Future of Banking

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The reports of my death …

"banks are dinosaurs

… we can bypass them"

Bill Gates,

Newsweek April 1995

Is this time different?

What Are Banks For?

- Banks were designed to transfer money:

1) Through space
   a. Cost of transportation
   b. Security
2) Through time (lending)
   a. Asymmetry of information
   b. Moral hazard and adverse selection

How did banks solve these problems?

- A network with local branches
- Branches
  1. Solve the last mile problem
  2. Provide barrier to entry/market power
  3. Generate soft information
  4. Market power on the loan market
- Banks are a combination of physical capital (branches) and human capital (loan officers) that take time to build

Global Banks Profit Breakdown By Product and Customer Segments

	Payments	Savings and Investment	Lending	Capital Markets	Overall
Personal/SME	4%	12%	29%	1%	46%
Corporate	3%	6%	21%	5%	35%
IB/Markets	0%	3%	6%	10%	19%
Overall	7%	21%	56%	16%	100%

Source: Citi Research Estimates; Based on the banks under Citi coverage; The profit split by customer segments are based on company reports or analyst estimates; the profit is then allocated across products; the profit splits by product segments is estimated base on selected banks that discloses revenue splits by products.

What Is Special About Banks ?

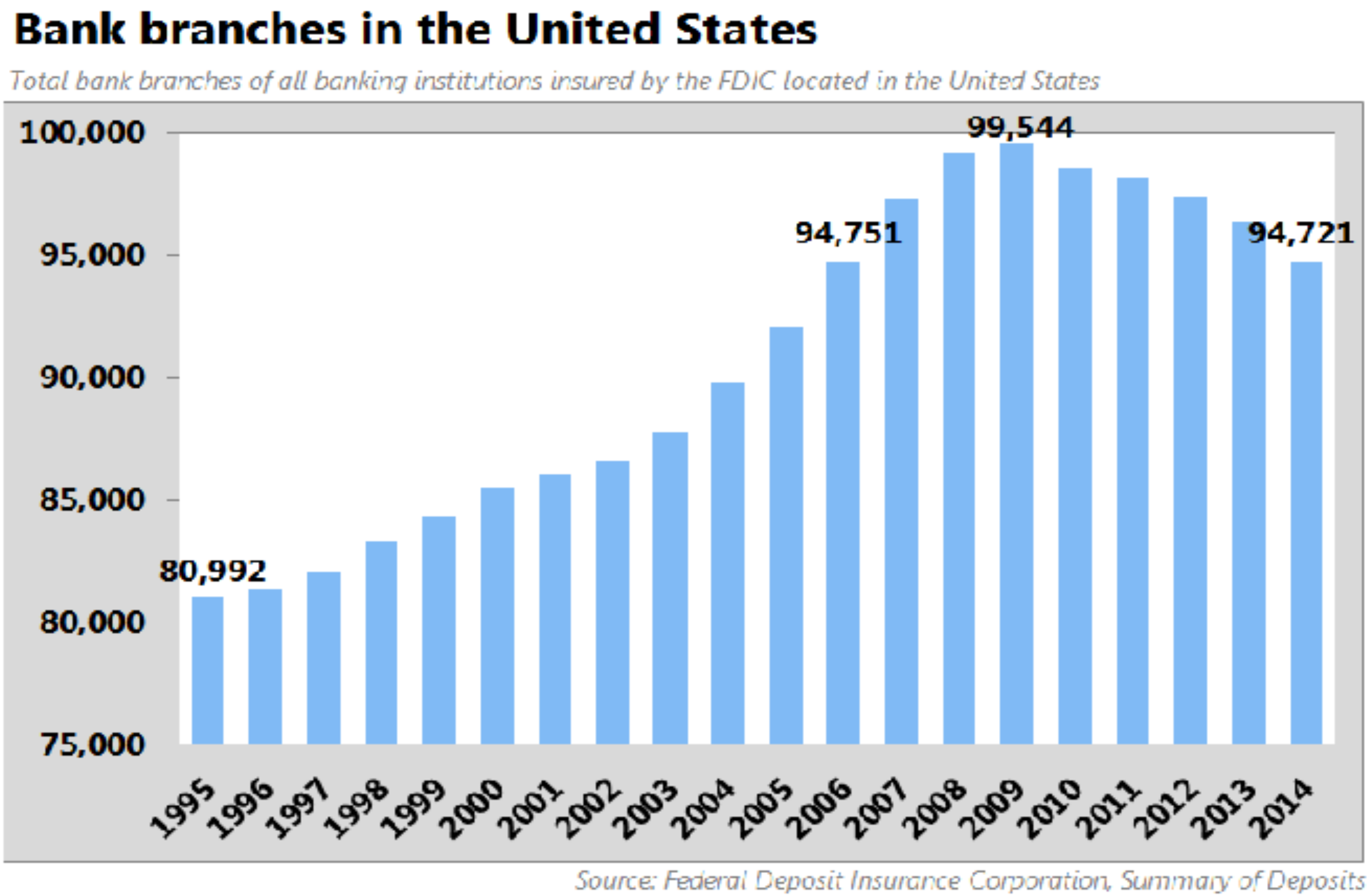
- Payment and lending are crucial to the functioning of an economy
- Banks are essential at performing these two services
- They cannot quickly be replaced

$\Rightarrow$Banks are bailed out

$\Rightarrow$They are allowed to capture part of the signeurage

Innovation Has Disrupted Banks Before

The reports of my death …



Self-sustaining

Scarcity of hard information

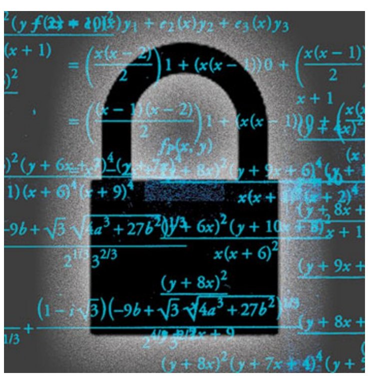
makes soft/local information crucial

key advantage of branches +

key advantages of human capital

no need to accumulate a lot of hard data

The Smartphone Revolution

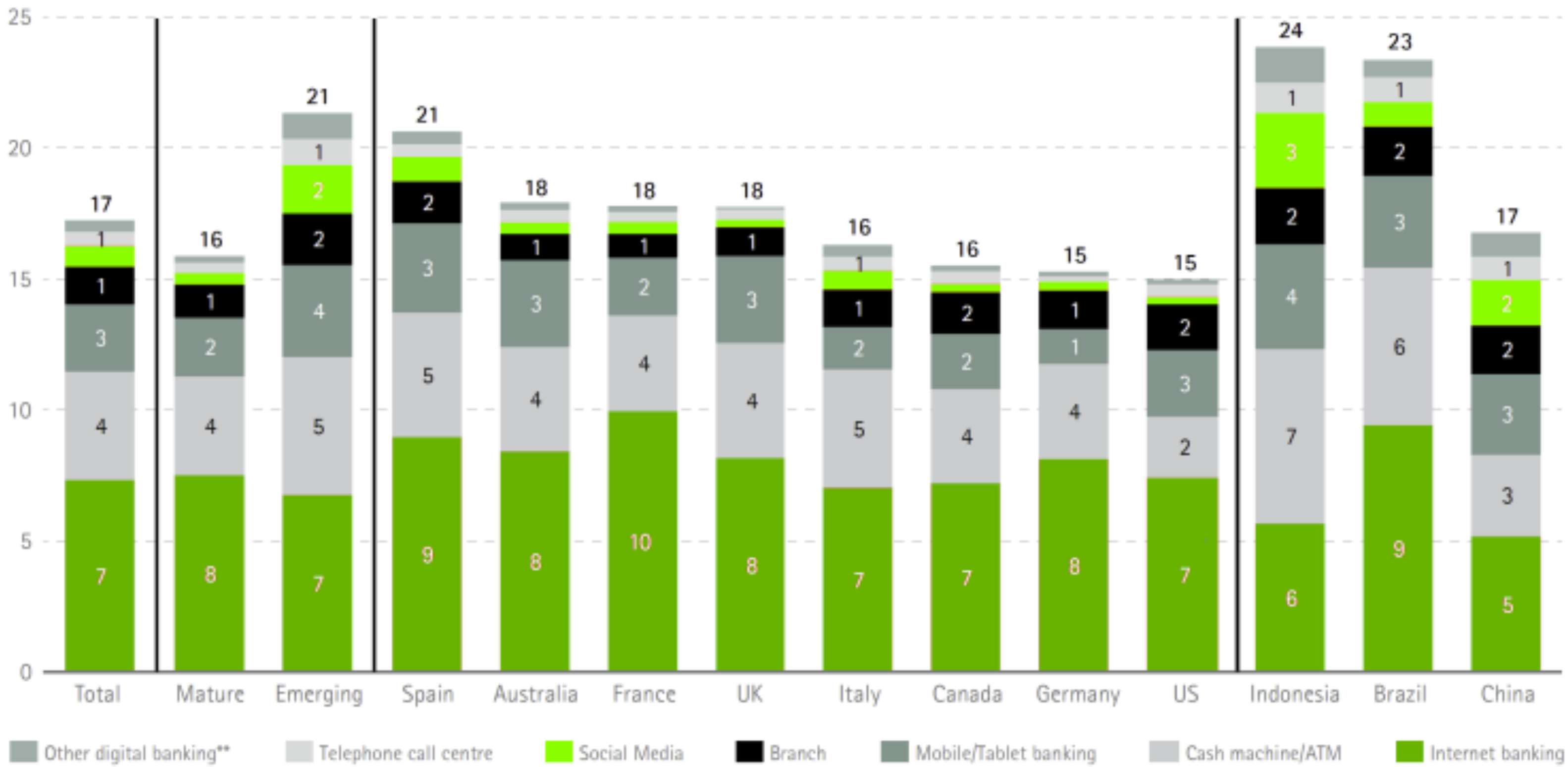


Firefly


Solar lighting is far brighter, cheaper, cleaner and better for the health than kerosene lighting.

Number of Interactions with Main Bank Every Month By Channels

How many times do you usually interact/get in touch with your main bank, on monthly basis, using the methods listed? (Provide number of interactions)



*Base = 9,000 (Total retail banking respondents in12 key markets: Australia, Brazil, Canada, China, France, Germany, Indonesia, Italy, Spain, UK, US

**Other Digital Channels = Video chat and Instant messaging

Source: Accenture, Banking Customer 2020, Rising Expectations Point to the Everyday Bank, 2015

Self-Reinforcing Change

Smartphone produce lots of hard information

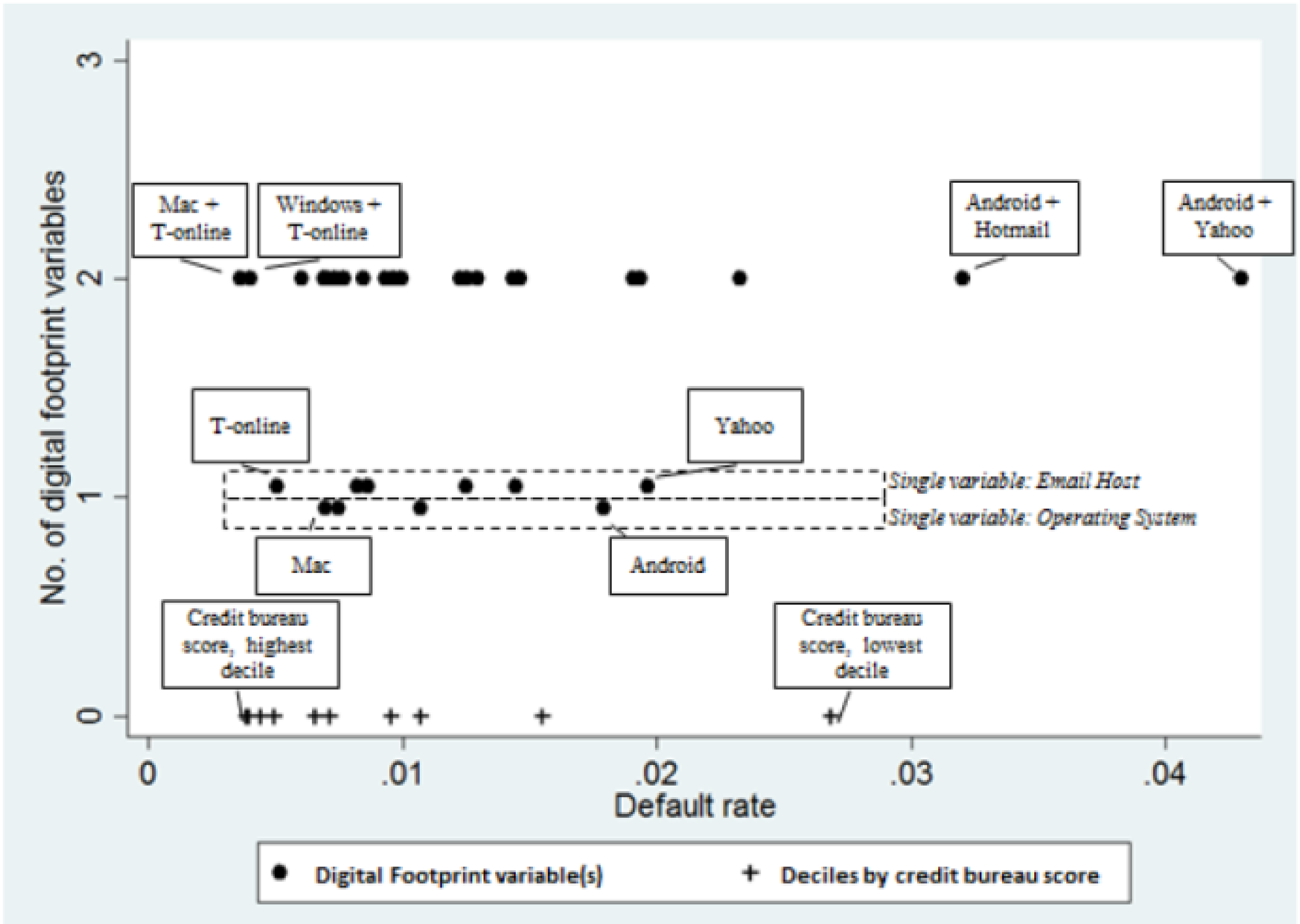
Banks adapt to rely more on it

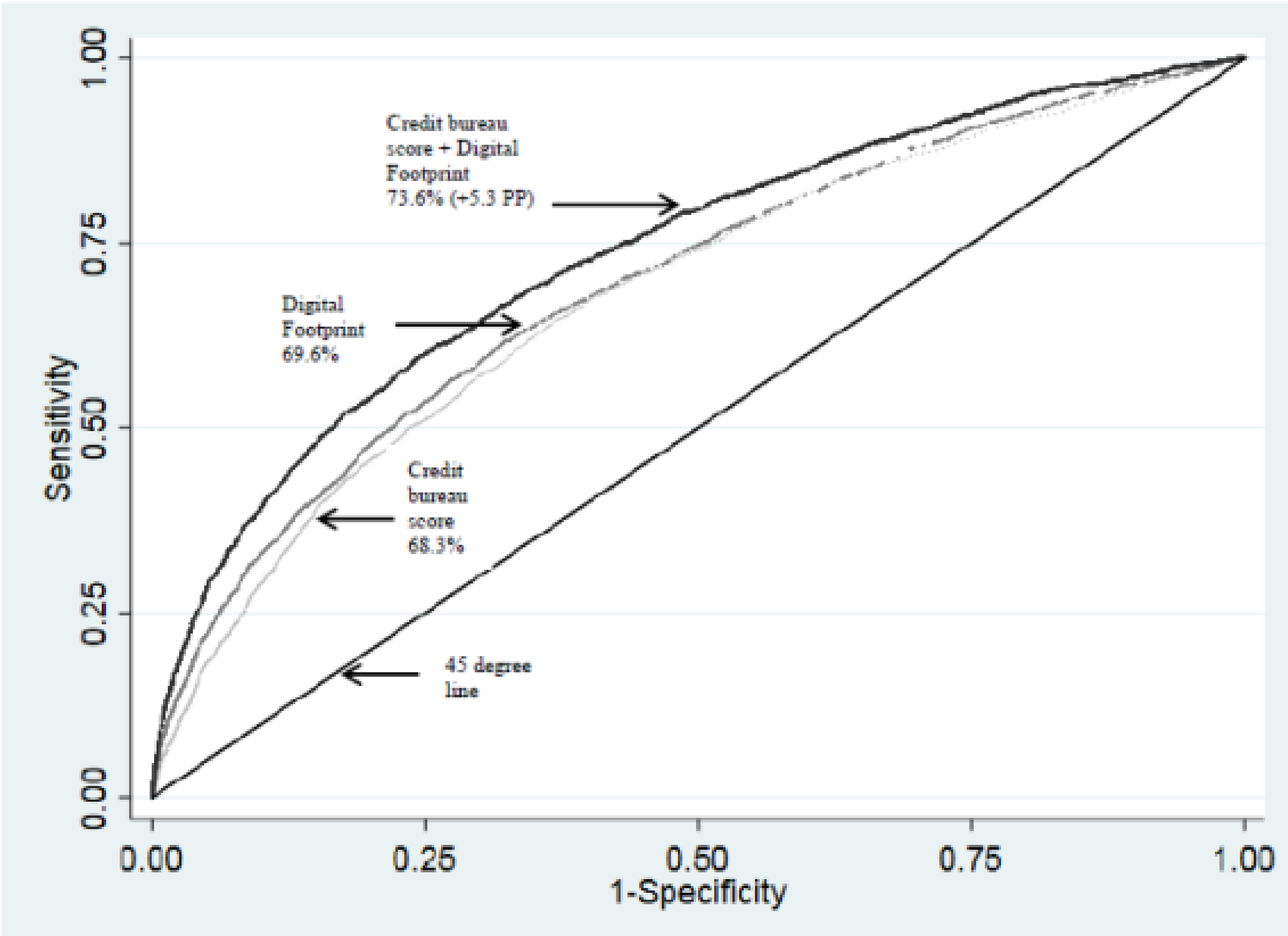
branches lose advantage

Banks close branches thus reducing the collection of soft information

- Death of bank tellers
- Death of distance
  - Convenience is determined in terms of ease of mobile use not physical location
  - If you base your analysis on hard information, it does not matter whether you are next door or 1000 miles away
- Death of loan officers
  - Massive amount of data +AI => human expertise less important
- Amazon effect
  - Free is the new cheap

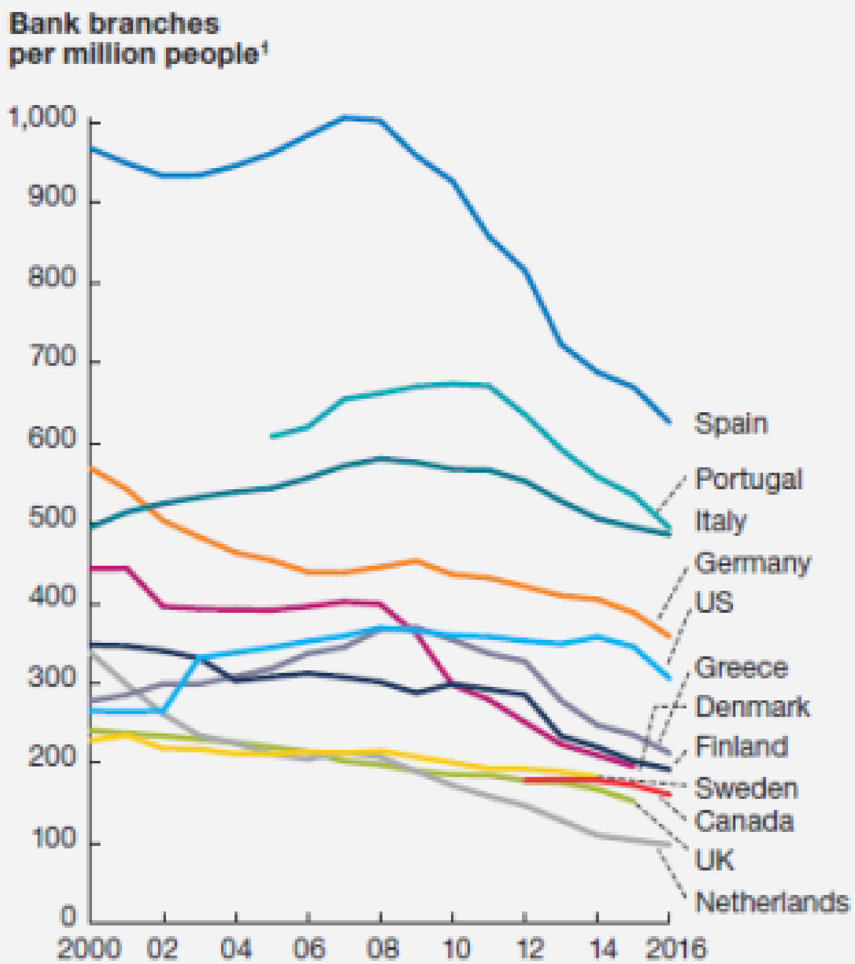
Berg et al. (2018)





Credit bureau score + Digital Footprint 73.6% (+5.3 PP)
Digital Footprint 69.6%
Credit bureau score 68.3%
45 degree line
Sensitivity
0.00
0.25
0.50
0.75
1.00
1-Specificity

The number of branches per million people is declining in North America, the UK, and Europe.



	Branches per million people[2]	Peak-to-trough reduction
Spain	625	↓ 38%
Portugal	494	↓ 27%
Italy	486	↓ 16%
Germany	358	↓ 37%
US	306	↓ 17%
Greece	213	↓ 42%
Denmark	196	↓ 56%
Finland	192	↓ 45%
Sweden	183	↓ 22%
Canada	161	↓ 11%
UK	153	↓ 37%
Netherlands	99	↓ 71%

[1] Represents bank branch density per million people in the country.

[2] Based on 2016 or latest year available.

Source: McKinsey World Banking Intelligence database; McKinsey analysis

Are Banks Still Special?

1. Payments:

- Cryptos provide a form of peer-to-peer payment that bypasses not only banks, but also the central bank
- Central banks do not want to lose control over payment
- More and more tempted to offer CBCD

Central Bank Digital Currency

	Existing central bank money		Central bank digital currencies		
	Cash	**Reserves**	**CB crypto currency**	**"CB accounts for all"**	**Wholesale**
Accessibility	General Public	Banks only	General Public	General Public	Banks only
Value form	(Physical) Token	Account entry	(Digital) Token	Account entry	(Digital) Token
Anonymity	Yes	No	Possible	No	No
24/7 availability	Yes	No	Yes	No	Possible
Interest bearing	No	Yes	Possible	Possible	Yes

	Central bank digital currencies			
	CB cryptocurrency	**"CB checking accounts for all"**	**"CB savings accounts for all"**	**Wholesale**
Key feature	Anonymous	Not interest bearing	Interest bearing	Peer-to-peer
Potential policy objective	Replacement for cash	Eliminate deposit insurance	Eliminate ZLB	More efficient PvP and DvP
		Impact on		
Bank business models	Payment fees ↓	… + transactional deposits ↓	… + higher funding costs	Back office savings
Monetary policy implementation	Minimal	Minimal	Negative interests rates more powerful	Minimal
Lender of last resort	Speedier bank runs	Speedier but smaller bank runs	Speedier bank smaller runs	Minimal

Effects

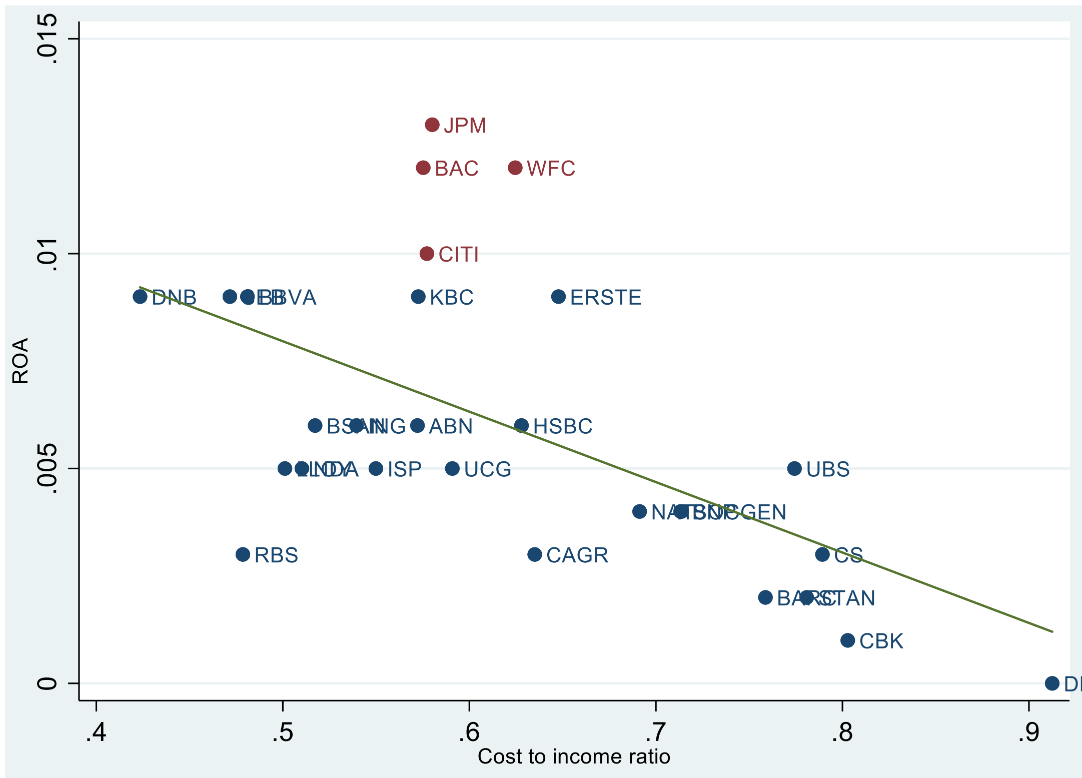
Benefits:

- Part of the government debt will be financed with CBDC instead of government bonds
- Elimination of the “Too Big to Fail”
- Elimination of the ZLB

Costs:

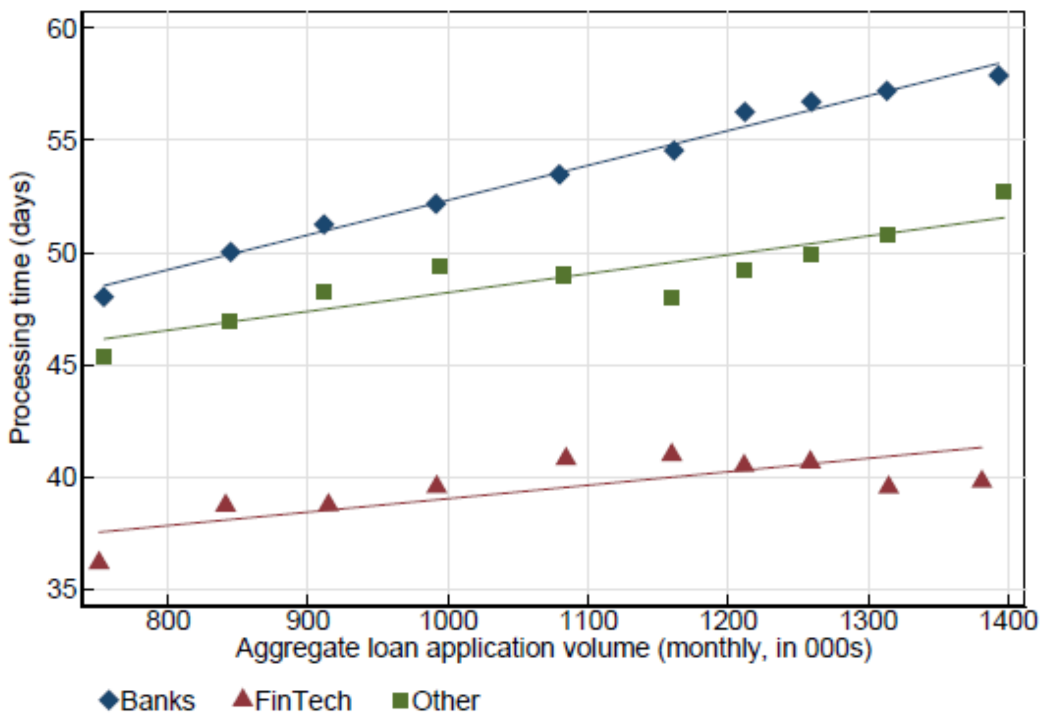
- Risk of bank runs (if banks remain the same)
- Central bank would have immense power to observe and potentially to control an individual’s finances
- Lose data synergies (if not data portability)

An Exorbitant Privilege



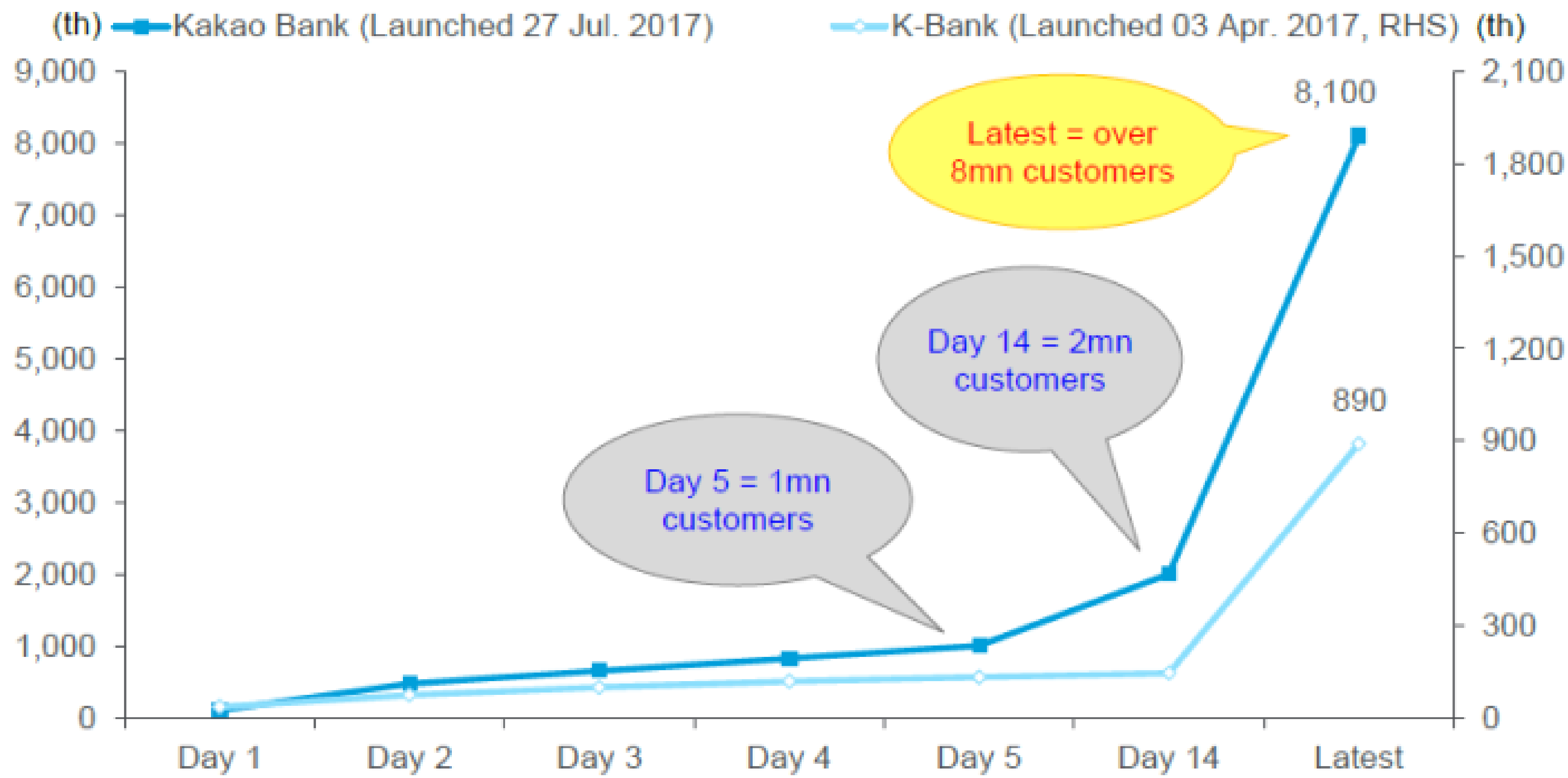
2. Lending:

- How to preserve lending capacity?
- Processing times and elasticity to demand across lender types



Customer Inertia?

Figure 107. Korea Internet Banks Aggregate Number of New User Accounts (in millions)



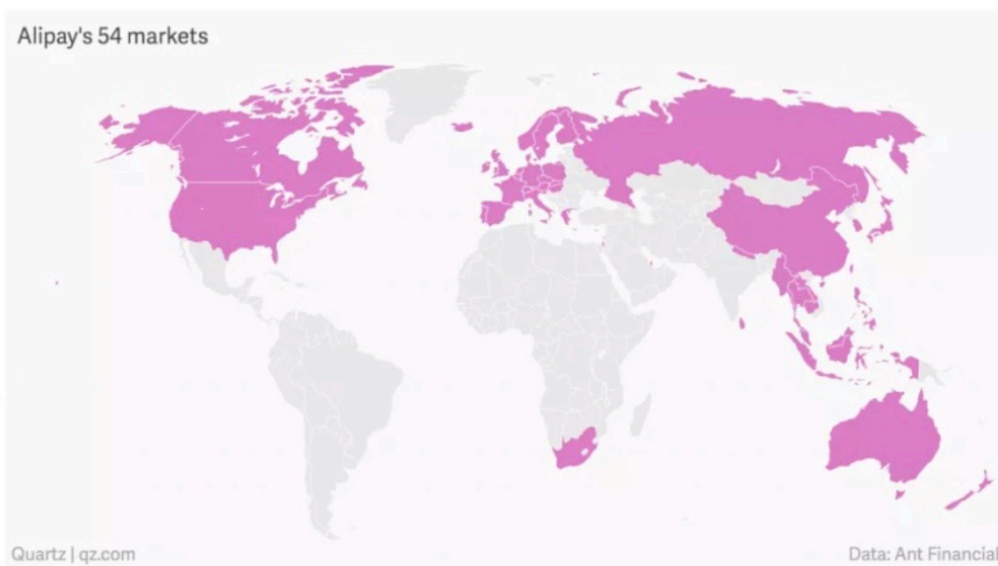
Source: Press Reports (Business News Daily Korea, Yonhap), Citi Research

- Maintaining lending capacity is not anymore keeping alive physical networks
- But insuring a constant match between data and capital
- How do you ensure it? By allocating properly the property of the data.
- Property of the non-anonymized data should belong to the individual and should be easily transferrable
- Anonymized data freely available

=> Marketplace lending + some rating/ service companies

Geopolitical Issues

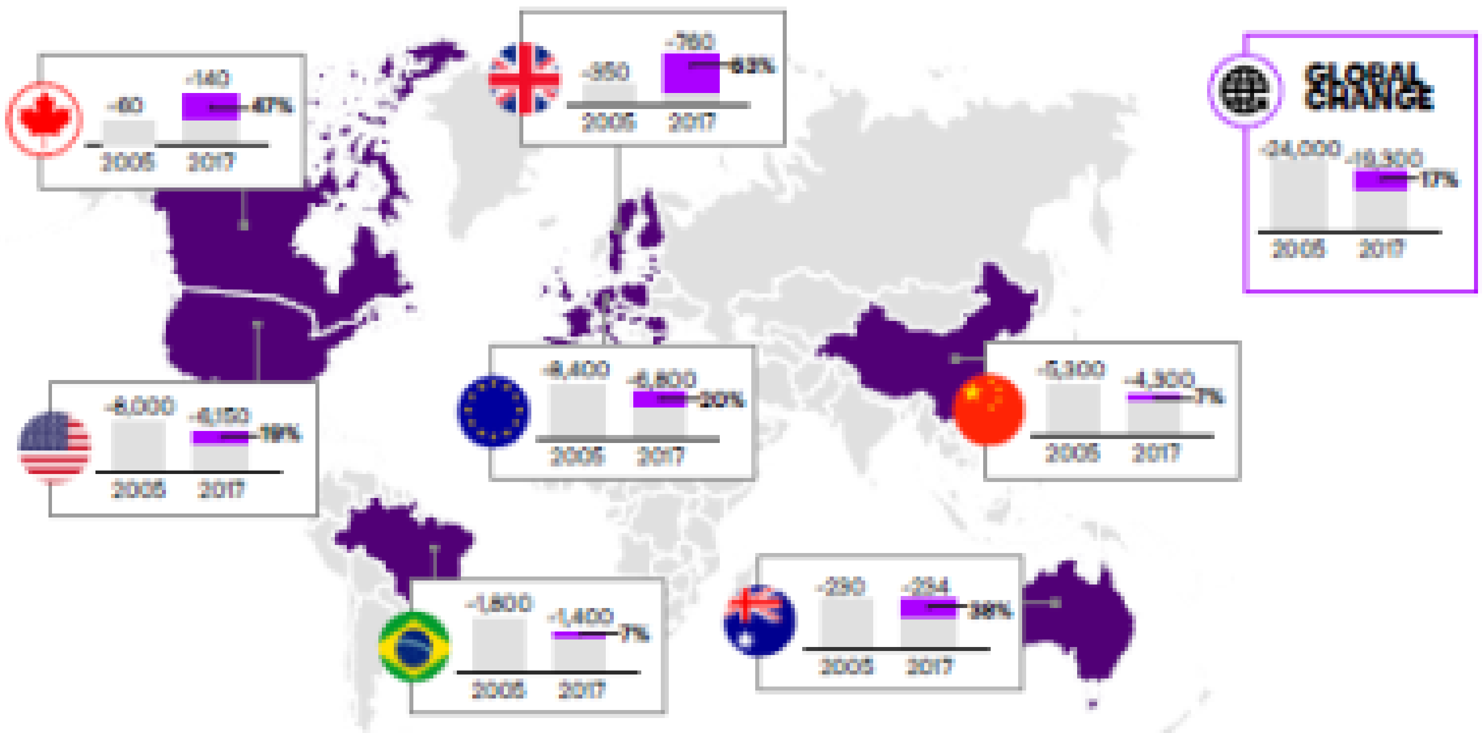
- Ant fin. was prohibited to buy MoneyGram
  - It bought UK-based international wire transfer firm WorldFirst
- It has partners in Thailand, Indonesia, the Philippines, Brazil, Argentina, India, Korea



Regulation as a barrier to entry

- Financial systems' shape is influenced by the regulatory and supervisory landscape.
- Often, the regulatory and supervisory system is suited particularly to the incumbents.
  - WalMart stopped from becoming a bank
- There are also often deep connections between key financial system players and the political system
- The geopolitical issues will make things worse

Regulation and new entry?



Percent of new players

Source: Accenture Research Analysis

Conclusions

- This time is different
- Not only traditional banks, but traditional banking is threatened at the core
- The key roles in shaping the future will be played by
  - International competition
  - Regulation
  - Geopolitical concerns
- One thing is sure
  - Banking will not stay the same