PitchBook

EMERGING TECH RESEARCH

# Fintech

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# Contents



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# Fintech Market Map

## Alternative lending

### Commercial lending
Kabbage, BlueVine, lendix, iwoca, Credit Junction, taulia, ezbob, Spotcap, Internex Capital, FUNDBOX, MarketInvoice, CLEARBANC, FundThrough, lendio, DRIP/c, fleximize

### Real estate lending
LendingHome, DIVIDEND, blendlab, lendinvest, Patch of Land, CADRE, better mortgage, FIGURE, PeerStreet, REALTYMOGUL.com, ethos LENDING, HABITO

### Retail & marketplace lending
SoFi, fair, AVANT, commonbond, Prodigy Finance, LendUp, Payoff, MOSAIC, auxmoney, YIELDSTREET, lendstreet, upgrade, younited credit, FUNDATION, MARLETTE FUNDING, Upstart, SALARY FINANCE, RateSetter, Flender

### Microlending
ZIBBY, earnin, TALA, branch

### Underwriting & credit scoring
Kreditech, zestfinance, nav, CREAM FINANCE, aire, PEERIQ, NOVA

## Insurtech

### Enterprise
NEXT INSURANCE, coverwallet, at bay

### Health
oscar, Clover, bright HEALTH, alan, bind, ottonova

### General & life
Lemonade, trōv, ANCHOR INSURANCE, Ladder, ETHOS, Cover

### Origination/aggregation
wefox, COVERHOUND, BIMA, GetInsured, THE zebra, CLARK, BOUGHT BY MANY, mylo, SURE., Samlino.dk, Compare Europe Group

### Automotive
Metromile, ROOT, snapsheet, Clearcover

## Money transfer

### P2P & remittance
Revolut, WorldRemit, TransferWise, Remitly, AZIMO, DWOLLA, transferGo, currencyfair, verse, pangea, PAYSEND

### Institutional
Payoneer, flywire, Ebury, veem, iBanFirst, nvoicepay

## Personal finance

### Consumer credit
affirm, Klarna., FLEXITI, Uplift, Zebit, sezzle, Bread, Petal

### Wallets
sequent, Numbrs, Lydia, Clutch

### Digital banking
monzo, Moven, MoneyLion, N26, chime, VARO, TANDEM, monese, CAPITAL, Good Money, digit, GREENLIGHT

### Management tools
credit karma, credit sesame, nerdwallet, Borrowell, Even, smartasset, tally, PayActiv

### Loyalty & rewards
DOSH, FIVESTARS, buzz POINTS, Thanx, payForward, drop

## Wealthtech

### Retirement savings
Aspiration, Guideline, nextcapital, Facet WEALTH, forusall

### Digital advisory
PERSONAL CAPITAL, acorns, Betterment, wealthfront, STASH, nutmeg, motif, SIGFIG, Wealthsimple, moneyfarm, FUNDRISE, scalable CAPITAL, LIQID, ELLEVEST, DriveWealth

### Investment tools
raisin., tastytrade, StockTwits, BACKSTOP SOLUTIONS

### Brokerage
robinhood, eToro, STOCKPILE, Just2Trade, KAPITALL, M1 Finance

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

## Capital markets

### Alternative investments
carta, INDIEGOGO, CircleUp, Forge, crowdcube, iCapital Network, axial, Juniper Square, AngelList, SharesPost

### Trading
dough, TRUMID, iex, TRADAIR, clearpool, capital.com, kantox, GLMX

### Market data & analytics
ADDEPAR, investcloud, visible alpha, Q4, TradingView, OpenGamma, symbiont, dv01, 55ip, solovis, NOVUS, Mercatus

### Infrastructure
Digital Asset, AdvisorEngine, AXONI, PEERNOVA, CAPITOLIS, Calastone, openfin, Chart IQ

## Payments & processing

### B2B payments
TRADESHIFT, behalf, C2FO, BREX, MARQETA, qwil, PAXOS, OODA Health, qonto, 6fusion, tide, AccessPay, Recurly, FILAMENT, EXIMCHAIN

### POS platform/API
stripe, PLAID, Mozido, toast, POYNT, GOCARDLESS, PayNearMe, Currencycloud, Emergent, sumup, Rapyd, orderbird, clip, QUISK, Quantopian, Cedar, vyze, PLASTIQ, Simplee, Tabbedout, Bolt, CARTA Worldwide, safetypay, enfore, TableSafe, PATIENTCO, Payveris, SpotOn, doxo, Mobeewave

### AP/AR
divvy, Bill.com, viewpost, wave, FastPay, BAM, Tipalti, highradius, Acumatica, SCALE FACTOR, kalo, FloQast, visitpay, mineraltree, Expensify, KARMIC, SOLDO

## Digital assets

### Cryptocurrency storage & payment
uphold, Ledger, bitpay, BitGo, BLOCKCHAIN, xapo, BRD, ABRA

### Networks & exchanges
CIRCLE, Interstellar, coinbase, Bakkt, Hedera Hashgraph, DFINITY, Blockstream, bcause, LedgerX, ErisX, MOONX, SFOX, Seed, Kraken

### Crypto-services
BLOCKTOWER, BITFURY, SEBA, Algorand, BlockFi, Libra

### Cryptocurrencies
litecoin, SAGA, ethereum, bitcoin

## Financial services IT

### Banking platforms
ALKAMI, Deposit Solutions, ncino, solarisBank, MX, NYMBUS, meniga, bud.

### Enterprise architecture
SETL, r3., ondot, ohpen, Finxact, Slice, EVEN, Thought Machine

### Cloud services
INSIKT, defi Solutions, LendKey, REGENT, Groundspeed, Kasisto, socotra, divido

## Regtech

### Crime surveillance & fraud dectection
Digital Reasoning, FORTER, Shift Technology, feedzai, FEATURE SPACE, AppZen, CHAINALYSIS, NetGuardians

### Regulatory affairs
enigma, AYASDI, fenergo, HARBOR, Trulioo, IdentityMind Global, droit

### Risk management
digital shadows_, Credit Benchmark, riskalyze, ACCESS FINTECH

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



 

# Overview

As the fintech sector evolves and matures, technological innovations will continue to change how financial services are discovered, delivered, connected and implemented. During the first fintech wave of the early 2010s, early technological iterations within lending, payments and money transfer came into prominence. This second wave of fintech has been marked by accelerated developments within capital markets, financial regulations and digital assets. Due to this bifurcation, dominant first-wave fintech companies have attracted significant late-stage VC investments and are starting to gain meaningful market share. The majority of fintech IPOs over the past decade have come from companies within the aforementioned first-wave of fintech development. Meanwhile, second-wave fintech companies are seeing a greater volume of early-stage VC investments as founding/management teams with deep expertise in their respective industries continue to launch new ventures.

In 2018, North American and European investment activity sustained past trends of increased growth across VC, PE, and M&A. Some notable deals included Oscar Health's $375 million venture round, Blackstone Group's $17 billion leveraged buyout of Thomson Reuters' (NYSE: TRI) Financial & Risk business and the $13 billion acquisition of WorldPay by Vantiv (NYSE: VNTV) - now to be acquired by Fidelity National Information Services (NYSE: FIS) for $35 billion. Cumulative investment activity for fintech companies reached a record high of $120 billion last year. We expect the fintech market to remain strong and continue to experience further gains in overall investment capital this year.

This report provides an overview of the venture-backed fintech landscape in North America and Europe. The fintech market is segmented based on use-case similarity, with each corresponding segment further broken down into granular categories. While we acknowledge that some startups could belong in multiple segments or sub-segments, we have placed them within the categories that match our understanding of the primary use case. The accompanying markets maps consist of venture-backed fintech companies in North America and Europe that have raised substantial capital and gained significant traction within its respective category.



 

# Segmentation

**Alternative Lending:** Includes non-bank firms that provide all range of consumer and business loans and related services. Distribution includes direct to consumer, marketplace lending, or peer-to-peer (P2P). These providers often utilize artificial intelligence and machine learning techniques in underwriting and incorporate alternative data (eg. education history, phone records) into risk models.

**Money Transfer:** 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.

**Payments and Processing:** Includes firms that provide payments acceptance, authorization and settlement services. Providers also focus on omni-commerce enablement, fraud mitigation and transaction security. Services range from facilitating payments in brick-and-mortar and online settings, and include traditional payment network services, as well as P2P and proprietary systems.

**Capital Markets:** Includes companies providing services focused on the capital markets eco-system, including traditional bank infrastructure, trading technology, access to alternative asset markets and market data and analytics tools.

**Personal Finance:** Includes companies providing tools and services for personal financial management (PFM). PFM tools are designed to help users manage spend and budget their expenses. These companies provide services similar to traditional retail banking, such as checking accounts, savings accounts, debit cards, and credit cards. They also may provide revolving credit accounts or loyalty and rewards services.

**Digital Currency:** Includes startups developing digital assets based on distributed ledger technologies such as blockchain. These digital assets act as an electronic cash system that is independent of central management, where transactions are secured and confirmed via cryptography and consensus mechanisms. Products include cryptocurrencies, cryptocurrency wallets, payments, services, networks and exchanges.

**Regtech (Financial Services):** Includes firms developing solutions to standardize and automate regulatory compliance, enabling enterprises to focus on core competencies and better control risk exposure.

**Financial Services IT:** Includes companies that provide core technology solutions intended to help banks improve internal operations while offering modern banking products to customers. Products include cloud-hosting platform, online and mobile banking applications and infrastructure modernization services.

**Insurtech:** Includes companies applying emerging technologies across the insurance eco-system. These technologies focus on the the ability to personalize insurance products, improve customer acquisition, apply dynamic risk assessment models and streamline claims management.

**Wealthtech:** Includes companies that provide alternatives to traditional in-person wealth management. Products include online investment platforms, automated investment and “round-up” services, low or no-fee investment products, asset diversification platforms and robo-advisor services.



 

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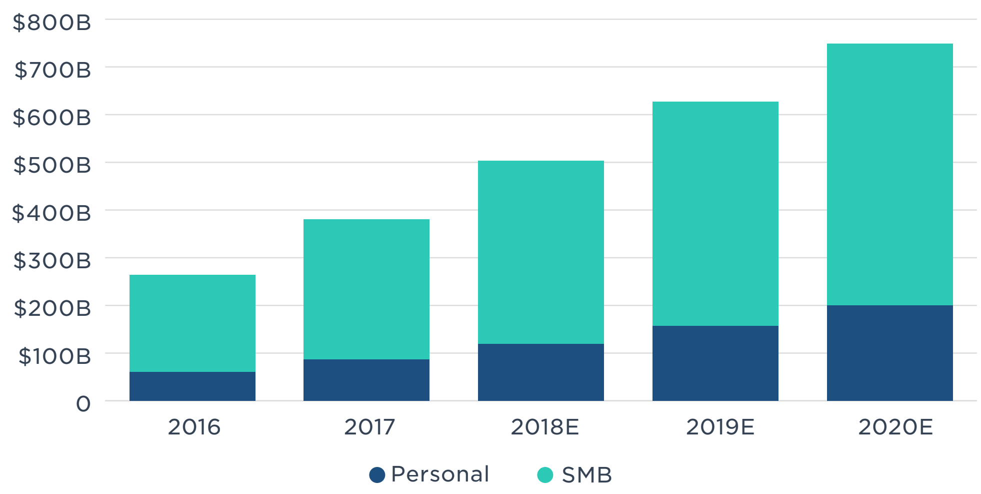
# Alternative Lending

## ALTERNATIVE LENDING

### MARKET SIZE




*Source: Statista. Represents total estimated outstanding personal and small-mid size business loan debt in the US.*

### BUSINESS MODEL

Attractive characteristics of the space include: above average risk-adjusted returns (higher Sharpe ratios[1]), differentiated underwriting technologies and slow moving incumbent competitors.

Companies in the space monetize principally by originating loans and charging fees for that service.

- Charging interest and/or fees on direct lending
- Take-rate in marketplace lending
- SaaS-based models for underwriting and credit-related services

*1 An Introduction to Alternative Lending, Morgan Stanley, July 2018*

### KPIS

- New Originations
- Origination Margin
- Cost of Capital
- Pricing (APR)
- Credit Risk (delinquency rate, average credit score of new applications)
- Unpaid Principal Balance
- CAC (Sales and marketing as a % of originations)

### KEY PROVIDERS

AVANT, Kabbage, kreditech, LendingHome, Prodigy Finance, ZIBBY

### KEY INVESTORS

Blumberg Capital, Ribbit Capital, khosla ventures, Thomvest Ventures, Lightspeed, TVP Tribeca Venture Partners

### NOTABLE DEALS

SWIFT CAPITAL

September 2017
**$183M M&A**

Acquired by:

PayPal

iwoca

February 2019
**£150M Series D**

Investors:

Augmentum, Prime Ventures

### INDUSTRY DRIVERS

- Lack for regulations (such as capital requirements) for non-bank lenders
- Banks unwilling to lend to various consumers and SMEs; Large, untapped base of no-file and thin-file borrowers
- Better methods to gather and analyze unconventional data  to improve credit risk models
- Investor demand for alternative credit asset class in search of yield and diversification

## Opportunities

**Greater efficiency and speed with lower cost:** The traditional lending model of banks, which take in deposits to fund loans to consumers and businesses, are under siege. New technologies in this space have lent (pun intended) new entrants an opportunity to disrupt this traditional model and provide consumers and businesses with loan products that have significantly faster credit decisions, lower fees and competitively priced interest rates. In addition, limited regulations for alternative lenders (such as capital reserve requirements) and non-existent legacy infrastructure (i.e., physical branches) provide significant advantages over legacy banks.

**Securitization creates new asset classes:** To date, the seven top marketplace lending companies such as Lending Club, SoFi and Upstart have issued a cumulative $35.6 billion in securitized consumer and student loans. Cumulative marketplace lending securitizations increased 52% YoY[1] in 2018 and this trend is expected to continue. One key driver of investor-demand is the above-average yield such securitized products provide due to one key difference: many marketplace lenders tend to forgo ratings and registrations common with other securities, including opting to forgo official ratings from credit rating agencies such as Fitch, Moody's or S&P. The lack of registration makes investing in these types of securities impossible for some investors (e.g. retail investors).

**Product diversification expands market share:** Client retention is critical for alternative lenders not only to continue driving revenue from loan origination and servicing, but also in order to drive cross-selling strategies into additional retail banking services. For example, SoFi has expanded from their core product of student loans into mortgage lending and wealth management. With a built-in customer base to offer these more extensive services, new product offerings will help drive revenue growth without excessive sales and marketing spend, and allow alternative lenders to further take market share from incumbent banks.

1 *Marketplace Lending Securitization Tracker, PeerIQ, 2019*

## Considerations

**Credit cycles and rising interest rates can hamper growth:** Increasing interest rates may drive institutional investor capital away from alternative lending and towards traditional and proven asset classes like corporate bonds. One reason for this is that, historically, an increase in interest rates tends to be followed by a rise in delinquencies as rising variable rates put upward pressure on defaults. Investors can expect that development to continue as interest rates globally continue to rise. 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:** Consumer and commercial credit are subject to extensive state and federal laws, as well as regulations from other non-governmental agencies intended to protect consumers (e.g. data security, privacy, and anti-money laundering laws). Currently, there are no specific regulations that cover marketplace lending or other alternative lending models. However, this light-touch regulatory environment could change in the future, especially if alternative lending products and services result in any significant harm to consumers or investors. New regulation could become a significant barrier to entry for scrappy startups lacking time and resources to fight extended legal battles with regulatory bodies.

**Other considerations:**

- Unique underwriting models that may not be tested through cycles require added due-diligence.
- Increased competition from large incumbents (e.g. Goldman Sachs' Marcus, a new online consumer-lending product) presents a growing challenge for smaller players.
- The relatively less stable funding source (equity and debt investors) relative to legacy banks (deposit accounts).



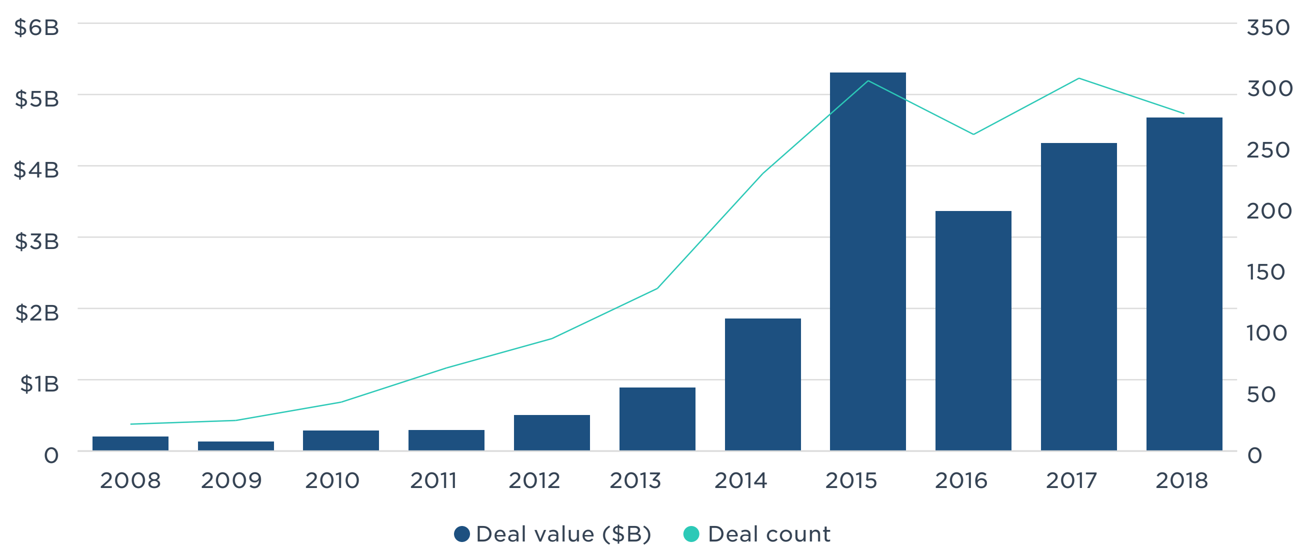
## Outlook

**Maturing industry may strengthen as it is cycle-tested:** Following record M&A in 2017 and several high-profile scandals from both private and public alternative lenders, we believe the glow of marketplace lending faded somewhat in 2018. Still, despite these setbacks, loan volume growth has continued to expand, and alternative models continue to proliferate. Given the many potential efficiencies of marketplace lending (i.e., automated data collection, streamlined decision-making, technology-powered credit decisions), we expect this segment will continue to grow in importance. However, as many of these businesses have yet to experience a recession, more data points through economic cycles may be needed before valuations can start to improve.

**Regulations will drive consolidation:** We expect increased regulatory scrutiny of alternative lenders. Regulatory viewpoints are currently ambiguous as last year, different branches of the Federal Reserve released dichotomous viewpoints of the industry. The Cleveland Federal Reserve stated that the industry's lending practices were "predatory" and in need of "additional regulation," while the Chicago and Philadelphia Federal Reserve branches stated that alternative lenders provided "significant value to consumers and small business owners." In the EU, the EBA has stated that it recommends legislators provide clarity on laws related to lending-based crowdfunding. Moving forward, we expect further regulatory clarity over the near to mid term, which may increase alternative lenders' compliance costs, pressuring margins. This could ultimately drive more consolidation.

**Investments will continue to decline:** With a high of $5.31 billion of venture capital invested in 2015 and $4.68 billion invested in 2018, we expect investment levels to steadily decline as the alternative lending industry further matures. Many of the first movers in this segment have already exited via the public markets (e.g. LendingClub, OnDeck, Funding Circle) with a few others expected to do so soon.

**VC Deal Flow in North America and Europe**



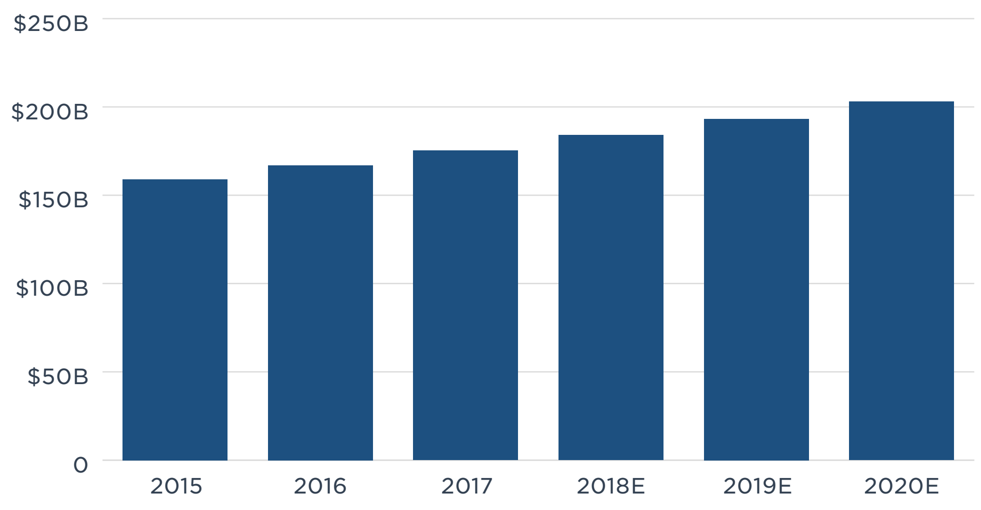

*Includes companies that may fall into multiple fintech segments*

SEGMENT DEEP DIVE

# Capital Markets

# CAPITAL MARKETS

## MARKET SIZE




*Source: McKinsey, Pitchbook estimates. Represents estimated global revenue of capital markets infrastructure providers.*

## BUSINESS MODEL

Attractive characteristics of the space include: Appealing operating margins driven by process automation, highly demanded services, and high switching-costs due to IT integration and change management.

Companies in this segment operate under various business models:

- Software licensing for deployment on client servers and systems
- SaaS solutions hosted on the cloud and is regularly maintained by technology provider
- Fee-based usage such as percentage per trade or per dollar raised

## KPIS

- Customer Retention
- Customer Penetration
- Switching Costs
- Churn Rate
- Viability Ratio (LTV/CAC)
- Return on Equity (ROE)

## KEY PROVIDERS

AXONI · Digital Asset · AngelList · iex

## KEY INVESTORS

Accel · edisonpartners · NEX Opportunities · INSIGHT VENTURE PARTNERS · PIVOT INVESTMENT PARTNERS · USV

## NOTABLE DEALS

IPREO

August 2018
**$1.9B M&A**

Acquired by:

IHS Markit

Forge

November 2018
**$85M Series B**

Investors:

Munich RE and others

## INDUSTRY DRIVERS

- Falling revenues within capital markets institutions due to fee compression and stagnant volumes.
- Incumbents seeking to leverage emerging technologies to improve operations.
- Need to standardize risk and compliance processes.
- Regulatory focus on asset values increases need for better transparency and reporting.

## Opportunities

**Technologies are delivering change:** Since the financial crisis, legacy financial institutions such as investment banks, hedge funds, brokers, clearing houses, exchanges and other capital market participants have endured numerous challenges including stagnant revenues, high structural costs and diminishing returns on equity (ROE). To combat these trends, providers are increasingly looking for ways to adopt emerging technologies to help evolve their business models and reduce cost structures. As these technologies (i.e., cloud-based data analytics platforms, trading software, alternative stock exchanges) have become more deployment-ready, we've seen more segment-wide collaboration, facilitation and implementation of new technologies.

**Incumbents willing to form partnerships:** Capital Markets incumbents are increasingly viewing fintechs as strategic partners and seeking ways to develop products via collaboration, investment or both. Increasingly, incumbents have recognized that partnerships are a cheaper and less risky way to improve time-to-market. It has also allowed fintechs to quickly deploy and validate their business models while integrating into the capital markets value chain.

**Potential for industry-wide adoption:** We believe digital solutions within this segment are still largely fragmented as capital market firms test various emerging technologies. However, solutions and technologies widely adopted by major capital markets participants (e.g. bulge bracket banks) can become standardized across the industry, as participants seek to coordinate processes, controls, and protocols to not only protect their respective businesses, but to mitigate potential systemic risks (a unique pain-point of the financial industry). As solutions mature and the segment becomes less fragmented, market leaders will likely emerge with standardized, scalable applications that could result in a "winner takes most" environment.



## Considerations

**Complexity leads 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 organizations which can require substantial decision and onboarding time—extending sales cycles—and face high barriers to adoption. In addition, fintechs may struggle in negotiating with capital market incumbents due to the latter's long procurement cycles which may make sales cycles seem secular rather than cyclical.

**Change may not be swift enough:** Many incumbent capital markets firms have existed under decades- or even century-old business models, which can result in workplace cultures that are resistant to change. While firms are making efforts to help transform internal cultures, this transformation may not be quick enough for fintechs with ready-to-deploy technology. Fintechs in this segment will need to clearly state their technological purpose, the immediate pain point that they are trying to solve, and the specific business case to incumbents in order to facilitate a faster pace of adoption.

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

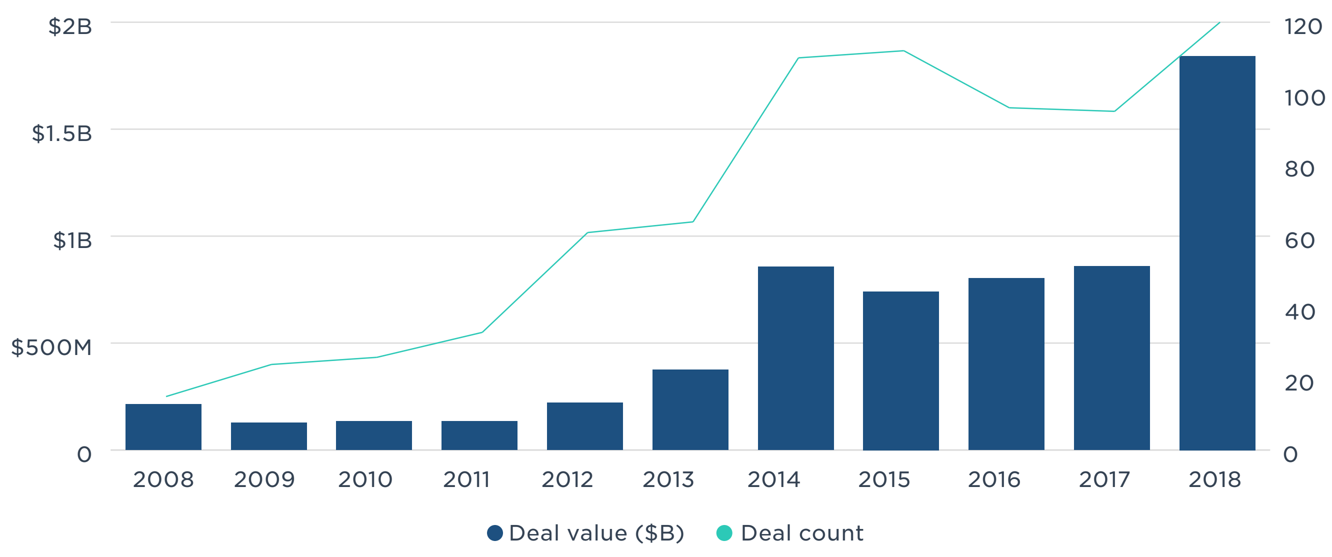
## Outlook

**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 fintechs that fit the incumbents' digital innovation strategies. We consider collaboration as the best approach for both fintechs and incumbents in this segment. For instance, the Depository Trust & Clearing Corporation (DTCC), the largest post-trade clearing and settlement servicer, has partnered with upstart Axoni to build a distributed ledger technology (DLT) framework to automate and reduce the cost of derivatives processing. 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 fintechs.

**Incumbents outsource whole functions (BPO):** In some cases where technological implementations may be too costly, complicated or time consuming, we expect capital markets 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. The drivers to outsource these functions include efficiency, cost reduction and regulatory challenges. While large legacy BPO providers can offer many of these services, we believe fintechs may be well positioned to benefit from this trend.

**Venture capital investments continue to increase:** Venture capital investment into capital market fintechs have increased dramatically since the global financial crisis, from $376 million invested in 2013 to $1.8 billion invested in 2018. We expect this trend to continue as financial incumbents continue to seek new technological solutions and investors see continued opportunity to provide new products and services.

### VC Deal Flow in North America and Europe



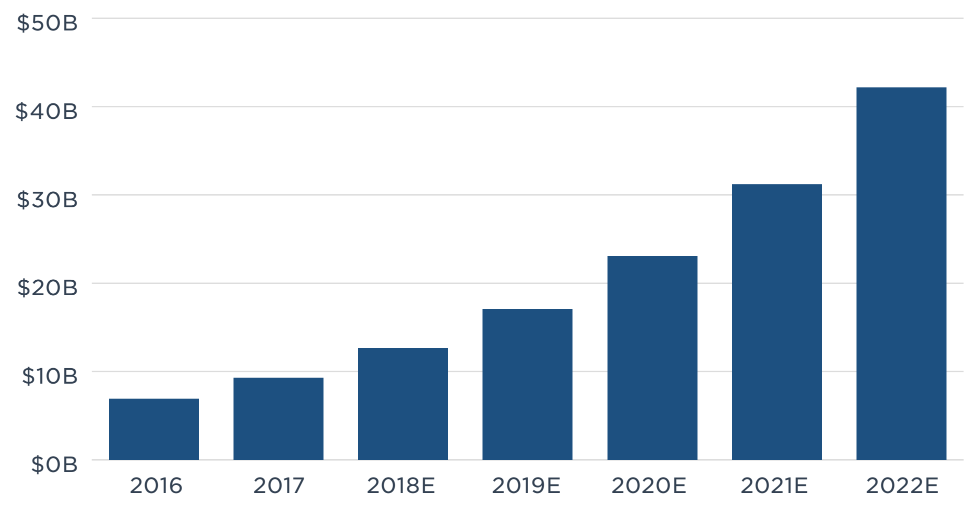

*Includes companies that may fall into multiple fintech segments*

SEGMENT DEEP DIVE

# Digital Assets

# DIGITAL ASSETS

## MARKET SIZE




*Source: Infoholic Research. Estimated global revenue of cryptocurrency service providers.*

## BUSINESS MODEL

While the digital asset eco-system is still very nascent, primary business models include:

- Services that store, transfer, or process cryptocurrencies and charge purchase fees, recurring service fees or transaction fees.
- Networks or exchanges that processes transactions and charge commission.

## KPIS

Cryptocurrencies

- Price Volatility
- Hash Rate
- Velocity (Daily, Quarterly)
- Fee Percentage
- Transactions/Block
- Output value

Cryptocurrency Servicers

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

## KEY PROVIDERS

bitpay BlockFi coinbase ripple SAGA uphold

## KEY INVESTORS

BLOCKCHAIN CAPITAL, DIGITAL CURRENCY GROUP, IDG Capital, Lightspeed, RRE Ventures, PANTERA

## NOTABLE DEALS

POLONIEX

February 2018
**$400M M&A**

Acquired by:

CIRCLE

Bakkt

December 2018
**$182.5M Series A**

Investors:

BCG Digital Ventures and others

## INDUSTRY DRIVERS

- Wide ranging potential use-cases (hype vs. reality).
- Investor speculation and easily accessible crypto-exchanges.
- Continued digitization of economies and need for secure, rapid movement of assets.
- Economic crises driving adoption (eg. hyperinflation in Venezuela).
- Businesses and governments recognizing potential benefits of crypto-payment schemes.



## Opportunities

**Money is going digital:** The growth of digital technologies is driving significant changes to the financial system and challenging the role of money in the payments system. Digital/cryptocurrencies and assets provide an alternative to traditional fiat exchange, presenting a stateless, low-fee, instant settlement solution that functions via the internet and is available to all consumers. These types of digital assets can provide improvements to how money is traditionally used, such as reducing fees associated with cross-border payments, providing real-time settlement of transactions and eliminating the costs of handling cash. While crypto technology remains controversial and adoption is minimal, we believe it poses a unique opportunity for investors given its long-term potential to impact the global financial eco-system.

**Rapid growth presents opportunities:** Digital asset-related ventures are currently among the fastest growing fintech segments given the high rate of newly formed companies and venture capital participation (i.e. invested capital volume, deal count, and crypto-focused funds). Still, the we believe the eco-system remains fraught with frictions, and point to ongoing issues including high volatility, transaction delays, price manipulation, low merchant acceptance and security. Fintechs that can add value in these areas, for example by providing transparent and compliant storage solutions or easy back-end settlement processes, may be of most interest to investors.

**Impact of digital currencies:** Use cases for digital currencies are still nascent but include commerce, trade settlement and store of value. We believe commerce use cases remain relatively fledgling given the high volatility of digital currencies and non-standardized settlement systems. Store of value uses are more mature, in our view, as this entail buy-and-hold strategies for which the eco-system is more developed. Trade settlement could be the first more practical use-case to emerge, given the rise of “stablecoins”, which can be pegged the price of commodities, currencies or other assets. Stablecoins could facilitate more rapid asset exchange, and may face lower regulatory barriers as they effectively represent existing assets (not new ones) that are already regulated.

## Considerations

**Regulatory uncertainty is growing:** G iven the lack of clear regulation and guidance, we view regulatory uncertainty as a major concern. Governmental regulatory bodies, such as the SEC or FSB, are generally reactive rather than proactive when it comes to regulation. The SEC currently maintains a relativley 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. Thee 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:** Scalability remains a key obstacle to crypto adoption. For example, blocks on the Bitcoin blockchain are limited in size and frequency (based on inter-node latency logarithmic limits), which holds transaction processing rates to a maximum of only 3.3 to 7 transactions per second. This is extremely slow when compared to current payment systems, such as Visa, which processes about 1,700 transactions per second with a theoretical limit of processing 24,000 transactions per second.

**Numerous other risks prevent viable usage:** Operational failures, security breaches, fraud and the perception the cryptocurrencies are primarily used for illicit activities present significant barriers to adoption. While we don't believe all these issues need to be fully resolved before consumers will use cryptocurrencies, they nonetheless need to appear more resolved than they currently are. We note these adoption hurdles may be more meaningful in developed economies with stable financial systems, whereas countries lacking financial infrastructure may view crypto systems as more viable.



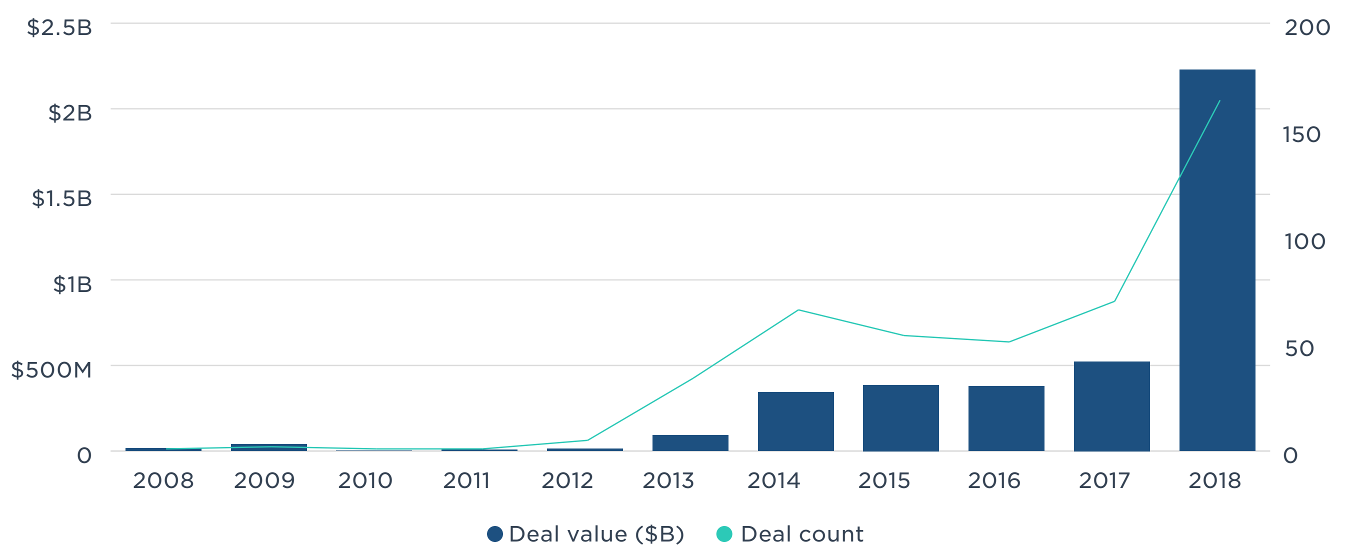
# Outlook

**Governments will become stakeholders:** We expect that governments will become more involved with technologies related to this segment, in terms of either evaluating the advantages of potentially switching to a digital central bank currency, or in terms of increaed regulation of existing cryptocurrencies. Countries like 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. These centralized digital currencies could have better protections against issues like theft and fraud that are currently experienced with cryptocurrency.

**Regulation will promote innovation:** We expect the current generation of cryptocurrencies, like Bitcoin and Ethereum, 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, we expect the volume of ICOs to slow down as regulators clamp down and issue additional rules, even after a record year, in terms of ICO count and capital raised, in 2018. 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 currently sitting on the sidelines due to regulatory uncertainty.

**Invested capital will increase by orders of magnitude:** We anticipate investment in this space will continue to experience rapid growth. Total VC flows totaled $2.2 billion in 2018, up from $523 million in 2017. We expect venture capital investors and other traditional investors (e.g. hedge funds, family offices) will continue to experiment with holding some cryptocurrency assets even prices have fallen from the historical peaks of 2018. Participation by institutional investors could provide some level of support for the asset class in the near term and could be the driving catalyst for growth during the next bullish cycle.

**VC Deal Flow in North America and Europe**



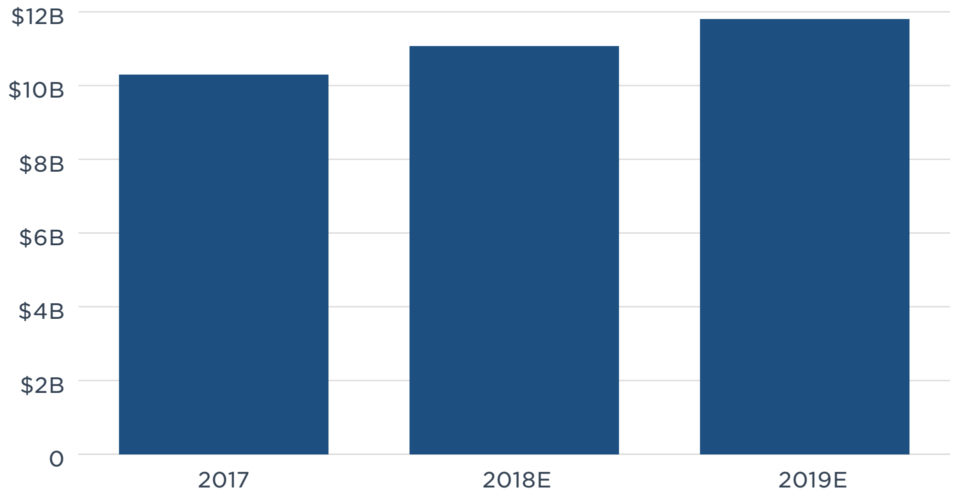

*Includes companies that may fall into multiple fintech segments*

SEGMENT DEEP DIVE

# Financial Services IT

## FINANCIAL SERVICES IT

### MARKET SIZE




*Source: TechNavio. Estimated global revenue of bank software providers.*

### BUSINESS MODEL

Attractive characteristics in this space include a large potential customer base and the need to update legacy banking infrastructure to meet the demands of today's digital consumers.

Companies in this segment operate under various business models:

- Cloud-based SaaS solutions
- Platform banking or white-labeled online and mobile banking platforms. Also known as Banking as a Service (BaaS)
- Partnerships with financial institutions with upfront implementation and ongoing charges

### KPIS

- Lifetime Value (LTV)
- Customer Acquisition Costs (CAC)
- Viability ratio (LTV/CAC)
- Monthly Recurring Revenue (MRR)
- Churn (Logo, Dollar, Net Dollar)
- Average Contract Value
- Payback Period

### KEY PROVIDERS

ALKAMI, defi SOLUTIONS, DEPOSIT SOLUTIONS, ncino, solarisBank

### KEY INVESTORS

Chrysalis, CV Commerce Ventures, DFJ, finleap, e.ventures, propel Venture Partners

### NOTABLE DEALS

IntegraFin

February 2018

**£177.6 IPO**

r3.

May 2018

**$122M Series A**

Investors:

BAML, SBI, HSBC

### INDUSTRY DRIVERS

- Consumers expecting banking services to more closely resemble the other digital services they use (i.e., communication, commerce, entertainment).
- Banks seeking to automate back-end processes.
- Open Banking directives and initiatives across most major markets driving new opportunities for innovation and competition.
- Improved cloud infrastructure enabling banks to utilize off-premise computing services while maintaining compliance and risk standards.



# Opportunities

**Banks are digitizing the back office:** 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 to be done when it comes to modernizing the middle- and back-office. On average, it estimated that retail banks have between 300 to 800 back-end processes used to track, monitor and manage their customers.[1] These operations, such as loan processing, suitability testing, compliance and HR remain largely manual, which makes them more prone to errors, slow, and hard to scale. Fintechs focused on IT operations within the bank are helping financial institutions sort through the arduous task of categorizing these processes, isolating them and finding ways to introduce more automation to reduce costs and drive scale.

**Open Banking will deliver new business models:** We believe Open Banking initiatives present significant opportunities for fintechs and incumbents to offer new financial services, improve customer experiences and discover new revenue opportunities. For example, the EUs open banking rules, also known as the Revised Payment Services Directive (PSD2) obliges banks to make customer data available to permissioned users in a secured, standardized format via application programming interfaces (APIs). By making data a more consumer-owned asset, as opposed to a bank-owned asset, we believe these rules level the playing field and open the door to fintech innovation.

**Banking-as-a-Service (BaaS) potential to become standard:** In recent years, BaaS has emerged as an important tool for banks seeking to improve their product pipeline in an asset-light manner. BaaS is an effective means for banks to quickly integrate new products in a more seamless manner, and for fintechs to provide value-add financial services to their customers. We identify two BaaS models: Under the first model, banks provide security, compliance and authentication services (back-end services) that help fintechs over financial products. In this model, fintechs own the customer relationship. Under the second model, fintechs provide white-label online and mobile banking services to help banks to help them modernize their offerings. In this model banks maintain the customer relationship with fintechs supplying the technology. BaaS also provides a unique platform for non-banks to offer banking products, such as debit cards or spending accounts for their customers.

1 *"Automating the Back Office: How BPM can help improve productivity in the back office," Tibco, 2011*

## Considerations

**Legacy systems and small IT budgets:** For many banks, the complex layers of legacy infrastructure can be difficult to isolate and automate and this can lead to many banks simply sticking with what they know. Additionally, relatively small IT budgets for many banks can prevent major capital spend on tech innovation. These challenges extend sales cycles for fintechs and underscore the importance of having easy-to-integrate “light-touch” solutions that require minimal up-front investment.

**Tendancy 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 leaves them more likely 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 for new IT startups to crack the market.

**Handling sensitive data comes with high risks:** When it comes to sharing data, as with Open Banking, there are inherent risks to data protection, security and privacy, and it is often unclear which party is responsible for the custody and protection of that data. Fintechs could be liable for customer banking data, which faces substantial cybersecurity risks from hackers and cybercriminals across the globe. Continued financial and data protection-related regulation also adds complexity and increases the risk of reputational and financial loss.



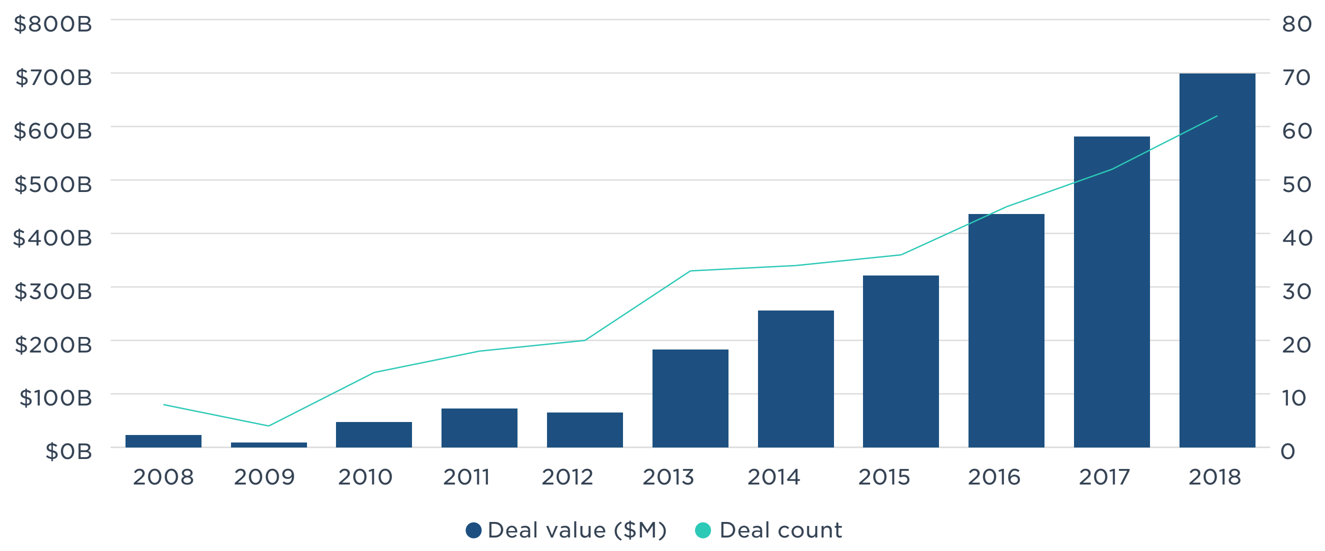
# Outlook

**Banks will continue to seek incremental tech evolution:** We believe banks looking 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 in-house capabilities. 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 the speed-to-market of new technologies, they continue to rely on the stability and security of existing platforms, and this will keep growth in the market relatively muted.

**BaaS model will be widely adopted:** We expect the adoption of BaaS will continue to grow as these platforms provide an easy way for banks to offer new products and services (even at the risk of some customer disintermediation). This will create opportunities for fintechs 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.  In addition, as BaaS relies on the seamless movement of customer data among providers, we believe its expansion could result in a more Open Banking-like playing field in non-regulated markets such as the US as providers seek to make data more accessible.

**Venture capital investment likely continue steady growth:** VC investments has increased incrementally during the past five years, with $581 million acriss 52 deals in 2017 and $699 million across 62 deals in 2018. While we continue to see large disruption opportunities in the fintech space, complicating factors including regulation, credit-cycle fears and the relatively slower rate of consumer adoption (i.e., older generations don't change their banking habits much) are likely to sustain a moderate pace of growth relative to other fintech segments, and this could drive a more lumpy investment opportunity.

**VC Deal Flow in North America and Europe**



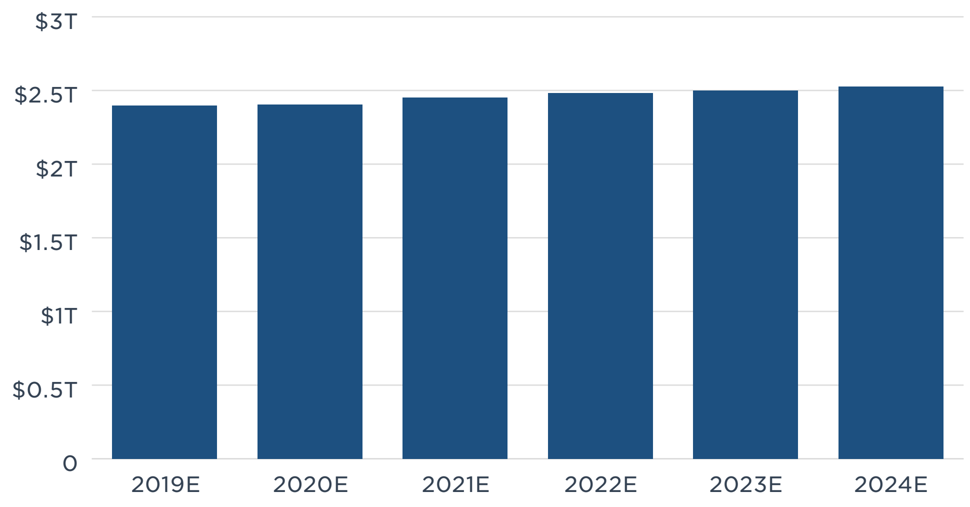

*Includes companies that may fall into multiple fintech segments*

SEGMENT DEEP DIVE

# Insurtech

# INSURTECH

## MARKET SIZE




*Source: IBISWorld. Represents total estimated global revenue of general insurance providers.*

## BUSINESS MODEL

Attractive characteristics of the space include a large and growing market and the opportunity to introduce new technology to incumbent providers.

Three main business models in this segment include:

- Traditional insurance model where firms earn spread between customer premiums and claims paid out
- Peer-to-peer marketplace model in which capital is pooled among customers as premiums and claims are paid out of that pool. These companies take a percentage of the pool as revenue.
- Intermediation—comparison portal, aggregation services or brokerage in which firms earn referral commissions.

## KPIS

- Revenue/Policy Holder
- Average Cost/Claim
- Return on Surplus
- Loss Ratio
- Expense Ratio
- Renewal/Retention
- Average Policy Size

## KEY PROVIDERS

BIMA, bright HEALTH, Clover, Lemonade, metromile, oscar

## KEY INVESTORS

First Round, GENERAL CATALYST, Index Ventures, NEA, THRIVE CAPITAL

## NOTABLE DEALS

maestro health

March 2018

**$155M M&A**

Acquired by:

AXA

wefox

August 2018

**$215M Early-stage VC**

Investors:

Softbank

## INDUSTRY DRIVERS

- Digitization of insurance products enabling providers to focus more on risk prevention as opposed to simply providing services when actual events occur.
- Legacy value chain is fragmented and ripe for disruption.
- Improved analytics and data tools allows for better underwriting and pricing policies.
- Customer demand for increased personalization, transparency and convenience in insurance products.



## Opportunities

**Proliferation of new business models:** Fintechs are transforming the insurance landscape and enabling new methods of acquiring customers, assessing risk, preventing fraud, customizing coverage, delivering product, managing claims and engaging with customers. While successful underwriting remains core to the success of insurance providers, we believe several new business models are expanding the ecosystem and adding efficiencies that could enable higher capital returns via add-on products and a better ability to use customer data to drive network effects.

**Changing customer preferences:** Customer expectations within the insurance industry has become increasingly stringent, where there are greater expectations for transparency, simplicity, speed of delivery, tailored services and new product offerings. A 2018 J.D. Power U.S. Home Insurance Study stated that “preference for using digital channels for interaction has increased significantly from 2017.”[1] These shifting demands have enabled new insurance startups and incumbents alike to introduce more digital products and services. These more tech-focused products have also provided opportunity to add growth, decrease costs and improve customer retention.

**Multiple insurance business cases:** We believe that there are countless emerging technologies with use-case applications pertinent to the insurance industry, including machine learning (e.g., claim processing automation), blockchain (e.g., reinsurance) and IoT (e.g., real-time health record keeping). This creates opportunities for technology-native firms to sell services to the industry and adds disruptive pressure on incumbents to stay abreast of technological changes. This also creates more opportunities for partnerships within the industry.

1 *“2018 U.S. Home Insurance Study,” J.D. Power, September 2018*



## 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 particular licensing requirements. New companies in this segment will have to consider the various licensing regulations of each state, what impacts it will have on their business model and how it hinders scalability. Additionally, as new technologies make it easier to collect and use customer data, data privacy has become a growing area of regulation, with rules including HIPPA, HITRUST, SOC 2 or GDPR.

**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 enable more aggressive risk underwriting (at times) and the ability to compete on pricing.

**Underwriting risk:** Capital intensity for fintechs in this segment could be very high, especially if dealing with direct-to-customer insurance products. Underwriting mistakes could have a much more detrimental impact on start-ups relative to incumbents, given the former's relatively lower cash reserves.



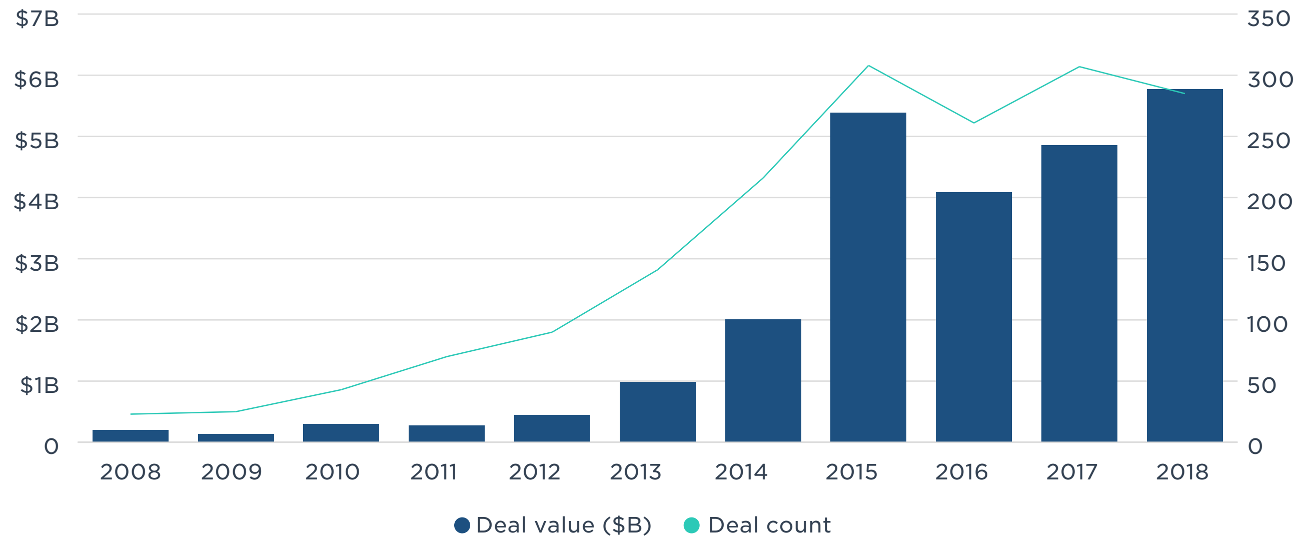
# Outlook

**More customization, bundles and cross-selling:** We believe the current cohort of insurtech companies has the potential to change how insurance is fundamentally bought, underwritten and serviced; while also expanding coverage to those who have been historically uninsured or underinsured. We believe customization will be a key trend of new products as firms seek to right-fit policies to customers, enabling more price separation from existing standards. Additinally, digital delivery models will create more opportunities to bundle insurance across asset categories and provide real-time policy delivery at the point-of-sale (for example when buying a car).

**Non-insurers will continue push into space:** We expect deep-pocketed conglomerates to continue their push into the insurance industry, and note Alphabet's $375 million investment in Oscar Health last year; and the joint health venture among Amazon, Berkshire Hathaway and JPMorgan Chase. These conglomerates have the resources, technical expertise, data and distribution to develop innovative cross-platform insurance products and to become major industry players.

**Strategic investors to drive funding:** Early-stage funding in this segment has increased by over 100% each year from 2011 to 2015 and remained relatively steady since then. We expect investment activity to remain stable for the time being. Additionally, we believe incumbents will continue to utilize their venture capital units to invest in startups as a way of staying at the forefront of new technologies while also forming strategic relationships. Total VC investments in 2018 (including corporate VC) were $5.8 billion, up from $4.9 billion in 2017.

### VC Deal Flow in North America and Europe



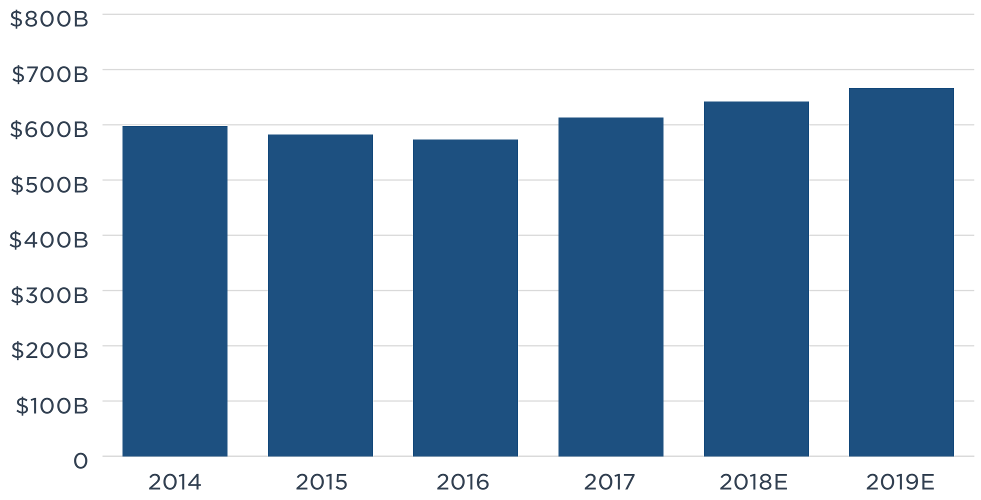

*Includes companies that may fall into multiple fintech segments*

SEGMENT DEEP DIVE

# Money Transfer

# MONEY TRANSFER

## MARKET SIZE




*Source: World Bank. Represents estimated global remittance flows.*

## BUSINESS MODEL

Attractive characteristics include: large addressable market, disruption potential in some markets, stable cash flows and a stable customer base.

Money transfer providers generate revenue by taking a fee on transaction volume. Businesses include:

- Institutional foreign exchange (serving import/export business & multinational corporations
- Personal remittance providers
- P2P currency exchange marketplaces
- International money transfer providers

## KPIS

- Total transaction volume
- Transaction fees
- Gain/(Loss) from forex
- Delivery fail rate
- Time to collection
- Interest on cash

## KEY PROVIDERS

DWOLLA Payoneer Remitly TransferWise

## KEY INVESTORS

83NORTH Greycroft Andreessen Horowitz Index Ventures e.ventures Spark Capital

## NOTABLE DEALS

xoom

November 2015

**$1.2B M&A**

Acquired by:

PayPal

Revolut

April 2018

**$250M Series C**

Investors:

DST Global

## INDUSTRY DRIVERS

- Expansion of digital payments eco-system catalyzing new ways to move money without brick-and-mortar infrastructure.
- Friction in existing systems (fees, settlement time).
- Rise of e-commerce and cross-border commerce.
- Growth in remittance market from growing migrant workforces.



## Opportunities

**Mobile phones provide ease of access:** We view the shift to the mobile economy as an important catalyst for growth in the global money transfer market as consumers can more easily access digital financial platforms and marketplaces. In many cases, this eliminates the need to visit physical locations, and reduces transfer costs as more intermediaries are eliminated.

**Technology enables lower fee structures:** The digitization of the money transfer business reduces many of the costs associated with operating money transfer operations (i.e., physical infrastructure). Combined with improved access to currency markets, money transfer fintechs can accept lower spreads on exchange rates and pass more savings along to customers. In some cases, fintechs can maintain pools of capital in major remittance hubs, eliminating the need to transfer physical currency for each remittance, reducing costs even further.

**Favorable global macroeconomic trends:** We believe the growth of cross-border commerce and the steady expansion of migrant workforces has increased demand for money transfer and remittance services. We view these steady economic trends as strong secular tailwinds to this industry that make it attractive to investors.

**Differentiation beyond fees:** While the remittance market is crowded, we believe there are several ways to differentiate. While certain customer-groups may only focus on fees, others may be more interested in how well remittance services are integrated into their other financial applications, such as P2P or banking apps. Other services may specialize in certain remittance corridors, and provide the lowest cost and fastest service in specific currencies. Other features include ability to schedule recurring transfers, pull money directly from pay-checks, and provide micro-loans.



## Considerations

**Industry risks commoditization:** We believe that as the industry matures, efficiencies within the global transfer market will become more ubiquitous, reducing barriers to entry. This could result in increased commoditization with minimal differentiation among providers. We see those providers that can cross-sell additional services—such as providing microloans or mobile banking—or monetize their users through other cross-functional services are best positioned to maintain customer lock-in and increase stickiness.

**Regulations play significant role:** Providers must also contend with a host of compliance and regulatory costs which vary considerably by jurisdiction. Leading regulations include know your customer (KYC), anti-money-laundering or counter-terrorism financing regulations to prevent tax evasion, criminal or fraudulent transactions which have historically plagued incumbent players. Since the regulatory burden falls on the operators of these money transfer businesses, proper preventive procedures and controls must be in place in order to minimize the business risk.

**Geopolitics and economic volatility:** Outside of financial regulations, geopolitical activity can play a role in this segment in multiple ways. Firstly, changes in immigration policy across the globe could potentially have negative impacts on the global remittance market, since that business is driven primarily by migrant workers abroad sending money to their families back home. This could directly impact the revenues of fintechs in this segment that operate solely on a percentage-based or fee-per remittance business model. Secondly, unexpected geopolitical events (e.g. trade wars) impact currency markets, potentially leading to highly volatile exchange rates. This risk may be difficult for companies in this segment to hedge because of the smaller forex spreads that they are already capturing.

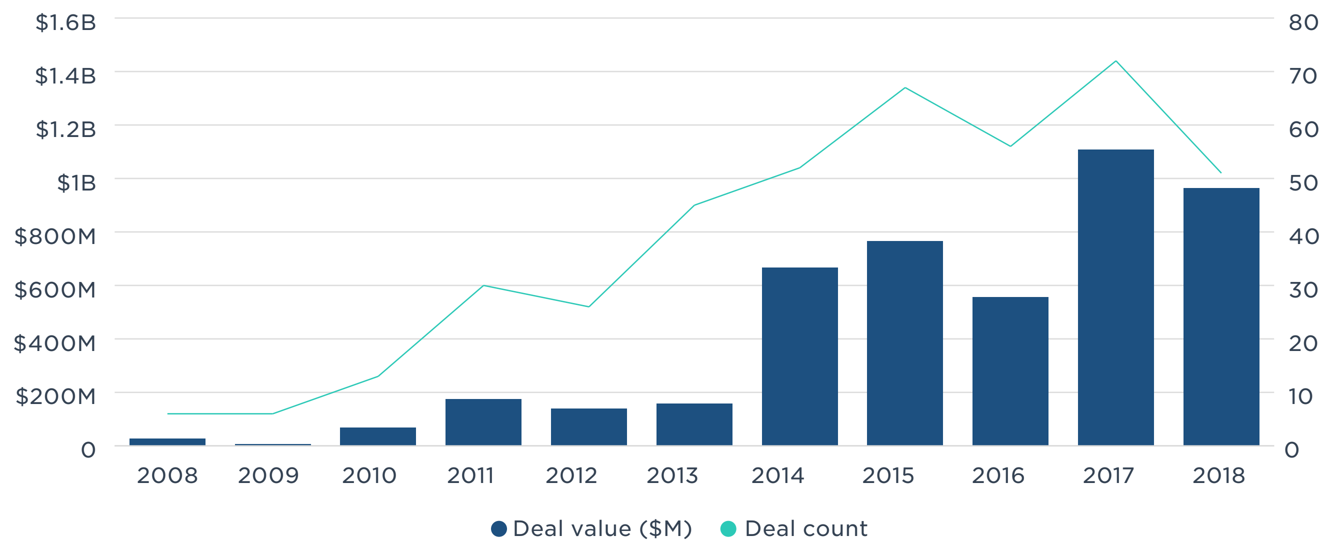
# Outlook

**Continued fee compression:** 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 mid-term. The current de facto oligopoly in the global remittance market has led to stagnant fees among money transfer servicers. While transfer fees currently range from 7-12%, we believe that new competition will exert downward pressures on fees, ultimately declining closer to the 3% fee typical in traditional payment processing.

**Differentiation to create greater value:** We expect money transfer service providers and fintechs in this space to seek revenue expansion through launching new products and services that encroach on other parts of the value chain of traditional retail and commercial banks offering money transfer services. We anticipate that offerings like physical credit/debit cards, lending products or other stored-value and/or loyalty products to become prevalent among many companies in this segment. In addition, personalized services, increased customer touch points and high levels of customer service will be major components of all business strategies moving forward. We believe fintechs with modern data platforms may be relatively better positioned to provide innovative services to customers.

**Increase in money transferred to fintechs:** VC funding for money transfer services totaled $964 million in 2018, relative to its peak of $1.1 billion in 2017. We believe early entrants have achieved significant market penetration, prompting incumbents to start rolling out new features and driving increased competition in the space. Therefore, we expect venture capital investment activity in this space may decline in the near term, while M&A across the landscape could be likely.

### VC Deal Flow in North America and Europe



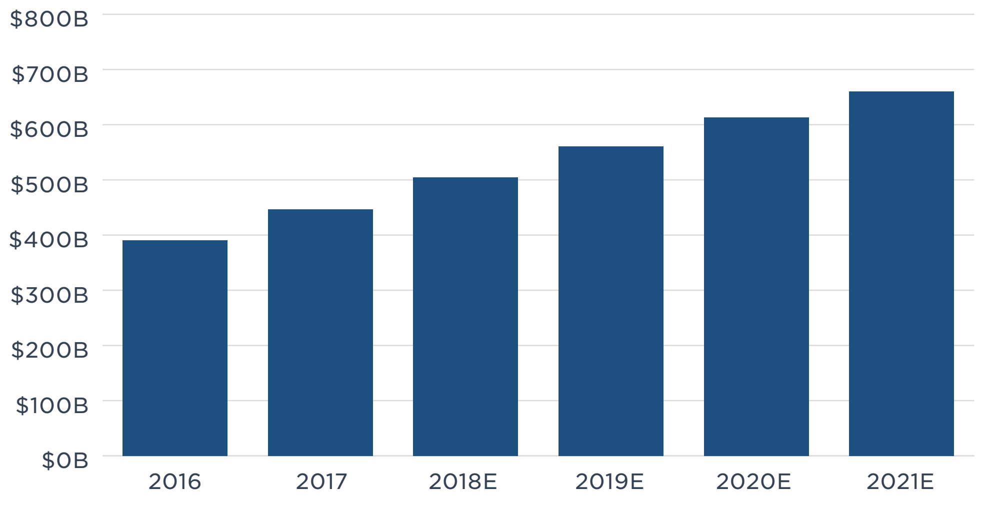

*Includes companies that may fall into multiple fintech segments*

SEGMENT DEEP DIVE

# Payments and Processing

## PAYMENTS AND PROCESSING

### MARKET SIZE




*Source: Statista. Represents estimated online US retail sales.*

### BUSINESS MODEL

Attractive characteristics include the growth of ecommerce and the complexities of omni-commerce driving demand for tech-enabled solutions.

Companies in the space generate revenue by taking a fee on the total payment volume that they process (standard fee is around 3%).

Three main business models in our dataset:

- POS Software/Hardware businesses that focus on merchant acquiring
- APIs and eCommerce platforms
- B2B payments via software applications

### KPIS

- Total Payment Volume (TPV) & Growth
- Partnerships/Merchant Acquiring
- EBITDA/Cashflow from Operations (CFO)
- Average revenue per user (ARPU)
- Switching Cost

### KEY PROVIDERS

behalf Bill.com divvy TRADESHIFT viewpost stripe

### KEY INVESTORS

83NORTH AUGUSTCAPITAL AMERICAN EXPRESS VENTURES khosla ventures NOTION SPARK CAPITAL

### NOTABLE DEALS

**iZettle**

May 2018

**$2.2B M&A**

Acquired by:

PayPal

**PLAID**

December 2018

**$250M Series C**

Investors:

Kleiner Perkins and others

### INDUSTRY DRIVERS

- Relatively high growth of online retail sales.
- Emergence of omni-commerce platforms, helping firms navigate the complexities of cross-channel payments acceptance.
- Improvements in POS technology, providing integrated business and customer management tools.
- Need for payment security and fraud monitoring.



## Opportunities

**Rapid technology-driven change:** The steady shift of payments from physical to digital environments is spurring rapid innovation as providers seek to find ways to better integrate payments functionality across all aspects of the enterprise. Pain points in this space include improving payments acceptance (especially for cross-border payments), improving user experiences, capturing better data and implementing security and fraud management tools. Tools such as GPS tracking and biometrics are seeking to improve verification and authorization capabilities whereas faster-payments initiatives and blockchain-based payments hold the promise of real-time settlement.

**Significant room for growth in online sales and B2B:** With eCommerce only representing about 9% of total retail sales last year[1], we expect significant growth in this channel for many years to come. Forrester expects that eCommerce sales will grow to account for 17% of all retail sales in the US by 2022[2]. Another area with strong potential for growth includes the B2B space, where it is estimated that 51% of payments are still made by paper checks[3].

**Digital payment options driving demand for payment services:** As new technologies add complexity to the payments ecosystem, we believe this creates more opportunities for providers to sell back-end payments acceptance services and solutions. 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 of mobile payments for in-store, in-app and person-2-person (P2P) transactions. While these new payment options are helping drive the growth of digital payments, we believe they are also driving significant complexity for merchants seeking to ensure they can provide modern payment options to their customers.

1 *E-commerce share of total retail sales in United States from 2013 to 2021, Statista, 2018*
2 *Online Retail Forecast, Forrester Research, August 2017*
3 *Electronic Payments Survey, Association for Financial Professionals, 2016*

## Considerations

**Razor-thin margins demand significant scale:** A limiting factor for profitability is the reliance on the payment networks of the major network operators such as Visa, MasterCard or American Express. 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%) be directed to card issuing banks and the networks themselves. This leaves a relatively small portion of the approximately 3% transaction fee to be split amongst other service providers. This increases the need for providers to attain significant scale and/or develop ancillary revenue streams to drive material margin expansion.

**Competitive and crowded industry:** With relatively low barriers to entry, companies in the payments and processing space face significant competition from large incumbents and a constant flow of new entrants. Industry leaders including Mastercard, Visa and PayPal have established strong consumer brands and large global networks that will be tremendously difficult to replicate. Meanwhile competitors such as Stripe and Square have created innovated SMB payment platforms that are the product of many years of IP investment. Still, large well-financed incumbents tend to be serial acquirers and will target firms that occupy a unique niche or have developed a unique product with an established customer base.

**Changing technology and disruption potential:** With the majority of the US consumer payments infrastructure built around the legacy payment networks (i.e., Mastercard and Visa), threats to the hegemony of this system poses significant disruption potential. For example, the implementation of faster-payment initiatives that provide quicker settlement times and reduce payment acceptance fees for merchants have 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, pose similar disruptive threats. Lastly, digital money and cryptocurrencies have the potential to offer the landscape over time as well. We believe providers that can act as a front-end to all these systems are relatively better positioned for growth.

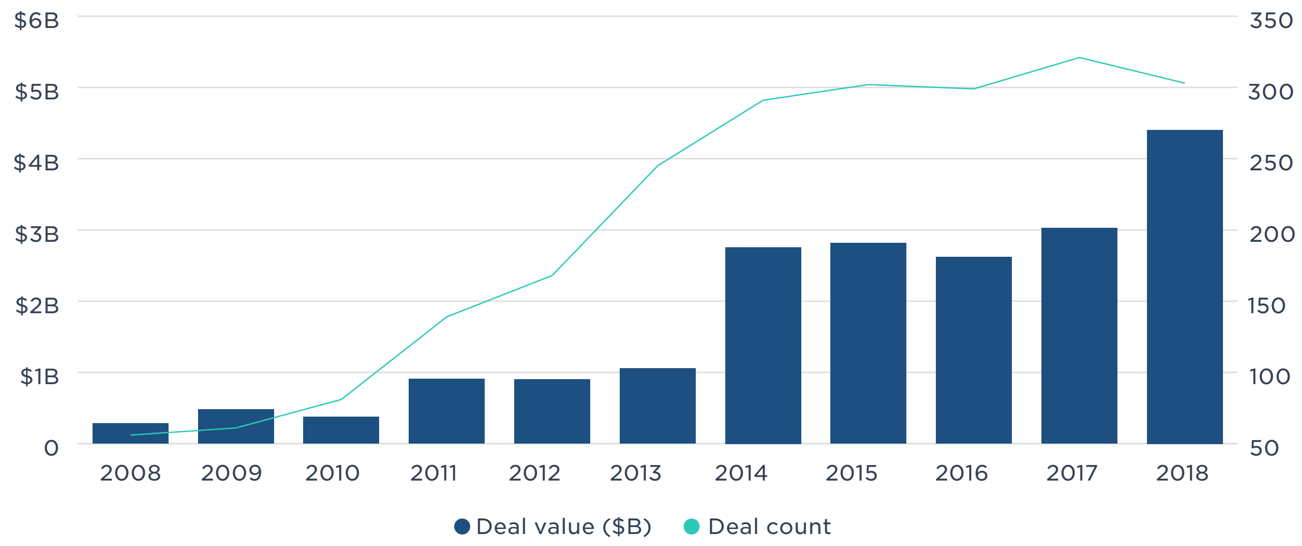
# Outlook

**Omni-Commerce continues to be driver of 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. We believe 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 strong growth in digital omni-commerce payment volume.

**Mobile payments expansion:** Although omnipresent within countries in Asia, 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 mid-term, as providers improve the consumer experience and consumers become more accustomed to paying with 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, which tends to blur the lines of commerce to some extent (i.e., is ordering ahead mobile or in-store?). While we expect point-of-sale mobile payments are likely to be dominated by the major wallet providers (Apple Pay, Google Pay), we note customers are increasingly using payment apps, such as Venmo or Cash App along with merchant specific apps to provide payments.

**Venture capital investments to remain high:** VC funding for this space has grown significantly from $3 billion across 321 deals in 2017 to $4.4 billion across 303 deals in 2018. We expect the large flow of venture capital investments in this space will continue over the near to mid-term. A decent portion of these venture investments come from incumbents such as banks and their venture capital arms, and we expect this to continue.

**VC Deal Flow in North America and Europe**



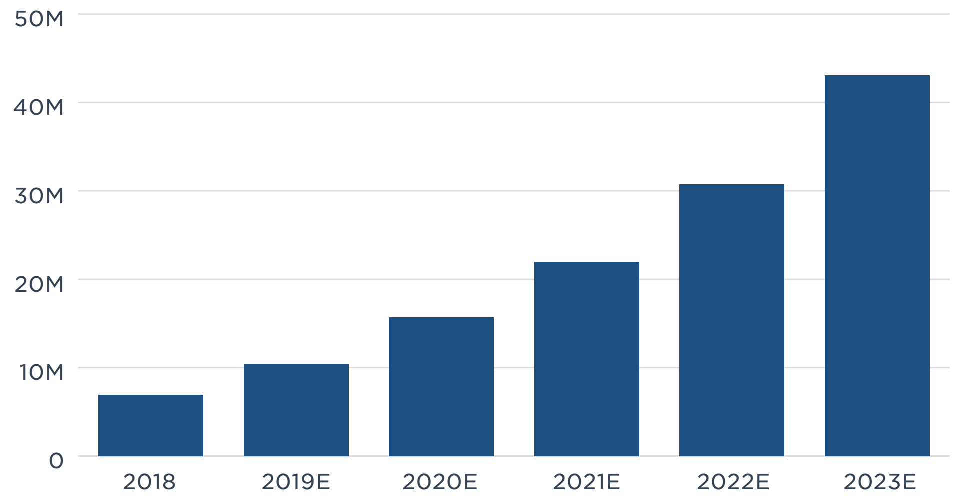

*Includes companies that may fall into multiple fintech segments*

SEGMENT DEEP DIVE

# Personal Finance

## PERSONAL FINANCE

### MARKET SIZE




*Source: Allied Market Research, Statista, Pitchbook estimates. Represesnts estimated customers of challenger and alternative in banks in Europe.*

### BUSINESS MODEL

Attractive characteristics of businesses in this segment include a growing market, shift towards digital and larger customer base. Business models in this segment includes:

- Interest earned on cash deposited in mobile bank accounts
- Interest charged on revolving credit accounts
- Kickbacks for partnerships with traditional banks and credit providers

### KPIS

- Lifetime Value (LTV)
- Customer Acquisition Costs (CAC)
- Conversion rate (freemium/paid)
- Revenue or Profit/Customer
- Products/Customer
- Growth Rate
- Default Rate

### KEY PROVIDERS

affirm chime credit karma FIVESTARS Numbrs

### KEY INVESTORS

CROSSLINK CAPITAL G/ Lightspeed Menlo NEA svb Silicon Valley Bank

### NOTABLE DEALS

LevelUp

July 2018
**$390M M&A**
Acquired by:
GRUBHUB

N26

January 2019
**$300M Series D**
Investors:
Insight Venture Partners and others

### INDUSTRY DRIVERS

- Continued migration of personal financial services to online and mobile, changing how consumers spend, borrow and save money.
- Consumer preference for unbundled banking services, i.e., they don't need everything a bank sells.
- Declining loyalty to large incumbent banks after the financial crisis.

## Opportunities

**Growing fiscal awareness:** Consumers are increasingly turning to technology to help alleviate the pain points of financial management with services that help them earn, save and spend money how and when they want. These types of services coupled with more accessible financial knowledge and education can help consumers make more responsible financial decisions.

**Banking disruption:** As digitization and automation promise to unbundle traditional banking services, this has opened the door to providers of monoline digital financial services, such as mobile savings accounts, investment accounts or spending accounts. We believe there is strong appetite from consumers for these alternative banking products and expect steady demand. Fintechs in this segment can look to further expand their services, monetize their customer base and increase stickiness by cross-selling additional banking products.

**Penetration of the un and under banked:** We see significant opportunity for alternative PFM providers to penetrate the un and underbanked populations in the US. In 2017 the FDIC estimated that roughly 7% of US households were unbanked (households without a bank account) and 19% were underbanked (households that have a traditional bank account but also obtain financial services from a non-bank provider). With fully digital distribution models and lack of legacy infrastructure (i.e., lower legacy costs), we believe alternative digital providers are uniquely positioned to penetrate this cohort.



## Considerations

**Competitive risk a concern:** Growing interest in personal finance management of late has led to several new entrants from mobile banking to online revolving credit to money management platforms. We believe this sector is highly competitive and crowded with relatively low barriers to entry and high risk of product commoditization. Further, large incumbent banks have considerable advantages as they invest in their technology infrastructure and introduce new personal finance management products.

**Customer acquisition and retention are challenging:** Customer acquisition costs can be relatively high in this segment because digital personal finance tools and services are new in the market. This leads to heightened costs driven by the need to educate customers of the various benefits a select product provides. In addition, there are financial habits that are already in place (e.g. paying with cash vs credit cards vs mobile wallet) with the consumer that can be challenging to change. As providers seek to make products that are easy for consumers to adopt, they are inherently not very sticky, making it easy for customers to switch to other services. This, combined with the high acquisition costs, can lead to low viability ratios (customer lifetime value over customer acquisition cost), which can ultimately lead to unsustainable business models over the long term.

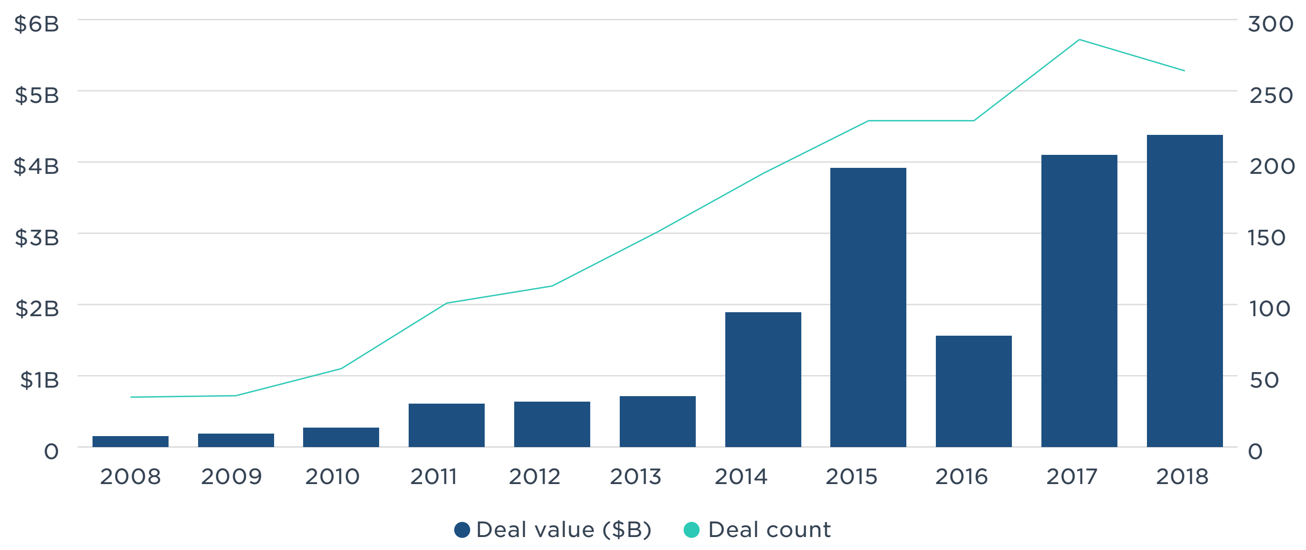
**Difficulties in obtaining retail banking licenses:** In the US, it is difficult to obtain a bank charter required to run banking operations. The process is expensive and complicated, typically requiring many years in order to get approval from the Office of the Comptroller of the Currency (OCC) and the Federal Deposit Insurance Corporation (FDIC). The current workaround for US digital banks is to rely on partnerships with banks who already have national bank charters. In the UK and EU, proactive regulation has made it easier for new digital banks, aka “challenger banks,” to obtain banking licenses, though the process can still take up to two years.

# Outlook

**Reversing the bundling trend:** 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 relative to legacy banking services. With growing customer bases, we anticipate fintechs to start deploying bundled products and services to help them achieve scale and effectively compete with retail-banking incumbents, reversing the trend of unbundling seen during the past few years.

**Venture capital investments trends to continue:** Venture capital investments in this segment has climbed higher over the past few years, with $4.1 billion invested in 2017 and $4.4 billion in 2018. We expect investment in the space to continue partially driven by a favorable demographic shift as younger generations become more bankable. Additionally, the the steady growth of assets of current users could drive higher monetization opportunities among the existing customer-base.

**VC Deal Flow in North America and Europe**



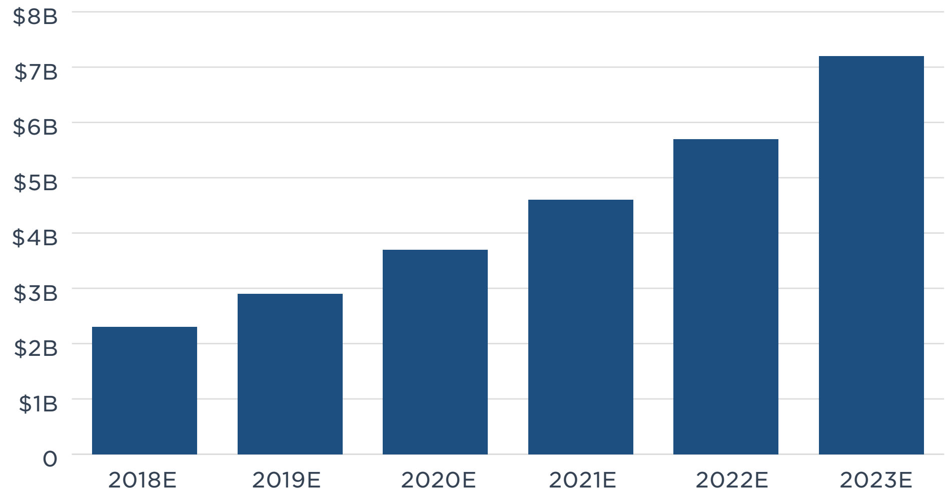

*Includes companies that may fall into multiple fintech segments*

SEGMENT DEEP DIVE

# Regtech

## REGTECH

### MARKET SIZE




*Source: Infoholic Research. Represents estimated global revenue for reg-tech providers.*

### BUSINESS MODEL

Attractive characteristics of the space include: Increasingly integral role of Regtech to any business that operates within the financial system, where compliance and regulation are mission-critical functions.

Monetization in this segment primarily comes in the form of SaaS and on-premise offerings.

- SaaS-based software collecting monthly or annual fees to help financial institutions with compliance, regulatory, enterprise risk and fraud challenges

### KPIS

- MRR & Growth
- Churn – Revenue & Client
- Customer Acquisition Costs (CAC) & CAC/Lifetime Value
- Number of Reported Security Incidents
- Fraud Rate

### KEY PROVIDERS

AYASDI · Digital Reasoning · fenergo · Shift Technology · feedzai

### KEY INVESTORS

Cambridge Angels · Fort Ross Ventures · Goldman Sachs · nesta · Partnership for New York City · Floodgate

### NOTABLE DEALS

**Avalara**

June 2018
**$180M IPO**

**enigma**

September 2018
**$98M Series CC**

Investors:

NEA and others

### INDUSTRY DRIVERS

- Increased financial regulations are compelling legacy financial institutions to turn to new technologies to help meet compliance standards and cope with elevated scrutiny.
- Growing cyber-threats and data security.
- Growing regulator support for regtech frameworks.
- High growth prospects, with an expected GAGR of 25.4% over the next five years



## Opportunities

**Incumbents actively pursuing compliance solutions:** The large and constant regulatory burden facing financial institutions continues to drive demand for innovative solutions that can transform regulatory infrastructure and reduce compliance costs. Even in the face of regulatory uncertainty, incumbents in this space are forging ahead with compliance initiatives, with regulatory compliance often the most consistent area of increased spend within legacy financial institutions.

**Iterative regulatory framework to drive increased adoption:** We believe fintechs in this space have already begun to shape risk and compliance functions within major financial service firms. There are strong indications that these firms and their compliance functions will continue to seek, test and deploy digital technologies developed by fintechs. Various major regulatory events such as MiFID II, IFRS 9, PSD2 or even Brexit will present opportunities for fintechs to continue to partner with incumbent financial institutions to efficiently meet compliance standards.

**Regulators can help validate viable technologies:** We believe regulators represent a key potential customer group for regtech vendors. While regulator buy-in remains preliminary, regulators have taken notice of the benefits of regulatory technologies and are open to engaging with financial institutions and fintechs to explore innovative opportunities benefiting the regulatory landscape. For instance, 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." These regulatory sandboxes can help promote new technologies that meet the requisite efficacies of the major governmental regulatory bodies globally.

## 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 fintechs 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 impacted by particular regulations (e.g. Truth in Lending Act (TILA) Regulation Z impact 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. Fintechs 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. As the pervasiveness and power of technology increases, there are increased risks for proper controls, data infrastructure and governance. The process of integration could expose the firm or the provider to a possible data breech, resulting in significant damage to either firms. These technological risks potentially put fintechs and incumbents at operational, economic, legal and reputational exposure.

**Regulatory flux presents a moving target:** Legislative actions and regulations affecting the financial services industry is complex, ever-changing and multidisciplinary with fluctuating rules and reporting standards. Furthermore, regulators are typically slow to realize the use of technology, which would require assurances by both fintechs and financial institutions employing the use of new digital solutions that the technologies perform as expected and meets compliance standards. This will involve continuous validation, governance and supervision of the algorithms utilized within the digital tools to ensure that it is suitable during changing market conditions. This continuous evaluation could become onerous and costly for fintechs.

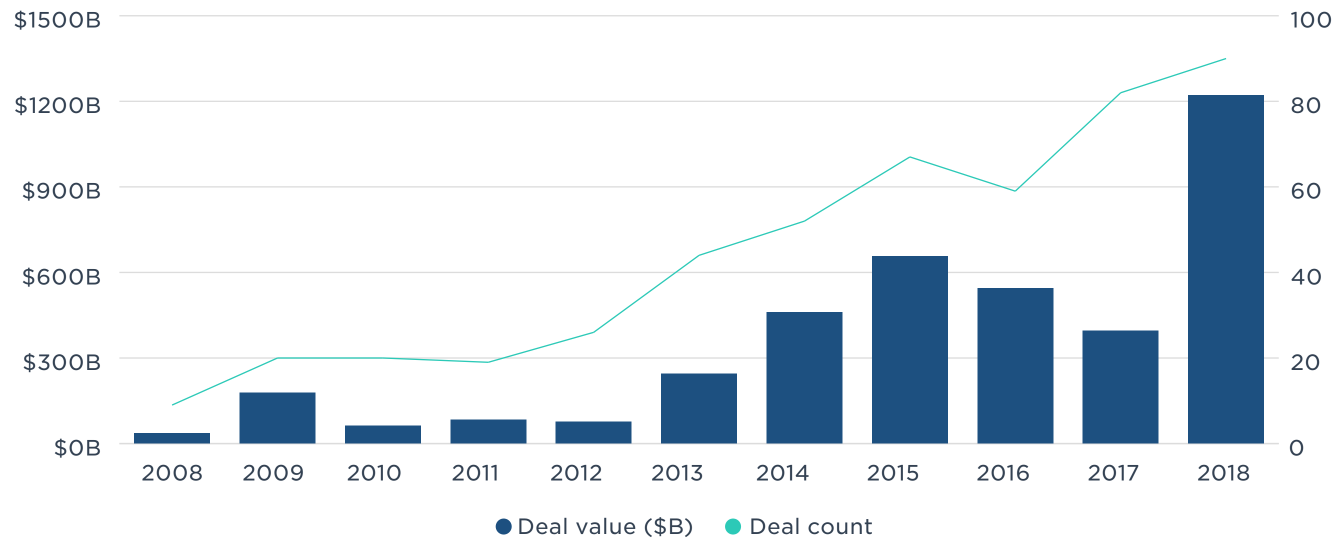
# Outlook

**Regulators go all in:** Regulators represent a key customer group in this industry, as they are potential buyers of regtech solutions (along with banks). Currently, regulators have not made significant investments in reg tech solutions, but we believe it is only a matter of time until they do. When this happens, we expect this will help validate the regtech market and catalyze demand among banks - particularly for those products that are being sold to regulators. Additionally, this could spur more demand among banks 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 who 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 will either fail or become acquisition targets.

**Growth in venture capital invested:** While only $396 million of venture capital was invested in 82 deals in 2017, this jumped to $1.2 billion over 90 deals last year. This growth in funding has coincided with the rollout of major legislations such as MiFID II and PSD2. The implementation of GDPR, Basel III and Brexit. could be further catalysts.

**VC Deal Flow in North America and Europe**



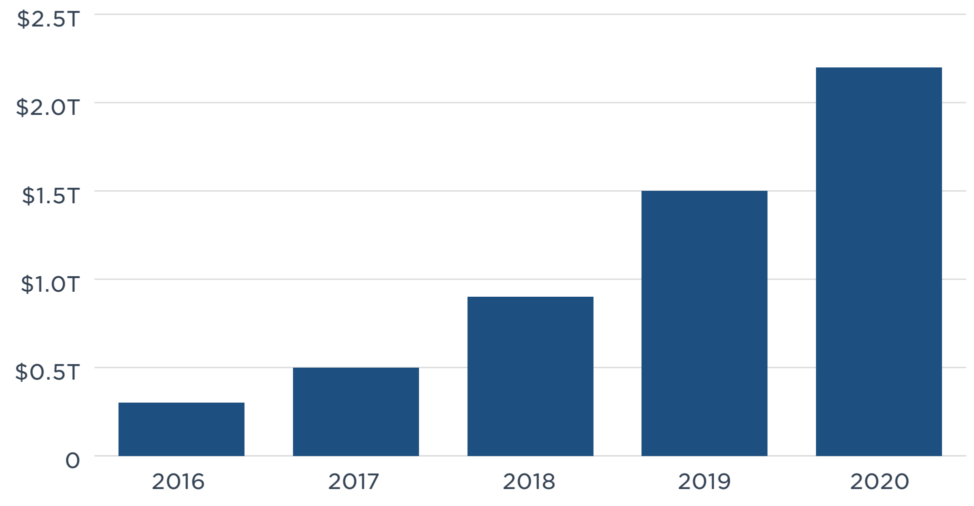

*Includes companies that may fall into multiple fintech segments*

SEGMENT DEEP DIVE

# Wealthtech

# WEALTHTECH

## MARKET SIZE




*Source: KPMG. Represents estimated AUM of digital/algorithmic asset managers.*

## BUSINESS MODEL

Attractive characteristics of this segment include the presence of a large, underserved customer base and highly scalable business models.

Companies in this segment monetize mainly with these business models:

- SaaS subscription model which collects fees on a monthly or annual basis
- Interest from cash held in accounts
- Transaction fees

## KPIS

- Assets Under Management (AUM)
- Net New AUM
- Trading volume
- Average Revenue/Customer
- Customer Retention
- Net Promoter Score

## KEY PROVIDERS

Betterment eToro nextcapital raisin. robinhood

## KEY INVESTORS

anthemis group, Bessemer Venture Partners, foundation capital, Index Ventures, Ribbit Capital, social leverage

## NOTABLE DEALS

FOLIO DYNAMIX

January 2018

**$198M M&A**

Acquired by:

ENVESTNET

acorns

February 2019

**$180M Series E**

Investors:

NBCUniversal and others

## INDUSTRY DRIVERS

- New technologies allow for faster onboarding, superior service delivery and enhanced customer engagement at lower costs.
- Global AUM is expected to double in size, totaling$145.4 trillion by 2025, with passive investments seeing significantly higher growth rates than active investments, representing growth opportunities.
- Demographics shifts to new generation of investors who are more comfortable with digital and mobile investment services.

## Opportunities

**Technological disruption along entire value chain:** New emerging technologies are disrupting each portion of the wealth management value chain such as distribution and investment advice (robo-advisors), asset management (big data and artificial intelligence) and account administration (robotic process automation). Incumbent financial institutions and fintechs  are looking to harness these technologies to drive transformation of the wealth management sector. Winners in this space will be the ones who properly leverage these technologies to deliver highly customized investment products, diverse offerings, first-rate advice and superior client onboarding.

**New business models suitable for different customer base:** Traditional wealth management and brokerage firms historically skew toward high-net-worth individuals and families, reflecting a fee-based model based on AUM. As a result, a large underserved customer base exists for fintechs to go after. These customers include younger workers just beginning their careers or low-net-worth families. While traditional wealth advisors find it difficult to profitably service these lower-revenue customers, fintechs' use of automation and technology can help provide the scale benefits needed to serve these customers.

**Favorable TAM opportunity:** We see a large opportunity to provide asset management services across alternative and passive investments.  These classes of investments will see global assets under management (AUM) reach $57.7 trillion by 2025[1], representing 40% of total global AUM.

## Considerations

**Skepticism of automated processes:** Before the global financial crisis, there was a proliferation of new financial products introduced into the market which came with a high degree of opacity. Since the crisis, antagonistic standpoints to the lack of transparency within financial products and services have continued to persist. Technologies such as robotic process automation or machine learning algorithms utilized for investment decisions or market data analysis operate in a black box environment, away from purview of the client. Despite the increased transparency related to fees commissions and returns that automation brings, lack of investment transparency may nonetheless keep some investors away.

**Incumbents are fighting back:** There is steep competition within this segment, not only from new entrants but also from large incumbents. The latter, who each individually have AUM in the trillions of dollars, have watched their market share slowly chipped away from those deploying new business models, alternative solutions and modern delivery channels. Incumbents are increasingly providing analogous products to shore up against market share losses to new entrants. This puts pressure on fintechs to compete against deep-pocketed legacy players and increases customer acquisition costs.

**Bull-market-driven success is not indefinite:** Given the relative nascency and short track record of fintechs in this segment, given which the vast majority 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. When, and not if, the market turns, a sizable portion of these companies will face extreme pressures to prove the efficacies of their technologies and business models. We believe a real economic stress-testing of these businesses may be needed before they reach widespread adoption

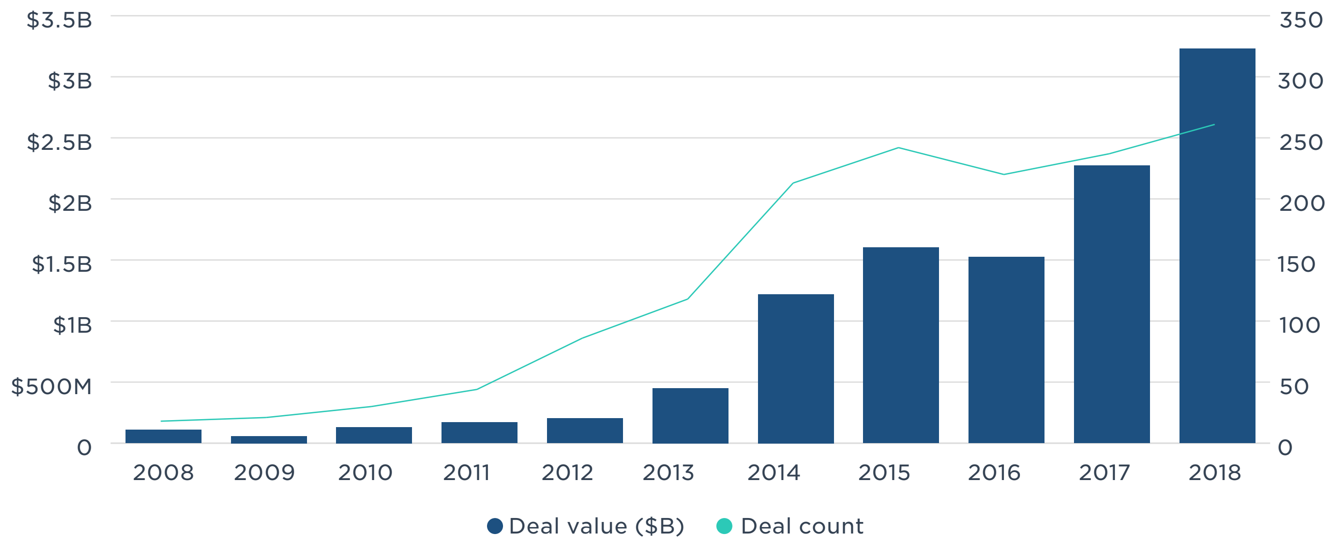
# Outlook

**Expect hybrid models to win:** As opposed to being fully automated, we expect winning Wealthtech solutions will represent hybrid automated/human solutions. While digital solutions can help with execution consistency and increased controls, they can be less effective in managing oversight of risk and compliance. We expect that the services and technologies from fintechs in this space will be: 1) Used to aid consumers in making automated passive and active investment decisions with human advisors working in the background and 2) Adopted within traditional wealth management firms to aid financial advisors and investment managers.

**AUM could expand significantly:** We believe alternative wealth management platforms could see significant AUM expansion via the aging-up of their younger customer-base and the subsequent increase in assets, as well as the gradual ability to target more high net-worth clients.

**Venture capital inflows to track global AUM growth:** The Wealthtech industry has seen a dramatic increase in investment activity in this last few years, with 2018 achieving the highest amount of venture capital invested at $3.2 billion, following $2.3 billion in 2017. We expect investment in this segment will  persist as investors continue to rely on new technologies to achieve their financial goals.

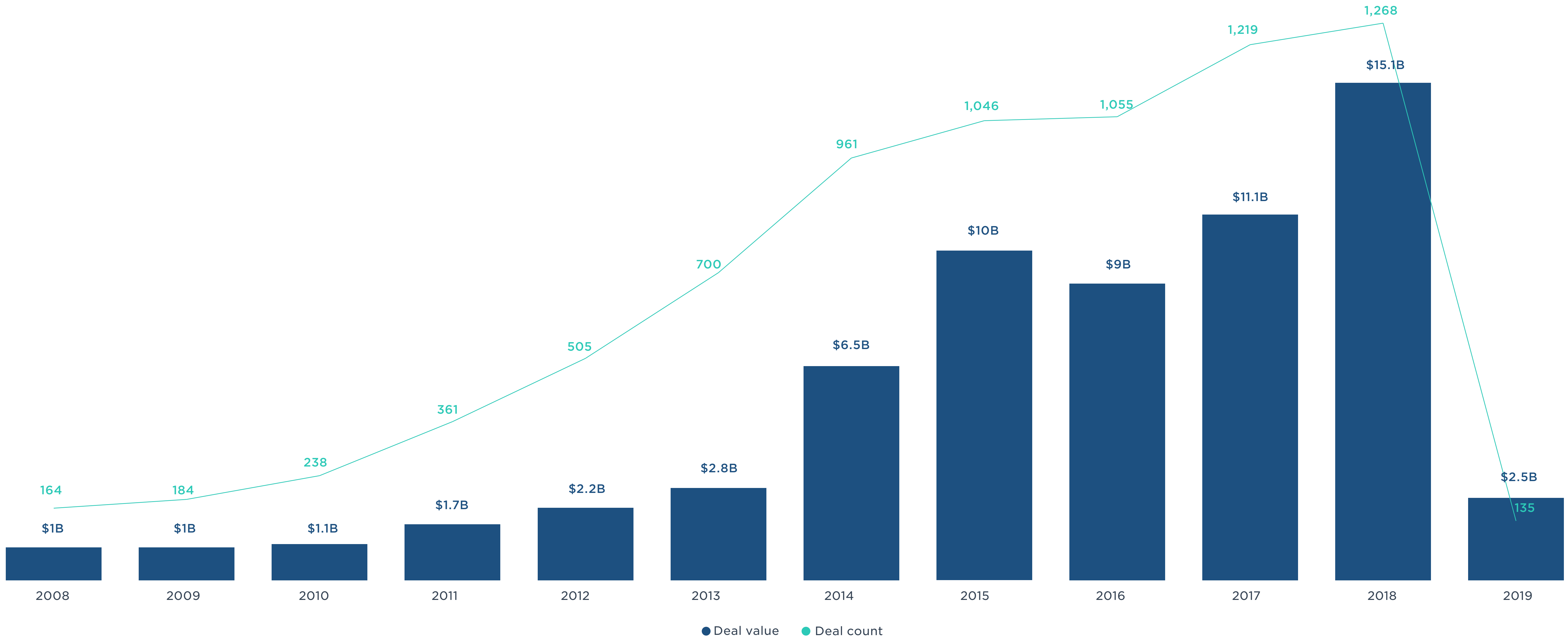
**VC Deal Flow in North America and Europe**




*Includes companies that may fall into multiple fintech segments*

# Supplemental Materials

# Fintech VC Deal Flow in North America and Europe



# Select Company Analysis

## MoneyLion

**Business Overview**

Provider of 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, investing, rewards, incentives and credit monitoring. The platform uses advanced analytics and machine learning-based technology to gain a complete view of its users' personal finances, enabling uniquely personalized advice and underwriting, and encouraging better financial behavior and outcomes.

The company currently has three million customers in the US.

200+ employees

**Leadership**

CEO & Co-founder: Diwakar Choubey (previously IB @ Citi, Goldman, Citadel and Barclays)

CTO & Co-founder: Chee Mun Foong

CIO & Co-founder: Pratyush Tiwari

**Competitors**

Chime, Digit, Monzo, Moven, N26, Qapital, Tandem, Varo Money

**Financing History**

Raised-to-date: $746.3M over 6 deals.

Most recent round: $28.8M Series B2 (Aug '18) $478.8 million post-money valuation

First institutional round: $650M Venture Debt (Sept '16)

**Ownership**

Danhua Capital, Greenspring Associates, Atalaya Capital Management, Venrock, Veronorte, Broadhaven Capital Partners, Citizen. VC, Clocktower Technology Ventures, Edison Partners, FinTech Collective, Montage Ventures

## MARQETA

**Business Overview**

Provider of a payment platform intended to offer the world's first fully documented, open API issuer payment processor. 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 1099 workers, flexible expense management and scalable, secure virtual card transactions, enabling developers to focus on building their products and getting to the market.

135+ employees

**Leadership**

CEO & Founder: Jason Gardner (previously co-founder of PropertyBridge - acquired by MoneyGram International [NASDAQ: MGI])

**Competitors**

Behalf, Qwil, Recurly, Payoneer

**Financing History**

Raised-to-date: $115.7M over 5 deals.

Most recent round: $45M Series D (Jun '18) $545M post-money valuation

First institutional round: $5.78M Series A (Jun '11)

**Ownership**

Black River Ventures, Goldman Sachs, ICONIQ, Hard Yaka, Visa, CommerzVentures, IA Capital Group, Max Levchin, Commerce Ventures, LionBird, 83North, Granite Ventures



# Select Company Analysis

OPENGAMMA

**Business Overview**

Developer of market risk management platform for financial services firms designed to optimize their businesses in the evolving OTC markets. The company's independent services provide an objective view of the all-in costs for derivatives users, helping the sell-side minimize their balance sheet usage and providing the buy-side with the information they need to make smarter counter party decisions.

25+ employees

**Leadership**

CEO: Peter Rippon (previously VP @ Sungard)

COO: Maxime Jeanniard Du Dot (previously @ HSBC)

CTO: Jonathan Senior

**Competitors**

Addepar, InvestCloud, Q4, Symbiont, TradingView, Visible Alpha

**Financing History**

Raised-to-date: $39.21M over 5 deals.

Most recent round: undisclosed Series E (Feb '17)

$68.9 post-money valuation (last known valuation, Series C)

First institutional round: $2.16M Series A (Aug '09)

**Ownership**

Japan Exchange Groupm NEX Group, Cristóbal Conde, Illuminate Financial Management, FirstMark Capital, Accel

ErisX

**Business Overview**

Operator of a technology platform designed to trade and access digital asset spot and futures markets. The company services integrate digital asset products and technology into reliable, compliant, and robust capital markets workflows by combining professional tools, advanced technology, sophisticated regulatory oversight, and a diverse product set thus offers compliant, capital markets friendly workflows to digital market participants.

35+ employees

**Leadership**

CEO: Thomas Chippas (previously MD and Head of Global Quantitative Execution @ Citi, COO @ Axoni)

**Competitors**

bCause, Blockstream, LedgerX

**Financing History**

Raised-to-date: $27.5M over 2 deals.

Most recent round: $27.5M Series B (Dec '18)

$545M post-money valuation

First institutional round: $unknown Series A (Oct '18)

**Ownership**

Bitmain, ConsenSys, Monex, Nasdaq Ventures, Cboe Global Markets, CMT Digital, CTC Group, Digital Currency Group, DRW Venture Capital, ED&F Man Capital Markets, NEX, Nico Security, Pantera Capital and others

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