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FinTech: Overview, Payments, and Regulation

Professor Sarin Introduction

Natasha Sarin, Assistant Professor of Law, Assistant Professor of Finance

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FinTech: Overview, Payments, and Regulation

History of Payment Methods

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Overview

- History of Payment Methods
- Two-Sided Payment Markets
- Growth of Credit Cards
- Problems in the Credit Card Payment System
- Regulation in Payments
- Future of Payment Networks and Payment FinTech

History of Payment Methods

Bartering Era

Image Source: Wirecard

Problems

- No common standards of value
- Inefficient exchange

History of Payment Methods

Metals/Coins Era

Image Source: Wirecard

Problems

- Fluctuation of metal value
- Burdensome to weigh and carry

History of Payment Methods

Paper Money Era

Image Source: Wirecard

Problems

- Theft
- Forgery

History of Payment Methods

Credit Card Era

Image Source: Wirecard

Problems

- Fees
- Credit Card Oligopoly

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Current Global Trends in Payment Methods

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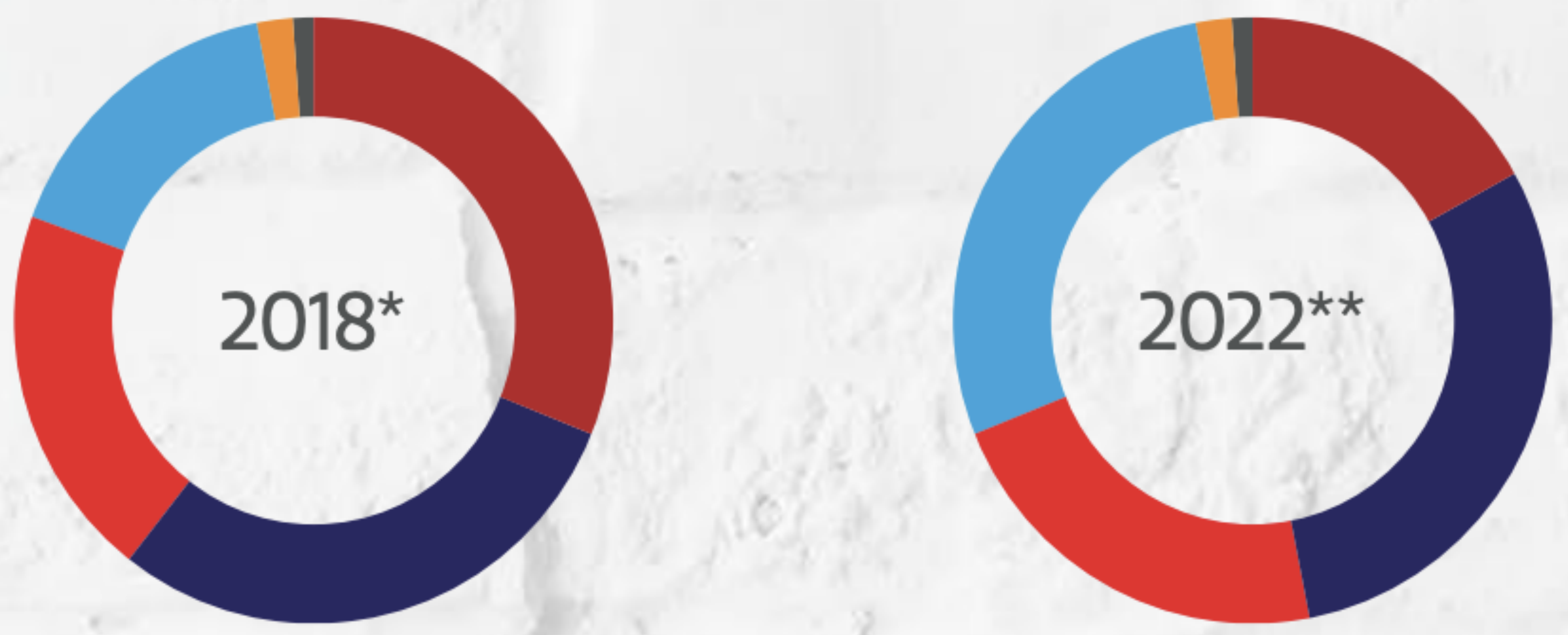
Current Global Trends in Payment Methods

- In the early 1990s, almost 90% of non-cash transactions were done with check
- Check usage has declined as debit and credit card usage has increased

Current Global Trends in Payment Methods

Global POS payment methods



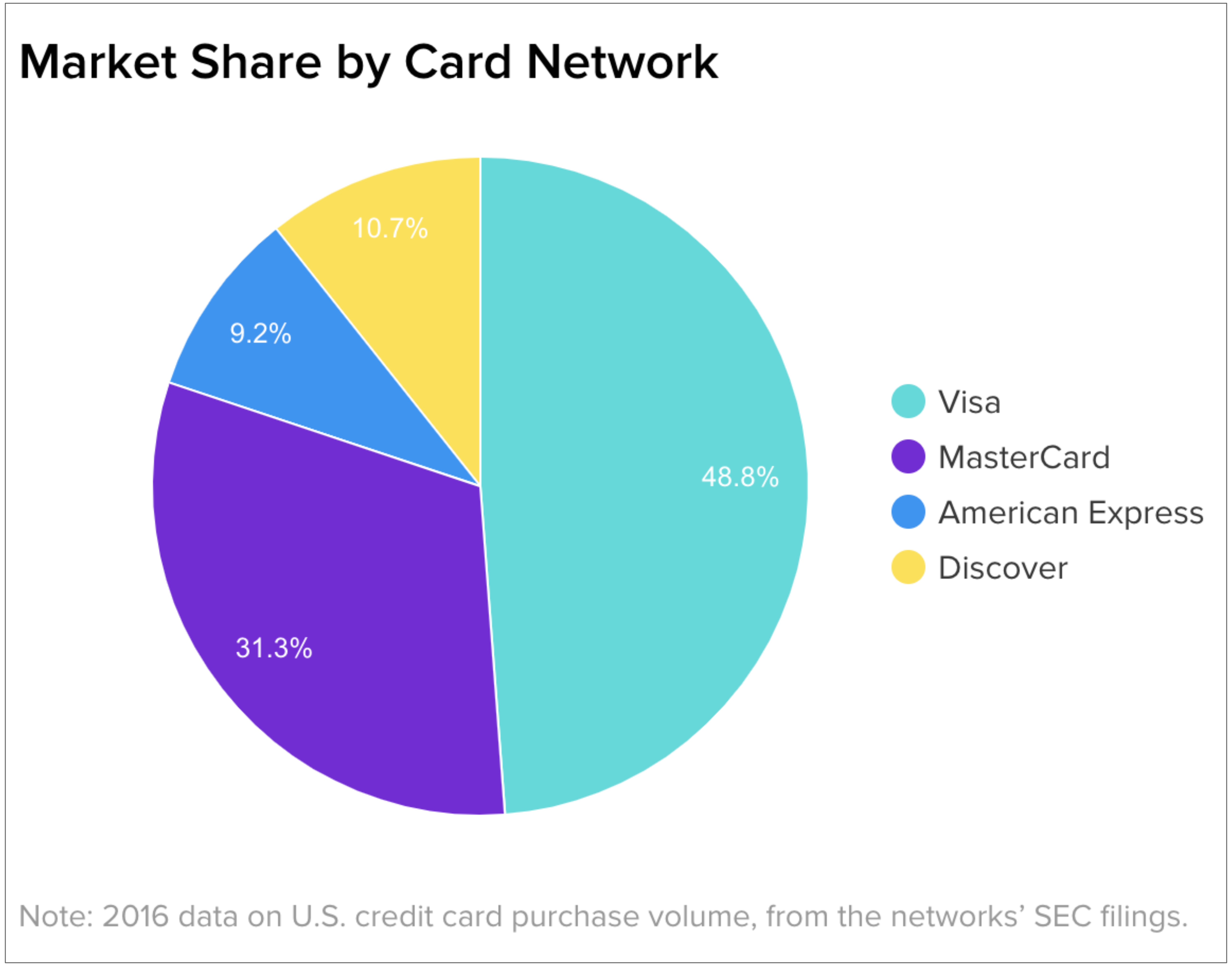
	2018*	2022**
Cash	31%	17%
Debit Card	29%	30%
Credit Card	20%	22%
eWallet	16%	28%
Charge Card	2%	2%
Pre-Paid Card	1%	1%

Source: Worldpay; ** Predicted

Payment Instrument Distribution

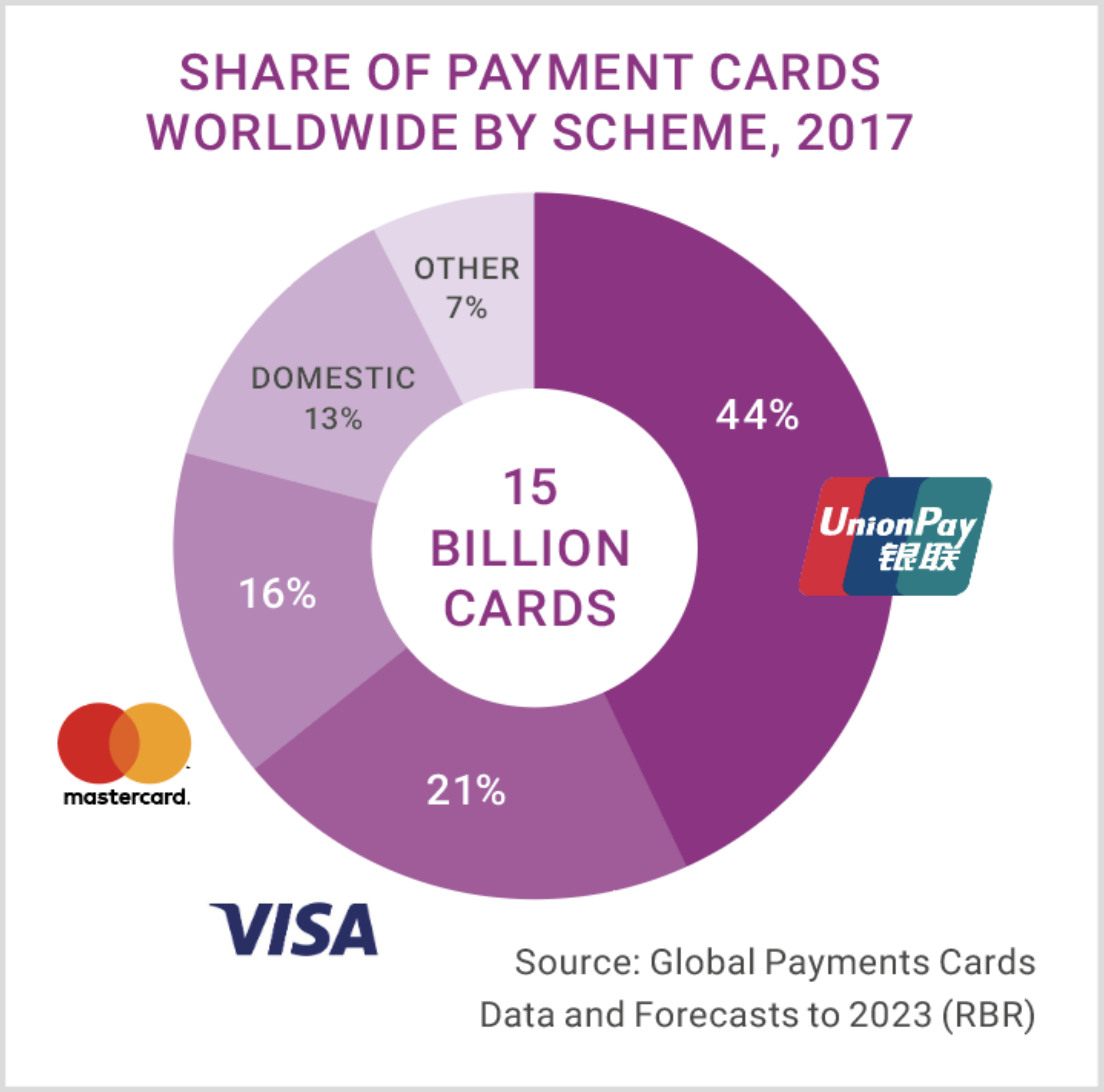
- Cash:
  - Predominately used by low-income consumers
- Debit Cards:
  - Predominately used by low-income and middle-income consumers
- Credit Cards:
  - Predominately used by higher-income consumers

Current Global Trends in Payment Methods



Source: WalletHub

Current Global Trends in Payment Methods



UnionPay

- UnionPay (also called China UnionPay)
- Payment processor established in China with the blessing of the Chinese government
- UnionPay has a monopoly on the Chinese market and grew rapidly as the wider Chinese economy flourished

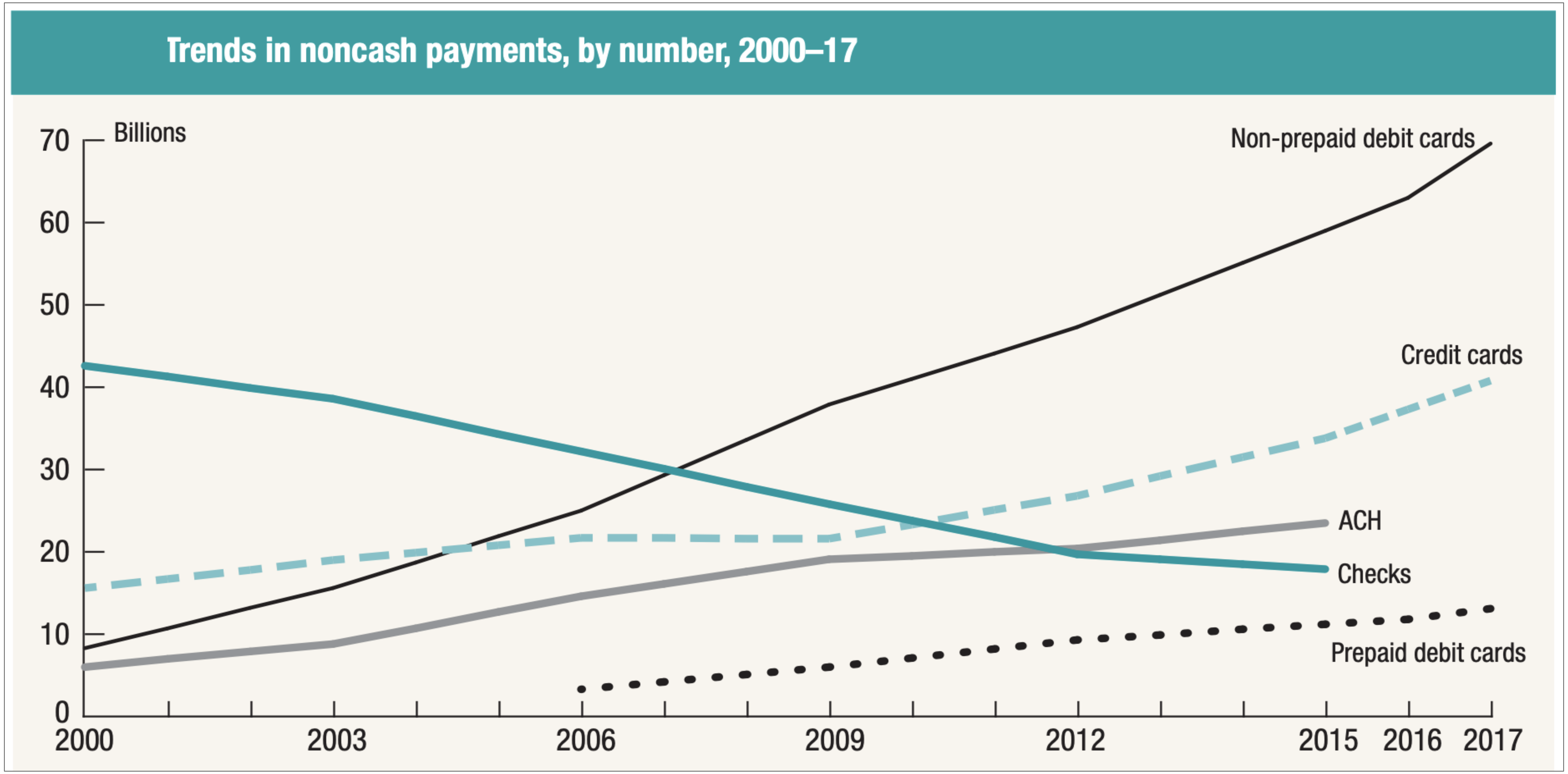
UnionPay

- For many years, Visa and Mastercard cards in China were dual-badged with UnionPay
- A 2017 regulation prohibited dual-badging
- All Chinese cards issued for domestic use must be UnionPay-branded, and banks are typically issuing UnionPay-only cards to replace existing dual-badged ones
- Visa and Mastercard's ability to complete in the Chinese market has all but been depleted

UnionPay

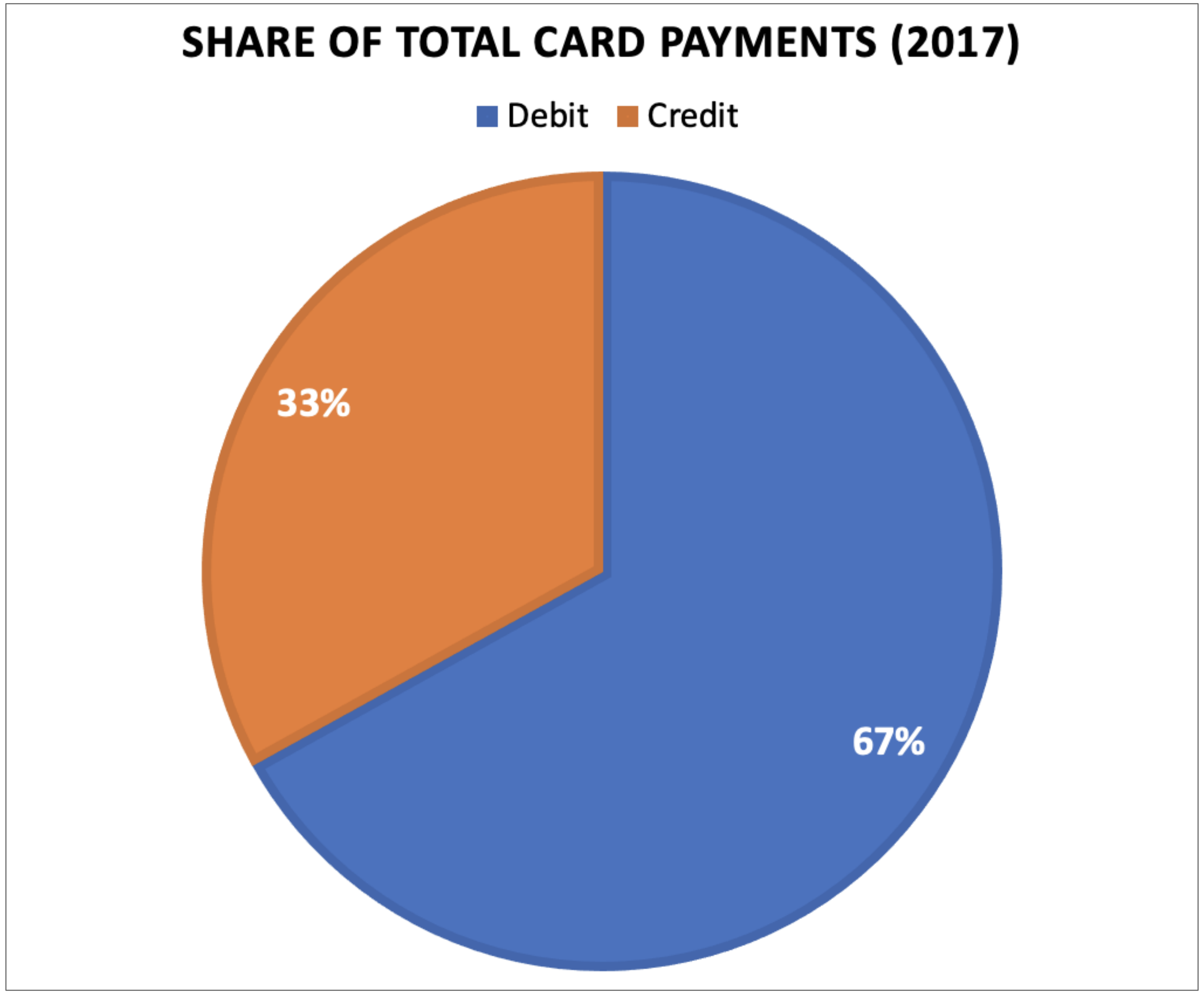
- As the Chinese appetite for international tourism has grown, so has the number of countries where UnionPay is accepted
- UnionPay can now be used in over 150 countries

Trends in Non-cash Payments



Source: Federal Reserve

Share of Total Card Payments in the U.S.



Source: Federal Reserve

Post-Great Recession

- Debit card share of payments has been growing
- There appear to be generational reasons for reduced use of credit cards:
  - 69 percent of millennials believe that debit cards are as safe or safer than credit cards (Source: Lending Tree Survey)
- A 2013 report by the Federal Reserve Bank of New York stated that:
  - “[the] net loss of 120 million credit card accounts [post-Recession] does not, in itself, tell us whether consumers are choosing to reduce the number of credit cards they hold—and presumably their available credit—or whether lenders are restricting new credit and terminating old borrowing relationships in the aftermath of the crisis, or both.”

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Two-Sided Payment Markets

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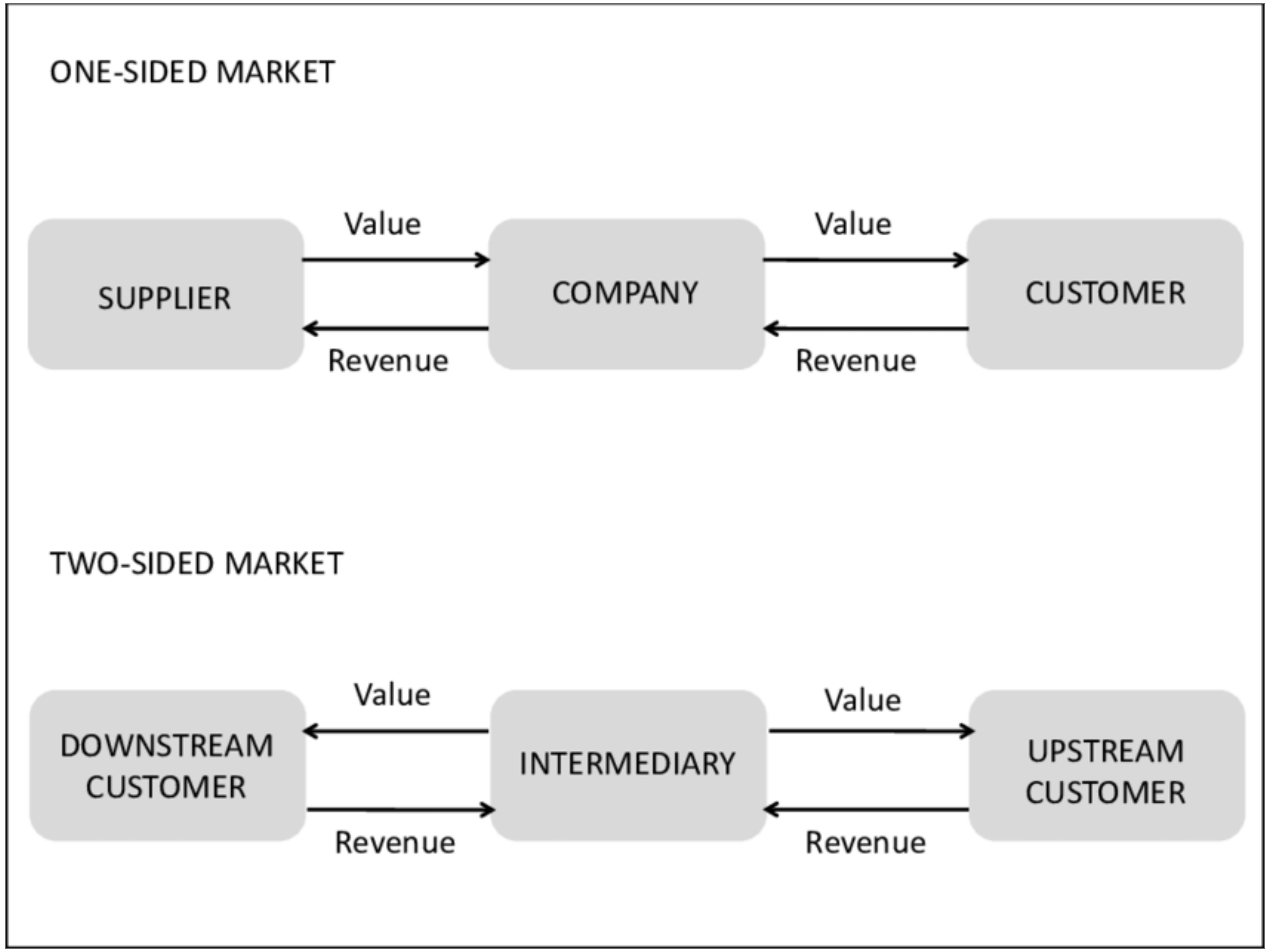
Two-Sided Markets



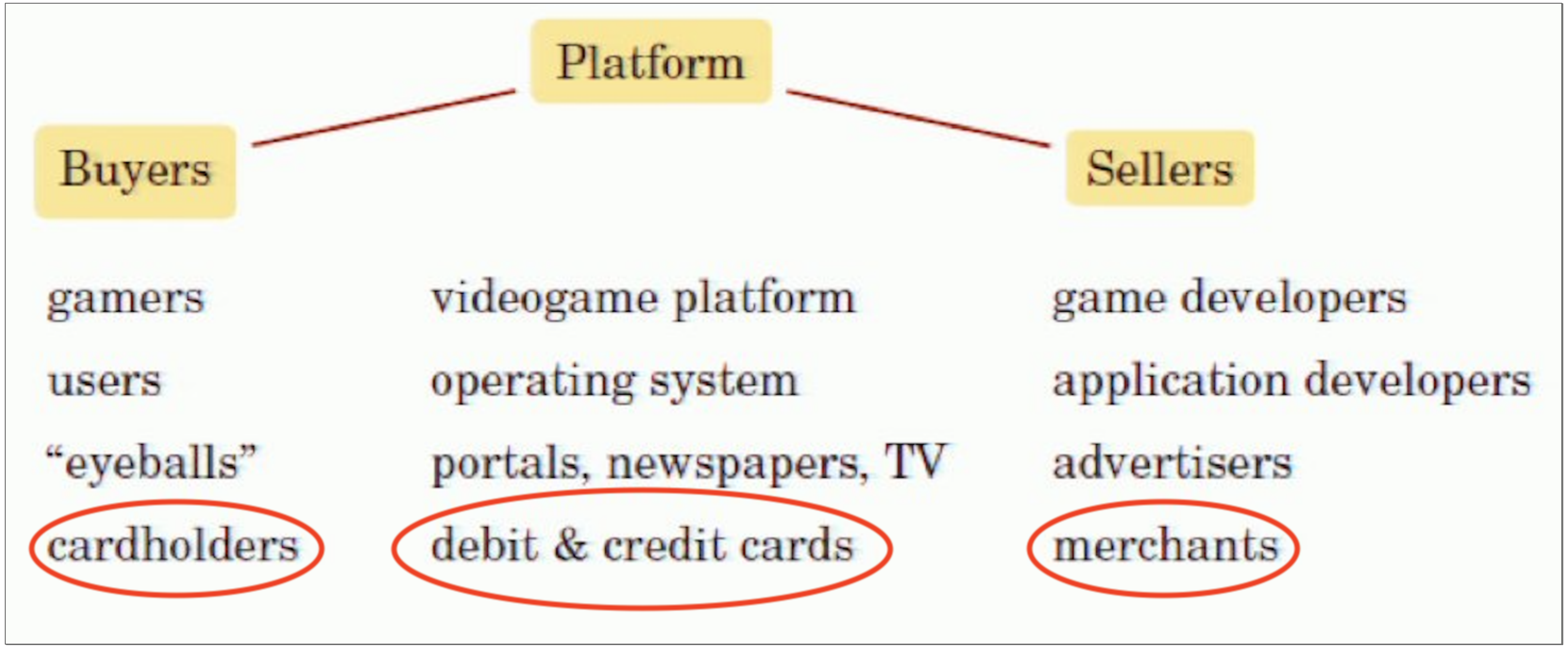
Source: Järvi et al. (2018). The Business of Open Innovation Intermediaries

Two-Sided Markets

Buyers	Platform	Sellers
gamers	videogame platform	game developers
users	operating system	application developers
“eyeballs”	portals, newspapers, TV	advertisers
cardholders	debit & credit cards	merchants

Source: Toulouse School of Economics

Two-Sided Markets



Source: Toulouse School of Economics

Setting Up a Two-Sided Market

- In two-sided markets - like Uber, Ebay, Airbnb, etc. - the platform recruits buyers and sellers
- While this is done in the credit card market, the treatment of buyers (cardholders) and sellers (merchants) is quite different

Two-Sided Payment Markets

	Merchants	Cardholder
Benefits	Customers that don’t carry cash can buy products/services Cash-based theft reduced	Credit care rewards (points, airline miles, etc.) Ease-of-payment A credit line
Costs	Pay 1-3% of transaction value in fees	Possibility of fraud Interest if late on a statement payment

Growth of Card Usage

- Growth of e-commerce

Growth of Card Usage

Growth of Card Usage

- Growth of e-commerce
- Expansion of credit card reward programs

“We find that consumers generally **spend more and increase their debt when gffereced one percent cash-back rewards**… evidence from credit bureau data confirms that **consumers substitute their spending from other cards to the car with cash-back and decrease debt on their other cards.**”

— FEDERAL RESERVE BANK OF BOSTON

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Complexity of Payment Process

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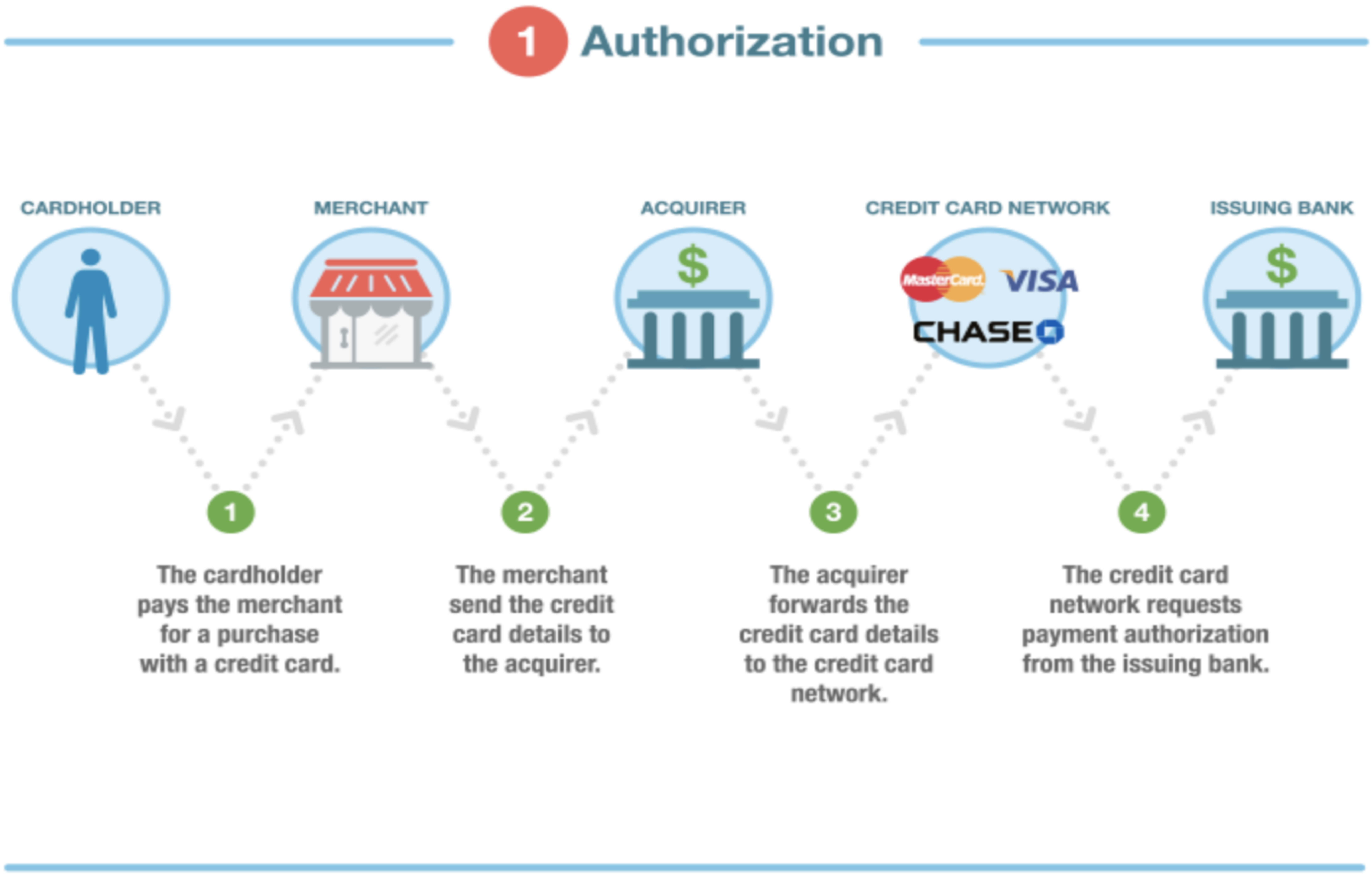
Complex Payment Process

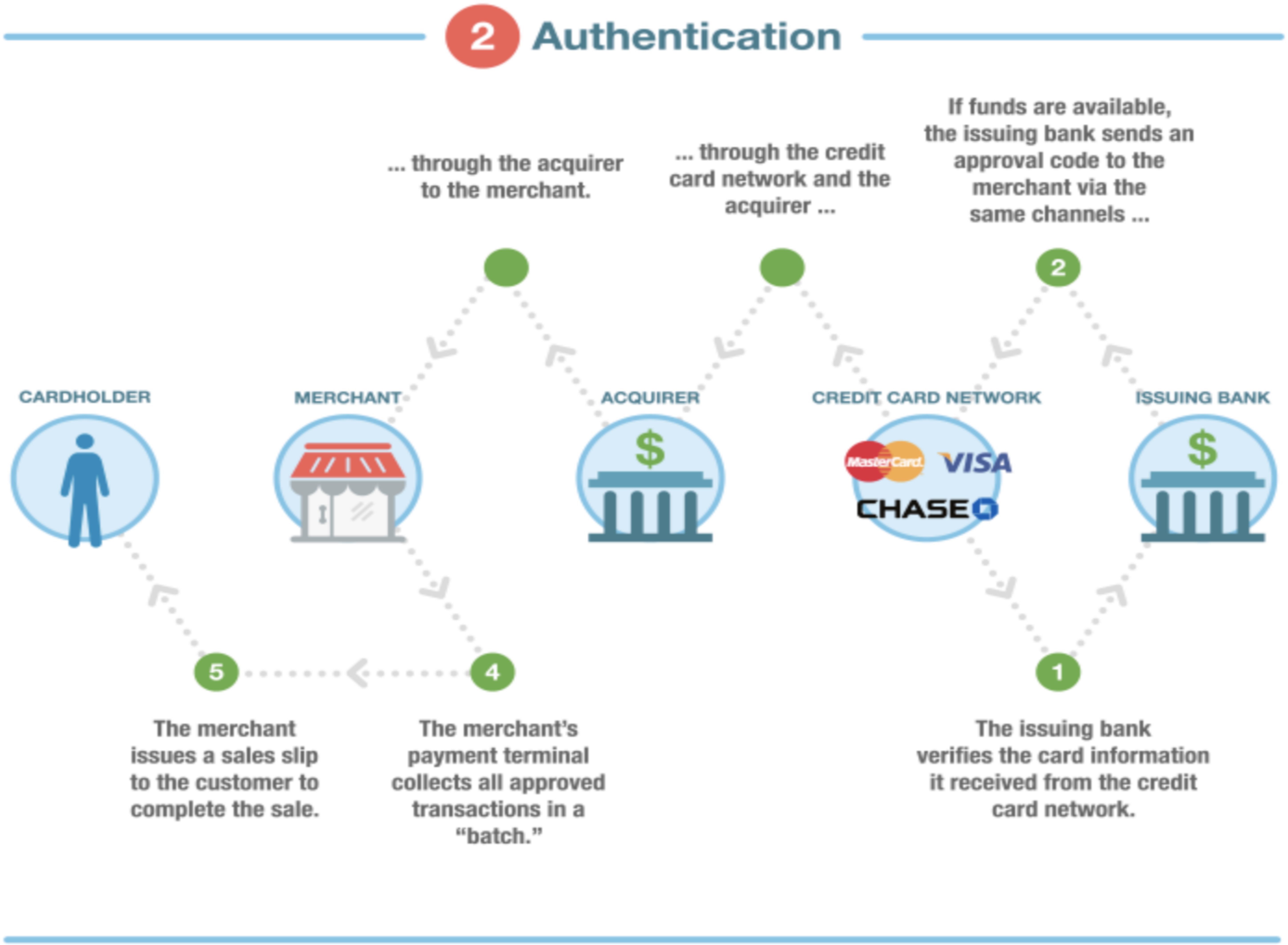
- Complex authorization, authentication, clearing, and settlement process (that is not real-time)

Complex Payment Process



Source: WalletHub

Complex Payment Process



Source: WalletHub

Complex Payment Process

Source: WalletHub

"Consumers and businesses increasingly expect to be able to send and immediately receive payments at any time of the day, any day of the year. **A 24/7 economy with 24/7 real-time payments needs 24/7 real-time settlement. That is where we believe that the Federal Reserve and the private sector together need to make investments for the future."**

— LAEL BRAINARD, FEDERAL RESERVE BOARD GOVERNOR

Complex Payment Process

- Most existing real-time payment systems offer:
  - An instant, 24/7, interbank electronic fund transfer service
  - Can be initiated through one of many channels - smart phones, tablets, digital wallets, and the web
- In such a scheme, a low value real-time payment request is initiated that enables an interbank account-to-account payment fund transfer and secure transaction posting with much less complexity

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Cost Burden for Merchants

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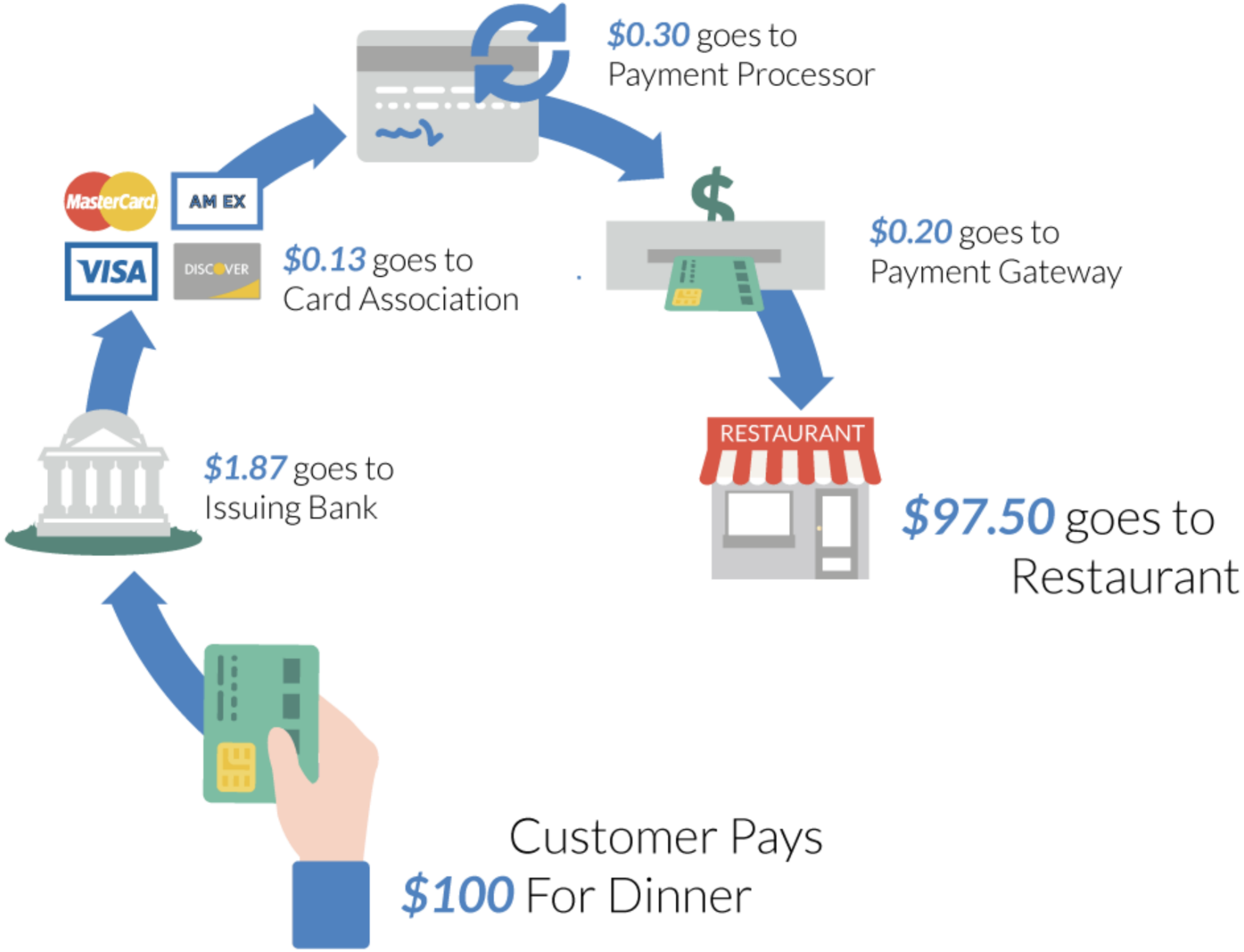
Cost Burden for Merchants



Source: ToastTab

Cost Burden for Merchants

U.S. Merchant Card Fees 2016

Type	Fees (bil.)	Purchase Vol. (bil.)	Weighted Average
V/MC credit	$47.53	$2,242.02	2.12%
American Express	$16.41	$695.44	2.36%
V/MC debit	$15.21	$2,083.65	0.73%
PIN debit	$3.39	$505.73	0.67%
Private label credit	$3.37	$287.86	1.17%
Discover	$2.48	$121.47	2.04%
Total	$88.39	$5,936.17	1.49%

Promising Solutions

FinTech companies that use e-payment systems to (1) lower and stabilize the merchant's swipe fee rates and (2) eliminate the inconvenience of card minimums for customers

- A mobile app where consumers buy a "gift card" to load into their mobile wallet, reducing transaction fees
- A mobile app first used for sending cash quickly to other users (P2P) now used to pay merchants (C2B) with no fees
- A cloud-based billing & payment platform for B2B companies that is trying to improve B2B payments and reduce transaction fees

“**If we’re gonna move to a cashless society, we need to move away from fees.** This will be done by investing in the technology of decentralized networks **without penalizing merchants for receiving their funds.**”

— JEREMY ALMOND, FOUNDER AND CEO, PAYSTAND

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Who Pays for Credit Card Rewards

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Credit Card Rewards

- Rewards cards encourage transactions by providing incentives to use these particular instruments - for example, airline miles or cashback
- Who bears the cost associated with credit card rewards?
- Regressive transfer in reward benefits

Regressive Transfer in Reward Benefits

- Merchants face barriers on ability to set different prices for different consumers depending on the type of payment instrument they use
- When a consumer uses cash, there is no transaction fee
- When a consumer uses a credit or debit card, the merchant pays an often significant fee
- Barriers from:
  - Card networks
  - Legislation
- In response, merchants increase the cost of retail goods for all consumers

"Merchant fees and reward programs generate an implicit monetary transfer to credit card users from non-card (or "cash") users because merchants generally do not set differential prices for card users to recoup the costs of fees and rewards. **On average, each cash-using household pays $151 to card-using households and each card-using household receives $1,482 from cash users every year [a total transfer of $1,633 from the average cash payer to the average card payer]**. Because credit card spending and rewards are positively correlated with household income, **the payment instrument transfer also induces a regressive transfer from low-income to high-income households in general."**

— FEDERAL RESERVE BANK OF BOSTON

“**Policies that would allow and encourage merchants to charge differential prices according to the costs imposed by payment instruments** could help to reduce the transfers by reducing payment cross subsidies…**Policies that would require merchants, banks, or credit card companies to fully disclose fees, costs, and price markups to consumers** could help to reduce transfers by giving consumers the incentive to make optimal payment choices.”

— SCHUH ET AL. (2010). WHO GAINS AND WHO LOSES FROM CREDIT CARD PAYMENTS? THEORY AND CALIBRATIONS

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Introduction to Regulation

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Regulation of Credit and Debit Cards

Typically, regulation of the two-sided credit card payment system focuses on:

- Fairness -
  - By disallowing certain practices that are unfair/abusive, such as allowing a consumer to go overlimit and then imposing an overlimit fee or hiking up the interest rate on an existing balance
- Transparency -
  - By making the fees and rates for credit cards more transparent, so that consumers can understand how much they are actually paying
- Systemic risk -
  - Ensuring that credit cards and other payment platforms are operating responsibly, so that systemic economic risk is reduced

Regulation of Credit and Debit Cards

- In the decade leading up to the financial crisis, the fastest growing source of revenue for financial institutions was from fees they collected from their customers
- Overdraft fees:
  - Originally determined on a case-by-case basis
  - Realizing the potential revenue from this product, financial institutions began actively encouraging this product to consumers,
  - Banks would order transactions in order to charge the maximal overdraft fees

Overdraft

- After the financial crisis, popular attention focused on the overdraft process
- Troubling as a distributional matter:
  - Only 10% of consumers are responsible for around 85% of overdraft revenue
  - These consumers are disproportionately low-income and less financially sophisticated
- People did not realize they were about to overdraw - 70% of customers reported that they wished the transactions had been declined rather than completed with a significant overdraft fee

Overdraft

- Some large banks responded to this regulation by embracing it and even going beyond the requirements of the new default rules:
  - Eliminating overdraft entirely as a product
  - Offer the ability to “rewind” overdrafts

Overdraft

- Concerned observers suggest the new opt-in rules haven't gone far enough
  - Those who opt-in are disproportionately low-income, less financially sophisticated consumers
  - Financial institutions still targeting low-income consumers for overdraft
- An alternative explanation is that these customers like overdraft as a product

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U.S. Credit Regulation

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Concerns in the Credit Card Market

- Consumers tended to bear high delinquency fees for missing credit card payments
- Financial institutions would increase interest rates without fair warning
- Highlighted by Elizabeth Warren in 2007 in calling for a Consumer Financial Protection Bureau
  - Toaster analogy

Approach to Regulating Payments (USA)

- 2009 - Credit Card Accountability, Responsibility and Disclosure (CARD) Act
  - Provide greater transparency for consumers on the actual price of the credit they would have to pay
  - Eliminated or reduced the ability to charge excessive late fees
  - Limited the ability to increase interest rates significantly without fair warning to customers

Approach to Regulating Payments (USA)

- Financial institutions said this regulation would actually hurt consumers
- Empirical evidence on the CARD Act suggests it actually helped consumers quite significantly

Approach to Regulating Payments (USA)

- Interchange fees became a significantly large cost of operating for merchants
- 2010 - Durbin Amendment
  - Put a cap on the interchange fees charged to merchants every time they swiped a debit card
  - Left credit interchange fees unregulated

Approach to Regulating Payments (USA)

- In theory, financial institutions get revenue from checking accounts in one of two ways:
  - Monthly maintenance fee
  - Interchange - every time consumers use their debit card as a means of purchase
- Banks responded to revenues lost from the cap on interchange fees by:
  - Directly charging customers a $5 fee per month for using their debit card (proposed by Bank of America, but later walked back)
  - Increasing account fees

Approach to Regulating Payments (USA)

- Prior to Durbin, about 80% of customers at large financial institutions had access to a free checking account, no matter the size of the account
- Following the Durbin Amendment, banks put extra fees on consumers for having accounts, specifically on accounts without a large balance or direct deposit
- Estimates suggest that consumers as a group lose around $3.5 billion from the Durbin Amendment
- Illustrates the effect of interchange regulation that economists long suggested would occur

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International Credit Regulation

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Approach to Regulating Payments (Australia)

- Australian regulators implemented a percentage cap on credit interchange
  - Result was a decrease proclivity of credit card rewards and a decreased use of credit

- Surcharging became very common among Australian merchants due to high interchange fees, so recent regulation has limited the ability of merchants to charge excessive surcharges to consumers

Approach to Regulating Payments (Australia)

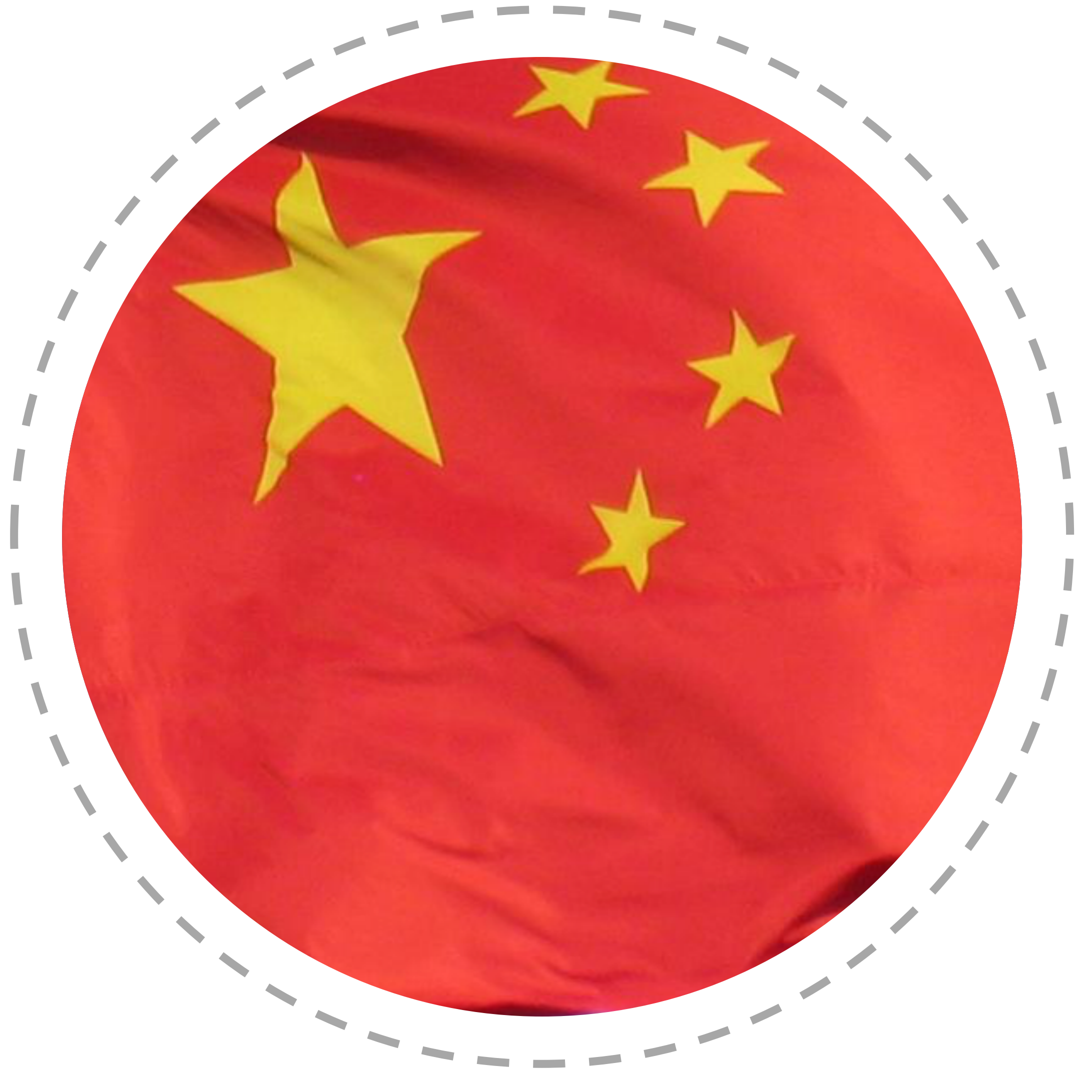
- 2018 - Banking Measures Act
  - Legislates responsible lending based on a consumer's ability to repay, limits unsolicited credit offers, changes interest calculations, and gives consumers the option to cancel cards or reduce limits online

Approach to Regulating Payments (UK)

- 2011 - Electronic Money Regulations
  - Created a clearer regulatory framework for issuers of electronic money

Approach to Regulating Payments (China)

- While the payment regulation is a bit more opaque in China, the People's Bank of China has:
  - Set a cap on payments by traditional QR codes in an attempt to reduce fraud
  - Raised the reserve fund ratio for e-payment platforms



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Future of Payment Networks

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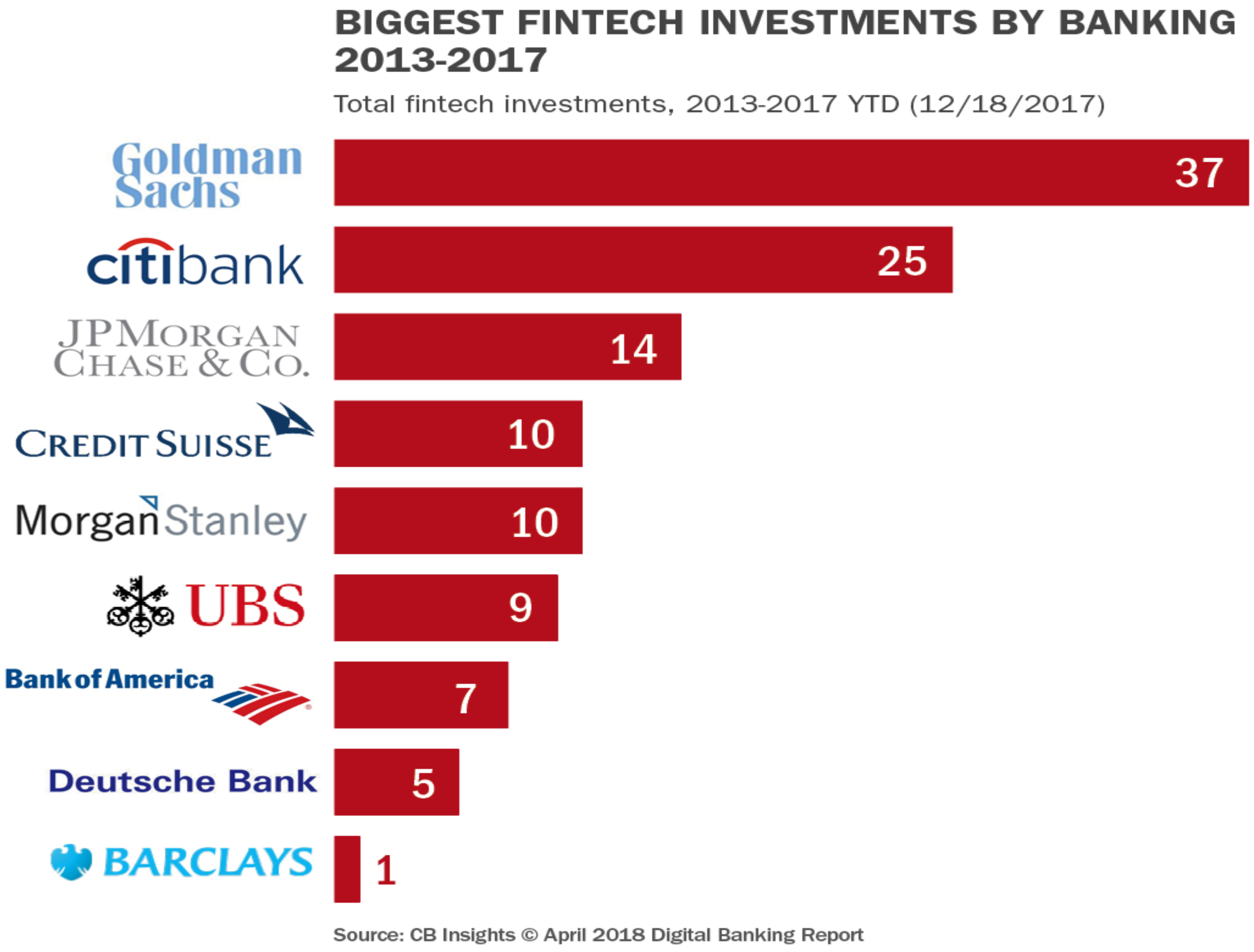
Concerns about Payment Markets

- Fairness to consumers and merchants
- Efficiency of transactions
- Consumer fraud

Future of Payment Networks

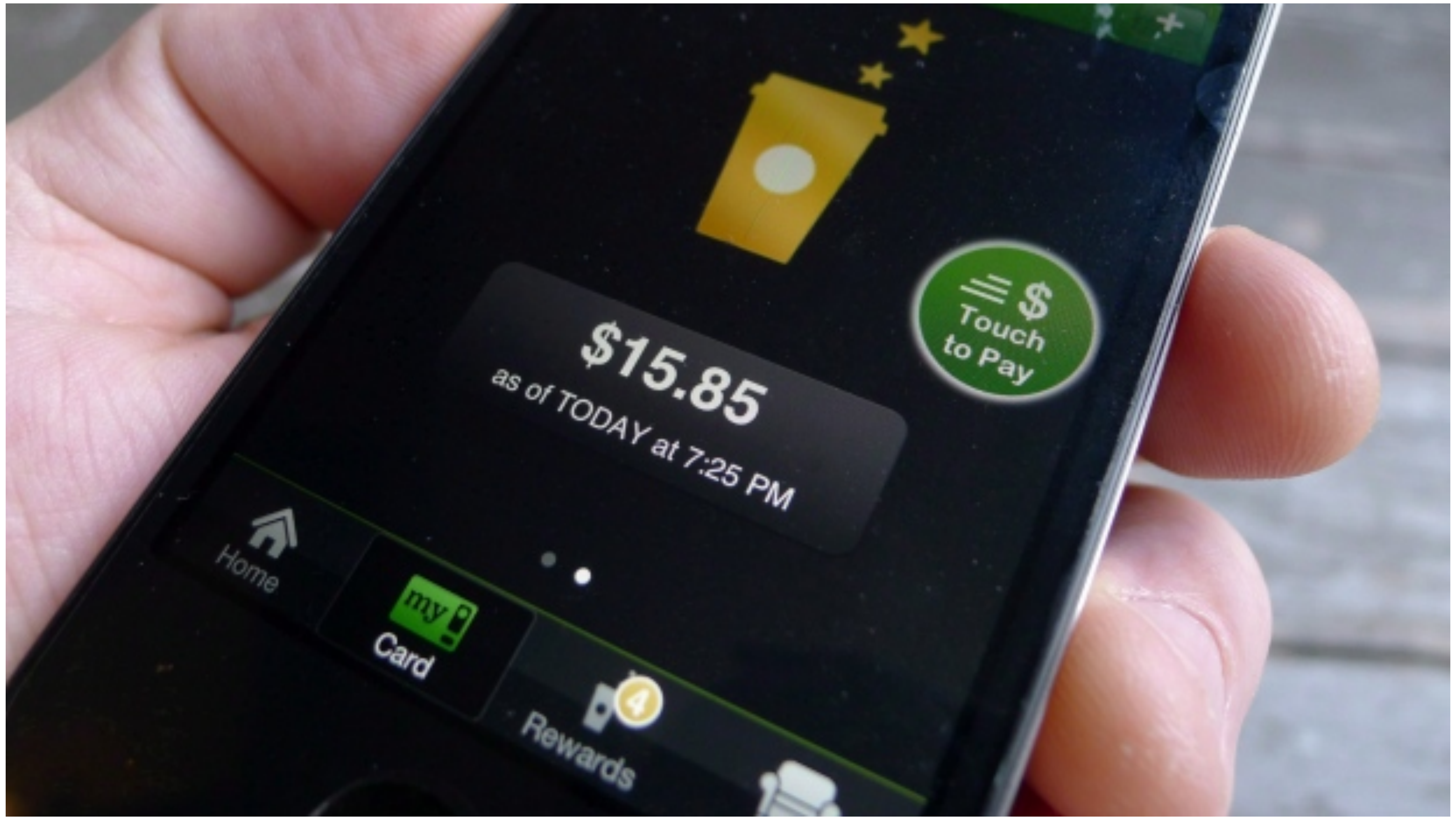


Source: The Financial Brand

Future of Payment Networks

- Bitcoin and blockchain technology
- Person-to-Person mobile tech

Payment Innovation: Example 1



A growing number of stores, like Starbucks, are creating payment apps to avoid credit card swipe fees

Payment Innovation: Example 2

ripple

Ripple provides a frictionless experience to send money globally using the power of blockchain

Payment Innovation: Example 3

WeChat Pay

Integrated, low cost (or no fee) app to enables users to pay bills, recharge mobiles, make purchases online, transfer money to other users, and make QR code payments at merchant stores

Looking Forward: Key Questions

- Should payments be regulated in a way that's distinct from the way they're regulated today?
- Should we try and think about some sort of global framework for financial regulation in this particular manner?
- What does the future of payments look like?
- What are the security risks of payment FinTech innovations?

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