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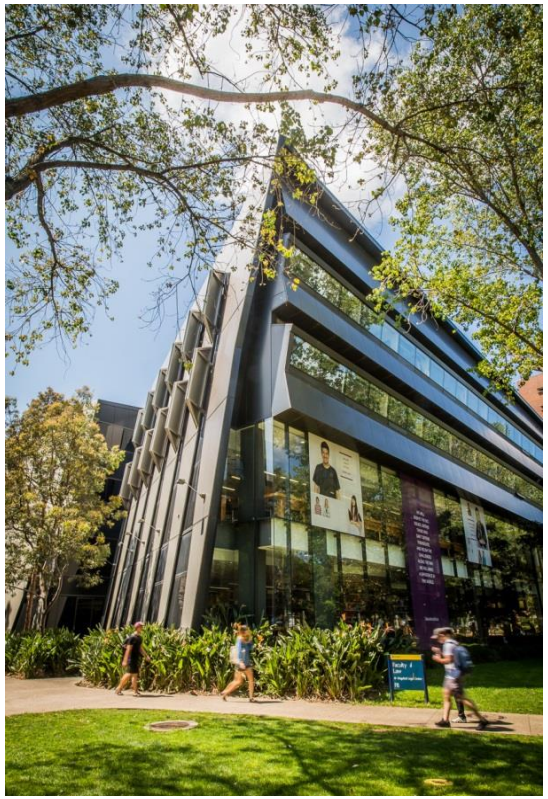

FinTech and Disruptive Innovation: A New Era of Regulation

November 12, 2020

Hong Kong Shue Yan University

Evolution of Digital Entrepreneurship, FinTech and FinReg

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Overview

Organising idea – The entity that knows the most about you is best placed to price credit or insurance for you. Traditionally that has been your bank.

Increasingly this will not be the case unless banks change their entire relationship with data.

In this sense mandating open banking (over their objections) may save the banks lives – more on this later.

Evolution

FinTech is often seen today as the new marriage of financial services and information technology. However, this interlinkage has a long history and has evolved over three distinct time periods.

Date	1866 - 1987	1987 - 2008	2009 – 2018		2018 on
Era	FinTech **1.0**	FinTech **2.0**	FinTech **3.0**	FinTech **3.5**	FinTech **4.0**
Geography	Developed World	Global	Developed World	Developing World	Global
Key players	Infrastructure	Banks	Start-ups		All parties
Shift Origin	Globalization	Technology	2008 Financial Crisis	Market Reform	Pursuit of profit and government reforms

FinTech 1.0 (1866 – 1987)

In the late 19th century finance and technology combined to produce the first period of financial globalization.

"The inhabitant of London could order by telephone, sipping his morning tea in bed, the various products of the whole earth, in such quantity as he might see fit, and reasonably expect their early delivery upon his door-step; he could at the same moment and by the same means adventure his wealth in the natural resources and new enterprises of any quarter of the world, and share, without exertion or even trouble."

John Maynard Keynes

Economist

<u>Enabled By</u>:

- **1838**: Introduction of the telegraph and first commercial use
- **1866**: Laying of the first transatlantic telephone cable

FinTech 2.0 (1987 – 2008)

New period of regulatory attention to the risks of cross-border financial interconnections and their intersection with technology. Led by traditional financial institutions:

“The most important financial innovation that I have seen the past 20 years is the automatic teller machine, that really helps people and prevents visits to the bank and it is a real convenience.”

Paul Volcker

Chairman Federal Reserve

Examples:

- **1950:** Introduction of credits cards (Diner’s Club) in the USA
- **1967**: Barclays deploys first Automated Teller Machine (ATM)
- **1971:** NASDAQ created, triggering electronic trading
- **2001**: Eight banks in the US have over 1 million online banking customers

FinTech 3.0 (2008 – Present)

Emergence of new players (*e.g. start-ups*) alongside existing large companies already in the space (*e.g. core banking vendors*).

"Silicon Valley is coming: There are hundreds of startups with a lot of brains and money working on various alternatives to traditional banking […] They are very good at reducing the "pain points" in that they can make loans in minutes, which might take banks weeks.

Jamie Dimon

CEO, JP Morgan

Examples:

- **2008**: Wealthfront is founded and provides automated investment services
- **2009**: Square is created, providing mobile payments solutions
- **2009:** Kickstarter introduced a reward-based crowdfunding platform

Was 2008 A Game Changer?

The 2008 GFC had a catalysing effect on the growth of the FinTech sector due to:

- **Financing gap**: Contraction of the interbank market (*e.g. trust issues*) and increase in regulatory capital to be held against loan portfolio (*e.g. additional +US$150bn set aside*)
- **Operational cost reduction**: Downsizing teams (*e.g. IT & Back/Middle office*) plus using technology to reduce costs (*e.g. straight-trough processing*
- **Public perception**: Growing distrust of formal financial institutions from the public allowed new entrants to emerge (e.g. *UK challenger banks, P2P or FX platforms*)
- **Technology:** Smartphone penetration increased, directly providing Point of Sales (POS) and stored value systems to individuals, solving infrastructure mismatch

FinTech 3.5 (2008 – 2018)

In Asia and Africa recent FinTech developments have been primarily prompted by the pursuit of 'financial inclusion' and thus economic development:

"There are two big opportunities in future financial industry. One is online banking, all financial

institutions go online; the other one is internet finance, which is purely led by outsiders"

Jack Ma

CEO, Alibaba

Examples:

- **2007:** M-Pesa introduced in Kenya, by Vodafone for Safaricom
- **2010**: Alibaba introduces loans to SMEs on its e-commerce platform
- **2015:** India announces the creation 11 new payment banks (e.g. Fino PayTech)
- **2015**: MyBank and WeBank, two new Chinese private banks

Fin Tech 4.0 (2018 onwards)

Around 2018, something really interesting started in my consulting practice in less developed countries – the questions I started getting from poor country central banks were about my rich country research.

So, all of a sudden, I was assisting developing country central banks with issues are blockchain, cryptocurrencies, initial coin offerings, regulatory sandboxes, innovation hubs etc

From 2008 to 2018 there was a real separation between digital finance and what it was trying to achieve between rich and poor countries.

Since 2018 the two have tended to reunite – hence FinTech 4.0!

Financial Regulation

Due to the breadth of the FinTech sector, it is hard to talk about "FinTech Regulation" *per se*. Better to break down high-level approaches (*e.g. risk- or product-based*) and complement them with a sub-set of specific regulations (*e.g. payments, anti-money laundering).*

Broadly speaking, financial regulators have 4 key mandates:

Macro-Prudential Regulation

Micro-Prudential Regulation

Conduct & Fairness

Competition & Development

Regulatory Implications

Many start-ups use technology to disintermediate banks and directly propose their services or products to consumers (e.g. Telco providing payment services).

This creates a set of questions:

- Increasingly a blurred line:

  ➔ Who can/should provide financial services or products? (e.g. Telcos or Banks)

- How to balance start-up low cost models and agility benefits with compliance costs?

  ➔ Banking licence restrictions limits business model freedom (e.g. mobile money balance acting as a current account)

Regulatory Threshold

New emerging FinTech companies often have limited track records regarding their business (*e.g. risk management, liquidity and profitability*) and difficulty identifying their obligations (*e.g. applicable regulations or licences*).

For regulators, these early-stage companies represent a limited prudential & consumer risk. However, exponential company growth can create “risk blind spots”. Additionally, frequent failures or fraud can impact market or investor confidence.

Risk Blind-Spot

Using company size as a way to evaluate risk is not adequate, given inter-connectedness of financial markets and rapid up-take of certain financial products. Today, some small companies' path to become systemic is not linear but exponential:

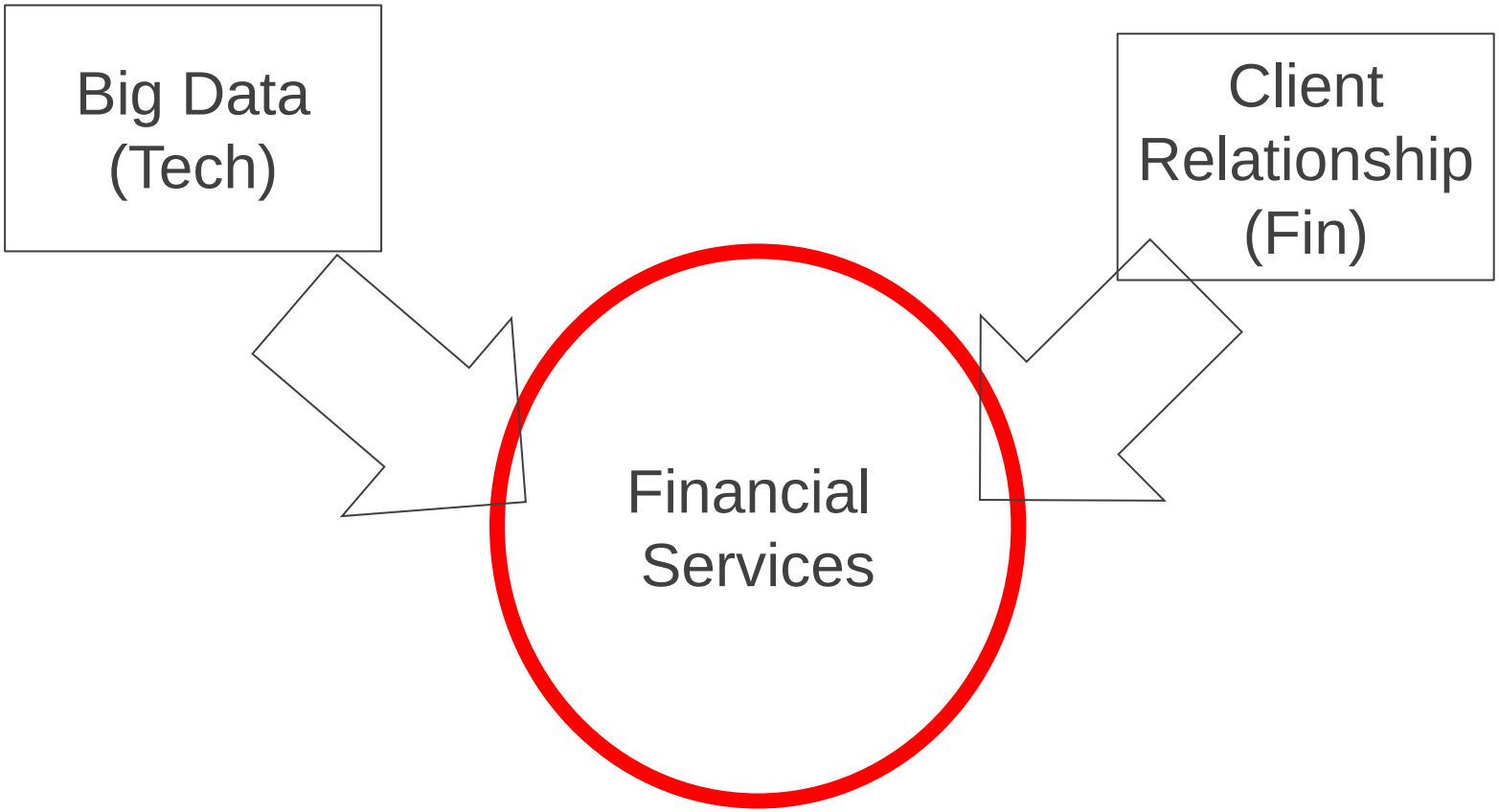
- **Kenya (2008):** In three years M-pesa was being used by over 18 million customers and 43% of Kenya's GDP was flowing thru this service
- **China (2014):** Third party mobile payment market reached 1,433 trillion yuan, a +400% increase compared to 278 trillion exchanged in 2013
- **China (2014):** Yu'e Bao, a money market fund part of Ant Financial Group (Alibaba) held over US$ 90billion (e.g. 4th largest in the world) just 10 months after its creation

1. Definition FinTech ⇔ TechFin

- FinTech: the application of technology to facilitate the delivery of financial services – starting point is the customer (client/investor) relationship with the financial service provider

- TechFin: the application of financial services to technology – starting point is the tech and associated data

- So TechFins are data-rich companies – data obtained thru selling us things (such as Amazon) or thru providing tech services (such as Google or Facebook or ...)


Big Data
(Tech)
Client
Relationship
(Fin)
Financial
Services

Big Data
(Tech)

Microsoft
Wallet

M-PESA

WeBank

Financial
Services

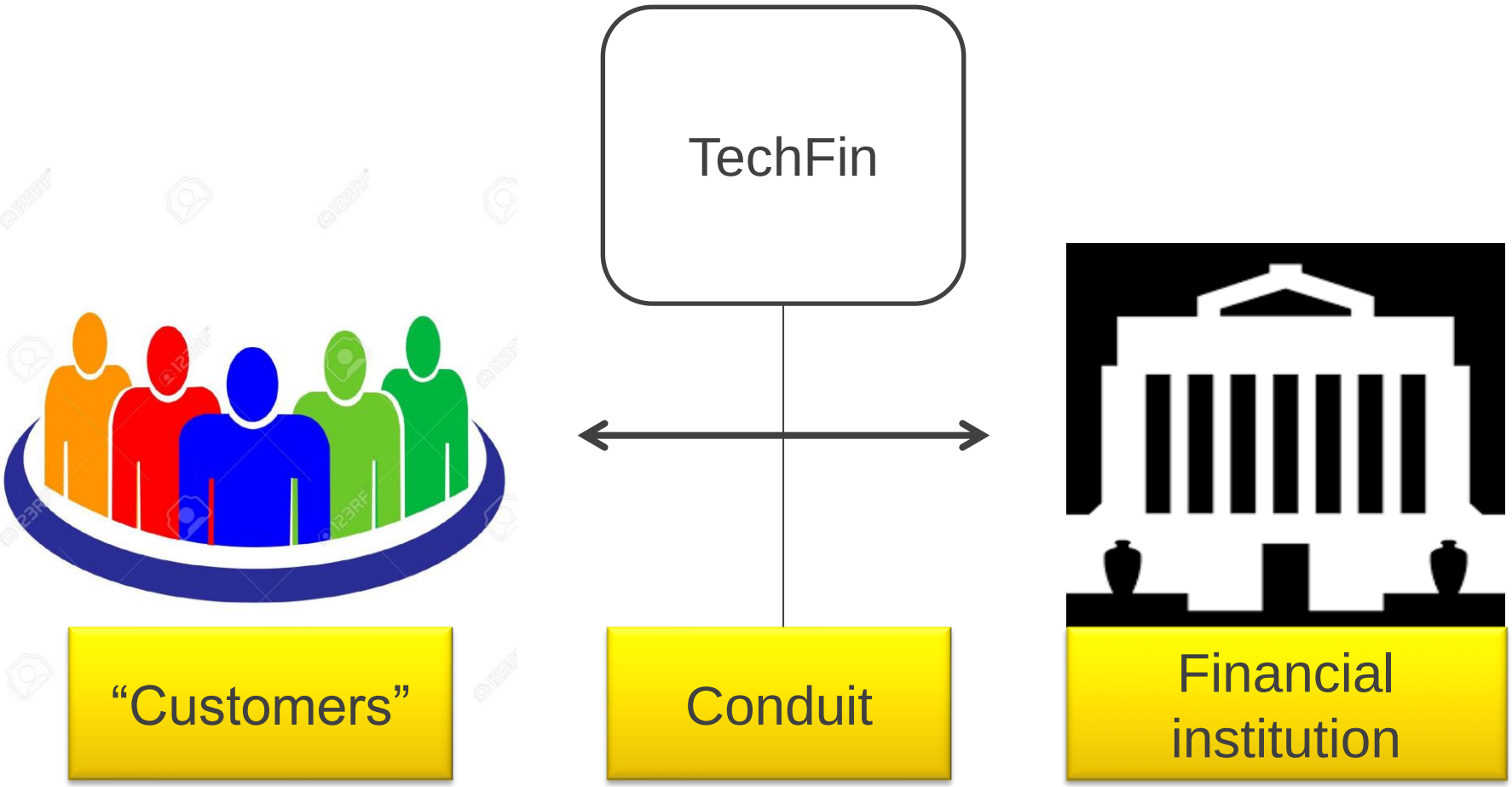
蚂蚁金服
ANT FINANCIAL

支付宝
ALIPAY

amazon.com

Pay

TechFin Model Stage One



Knowing your preferences from multiple sources…

- Website / data: google (interest preferences), facebook (social media preferences) etc
- Shopping: amazon, woolworths/coles delivery (shopping preferences)
- Phone: m-pesa (communication preferences)
- Payment: alipay, visa/mastercard (shopping, travel preferences)

Allows Algorithms to determine a tremendous amount about you.

Data analytics rules!

Walmart – choker chain for dog, or stopper for a door. Multiply these correlations by tens of thousands!

TechFin
The monetization of Data

Important – most of this presentation anticipates a future we are strongly on track for, but have not yet reached except in China.

Our Eureka Moment

Money has been Digitized and Now Data is Monetized

FinTech Today	TechFin Tomorrow

FinTech to TechFin represents a seachange, a paradigm shift that China is making right now

The Industrial Epochs by Professor Klaus Schwab*

Automation	Industrialization	Communication	Smart Automation
1784	**1870**	**1969**	**2016**
Steam Engine	Electricity	Communication	Big Data & AI
Mechanical Prod	Labor Division	Electronics	CyberPhysical

Source: The Fourth Industrial Revolution: what it means, how to respond – Klaus Schwab

Start

Source: Study: less than 1% of the world's data is analysed, over 80% is unprotected – J. Burn-Murdoch

Privacy

My daughter's spectacles story while communicating verbally over Facebook messenger with a friend speaking with an accent

When does a TechFin become a Financial Insitution?

Our thesis is that most TechFins will begin serving as a conduit connecting their customers with financial service providers

- Ant Financial <> Alibaba
- Tencent <> WeBank
- Google pay
- Vodaone <> m-pesa

⇒ Large size, international / cross-border activity

⇒ Network fully developed

⇒ Enormous access to data

(+): money on balance sheet; discretion over client money; solicitation, pooling

? : Conduit / front-end only? Data delivery & analytics?

When does a TechFin become a Financial Insitution?

- We foresee TechFins initially mostly serving two functions:
  - 1. connecting their customers to financial institutions
  - 2. providing data to those institutions either raw or processed with analytics
- If they grow large enough, those roles could be systemically significant (ie. There is only one Facebook).

⇒ **Stage Two,** obviously, is providing financial services themselves, as is happening today on a major scale in China.

First two functions will stop being novel. Remember e-commerce – who engages in it anymore? When I buy my business shirts and suits these days I simply tell my wife “I bought a new suit today”

TechFin Benefits For Society

- Reduction of transaction costs & enhanced market efficiency
- Enhanced business decisions, risk management
  - Front-end of business transactions not back-end like banks, and based on more comprehensive data set: social media and general economic data
- Financial inclusion
  - **Better SME & consumer credit**
  - DFS in developing countries

TechFin Risks to Society

- TechFins have better data than traditional banks: more comprehensive front-end data, more data points, more reliable, cross-checked data
- But: no level playing field with existing institutions, and a risk the triggers for existing regulation won't be activated in time
- Correlation vs Causation: False Predictions; unknown effects of Artificial Intelligence / Data Analytics
- Protected Factors at Risk? Upholding Civil Society Values (for instance, enforcing anti-racism, anti-gender discrimination etc)

More Risks

- Antitrust: risk of oligopoly (natural monopoly)
- Data protection: who owns the data? Right to be forgotten? Enforcement? Tinder story
- **Our entire consumer consent model for provision of data is deeply flawed – it is an unreal fiction from a bygone age that has passed!**
- Tech companies such as Google or Facebook are natural monopolies due to network effects, and are essential infrastructure for modern living – opting out is not an option.

Should Regulators Care if TechFins Only Provide Data Gathering & Analytics?

- If TechFins are essential to banking stability regulators should care.
- If TechFin is essential for one or more important banks (eg main data analytics provider)
- If TechFin is main front-end channel to customers, similar to new operating strategy or new risk model, or if a TechFin serves this role for multiple providers.
- Furthermore, if individuals are being harmed by analytics that produce damaging results, regulators should care.
- So there is a case here for public regulation of TechFins.

Open banking and data analytics

- Open banking is the idea that a customer has the right to share their banking data with other providers (thru APIs)
- Best perhaps not to get into issues of title or ownership – cleaner if one deals with rights to use and share
- Australia has an Open Banking Review underway now following on from a Productivity Commission Report into data earlier this year
- Europe has mandated Open Banking to promote competition
- One issue is the quality of the data and the analytics about it

Widen mandate of financial regulator:
Financial data analytics as regulated activity!

Theses

1) TechFins have their origin in BigData (“Tech”) rather than customer relationship (“Fin”). Many may well avoid financial regulation until too late.
2) For TechFins, formal financial regulation may be triggered too late. Triggers linked to taking deposits, soliciting customers or handling client funds are likely to not be triggered. Regulators may therefore be unable to a) enforce customer protection measures and b) monitor and mitigate systemic risk.
3) TechFins may compete unfairly therefore since they a) are unrestricted by risk & compliance considerations in their build-up phase, b) do not bear compliance and capital costs.
4) TechFins’ data analytics will require regulation at some stage. Perhaps “follow the data” will have to replace financial law’s “follow the money”.
5) Regulation of TechFin for now should focus on: a) information gathering, b) review of algorithms for false predictions and protected factors, and c) systemic risk prevention.

Lead papers in our series …

Zetzsche, Birdthistle, Arner & Buckley, "Digital Finance Platforms: Towards a New Regulatory Paradigm", forthcoming (2020) *U of Pennsylvania Jnl of Business Law*.

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Arner, Barberis & Buckley, "The Evolution of FinTech: A New Post Crisis Paradigm?", (2016) *Georgetown Journal of International Law*, 1271-1319.

Zhou, Arner & Buckley, "Regulation of Digital Financial Services in China: Last Mover Advantage" (2015) 8 (1) *Tsinghua China Law Review* 25-62.