



The Changing Payments Landscape

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Disclaimer

The opinions expressed are those of the individual presenter & not those of the Federal Reserve System or any Federal Reserve Bank



Topics

1. What is the payments system?
2. A look at the past
 - Laws that shaped Federal Reserve's role in payments
3. Present state of payments
 - Federal Reserve's payments mission & role
 - Payments landscape
4. Future direction
 - Federal Reserve's strategic direction in payments



Payments System

- A collective term for mechanisms (both paper-based & electronic) for moving funds, payments, & money among depository institutions (DIs) throughout the nation



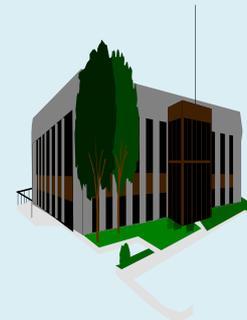
Consumer &
Corporate Users



Networks



Laws &
Regulations



Depository
Institutions



Service
Providers

It supports diverse participants & needs



Payments Process End-to-End

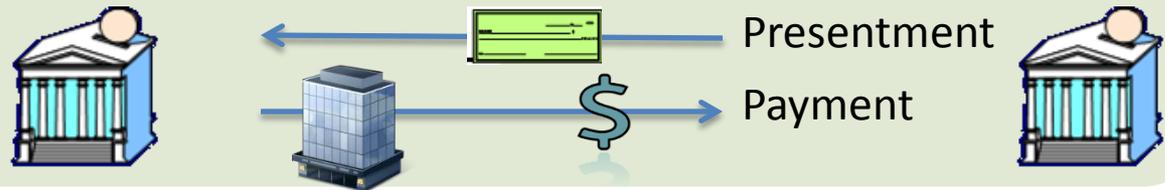
Origination

- Consumer or company originates payment



Processing, Clearing & Settlement

- Payment is cleared & settled



Reconciliation

- Payment is accounted for by consumer or company





U.S. Payment Methods

ACH	Electronic payment originated/received by a DI, that is processed through Automated Clearinghouse (ACH) system according to NACHA rules; payment is preauthorized, temporarily stored & batched before being sent for clearing, settlement, & posting to accounts
Cash	Payment made by U.S. currency & coin
Check	Payment made by negotiable instrument drawn on a DI, provides written set of instructions to DI on who to pay, amount, when to pay, is authorized by signing the front of the check, & negotiated by endorsing & subsequently presenting the check for payment
Credit Card	Payment authorized by card holder to charge purchase against a preapproved credit line
Debit Card	Payment made by card holder that is deducted electronically from card holder's deposit account balance; payment is authorized by a personal identification number (PIN) or signature & payment amount is deducted almost immediately
Prepaid/Stored-Value Card	Payment made by a card that has monies prefunded before card is used to make a payment, card is single use (e.g., gift card) or reloadable where additional monies can be added (e.g., general purpose prepaid card, electronic benefit transfer (EBT) card, payroll card)
Wire Transfer	Payment order (instruction) from sender that is carried out electronically through a funds-transfer system, (e.g., Fedwire®); each payment is cleared & settled individually, & funds are final & irrevocable



A Look at the Past





100 Years of FRB Payment Services

1913 Federal Reserve Act authorized Federal Reserve Banks (FRBs) to:

- Accept check deposits from banks & make collections —i.e., a nationwide check-clearing system
- Issue uniform currency to public through banks

Over time, FRBs have added other payment services

- During 1907 financial panic, payments were disrupted throughout country
- Many banks & clearinghouses refused to clear checks drawn on certain other banks & contributed to failure of otherwise solvent banks



Bank Panic of 1907

Source: Board of Governors of the Federal Reserve System, *The Federal Reserve System Purposes & Functions*, June 2005



Fiscal Agents for U.S.

- Federal Reserve Act authorized Treasury Secretary to designate FRBs as fiscal agents of U.S. government
- All 12 FRBs were so designated in 1914 & have served in that capacity since

As fiscal agents of the United States, the Reserve Banks function as the U.S. government's bank



Changing Role in Payments

Pre-1980, FRB payment services available to member DIs only & were “free”

Monetary Control Act of 1980 (MCA)

- Subjects all DIs to reserve requirements
- Grants DIs equal access to FRB payment services
- Requires FRBs to charge for payment services to fully recover costs of providing them



Changing Role in Payments

Expedited Funds Availability Act of 1987 (EFAA)

Authorized Fed Board of Governors to:

- Set rules for time within which DIs must make funds available to customers from checks deposited into their accounts
- Improve process to return checks
- Allow private-sector DIs to present checks directly for collection



Changing Role in Payments

Dodd Frank Wall Street Reform & Consumer Financial Protection Act (DFA) signed into law July 21, 2010

Title X of DFA - Debit Interchange, requires Fed Board of Governors to:

- Set interchange fees “reasonable & proportional to costs incurred” for electronic debit transactions on card issuers with assets over \$10 billion
- Eliminate network exclusivity arrangements that prevent merchants from choosing least-cost-routing for debit transactions



Federal Reserve System's Role in Payments



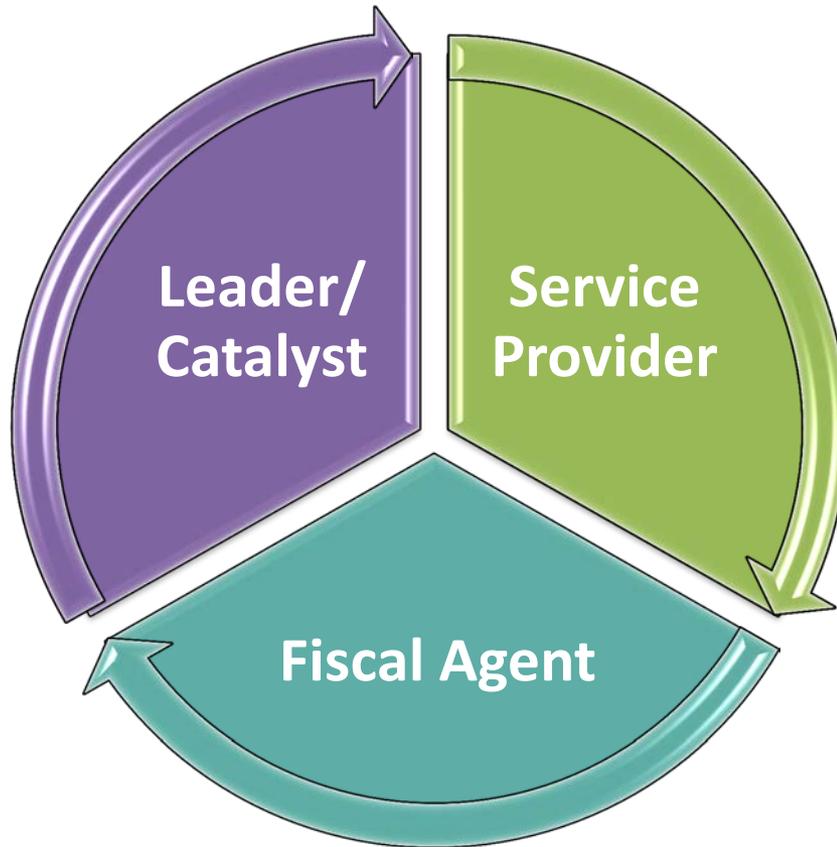


Payments Mission

*To foster integrity,
efficiency &
accessibility of the U.S.
payments system*



FRB Roles in Payments



- **Leader/catalyst**
 - Act as advocate, educator, or change agent to improve payment system, usually in collaboration with other participants
- **Service provider**
 - Provide Fedwire® Funds, FedACH®, FedCash®, Check Services & FedLine® access solutions; enhance these services ongoing to better meet end user needs
- **Fiscal agent**
 - Provide broad set of services to U.S. Treasury, government agencies, & other fiscal principals in capacity as fiscal agent & depository

FRBs as Service Provider & Fiscal Agent



Service provider for DIs:

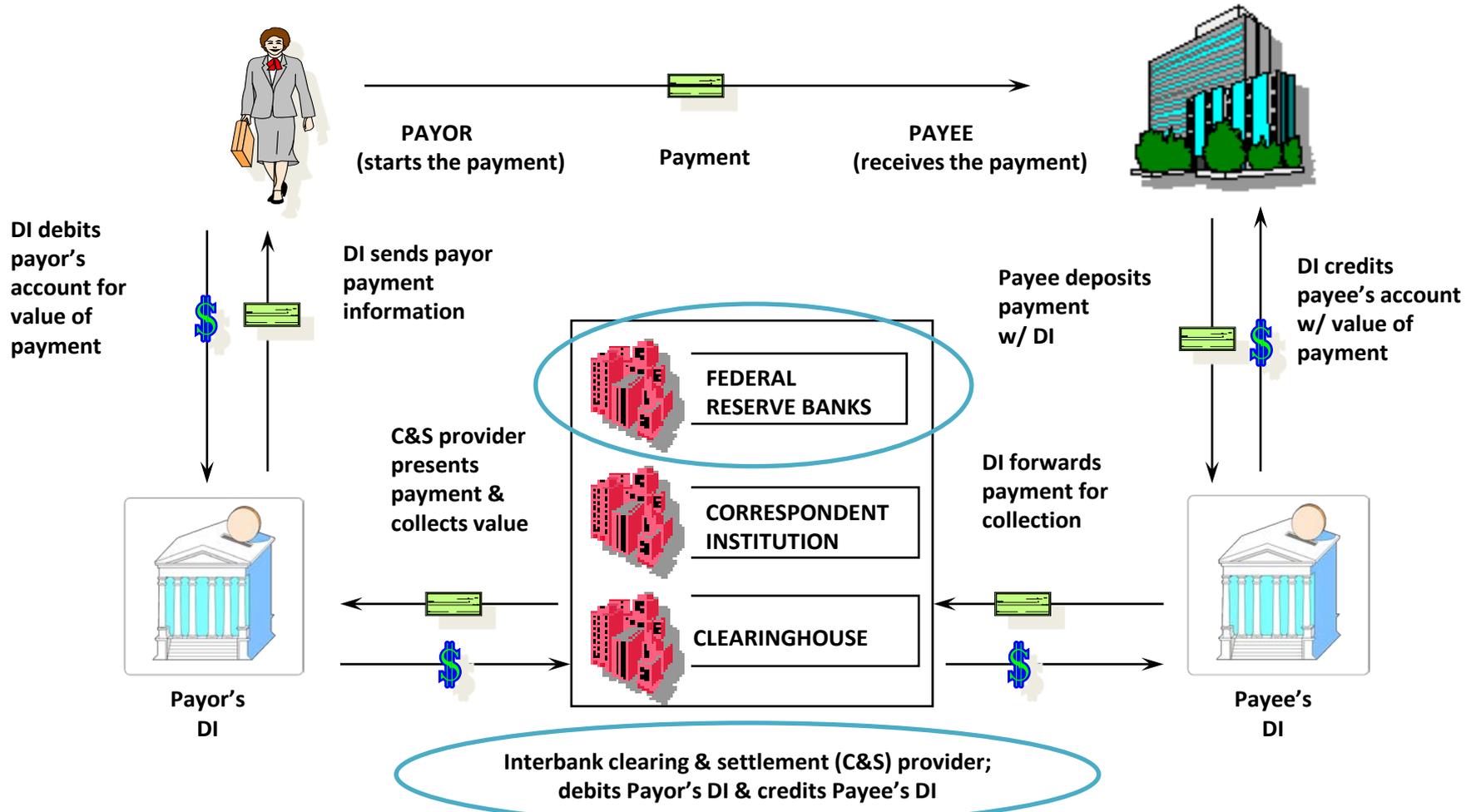
- Maintain DI accounts for reserve & clearing balances
- Provide payment services to DIs—e.g., collecting checks, electronically transferring funds (wires & ACH), & distributing & receiving currency & coin

Fiscal agent for federal government:

- Maintain Treasury's transaction account; pay checks; process electronic payments; & issue, transfer, & redeem U.S. government securities



As Service Provider, Clear & Settle Payments Between DIs





FRBs as Catalyst

Check Clearing for 21st Century Act or “Check 21” took effect on October 28, 2004

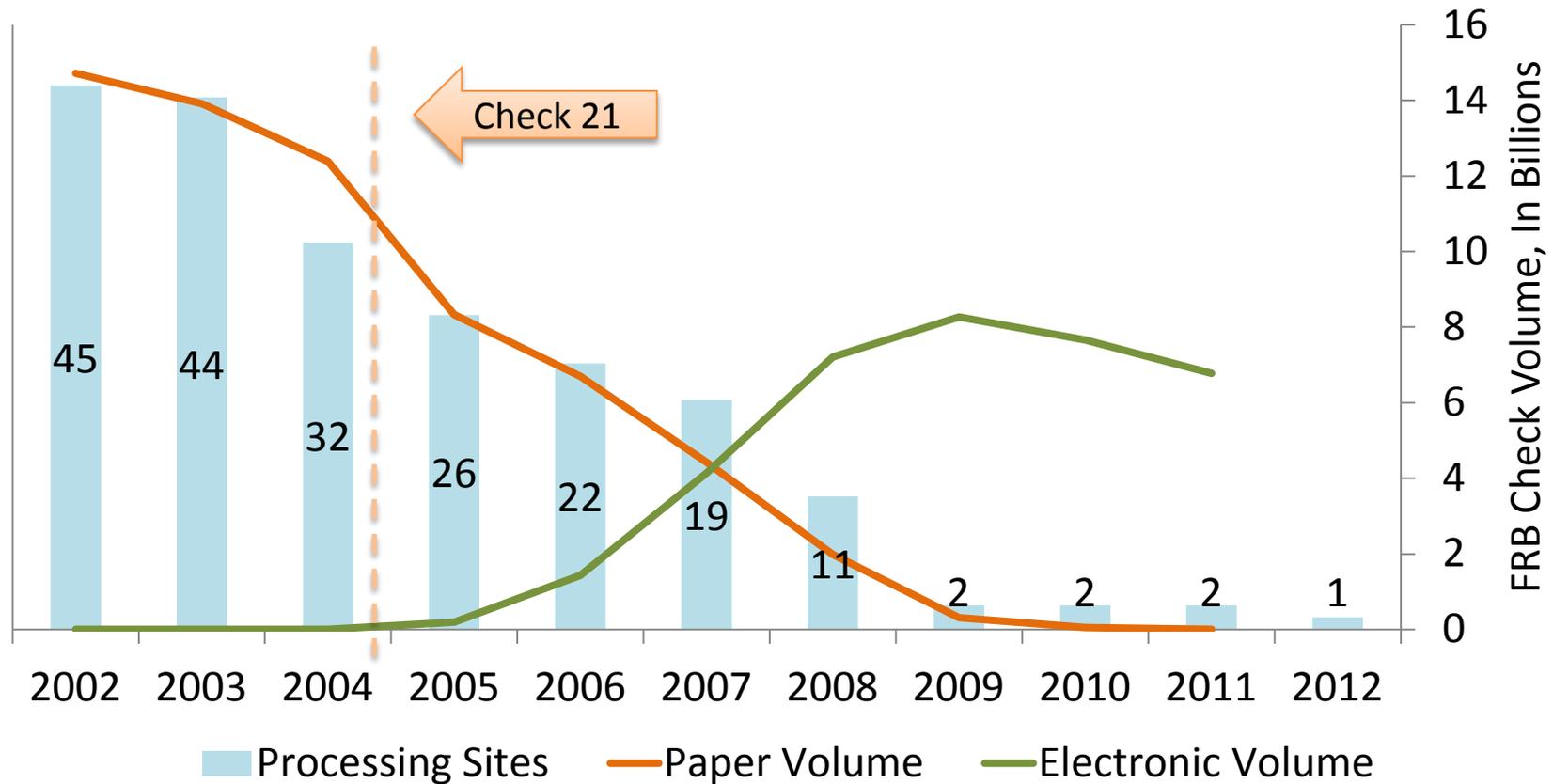
- Stimulated by 9/11 attack that grounded airplanes & paper checks on them
- Allows collecting DIs to convert paper checks into electronic images
- Enabled mainly paper process to become electronic; saved millions of dollars, made check clearing faster & spurred innovation



Effect of Check 21 on FRB Check Infrastructure



Changes in Check Processing





Fed Board of Governors (BOG)

- BOG is responsible for implementing certain laws by writing regulations
- Some BOG regs govern payments

Examples of BOG Regs Governing Payments

- Reg. CC – Check, both paper & electronic/image
- Reg. II – Debit Card
- Reg. J – Check, Wire Transfer

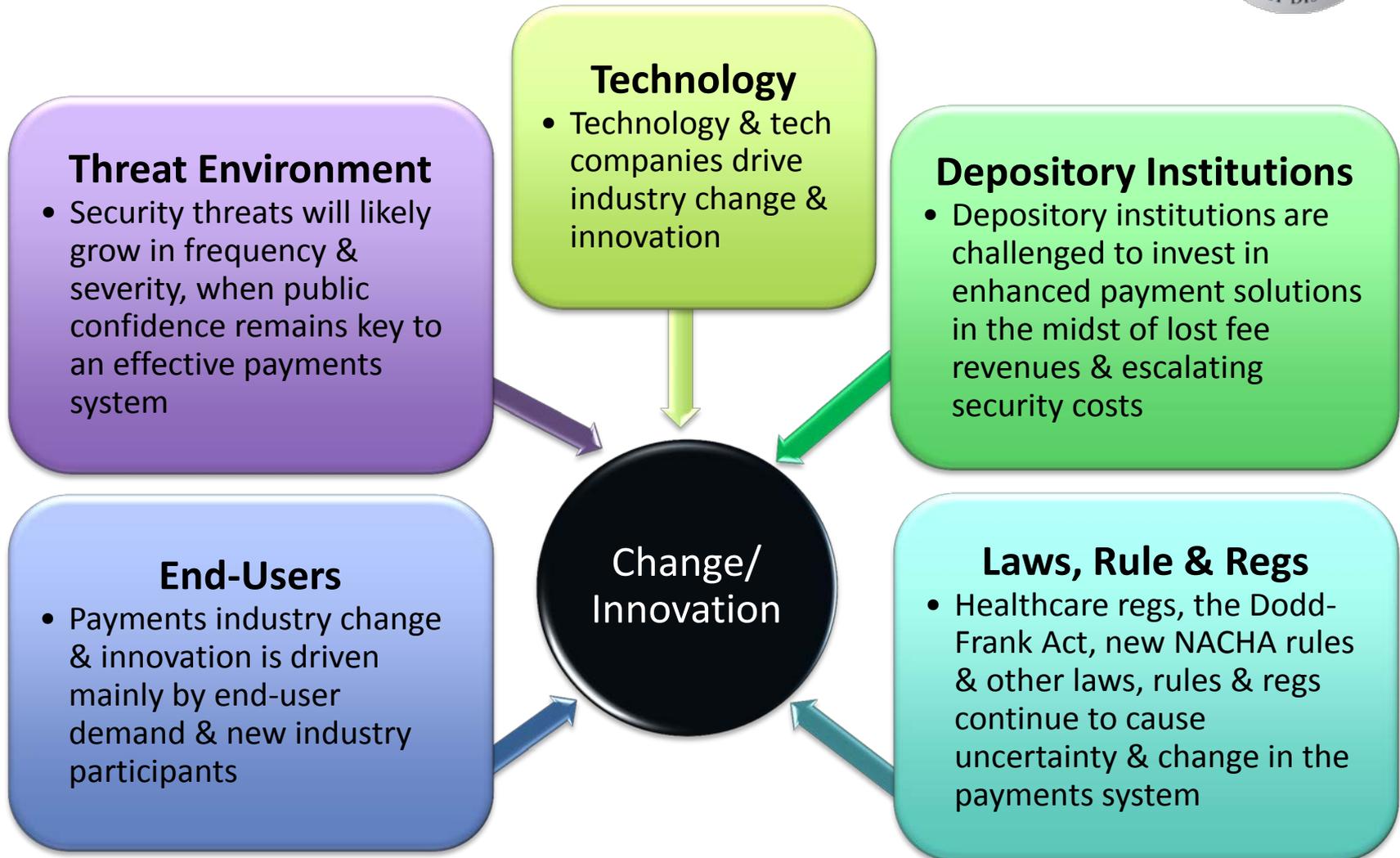




The Payments Landscape



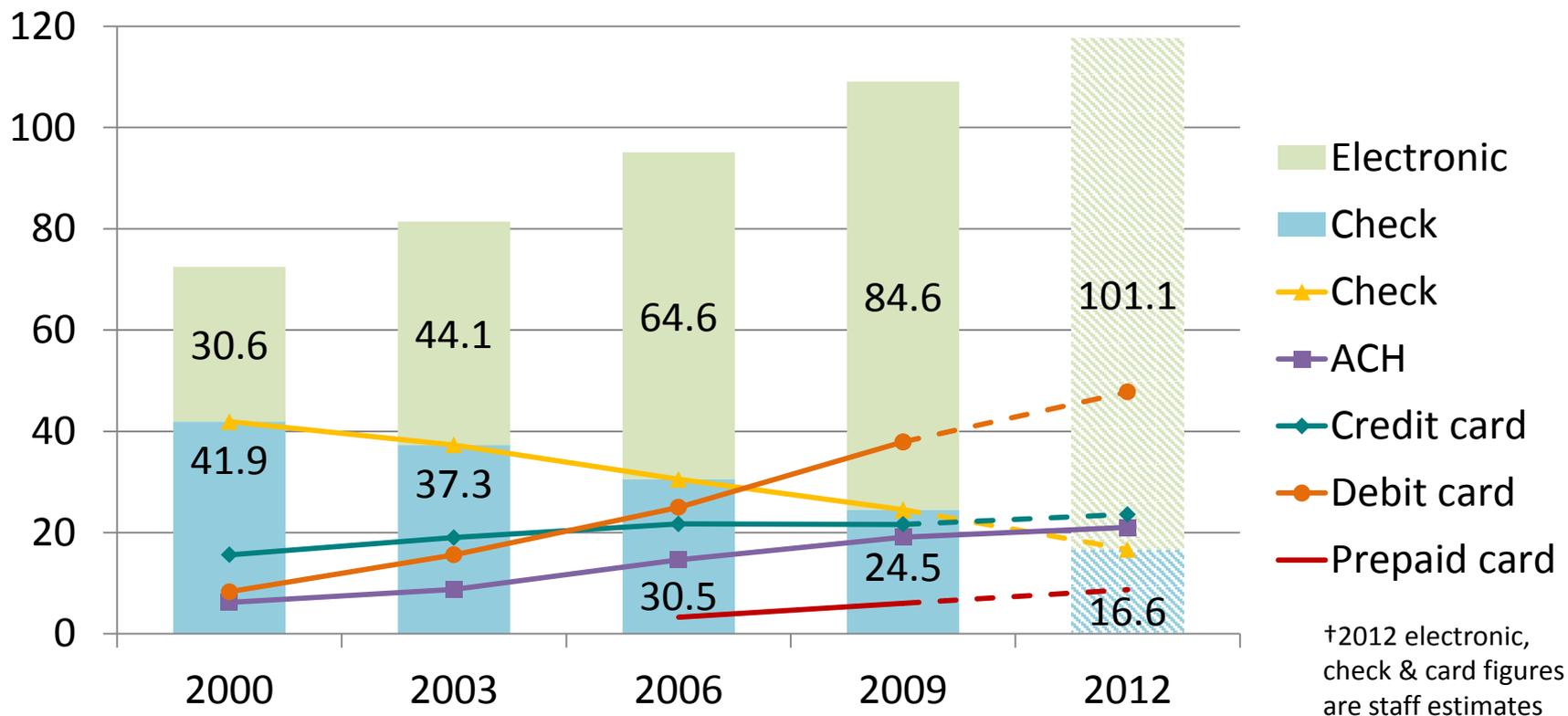
Payments Environment



Electronic Payments Growing, Checks Declining



**U.S. Non-cash Retail Payments Volume
Number of Payments in Billions**

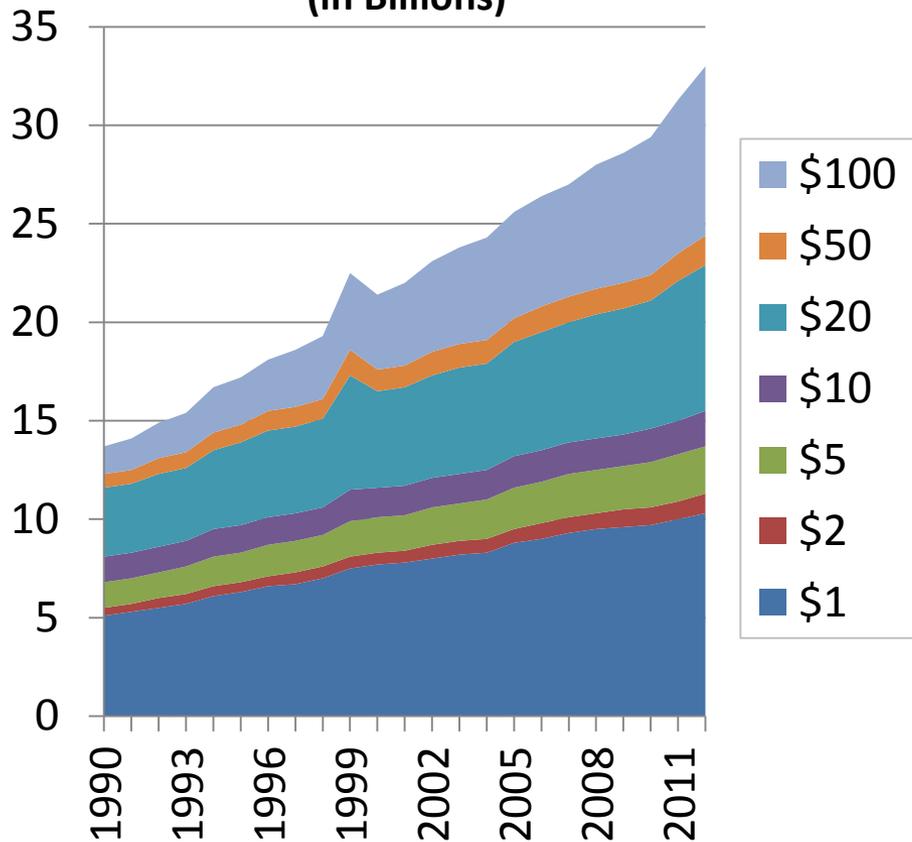


Source: Federal Reserve Payments Studies; NACHA, *ACH Payment Volume Exceeds 21 Billion in 2012*, April 2013

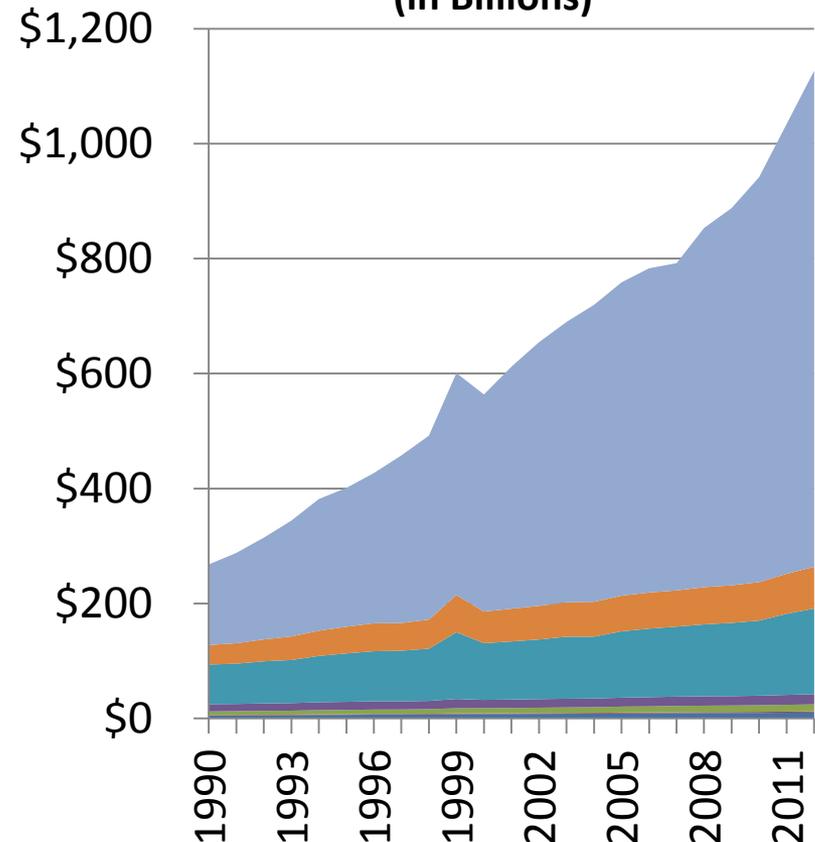
Currency in Circulation Continues to Grow



**Number of Notes in Circulation
(in Billions)**



**Value of Notes in Circulation
(in Billions)**



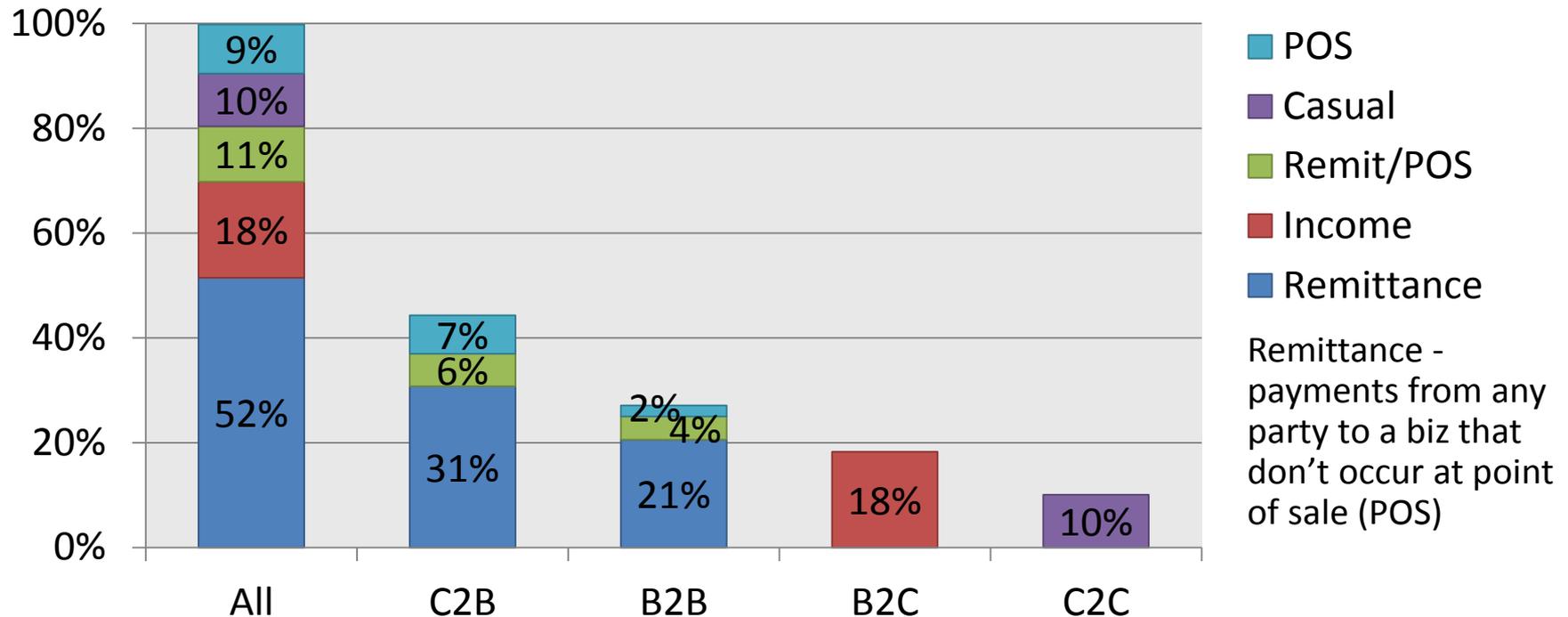
Source: Board of Governors of the Federal Reserve System

Between 1/2 to 2/3 of \$100 notes circulate outside of the U.S.



Most Remaining Checks Pay Bills

- 71.5% of checks were written to businesses
- Over half are written for bill payments

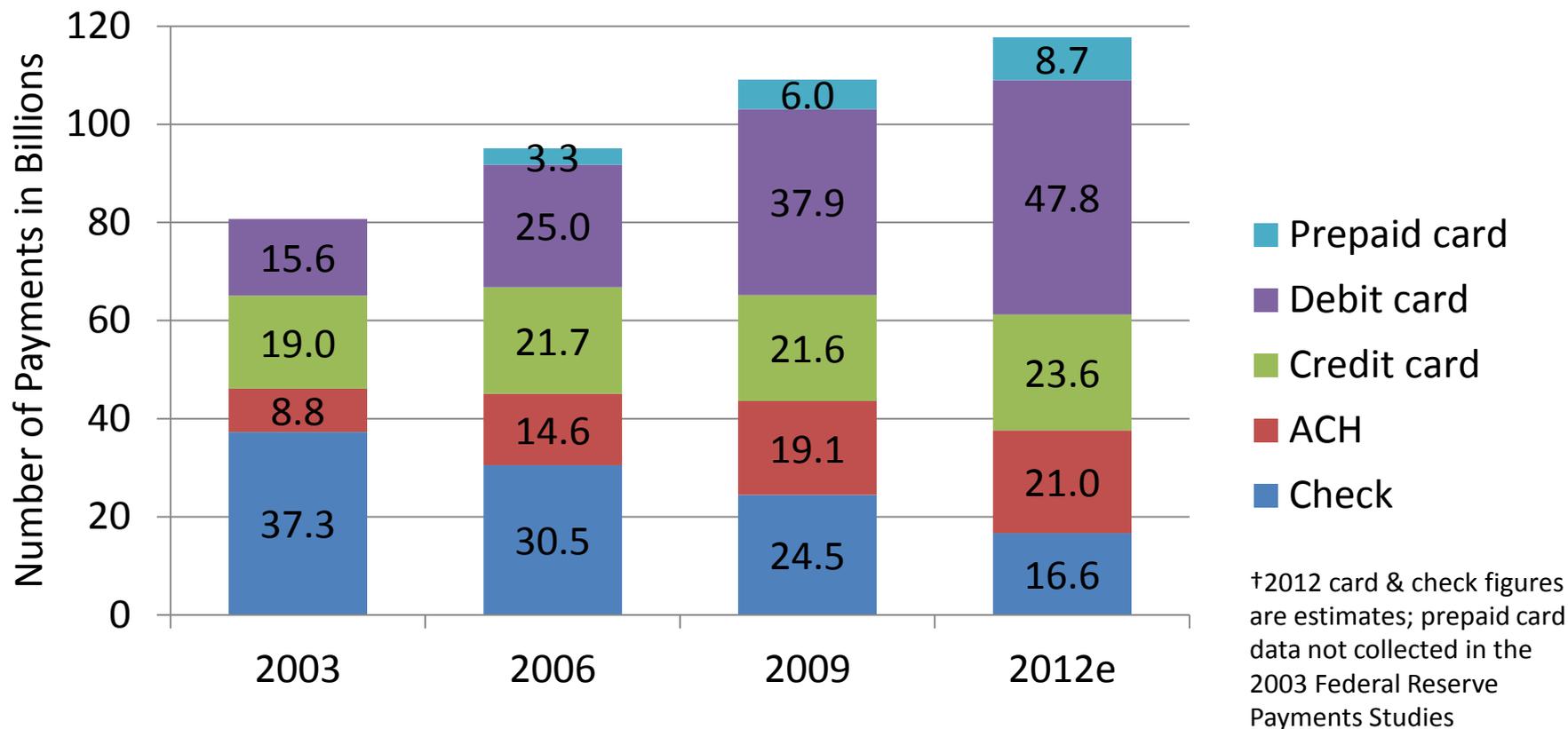


Source: 2010 Federal Reserve Payment Study

Checks Mainly Replaced by Debit Cards, Then ACH



Growth of Noncash Retail Payments



Source: Federal Reserve Payments Studies; NACHA, *ACH Payment Volume Exceeds 21 Billion in 2012*, April 2013



ACH Uses

Low dollar, repetitive payments

- Direct deposit of payroll, federal benefit payments
- Preauthorized debits for bill payments

One-time payments

- Check conversions--account receivable, point-of-purchase, back office conversion
- Payments initiated over the telephone or Internet

Cross-border payments

- International payments & remittances

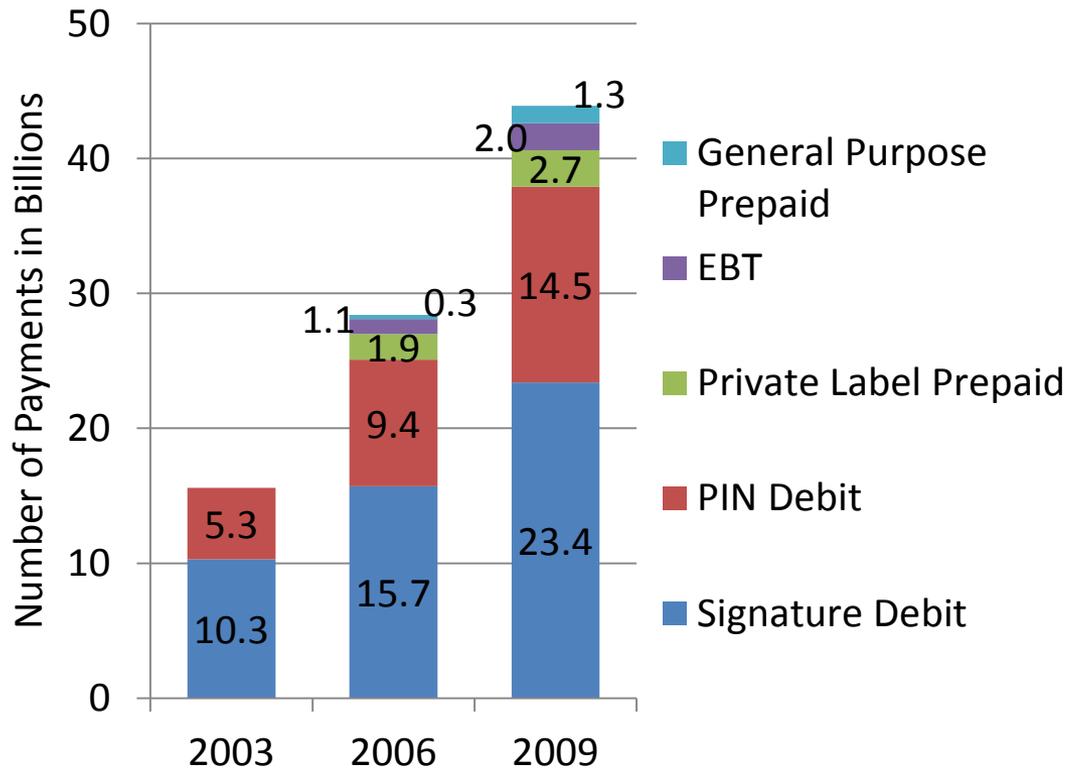
Business payments

- Cash concentration & disbursement
- Corporate trade payments
- Supports electronic data exchange, e.g., remittance



Overall Consumers Prefer Cards

Growth in Debit & Prepaid Cards



Consumer Adoption & Use

- About 90% of households had 1+ payment cards: 78% had 1+ credit cards; 80% had 1+ debit cards; 17% had 1+ prepaid cards
- Debit increasingly used over credit cards
- Revolving credit function declining – unused on about 40% of active cards
- Cash back on debit cards increasingly popular

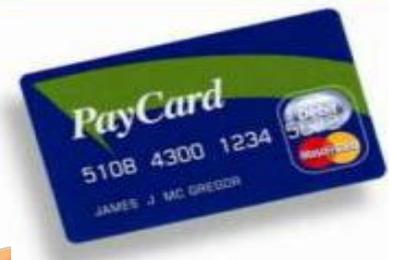
†2003 Prepaid card data not collected in Fed Payments Study

Source: Federal Reserve Payments Studies; NACHA, ACH Payment Volume Exceeds 21 Billion in 2012, April 2013



Prepaid Card Use Expanding

- Provide debit access to money pre-funded by or on behalf of cardholder – single use & reloadable
- Individual balances managed in linked account on a prepaid system
- Volume & value still small – ~3% of payment system spending, but growth potential high
- Issues emerging related to fees incurred by consumers



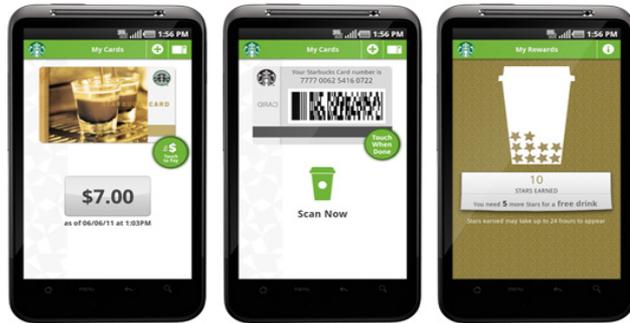
U.S. Beginning to Move to Smart-Chip Card Technology



- Smart chips (e.g., EMV) reduce counterfeit card fraud by using dynamic data to authenticate card vs. mag stripe & static data
 - Chips do not protect against lost & stolen card fraud; that requires use of PIN or biometric
- EMV facilitates interoperability with global card payments
- “Smart chip” can be security foundation for other payment applications—e.g., near field communication (NFC)



Mobile Payments—New Channel, Same Payment



Mobile QR Code payments

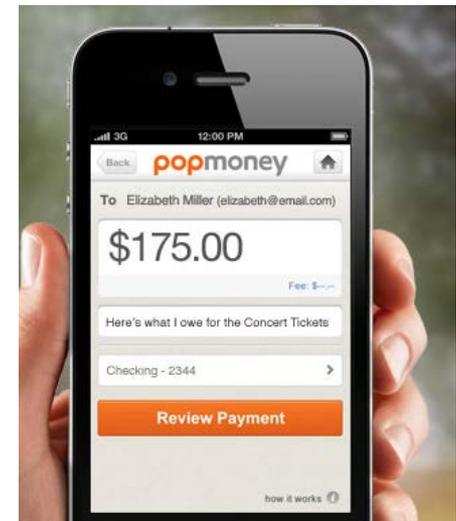


Mobile Wallets



Mobile NFC payments

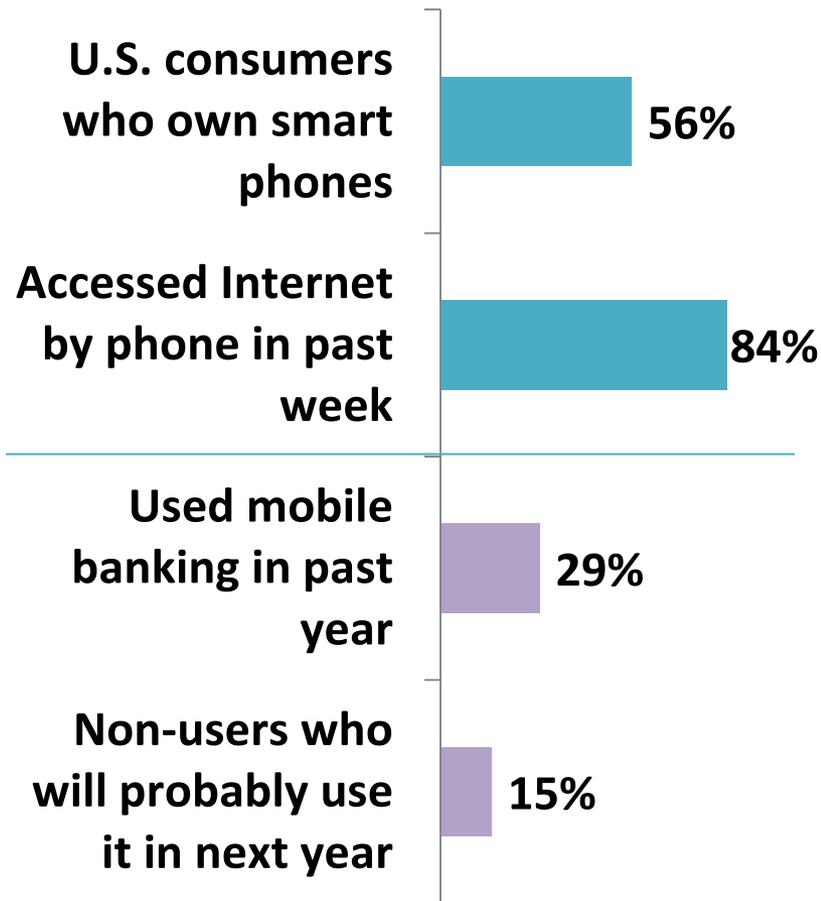
Mobile card reader



P2P payments



Consumers & Mobile Banking



How Consumers Use Mobile Banking:

- Checked account balances or recent transactions (87%)
- Transferred money between accounts (53%)
- Received a text message alert from my DI (29%)
- Made a bill payment (27%)
- Found closest in-network ATM (24%)
- Deposited check using phone's camera (21%)
- Received a fraud alert (4%)

Sources:  Pew Research Center Publications, June 2012 & June 2013
 Board of Governors of the Federal Reserve System, *Consumers & Mobile Financial Services*, March 2013



Federal Reserve Financial Services (FRFS)





FRFS Market

FRBs handle roughly half of total U.S. inter-bank payments for these payment methods

Service	2012 Average Daily Volume	2012 Average Daily Value
Fedwire [®] Funds	524.5 Thousand	\$2.4 Trillion
Fedwire [®] Securities	72.6 Thousand	\$1.1 Trillion
National Settlement	2.6 Thousand	\$64.1 Billion
FedACH [®]	48.0 Million	\$95.3 Billion
Check	27.3 Million	\$33.3 Billion
FedCash [®]	266.3 Million	\$5.0 Billion

Source: Board of Governors of the Federal Reserve System; Federal Reserve Cash Product Office



Fedwire[®] Services

Two Services

- Fedwire Funds Service: each transfer processed immediately as received
- Fedwire Securities Service: simultaneous exchange of valuables



Key Characteristics

- High-speed, automated nationwide network; emphasis on security, reliability, availability, & resilience
- Once posted or acknowledged, transactions are final & irrevocable; sender & receiver accounts debited & credited immediately



National Settlement Service

- Multilateral payments settlement service
- Used to settle accounts for payment transactions of DI participants in a clearinghouse, financial exchanges & other similar groups
 - Settlement agents, acting on behalf of participants in settlement arrangement, electronically submit settlement files to the FRBs
 - Files are processed on receipt, & entries are automatically posted to DIs' FRB accounts
 - Once posted transactions are final & irrevocable



FedACH[®]

- Automated clearinghouse (ACH) is a batch processing, store & forward system started in early 1970s
- FedACH is one of two national “Operators” for U.S. ACH payments
- ACH originally used for mostly low dollar, recurring payments
- ACH now used extensively to process one-time debit transfers & larger dollar business payments





FedCash®

FedCash Services

- FRBs issue currency to the public through DIs
- FRBs charged with ensuring that enough cash—i.e., currency & coin—is in circulation to meet public's demand

Fundamental cash demand

- Means of payment, e.g., consumer to merchant, person to person
- Store of value





Redesigned \$100 Note

Begins Circulating on October 8, 2013

Two new security features

- Easier for users to authenticate genuine currency
- More difficult for counterfeiters to replicate

3-D Security Ribbon
Tilt the note back and forth while focusing on the blue ribbon. You will see the bells change to 100s as they move. When you tilt the note back and forth, the bells and 100s move side to side. If you tilt it side to side, they move up and down. The ribbon is woven into the paper, not printed on it.

Bell in the Inkwell
Tilt the note to see the color-shifting bell in the copper inkwell change from copper to green, an effect which makes the bell seem to appear and disappear within the inkwell.

1. Portrait Watermark
Hold the note to light and look for a faint image of Benjamin Franklin in the blank space to the right of the portrait. The image is visible from either side of the note.

2. Security Thread
Hold the note to light to see an embedded thread running vertically to the left of the portrait. The thread is imprinted with the letters USA and the numeral 100 in an alternating pattern and is visible from both sides of the note. The thread glows pink when illuminated by ultraviolet light.

3. Color-Shifting 100
Tilt the note to see the numeral 100 in the lower right corner of the front of the note shift from copper to green.

Source: www.newmoney.gov

FRBs Support Treasury Goal to Increase Electronic Payments



Federal Mandates:

- As of March 1, 2013 all check recipients of federal benefit payments had to choose an electronic payment option – ACH direct deposit or DirectExpress® prepaid debit card
- By Jan. 1, 2014, electronic payments required for all Medicare reimbursements to healthcare providers
- By Oct. 1, 2020, all State agencies must implement electronic payments for WIC payments



Payments Research & Collaboration



Payments research to inform industry & policy makers

- Triennial Retail Payments Study
- Mobile Payments
- Consumer Payment Preferences
- Business-to-business payments
- Payment Cards
- Payments Fraud

Collaboration to improve U.S. payment system

- Image Industry Interoperability Group, i3G
- Mobile Payments Industry Work Group, MPIW
- Remittance Coalition
- Standards development participation – X9, X12, ISO, IPFA, NACHA



FRFS Strategic Direction



FRFS Broadens Strategic Focus toward End-to-End



Safety & Security

- Maintain & enhance FRB network security
- Enhance understanding of end-to-end security
- Collaborate & promote industry best practices

Speed

- Develop solutions to enhance payment speed
- Understand market demand for faster payments
- Continue migration of paper to electronic

Efficiency

- Develop solutions to promote efficiency
- Understand needs & barriers
- Promote standards adoption to improve efficiency

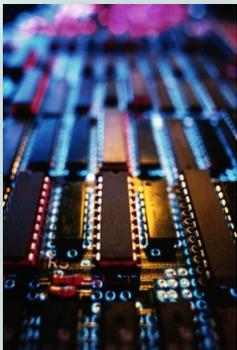


Exploring & Advancing Payments System Improvements

Modernize

FRFS Technology Modernization

- FedACH
- Fedwire
- Check
- FedLine
- Account Services



Collaborate & Explore

End-to-End Safety & Security

- Risk Management
- Cyber security



End-to-End Speed

- Accelerated Check Clearing
- Accelerated ACH Clearing
- Payment Notification



End-to-End Efficiency

- Ubiquitous P2P options
- All electronic B2B
- Standards advances (e.g., ISO 20022)
- Improved international payments

Advance

Advance the Vision

- Collaborate with industry on Initiatives that meet end user demands/needs & improve payment speed, safety & efficiency





Questions?





Contact Information

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www.minneapolisfed.org





Appendix



Federal Reserve System Payments Information Resources



- Banking & Payments Research (Kansas City) <http://www.kansascityfed.org/research/bankingandpayments/>
- Consumer Payment Research Center (Boston) <http://www.bostonfed.org/economic/cprc/index.htm>
- Federal Reserve Bank Services <http://www.frbservices.org/>
- Money & Payment Studies (New York) http://www.newyorkfed.org/research/payments_research/index.html
- Payment Cards Center (Philadelphia) <http://www.philadelphiafed.org/consumer-credit-and-payments/payment-cards-center/>
- Payments Information & Outreach Office (Minneapolis) <http://www.minneapolisfed.org/about/whatwedo/paymentsinformation.cfm>
- Payment Strategies (Boston) <http://www.bostonfed.org/bankinfo/payment-strategies/index.htm>
- Payment Studies (Chicago) http://chicagofed.org/webpages/utilities/about_us/financial_markets_and_payments/payments_studies.cfm
- Payment Systems (Board of Governors) <http://www.federalreserve.gov/paymentsystems/default.htm>
- Payment Systems (New York) http://www.newyorkfed.org/banking/payment_sys.html
- Retail Payments Risk Forum (Atlanta) <http://www.frbatlanta.org/rprf/>
- Fed in Print <http://fedinprint.org/>