FINTECH AND THE FUTURE OF FINANCE

FMA Student Virtual Seminar 5/14/2020
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Digital disruption is ubiquitous and has changed both the way businesses operate and the way people live. Disruption caused by innovation affects firms across multiple industries, from financial services to industrial firms, business processes to payment systems, manufacturing to supply chains. Further, scholars hear more and more about artificial intelligence (AI), big data, machine learning, blockchain, and fintech as examples of contemporary manifestations of disruptive technology that will profoundly influence disciplines beyond business and finance, such as law, health care and government. Global extensions of these technologies and innovations challenge the efficacy and boundaries of law. Indeed, disruptive innovations are potentially changing the way we consider the future as humans versus some super artificial intelligence.

This volume contains fourteen articles split across four parts, exploring the debates around the topics of fintech, AI, blockchain, and cryptocurrency. Featuring a cast of global contributors, this is an unmissable volume exploring the most current research on digital innovation in the financial and business world.

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Edited by J. Jay Choi, and Bora Ozkan
Disruption is universal

Disruption has changed both the way business operate and way people live.

Innovations effect firms across multiple industries.

More research being done on artificial intelligence (AI), big data, machine learning (ML), blockchain, fintech...

Today we will talk about AI, Fintech and Blockchain.
ARTIFICIAL INTELLIGENCE (AI)

AI roots go back to 1956 Dartmouth College workshop on “thinking machines”

Today broad range of industries use AI-based analysis
AI is Spreading Beyond Technology Sector

- Healthcare
- Robotics and Autonomous Vehicles
- NFL
- AI startups
AI is Spreading Beyond Technology Sector

- Apple and Google – Tracking Device
- Demand for AI is increasing
- Supply Chain
- Financial services - Investments
COMPETITIVE ADVANTAGE

85% of companies think AI will offer competitive advantage

20% is “extensively” employing it according to MIT Sloan Management Review and the Boston Consulting Group

Many will chose independent AI vendors

Global fight between China and U.S.
AI ECONOMIC VALUE

Ballooning
Potential economic-value creation from AI in the next 20 years

$tn

**Management**
- Risk 0.5
- Finance and IT 0.2
- Other 0.3

**Marketing**
- Marketing and sales 1.4

**Operations**
- Supply chain 1.3
- Product development 0.1
- Human resources 0.1
- Strategy and corporate finance 0.1
- Service operations 0.2

Source: McKinsey
According to a survey by Accenture, 67% of workers believe they must develop their skills to work with intelligent machines.

AT&T spent $1 billion on a training effort called Future Ready after its own research showed only about half of its employees had the technical skills it needed.

Boeing spent $100 million towards employee education, Disney launched a $50 million education program and Accenture has committed $200 million over the next three years.
Firms of all types are harnessing AI to forecast demand, hire workers and deal with customers.

Companies spent $22bn in 2017 on AI-related M&A - 26x more than 2015

The McKinsey Global Institute: Applying AI to marketing, sales and supply chains could create economic value of $2.7trn over the next 20 years

Anxiety? Many fear it could destroy jobs faster than it creates
“Fintech will have the biggest impact on people. Financial-services professionals are going to have a very different background, mind-set and skill sets.”

Bhushan Sethi
Joint Global Leader
People and Organisation
PwC US
### Exhibit 1: Technologies leaders think will drive change

In your opinion, which technologies are set to transform the way financial services are delivered within the next two years?

<table>
<thead>
<tr>
<th>Technology</th>
<th>TMT</th>
<th>FS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet of Things (IoT)</td>
<td>52%</td>
<td>36%</td>
</tr>
<tr>
<td>Artificial intelligence</td>
<td>51%</td>
<td>56%</td>
</tr>
<tr>
<td>5G</td>
<td>48%</td>
<td>39%</td>
</tr>
<tr>
<td>Cloud</td>
<td>45%</td>
<td>43%</td>
</tr>
<tr>
<td>Big data</td>
<td>44%</td>
<td>44%</td>
</tr>
<tr>
<td>Blockchain</td>
<td>41%</td>
<td>40%</td>
</tr>
<tr>
<td>Robotic process automation</td>
<td>40%</td>
<td>31%</td>
</tr>
<tr>
<td>Voice technology, including natural language processing</td>
<td>40%</td>
<td>29%</td>
</tr>
<tr>
<td>Biometrics identity management</td>
<td>40%</td>
<td>28%</td>
</tr>
</tbody>
</table>

Base: All TMT respondents (260), Don’t know (1%); all FS respondents (248), Don’t know (0%)

Source: PwC Global Fintech Survey 2019
U.S. FINTECH INDUSTRY

- Funding pouring into startups
- Established fintech companies evaluating their strategies
- Incumbents institutions stepping up technological developments
- The word “disruption” no longer dominates fintech talks
- Partnerships between tech companies and traditional financial institutions
OUTLOOK AND RECENT TRENDS

- Insurance technology – Insurtech
- Digital investment management
- Digital lending
- Mobile payments
- Digital banking
Insurtech

• According to S&P Global Market Intelligence report, more than $3.8B flowed into the sector in 2019
• Digital agencies attracted more interest. In terms of $ funding, almost $2B raised by 5 full service companies
• Startups started working with incumbents instead of trying to replace them
• Innovation areas: policy design, user experience and data analysis
Digital Investment Management

Produced most startup funding transactions in 2018 and 2019

However produced less number of rounds

Retail focused robo-advisories captured the most attention
• Expected to grow 27% annually by 2022
• Much of the growth is expected to come from incumbents like Vanguard and Charles Schwab

Younger startups in this sector

Reduced fees and lower account minimums

• Expected to grow 27% annually by 2022
• Much of the growth is expected to come from incumbents like Vanguard and Charles Schwab
US fintech investments in 2019

- **Aggregate value raised ($M)**
- **Number of transactions**

<table>
<thead>
<tr>
<th>Segment</th>
<th>Aggregate Value ($M)</th>
<th>Number of Transactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insurance technology</td>
<td>3,500</td>
<td>200</td>
</tr>
<tr>
<td>Payments</td>
<td>2,800</td>
<td>150</td>
</tr>
<tr>
<td>Digital lending</td>
<td>2,000</td>
<td>100</td>
</tr>
<tr>
<td>Banking technology</td>
<td>1,500</td>
<td>80</td>
</tr>
<tr>
<td>Investment and capital markets technology</td>
<td>1,000</td>
<td>50</td>
</tr>
<tr>
<td>Financial media and data solutions</td>
<td>500</td>
<td>20</td>
</tr>
</tbody>
</table>

Average value per transaction ($M)

- Digital lending: $30
- Banking technology: $25
- Insurance technology: $20
- Overall average: $20
- Payments: $25
- Investment and capital markets technology: $15
- Financial media and data solutions: $5

Data compiled Jan. 12, 2020
Includes private placements for private, U.S.-based fintech companies, as defined by S&P Global Market Intelligence. Excludes debt transactions.
Source: S&P Global Market Intelligence
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Digital Lending

- Robust demand for their services
- 12 funding rounds of at least $100 million
- Originations grew at 72% CAGR last 5 years. S&P expects CAGR of 14.3% between 2019 - 2023
- Digital lenders increased scope of their activities
  - Student loan refinancing
  - Personal loans
  - Mortgages
  - Business loans
  - Wealth management
**Largest digital lender transactions of 2019**

<table>
<thead>
<tr>
<th>Target Name (dba)</th>
<th>Transaction amount ($M)</th>
<th>Customer focus</th>
<th>Business model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Finance Inc. (SoFi)</td>
<td>529</td>
<td>Student; consumer</td>
<td>Leading digital student loan refinancing company expanding to become</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>holistic consumer financial services provider</td>
</tr>
<tr>
<td>Fundbox Inc.</td>
<td>326</td>
<td>Commercial</td>
<td>Working capital financing platform for commercial clients</td>
</tr>
<tr>
<td>Affirm Inc.</td>
<td>300</td>
<td>Consumer</td>
<td>Consumer point-of-sale lender</td>
</tr>
<tr>
<td>Pollen Inc. (C2FO)</td>
<td>200</td>
<td>Commercial</td>
<td>Working capital financing platform for commercial clients</td>
</tr>
<tr>
<td>Branch International Inc.</td>
<td>170</td>
<td>Consumer</td>
<td>Emerging markets-focused consumer lending</td>
</tr>
<tr>
<td>Applied Data Finance LLC</td>
<td>163</td>
<td>Consumer</td>
<td>Focus on providing credit to underbanked populations</td>
</tr>
<tr>
<td>Better Mortgage Corp.</td>
<td>160</td>
<td>Consumer</td>
<td>Online mortgage lender</td>
</tr>
<tr>
<td>Lendbuzz Funding LLC</td>
<td>150</td>
<td>Consumer</td>
<td>Car loans for expats and international students who may not have</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>established credit in country of residence</td>
</tr>
<tr>
<td>Uplift Inc.</td>
<td>123</td>
<td>Consumer</td>
<td>Consumer point-of-sale lender focused on travel</td>
</tr>
<tr>
<td>InVenture Capital Corp. (Tala)</td>
<td>110</td>
<td>Consumer</td>
<td>Emerging markets-focused consumer lending</td>
</tr>
<tr>
<td>Figure Technologies Inc.</td>
<td>103</td>
<td>Consumer</td>
<td>Digital consumer lending built on blockchain-based back-end architecture</td>
</tr>
<tr>
<td>BlueVine Capital Inc.</td>
<td>103</td>
<td>Commercial</td>
<td>Small business financing company looking to expand into holistic small</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>business banking provider</td>
</tr>
</tbody>
</table>

Includes private placements with transaction values of at least $100 million for private U.S.-based companies classified by S&P Global Market Intelligence as digital lenders.
Sources: S&P Global Market Intelligence; company websites
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Mobile Payments

Mobile payment applications serve two functions:

- Storage
- Transfer of payments – P2P

Significant innovation in this area - importance of “interoperability”

- Paypal integrating its wallet Google Pay, Samsung Pay and Facebook Messenger
- Paypal, Venmo, and Square’s Cash App offers physical payment cards

The Zelle Network platform was launched in 2017

- Member banks offer real-time P2P service
- Payment volume of $160B since Q1 2017 vs. $77.8B by Venmo
CHIME FINANCIAL INC RAISED THE MOST CAPITAL

OTHER FINTECH COMPANIES ARE MOVING AGGRESSIVELY INTO BANKING

IMPROVEMENTS IN AUTOMATION AND AI CAN HELP SUPPLEMENT THESE SERVICES

NO MORE NUMEROUS BRICK-AND-MORTER BRANCHES, MOSTLY DIGITAL BANKING

HIGH-PROFILE AND CHALLENGING EXPERIMENTS ARE BEING DONE IN BLOCKCHAIN
US Financial services blockchain market report by S&P Global

• Blockchain receives a lot of hype – most projects announced by U.S. financial services companies are still in pilot phase
• The projects banks work on attract a lot of attention – earnings calls
• Visa and Broadridge appear more engaged on the topic
• Nasdaq has embraced the technology. BNY has a blockchain system in production
• Most are in B2B area and mostly private blockchains
Payments systems are being made faster and more secure as crypto is more widely accepted...

World Wire is launched for payment messaging and across 72 countries, 48 currencies and with 44 banks using the Stellar protocol

Square announces blockchain team in order to launch Square Crypto and embed blockchain in the Cash App

The social media giant will start their efforts by implementing a stablecoin exchange network via WhatsApp in India

Microsoft implemented blockchain to streamline Xbox royalty payment to game platform owners, publishers, and distributors

Boeing is invested in an unmanned vehicle company using blockchain to track vehicles, allocate flight corridor and support inspection

Amazon Web Services launched products to increase blockchain system speed to deployment
COVID-19 has changed both the way business operate and way people live.

Businesses are trying to reduce cost and redesign/reinvent themselves.

Innovations effect firms across multiple industries.

Response to the pandemic could force companies to use more automation.
Could COVID-19 Be a Catalyst for Fintech?

- Fintech is not immune to challenges
- Fintech companies as main drivers of digitalization
- Consumers will demand more digital banking
- Vanguard partnership with AntFinancial
How About Blockchain in 2020?

- Pragmatic governance models will emerge
- Interoperability will come one step closer to reality
- Adjacent technologies will combine with blockchain to create a next level advantage
- Some use cases
- Media & Entertainment
Digital Currency

- China’s central bank is one step closer to issuing its digital currency
- Sweden is now testing its digital version of cash, the e-krona
- We just glimpsed how a “digital dollar” might work, thanks to coronavirus
Thank you for attending Q&A