reliant on older technology, which makes them slower, more prone to errors and harder to scale. On average, it is estimated that retail banks have between 300 and 800 back-end processes used to track, monitor and manage their customers.[9] Many of the underlying networks and infrastructures that financial services rely on were built several decades ago. These systems require large investments and considerable time to change, but we expect the industry to continue to upgrade this infrastructure to increase reliability and speed of services and decrease maintenance costs. This should drive steady spend on IT services and products for many years to come.

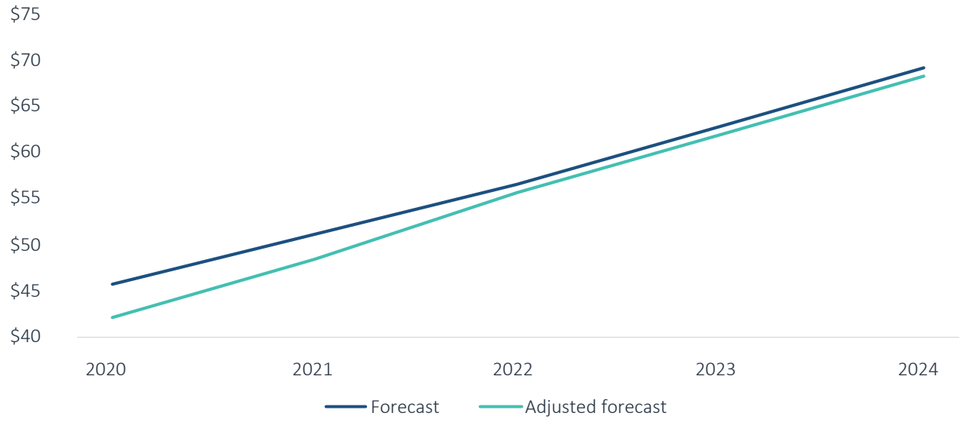
Ongoing secular challenges to incumbents: Since the financial crisis the traditional financial industry has faces mounting secular challenges to growth including rising operational costs driven by regulation, increasing cybersecurity threats, commoditization of core businesses and increased competition from digital startups. Incumbents are turning to technology to help increase efficiencies, combat security threads and better compete with current and new competitors.

Market size

Global IT expenditures for banking infrastructure is estimated to total $42.1 billion in 2020, lower than our previous projections as banks focus on costs during the impending economic downturn. We expect expenditures to grow at an 13.8% CAGR to reach $62 billion by 2023.

9: "Automating the Back Office: How BPM Can Help Improve Productivity in the Back Office," Tibco, 2011

Figure 28. FINANCIAL SERVICES IT MARKET SIZE ($B)



Source: Gartner | Geography: Global
Note: This represents estimated banking infrastructure IT spending.

COMMON INDUSTRY KPIS FOR FINANCIAL SERVICES IT COMPANIES

- Lifetime value (LTV)
- CAC
- Viability ratio (LTV/CAC)
- Monthly recurring revenue (MRR)
- Churn (logo, dollar, net dollar)
- Average contract value
- Payback period

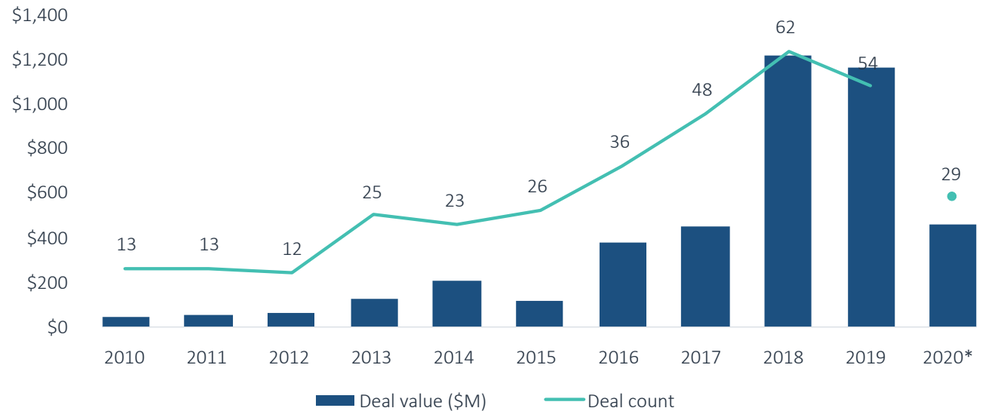
Business model

Financial service IT companies operate under various business models, including: cloud-based SaaS, white-label banking platforms, core banking software with implementation, license fees and transactional fees, APIs (Banking-as-a-Service) with a cost per call, and/or sharing agreements with financial institutions and banks (for example, net interest income and transaction interchange fees).

VC activity

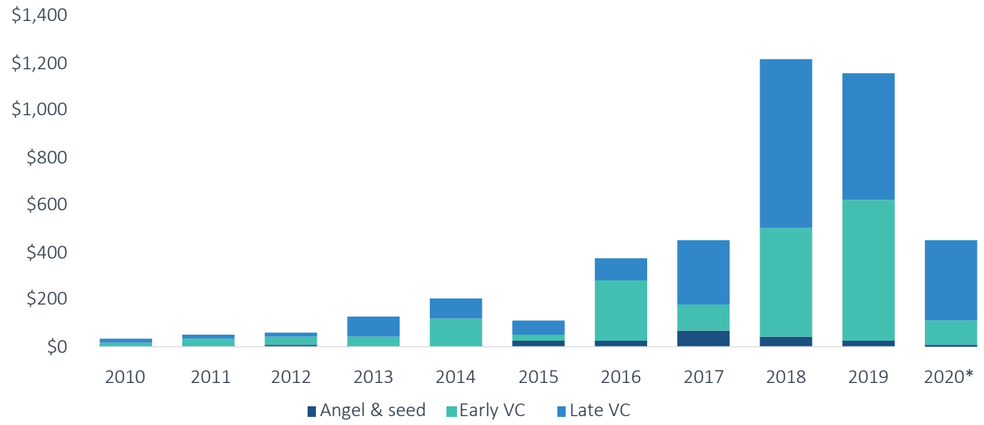
VC deal activity within the financial services IT space has increased incrementally over the past few years, with $453 million closed across 48 deals in 2017 and $1.2 billion closed across 62 deals in 2018. However, 2019 remained fairly flat as venture investors closed slightly under $1.2 billion over 54 deals. We expect the number and size of investments to increase significantly as disruption opportunities in the entire financial services IT value chain continue to grow, sustained by trends of non-banks (for example, Uber) seeking to offer financial services. Many companies in this space provide the underlying back-end technologies that allow non-banks to seamlessly offer financial services to its end users. In addition, four major VC-backed exits so for in 2020 occurred from companies in this segment: **Plaid** (acquired by **Visa** for $5.3 billion), **Galileo** (acquired by **SoFi** for $1.2 billion), **Finicity** (acquired by **Mastercard** for $985 million), **nCino** (IPO at EV of over $2.5 billion). We believe these types of exits will draw more investors into the financial services IT space. There has already been $455 million of VC through Q2 2020.

Figure 29. FINANCIAL SERVICES IT VC DEAL ACTIVITY



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

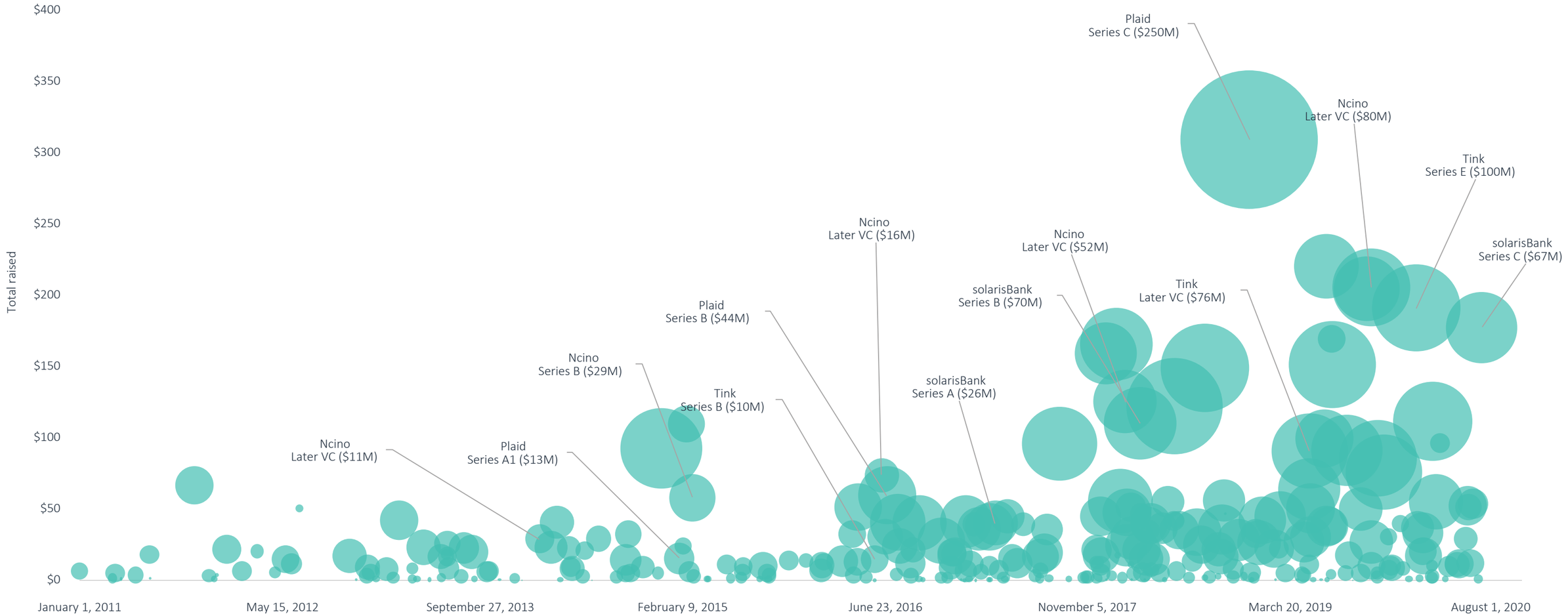
Figure 30. FINANCIAL SERVICES IT VC DEALS ($M) BY STAGE



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 31.

VC-backed financial services IT landscape ($M)



Source: PitchBook

Figure 32.

Notable financial services IT VC deals

COMPANY	CLOSE DATE	SUBSEGMENT	DEAL SIZE ($M)	STAGE	LEAD INVESTOR(S)	VALUATION STEP-UP
tink	January 20, 2020	Platforms & APIs	$100.2	Series E	Insight Partners, Dawn **Capital**, HMI **Capital**	N/A
Thought Machine	March 1, 2020	Enterprise architecture	$83.0	Series B	Draper Esprit	N/A
ncino	September 30, 2019	Platforms & APIs	$80.0	Late-stage VC	T. Rowe Price	N/A
GALILEO	October 17, 2019	Platforms & APIs	$77.0	Series A	Accel	N/A
pollinate	October 31, 2019	Cloud services	$75.8	Series A	N/A	N/A

Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 33.

Notable financial services IT VC exits

COMPANY	CLOSE DATE	SUBSEGMENT	EXIT SIZE ($M)	ACQUIRER/INDEX	VALUATION STEP-UP	VALUATION METRIC
Vetter	April 15, 2020	Cloud services	N/A (raised $10.5)	Data Center	N/A	N/A
nomis	April 30, 2020	Platforms & APIs	N/A (raised $39.3)	STG Partners	N/A	N/A
PLAID	January 17, 2020	Platforms & APIs	$5,300	Visa	2.0x	N/A
BANKING TECHNOLOGY	July 2, 2019	Platforms & APIs	N/A ($84 VC raised)	NCR	N/A	N/A
Grow.	November 8, 2019	Platforms & APIs	N/A ($12 VC raised)	ATB Financial	N/A	N/A

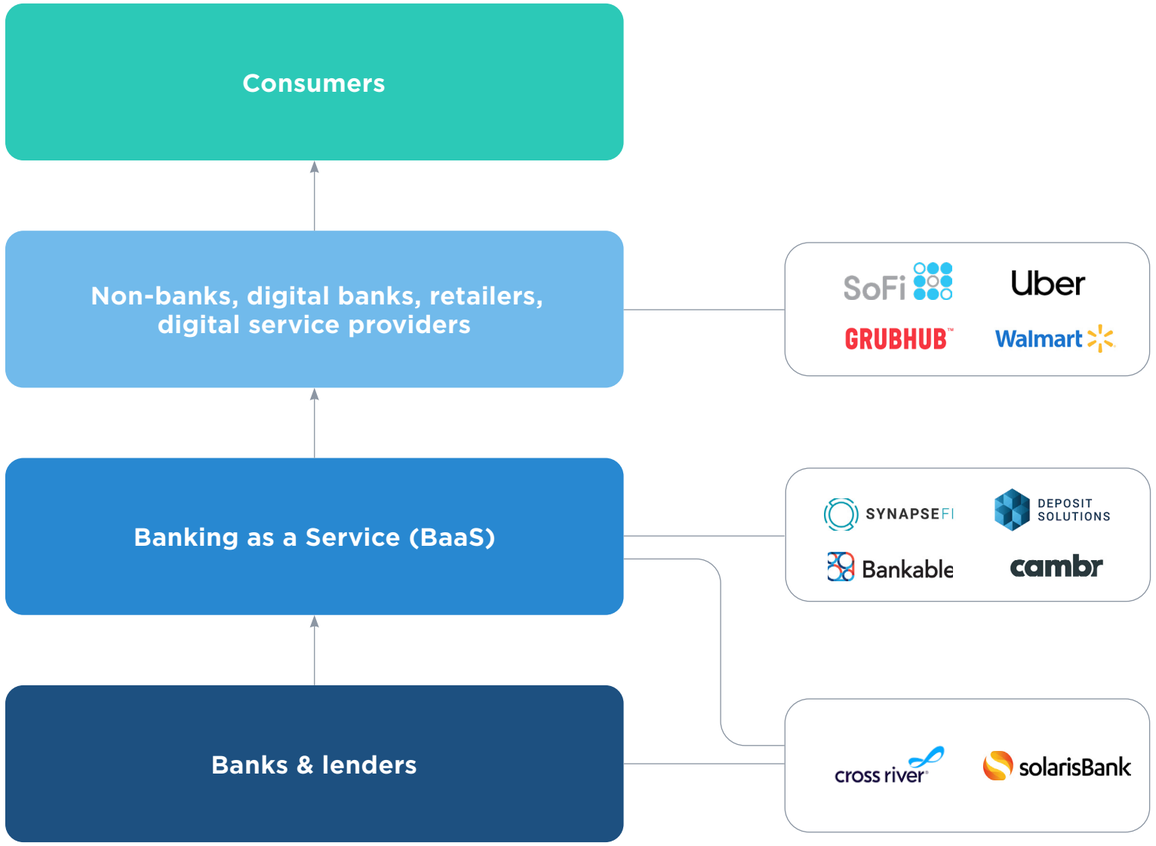
Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Opportunities

Modernizing the front-, middle- and back-end: Fintech companies focused on IT operations for banks could help sort through the arduous task of categorizing and isolating presentation layers and introducing more automation to reduce costs and drive scale. Providers such as **MX**, Alkami and **nCino** are helping banks modernize its front-end and middleware. These companies offer cloud-based banking platforms to allow banks and other financial institutions to white-label and deploy online signup processes, mobile banking applications, personal finance management and other retail banking services directly to their customers. **nCino**'s product is more robust, offering white-labeled portfolio analytics, treasury management and asset finance and leasing solutions in addition to retail banking solutions.

Core banking: In Capgemini's 2015 Banking Core Modernization survey, 78% of financial institutions agreed that their core banking system will be replaced in the next five years.[11] However, 43% of banking systems and 80% of in-person transactions still use COBOL today.[12] While core banking solutions exist from incumbent providers such as **Jack Henry** or **Fiserv**, we believe that startups in this space have an opportunity to deploy more modern offerings for their bank partners. For example, **Jack Henry**'s SilverLake core system requires IBM-powered systems on premise or at **Jack Henry**'s outsourced offering, JHA OutLink Processing Services. This contrasts with **Finxact**'s Core as a Service offering, which is cloud-native, API-based and allows banks to start with a hybrid model of their legacy core system and **Finxact**'s new system. This allows banks to iteratively test the new

Figure 34.
BaaS value chain with select participants



11: Simplifying the Banking Architecture, Capgemini, 2015
12: COBOL blues, TIOBE **Index**; International Cobol Survey Report; IBM; Microfocus; Celent; Accenture

systems and migrate data over time at their own pace. We believe these types of solutions will be most attractive to banks as they lower the risk of operational disruption but at the same time allow banks to eventually fully digitize their core systems.

Banking as a Service: BaaS has emerged as an important tool for banks to quickly integrate new products and for fintech companies and other non-banks to provide financial services to their customers. We identify two BaaS models. Under the first model, a bank acts as the BaaS provider and offers technology, security, compliance and authentication services as well as holds deposits (back-end services) for non-banks. This model enables non-banks to offer banking products, such as debit cards or spending accounts, to their customers. In this model, non-bank companies maintain and manage the customer relationship. Providers include **solarisBank**, **Cross River Bank** and **Green Dot** (NYSE: GDOT). Under the second BaaS model, fintech companies provide a platform that connects banks and non-banks. These solutions enable non-banks and traditional banks without internal product development functions to expand their offerings. Some of the prominent fintech BaaS providers of this model include **SynapseFI** and **Deposit Solutions**.

Considerations

Legacy systems and small IT budgets: Complex layers of legacy infrastructure can be difficult to isolate and automate, leading many banks to simply sticking with what they know. Additionally, relatively small IT budgets can prevent spending on tech innovation. These challenges extend sales cycles for fintech companies and underscore the importance of having easy-to-integrate solutions that require minimal upfront investment.

Tendency to use traditional tech vendors: IT departments within banks, especially regional banks and credit unions, are generally not as focused on implementing new technologies as they are on maintaining legacy core systems. We believe this makes them more inclined to purchase technology from traditional bank IT providers, such as **Fiserv** or **Jack Henry**. While these providers may not have the latest technology, they nonetheless offer battle-tested platforms and full support services that help banks keep up with the current state of technology. This makes it challenging for new fintech IT startups to crack into this market.

Handling sensitive data comes with high risks: Although sharing bank data creates opportunities for improved customer experiences, it also creates a new pathway for potential information exposure. It is often unclear which party—the bank or the tech vendor—is responsible for the custody and protection of that data. Continued financial and data protection regulation, such as the EU General Data **Protection** Regulation (GDPR), also adds complexity and increases the risk of reputational and financial loss.

Outlook

Tech evolution will be incremental: We believe banks seeking to address changing consumer expectations will continue to innovate and develop technology-enabled capabilities. While smaller banks will seek partnerships, larger banks are more likely to make acquisitions or invest in capabilities in house. While the gradual, piecemeal approach to technology implementation will likely persist for small and mid-size banks, we expect larger tech-focused banks to be more aggressive in considering complete core

system upgrades. Ultimately, while banks seek new technologies that can go to market quickly, they continue to rely on the stability and security of existing platforms, and this will keep growth in the market relatively muted.

BaaS adoption to expand: We expect the adoption of BaaS will continue to grow as these platforms provide an easy way for banks and non-banks to offer new financial products and services (even at the risk of some customer disintermediation). This will create opportunities for fintech companies to enter new markets that have traditionally been dominated by retail banks, while providing ways for banks to increase their competitiveness in the digital economy. As BaaS relies on the seamless movement of customer data among providers, we believe its expansion could result in a de facto open banking landscape in the US, relative to Europe where new open banking laws require banks to share information.

Bank aggregation to grow in popularity: Bank aggregation refers to the practice of accessing a network of bank providers to provide aggregated services to customers. Benefits of aggregation include distributing business and regulatory risk across numerous banks (as opposed to just one), increasing capital availability for loans and pooling other services to enhance products, such as allocating savings accounts to banks that pay the highest interest rates.

COVID-19 crisis will accelerate "open banking" in the US: The federal government's scramble to distribute emergency funds to consumers and small businesses during the crisis was exacerbated by the lack to access to banking data. Consumers did not have an easy way to provide the IRS with banking information and relevant taxable income. Small businesses that applied to the Paycheck Protection Program were tasked to provide all documentation related to incorporation, payroll, rent, mortgage interest, utility expenses and other required documentation. The lack of easily accessible bank and accounting data considerably slowed the funding process, and we expect demand for financial data integration providers to spike after the crisis.

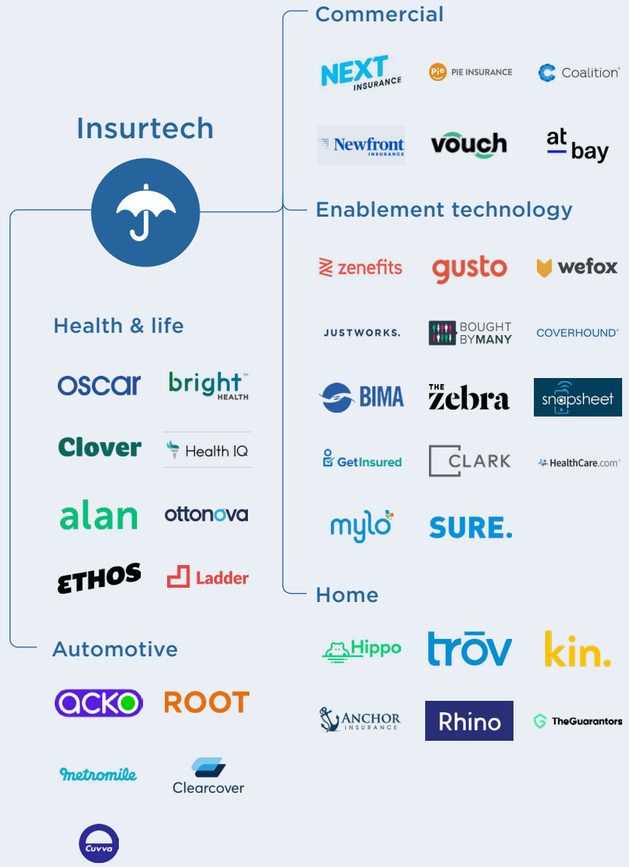
SEGMENT DEEP DIVE

Insurtech

Overview

The insurtech segment consists of emerging technologies and solutions that are transforming the insurance industry across the entire value chain. This value chain consists of several steps and processes including acquiring customers, assessing risk, preventing fraud, customizing coverage, delivering products and managing claims. Given the long history of the industry, many legacy incumbents still rely on outdated systems for managing these processes. As consumers increasingly prefer digital financial products and services, we believe this has opened the door for startups to exploit vulnerabilities in this value chain. Insurance represents a large market opportunity, with global spend on premiums equating to roughly 9% of GDP within OECD countries.[13] While this is a well-established industry with entrenched incumbents, it nonetheless represents an attractive opportunity for startups who may be able to move more quickly to address niche gaps in the market.

There are several ways in which startups are transforming the insurance industry. These include using alternative data sources to evaluate risk in real-time, creating products tailored for specific customers, providing automated on-demand insurance quotes and allowing in-app management of products and services. Additionally, digital transformation is changing the customer acquisition process and enabling startups to engage in very targeted customer outreach initiatives. While the core insurance business remains largely the same (i.e., managing premiums against losses), insurtech startups are banking on technology to give them an edge over incumbents and to help them take market share.



13: Insurance spending (indicator), OECD, 2019

Industry drivers

Scope of risk is evolving, which has an impact on underwriting needs: Secular trends impacting the insurance industry include the decreasing frequency of small predictable risks (i.e., reduced car accidents owing to driver assistance and safety products) and the increasing frequency of large unpredictable risks (i.e. wildfires). This has forced both incumbents and startups to continually innovate on new underwriting methodologies and technologies that can help maintain or improve loss ratios.

Digitizing the value chain: Insurance represents a highly fragmented value chain ripe for disruption, enabling providers to develop new distribution models, underwriting capabilities, claims management and policy administration.

Focus on risk prevention products: Emerging providers are focusing on risk prevention instead of simply providing services when actual events occur. We believe this is appealing to consumers seeking products that help reduce insurance costs.

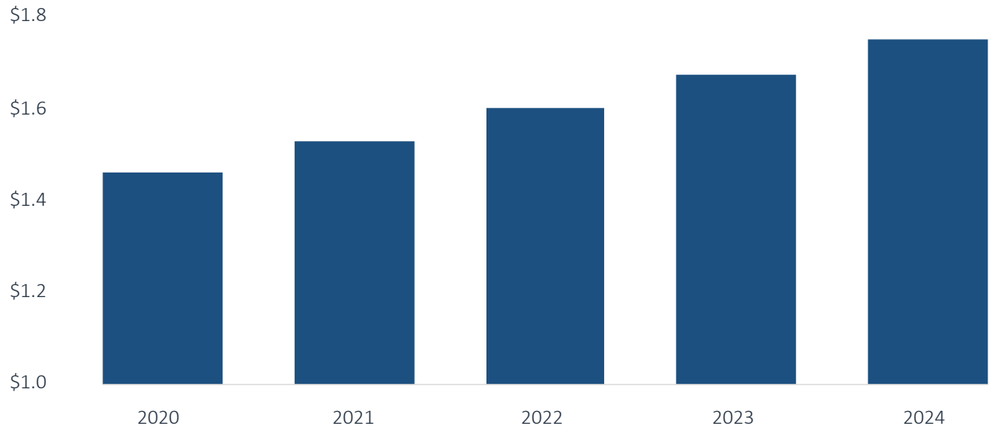
Demand for personalized on-demand products: Customers are demanding products that are more personalized and customizable, provide price transparency and offer a better user experience.

Market size

Insurance represents a large market opportunity, with global spend on premiums equating to roughly 9% of GDP within OECD countries.[14] We estimate the global general insurance market to reach $1.46 trillion in 2020, measured by aggregate direct written premiums.

14: Insurance spending (indicator), OECD, 2019

Figure 35. INSURTECH MARKET SIZE ($T)



Source: McKinsey, Allianz, PitchBook estimates | Geography: Global
Note: This represents total direct written premiums for general insurance.

COMMON INDUSTRY KPIS FOR INSURTECH COMPANIES

- Revenue/policy holder
- Average cost/claim
- Return on surplus
- Loss ratio
- Expense ratio
- Renewal/retention
- Average policy size

Based on the global average loss ratio of 70%, this implies roughly $450 billion in earned premiums (revenues) for the year. We forecast direct written premiums will grow at a 4.6% CAGR through 2024 to reach $1.75 trillion, representing $525 billion in earned premiums.

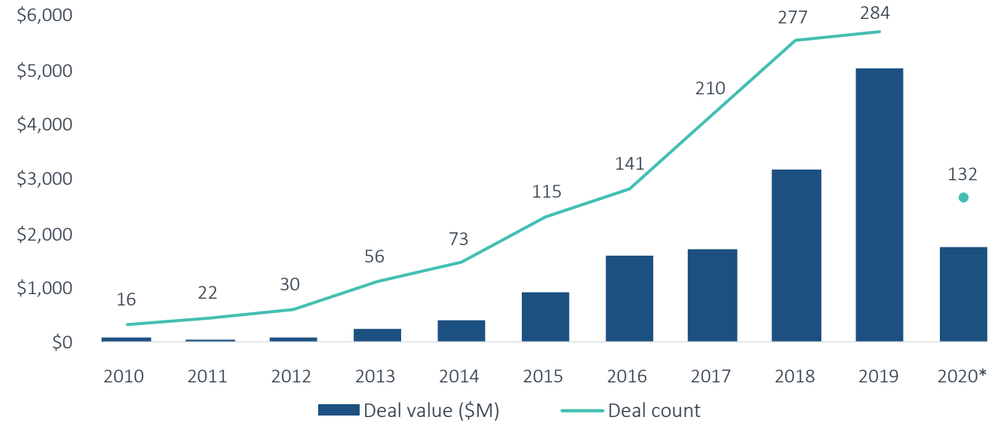
Business model

Many direct-to-consumer (D2C) insurtech companies operate under similar business models as a traditional insurer, in which earnings are generated via earned premiums, the premiums kept by the insurer for lapsed insurance policies or for portions of policies that have expired. Other D2C insurtech companies operate under a P2P marketplace model in which capital is pooled among customers and premiums and claims are paid out of that pool; companies take a percentage of the pool as revenue. Other avenues for revenue include intermediation—comparison portal, aggregation services or brokerage in which firms earn referral commissions and other servicing fees related to underwriting and administration of claims, policies and collections.

VC activity

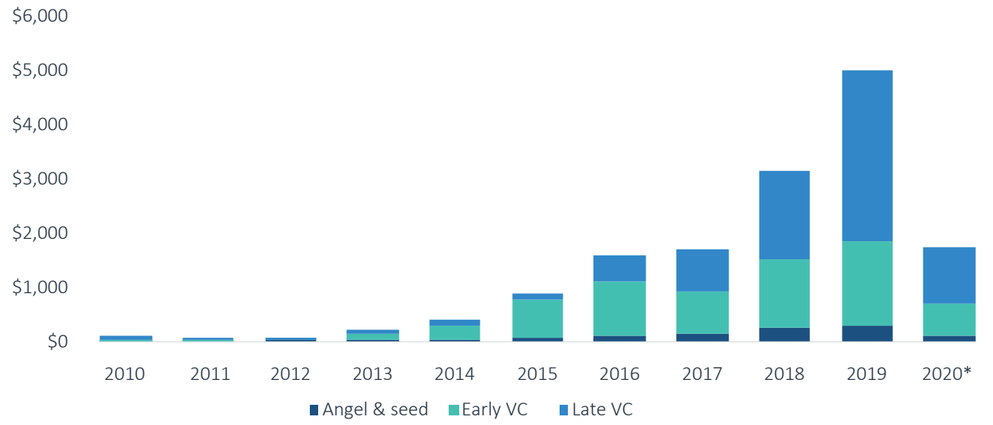
The total annual value of VC deals in insurtech has increased at a CAGR of over 60% since 2014. We expect investment activity to slow down slightly due the COVID-19 pandemic but remain elevated as investors stay committed to insurtech companies. Additionally, we believe incumbent carriers and reinsurers will continue to utilize their VC arms to invest in startups to stay at the forefront of new technologies, form strategic relationships, and potentially find cheaper assets. A total of $3.2 billion in VC was invested across North America and Europe in 2018 (including corporate VC), and $5 billion was deployed in 2019, reaching an all-time high. Through Q2 2020, $1.7 billion has been invested across 132 VC deals in North America and Europe.

Figure 36. INSURTECH VC DEAL ACTIVITY



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

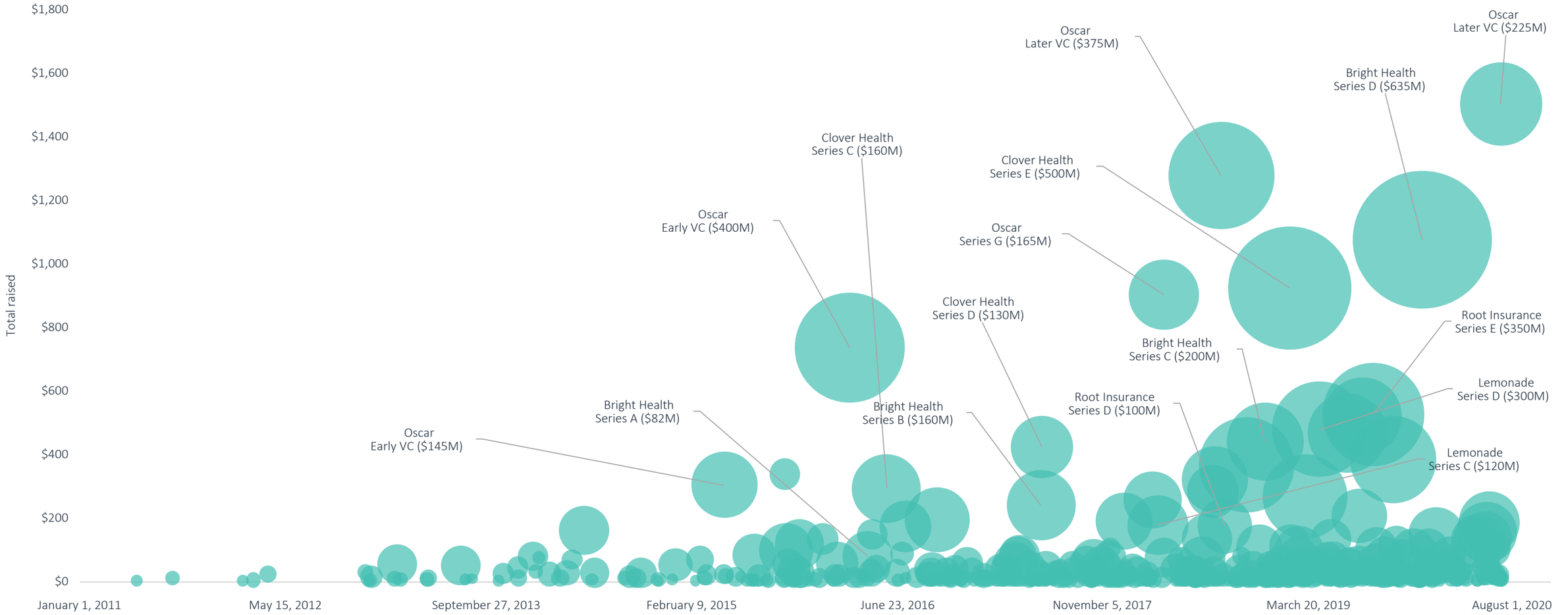
Figure 37. INSURTECH VC DEALS ($B) BY STAGE



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 38.

VC-backed insurtech landscape ($M)



Source: PitchBook

Figure 39.

Notable insurtech VC deals

COMPANY	CLOSE DATE	SUBSEGMENT	DEAL SIZE ($M)	DEAL SIZE	LEAD INVESTOR(S)	VALUATION STEP-UP
bright HEALTH	December 16, 2019	Health & life	$635	Series D	New Enterprise Associates	2.1x
Root Insurance Co	August 19, 2019	Automotive	$350	Series E	DST Global, Coatue Management	3.3x
NEXT INSURANCE	October 7, 2019	Commercial	$250	Series C	N/A	2.1x
oscar	June 26, 2020	Health and life	$225	Late-stage VC	N/A	N/A
gusto	July 24, 2019	Enablement technology	$200	Series D	Generation Investment Management, Fidelity Management & Research	1.80x

Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 40.

Notable insurtech VC exits

COMPANY	CLOSE DATE	SUBSEGMENT	EXIT SIZE ($M)	ACQUIRER/INDEX	VALUATION STEP-UP	VALUATION METRIC
ONE, INC.	February 20, 2020	Origination/aggregation	N/A ($52 VC raised)	Great Hill Partners	N/A	N/A
indio	December 5, 2019	Origination/aggregation	N/A ($30 VC raised)	Applied Systems	N/A	N/A
CHSI CONNECTIONS	October 22, 2019	Origination/aggregation	N/A ($6 VC raised)	Bow River Capital Partners	N/A	N/A
i2S INSURANCE KNOWLEDGE	September 9, 2019	Origination/aggregation	N/A	GFI Informatique	N/A	N/A

Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Opportunities

Usage-based insurance: Usage-based insurance (UBI) has a variable premium that is tied to real-time usage. For instance, auto UBI is charged per miles driven. Although auto UBI has been around for years, it represents less than 5% of the market. The COVID-19 pandemic may accelerate demand for auto UBI policies, which can be significantly cheaper than traditional fixed-cost policies when driving rates are low. Startups **Metromile**, **Root** and **Cuvva** provide car insurance by the mile. We expect a large market exists for on-demand insurance products that do not require long-term premium contracts. This type of "fractional" or "pay-as-you-go" insurance could also apply to other insurance areas such as extreme sports, travel or the gig economy.

Insurance-as-a-Service: Insurance-as-a-Service (IaaS) allows digital service providers and marketplaces to sell insurance to their customers without having to go through the regulatory process of becoming an insurer. For instance, Deliveroo, an online food delivery company, enables drivers to purchase insurance directly through its mobile app using IaaS provider **Qover**. IaaS startups provide white-label tools that help with customer acquisition, underwriting and policy administration and licensing. Full stack IaaS providers include **Boost Insurance** and **Qover**.

Automating the insurance claims process: The insurance claims process is tedious and involves numerous manual touchpoints between the customer and a claims adjuster. In recent years, photo-based claims services developed by large insurance companies and insurtechs have helped streamline the process. **Allstate**'s QuickFoto allows customers to take photos of minor accidents and send them directly to an adjuster to assess damages and determine payouts. We believe opportunities exist to use deep learning and computer vision to further automate the insurance claims process. For instance, **Tractable** assesses property damage using photos or video from any visual data source such as smartphones, satellites or drones. Its dataset includes millions of images and videos that could prove more effective than using human adjusters. Startup **Flyreel** combines computer vision with conversational AI assistants to speed up and simplify the property insurance claims process.

Blockchain-based risk management systems: Guardtime has partnered with logistics giant Maersk to create a blockchain-based marine insurance platform to connect more than 1,000 commercial vessels that will use smart contracts to manage risk and establish an immutable audit trail. This allows insurers of shipping assets to track their exposures and risks in real time and pay out claims in a matter of hours rather than years.

Considerations

Regulatory complexity and data privacy create challenges: We believe regulation provides significant barriers to entry in the insurance space. For example, in the US, licenses to sell, solicit or negotiate insurance are regulated at the state level. This means that new startups looking to operate in the US will have to individually obtain licenses state by state because each state typically has its own licensing requirements. New companies in this segment will have to consider the various licensing regulations of each state, what impact this will have on their business model and how it may hinder scalability. Additionally, as new technologies make it easier to collect and use customer data, data privacy has become a growing area of regulation.

Incumbents hold advantage in customer retention: Insurance customers tend to remain with their current providers for long periods of time and seldom switch carriers. These high retention rates make it difficult for startups in this segment to capture market share from incumbents. In addition, incumbents' larger balance sheets can enable more aggressive risk underwriting and the ability to offer lower prices. Insurtech companies may find it difficult to compete on pricing and could experience high loss ratios.

Underwriting risk: **Capital** intensity for fintech companies in this segment could be high, especially when dealing with direct-to-customer insurance products. Underwriting mistakes could have more detrimental impact on startups relative to incumbents in the industry, given the former's lower cash reserves.

Outlook

More customization, bundles and cross-selling: Customization will likely be a key trend in new products as firms seek to fit policies to customers and enable more price separation from existing standards. Additionally, digital delivery models will create more opportunities to bundle insurance across asset categories and provide real-time policy delivery at the point of sale (i.e. when buying a car).

Non-insurers will continue push into the space: We expect deep-pocketed conglomerates to continue their push into the insurance industry, especially given Alphabet's $375 million investment in **Oscar Health** in 2018 and the joint health venture among **Amazon**, **Berkshire Hathaway** and **JPMorgan**. These companies have the resources, technical expertise, data and distribution to develop innovative cross-platform insurance products and to become major industry players. However, due to the complex regulatory landscape, we expect these conglomerates are likely to take a partnership approach, which could limit their competitive impact.

Health, life and various commercial insurtechs will see pent up demand: The current overhang of a pandemic will spur demand for insurance products to offset associated risks. We expect health and life insurtechs will benefit from this due to its digital-only products and simple online enrollment processes. Insurtechs focused on commercial insurance could also see a wave of enrollment, specifically for those with cyber protection (due to remote work) and business interruption coverage.

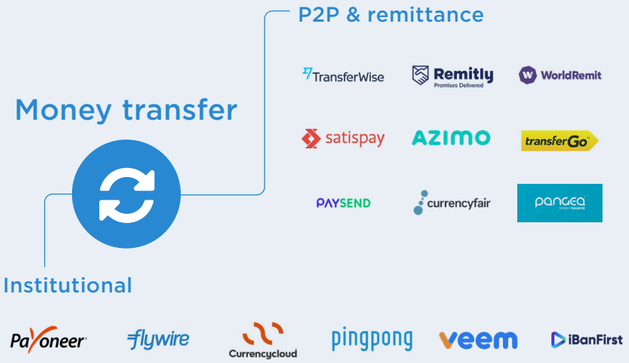
SEGMENT DEEP DIVE

Money transfer

Overview

The money transfer segment includes startups that provide digital methods for individuals and businesses to easily send and receive money. Transfer types include cross-border, wire transfers, direct deposit, direct debit, stored-value transfers (private currency) and cardholder-initiated transactions.

Banks have traditionally been the primary providers of money transfer services. However, these services are costly (high transaction fees, poor foreign exchange rates), take days or weeks to settle and sometimes require a lot of detailed information including routing numbers, SWIFT codes or IBAN codes. Established non-bank incumbents such as **Western Union** and Moneygram have developed more efficient services, but they still deal with the high overhead costs of supporting physical locations. In addition, major hidden costs for banks and non-bank money transfer providers include those incurred in order to combat fraud and comply with various regulations such as know your customer (KYC) and anti-money laundering (AML). New fintech companies in the space have lowered the costs and inefficiencies within legacy money transfer providers by eliminating storefronts, leveraging faster payments networks and relying on big data and analytics for process verification.



Industry drivers

The expansion of the digital payments ecosystem: Digital payments have created new ways to move money without brick-and-mortar infrastructures, reducing fees, improving settlement time, and often making regulatory compliance easier.

Expansion of global economy and growth of cross-border commerce: A more globalized economy has increased the movement of labor and goods across borders, driving the need for more money movement services for purchases and remittances.

Efficiency in currency markets: Improved access to currency markets has also been critical, as money transfer companies can accept lower spreads on exchange rates and pass more savings along to customers. In some cases, fintech companies can maintain pools of capital in major remittance hubs, eliminating the need to transfer physical currency for each remittance and reducing costs even further.

Market size

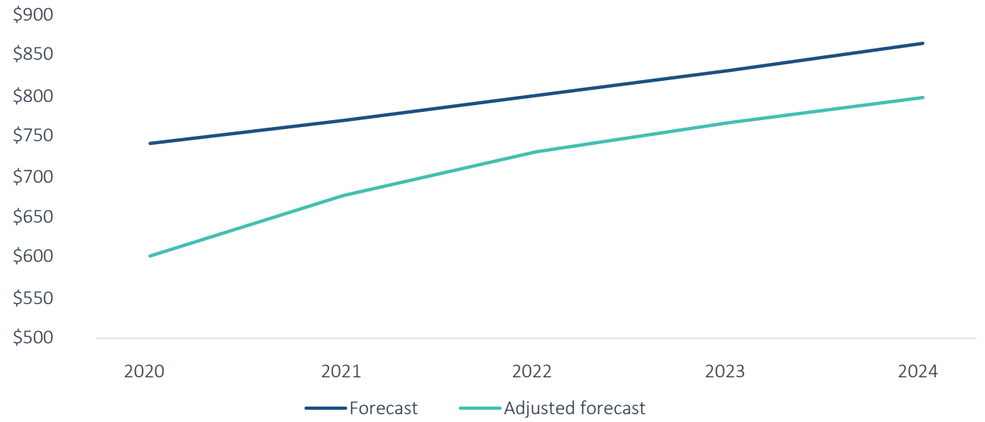
We estimate the market size of money transfer service providers, as measured by global remittances, to decrease to a little over $600 billion in 2020 from $707 billion in 2019. Closed borders and higher unemployment due to the COVID-19 pandemic will significantly reduce remittances and cross-border institutional transactions. However, we expect remittance flows to recover alongside the economy to surpass 2019 levels by 2022. We note that this does not include B2B cross-border transfers, which is estimated to have been around $124 trillion in 2018.[15]

Business model

There are various types of business in this space including institutional foreign exchanges (serving import/export business and multinational corporations), personal remittances,

15: "Global Payments 2018: A Dynamic Industry Continues to Break New Ground," McKinsey, 2018

Figure 41. MONEY TRANSFER MARKET SIZE ($B)



Source: World Bank, PitchBook estimates | Geography: Global
Note: This represents estimated remittance flows.

COMMON INDUSTRY KPIS FOR MONEY TRANSFER COMPANIES

- Total transaction volume
- Transaction fees
- Gain/loss from foreign exchange
- Delivery fail rate
- Time to collection
- Interest on cash

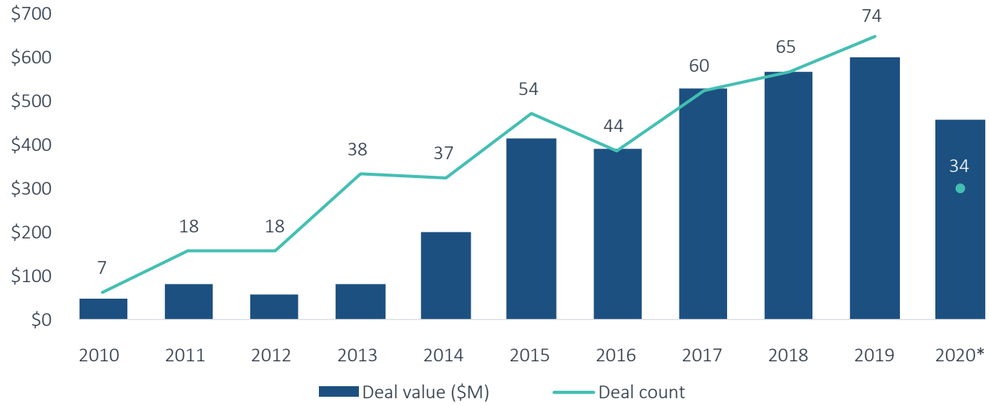
MONEY TRANSFER

P2P currency exchange marketplaces and international money transfer providers. These providers generate revenue by taking a fee, typically a flat fee plus a percentage of the transaction volume.

VC activity

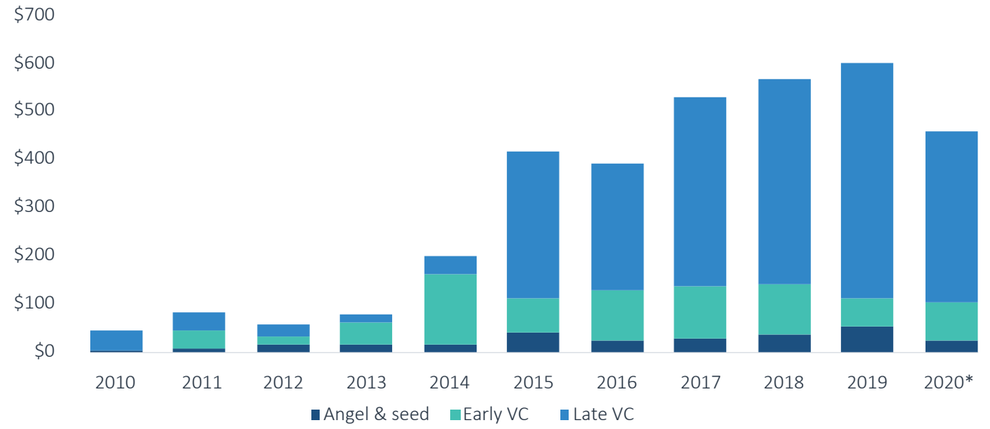
VC funding for money transfer services remained relatively flat during the past two years with almost $570 million in 2018 and $600 million in 2019. So far in 2020, we saw $455 million in VC invested across North America and Europe. This value was primarily driven by $120 million rounds by both **Flywire** and **CurrencyCloud** earlier in the first quarter. We believe some early entrants have already achieved significant market penetration, prompting incumbents to start rolling out new features and increasing competition in the space. Therefore, in addition to the current COVID-19 environment, we expect VC investment activity in this industry to taper in the near term, while an upsurge in M&A across the landscape may occur later in 2020.

Figure 42. MONEY TRANSFER VC DEAL ACTIVITY



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

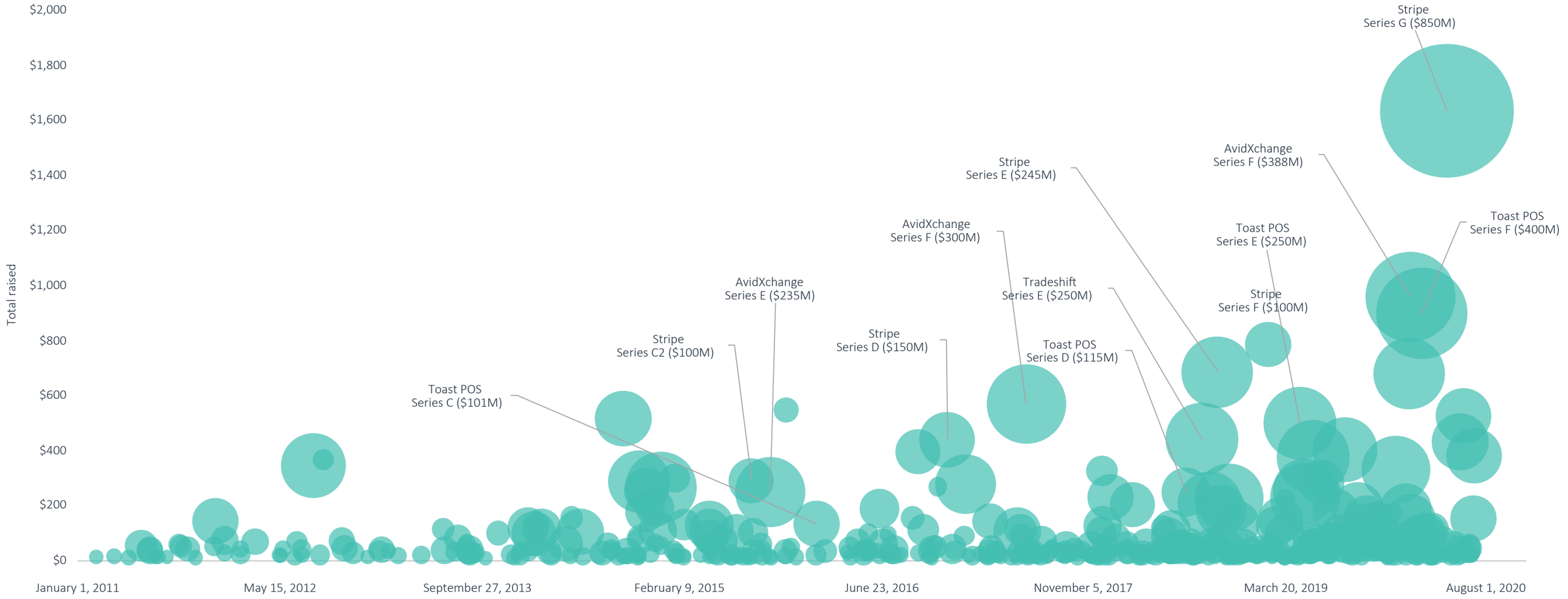
Figure 43. MONEY TRANSFER VC DEALS ($M) BY STAGE



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 44.

VC-backed money transfer landscape ($M)



Source: PitchBook

Figure 45.

Notable money transfer VC deals

COMPANY	CLOSE DATE	SUBSEGMENT	DEAL SIZE ($M)	STAGE	LEAD INVESTOR(S)	VALUATION STEP-UP
Remitly	July 2, 2019	P2P & remittance	$220	Series E	Generation Investment Management	N/A
Currencycloud	January 26, 2020	Institutional	$122	Series E	Visa, Sapphire Ventures	N/A
flywire	February 13, 2020	Institutional	$120	Series E	The Goldman Sachs Group	1.3x
satispay	February 6, 2020	P2P & remittance	$55	Series C	N/A	N/A
iBanFirst	June 11, 2020	Institutional	$26	Series C	Elaia Partners, Bpifrance	N/A

Source: PitchBook

Figure 46.

Notable money transfer VC exits

COMPANY	CLOSE DATE	SUBSEGMENT	EXIT SIZE ($M)	ACQUIRER/INDEX	VALUATION STEP-UP	VALUATION METRIC
verse	June 15, 2020	P2P & remittance	N/A (raised $38)	Square	N/A	N/A
Ebury	November 4, 2019	Institutional	$445	Banco Santander	N/A	N/A
giroxx	May 4, 2020	P2P & remittance	N/A ($2 VC raised)	INTL FCStone	N/A	N/A
NEDERLANDSCHE BETAAL & WISSELMAATSCHAPPIJ	November 20, 2019	Institutional	N/A	IbanFirst	N/A	N/A

Source: PitchBook

Opportunities

Open platform services: Open APIs could provide new revenue sources for money transfer providers. **TransferWise** recently launched an API that allows other companies and banks to directly integrate its remittance services. This could help third parties specialize in certain remittance corridors. Platforms also enable providers to offer new products and services, such as microloans, recurring payments or paycheck cashing.

Cross-border B2B: Small and medium-sized enterprises that have a global customer base typically do not need sophisticated treasury management practices. However, these companies still spend a significant amount of time and capital to manage cash control and liquidity, including FX risk management. **Veem** offers a money transfer platform that integrates directly into a business' accounting systems, enabling SMEs to send and receive money globally, with features such as a real-time global payment tracker, fraud prevention solutions and bank compliance functions. In addition, the service allows customers to lock in exchange rates for up to 92 days, better manage cash flow and exchange rate volatility. **Ebury** provides an even more robust money transfer platform, with tailored solutions for FX risk management and trade finance. In **Q4** 2019, the company sold a 50.1% stake to Banco Santander, Spain's largest bank, at a $888.4 million post-money valuation.

Emerging market transfers: Whereas money transfers between developed countries can be completed at negligible rates, remittances in emerging and lesser developed regions, such as Southeast Asia or Sub-Saharan Africa, are expensive and sometimes not permitted. For instance, on **Remitly**, it is not possible to send an amount less than $10 from the US to South Africa, even though it can be sent to the EU. Additionally, while sending $10 from the US to the EU costs $1.13 (about 11%), sending $10 to South Africa cost $9.69 (97%). We believe that there are still large gaps in the market to serve these regions. Investors should seek the fintech money transfer providers that are not only targeting these markets but have a deep understanding of the customer bases in those markets and the corresponding idiosyncratic regulations.

Considerations

Industry risks commoditization: As the remittance industry matures, we expect price competition will lead to increased commoditization with minimal differentiation among providers. We believe those that can cross-sell additional services—such as providing microloans or mobile banking—are best positioned to maintain customers and increase stickiness.

Regulations play significant role: Providers must also contend with a host of compliance and regulatory costs which vary considerably by jurisdiction. For example, know your customer (KYC), anti-money-laundering (AML) and counter-terrorism financing regulations have historically plagued incumbent players.

Geopolitics and economic volatility: Geopolitical activity can have an impact on the remittance market in multiple ways. Changes in immigration policies could reduce the flow of international labor and drive down demand for remittances. Additionally, unexpected geopolitical events, such as trade wars and real wars, could affect currency markets, reducing exchange rate spreads and/or increasing exchange rate risk fees.

Outlook

Continued fee compression and transparency: We believe the money transfer market has largely been dominated by a few key players for many years. However, competition from new entrants—along with more aggressive investments in the space from established providers including **Western Union**, **Xoom** (**PayPal**) and **MoneyGram**—are likely to put downward pressure on pricing over the middle term. While transfer fees currently range from 7%-12%, we expect them to decline closer to the 3% fee typical in traditional payment processing. Increased fee transparency from new companies educating consumers about hidden fees charged by their competitors is also likely to propel this trend. Regulation is another contributing factor as we note the European Parliament and Council agreed in 2018 to lower or eliminate fees associated with euro-based cross-border transactions between euro and non-euro countries.[16]

Movement up the value chain: We expect money transfer service providers and fintech companies will gradually add new products and services that encroach on other parts of the financial services value chain. These products could include credit/debit cards, lending products, insurance or other stored-value and/or loyalty products. We also expect that personalization, increased customer touch points and higher levels of automated customer service will become major components in the business strategies of all money transfer companies.

Remittance providers to put focus on newer business lines: Remittance providers like **TransferWise** or **Remitly** rely on FX spreads and fees for revenues, which will both take a hit as the pandemic reduces remittances. We expect these providers to double down on newer lines of businesses to diversify their revenue sources. For instance, **Remitly**'s Passbook, still an invitation-only beta, is a banking product targeted at immigrants. The company is assisting its many immigrant customers in accessing coronavirus relief payments and depositing them in Passbook accounts.

16: "A Better Deal for Consumers: Commission Welcomes Agreement on Cheaper Cross-Border Payments and Fairer Currency Conversions," The European Commission, December 19, 2018

SEGMENT DEEP DIVE

Payments

Overview

The payments segment includes companies that provide payment acceptance, authorization, processing, issuing and settlement services. Providers also focus on omni-commerce enablement, sales data analytics, fraud mitigation and transaction security. While this industry is dominated by the large credit networks (i.e. **Visa** and **Mastercard**) and other scaled processers (**FIS**, **Global Payments**) many players have emerged that are focused on niche opportunities including cross-border, in-app, person-to-person, B2B, alternative lending, etc.

We believe technology continues to have a significant impact on this industry. Tools such as GPS tracking and biometrics are seeking to improve verification and authorization capabilities, AI & ML technology is improving fraud monitoring and faster-payments initiatives, and blockchain-based payments hold the promise of real-time settlement. B2B represents another area of innovation and opportunity, as it is estimated that 51% of B2B payments are still made by paper checks in the US.[17]

Industry drivers

The expansion of the digital economy: The rise of card-based payments and other digital ways of paying for things has driven demand among businesses to adopt new technology to help accept and manage multiple payment methods.

Ecommerce: The growth of the fully online economy has driven the need for complex online and omni-commerce payment systems that enabled businesses to accept

17: "2016 AFP Electronics Payments Survey," Association for Financial Professionals, 2016

payments online and provide payment tracking and processing capabilities that integrate with physical in-store systems.

Fee reduction: Basic payment processing is highly commoditized, driving providers to find ways to innovate with new features and capabilities to keep merchant customers for switching to lower-cost payment processing services.

Point of sale technology: Merchants are increasingly choosing to upgrade point-of-sale technologies with systems that integrate business and customer management tools and payment security and fraud monitoring features.

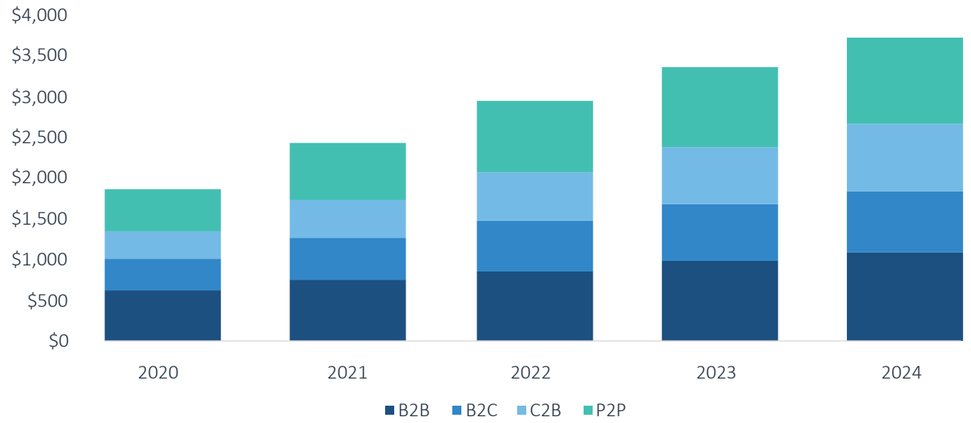
Market size

The faster payments segment, defined as payments that are settled in real-time, including same-day ACH and digital or tokenized payment cards, was estimated at $1.2 trillion in 2019 based on transaction volume. P2P faster payments had the earliest adoption as transfer services such as **Venmo** became ubiquitous. This category had the had the highest transaction volume in 2018 at $239 billion but is expected to be overtaken by B2B as companies seek to optimize working capital performance in the coming years. Overall, faster payments transaction volume is expected to exceed $3.3 trillion by 2023, representing a CAGR of 29.3%.

Business model

Payments companies typically generate revenue by taking a fee on the total payment volume that is processed, with industry standard fee at around 3%. In addition, some of

Figure 47. PAYMENTS MARKET SIZE ($B)



Source: Mercator Advisory, PitchBook estimates | Geography: US
Note: This represents faster payments volume.

COMMON INDUSTRY KPIS FOR PAYMENTS COMPANIES

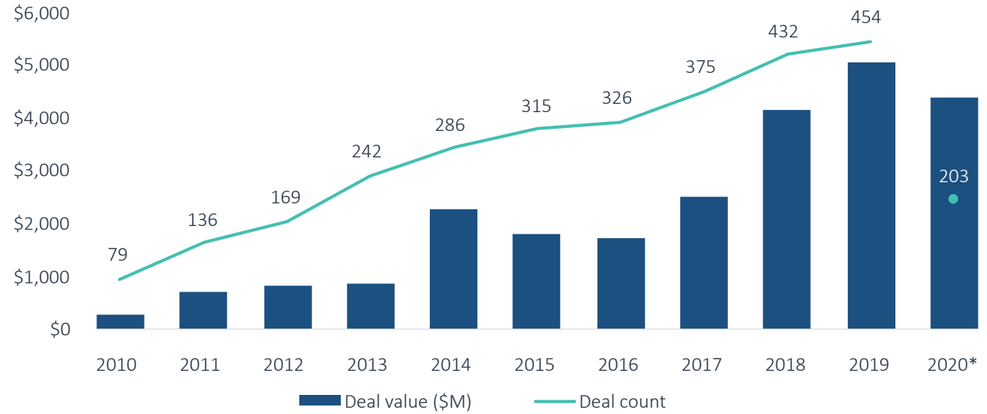
- Total payment volume and growth
- Partnerships/merchant acquiring
- EBITDA/cashflow from operations
- Average revenue per user (ARPU)
- Switching cost
- Churn

these companies also generate revenue via sales of point-of-sale hardware and software that focus on merchant acquiring, recurring revenues on APIs and ecommerce platforms and specialized software applications for B2B payments.

VC activity

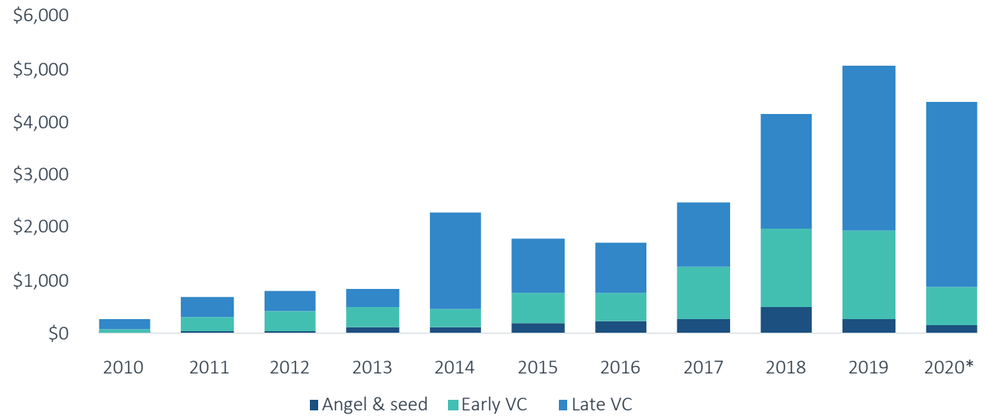
VC funding for this space has grown significantly from $1.7 billion across 326 deals in 2016 to $5.1 billion across 454 deals in 2019. Through the first half of 2020, VC funding notched over $4.3 billion, on pace to exceed last year's record high. We expect the flow of VC investments in this space will persist in the near to midterm, especially to the larger established players, as private payment companies continue to gain market share over their established public counterparts. A decent proportion of these venture investments came from incumbents, such as traditional financial services providers and their VC arms, and we expect this to continue.

Figure 48. PAYMENTS VC DEAL ACTIVITY



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

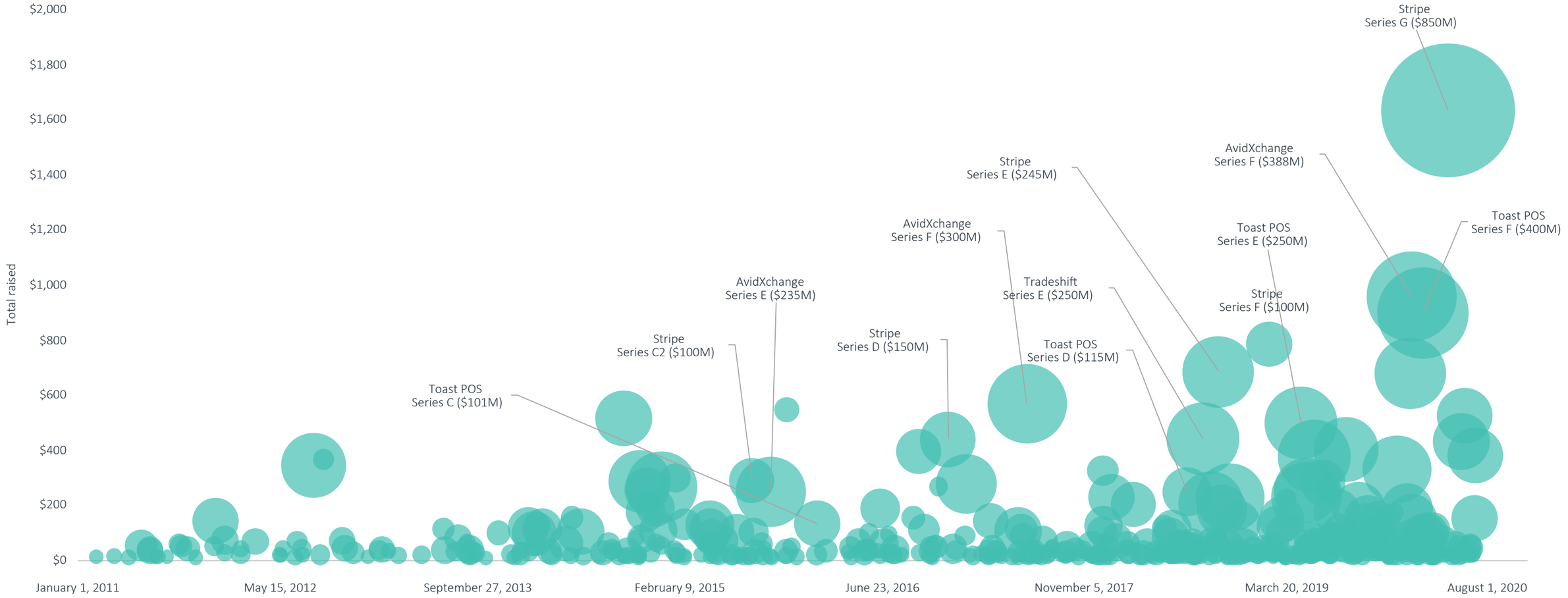
Figure 49. PAYMENTS VC DEALS ($B) BY STAGE



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 50.

VC-backed payments landscape ($M)



Source: PitchBook

PAYMENTS

Figure 51.

Notable payments VC deals

COMPANY	CLOSE DATE	SUBSEGMENT	DEAL SIZE ($M)	STAGE	LEAD INVESTOR(S)	VALUATION STEP-UP
stripe	April 16, 2020	Payment platform & POS	$850	Series G	General Catalyst, Sequoia Capital, Andreessen Horowitz	1.6x
toast	February 14, 2020	Payment platform & POS	$400	Series F	TPG Capital, Greenoaks Capital Partners, Bessemer Venture Partners, Tiger Global Management	1.7x
avidxchange	January 17, 2020	AP/AR	$388	Late-stage VC	N/A	N/A
TRADESHIFT	January 14, 2020	B2B payments	$240.0	Series F	N/A	N/A
qwil	December 11, 2019	B2B payments	$224.0	Series B	N/A	14.3x

Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 52.

Notable payments VC exits

COMPANY	CLOSE DATE	SUBSEGMENT	EXIT SIZE ($M)	ACQUIRER/INDEX	VALUATION STEP-UP	VALUATION METRIC
Bill.com	December 12, 2019	AP/AR	$1,336	NYSE: BILL	1.3x	16.1x EV/rev
InstaMed	July 24, 2019	Payment platform & POS	$600	JPMorgan Chase	2.4x	N/A
optile	December 10, 2019	Payment platform & POS	$56	Payoneer	N/A	N/A

Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Opportunities

Payment aggregation systems: Digital commerce has driven significant changes to the retail experience, providing consumers with the ability to purchase goods via seamless digital platforms, access international online marketplaces and use mobile payments for in-store, in-app and P2P transactions. While these new payment options are helping propel the growth of digital payments, we believe they are also driving significant complexity for merchants seeking to provide modern payment options to their customers. Providers such as **Rapyd** aggregate these networks into a single platform, improving the ability to accept alternative payment types. **Rapyd**'s unique solution has received considerable attention from investors, having raised $160 million and reached unicorn status.

Omni-commerce payment systems: Although payments innovation on the payer side has improved markedly during the past decade, there are still significant opportunities for improvement on the payee side (i.e. merchant). For instance, small businesses that accept credit cards in-store or online still face challenges in reconciling payment systems. The lack of fully automated reconciliation and integration with AP systems has contributed to poor user experiences for payees. Companies such as Poynt are looking to solve this problem with its end-to-end solution, which includes a front-end POS system, hardware and software terminals, employee management to track sales and tips, and direct integration with Quickbooks.

B2B payments: Many disparate B2B payment solutions exist but do not easily sync suppliers with their corporate buyers. Startup **Recurly** provides a subscription billing platform built for SaaS businesses to manage their receivables and payables operations. This allows these businesses to scale their subscriber lifecycle management and optimize the subscriptions plans, pricing, and discounts based on subscriber behavior.

Considerations

Razor-thin margins demand significant scale: The consumer payments ecosystem is unique in that it is built around the major network operators, which have established rules dictating that a significant portion of merchant processing fees (75%-95%) are directed to card-issuing banks and the networks themselves. This leaves a relatively small portion of the approximately 3% transaction fee to be split among other service providers and increases the need for providers to attain significant scale and/or develop ancillary revenue streams to drive material margin expansion.

Competitive and crowded industry: Industry leaders including **Mastercard**, **Visa** and **PayPal** have established strong consumer brands and large global networks that will be tremendously difficult for new companies to replicate. Meanwhile, competitors such as **Stripe** and **Square** have innovated SMB payment platforms that are the product of many years of intellectual property investment. Still, large well-financed incumbents tend to be serial acquirers and will target companies with an established customer base that occupy an exclusive niche or have developed a unique product.

Changing technology and disruption potential: The implementation of faster-payment initiatives that provide quicker settlement times and reduce payment acceptance fees for merchants has the potential to put downward pressure on fees and/or divert payment volume away from network-operated systems. Additionally, alternative payment system providers—such as **PayPal** and **Amazon** in the US and **AliPay**, **Paytm** and **Klarna**

internationally—which enable payments within a proprietary network, posing similar disruptive threats. Lastly, digital money and cryptocurrencies also have the potential to alter the landscape over time. We believe providers that can act as a front end to all these systems are relatively better positioned for growth.

Faster payment rails could reduce transaction fees: Efforts to overhaul decades-old payments rails (i.e. credit card networks, ACH, SWIFT) could lead to new business models in this sector. FedNow and RTP in the US and Target Instant Payment Settlement (TIPS) in the EU enable real-time payment capabilities that can increase settlement times and significantly lower or even eliminate payment processing fees. This has the potential to drive business models from transaction-fee-based to service-based, increasing the importance of providing ancillary services and features beyond processing.

Outlook

Omni-commerce continues to drive growth: We expect online and mobile payments growth to hold steady in the mid-teens range and are hence more bullish on companies exposed to this trend. Continued improvements in the online shopping user experience (i.e. seamless payments, recurring payments, one-click checkout, order ahead, etc.) and deeper payments integration across the internet (i.e. payments standardization via the World Wide Web Consortium) will continue to drive growth in digital omni-commerce payment volume. We have already witnessed startups such as **Stripe** and **Checkout.com** establish themselves firmly in this space with these trends as tailwinds. However, as online commerce continues to grow at this rate, new players will emerge to serve targeted markets. For instance, newcomer **TrueLayer** has emerged with easy-to-integrate payment APIs similar to those of the established startups but has focused on fintech companies such as **Zopa** and **Monzo**.

Mobile payments expansion: Although pervasive in Asian countries, especially China and India, physical payments via a mobile phone are less common in the rest of the world, where cash and card-based payments remain popular. We expect this status quo to erode over the near to midterm, as providers improve the consumer experience and consumers become more accustomed to paying via a mobile device. While in-store mobile payment adoption has been slow, we believe consumers are steadily increasing their use of mobile devices for omni-commerce. Omni-commerce tends to blur the lines of commerce to some extent; is ordering ahead mobile or in-store? While we expect point-of-sale mobile payments will likely be dominated by the major wallet providers (Apple Pay, Google Pay), customers are increasingly using payment apps, such as **Venmo** or Cash App, along with merchant-specific apps to provide payment.

Established companies will seek rollup opportunities: We expect a few of the late-stage payment players with shored-up balance sheets from recent raises to build stronger defensible positions through acquisitions. The combination of a crowded market, maturing industry and devaluation of assets is ripe for companies to pursue a rollup strategy. We view companies such as **Stripe** or **Nuvei** as in position to do so.

SEGMENT DEEP DIVE

Regtech

Overview

Regtech providers develop solutions to standardize and automate regulatory compliance, reduce fraud and manage enterprise risk, allowing financial institutions to spend more time on their core business. These companies use technologies such as cognitive computing, predictive analytics and robotic process automation to automate resource-heavy tasks such as transaction monitoring or money-laundering investigations.

Since the financial crisis, the top banks globally have paid more than $240 billion in fines.[18] This has driven financial institutions to quadruple their compliance staff and spend a combined total of $780 billion annually on compliance.[19] This constant regulatory burden is driving demand for innovative solutions that can transform regulatory infrastructure and reduce compliance costs. Regtech has mushroomed in importance as it is helping institutions gain insights into regulatory practices, automate compliance functions and reduce costs.

Industry drivers

Increasing and continually changing regulatory landscape: Financial institutions face a complicated global regulatory regime that is costly and time consuming to navigate. Even in the face of regulatory uncertainty, incumbents are forging ahead with compliance initiatives.

Growing cyber risk: Expanding cyberthreats and data security concerns have introduced new areas of risks and regulation for financial institutions.

18: "Here's the Staggering Amount Banks Have Been Fined Since the Financial Crisis," MarketWatch, February 2018
19: "There's a Revolution Coming," KPMG, 2019

REGTECH

Far-reaching new regulatory initiatives: Major regulatory initiatives such as PSD2, the Markers in Financial Instruments Directive II (MiFID II), the International Financial Reporting Standard 9 or even Brexit are likely to drive opportunities for fintech companies to partner with incumbent financial institutions to efficiently meet compliance standards.

Regulator support for regtech: Regulatory buy-in could be a key driver of regtech adoption. For example, the US Commodity Futures Trading Commission (CFTC) recently created LabCFTC to "accelerate CFTC engagement with FinTech and RegTech solutions that may enable the CFTC to carry out its mission responsibilities more effectively and efficiently."[20] These regulatory sandboxes can help promote new technologies to help firms meet the requirements of major governmental regulatory bodies globally.

Market size

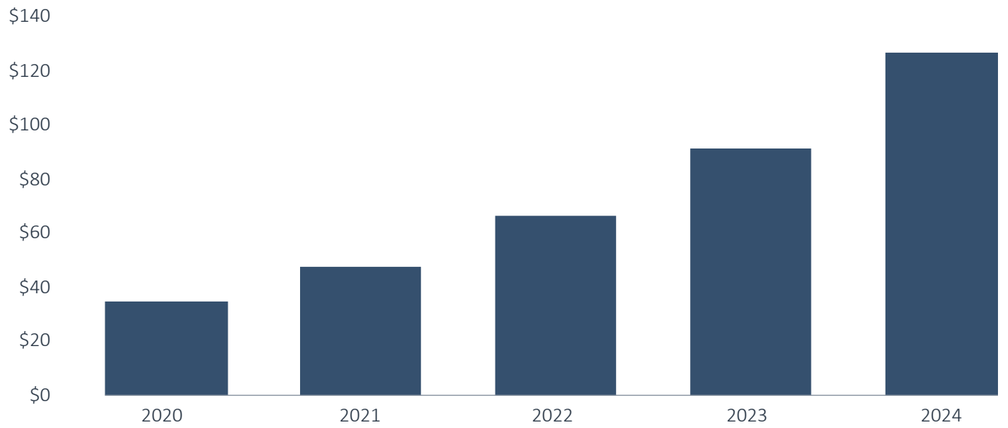
The estimated market size of this space measured by global technology spend at financial institutions for regulatory compliance is projected to reach $35 billion in 2020. These expenditures are expected to grow at a 38.4% GAGR to reach $127 billion by 2024.

Business model

Monetization in this segment primarily comes in the form of SaaS and on-premise offerings. SaaS-based software collects monthly or annual fees and help financial institutions with regulatory, compliance, enterprise risk and fraud challenges.

20: "CFTC Launches LabCFTC as Major FinTech Initiative," US Commodity Futures Trading Commission, May 17, 2017

Figure 53. REGTECH MARKET SIZE ($B)



Source: Juniper Research | Geography: Global
Note: This represents regtech spending by financial institutions.

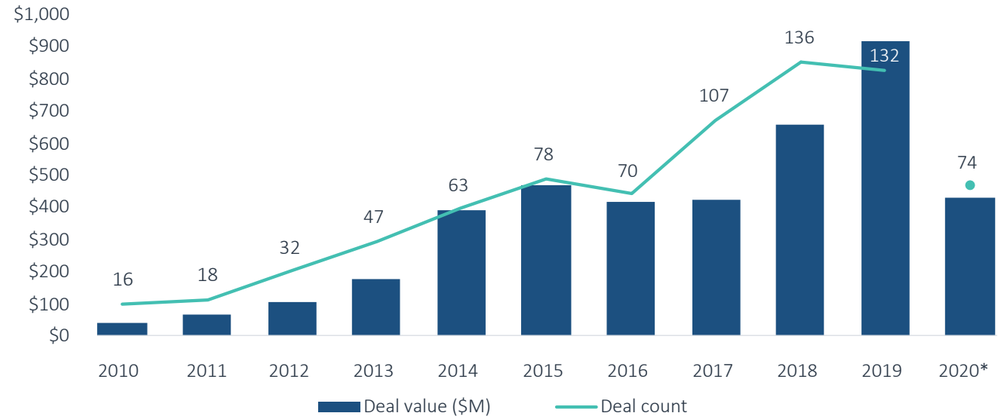
COMMON INDUSTRY KPIS FOR REGTECH COMPANIES

- MRR & growth
- Churn–revenue & client
- CAC and lifetime value
- Number of reported security incidents
- Fraud rate

VC activity

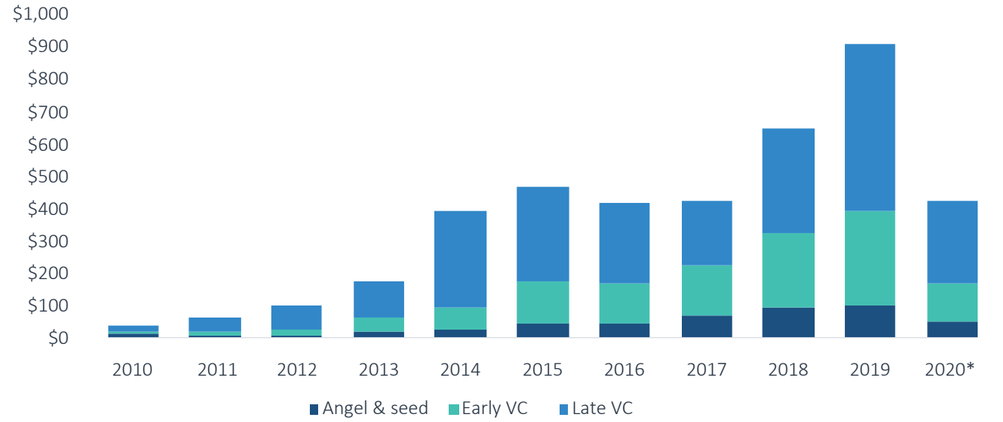
Major regulations and geopolitical developments continue to drive growth in VC, with invested capital in regtech companies jumping to a high of $911 million in 2019. This represents a 40.0% increase in VC into regtech companies compared to 2018. So far in 2020, there has already been $425 million deployed. This growth in funding has coincided with the rollout of major legislations such as MiFID II, PSD2 and GDPR. We believe the impending implementation of Basel III and effects from Brexit could further catalyze increased investment.

Figure 54. REGTECH VC DEAL ACTIVITY



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

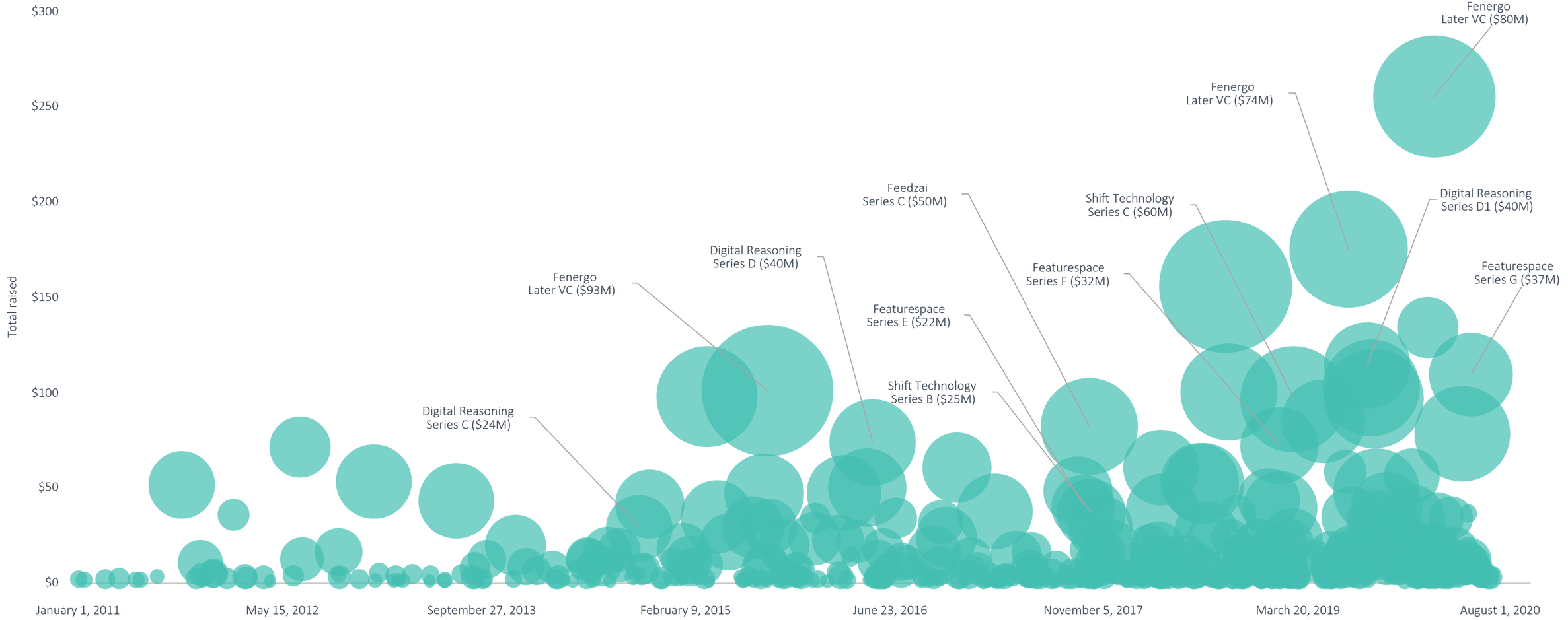
Figure 55. REGTECH VC DEALS ($M) BY STAGE



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 56.

VC-backed regtech landscape ($M)



Source: PitchBook

Figure 57.

Notable regtech VC deals

COMPANY	CLOSE DATE	SUBSEGMENT	DEAL SIZE ($M)	STAGE	LEAD INVESTOR(S)	VALUATION STEP-UP
fenergo	February 12, 2020	Regulatory affairs	$80	Late-stage VC	N/A	N/A
fenergo	July 17, 2019	Regulatory affairs	$74	Late-stage VC	N/A	N/A
Trulioo	September 17, 2019	Regulatory affairs	$53	Series C	The Goldman Sachs Group	N/A
appzen	September 9, 2019	Crime surveillance & fraud detection	$50	Series C	Coatue Management	2.1x
Digital Reasoning	September 1, 2019	Crime surveillance & fraud detection	$40	Series D1	BNP Paribas	1.0x

Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 58.

Notable regtech VC exits

COMPANY	CLOSE DATE	SUBSEGMENT	EXIT SIZE ($M)	ACQUIRER/INDEX	VALUATION STEP-UP	VALUATION METRIC
observe it	November 3, 2019	Risk management	$225	Proofpoint	N/A	5.6x EV/rev
vesta	May 28, 2020	Crime surveillance & fraud detection	$125	Goldfinch Partners	N/A	N/A
OBSIDIAN SOLUTIONS	November 11, 2019	Regulatory affairs	$7	Alpha FMC	N/A	N/A
Xactium The 'i' in Risk'	March 16, 2020	Risk management	N/A ($0.4 VC raised)	Riskonnect, Thoma Bravo	N/A	N/A

Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Opportunities

Real-time account monitoring: Ahead of the rollout of the Revised Payment Service Directive (PSD2) in the EU, Ireland-based retail bank Permanent TSB used **Featurespace**'s platform to monitor customer accounts in real time, discover any account anomalies and remain in regulatory compliance. Chainanalysis assists financial institutions that operate blockchain networks by generating real-time intelligence, tracking monetary flows across multiple blockchains, corroborate investigations of clear and dark websites, and building a complete record of findings.

KYC/AML automation: Financial institutions devote significant amounts of time and capital on client review processes and transaction monitoring. The process has traditionally been manual, inefficient and cumbersome. This has been evident during the rollout of the Paycheck **Protection** Program (PPP), in which banks were not able quickly onboard new customers. Financial institutions faced with greater volume and associated regulatory costs have increasingly been exploring alternative options. **Trulioo** offers a single API that combines a KYC and AML solution. The API enables access to its robust data platform, drawn from hundreds of global sources including mobile network operators (MNOs), credit bureaus, electoral rolls, national IDs, sanction lists (i.e. OFAC, UN) and law enforcement lists (FBI, Interpol). **Fenergo** provides a rules-driven solution that enables financial institutions to efficiently shift resources to focus on high-risk clients for better KTC/AML compliance.

Automated tracking of new regulations: Keeping track of new regulations and their potential impact could provide a significant opportunity for startups. FiscalNote allows financial institutions to track potential bills in real time that could be passed into law, and automatically highlights the business units within an institution that may be affected by the new rule. These solutions allow financial institutions to adopt governance, risk management and compliance (GRC) practices and better integrate various compliance functions. **Ascent Technologies** provide a similar solution used by regulatory affairs functions with financial institutions. Its platform enables institutions to centralize regulatory compliance processes and get notified of impact analysis in any financial rule changes.

Considerations

Complexity of tailoring solutions to specific customers: Large global financial institutions are diverse organizations with varying centralized and decentralized functions across multiple business lines and geographies. This can be difficult for fintech companies in this segment to navigate. To traverse this obstacle course, a targeted approach will be necessary to identify a specific business line or function that is affected by specific regulations (e.g. the Truth in Lending Act (TILA), Regulation Z's effect on a bank's mortgage lending group). Sometimes, this needs to be tailored to the specific financial institution, which can come with a hefty price tag for the solution provider and offers limited scalability. Fintech companies themselves must also demonstrate adequate risk and compliance functions in order to minimize third-party risk to the financial institutions.

Technological challenges lie ahead: The adoption of new services and technologies will pose implementation challenges as financial institutions seek to integrate regulatory automation solutions into their legacy platforms. The process of integration could expose the company or the provider to a possible data breach, resulting in significant damage to

either party. These technological risks put fintech companies and incumbents at potential operational, economic, legal and reputational exposure.

Regulatory flux presents a moving target: Legislative actions and regulations affecting the financial services industry are complex, ever-changing and multidisciplinary, with fluctuating rules and reporting standards. Furthermore, regulators are typically slow to adopt technology because they must perform as expected and meet compliance standards. This will involve continuous validation, governance and supervision of the algorithms utilized within the digital tools to ensure that it will endure changing market conditions. This continuous evaluation could become onerous and costly for fintech companies.

Outlook

Regulators to be big buyers of regtech: Regulators represent a key customer group in this industry, as they, along with incumbent financial institutions, are the potential buyers of regtech solutions. Currently, regulators have not made significant investments in regtech solutions, but we believe it is only a matter of time until they do. When this happens, we expect adoption to help validate the regtech market and catalyze demand among financial institutions, particularly for products sold to regulators. Additionally, this could spur more demand among financial institutions that have not yet invested in any regtech solutions.

Market leaders will start to emerge: We expect some of the first-market movers in regtech that are well-funded and have developed strong product/market fit to see wide-scale implementations among various financial institutions. Startups that have not reached this stage will find it hard to raise further funding and may either fail or become acquisition targets of incumbent financial institutions or established fintech companies. **Feedzai**, for instance, develops a risk management and fraud detection platform. It feeds in financial institutions' rich historical datasets to help build its ML models. Because it was a first mover, it has built strong network effects due to having a large enough client base to amass very large datasets. This has allowed the company to train its ML models to effectively detect fraud and reduce false positives—a hard issue to solve in the fraud detection space.

SEGMENT DEEP DIVE

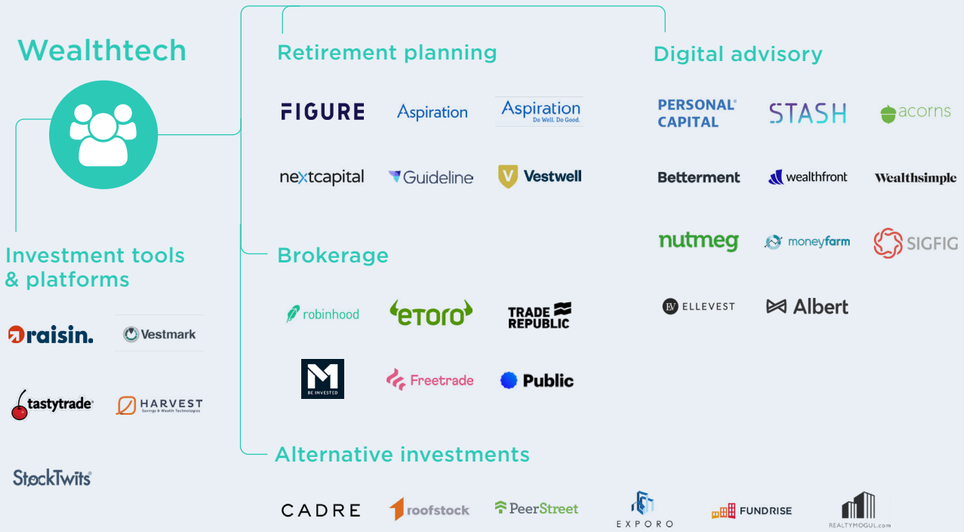
Wealthtech

Overview

The wealthtech segment consists of companies that provide alternatives to traditional wealth management services. Products offered within this industry include online investment platforms, automated investment and “round-up” services, low or no-fee investment products, asset diversification platforms, robo-advisor services and retirement savings. Some companies in this space also provide products that enable and support traditional wealth managers.

Emerging technologies are disrupting each portion of the wealth management value chain by automating key functions including investment advice, asset management and account administration. The growth of this industry has had significant impact on legacy financial advisory companies. For example, in Q3 2019, all the major discount brokers followed the strategy of startup stock-trading app **Robinhood** by eliminating stock trading fees for online trades.

We believe long-term fundamental drivers exist for providers in this space. Although this puts legacy wealth management incumbents at risk of asset migration, it presents a massive opportunity for fintech companies to attract new assets from customers who expect digital, user-centric and multichannel solutions to manage their assets.



Industry drivers

Demographic shift and changing preferences for wealth management: The US is currently in the midst of the largest intergenerational wealth transfer in history, with an estimated $36 trillion to be transferred to heirs after taxes and closing costs.[21] The new

generation of heirs is expected to manage money differently from their parents. Rather than focusing on budgeting and savings, the next generation is predicted to place more importance on investing. Furthermore, two-thirds of heirs are expected to fire their parents' investment advisor after receiving their inheritance.[22]

Preferences for fee-based, passive investments: Consumers are increasingly choosing fee-based investment products over commission-based products, and passive investment strategies over actively managed strategies. This is creating opportunity for automated products that rely on modern technology as opposed to traditional relationship-based products and services.

Distributed ownership models: Technology is making it easier to conduct traditionally complicated transactions, such as purchasing real estate, creating opportunities for investment platform that enable consumers to make small investments in alternative assets, such as homes or cars.

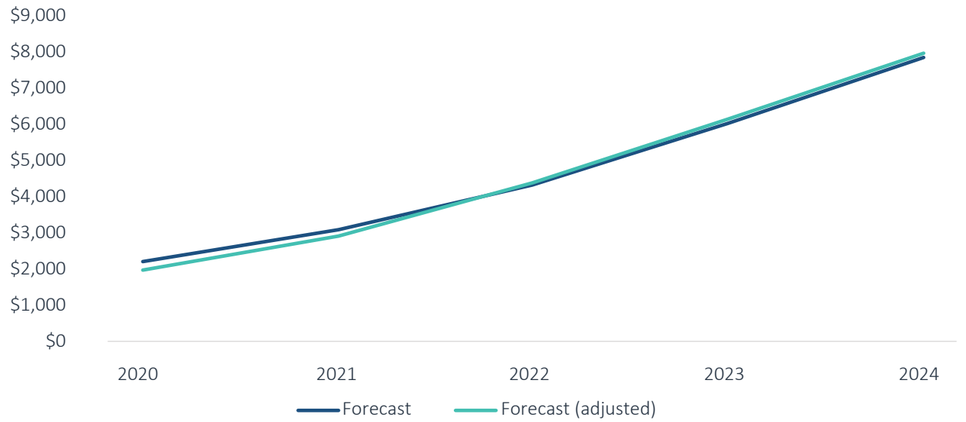
Large traditional market provides long term disruption opportunity: We believe alternative wealth management products currently represent a very small share of global AUM (currently around $70 trillion), providing a large and long-term opportunity for startups.

Market size

We estimate the wealthtech market size, as measured by digital asset managers' AUM, to be $1.5 trillion in 2019. This includes AUM by wealthtech startups and digital management

21: "A Golden Age of Philanthropy Still Beckons: National Wealth Transfer and Potential for Philanthropy Technical Report," Boston College Center on Wealth and Philanthropy, John J. Havens and Paul G. SchervishBoston College Center on Wealth and Philanthropy, May 28, 2014
22: From an April 2015 survey conducted by Investment News Data, as found in "The Great Wealth Transfer is Coming, Putting Advisers at Risk," Liz Skinner, Investment News, July 13, 2015

Figure 59. WEALTHTECH MARKET SIZE ($B)



Source: KPMG, PitchBook estimates | Geography: Global
Note: This represents estimated AUM of digital/algorithmic asset managers.

COMMON INDUSTRY KPIS FOR WEALTHTECH COMPANIES

- AUM
- Net new AUM
- Trading volume
- Average revenue/customer
- Customer retention
- Net promoter score

services deployed by incumbent wealth managers. **Current** market conditions will slow growth in the midterm, reaching under $2 trillion in AUM versus our original projections of $2.2 trillion for 2020. However, due to increased digitization in this segment, we expect this space to experience stronger growth than originally projected once a recovery ensues. We expect the asset base to grow to almost $7 trillion by 2024, representing a CAGR of 32.6%.

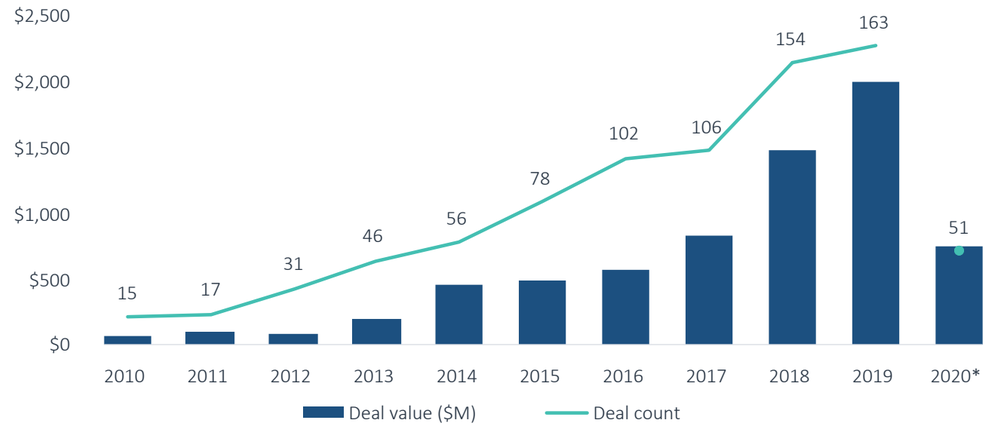
Business model

Wealthtech companies monetize mainly via AUM fees, subscription models (collected on a monthly or annual basis), interest from cash held in customer accounts and/or transaction fees.

VC activity

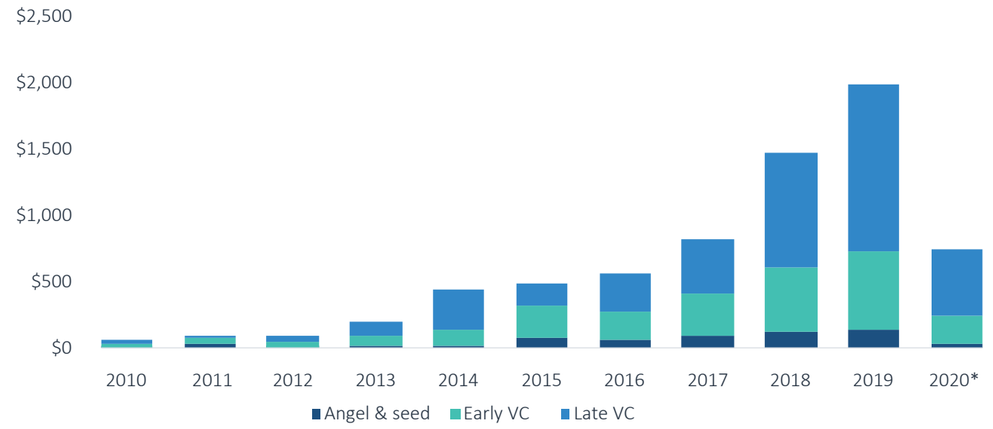
The wealthtech industry has garnered significant attention from VC investors during the last five years ending in 2019, with almost $5.4 billion invested across North America and Europe over that same period. 2019 reached an all-time high as VC investors deployed over $2 billion into wealthtech companies. Deal value is down 34% YoY, with H1 2020 drawing in $741 million. Although the high market volatility has led to a flock to digital trading apps and increased trading, we have observed an overall decrease in fund flows (lower AUM). We believe investors are still sorting out the impact of a downturn on companies in this space. However, over the long term, we expect increased investment into this segment as retail investors and those looking to save for retirement continue to rely on new technologies to achieve their financial goals.

Figure 60. WEALTHTECH VC DEAL ACTIVITY



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

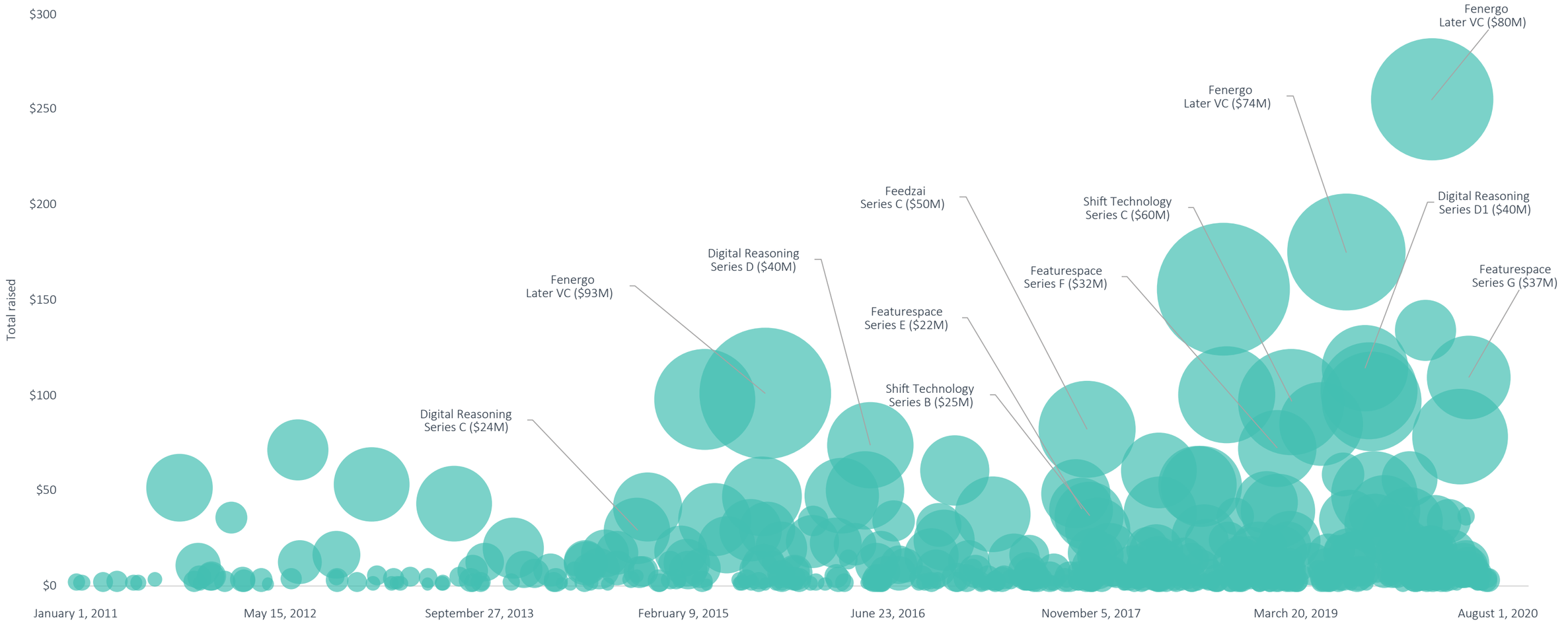
Figure 61. WEALTHTECH VC DEALS ($B) BY STAGE



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 62.

VC-backed wealthtech landscape ($M)



Source: PitchBook

Figure 63.

Notable wealthtech VC deals

COMPANY	CLOSE DATE	SUBSEGMENT	DEAL SIZE ($M)	STAGE	LEAD INVESTOR(S)	VALUATION STEP-UP
robinhood	October 31, 2019	Brokerage	$373	Series E	DST Global	1.3x
Aspiration Do Well. Do Good.	May 21, 2020	Retirement planning	$135	Series C	Alpha Edison	N/A
STASH	April 29, 2020	Digital advisory	$112	Series F	LendingTree	1.2x
FIGURE	October 31, 2019	Retirement planning	$103	Series C	N/A	2.9x
PeerStreet	October 28, 2019	Alternative Investments	$60	Series C	Colchis Capital Management	2.1x

Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 64.

Notable wealthtech VC exits

COMPANY	CLOSE DATE	SUBSEGMENT	EXIT SIZE ($M)	ACQUIRER/INDEX	VALUATION STEP-UP	VALUATION METRIC
RetireUp	June 10, 2020	Retirement planning	N/A	Tegra118, Motive Partners	N/A	N/A
united income	August 16, 2019	Retirement savings	N/A ($16 VC raised)	Capital One	N/A	N/A
Advizr	July 11, 2019	Investment tools & platforms	N/A ($15 VC raised)	Orion Advisor Services	N/A	N/A
GROVE	August 25, 2019	Digital advisory	N/A ($10 VC raised)	Wealthfront	N/A	N/A
haven	December 11, 2019	Digital advisory	N/A	Credit Karma	N/A	N/A

Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Opportunities

Low-cost investment services: Traditional wealth management and brokerage companies tend to skew toward servicing high-net-worth individuals and families, reflecting a fee-dependent model based on AUM, which makes it difficult to profitably service lower-income customers. This leaves a large underserved customer base of young workers just beginning their careers or low-net-worth families. Fintech companies' use of automation and other technologies can help scale benefits needed to serve these customers. The wealth gap has also led to new business models previously not available to traditional wealth managers. For instance, companies such as **Acorns** and Stash allow customers to round up spare change, automate investments, buy fractional shares and learn about investing, all for a low monthly fee of $1 to $3. These features are simplistic and easy to use, which are appealing to a younger demographic that is unfamiliar with finance and investing. Zero-fee stock trading, pioneered by **Robinhood**, is also becoming increasingly popular. Not only has this led other established fintech companies to offer zero-fee trading programs of their own, but it has also led incumbent players such as **Charles Schwab** and Bank of America Merrill Lynch to eliminate stock trading fees as well. Although this may seem like a competitive threat to the fintech players in this segment, we believe that these trends are validating those business models.

New real-estate investment models: Investing in residential and commercial rental property as a passive investment strategy has traditionally been wrought with challenges and fees. Purchasing individual properties requires significant due diligence (including physically visiting the property), paperwork, inspections, and tenant and property management. Investors who want to avoid these burdensome processes as well as diversify their holdings typically seek to invest in REITs. However, REITs typically have added fees for asset management, property management, acquisition, lease administration, financing, development and more. Because of how REITs are structured, many of these fees do not show up on the expense ratio, leading investors to believe the fees are lower than they actually are. **Fundrise** originates and operates its own properties, packaging them into "eREITs" and offering this directly to the customer via its online platforms. This allows the company to cut out many intermediaries in the process and eliminate or lower fees, creating savings that are passed on to the investor. **Roofstock** and RealtyMogul allow investors to browse hundreds of fully inspected individual rental properties, with the option to put up as little as $5,000 or up to the entire offering price.

Impact investing: We expect wealthtech companies to focus on providing tools that help younger generations make environmentally and socially conscious investment decisions. While such investment strategies have not necessarily proven to be more successful than traditional investing, impact investing could still prove a viable business strategy given growing consumer demand. Startups focusing on this opportunity include Motif, which has raised over $125 million in VC. On the other hand, **Swell** was not able to deliver positive investment returns for customers (mainly due to very high fees) and went out of business.

Robo-advisor services: The top three fintech robo-advisors (**Betterment**, **Wealthfront** and **Personal Capital**), which manage assets within the passive investments category, have grown their AUM to a combined $35.5 billion. This total is close to that of **Charles Schwab**'s robo-advisor product Schwab Intelligent Portfolios, which has $37 billion in

AUM.[23] We believe there is significant room for fintech growth as passive investments are expected to see global AUM reach $57.7 trillion by 2025, representing 40% of total global AUM.[24] Furthermore, many of the robo-advisors currently on the market fall under low-cost and low-personalization or high-cost and high-personalization. We believe there are massive gaps in the market, creating opportunities for companies provide a low-cost, high-personalization robo-advisors by iterating on technologies such as predictive analytics and machine learning.

Considerations

Skepticism of automated processes: Technologies such as AI & ML utilized for investment decisions and/or market data analysis are difficult to understand and may not provide full explainability with regard to the underlying algorithms driving decisions. While these products may bring increased transparency related to fees, commissions and returns, the lack of investment transparency may nonetheless keep some investors away.

Incumbents are fighting back: Large incumbents are increasingly providing similar products to shore up against market share losses to new entrants. For instance, Vanguard's robo offering, Personal Advisor Services, launched only four years ago and has already amassed $130 billion in AUM. Additionally, discount brokers E*Trade, Schwab, Fidelity and TD Ameritrade have all eliminated trading fees. This puts pressure on fintech companies to compete against deep-pocketed legacy players with established customer bases, and it also increases CAC.

New fintech companies are untested through downturns: Given the relative nascency and short track record of fintech companies in this segment—the vast majority of which were founded after the financial crisis—the performance of the investments and the operating models of these companies have not experienced major market downturns or high market volatility. We believe a real economic stress testing of these businesses may be needed before they reach widespread adoption.

Outlook

Expect hybrid models to win: Instead of fully automated solutions, we expect hybrid automated/human solutions may be the most effective. While digital solutions can help with execution consistency and increased controls, they can be less effective in managing oversight of risk and compliance. While new wealthtech providers are likely to provide fully automated investment services for some segments of the market, we expect hybrid models, in which technology provides support for human advisors, will have success. Especially during a market downturn, we believe investors will seek more trusted human advice, which will favor incumbent providers.

AUM expansion from favorable demographics and improved marketing: We believe alternative wealth management platforms could see significant AUM expansion as they get better at targeting high-net-worth clients and as their customers get older and increase their assets. Investable assets from affluent clients are typically less sticky and tend to move between institutions more frequently than assets of less affluent clients.[25] This could increase the chances of more assets finding their way into innovative fintech companies offering a valuable investment return opportunity.

23: Robo-advisors With the Most Assets Under Management, Robo-Advisor Pros, 2019
24: "Asset & Wealth Management Revolution: Embracing Exponential Change," PwC, 2017

25: "Thriving in the New Abnormal: North American Asset Management," McKinsey & Company, November 2016

Supplemental materials

Select company analysis

MoneyLion

Founded in
2013

Based in
NYC

850
employees

Raised-to-date: $931.3M ($650 debt) over nine deals

Last financing valuation: $675M post-money

Last known deal size: $25M Series C1

Ownership: Danhua Capital, Greenspring Associates, Atalaya Capital Management, Venrock, Veronorte, Broadhaven Capital Partners, Citizen.VC, Clocktower Technology Ventures, Edison Partners, FinTech Collective, Montage Ventures, **Capital One** Financial, MetaBank

Business overview

MoneyLion provides a mobile personal finance platform designed to empower consumers to take control of their financial lives. The company's platform provides products for borrowing, saving and investing, as well as a built-in system of rewards, points and incentives. Customers can also opt for features offering financial advice and access to loans and other services. The company uses advanced analytics and ML-based technology to gain a complete view of personal finances to encourage good financial behavior.

MoneyLion targets a large, yet underserved customer base: lower income households with median income of around $50,000. Their ability to gain a deep understanding of their customer base has allowed them to amass over five million customers since 2013.

Leadership

The management team is led by its founding team with experience in financial services. CEO and Co-Founder Diwakar Choubey spent almost a decade in investment banking, with stints at Citi, Goldman, Citadel and Barclays before co-founding **MoneyLion**. CTO and Co-Founder Chee Mun Foong was previously a founding member of Simulex, a boutique research company specializing in AI and human behavioral analytics. CIO & Co-Founder Pratyush Tiwari previously worked at Credit Suisse and Hewlett Packard before going on to co-found Knowrtl, a provider of a platform that allows end users to share data, models, scenarios and experiences in computational environments. That company raised VC but eventually went out of business in 2014.

The board consists of Christopher Sugden, Managing Partner at Edison Partners, a growth equity investment firm that has made many investments in fintech. Two independent board members also sit on the board, which is Greg DePetris (Managing Member and Chief Strategic Officer of CODA Markets) and John Chrystal (Director and Former Interim CEO of Bancorp).

Select company analysis

MoneyLion

Competitors

MoneyLion is in a very competitive space of digital, or "challenger," banks. The US-based competitors include **Chime**, **Varo Money**, **Digit** and **Qapital**, which have, similar to **MoneyLion**, customer bases that have reached into the millions. In addition, European variants with large capital pools raised from VC and similarly large customers bases are entering the US market. These companies include **Monzo**, **N26** and **Revolut**. Additionally, established fintech companies such as **SoFi** and **Betterment** are diversifying their product offerings which are overlapping with products and services that **MoneyLion** offers. Lastly, incumbent banks and credit unions, which typically already have established relationships with **MoneyLion**'s customer bases, remain a competitive threat.

Outlook

MoneyLion has proven that easy-to-use, simple financial products managed via seamless applications are very attractive for consumers. However, we believe that most of these customers do not use these services as their primarily banking option. Due to this, we believe that the revenues on a per customer basis is very small compared to that of incumbent banks. We expect **MoneyLion** to continue offering new high-value services to try to convert non-primary customers. The company may also start exploring bank charter options to increase balance sheet efficiencies in the future.

Financing history

SERIES C1	SERIES C	SERIES B2
March 13, 2020	July 22, 2019	August 14, 2018
Deal size ($M): $25	**Deal size ($M):** $100	**Deal size ($M):** $28.8
Pre-money valuation ($M): $650	**Pre-money valuation ($M):** $530	**Pre-money valuation ($M):** $450

SERIES B	SERIES A3	SERIES A
January 4, 2018	September 13, 2017	April 1, 2017
Deal size ($M): $42	**Deal size ($M):** $3	**Deal size ($M):** Unknown
Pre-money valuation ($M): $225	**Pre-money valuation ($M):** $94.8	

SERIES A1
December 5, 2016
Deal size ($M): $22.5
Pre-money valuation ($M): $57.5

Select company analysis

MARQETA

Founded in
2010

Based in
Oakland, CA

420
employees

Raised-to-date: $527 over seven deals

Last financing valuation: $4.3B post-money valuation

Last known deal size: $150M Series E1

Ownership: Black River Ventures, **Goldman Sachs**, ICONIQ, Hard Yaka, **Visa**, CommerzVentures, IA Capital Group, Max Levchin, Commerce Ventures, LionBird, 83North, Granite Ventures, Coatue Management, Geodesic Capital, Glean Capital, Greyhound Capital, Lone Pine Capital, Spark Capital, Vitruvian Partners

Business overview

Marqeta is a provider of a payment platform allowing businesses to offer physical, virtual and tokenized debit and credit cards. The company's open API issuer payment processor platform includes a set of controls and configurations designed to meet the needs of on-demand service companies, alternative lenders, as well as those looking for payouts for 1,099 workers, providing flexible expense management and scalable, secure virtual card transactions. This enables developers to have a simplified way to manage their businesses' payment programs.

The company has scaled fast, fueled by the growth of fintech, ecommerce and the gig economy. **Marqeta**'s customers include **Affirm**, **DoorDash** and **Square**. The platform **Marqeta** has developed includes unique features such as dynamic spend controls to restrict card authorizations and Just-in-Time (JIT) funding to authorize payments and apply funding in real time. This gives its customers a highly customizable solution to instantly issue cards to whomever, whether an employee or gig worker, while fully controlling payment authorization, and ultimately better cash flow management, via **Marqeta**'s API decision engine.

Leadership

Marqeta is led by Founder and CEO Jason Gardner, who previously co-founded rental payment platform **PropertyBridge** (acquired by **MoneyGram** International (NASDAQ: MGI)). **Prior** to that, he founded Vertical Think, a company that managed IT for startups and other similar organizations. The rest of the executive team has vast experience ranging from financial services to enterprise technology.

Select company analysis

MARQETA

Competitors

Marqeta competes with well-established incumbents such as **FIS** and **Fiserv** as well as startups such as **Ondot** and **Boost Payment Solutions**. **Marqeta** currently targets high-growth tech companies as customers, which may be less of a focus for these competitors. However, **Stripe**, whose customer base significantly overlaps with **Marqeta**, recently announced its **Stripe** Issuing API. We believe that this new platform could eventually evolve to be like **Marqeta**'s offering.

Outlook

Marqeta has shown that it can develop a unique developer-friendly payment card **issuance** platform for its customers. We expect the company to double-down its focus on its core customer base to build on those relationships to retain them for the long haul. We would not be surprised if **Marqeta** ends up becoming an acquisition target during this heavy M&A period within the payments sector.

Financing history

SERIES E1	SERIES E	SERIES D
May 20, 2020	May 21, 2019	June 5, 2018
Deal size ($M): $150	**Deal size ($M):** $260	**Deal size ($M):** $70
Pre-money valuation ($M): $4,150	**Pre-money valuation ($M):** $1,630	**Pre-money valuation ($M):** $460

SERIES C	SERIES B	SERIES A
April 27, 2015	March 4, 2013	June 1, 2011
Deal size ($M): $25	**Deal size ($M):** $14	**Deal size ($M):** $5.8
Pre-money valuation ($M): $100	**Pre-money valuation ($M):** $79.7	**Pre-money valuation ($M):** $9.7

Select company analysis

OPENGAMMA

Founded in
2009

Based in
London

25+ **employees**

Raised-to-date: $49.2M over seven deals

Last financing valuation: Unknown

Last known deal size: $10M late-stage VC

Ownership: Japan Exchange Group, **NEX** Group, Cristóbal Conde, Illuminate Financial Management, FirstMark Capital, Accel, Dawn Capital

Business overview

OpenGamma is a developer of a market risk management platform designed to optimize financial services in the evolving markets. The company's platform offers independent services to provide an objective view of the all-in costs for derivatives users, helping the sell side to minimize their balance sheet usage and providing the buy side with the information they need to make smarter counter-party decisions, enabling clients to improve their outcomes and earn high returns on their investment. This solution ultimately allows their clients to lower their cost for derivative trading.

OpenGamma's key advantage is for its risk management and analytics platform in that it is open sourced as opposed to the industry standard of proprietary software. This allows financial institutions accelerate the solutions integrations while eliminating vendor dependency.

Leadership

OpenGamma's management team has deep industry expertise in the capital markets. The company is led by CEO Peter Rippon, who previously spent 15 years at Sungard, most recently as Senior VP. Mr. Rippon left Sungard to take on the COO position at **OpenGamma** shortly before Sungard was acquired by **FIS** for $9.1 billion. **OpenGamma**'s executive team also includes COO Maxime Jeanniard Du Dot, who was previously at **HSBC**, and CTO Jonathan Senior, who was previously a developer on the credit derivatives desk and the convertible bonds trading platform at KBC Financial Products. The board consist of current investors Bruce Golden and Steve Gibson from Accel and **NEX**, respectively, and independent board member Cristóbal Conde, who spent 28 years Sungard.

Competitors

The primary competitors to **OpenGamma** are the incumbents who provide proprietary software to capital market institutions. These incumbents include Broadridge, **Calypso**,

Select company analysis

OPENGAMMA

and **Murex**, who have all been in business for decades. Although we believe that **OpenGamma**'s cloud-based, open-sourced software to be more superior than the incumbents proprietary solutions, having a smaller client base—and thus smaller datasets—to build out their analytics capabilities will leave them at disadvantage in the mid-term.

Outlook

We believe that **OpenGamma** will continue to make strategic partnerships to increase the distribution of its analytics platform. These partnerships will be with reputable capital market participants such as those they have already established including Eurex, **Risk Focus** and Tradeweb. In addition to new distribution channels, these partnerships will allow **OpenGamma** to utilize new data to improve their analytics platform.

Financing history

LATE-STAGE VC	LATE-STAGE VC	SERIES D
April 3, 2019	February 1, 2017	October 5, 2016
Deal size ($M): $10	**Deal size ($M):** Unknown	**Deal size ($M):** $15.6

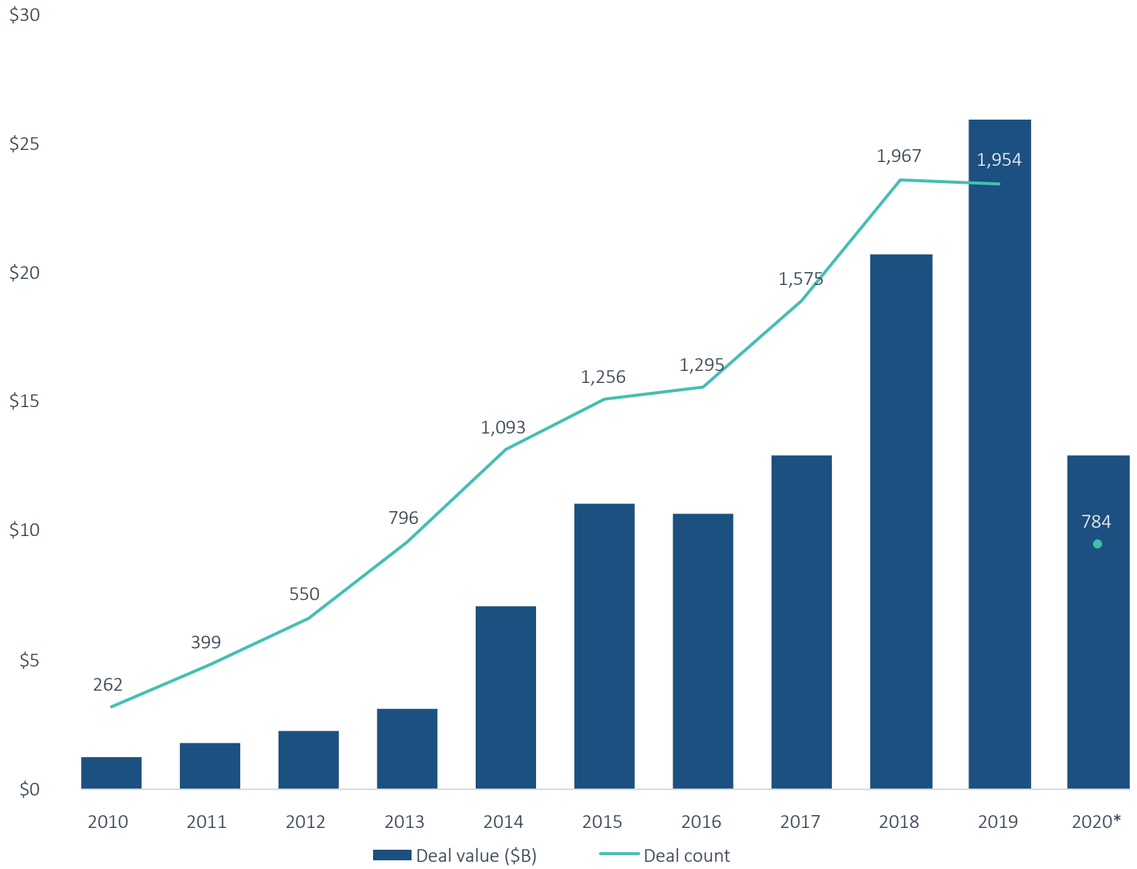
SERIES C	SERIES B	SERIES A
August 8, 2012	December 23, 2010	August 1, 2009
Deal size ($M): $15.5	**Deal size ($M):** $6	**Deal size ($M):** $2.2M
Pre-money valuation ($M): $53.8	**Pre-money valuation ($M):** $12	**Pre-money valuation ($M):** $3.2M

SUPPLEMENTAL MATERIALS

Additional VC data

Figure 65.

Fintech VC deal activity



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 66.

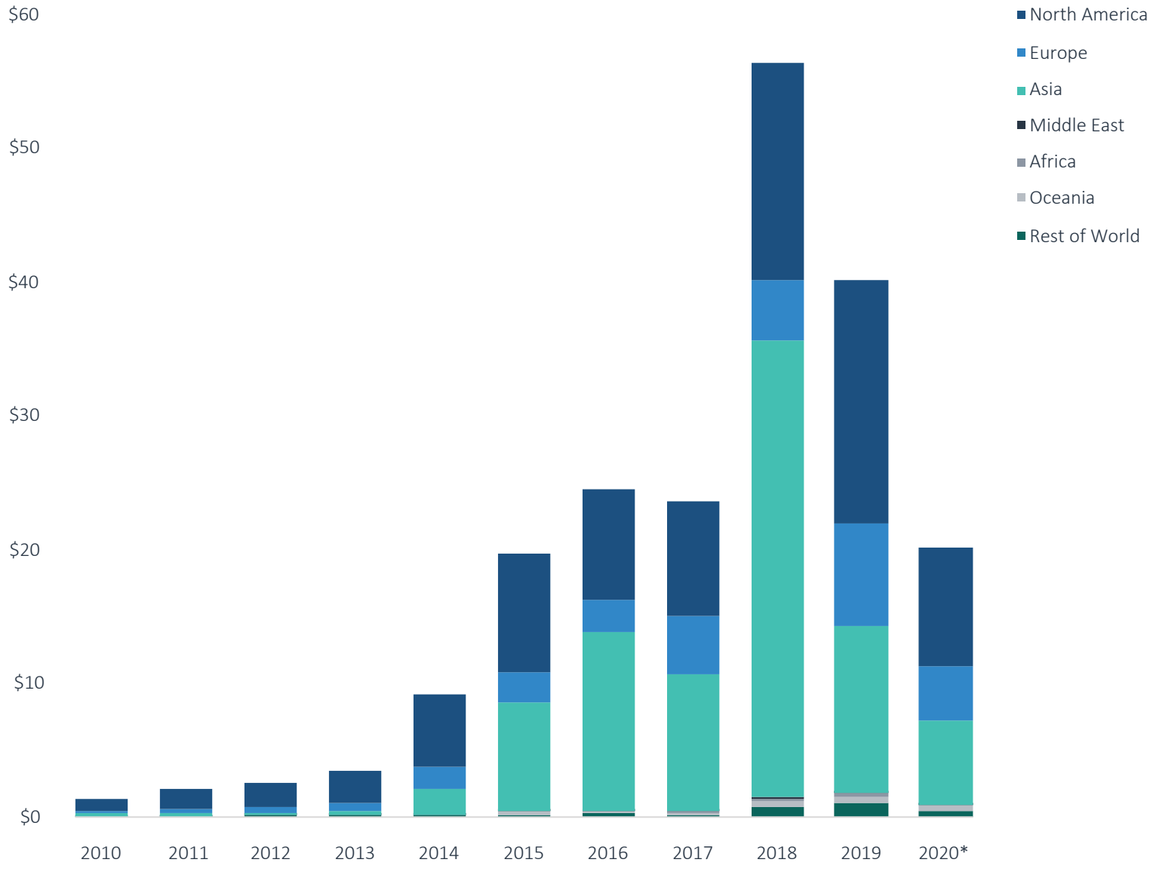
Notable fintech VC deals

COMPANY	CLOSE DATE	DEAL SIZE ($M)	POST-MONEY VALUE ($B)
SoFi	August 20, 2015	$1,000.0	$2,575.0
Stripe	April 16, 2020	$850.0	$35,150.0
Exos Financial	September 28, 2018	$750.0	N/A
Opendoor	September 27, 2018	$725.0	$1,750.0
Chime (Financial Software)	March 5, 2020	$700.0	$5,300.0
Bright Health	December 16, 2019	$635.0	$1,905.0
QuarterSpot	June 27, 2018	$598.5	N/A
N26	May 5, 2020	$570.0	$2,930.0
Zenefits	May 11, 2015	$512.6	$3,987.4

Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 67.

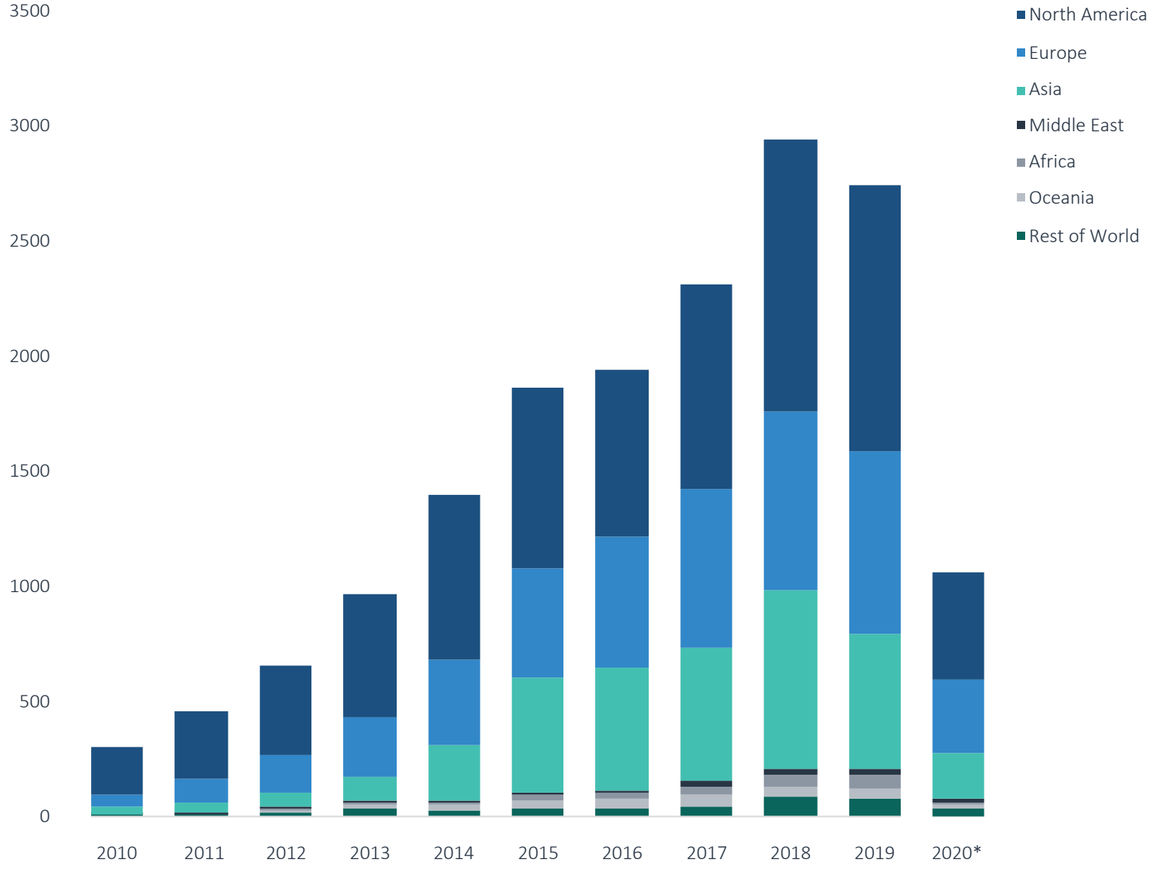
Fintech VC deals ($) by region



Source: PitchBook | Geography: Global | *As of June 30, 2020

Figure 68.

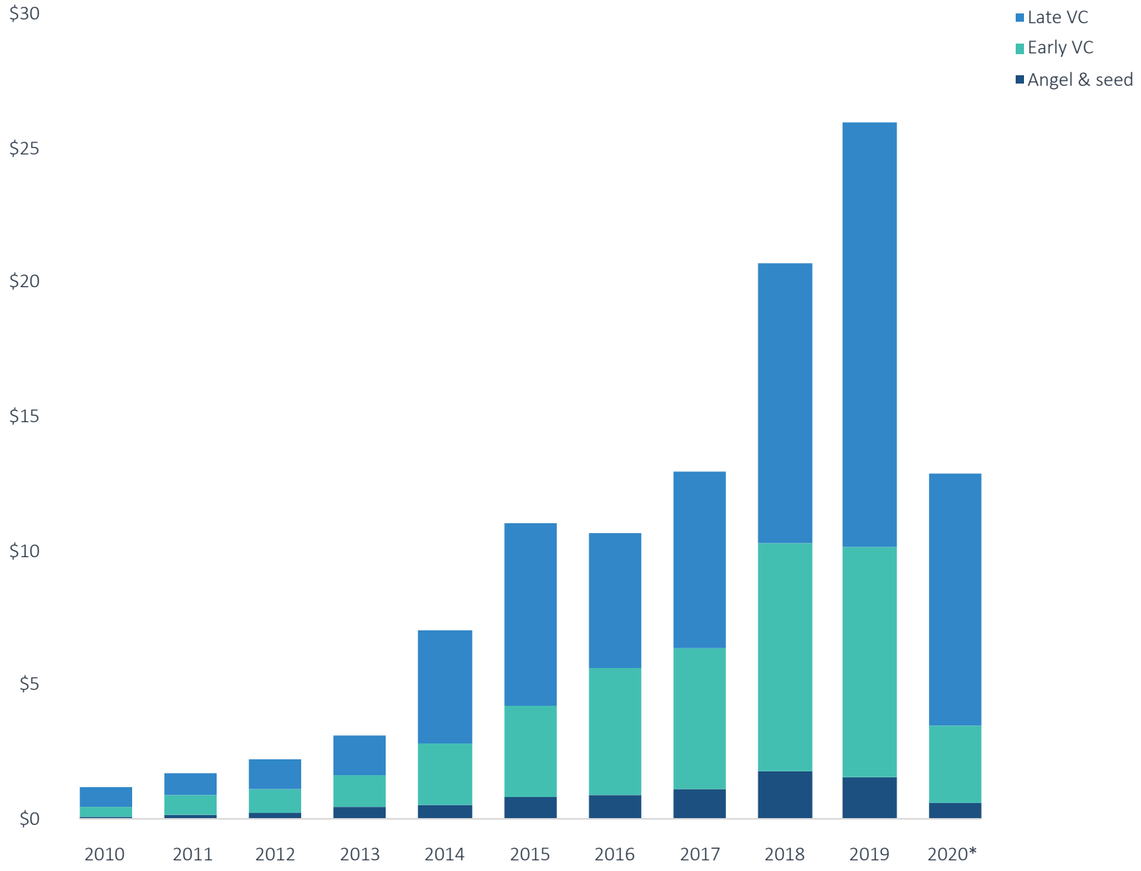
Fintech VC deals (#) by region



Source: PitchBook | Geography: Global | *As of June 30, 2020

Figure 69.

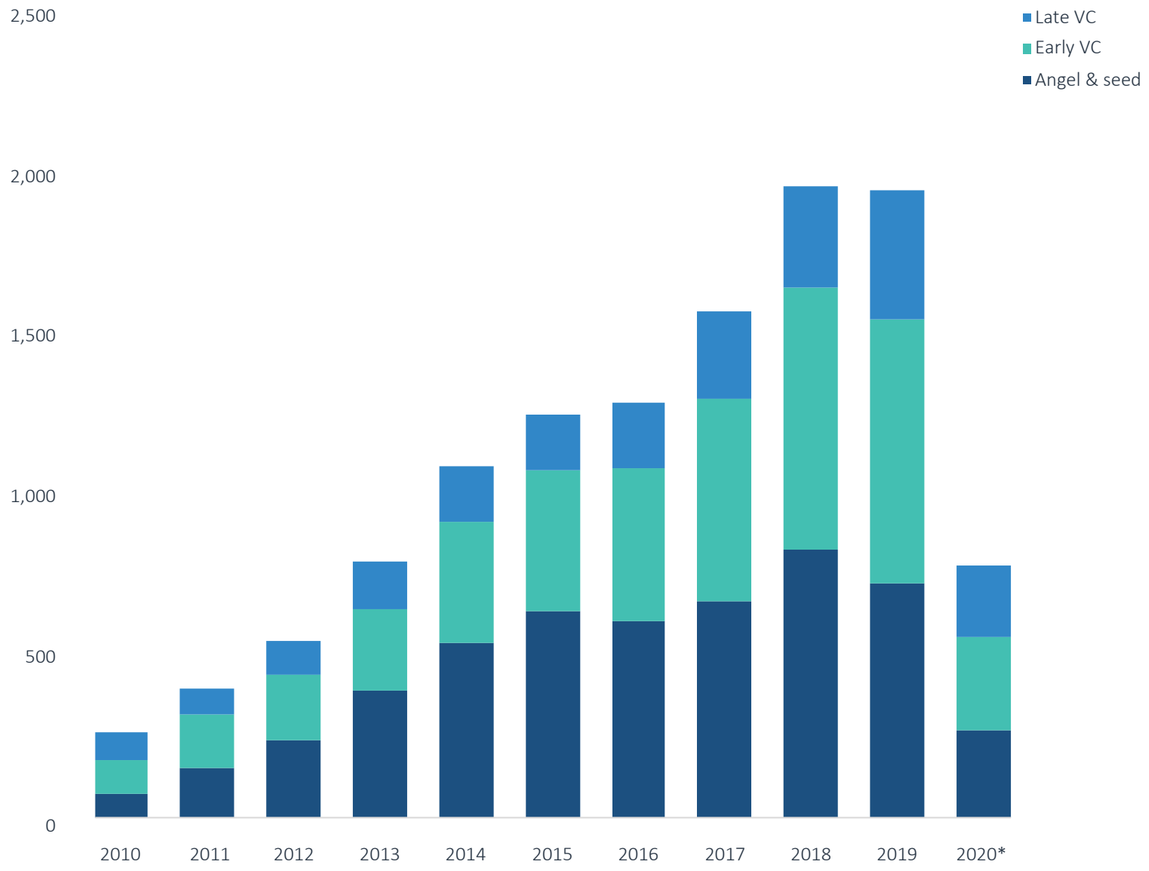
Fintech VC deals ($B) by stage



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 70.

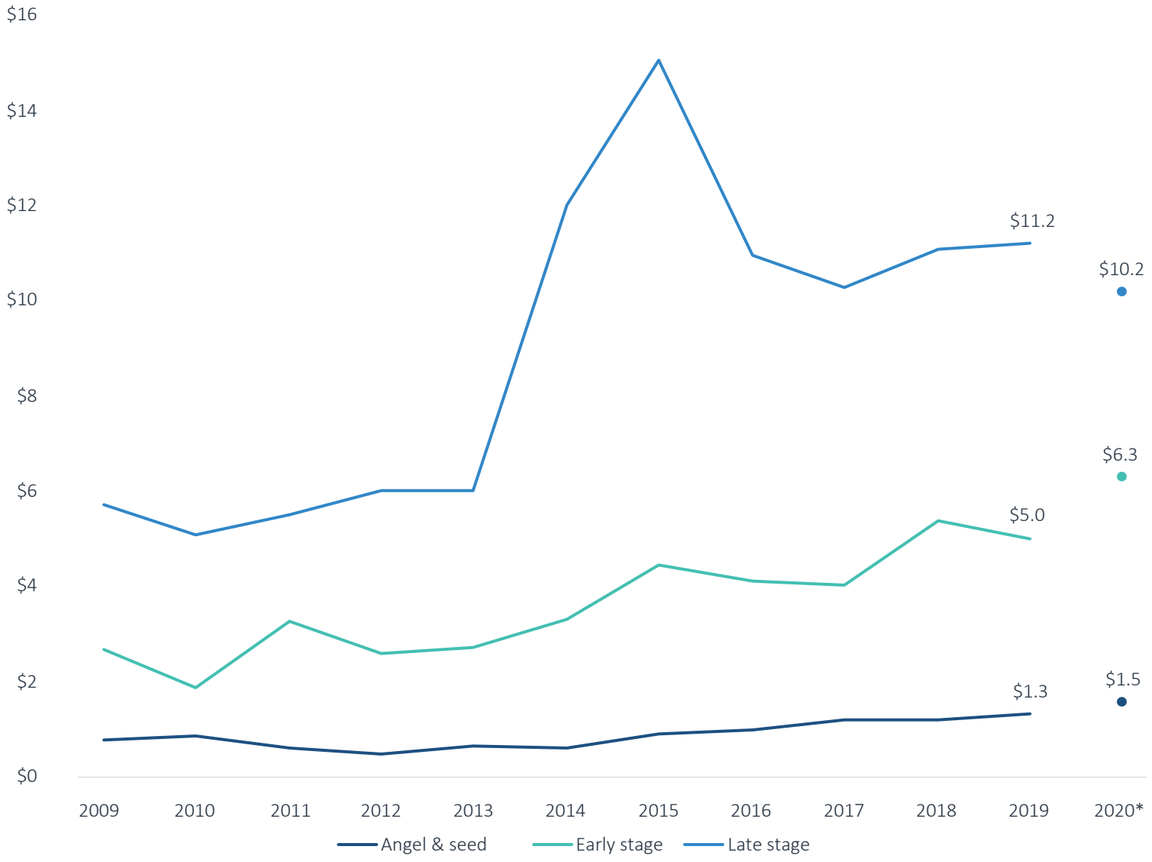
Fintech VC deals (#) by stage



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 71.

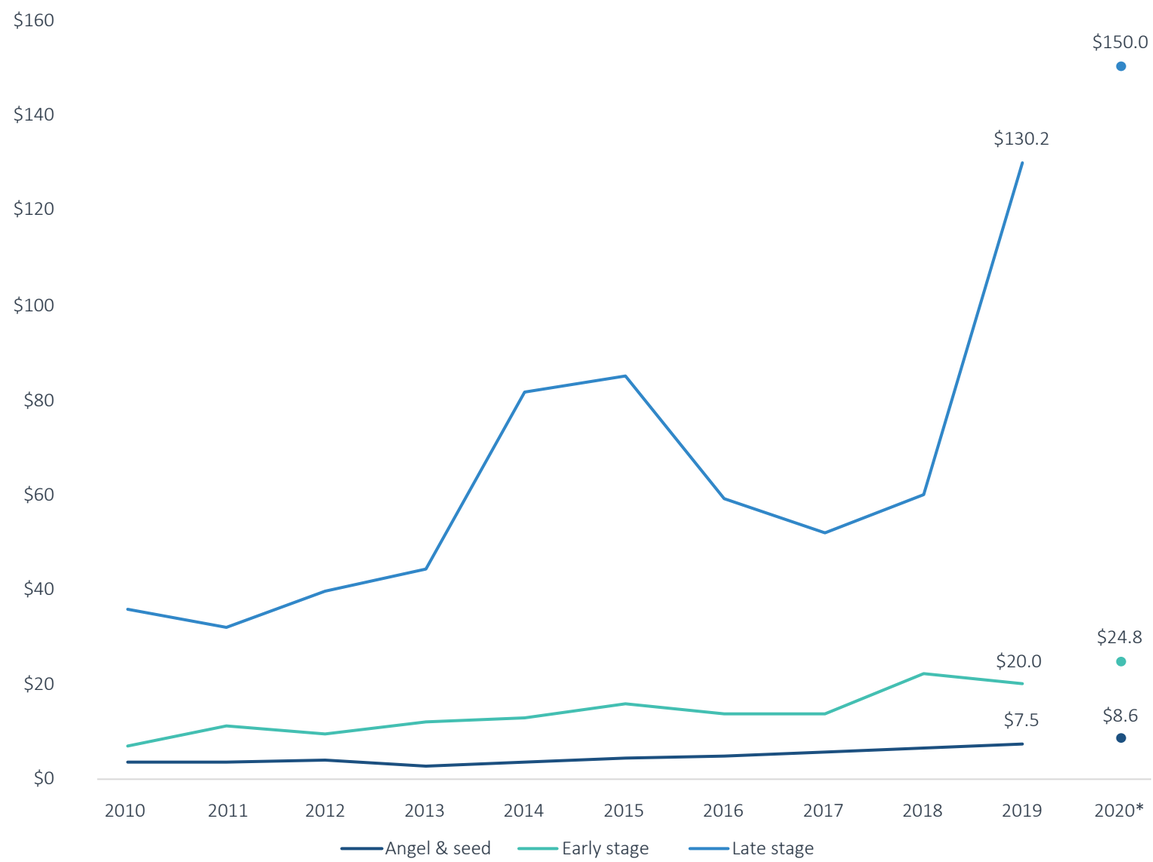
Median fintech VC deal size ($M) by stage



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 72.

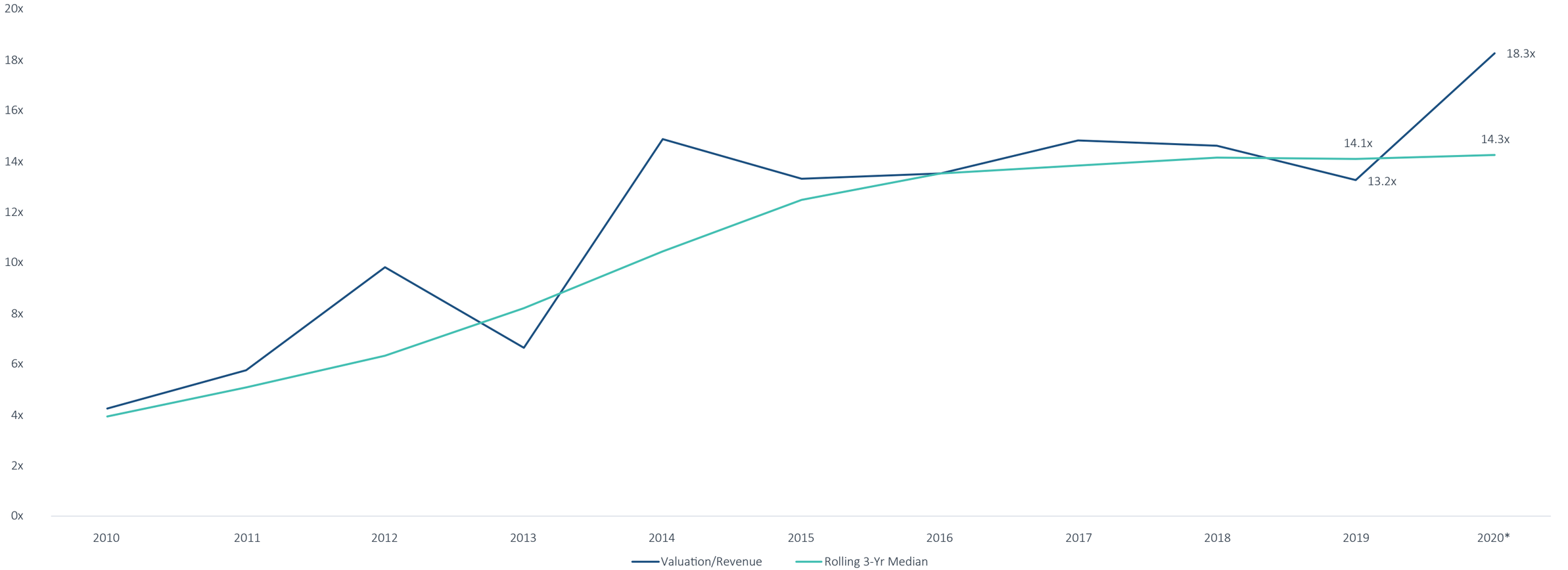
Median fintech VC pre-money valuation ($M) by stage



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 73.

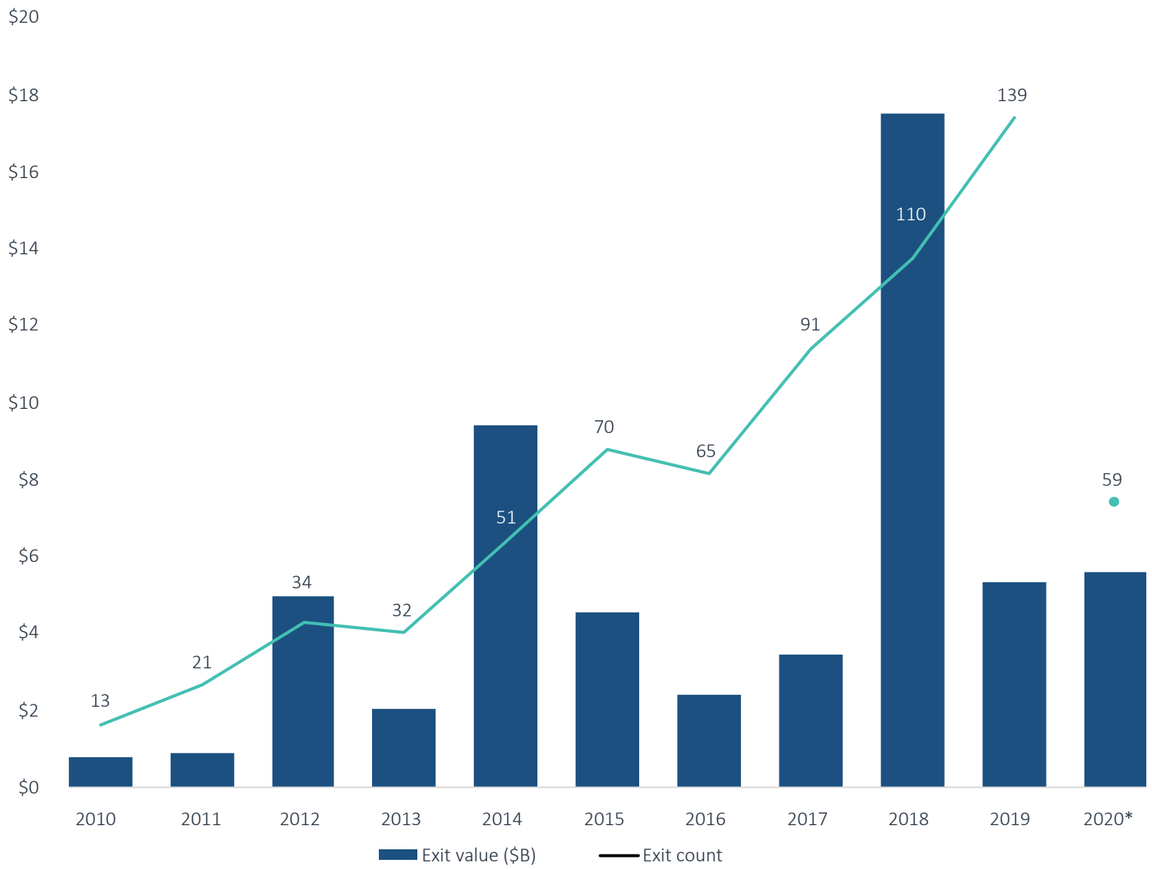
Median and rolling three-year median valuation/revenue multiple



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 74.

Fintech VC exit activity



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 75.

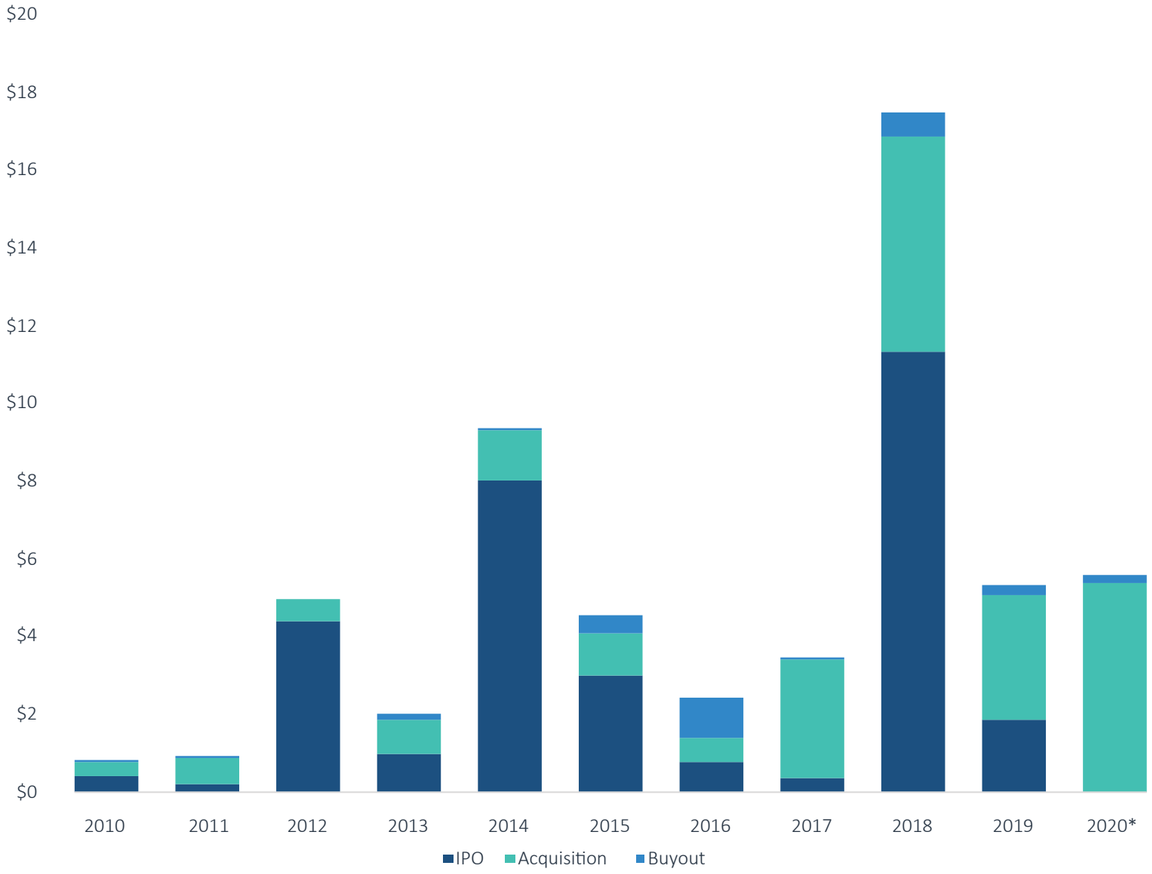
Notable fintech VC exits

COMPANY	CLOSE DATE	ACQUIRER/INDEX	POST VALUE ($M)	DEAL TYPE
Plaid (Financial Software)	January 17, 2020	Visa	$5,300.0	M&A
Bill.com	December 12, 2019	N/A	$1,552.2	IPO
InstaMed	July 24, 2019	JPMorgan Chase	$600.0	M&A
Ebury	November 4, 2019	Banco Santander	$888.4	M&A
Wave Financial	June 10, 2019	H&R Block	$399.7	M&A
Confirmation	July 19, 2019	Thomson Reuters	$377.5	M&A
Noventis (US)	January 24, 2019	WEX	$338.7	M&A
Oportun	September 26, 2019	N/A	$400.6	IPO
ClearGage	September 19, 2019	Welsh, Carson, Anderson & Stowe	N/A	Buyout/ LBO
ObserveIT	November 25, 2019	Proofpoint	$214.0	M&A

Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 76.

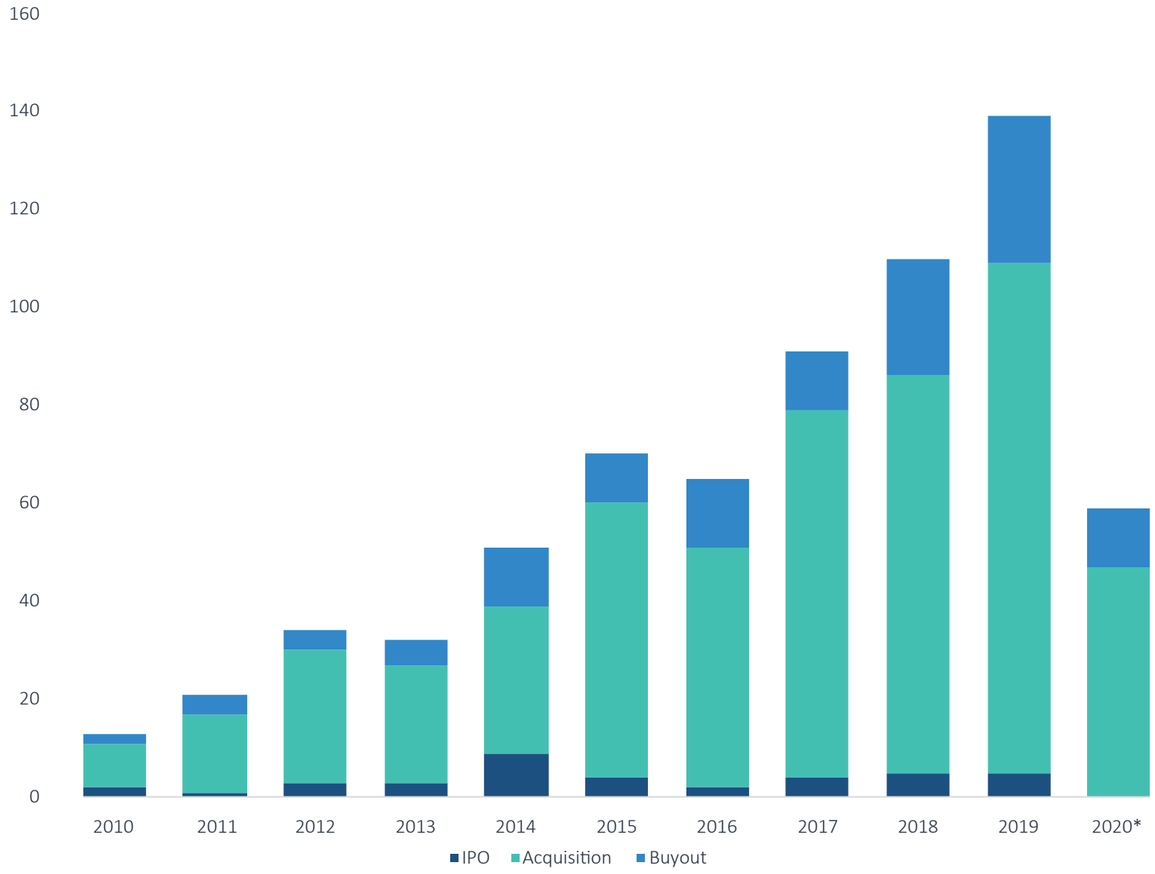
Fintech VC exits ($B) by stage



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 77.

Fintech VC exits (#) by stage



Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Figure 78.

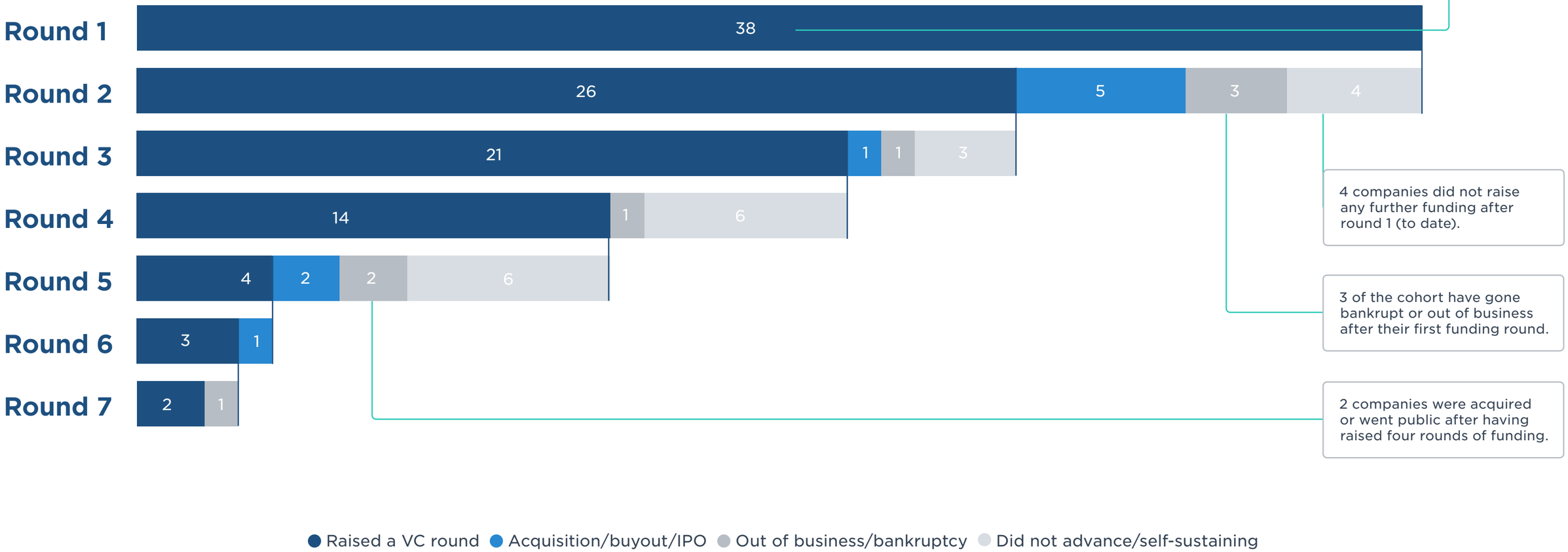
Top 10 VC investors in fintech by deal count (2009-2019)

INVESTOR NAME	DEAL COUNT
Andreessen Horowitz	115
Index Ventures	108
Anthemis Group	98
Accel	98
Khosla Ventures	92
QED Investors	87
Ribbit Capital	85
General Catalyst	81
New Enterprise Associates	79
Kima Ventures	78

Source: PitchBook | Geography: North America & Europe | *As of June 30, 2020

Fintech VC funnel

This VC funnel uses PitchBook data to analyze the VC funding life cycle by highlighting, by round, the number of firms that successfully raised a subsequent round, exited (through acquisition or IPO), went out of business or did not have a further liquidity event.



Buyers list

Figure 79.

Strategic buyers (corporations, holding companies & private companies)

INVESTOR NAME	DEAL COUNT (SINCE 2010)
Visma Group	18
SS&C Technologies	15
Thomson Reuters	15
Accenture	14
ION Group	13
IHS Markit	12
Verisk Analytics	12
Fiserv	12
First Data	11

Source: PitchBook | *As of June 30, 2020

Figure 80.

Financial buyers (PE groups)

INVESTOR NAME	DEAL COUNT (SINCE 2010)
HG Capital (UK)	45
TA Associates Management	39
The Carlyle Group	35
Kohlberg Kravis Roberts	34
Hellman & Friedman	32
Vista Equity Partners	31
HarbourVest Partners	30
Bain Capital	30
Advent International	28
The Blackstone Group	26

Source: PitchBook | *As of June 30, 2020

About PitchBook Emerging Tech Research

Independent, objective and timely market intel

As the private markets continue to grow in complexity and competition, it's essential for investors to understand the industries, sectors and companies driving the asset class.

Our Emerging Tech Research provides detailed analysis of nascent tech sectors so you can better navigate the changing markets you operate in—and pursue new opportunities with confidence.

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