



ONLINE

FinTech: Overview, Payments, and Regulation Perspectives on Regulation

Natasha Sarin, Assistant Professor of Law, Assistant Professor of Finance

Overview

- Theoretical Criticisms of Regulation
- Concerns and Innovations in Financial Regulation
- What FinTech is
- Growth of FinTech
- Approaches to Regulating of FinTech
 - USA | Australia | UK | China | Singapore
- Looking Forward

“ Regulation may be actively sought by an industry, or it may be thrust upon it...as a rule, regulation is acquired by the industry and is designed and operated primarily for its benefit. **At worst, regulation hinders growth and innovation through bureaucracy.**”

— GEORGE STIGLER, ECONOMIST AND AUTHOR OF “THE THEORY OF ECONOMIC REGULATION”

“Corruption is government intrusion into market efficiencies in the form of regulations.”

— MILTON FRIEDMAN, NOBEL LAUREATE (ECONOMICS)

“Regulation is necessary, particularly in a sector, like the banking sector, which exposes countries and people to a risk.”

— CHRISTINE LAGARDE, MD, IMF

“ Cars, toys, aspirin, meat, toasters, water – nearly every product sold has passed basic safety regulations well in advance of being marketed and sold. But consumer credit is a kind of buyer-beware, wild west.”

— SENATOR ELIZABETH WARREN (MA)

“Good regulation should be conducive to business and to customer protection.”

— JAMIE DIMON, CEO, JP MORGAN

“Markets are imperfect. So you do need regulation, knowing that the regulators are also human.”

— GEORGE SOROS, MD, SOROS FUND MANAGEMENT



ONLINE

FinTech: Overview, Payments, and Regulation The Regulation Innovation Tradeoff

Natasha Sarin, Assistant Professor of Law, Assistant Professor of Finance

The Regulation-Innovation Tradeoff

**AT
BEST**

Regulation

Regulation ensures consumer safety and reduces market/societal risks

**AT
WORST**

Regulation hinders growth/innovation through bureaucracy

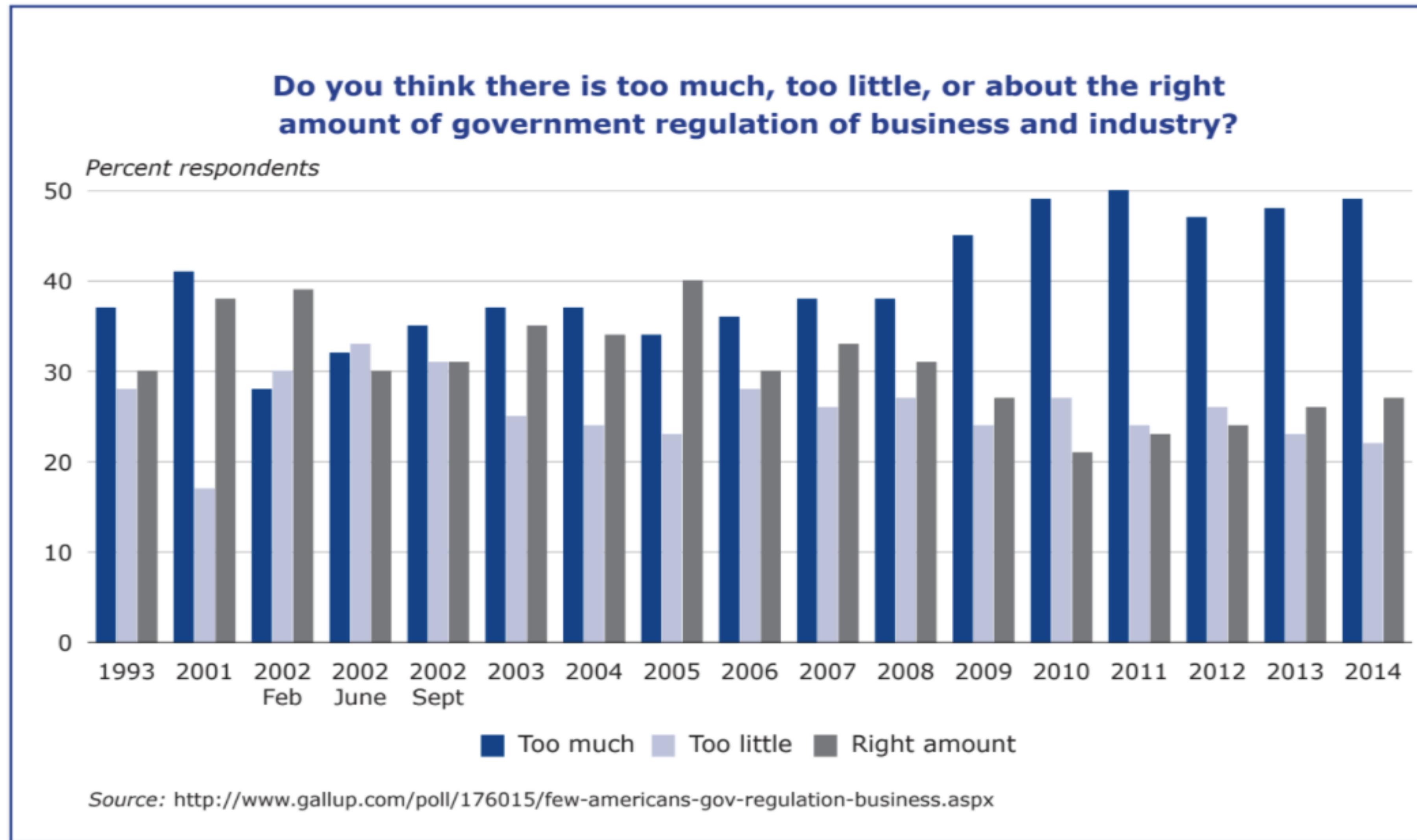
It may also benefit incumbent companies and transfer risk from more to less regulated sectors

Innovation

Companies create new products in a safe and responsible way

Fast-paced innovation fails to address security and cybercrime risks

The Regulation-Innovation Tradeoff



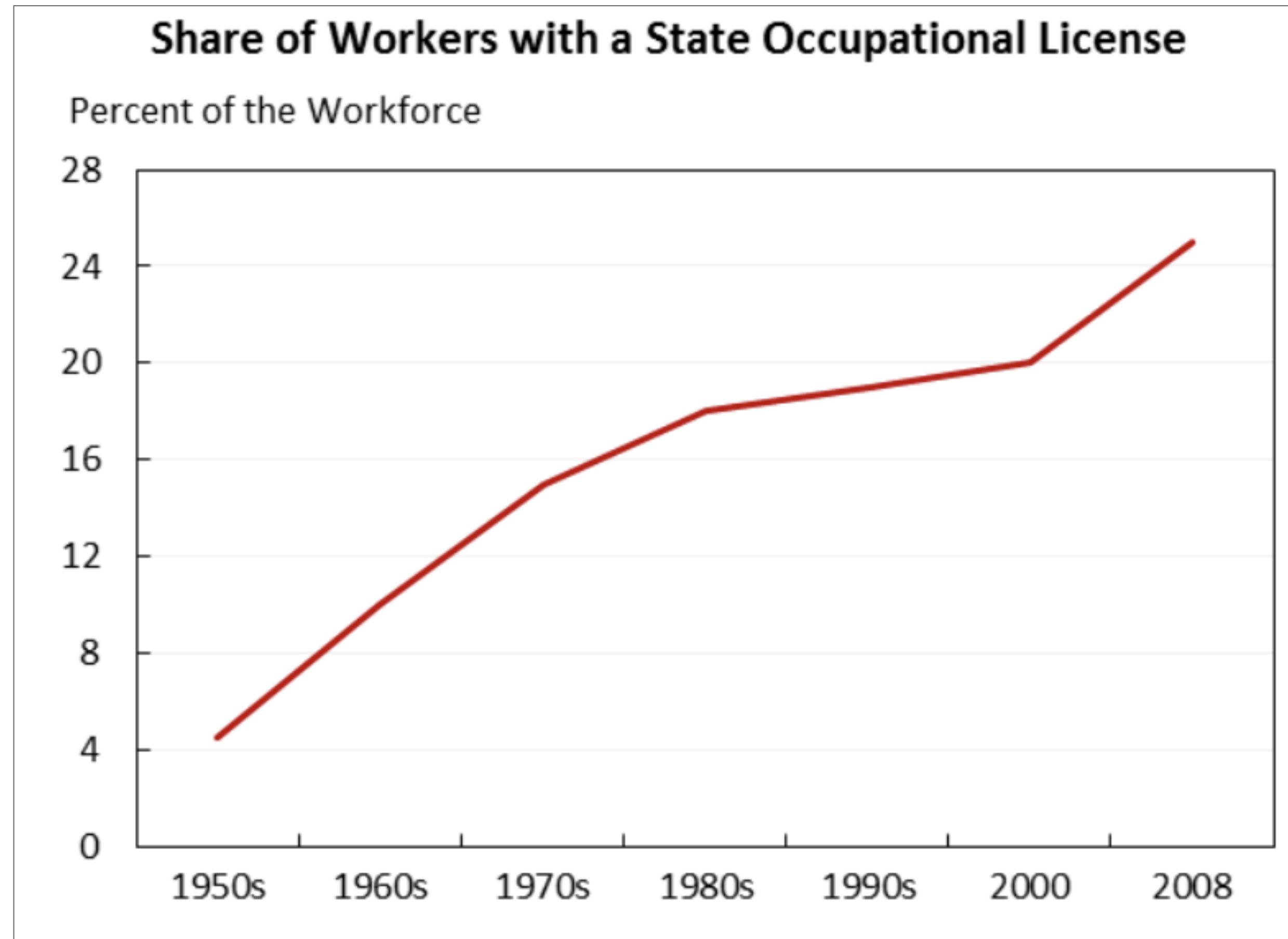
The Regulation-Innovation Tradeoff

Regulation:

- Involves the restriction of industry's ability to engage in certain practices to hopefully best serve consumers
- Is meant to help consumers, by protecting them against risks that emerge in different markets
- Can ill-serve consumers by making certain markets less competitive and providing incumbents advantage in those spaces

Sources: Northwestern Institute For Policy Research; CoreLogic; Federal Reserve Bank of St. Louis; Federal Reserve History

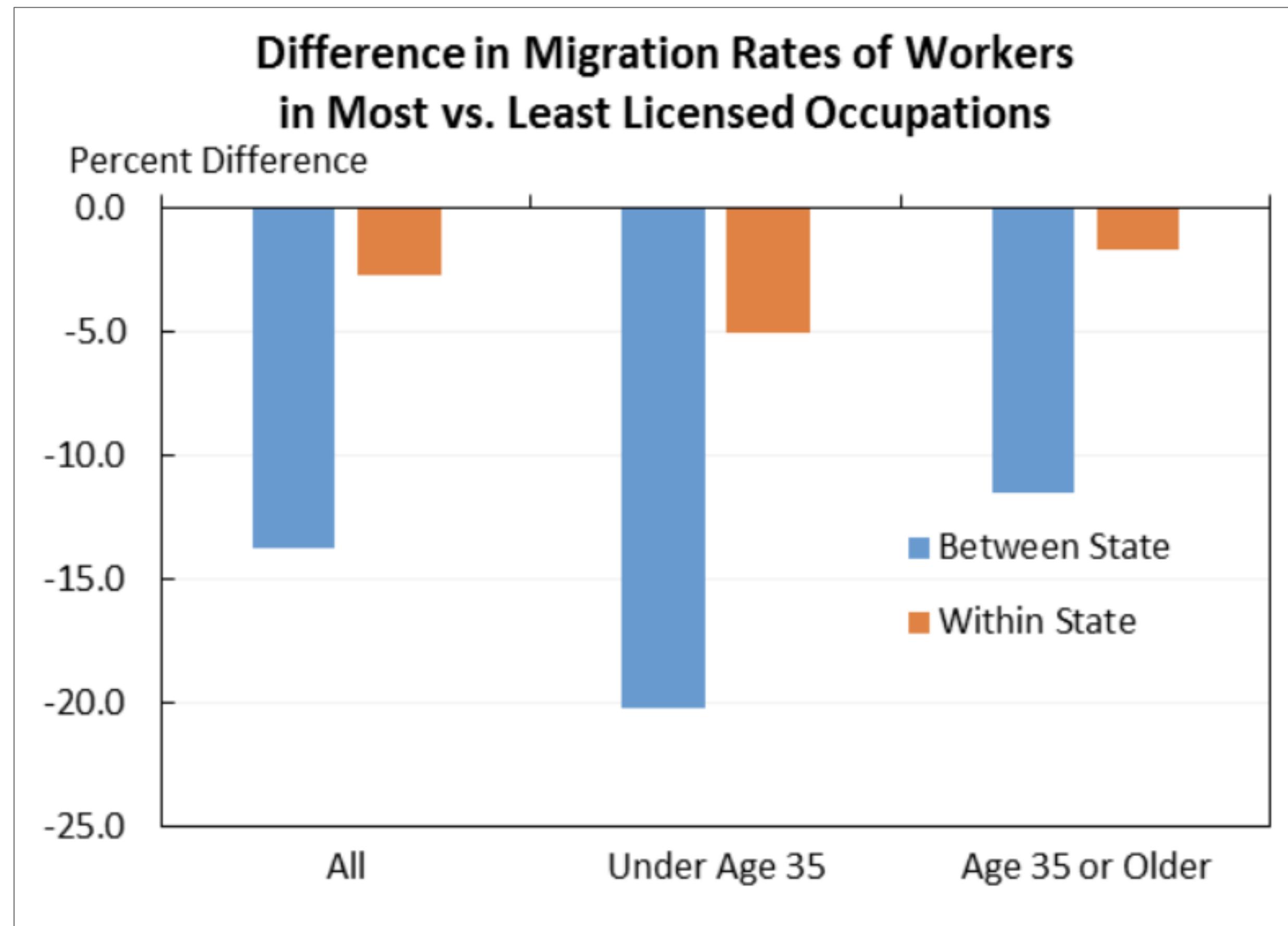
Case Study of Over Regulation: Licensing



- The percent of occupations requiring a State license has increased from less than 5% of workers in the early 1950s to 25% in 2015
- Jobs that require such licenses range from physicians and lawyers to barbers and manicurists

Source: The Council of State Governments (1952); Greene (1969); Kleiner (1990); Kleiner (2006); and Kleiner and Krueger (2013), Westat data; CEA Calculations.

Case Study of Over Regulation: Licensing



- An excess of these licensing requirements has been found to reduce worker mobility and increase inequality

Source: Census Bureau, American Community Survey 2010-2013; CEA Calculations.



ONLINE

FinTech: Overview, Payments, and Regulation The Great Recession

Natasha Sarin, Assistant Professor of Law, Assistant Professor of Finance

The Great Recession

The losses of the Great Recession were large and widespread:

- 8+ million Americans lost their jobs
- 7.8 million homes were foreclosed
- 2.5 million businesses were shuttered
- 12.1% decline in median real family income
- 40.1% decline in median real net worth
- 4.3% decline in real GDP

Sources: Northwestern Institute For Policy Research; CoreLogic; Federal Reserve Bank of St. Louis; Federal Reserve History

Post-Great Recession Financial Regulation

- Dodd–Frank Wall Street Reform and Consumer Protection Act
- Consumer Financial Protection Bureau (CFPB)
- Capital reserve requirements
- Stress-testing
- Expanded regulation of the shadow banking system and derivatives

“ To the extent that regulation played a role in the [big] banks’ reluctance to re-enter the small-business market once the crisis had subsided, our findings reinforce the view that **one of the consequences of heightened bank regulation may be to drive activity to the less-regulated, nonbank sector.**”

— CHEN ET AL. (2017), THE DECLINE OF BIG-BANK LENDING TO SMALL BUSINESS: DYNAMIC IMPACTS ON LOCAL CREDIT AND LABOR MARKETS



ONLINE

FinTech: Overview, Payments, and Regulation Emergence of FinTech

Natasha Sarin, Assistant Professor of Law, Assistant Professor of Finance

Emergence of FinTech

In the years after the crash, entrepreneurs saw needs for new types of financial businesses including:

- Low-cost ways to invest household saving
- Platforms to borrow money without a commercial bank
- Faster payment methods
- Mediums to crowdfund projects and startups
- Low-fee ways to transfer money abroad

Emergence of FinTech

What is considered “FinTech”?

- An app that deposits cheques via a photo?
- A new peer-to-peer lending platform?
- A website that make international transfers cheaper?
- A new medium of exchanging value like Bitcoin?
- Payments through Facebook Messenger?

Emergence of FinTech

- FinTech covers a spectrum from totally new ideas and kinds of businesses, to traditional businesses taking advantage of new technologies
- Useful to think of financial technologies as involving “business practices” and “financial institutions”
 - The relative “newness” varies depending on the particular product
 - Ex. Bank of America’s mobile platform
 - Ex. Facebook payments
 - Ex. Lending Club
- The kind of regulatory framework we will want to adopt will be a byproduct of the existing regulation that already exists in that space

Emergence of FinTech

- FinTech is the contraction of ‘financial’ and ‘technology’.
- At first, FinTech referred to technology that improved back-end systems at traditional financial institutions
- With the emergence of new technologies in money transfer, lending, investing, crowdfunding, payments, and more, this definition has been broadened

Emergence of FinTech

- The breadth of FinTech makes regulation challenging because, while FinTech is typically considered one group of technologies, they include:
 - Well-established, regulated firms doing new things (e.g. JP Morgan launching its own cryptocurrency)
 - Startups doing existing finance differently (e.g. no-fee peer-to-peer payments)
 - Startups reconsidering the financial system (e.g. decentralized, blockchain-based marketplaces)

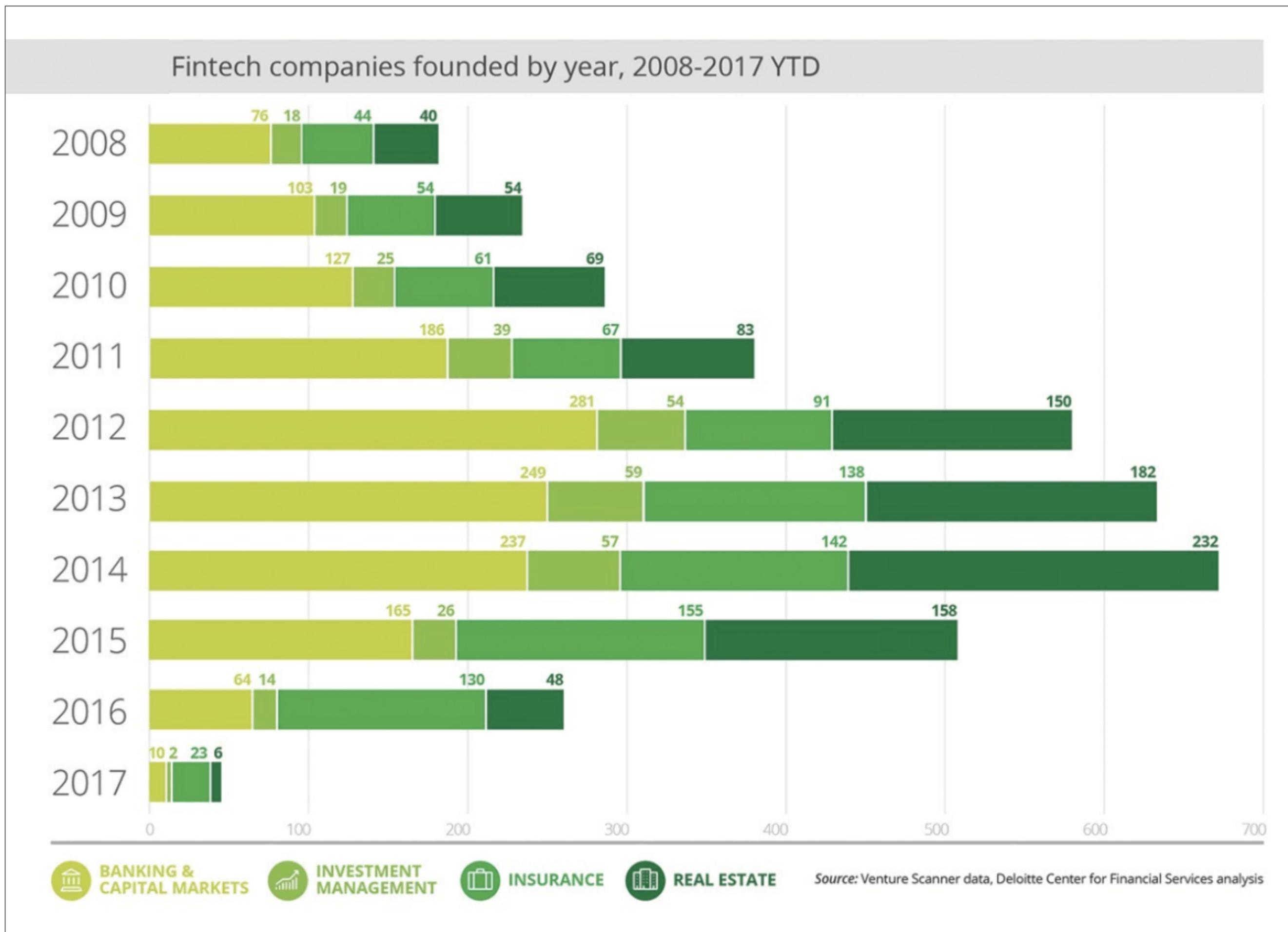


ONLINE

FinTech: Overview, Payments, and Regulation FinTech Growth & Benefits

Natasha Sarin, Assistant Professor of Law, Assistant Professor of Finance

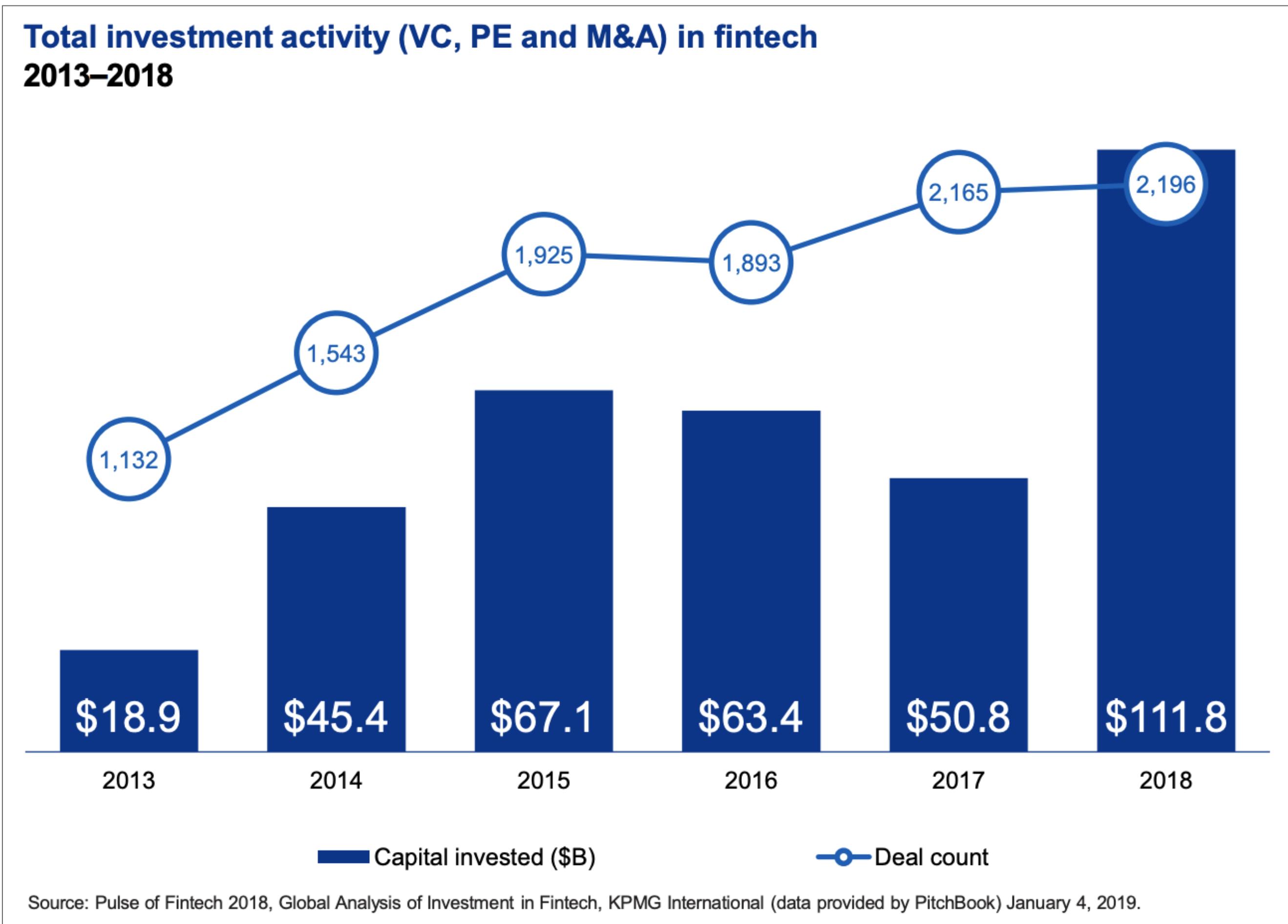
Growth of FinTech



- The number of FinTech companies founded annually has grown significantly from 178 in 2008 to 668 in 2014
- In 2016 there were over 1,000 FinTech companies globally

Strong growth in the number of FinTech companies founded in banking/capital markets, investment management, insurance, and real estate.

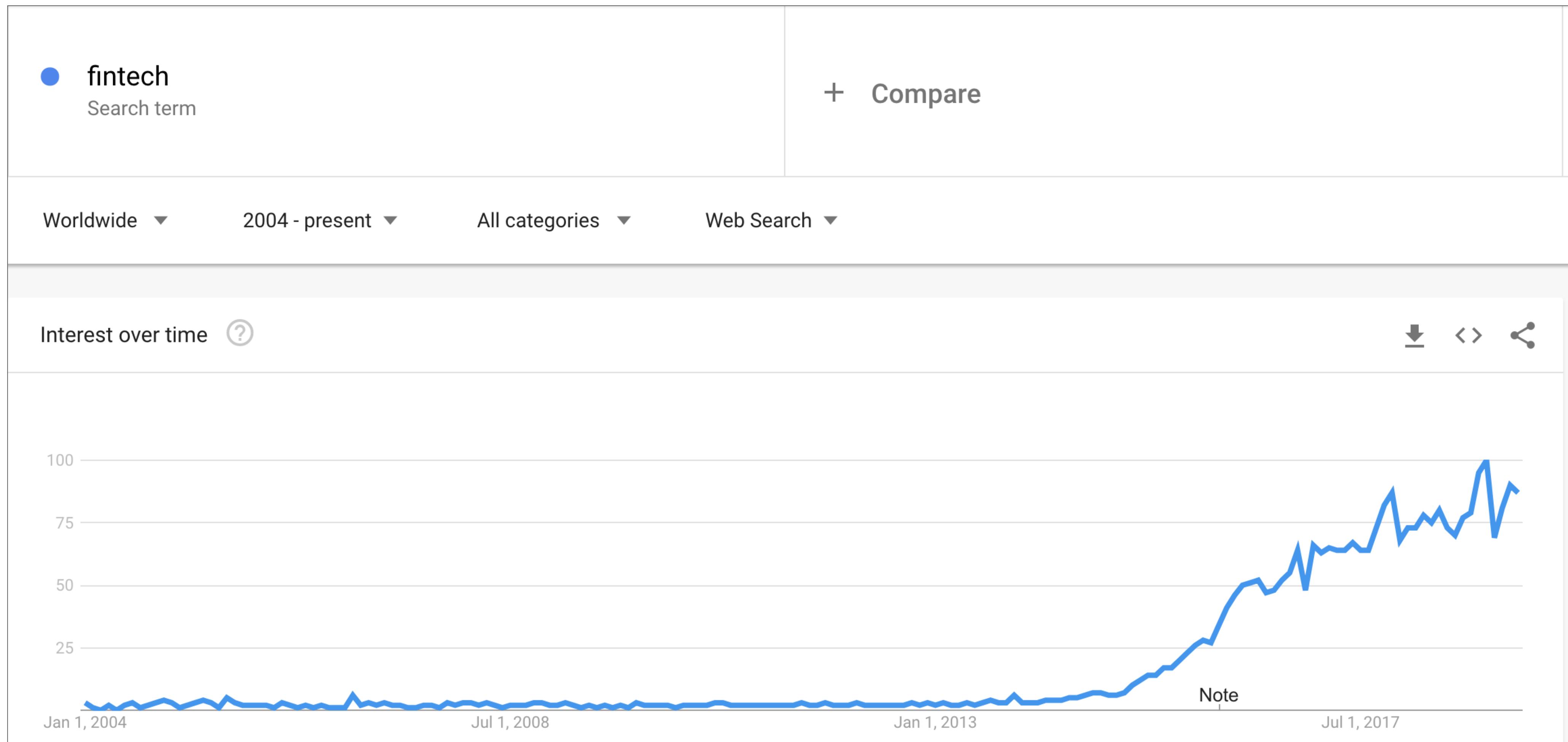
Growth of FinTech



- Total investment in FinTech companies - across M&A, PE and VC - grew from \$18.9 billion in 2013 to \$111.8 billion in 2018
- The number of investment deals more than doubled from 1,132 in 2013 to 2,196 in 2018

Strong global growth in funding for FinTech companies

Growth of FinTech



Growing public interest in FinTech.

Note: The graph is standardized with 100 being the peak of online search volume for 'fintech'.

Growth of FinTech

Harnessing the fintech revolution to a better future

By Agustín Carstens | China Daily | Updated: 2018-12-25 08:03

Fintech growing rapidly in Latin America

By: Gavin O'Toole | 29 Mar 19

The number of fintech startups has increased dramatically in Latin America, giving a significant boost to ambitions for greater financial inclusion.

Financial services

The fintech revolution

A wave of startups is changing finance—for the better

Print edition | Leaders >

May 9th 2015



| The growth of fintech: from the first wire transfer to blockchain technology and beyond

PAUL SKELDON ON 4 MARCH 2019

BILLING & PAYMENTS, PLATFORMS & TECHNOLOGY, FEATURES

MARKETS

Warren Buffett's Firm Invests Millions in Fintech

Move is a departure from company's usual penchant for blue-chip companies in steady businesses

By Nicole Friedman and Peter Rudegeair

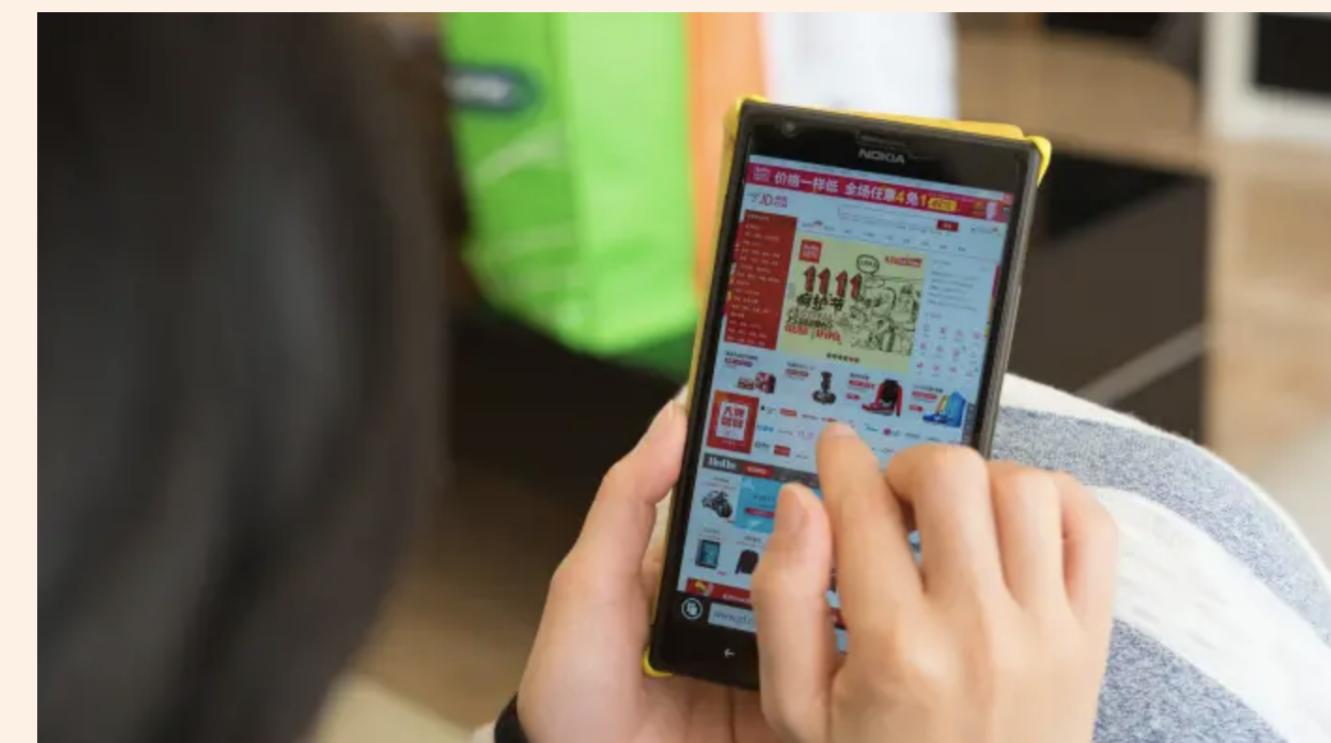
Updated Oct. 29, 2018 6:16 a.m. ET

Fintech startups paving way for a financially smart India with global recognition

Fintech startups have recently started taping the unmet demand from smaller cities and industries in terms of credit and financial guidance.

Well-regulated fintech offers salvation to the financial services

From Michael Kent, Azimo, London, UK



FEBRUARY 21, 2019

□ 3

Benefits of FinTech

- Access
 - Mobile banking, tech-driven microfinance, crowdfunding, etc.
 - In the United States, about 20% of consumers are reportedly underbanked and about 7% are unbanked
- Efficiency
 - Ease-of-payment, low-cost international transfers, etc.



ONLINE

FinTech: Overview, Payments, and Regulation Issues with FinTech

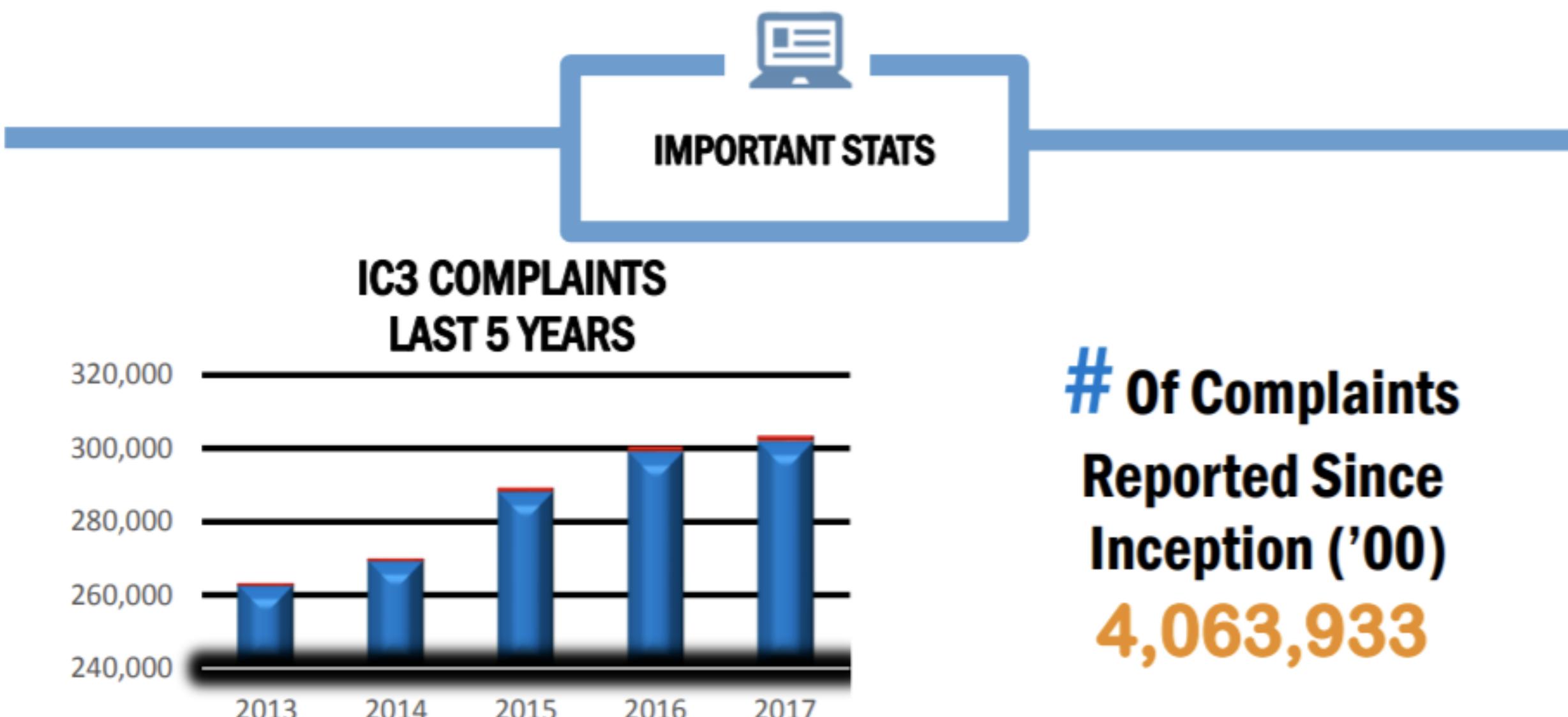
Natasha Sarin, Assistant Professor of Law, Assistant Professor of Finance

Issues with FinTech

- New challenges for regulators:
 - Data Breaches/Cybercrime

Data Breaches/Cybercrime

2017 Overall Statistics



- According to the FBI's Internet Crime report, cybercrime cost the U.S. over \$1.4 billion in 2017

Source: FBI

Data Breaches/Cybercrime

26,972 views | Mar 11, 2019, 05:45am

Marriott CEO Reveals New Details About Mega Breach

Fintech

Panel of fintech experts warns of urgent cybercrime threat

Pedro Gonçalves
06 December 2018

Downside of Technology for Advisors: Increased Cybercrime

A GlobalData study looks at how cybercrime has grown as a result of the digitization of the business, and how advisors are responding.

By Ginger Szala | February 28, 2019 at 04:26 PM

SANCHITA DASH | MAR 4, 2019, 04:33 PM



India's fintech cos are growing but cybersecurity fails to make the mark

B2B PAYMENTS

The Security Threat Of Bank-FinTech Collaboration

By PYMNTS

Posted on December 5, 2018

MAR 19, 2019



By Adrian Zmudzinski

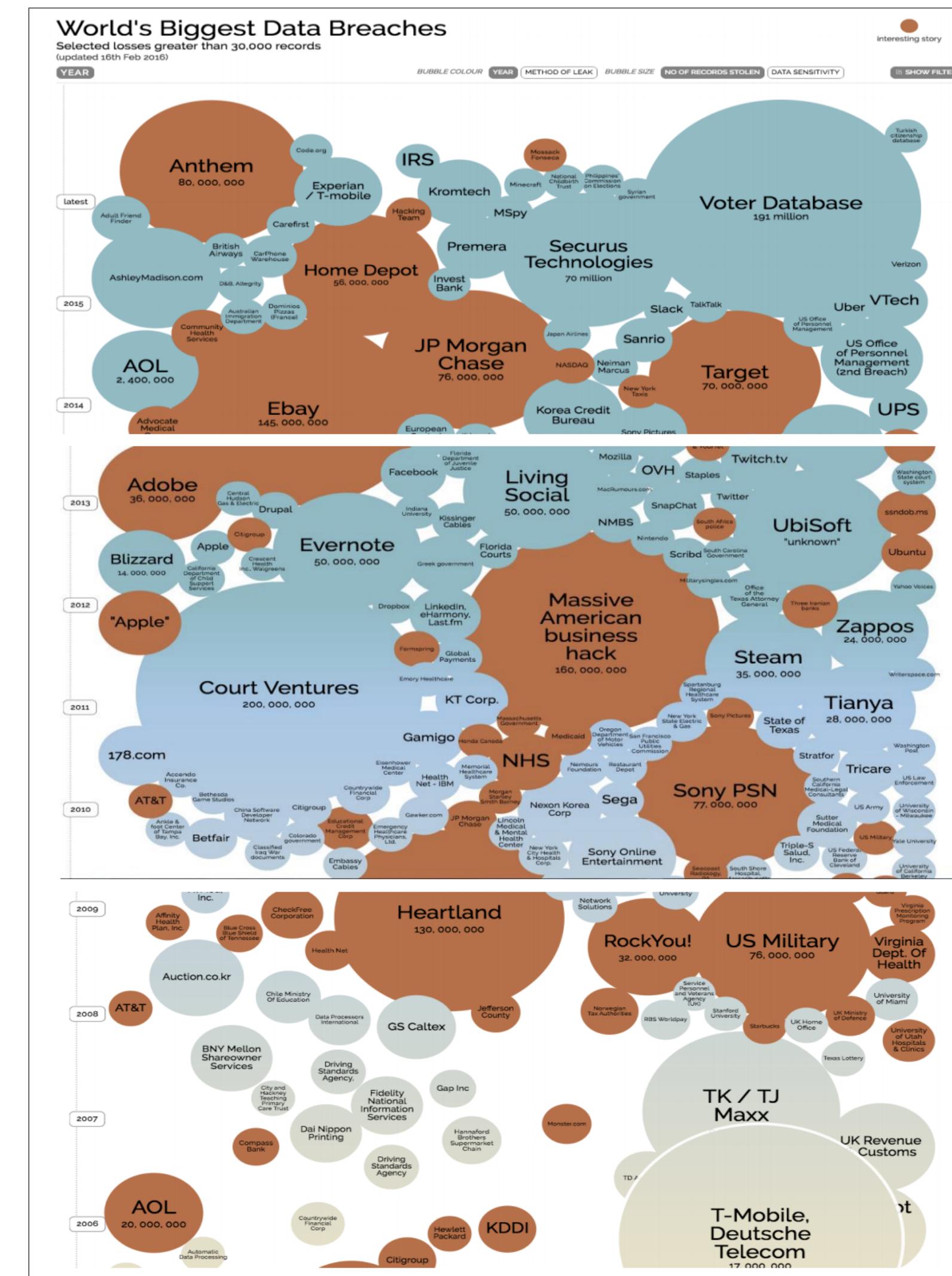
Report: Malware Targets Israeli Fintech Firms Working in Crypto, Forex Trading

Data Breaches/Cybercrime

- **Company:** Equifax
- **Problem:** Data breach by hackers through a single Internet-facing web server with out-of-date software
- **Result:** Breach of personally identifiable information of over 143 million people
- **Regulatory Response:** Sen. Elizabeth Warren co-sponsored a bill that would give the Federal Trade Commission more direct supervisory power over credit-reporting agencies like Equifax, and impose the ability to levy fines



Data Breaches/Cybercrime



Source: Information is Beautiful

Issues with FinTech

- New challenges for regulators:
 - Data Breaches/Cybercrime
 - Unanticipated, or “Weird” Problems

Issues with FinTech

Cryptocurrency investors locked out of \$190m after exchange founder dies

QuadrigaCX, Canada's largest exchange, was unable to access password or recovery key after Gerald Cotten died last December

Issues with FinTech

LendingClub plunges after the FTC charges the online lender with 'deceiving customers'

- LendingClub sold users on loans with "no hidden fees," but actually collected "hundreds or even thousands of dollars in hidden up-front fees from the loans," the FTC said Wednesday.
- The company's stock plunged as much as 17 percent immediately following the announcement.

Sara Salinas | [@saracsalinas](#)

Published 2:02 PM ET Wed, 25 April 2018 | Updated 4:02 PM ET Wed, 25 April 2018

Data Breaches/Cybercrime

- **Company:** Bitcoin
- **Problem:** Purported anonymity fueled illegal activity, for instance, on Silk Road
- **Result:** In March 2013, Silk Road had 10,000 products for sale via bitcoin by vendors, 70% of which were drugs
- **Regulatory Response:** The FBI seized 26,000 bitcoins and shut down Silk Road in 2014





ONLINE

FinTech: Overview, Payments, and Regulation Issues Regulating FinTech

Natasha Sarin, Assistant Professor of Law, Assistant Professor of Finance

Issues Regulating FinTech

- FinTech is hard to define

Issues Regulating FinTech

WHAT IS FINTECH?

Fintech = financial technology

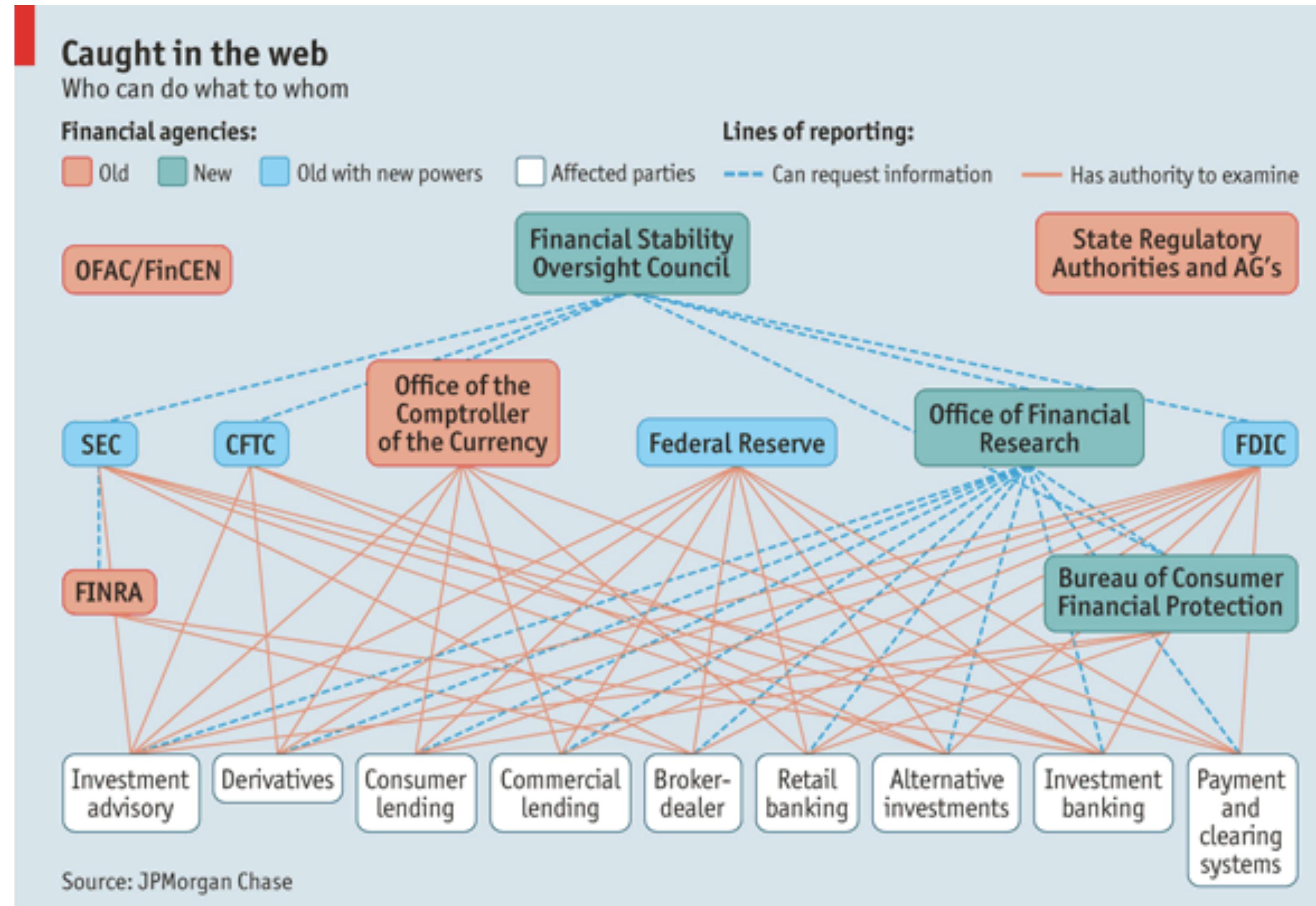


FinTech
Meetup

Issues Regulating FinTech

- FinTech is hard to define
- The technologies are fast-moving
- Unclear cross-country regulatory jurisdiction
- Unclear within-country regulatory jurisdiction

Issues Regulating FinTech





ONLINE

FinTech: Overview, Payments, and Regulation U.S. FinTech Regulation

Natasha Sarin, Assistant Professor of Law, Assistant Professor of Finance

Various Approaches to Regulating FinTech

- 1. “Exempt/ unregulated” through lack of definition
- 2. Specific Regulation based on existing regulatory components
 - UK
- 2. Platforms regulated as an intermediary (market operator, broker)
 - Canada,
- 3. Platforms regulated as a bank
 - Germany, France
- 4. Securities issuance
 - USA (SEC) and state level
- 5. Prohibited
 - Japan, Israel)
- 6. MIS/CIS
 - Australia

Source: Australian Centre for Financial Studies

Approach to Regulating FinTech (USA)

- OCC vs. States
 - In 2018, the Office of the Comptroller of Currency (OCC) at the U.S. Department of the Treasury (DoT) announced it would begin accepting applications from FinTechs for special bank charters (which **would allow FinTechs to operate nationally**)
 - Eligibility is defined as FinTech companies that do not take deposits but are otherwise engaged in “the business of banking” — paying checks or lending money

Approach to Regulating FinTech (USA)

- OCC vs. States
 - In the 2017 lawsuit Conference of State Bank Supervisors (CSBS) v. OCC, the CSBS alleged that the OCC lacked statutory authority to charter nondepository FinTech companies
 - The case was dismissed on jurisdictional grounds but, nevertheless, the **CSBS declared that the charter is ‘a regulatory train wreck in the making’**
- No Single Framework



ONLINE

FinTech: Overview, Payments, and Regulation Global FinTech Regulation

Natasha Sarin, Assistant Professor of Law, Assistant Professor of Finance

Proposals for “FinTech Sandboxes”

- “[A regulatory sandbox is] a framework set up by a financial sector regulator to allow small-scale, live testing of innovations by private firms in a controlled environment (operating under a special exemption, allowance, or other limited, time-bound exception) under the regulator’s supervision.”

Source: CGAP (Consultative Group to Assist the Poor)

Approach to Regulating FinTech (Australia)

- Centralized regulation for FinTechs
 - The Australian Securities and Investment Commission (ASIC) helps FinTech companies work out which licenses and regulations apply to them and make sure consumers and investors are protected when dealing with FinTechs
 - The ASIC created a FinTech “regulatory sandbox”, which is designed to help FinTechs maintain their flexibility to test new products and services for up to 12 months without an Australian financial services or credit license



Approach to Regulating FinTech (UK)

- Attempting to create a global FinTech “sandbox”
 - The UK Financial Conduct Authority (FCA) is working on a global sandbox for FinTech companies to help the growth of companies with cross-border ambitions
 - In the meantime, the UK has established FinTech bridges with Canada, China, Hong Kong, Japan and South Korea



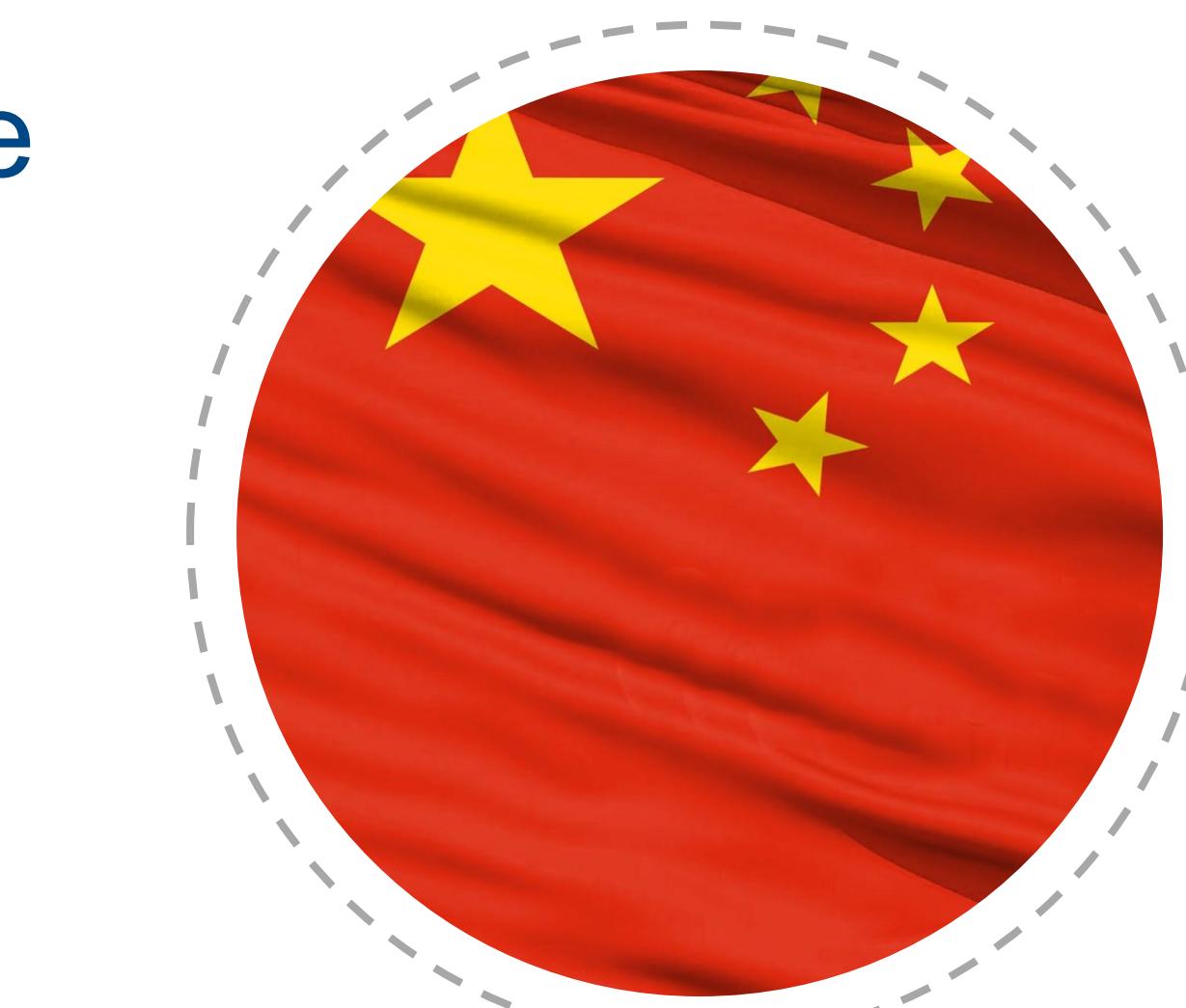
Approach to Regulating FinTech (Singapore)

- Created a regulatory sandbox in 2016
 - “The regulatory sandbox will enable FIs as well as FinTech players to experiment with innovative financial products or services in the production environment but within a well-defined space and duration. It shall also include appropriate safeguards to contain the consequences of failure and maintain the overall safety and soundness of the financial system.” - Monetary Authority of Singapore (MAS)



Approach to Regulating FinTech (China)

- Loose regulatory oversight over FinTechs
 - According Dexter Hsu, an analyst at Macquarie, “The whole of China is a regulatory sandbox, a safe zone for startups to test new applications and ideas”
 - However, some regulation has been implemented: the ministry of industry and information technology will start to produce ratings for blockchain products and Beijing banned initial coin offerings (ICOs), blocking websites that offered cryptocurrency trading services



Approach to Regulating FinTech: Takeaways

- Clearly defining internal regulatory authority is a necessary step for coherent FinTech regulation (USA)
- Regulatory sandboxes have been found to increase value and capabilities of participating firms (UK)
- While absent regulation can spark a boom, it also gives rise to a market full of scams and high-risk financial models (China)
- Active and collaborative regulation can be encouraged through innovation hubs that help FinTechs navigate the regulatory landscape (Australia, Singapore)



ONLINE

FinTech: Overview, Payments, and Regulation RegTech and Looking Forward

Natasha Sarin, Assistant Professor of Law, Assistant Professor of Finance

Looking Forward: RegTech

Using the methods/tools of FinTech to comply with regulation

DEFINITION OF REGTECH

Regtech | noun | /reg-tek'

Technology that addresses regulatory challenges and facilitates the delivery of compliance requirements



Regulatory technology was created to address challenges ranging from traditional compliance and risk management to data reporting and transmission, and much more.



Regulatory bodies covered are industry specific and can include governments, councils, or agencies.



Compliance requirements include both new and existing rules, regulations, sanctions, and industry-specific guidance as prescribed by the respective regulatory body.

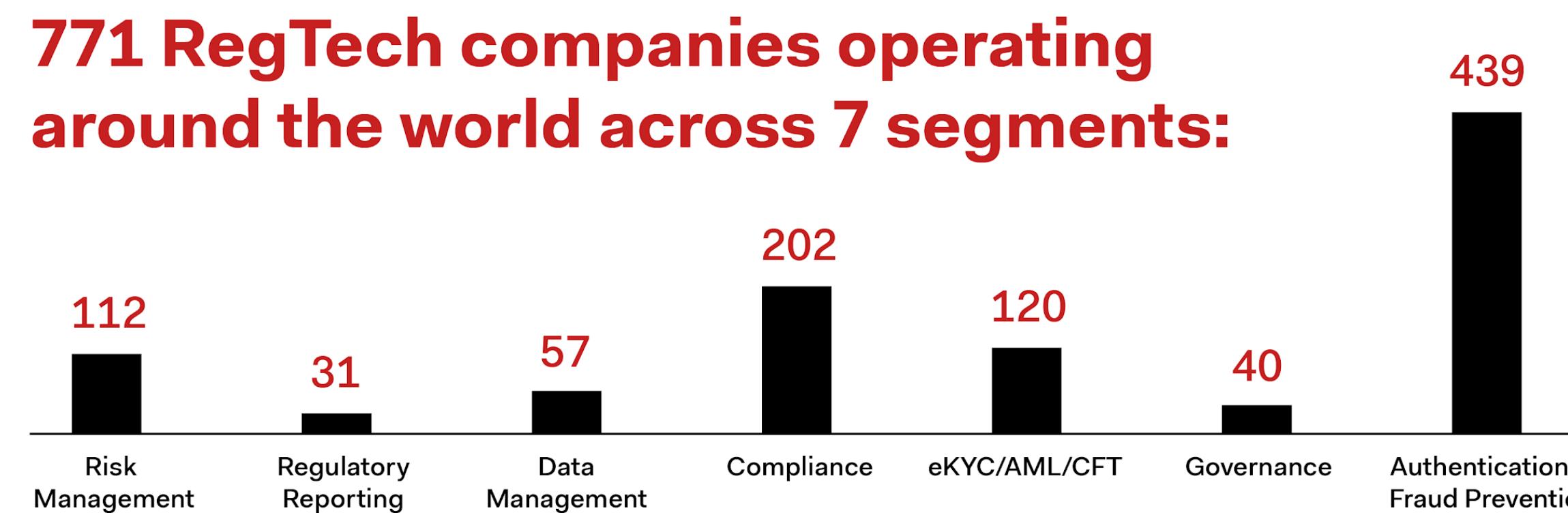
Looking Forward: RegTech

Suade

- A software platform that allows financial institutions to process large volumes of granular data and output the required regulatory data, calculations, risks and reports (i.e. compliance)

Trulioo

- Provides ID verification for companies - such as Paypal, Stripe, and Amazon - to comply with know-your-customer (KYC) and anti-money laundering rules



Looking Forward: Key Questions

- Is it appropriate to regulate FinTech as one thing?
- Should FinTech be regulated with one global framework?

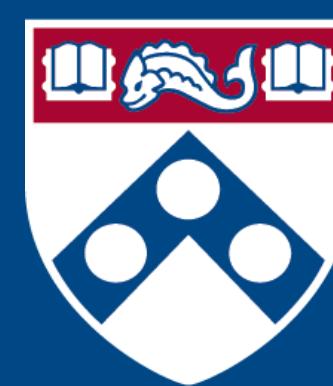


ONLINE

FinTech: Overview, Payments, and Regulation

Thank You

Natasha Sarin, Assistant Professor of Law, Assistant Professor of Finance



Wharton
UNIVERSITY *of* PENNSYLVANIA

ONLINE