



# 1b FinTech: Introduction, History and Fintech Hubs

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# Readings and References

## [FB]

From Section 1: Introduction

[1] *Banking and the E-Book Moment*

[2] *Why We're so Excited About FinTech*

From Section 10: Future of FinTech

[3] *FinTech Impact on Retail Banking – From a Universal Banking Model to Banking Verticalization*


[4] *Embracing the Connected API Economy*

## [References] (Optional Reading)

- Philippon, T., *The FinTech Opportunity*, 2016, NBER Working Paper No. 22476.



# What is FinTech

- FinTech = “Financial Technology”
- Technology-driven changes in **financial services**
- **Disruptively** innovative
  1. iPod → Walkman 
  2. Kindle → physical books (traditional publishing industry)
  3. iPhone → traditional cell phone
  4. etc
- Threatening traditional financial industry
  1. Unprecedented user convenience
  2. Cost reduction



# What is FinTech

In general, FinTech means the following active product areas:

- Payment systems (entry point of FinTech into finance industry)  
E.g. PayPal, Apple Pay, Alipay, WeChat Pay, M-Peso, ...
- Investing
  1. Digital advisory  
E.g. Betterment, Wealthfront, Nutmeg, ...
  2. New trading platform/systems  
E.g. Robinhood, eToro, ...
- Financing
  1. Lending platforms (P2P, B2P, B2B...)  
E.g. Prosper.com, LendingClub, Ezubao, WeLab, FundingCircle,...
  2. (equity and non-equity) crowdfunding platforms  
E.g. Kickstarter, RocketHub, Indiegogo, CircleUp, ZhongChou...



# (Ct'd) What is FinTech

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People also include the following in FinTech

- Cryptocurrency and Blockchain technology  
E.g. Bitcoin

As the industry grows, FinTech is also used to refer:

- application of machine-learning/AI/etc in financial services  
E.g. Fraud detection, credit scoring, identity management...

Application of ML/AI/etc in investment decision/trading/hedging/etc does **not** quite count as FinTech (in strict sense).



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# A Time Line

- PayPal (1998), spun-off from eBay in 2015.
- AliPay (2004)
- Wealthfront, Betterment (2008)
- Bitcoin launch (2009), Kickstarter (2009)
- WeChat pay (2014)
- 2015 onwards, FinTech attracts much attention

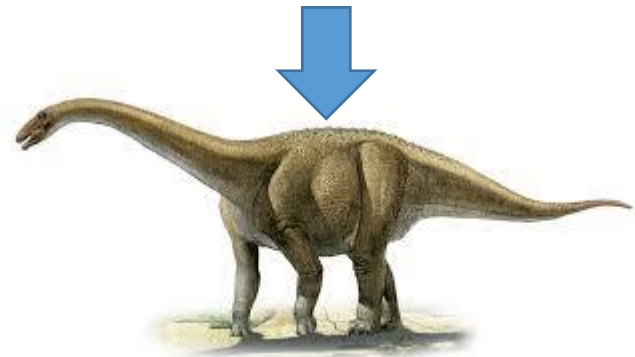
You can have your own view of the FinTech time line.



# Why Did FinTech Rise

- Post-crisis anger towards old financial system
  1. Difficult and costly to use
  2. Unreliable
  3. Large and opaque, too-big-to-fail.
- Banking system cannot keep up with the pace
  1. Heavy regulation after 2008
  2. Cumbersome legacy technology infrastructure
  3. Lack the innovative culture

Financial industry



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# The FinTech Opportunity (Philippon (2016))

- Banks are risky

Levered by short term debts; opaque and complex; banks want to be opaque and complex.

- Financial services are expensive

Excess rents and low efficiency.

E.g. expensive asset management service; mis-selling of financial products; bad “innovations”; etc.

- Post-crisis regulations work to some extent, but difficult to provide structural shifts.

The current regulations focus on limiting the leverage ratio; but leverage ratio is difficult to be estimated; and the new target leverage ratio is difficult to set.





# The FinTech Opportunity (Philippon (2016))

Features of FinTech that makes it promising to change the face of financial industry.

- Disruptive innovations; not held back by out-of-date legacy infrastructures (which hold back the incumbents (i.e. existing banks))

- **Payment technology:** Low-leverage solutions; does not have to be dependent on runnable claims (e.g. bank deposits)

Payment technology makes the transactions frictionless and instant; not rely on deposits. E.g. pay for goods with mutual fund shares.

- **Asset management:** Less unnecessary human involvement; cost reduction via (1) decline in fees; (2) decrease conflict of interests.

“Robo-advisors” are transparent, easy to check (just examine the codes) and debug.



# The FinTech Opportunity (Philippon (2016))

How should regulators regulate FinTech?

- Encourage entry of FinTech into markets dominated by incumbents.
- Encourage low-leverage system; continue regulating the leverage ratio of incumbents.
- Be alerted about acquisitions (avoid the incumbents absorbing the new entrants).



# The Role of Application Programming Interface

- Disrupted banks should think about **collaborating** with FinTech firms.
- Technically, connect the bank's system/database with FinTech firm's solutions.
- E.g. API of Hadoop functions in R is `mapreduce()` (via the package "rmr2").
- Banks have large customer database (and legacy IT system); FinTech firms have state-of-the-art technology.
- E.g. A retail investor walks in a bank. Instead of trying to selling him/her some financial products, feed the data into API of FinTech firm 1 to assess the customer's investor's needs. If a robo-advisor is the suitable choice, use API of FinTech firm 2 to serve this customer.



# FinTech Hub: Singapore

- Large financial center. Developed country in Asia.
- Government heavily supports entrepreneurship and innovation. “Chief FinTech Officer” in MAS.
- Local universities/institutions are enthusiastic about FinTech.



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