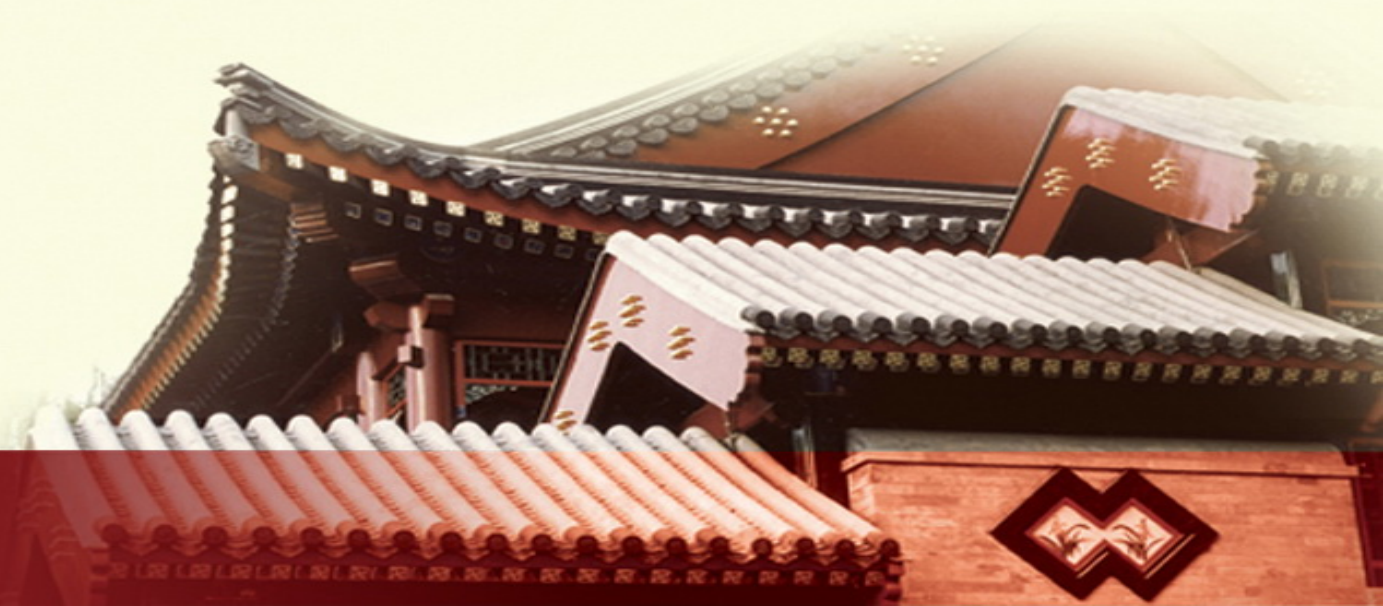




北京大学国家发展研究院
National School of Development



第 13 讲 数字金融

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2021年12月23日

问题

- 互联网企业为什么要进入金融行业
- 数字金融对金融服务的影响
- 政府应该采取何种政策？

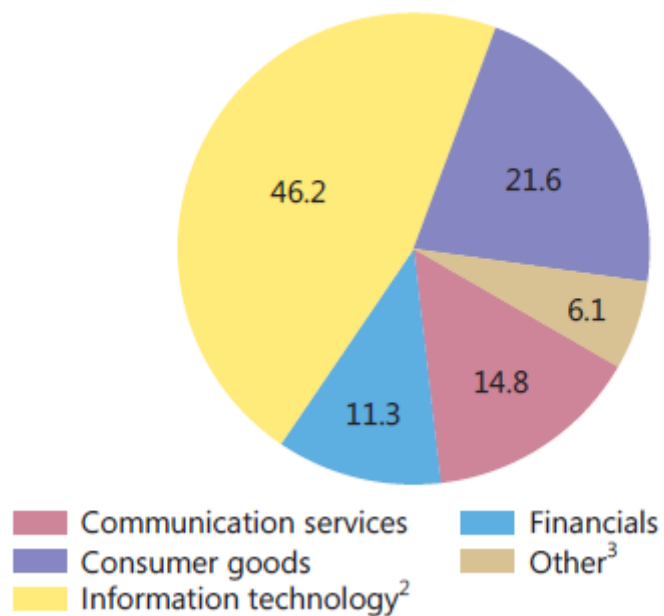
互联网巨头(big techs)的兴起

- 企业类型：社交网络，电子商务，搜索引擎
- 商业模式：大量用户间可以进行直接的互动，一个副产品是拥有大量的用户数据。
Data – Network – Activities Loop (DNA)
- 建立在 DNA的基础上，互联网企业开始涉足金融行业，包括支付，个人投资，保险和借贷
- 尽管现在金融服务在互联网企业业务中占比较小，但是他们的进入可能会引起一场金融业的革命
- 优点：低成本提供金融服务，特别是偏远地区或弱势群体 (普惠金融)。利用其平台和大数据，更有效的减少不对称信息
- 风险：金融稳定，竞争和消费者保护 (e.g. 隐私)
- 政策目标：利用优势，限制风险

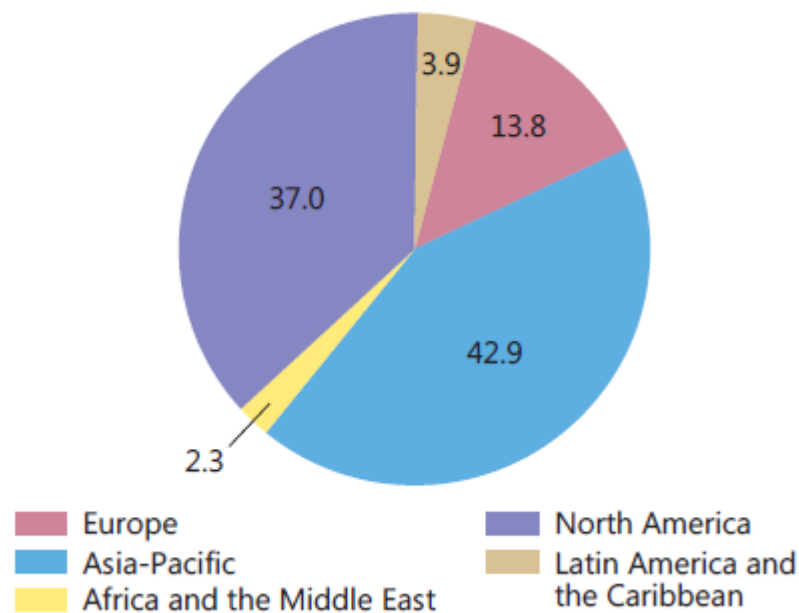
互联网巨头 (big techs) 的兴起

- 互联网企业的主要业务和区域分布

Big techs' revenues by sector of activity¹



Regional distribution of big techs' subsidiaries⁴



互联网巨头 (big techs) 的兴起

- 互联网企业与传统银行存在合作与竞争的关系
 - 为其消费者提供基本的金融服务
 - 为第三方（金融企业）提供平台，例如提供金融企业的理财和保险产品

互联网企业提供的金融服务：

- 支付平台
 - 源起：解决网上购物的信任问题，例如支付宝和PayPal
 - 现在发展为两类
 - 为第三方支付提供平台 (比如Apple Pay, Google Pay, PayPal)
 - 自己的支付系统 (支付宝，微信支付，M-Pesa)，但仍然依赖银行进行清算
- 基金与保险
- 信用贷款

	Main geographical area of activity	Payments	Money market funds and insurance	Credit
<i>Emerging market economies</i>				
Alibaba/Alipay, Tencent	China	△	△/√	△
Baidu	China	△	△/√	√
Vodafone M-Pesa	East Africa, Egypt and India	△		√
Mercado Libre	Argentina, Brazil and Mexico	△		△
Samsung	Korea	√		
GO-Jek, Ola Cabs	Southeast Asia	△		
Grab	Southeast Asia	△	√	△
KT	Korea	√	△	△/√
Kakao	Korea	△/√		△/√
<i>Advanced economies</i>				
Google	Worldwide	√		△/√
Amazon, eBay/PayPal	Worldwide	√		√
Apple, Facebook, Microsoft	Worldwide	√		
Orange	France	√		√
Groupon	Worldwide	△		
Line, Rakuten	Japan	△	△	△
NTT Docomo	Japan	△	△	√

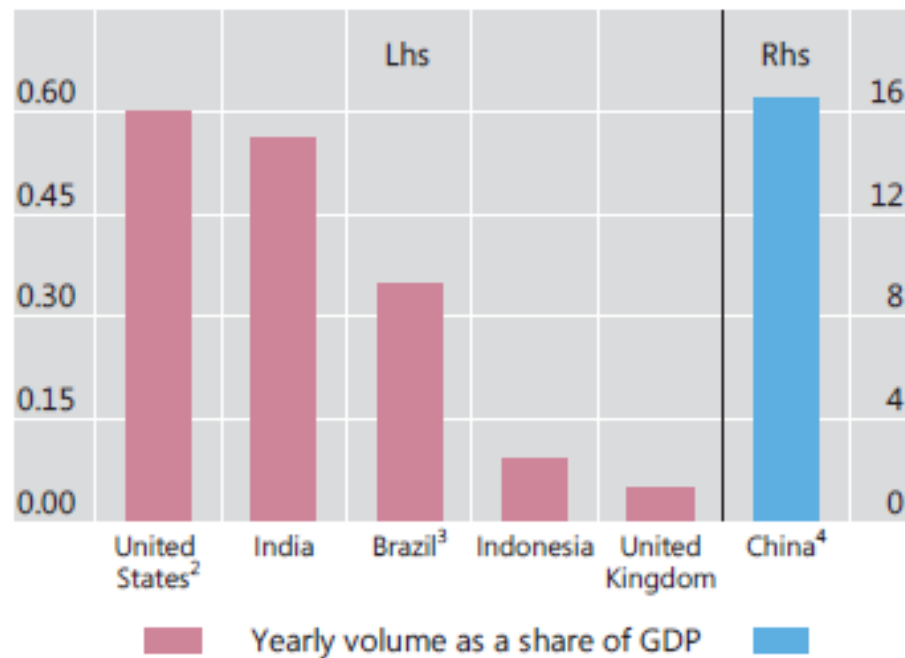
△ indicates new entities and operations introduced outside the traditional financial and banking network. √ indicates the provision of services as overlays on top of, or in collaboration with, existing financial institutions (especially banks and credit card providers).

Sources: Financial Stability Board; S&P Capital IQ; public sources; BIS.

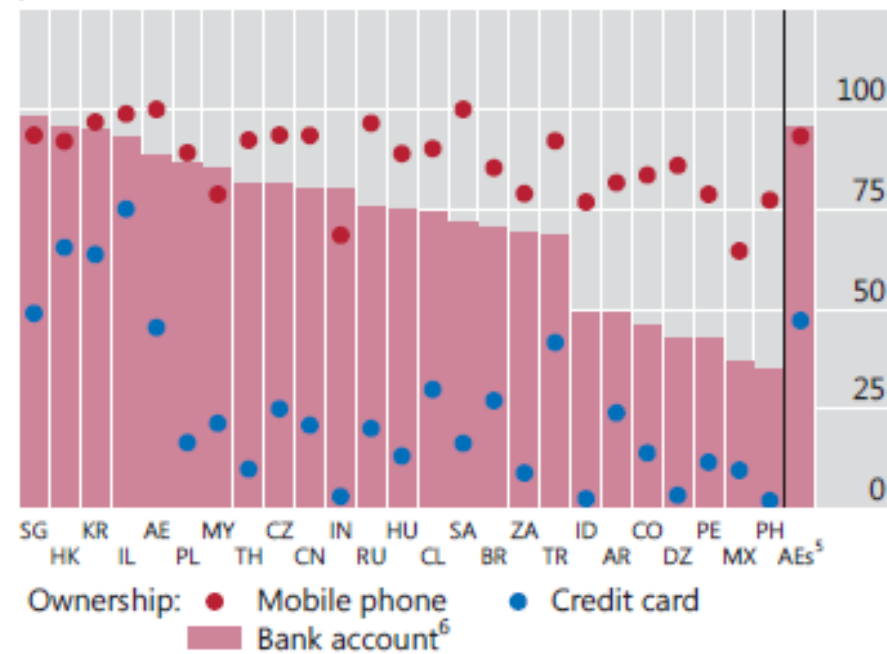
移动支付

- 移动支付在传统非现金支付（如信用卡）不活跃且手机拥有率高的地区占有更高的份额

Big tech mobile payment services

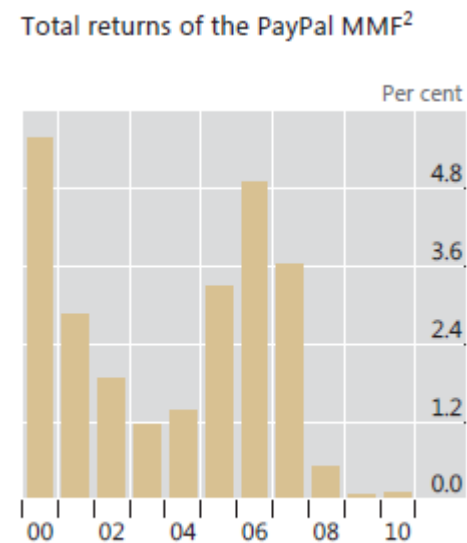
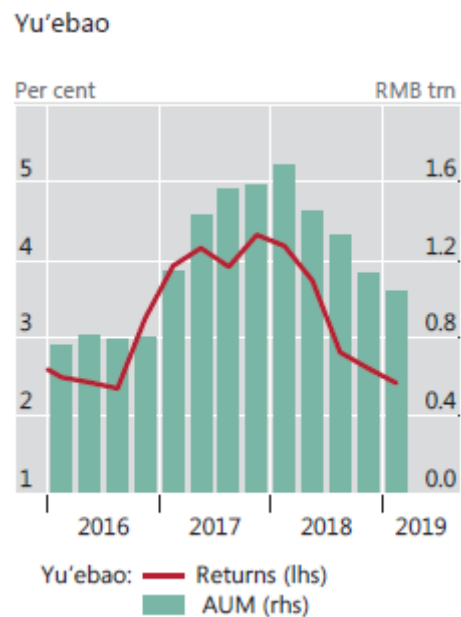
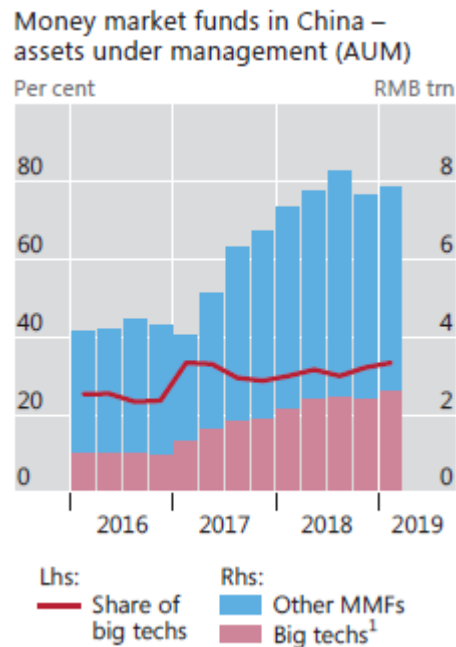


Fraction of population with bank accounts, mobile phones and credit cards



货币市场基金

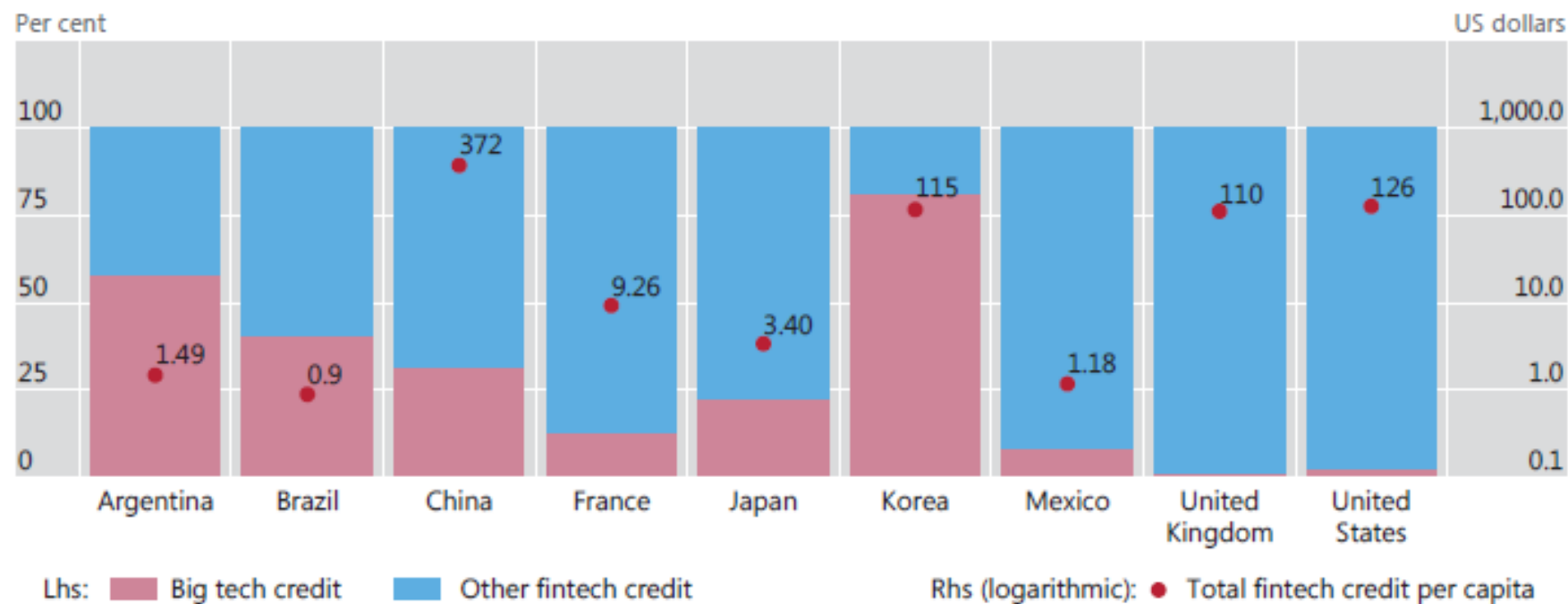
- 货币市场基金和保险



- 2018年底，与互联网企业有关的总MMF达到人民币2.4万亿，占大约1%银行存款，8%的理财产品份额

信用产品

- 信用产品

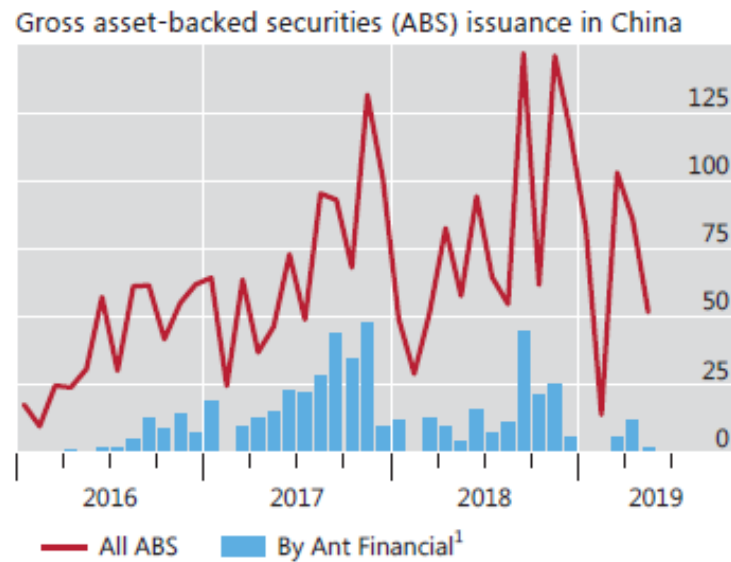
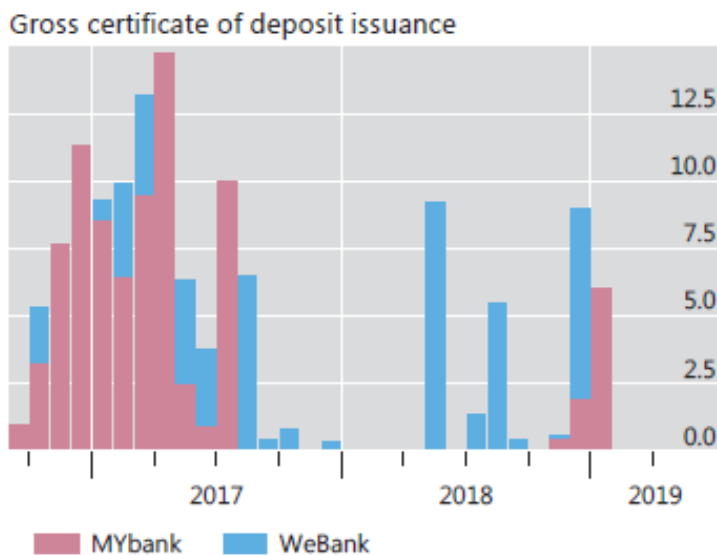


互联网企业与fintech信贷

- 2017年，fintech信贷只占非银行部门信贷的 3%

资金来源

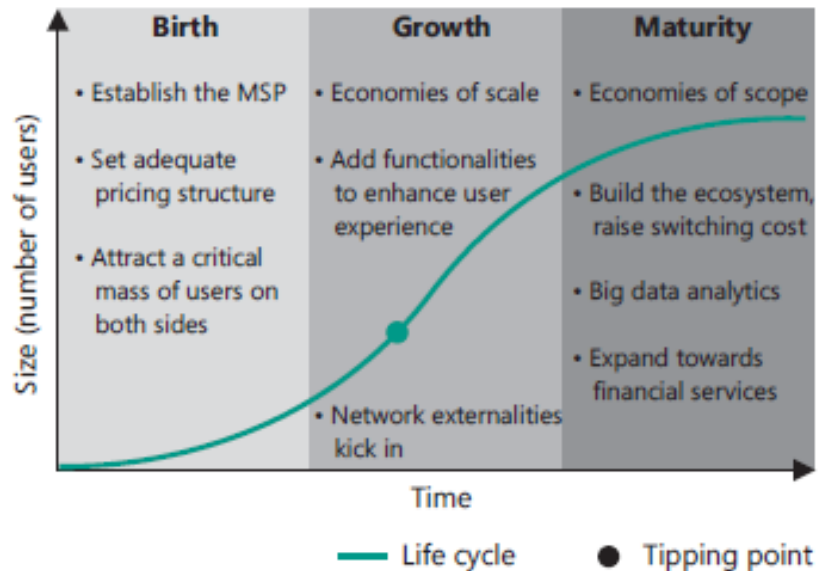
- 占比较小的原因：无法通过存款吸收资金
- 可能克服资金来源限制的方法
 - 建立网上银行 (online bank), 但是可能存在法律限制, 主要通过银行间市场与大额存单来融资
 - 与银行合作。互联网企业提供数据分析, 银行负责提供资金与管理贷款
 - 资产证券化



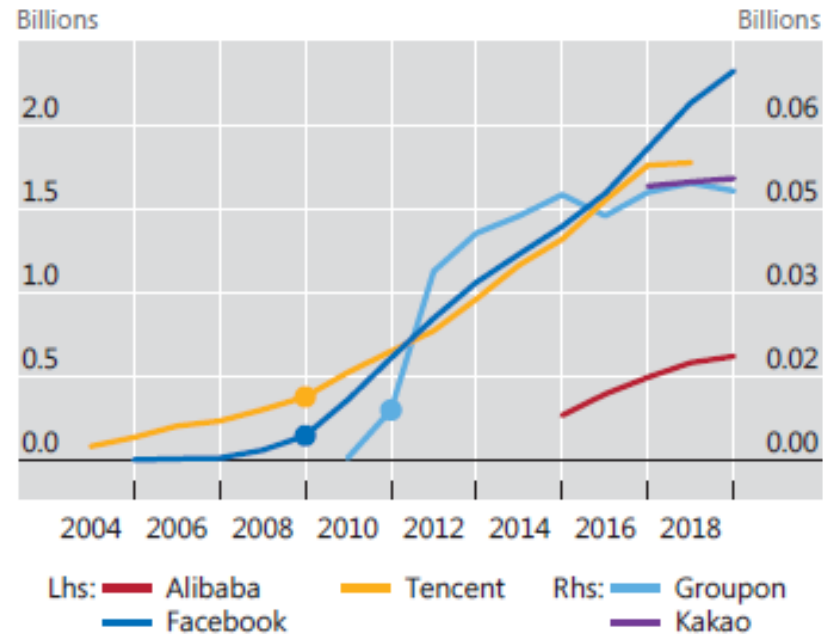
为什么互联网企业要进入金融行业？

- 一旦互联网企业拥有了稳定的客户群和品牌认可度。进入金融行业可以很好的利用其非金融业务与金融业务的互补，以及规模效应
- 互联网巨头的DNA (Data analytics, Network externalities, interwoven Activities) 商业模式
 - 用户的效用随着用户数量而增加，更多的用户数量会产生更多的数据，从而提供更好的服务，吸引更多的用户...

From big techs' birth to maturity¹



Big techs' monthly active users

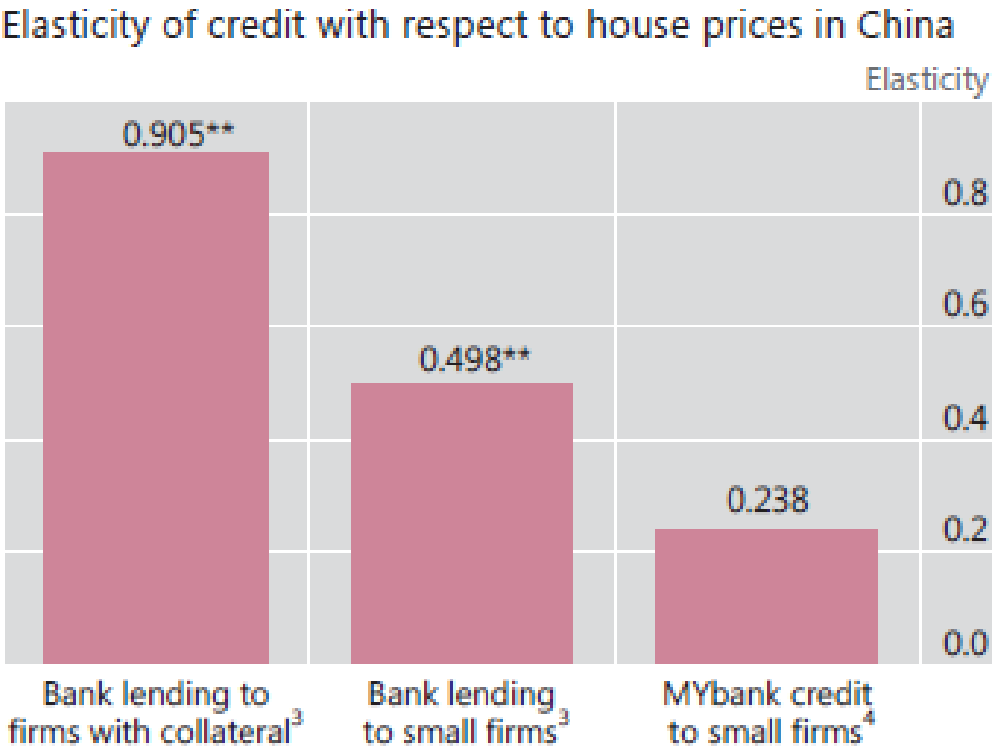


- 提供金融服务既得益于并且有利于 DNA feedback loop (economies of scope)
 - 提供金融服务有助于互联网企业的非金融业务 (比如支付服务)
 - 金融服务的可以反过来支持互联网企业非金融和金融业务 (比如广告定向投放，信用评分)

	Large banks	Big techs
Data	<ul style="list-style-type: none"> + Verified/reliable customer data with a long history; "soft" information from personal interactions with customers; high importance of data privacy to support customer trust. - Small number of customers and limited range of non-financial activities to collect data from; transactional data often "one-sided" (eg counterparty of transactions with another bank); legacy technology limits data processing capabilities. 	<ul style="list-style-type: none"> - Mixture of verifiable and potentially less reliable data; shorter history of customer data; lower priority placed on data privacy and protection. + Data on a very large number of customers; technology and business model built to collect and merge data; network of customer interactions is a key data dimension.
Network	<ul style="list-style-type: none"> + Large number of financial activities and services already provided. - Strict regulatory limits on activities and use of data; higher marginal costs of serving additional customers. 	<ul style="list-style-type: none"> - Need to reach a large customer base to exploit network externalities. + Significant network externalities due to wide range of non-financial activities; captive ecosystem with potential high exit costs.
Activities	<ul style="list-style-type: none"> + Advantages in high margin and complex products requiring personal interaction (eg corporate finance, investment banking); wider range of financial services; access to large and relatively cheap funding sources; experience in risk management. - Legacy IT systems are a barrier to using existing data to offer new services (low economies of scope); activities limited to financial services. 	<ul style="list-style-type: none"> - Thus far limited or no footprint in key financial services (eg mortgages, loans to medium and large firms, insurance); funding limitations; lack of regulatory and risk management experience and expertise. + Commoditisable services can be provided at near zero marginal costs; pre-existing commercial activities yield data that can be used to support new services (high economies of scope).

数字金融对金融服务的影响

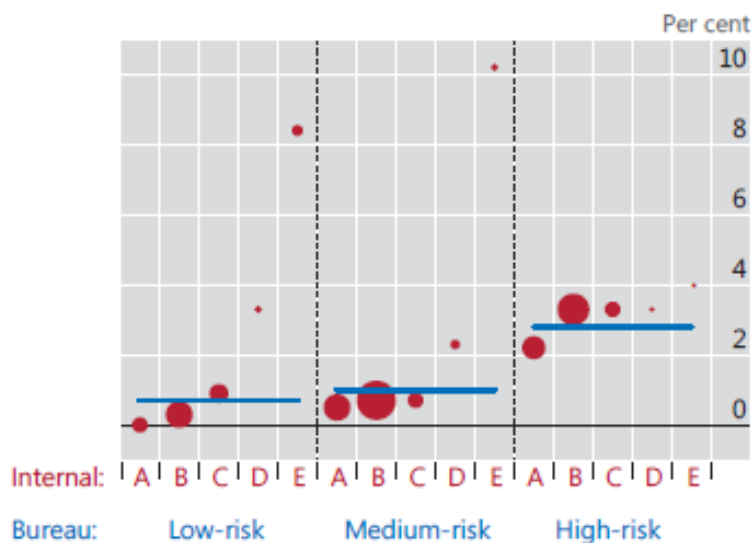
- 在借贷方面的优势
 - 甄别 (screening)与 普惠金融 (financial inclusion)
 - 给很多本来得不到银行贷款的企业和家庭提供贷款
 - 监督 (monitoring) 与 抵押品 (collateral)



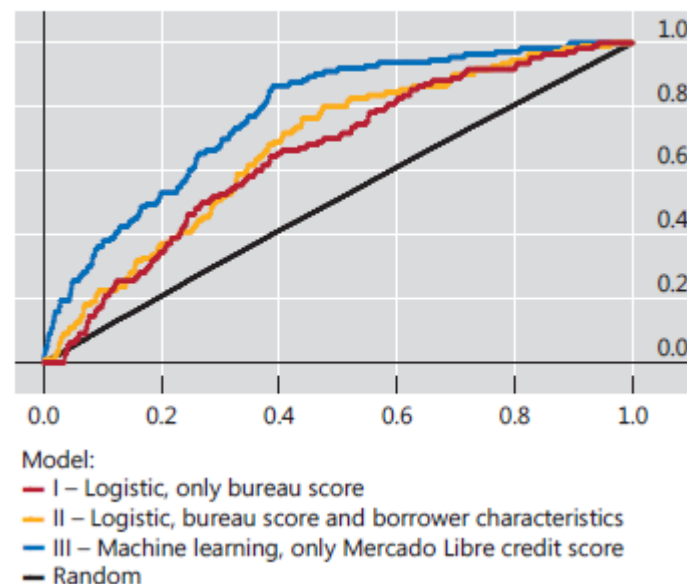
信用评估：大数据与人工智能 (big data and AI)

- 互联网企业在进行信用评估时，主要利用其大数据，使用机器学习 (machine learning)、网络分析 (network analysis) 和 人工智能 (artificial intelligence) 等方法
- 数据主要来自于以下几个方面
 - 交易数据（销售额，销售价格）
 - 信誉数据（投诉，处理时间，评价等）
 - 行业相关的数据（季节性，需求，宏观周期等）
 - 与其他数据比如社交媒体数据结合（朋友圈信息，位置信息，网络信息等）

Loss rate¹



Receiver operating characteristics (ROC) curve²



数字金融对金融服务的影响

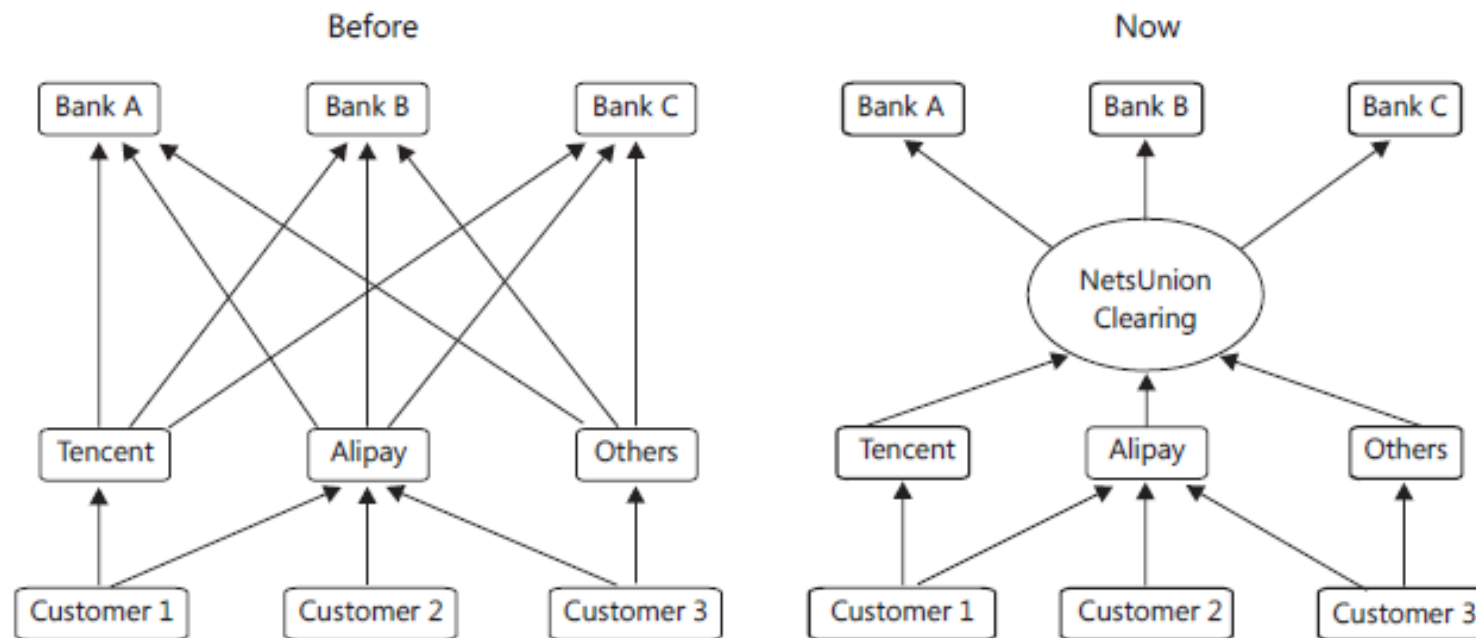
- 新的风险
 - 垄断市场
 - “Too big to switch”，偏好自己的产品，产品捆绑等等
 - 数据滥用
 - 价格歧视 (price discrimination)

对监管的影响

- 传统银行的政策监管
 - 保障资本充足率和金融体系健康，保障消费者
 - 政策工具：资本和流动性要求
- 数字金融监管
 - 竞争和垄断的考量，数据隐私
 - 各项目标之间复杂的相互作用

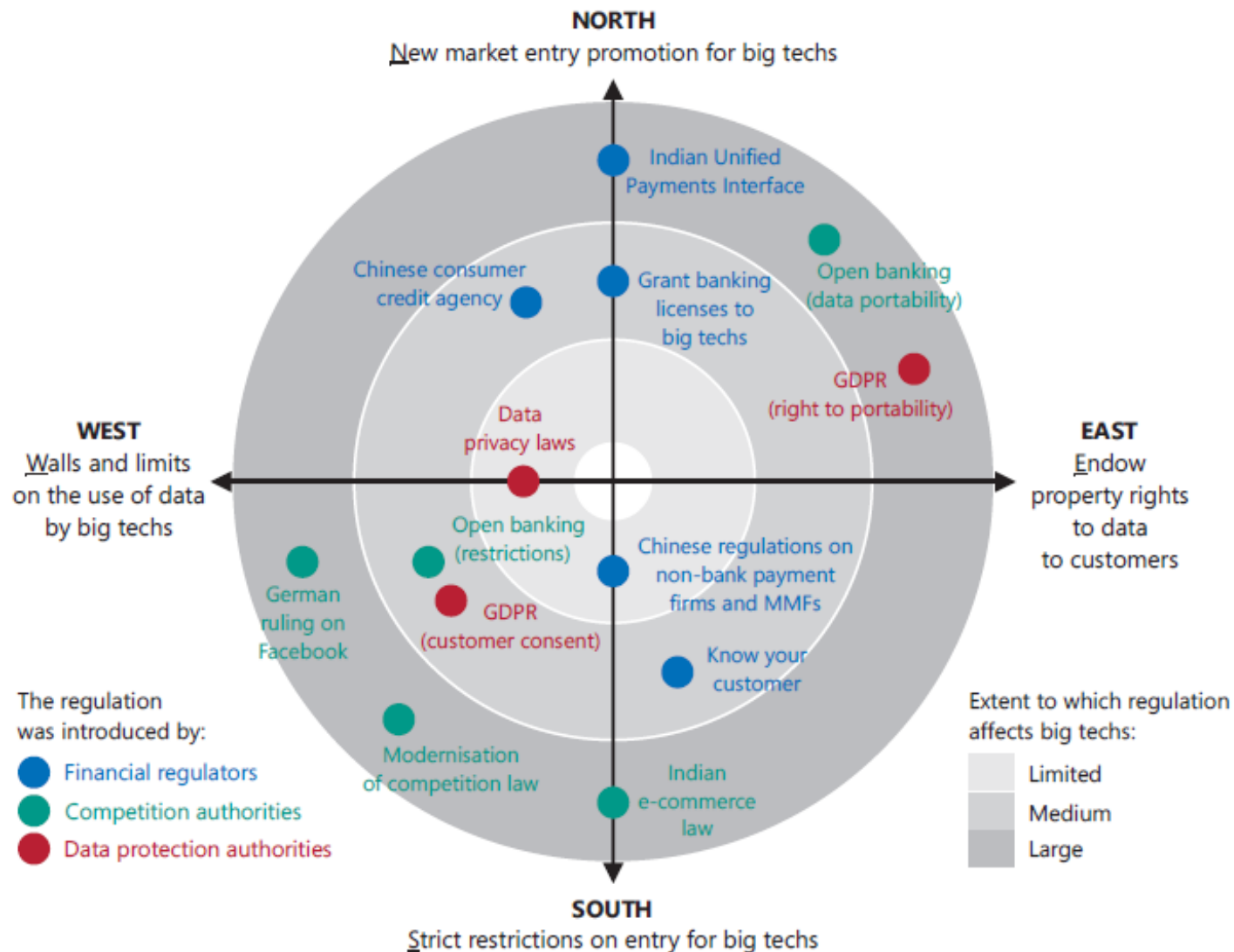
公共政策

- 同活动，同监管 (“Same activity, same regulation”)
 - 例子：KYC rule (Know-your-customer)
- 互联网企业从事与传统金融行业不同的活动，新的监管。例如
 - 中国对MMF单日赎回有 10,000 元限制，且只能银行执行
 - 对互联网企业增加准备金要求



公共政策

- 当涉及竞争与隐私保护，需要更全面的考虑



公共政策

金融监管部门

● Unified Payments Interface (UPI)	India	The UPI was established by the Reserve Bank of India in April 2016. It is an instant real-time payment system that facilitates transfers of funds between two bank accounts on a mobile platform, to which all payment service providers have access.
● Granting banking licence to big techs	Hong Kong SAR, Korea, Luxembourg	Promotes competition across a wide range of (or all) banking services, while subjecting new entrants to strict regulations.
● Regulations on non-bank payment firms and MMFs	China	This set of regulations includes reserve requirements on customer balances in big techs' payment accounts ("float"), a requirement to channel payments through a state-owned clearing house (NetsUnion Clearing) and a cap on instant redemptions for all MMFs (Box III.C).
● Chinese consumer credit reporting agency (Baihang)	China	Baihang is a licensed consumer credit reporting platform which collects and stores personal credit information from its members, and provides credit reports and ratings. It promotes competition by giving members access to relevant data, but also restricts the type and use of the collected data. It received its licence from the People's Bank of China in January 2018.
● Know-your-customer (KYC) regulations	Various	Impose the same strict requirements on payment service providers as on banks. These include the collection of detailed information on customers regarding their identity and possible criminal intentions.

公共政策

• 反垄断部门

● Open banking	Australia (open banking), European Union (PSD2), United Kingdom (open banking), Mexico (fintech law)	The first open banking regulations came into force in 2018. This type of regulation requires financial firms to make their customers' financial transaction (or equivalent) data portable, ie directly transferable to third parties or competitors, typically through open APIs (Graph III.8, east axis). The conditions under which data shall be shared are nonetheless restricted (west axis). Restrictions may be related to the type of data and participating institutions, customer consent or reciprocity.
● German ruling on Facebook	Germany	In February 2019, the German competition authority (Bundeskartellamt) prohibited Facebook from systematically combining user data from different sources (such as its other services WhatsApp and Instagram).
● Indian e-commerce law	India	In February 2019, a new e-commerce rule took effect that prohibits foreign e-commerce platforms from selling products supplied by affiliated companies on their Indian shopping sites.
● Modernisation of competition law	European Union, Germany, United Kingdom, United States	In March and April 2019, the German, EU and UK competition authorities received commissioned expert recommendations on how to sharpen their existing practices and methodologies for assessing anticompetitive conduct in digital markets. In the US, the Federal Trade Commission has recently been reported to examine potential anticompetitive conduct by several big techs.

公共政策

- 消费者保护部门

● Data privacy laws	Australia, California, China, European Union, India, Japan, Singapore, Switzerland	Data privacy laws (or adaptations thereof) typically require digital firms with access to personal data to inform their customers about the usage of their personal data. They started to be enacted in 2018.
● General Data Protection Regulation (GDPR)	European Union	The GDPR came into force in May 2018 and is one of the most comprehensive – and a precursor of – new data privacy laws being implemented. The regulation provides that customers have the right to receive their personal digital data in a structured and transferable way without hindrance (“right to portability”; Graph III.8, east axis). It also requires data holders to obtain their customers’ active consent prior to using or sharing their personal data (west axis).