



University of
BRISTOL

Financial Technology

Lecture 10: Part Two

COMSM0019: Internet Economics and Financial Technology

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m-pesa

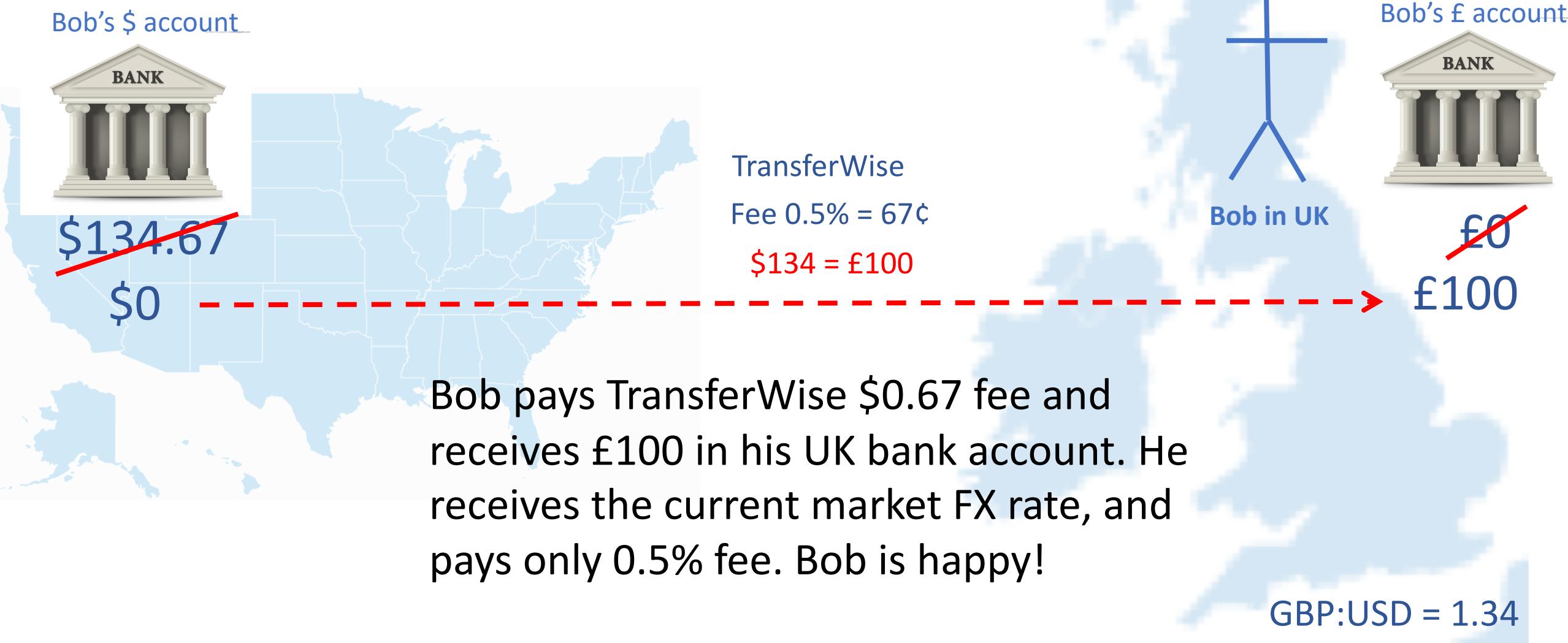




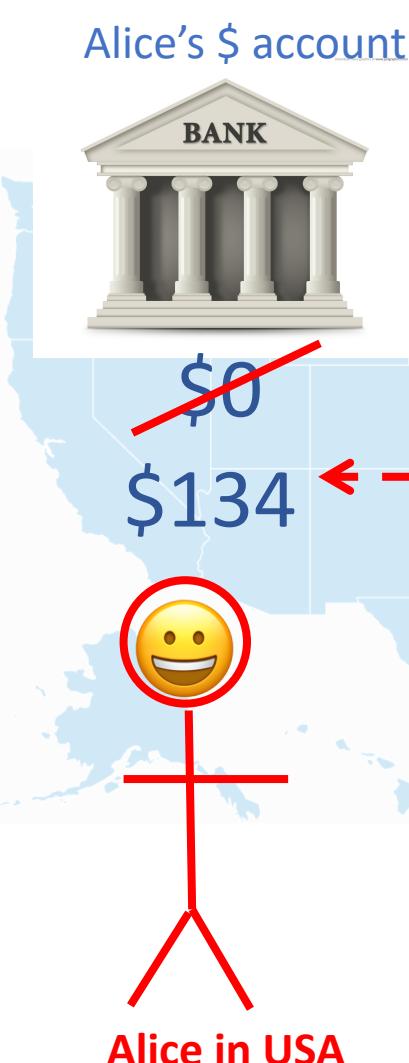
TransferWise

- Peer-2-peer provider of international money transfers (FX)
 - Allows local bank settlement and use of Debit / Credit Cards
- Launched 2011, Estonian developed, UK-based
 - Received \$1M+ funding in 2012, now has total of \$100M+ funding.
- Company valued >\$1 billion (Unicorn)
 - Break-even reached in 2017. Now turning a profit.
 - Rapid rise in volumes (growing 150% year on year)

Bob is in the UK. He has \$134.67 stuck in a bank account in USA that he wants to remit to UK.



Alice is in USA. She has £100.50 stuck in a bank account in UK that she wants to remit to USA.

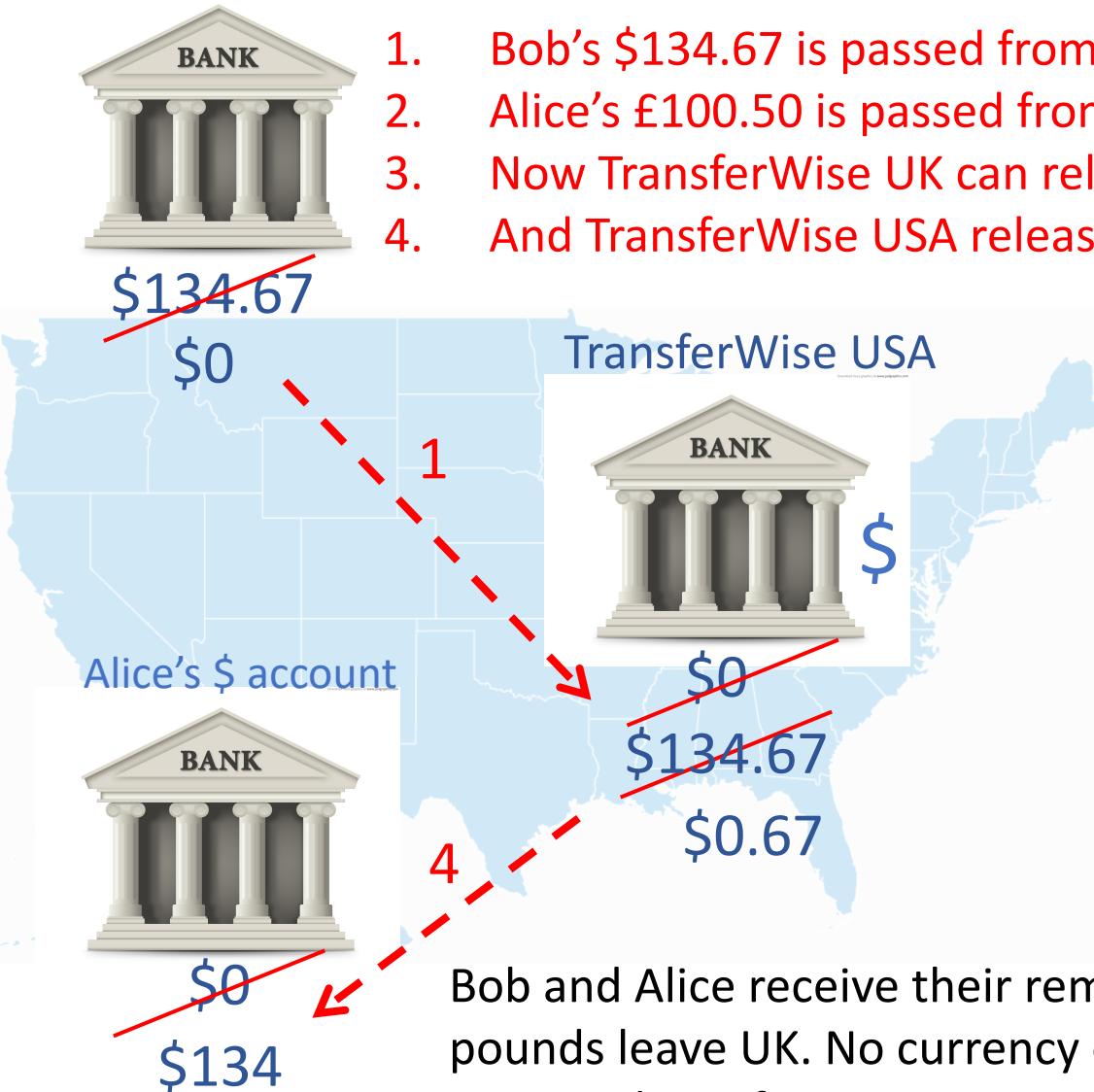


TransferWise
Fee 0.5% = 50p
 $\text{£}100 = \$134$

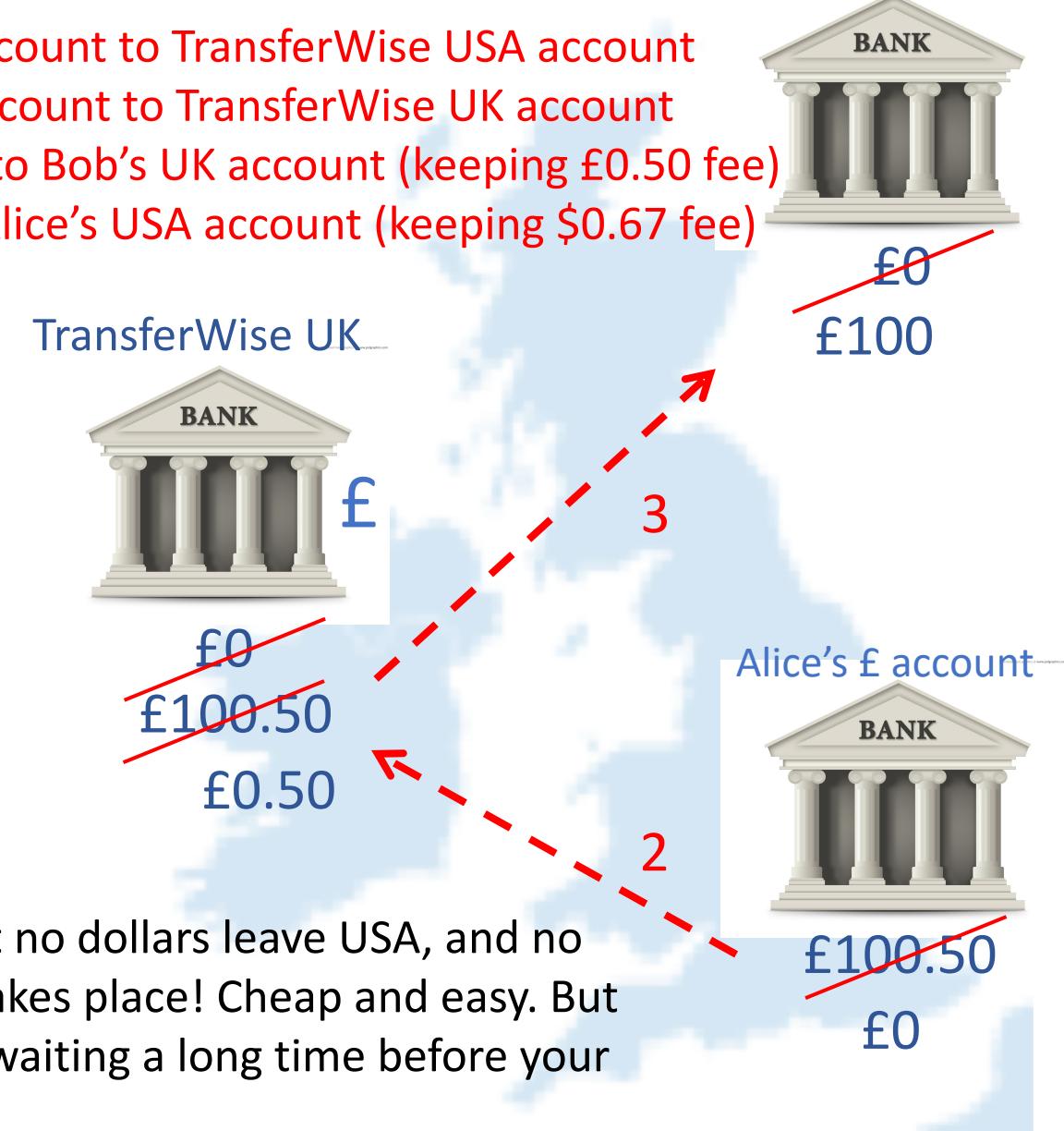
Alice pays TransferWise £0.50 fee and receives \$134 in her USA bank account. She receives the current market FX rate, and pays only 0.5% fee. Alice is happy, but wonders, "How can TransferWise do it so cheaply?"



Bob's \$ account



Bob's £ account



1. Bob's \$134.67 is passed from his USA account to TransferWise USA account
2. Alice's £100.50 is passed from her UK account to TransferWise UK account
3. Now TransferWise UK can release £100 to Bob's UK account (keeping £0.50 fee)
4. And TransferWise USA release \$134 to Alice's USA account (keeping \$0.67 fee)

International payments work the same way: customer in UK wants to pay seller in Germany



- Fees up to 8 times cheaper than traditional banking / international payment methods.
- No capital required by TransferWise – all the money moving around is customer money
- More efficient with scale (more liquidity – more money in local currency TransferWise accounts - provides faster transfers)
- Transfer times: 1-3 days, depending on currency route

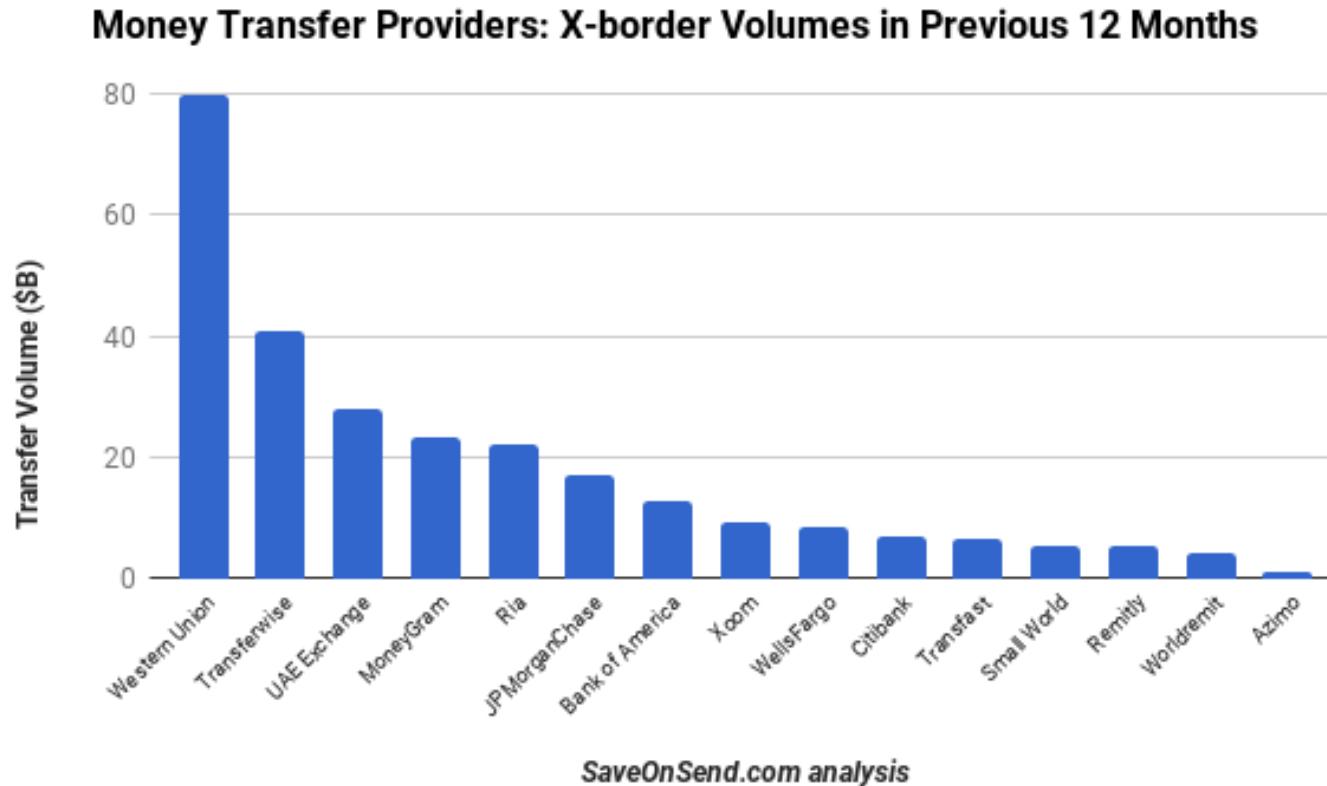
Total international remittances market: \$600 billion / year

- Western Union est. 1851 (\$70 billion transfers in 2016) is largest player
- TransferWise (\$20 billion transfers in 2016)

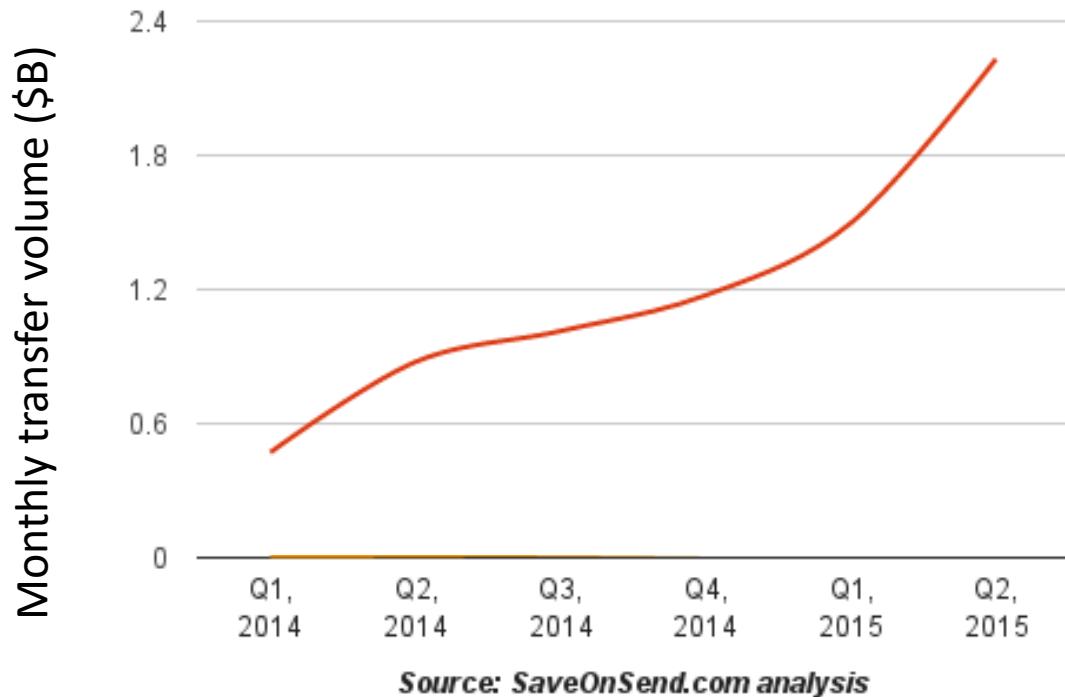
Money Transfer Providers: X-border Volume Comparison for Previous 12 Months



Update Apr 6th, 2019



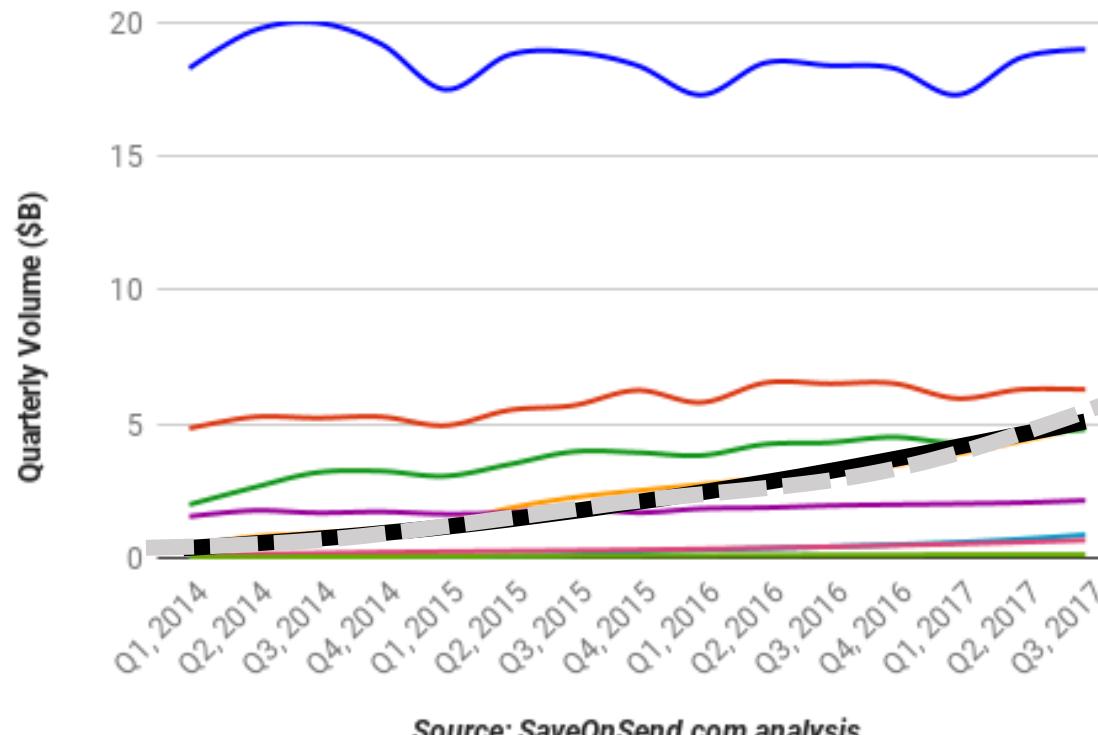
Money Transfer Startups: race against time? Apr 6th, 2019.
<https://www.saveonsend.com/blog/money-transfer-startups/>



Exponential growth rate in transfer volumes

- 150% year on year

Money Transfer Providers: X-border Volume Comparison



Western Union

?

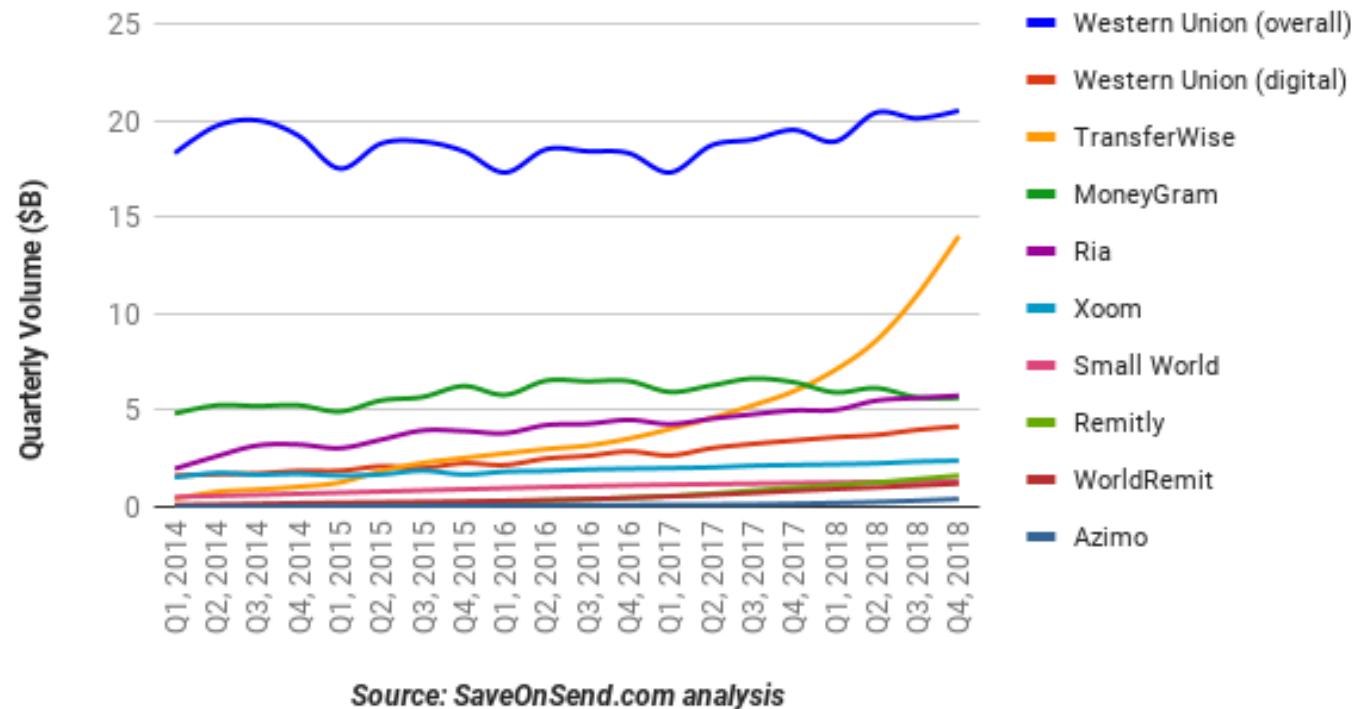
TransferWise

Source: SaveOnSend.com analysis

- International transfer volumes of major players
- TransferWise is the only major player growing significantly
- Most successful FinTech in this space – immediately scaled to 300 currencies
- Can TransferWise catch Western Union?

Update Apr 6th, 2019

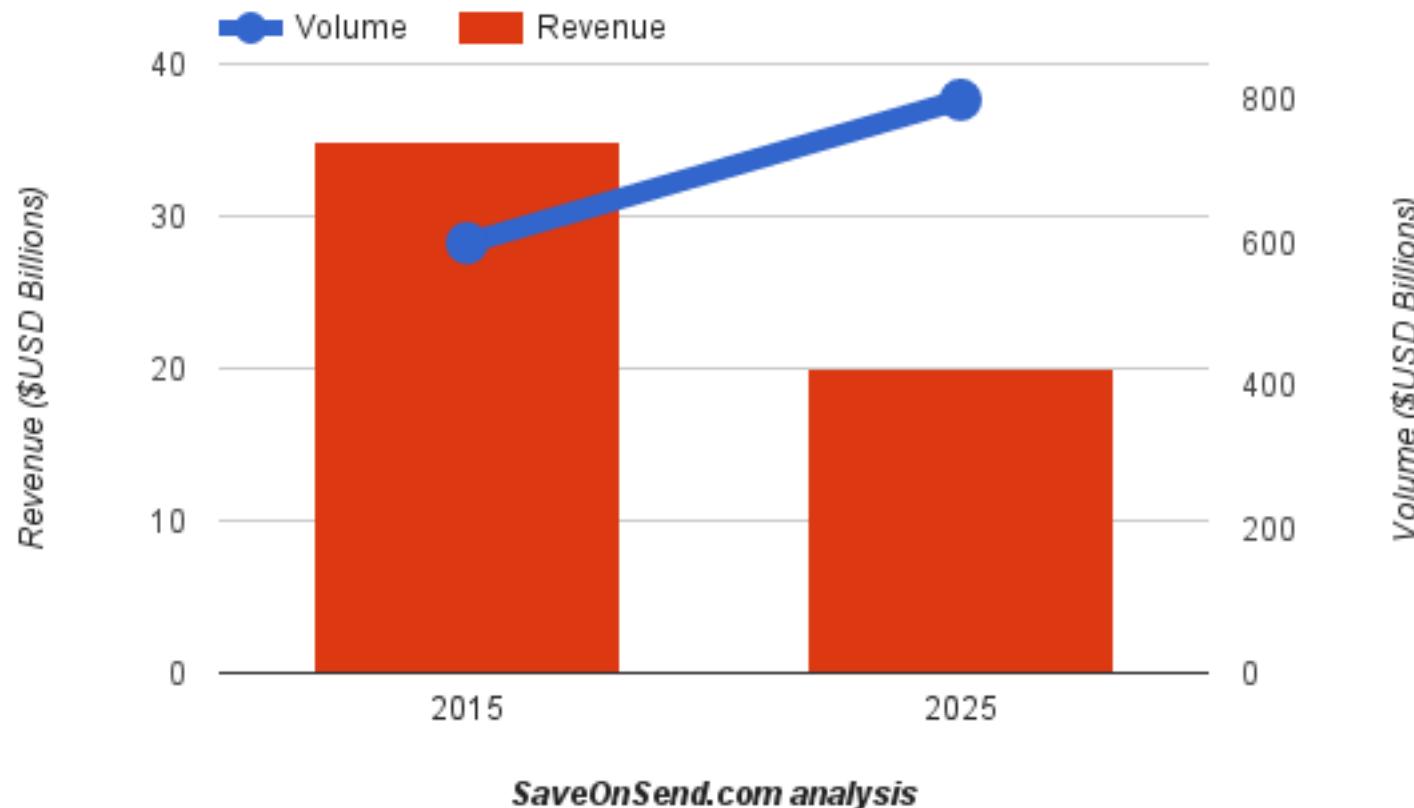
Money Transfer Providers: X-border Volume Comparison



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Volumes and Revenues of Global Cross-Border Consumer Remittances - Long-term Trend



- Low-margin offerings from FinTechs drives down market revenues
- Cheaper remittances for all!



m: mobile pesa: swahili for “money”

Mobile phone-based money transfer, financing and micro-financing service

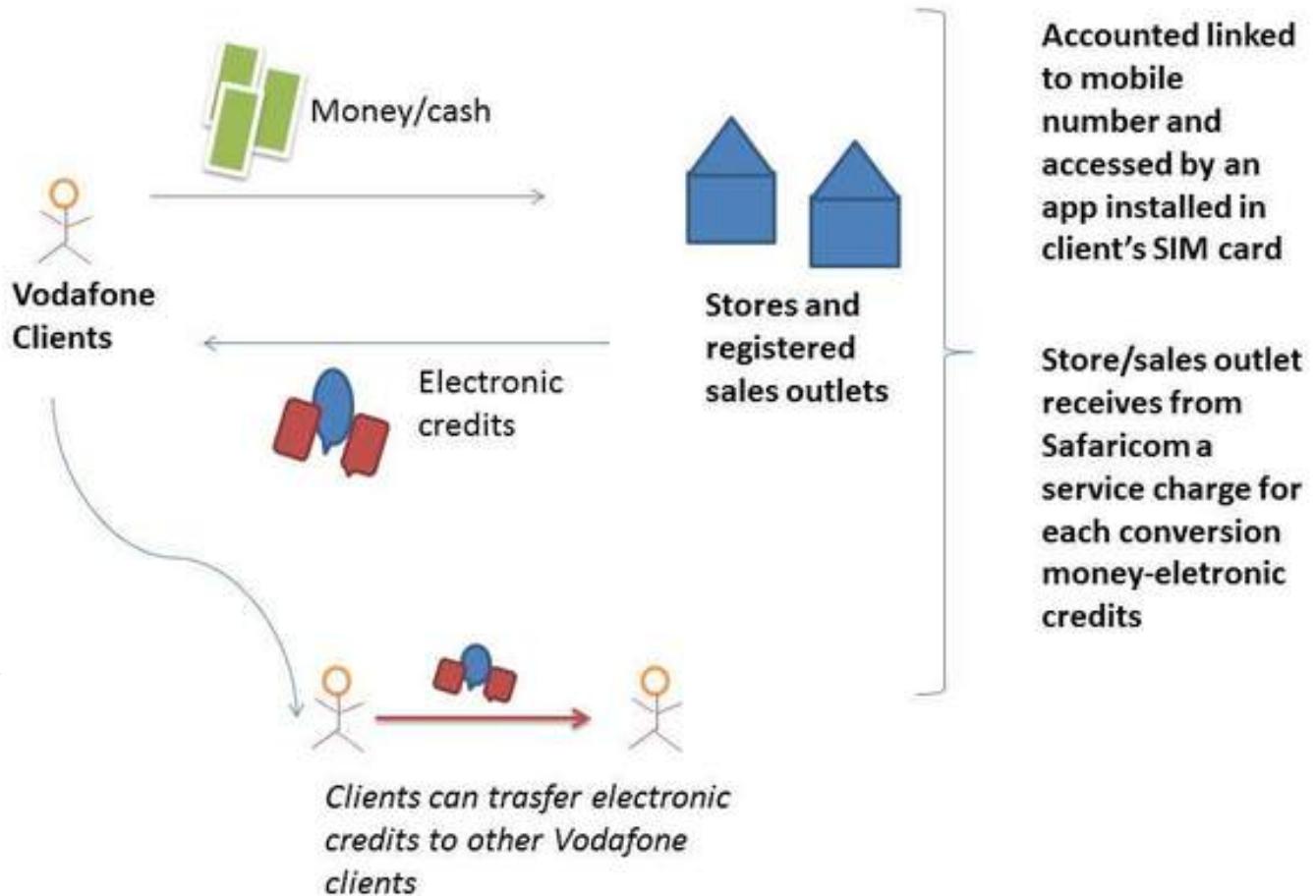
Launched 2007 by Safaricom (largest mobile network operator in Kenya) and Vodafone

- Deposit money into account stored on cell phone
- Send balances using PIN-secured SMS text messages to other users, including sellers of goods/services
- Redeem deposits for regular money
- Users charged a small fee for sending and withdrawing money. No other fees.
- Branchless banking. Deposit/withdraw money from network of agents. Agents receive commission for cash-in/out
- Safaricom's profit ratio around 0.5% of money transferred



Scalable model leveraging existing networks and technology

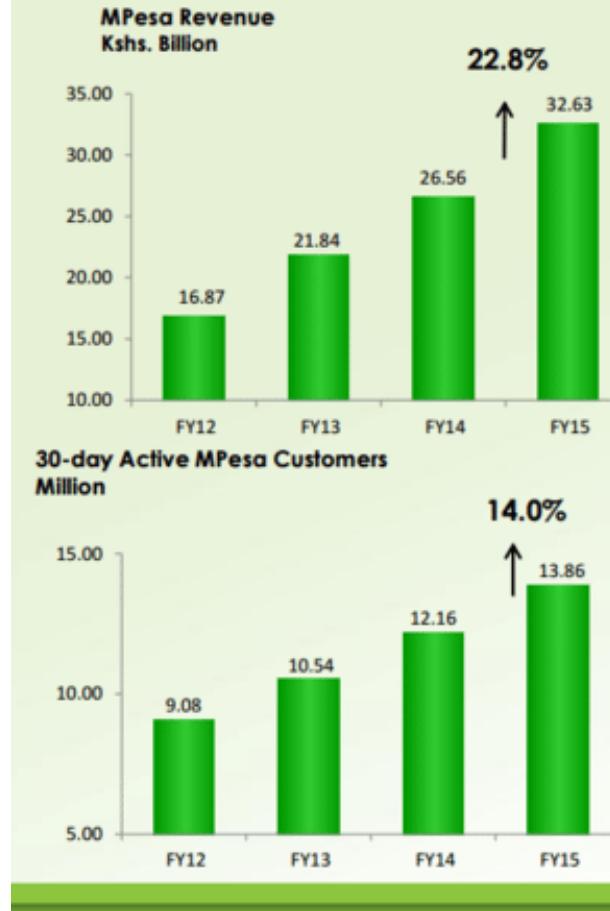
- Safaricom leverage own telecoms network and existing SMS technology
- Use existing banking services to store money
- Agents perform face-to-face services using existing brick-and-mortar outlets





MPesa: Driving financial inclusion

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- 22.8% growth in MPesa revenue, driven by:
 - 14.0% increase in 30 day active users to 13.86m
 - 6.2 chargeable transactions per month per 30 day active users (13% growth)
- Total MPesa transactional value at Kshs 4.18tn in FY15 (26% growth)
- In March 2015, Lipa Na MPesa customers made payments of Kshs 11.6bn, of which Kshs 2.8bn was specific to merchants paying distributors
- 5.8% growth in MPesa agents compared to last financial year; now at 85,756 MPesa agent outlets
- M-Shwari: Increased active customers to 5.8m, 30 day active customer to 3.0m, Kshs 5.5bn on deposit and Kshs 2.1bn on loan with NPLs at 2.0%
- KCB - MPesa: registered customers 1.4m, Kshs 120m on deposit and Kshs 950m on loan



Millions of customers now have access to financial services that they couldn't access before





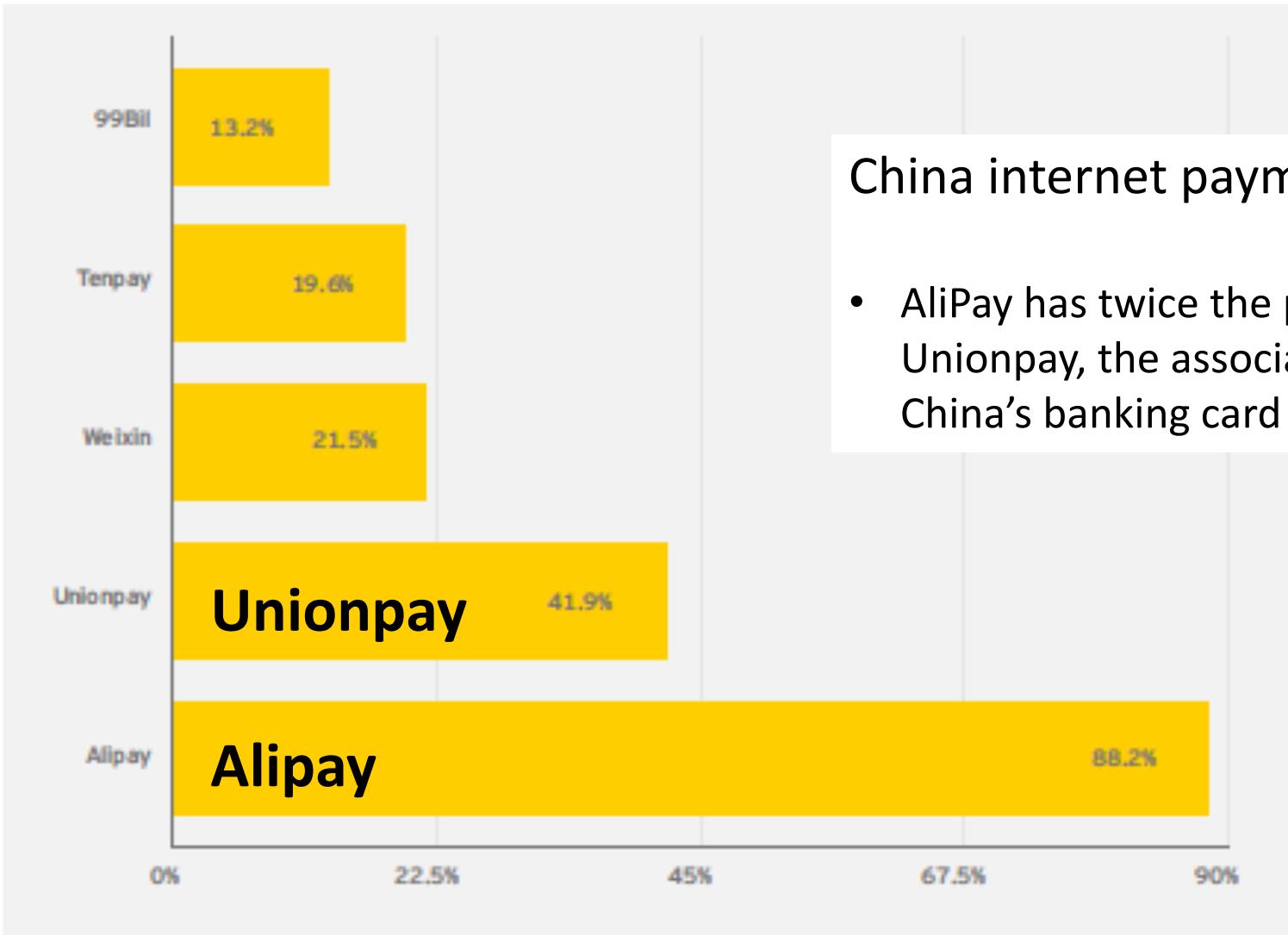
Founded: 1999



Taobao: think Amazon/eBay



- Alibaba founded 1999, China. Business-to-business (B2B) e-commerce portal
- Expanded into business-to-consumer (B2C) and consumer-to-consumer (C2C) with Taobao portal
- 2004: Alipay (payments/transfers) established to address issue of **trust** between buyers and sellers on Alibaba (think PayPal) – **Free to use**
- 2011: Alipay placed under Ant Financial Services umbrella for regulatory reasons
- 2013: Alipay launches internet finance products – mutual funds, ETFs, crowdfunding, lending, and insurance
- 2015: Ant valued at \$50 billion, 190 million users, 45 million transactions per day
- 2015: Alipay 600M registered users, 188M mobile app users. Became world's largest money market fund after 4 months!

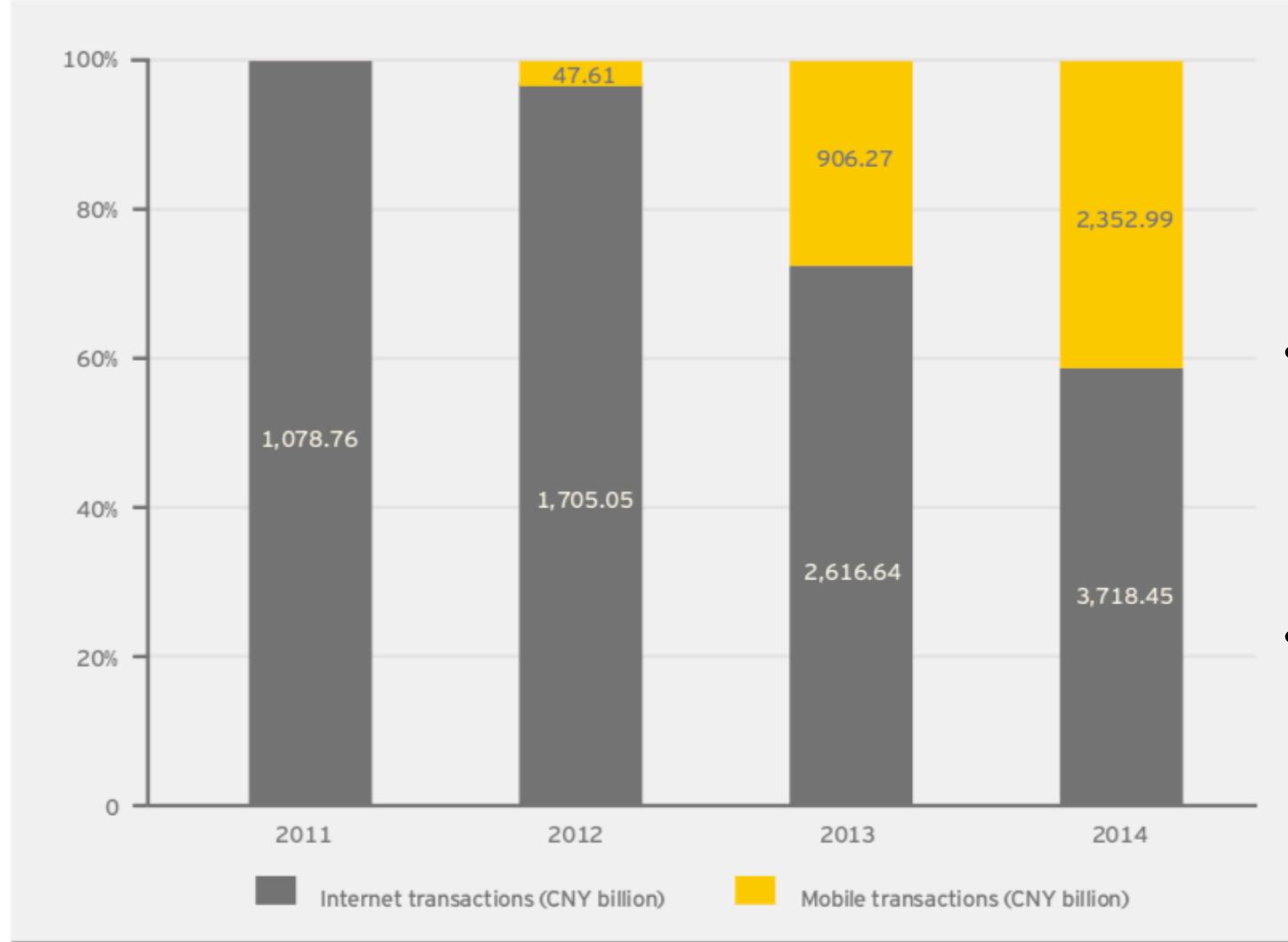


China internet payments:

- AliPay has twice the penetration of Unionpay, the association for China's banking card industry

Figure 1: China's internet payment penetration rates

Source: China Internet Network Information Center



- Mobile transactions (yellow) growing rapidly compared to internet transactions (grey), since introduction of Alipay mobile app in 2013
- 2014: Total transactions on Alipay CNY ¥ 6 billion (~US \$1 billion)

Figure 2: Transaction value of Alipay

China

Leading the TechFin revolution...







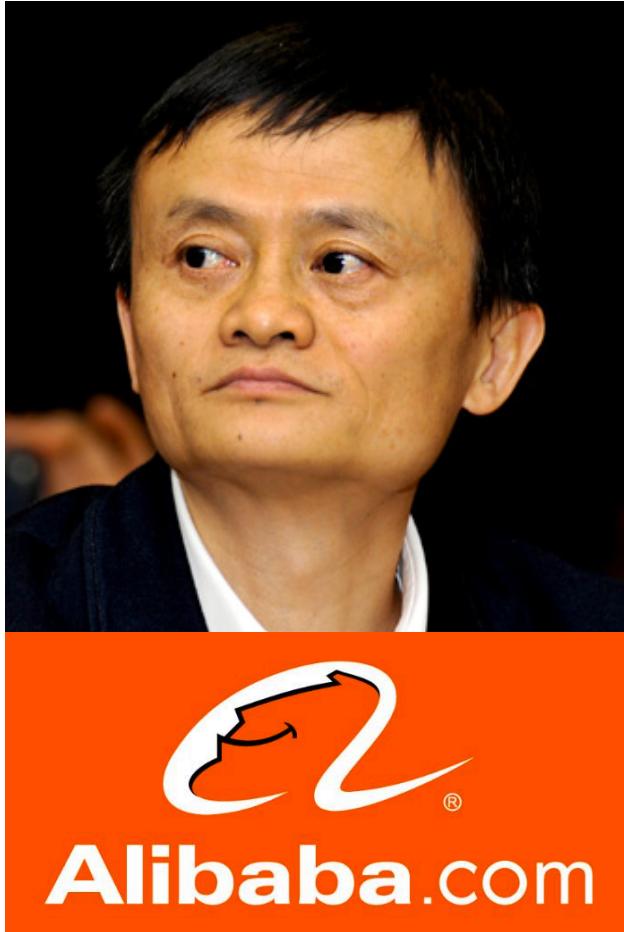
China is leading the world in TechFin. If you have a mobile phone with a QR scanner, you pretty much never need to carry cash

Remember these guys?



Baidu 百度

Robin Li



Jack Ma

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MA Huateng (Pony Ma)
ZHANG Zhidong (Tony Zhang)
XU Chenye (Daniel Xu)
CHEN Yidan (Charles Chen)
ZENG Liqing (Jason Zeng)

Tencent 腾讯

BAT



Founded: 2000

Search, maps, cloud, AI,
autonomous cars...

Baidu: think Google



Founded: 1999



Taobao: think Amazon/eBay



Taobao does not accept WeChat Pay!



Founded: 1998

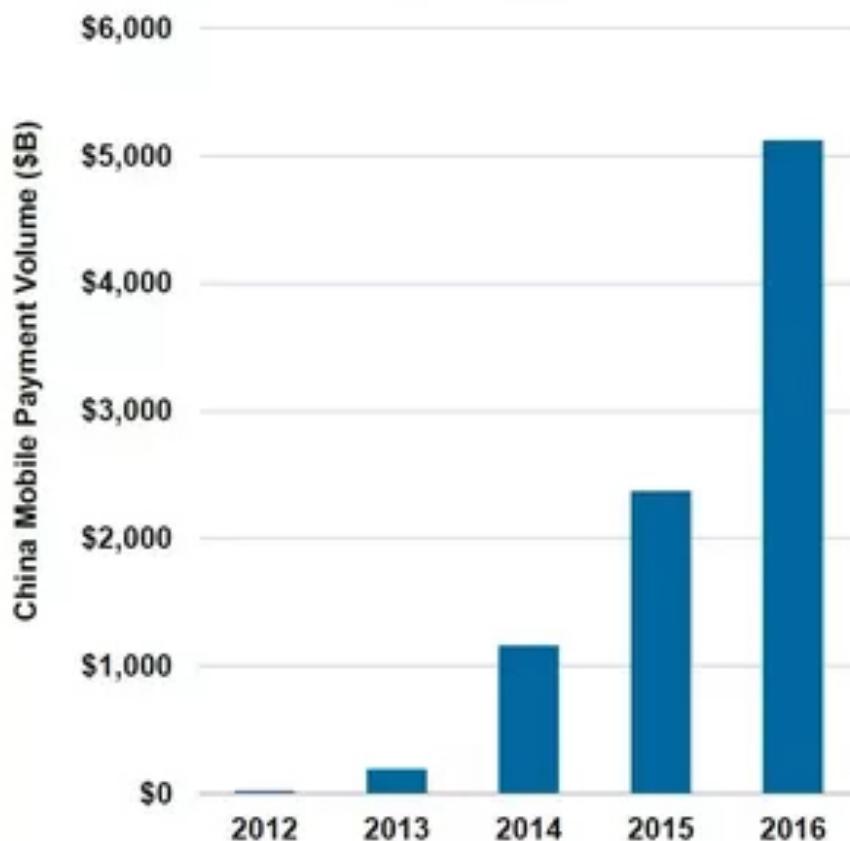


More Social.
More Fun.

WeChat: think Facebook



China Mobile Payment Volume, 2012 - 2016



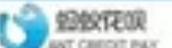
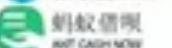
China Mobile Payment Market Share*, Q1:17



China's mobile payments market has grown rapidly to US \$1Bn in 2016 in space of four years

WeChat (Tencent) and AliPay (Alibaba/Ant) dominate with combined 93% market share

Source: Analysis c/o Mary Meeker's 2017 Internet Trends Report (slide 219) <http://www.kpcb.com/internet-trends>

	Payment	Wealth Management	Financing	Insurance	Credit Rating / History
Ant Financial	 支付宝 ALIPAY	 余额宝 YUE BAO	   >100MM Cumulative Consumer Finance Users ³ , >5MM Cumulative SME Borrowers ⁴	 380MM Cumulative Users ⁵	 130MM Cumulative Users ⁶
Tencent	 WeChat Pay >600MM MAU ⁷	 >80MM Cumulative Users ⁸	 >30MM Cumulative Users ⁹		

- Ant Financial's 400+ million users more than 10 times greater than the world's largest banks!
- Network's critical mass makes it easy to overlay additional financial services

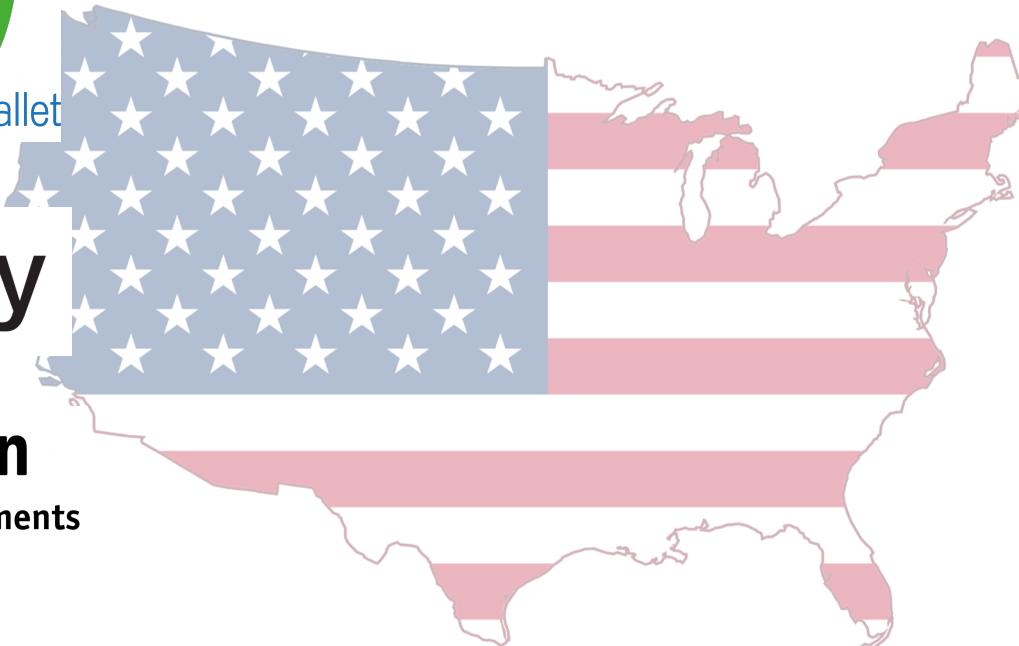
Source: Analysis c/o [Mary Meeker's 2017 Internet Trends Report \(slide 223\)](#) <http://www.kpcb.com/internet-trends>



Google wallet

Apple Pay

amazon
payments



TechFin: Battle of the Giants



支付宝™
ALIPAY

微信支付
WeChat Pay

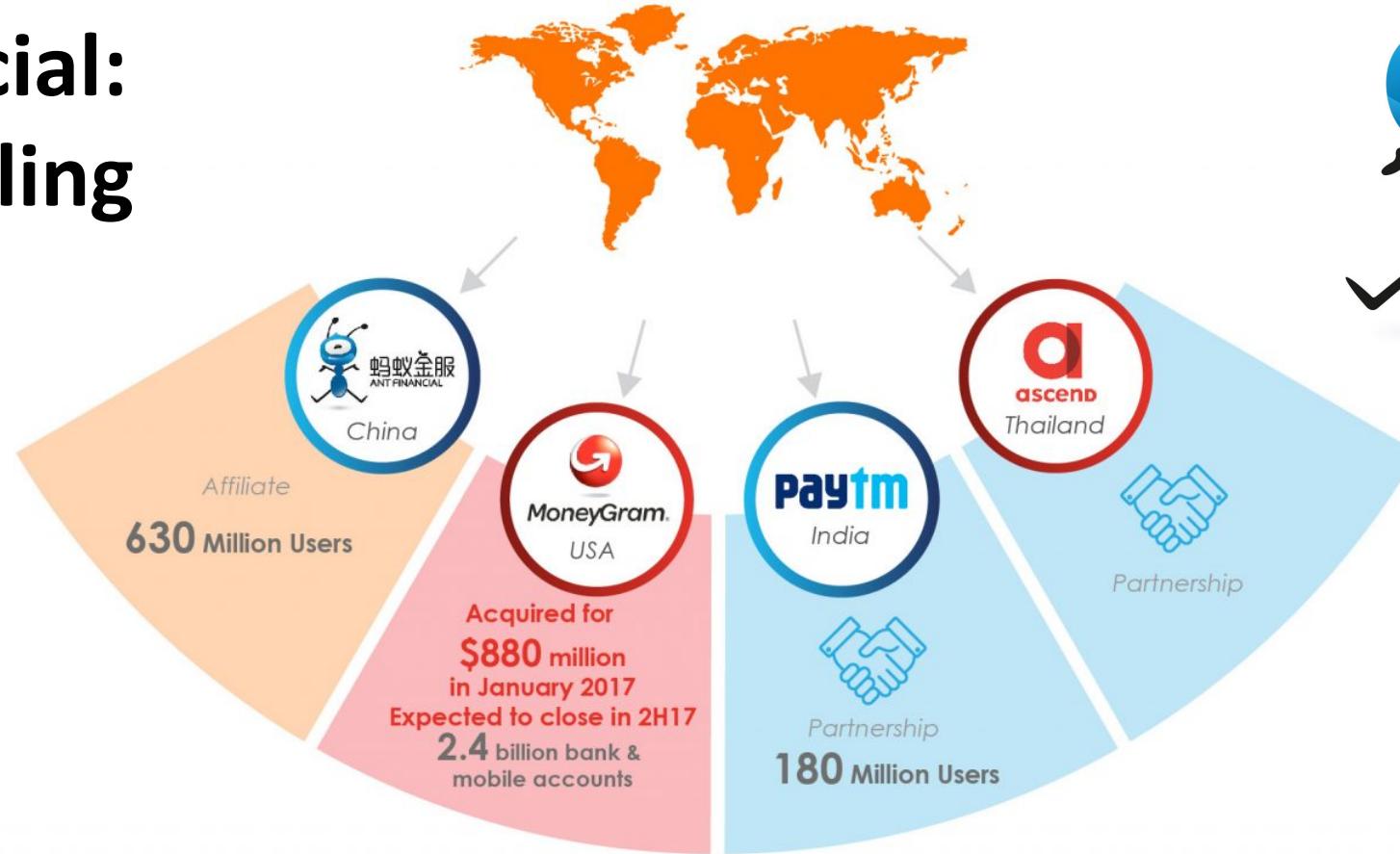


- Banks under-serving a huge population in China – alongside compliance easy regulation - have enabled Chinese TechFin giants to quickly scale, gaining dominant market share.
- Giants in the West face more competition from populations well-served by efficient banking and payments services. Current advantage to China. Next step: global-scaling...

2017: \$15.4 trillion mobile payments processed in China (50% Alipay): 40 times amount processed in US!

<https://www.technologyreview.com/the-download/611491/tencent-and-alibabas-mobile-payment-war-shows-how-far-china-is-ahead-of-the-us/>

Ant Financial: Global scaling



- Ant currently trying to acquire US company MoneyGram
- Partnering with India & Thailand mobile payments

Update: (Jan 2018) US blocks MoneyGram sale to Alibaba boss over China “*security concerns*”

<https://www.theguardian.com/business/2018/jan/03/us-blocks-moneygram-sale-chinese-firm-security-concerns>

- “In this fast-moving industry, where **regulations** are constantly changing and **network externalities** play an important role, there are many factors that would contribute to the success of a FinTech company.”
- “We outline several key success factors which we term the LASIC principles.”

LASIC: The principles of success

Low-margin, Asset-light, Scalable, Innovative, and Compliance easy

Lee and Teo, Emergence of FinTech and the LASIC principles
The Journal of Financial Perspectives, FinTech, Winter 2015, pp. 24-36.

LASIC 1: Low profit margin

- Internet age: information/services expected to be (essentially) free
- High network effects: so must build critical mass
- Once critical mass achieved, monetisation possible
 - Through advertising, subscription fees. Big consumer data can be monetized through 3rd parties / new products (e.g., extract credit scores to assess worthy customers)
- Ensure customer lock-in:
 - Reinforcement of network externalities
 - Increased switching costs
- Profit margins remain low at the user level – so high volumes necessary

LASIC 2: Asset light

- To enable a low profit margin, must be asset light (i.e., low CapEx)
- Be able to scale without incurring large fixed costs on assets
- Therefore low marginal costs (enabling low profit margin)
- “Free ride” on existing infrastructure to minimise fixed costs
 - Eg, Money transfer using SMS over existing mobile infrastructure

LASIC 3: Scalability

- Technology must scale to reap benefits of network externalities.
- Ensure scale does not compromise efficiency, or increase costs

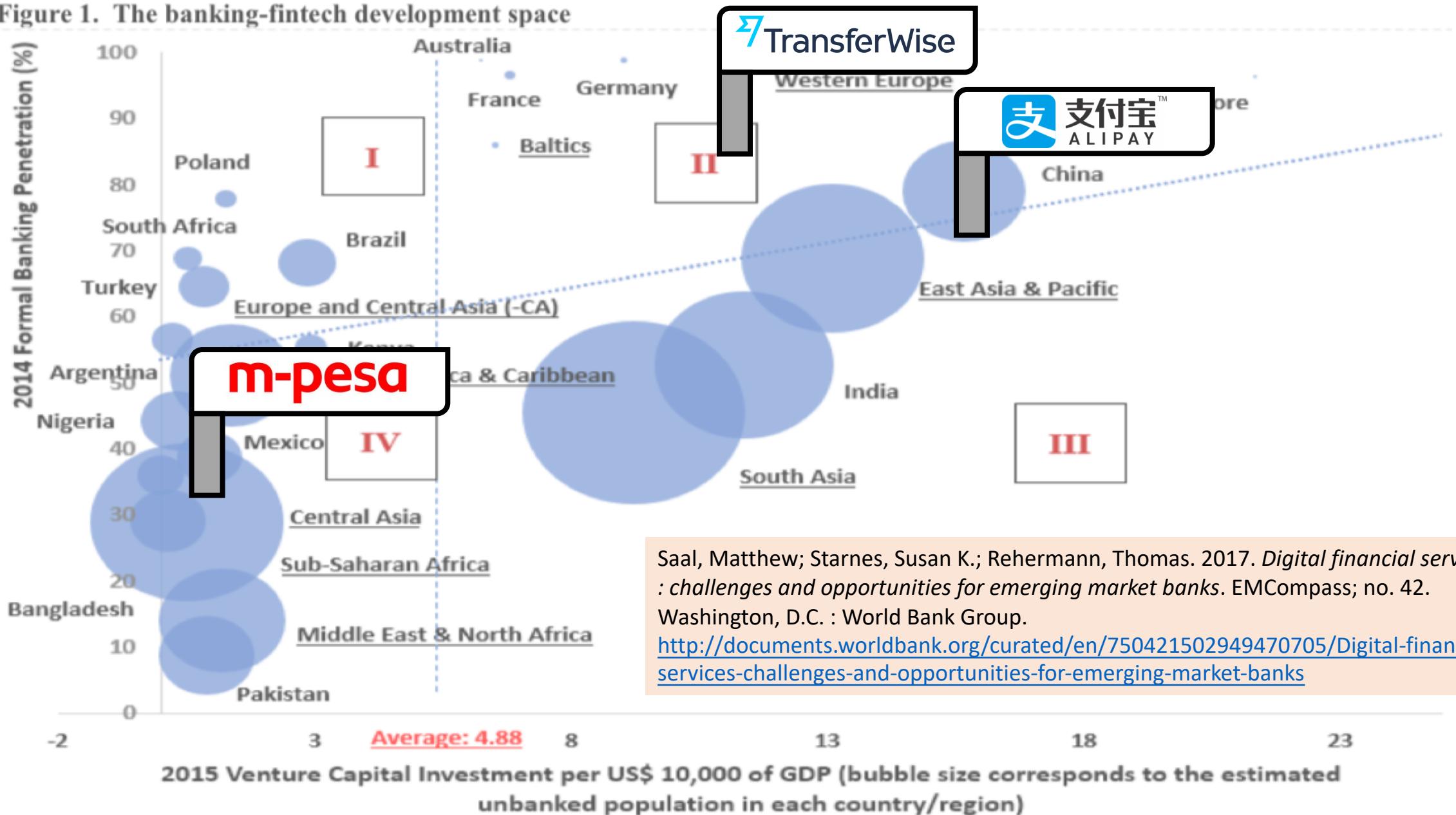
LASIC 4: Innovative

- Products and operations must be innovative – a new business model
- Widespread use of mobile phones and internet services enables much innovation in the FinTech/TechFin space

LASIC 5: Compliance easy

- Low regulatory compliance enables innovation
 - (trade off: customer protection)
- Businesses that receive incentives to aid **inclusion** have an advantage
- First mover advantage – proven beneficial products may be allowed to proceed
- “Develop-led regulation” rather than “development-lagged regulation”
 - E.g., Difference between China (development-led) and India (development-lagged)
- If identification remains an issue, scalability may be unattainable
 - E.g., Low-touch solutions such as SIM registration– SIMs allow end to end encryption
 - E.g., Mobile apps; bank account/ID only required for complex functions

Figure 1. The banking-fintech development space



Source: IFC staff calculations; *World Development Indicators*, The World Bank, 2016; *Global Findex*, The World Bank; PitchBook Data, Inc. 2016.



TransferWise

Q-LASIC	TransferWise
Quadrant II (UK)	High banking penetration, so customers have access to mature banking networks, on which services can be overlaid. Lots of venture capital funding available, allowing startups to enter the market. Opportunities for partnerships with traditional firms.
Low margin	No profit on exchange rate (money transfers at current FX rate), and only 0.5% fee.
Asset light	Internet only (no bricks and mortar), sits on top of existing bank-transfer networks.
Scalable	Quickly scaled to over 300 currency routes, to ensure dominance over fintech rivals. Leveraged existing banking transaction services to scale easily. Peer-matching more efficient at scale.
Innovative	Novel peer-to-peer matching of international money flows: international payments without the intermediaries! No need for currency trading, or holding currency reserves.
Compliance easy	Regulated in UK by FCA (users verified to protect against fraud/laundering). TransferWise customer deposits covered by FSCS. Now looking to partner with more traditional finance firms.

Table 16.3: Transferwise (LASIC)



Q-LASIC	M-Pesa
Quadrant IV (Kenya)	Low banking penetration and low venture capital investment makes it hard for fintech startups to enter. Established telecoms companies are in the best position to financial services via their communications network. Customers tend to be poor, but have access to mobile telephone services.
Low profit margin	Customers only charged for “doing something” (transfers, or withdrawals). No minimum deposit, SMSs free of charge. Agents paid high commission. In 2010, store can earn US \$5.70/day (60 transactions), equal to twice daily wage in Kenya.
Asset light	Utilise existing retail stores as cash-in / cash-out agents. Money in M-Pesa deposited at commercial banks
Scalable	Agent system is scalable, and can be replicated across regions. Technology builds on existing SMS technology. Only mobile is needed, so rapid expansion possible with little setup costs.
Innovative	M-Pesa is the first P2P through mobile SMS
Compliance Easy	Operates in emerging/developing countries. Governments recognise promotion of financial inclusion, so offer lighter touch regulation

Table 16.5: M-Pesa (LASIC)



Q-LASIC	Alipay
Quadrant III (China)	High venture capital investment and low banking penetration means there are opportunities for well established big tech firms to offer techfin services to their underbanked customer base via mobile platforms. Smart phone penetration is high.
Low profit margin	Alibaba's network of consumers and merchants built up with low-cost, low-margin model. No charge for merchants. No cost to shop. Revenue generated through advertising and other services
Asset light	Little physical infrastructure: online portals and mobile phone apps
Scalable	Scales quickly as number of e-commerce customers increases: 300 million registered users on Alipay (2014)
Innovative	Alibaba's "free" business model was unique. Alipay (introduced 2003) increased user stickiness. Excess credits in accounts used to form a money market fund. Customer data used for analytics for credit scoring
Compliance Easy	Alibaba's services and rapid growth of internet adoption have improved lives of millions in China. Government regulates with light touch. As government now introduces more regulation, Alibaba benefits from first mover success

Table 16.4: AliPay (LASIC)

Summary

- Financial technology: key players
 - Traditional banking and finance: Digitalisation of legacy finance
 - Tech start-ups: FinTech - disruptive innovation
 - Big Tech: TechFin – moving into finance by leveraging customer network and data
- Principles of success
 - LASIC: Low-margin, asset-light, scalable, innovative, and compliance easy
 - Positive network externalities – must scale as quickly as possible; and first mover advantage
 - Examples: TransferWise, M-Pesa, and Alipay
 - Key factors: Regulation, technology investment, and banking penetration

Financial inclusion: opportunities to make commercial profit while improving lives of the poor; reducing costs for all

Example questions

- Digitalisation, TechFin, and FinTech can be used to classify different players and services in the financial technology space. Briefly describe each term and give an example institution and application for each.
[3 marks]
- What are the LASIC principles of success? Using a real-world TechFin/FinTech service, use LASIC principles to explain why the service has become a success.
[10 marks]
- For any given country or region, explain how traditional banking penetration, venture capital investment, and government regulation may affect the future evolution and development of financial technology. Use real world examples, where possible, to back up your argument.
[15 marks]