

Emerging Retail Payments Risk Issues:
**AN INDUSTRY, REGULATORY, &
LAW ENFORCEMENT DIALOGUE**
November 5-6, 2009

FEDERAL RESERVE BANK *of* ATLANTA



Emerging Payments Market Developments Trends and Issues

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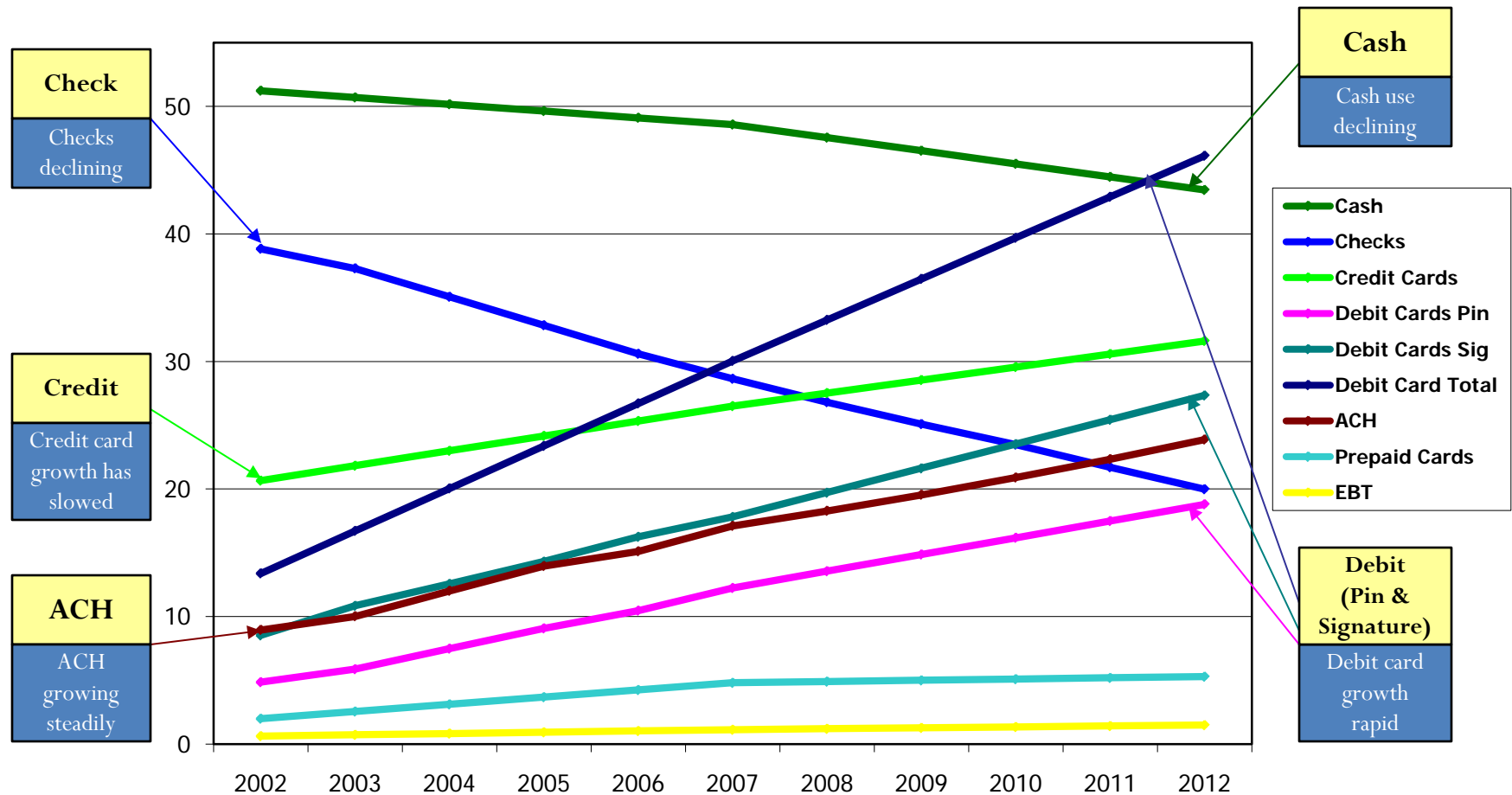
November 5, 2009

Agenda

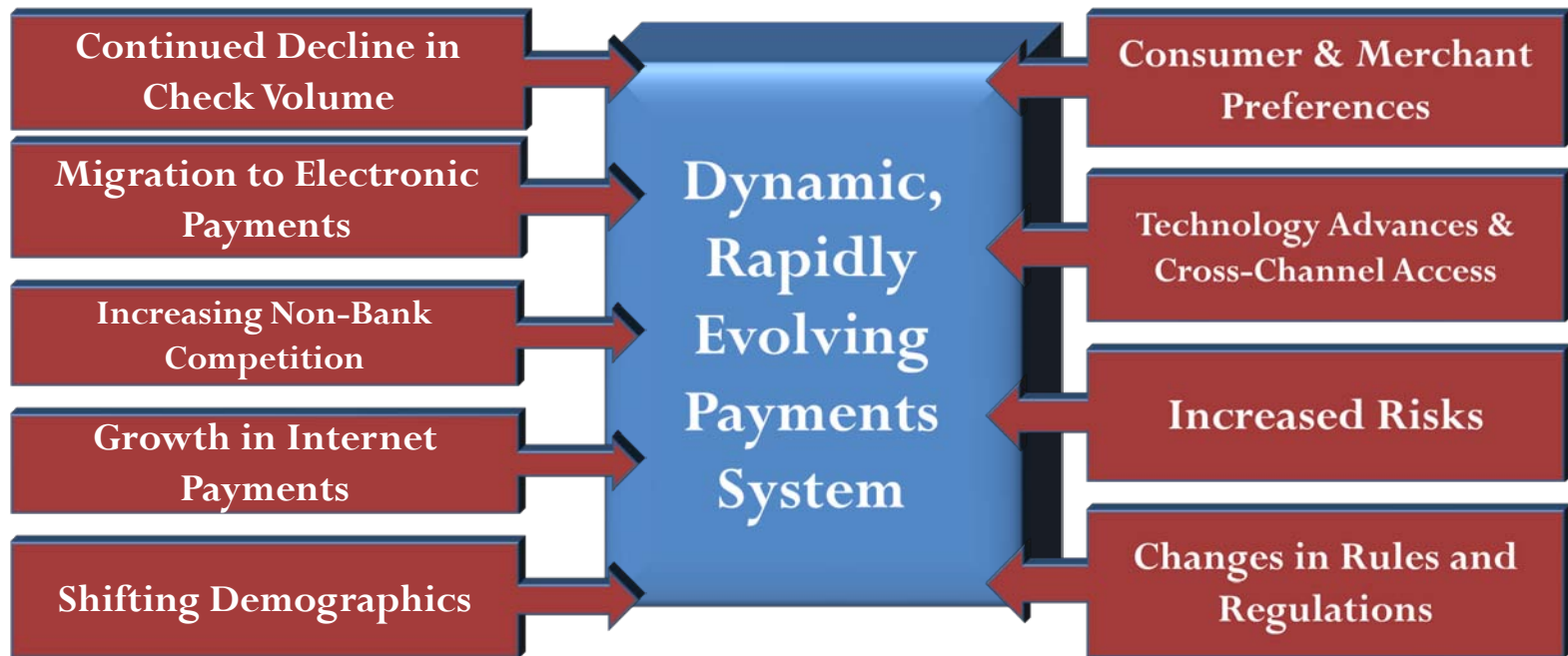
- Payment Landscape Today
- Trends in Electronic and Alternative Payments
- Future Directions

Payment System Continues Shift from Paper to Electronics

Estimated Total Number of Transactions by Payment Type, in Billions

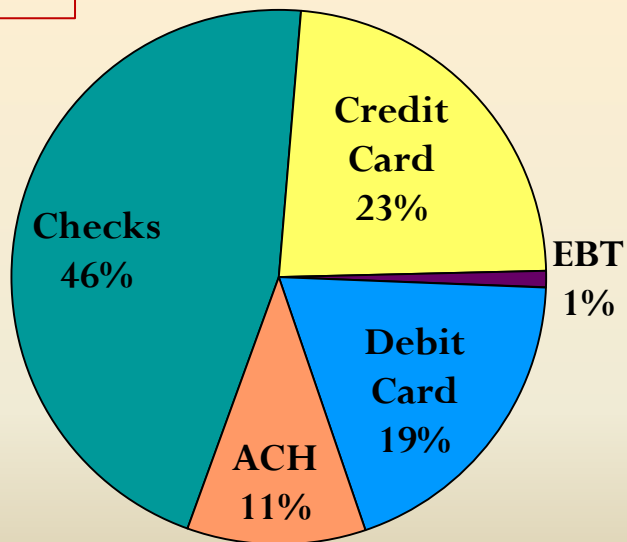


What's Driving Changes in the Payment System?



Change in Mix of Noncash Retail Payments

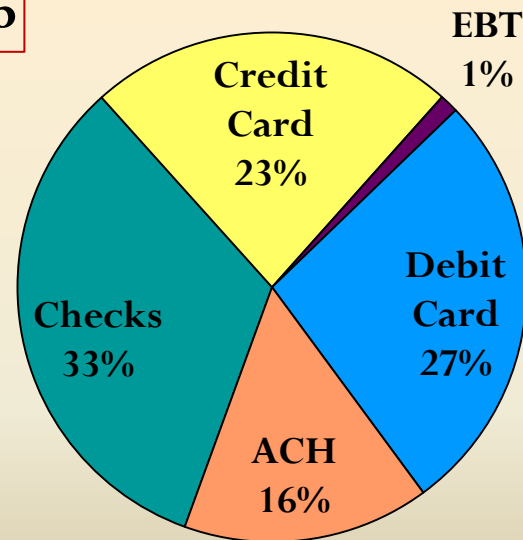
2003



81.4 Billion Transactions

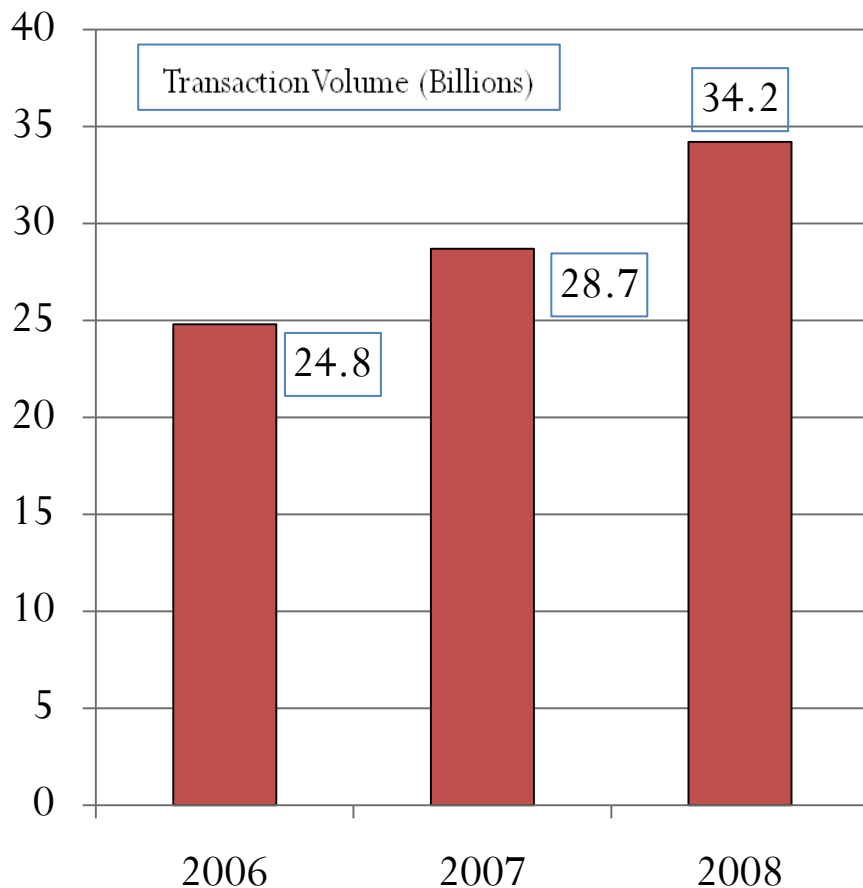
Debit Card & ACH Replacing Checks

2006



93.3 Billion Transactions

Debit Card is one of the Fastest Growing Payment Methods



Source: EFT Data Book, 2009 and 2010

- In 2006 consumer debit card purchases exceeded \$1 trillion globally, up 19% over 2005
- Most common in-store/POS payment type, displacing credit card, check & cash
- 80% of U.S. consumers carry debit card
 - Active debit users do 11 transactions per month
- Signature Debit represents 65% of total DC transactions
 - Signature accepted like a credit card
- PIN debit provides cash back option, considered more secure, 'Pay Now'

Debit Card 'Products' Expanding

- **PIN**
 - Transaction settled over EFT/ATM network within 1-2 days
 - **Signature**
 - Customers verify transaction by signing receipt
 - Transaction settled over credit card network within several days
-
- **Decoupled** (PIN)
 - Debit card issued by Financial Institution that does not own customer's DDA account
 - **Prepaid** (signature)
 - Funds pre-loaded. Used wherever brand (MC/Visa/Amex/Discover) is accepted
 - **Contactless** (no PIN, no signature required but processed as signature debit)
 - RFID chip embedded in debit (or credit) card along with traditional Magnetic Stripe
 - Consumer waves/taps card at POS terminal to pay for low-dollar items (~ \$25)
 - **Virtual** (card not present, processed as signature debit)
 - One-time or reloadable debit card number generated via Internet to make online purchases
 - **Internet PIN** (PIN)
 - One-time use of debit card and floating PIN for online purchase at merchant website

Decoupled Debit and ACH Debit Cards

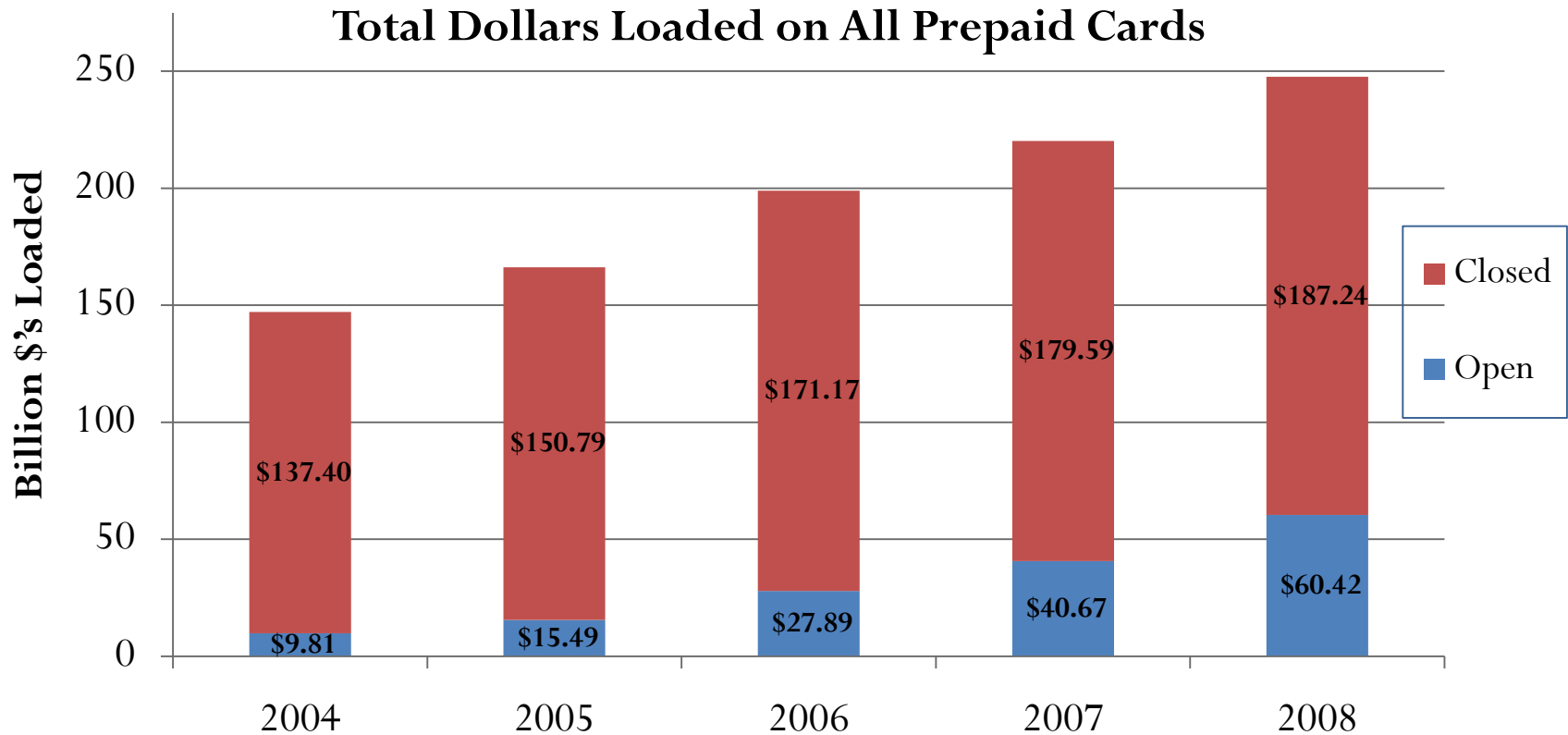
- Decoupled debit card issued by third party that does not hold customer's checking account, delinking card from checking account
- Market not very successful to date; low volume, experimental
 - Tempo – changing business model
 - New rewards-based, affinity partner-MasterCard branded, open loop debit card
 - HSBC – OptiPay (Tempo network)
 - Decoupled Debit MasterCard combined with a stored value rewards card
- Risks
 - DDA balance unknown, DDA may be closed or blocked at time of authorization
 - ACH transaction not simultaneous with DD card transaction so Short-term credit risk until ACH transaction clears
- ACH Debit is a closed card, limited to participating merchants, runs on separate network, settles over ACH

Prepaid Cards – Another Cash Replacement

- Payment card with dollar value pre-loaded at ATM, retail venue, other location.
- Closed Loop
 - Proprietary – Only accepted for payment at merchant(s) where purchased
- Open Loop
 - Carry Visa, MasterCard, Discover, or AMEX logo
 - General purpose - accepted wherever these networks are accepted
- Both types can be reloadable or non-reloadable
- Little or no credit risk – Funds loaded before use – Pay now, buy later
- Connects unbanked to electronic payment system without a bank account
- Regulatory and customer concerns
 - Consumer Protection - high fees, lack of transparency
 - Money laundering – anonymity, transportability, Internet use

Prepaid Card Trends – Small but Growing

Open Loop Cards Growing Faster than Closed Loop



Expanding Applications for Prepaid Cards

Open Loop

- Government
 - Social Security
 - Food Stamps
 - State Unemployment
- Network Branded Gift Cards
- Insurance Claims
- Employer
 - Payroll & Benefits
 - FSA/HSA
- Remittance/P2P
- Public Transit (open/closed)

Closed Loop

- Business
 - Business Travel
 - Employee Incentives
- College Campus
- Digital Content
- Closed Loop Gift Cards (Store)
- Gas
- Telecom (closed loop)
 - Prepaid Mobile
 - Prepaid Long Distance

Can Contactless Cards Drive Adoption of Mobile Payments?

- Contactless cards slowly being introduced in U.S.
- Chicken and egg dilemma
 - Need banks to issue contactless cards
 - Need merchants to install new contactless readers
 - Cost of readers not insignificant
 - No financial incentive to merchant to accept contactless payments
- Estimate 20 million general purpose contactless debit/credit cards issued, representing less than one-third of mag stripe card base
- About 45,000 locations have installed new readers vs 6 million locations that accept mag stripe cards
- U.S transit industry moving to contactless cards (based on success in Japan, U.K.) & may drive migration to retail POS industry
- Adoption of contactless/NFC technology may skip card medium and move to mobile payments



Internet Payments and Purchases

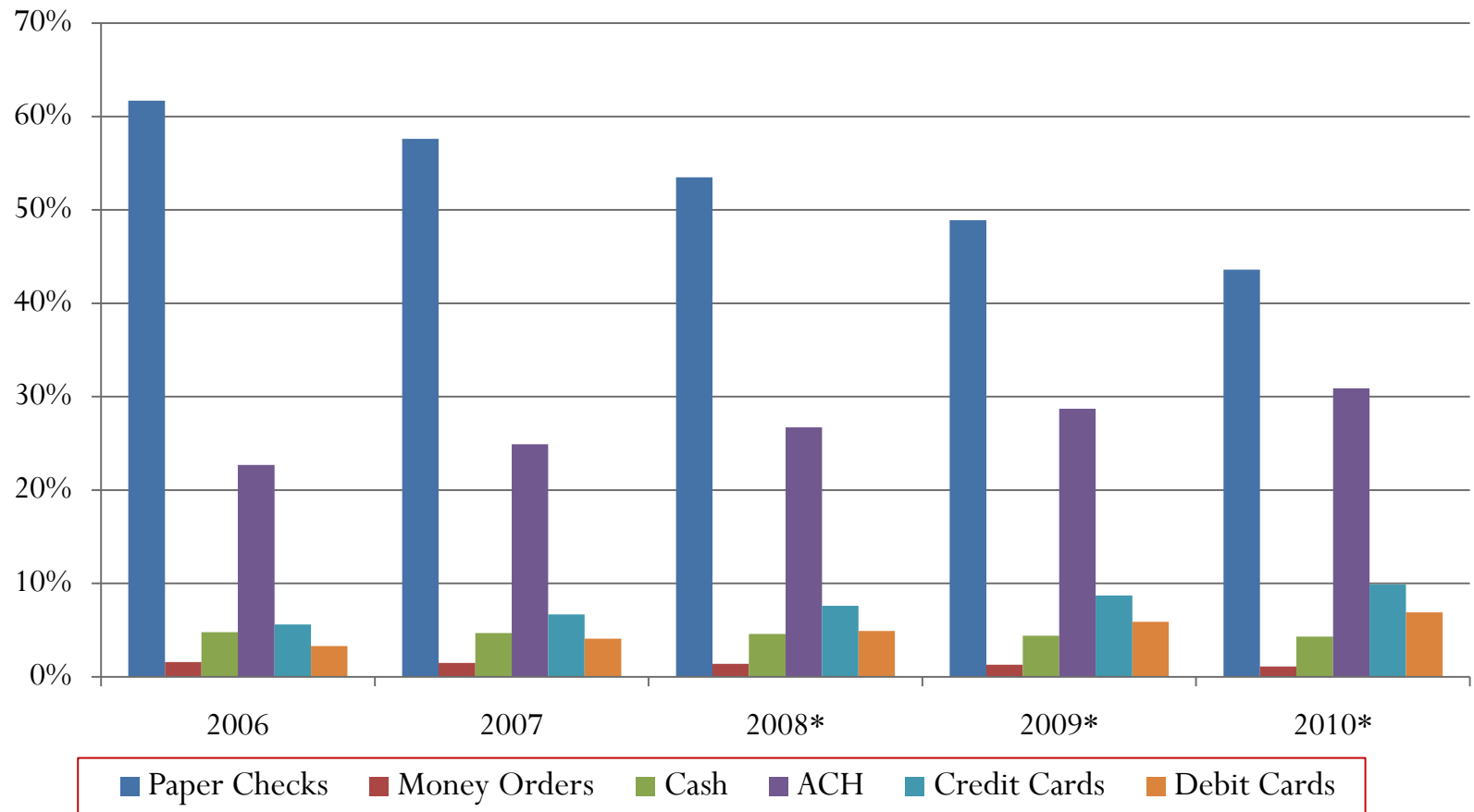
Internet-connected households increased 22.5% from 72 million in 2005 to 88.2 million in 2008

75% of Americans use the Internet today for various activities, including financial transactions, such as:

- Online Banking and Bill Payments
- e-Commerce: Internet purchase of goods & services
- Person to Person (P2P) or account to account money transfers

Bill Payments Migrating to Electronic

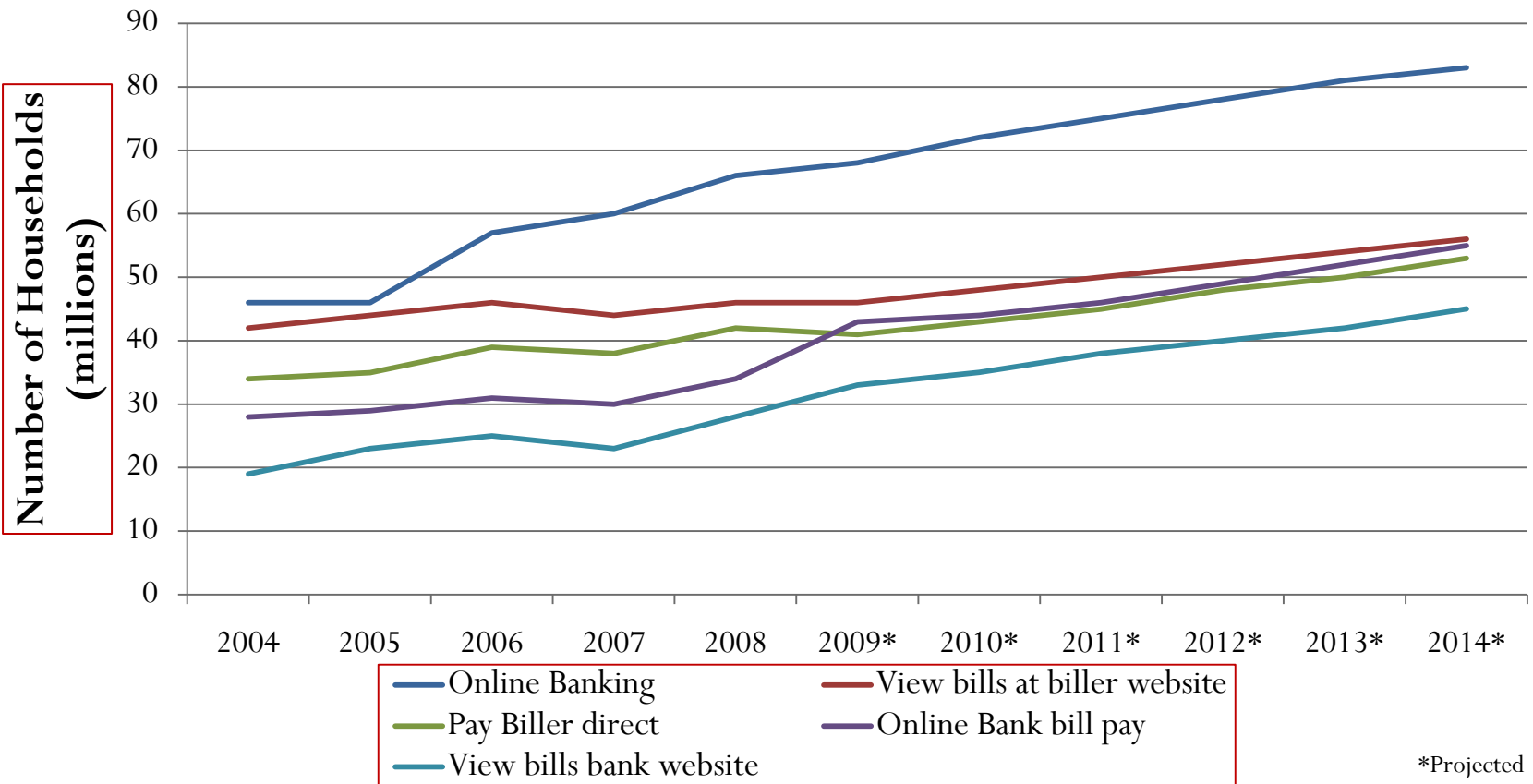
Percentage Growth by Payment Type



*Estimated

Online Banking and Bill Payment Trends

Households pay more bills online as concern for online banking security decreases from 20% in 2005 to 15% in 2009**



*Projected

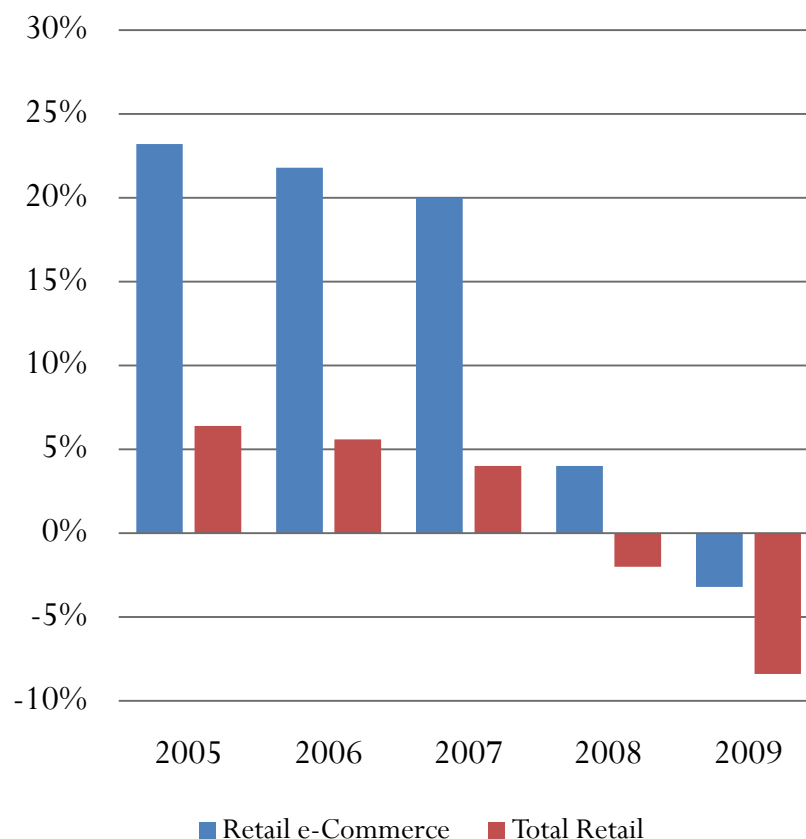
Source: Javelin Strategy & Research 2009**, Harris Interactive, The Marketing Workshop, Fiserv

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Internet Purchase Growth Rate

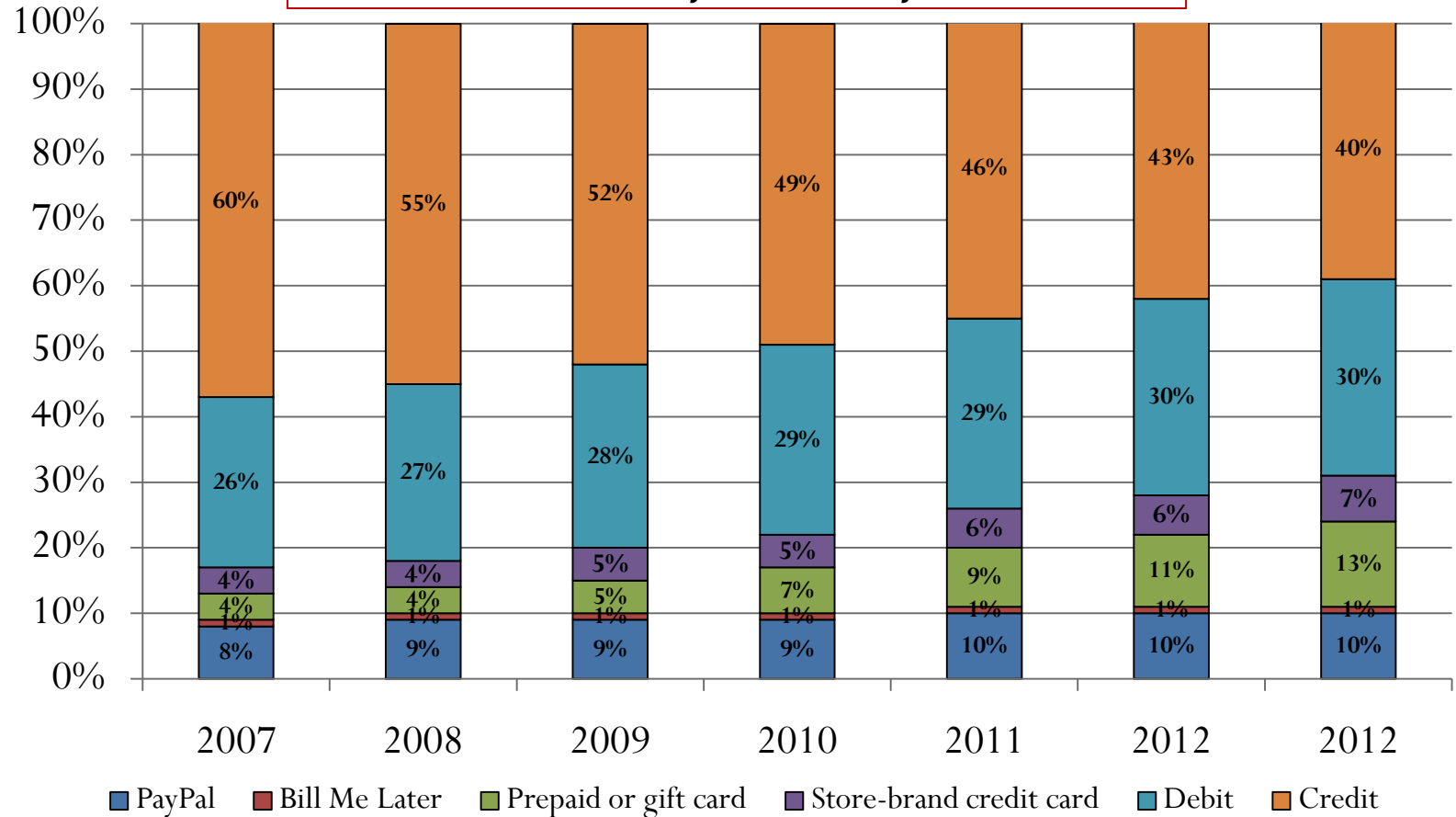
- e-Commerce sales increased from 2.8% to 3.34% **of total retail sales** between 2006 and 2008
- While total retail sales far exceed e-Commerce sales, e-Commerce sales are growing more rapidly.
 - e-Commerce sales grew **20%** from 2006 to 2007 vs total retail sales growth of only **4%** between 2006 and 2007
- Opportunity for increased internet purchases & payments is huge
- Current economic situation has “temporarily” resulted in negative growth

U.S. Annual Growth in Retail Trade Sales



Security Concerns Moving Consumers to Alternatives for Internet Purchases

Transaction Volume by Online Payment Method



Alternative Payment Methods Span Multiple Payment Models

E-Check

ACH or Check21 debit from consumer checking account to merchant, using Bank R/T and account number.

e-check (ACH WEB)
Moneta; MyEcheck (C21)
SecureCheck (noca)

Stored Value/Money Transfer

Pre-load funds to non-bank proprietary balance account or debit card to transfer money online.

PayPal; Amazon Payments
Ikobo, Xoom
Revolution Money

e-Wallet

One online account to access & pay multiple web merchants

Google Checkout

Instant Credit

Real-time credit approval at time of transaction. Deferred billing - Pay Later.

Bill Me Later
PayPal Pay Later
Cred-Ex

Online Banking

Pay via Online Banking Bill Pay function.
Alternate option if no credit card or prefer cash-like payment

eBillme
Secure Vault Payment (NACHA)
Mazooma

Virtual Card

One-time or reloadable debit or credit card number generated via Internet to purchase online.

PayPal; SafPay VirtuCard
ShopSafe credit (BoA)
Safe Debit (NYCE)

Internet Pin Debit

Customer keys debit card & floating PIN at merchant website.

Acculynk PaySecure
HomeATM

Selected Online Payment Service Providers



- **Stored-value model:** Funds stored in PayPal account
- Make internet purchases or transfer money P2P online via email
- Also instant credit, debit card, virtual card, mobile payments
- Huge account base (over 180 million, 75 million active), 193 countries



- **e-wallet** account created at set-up with customer's financial information
- Pay multiple merchants from account with credit or offline debit card
- Six million accounts (2008)



- **Instant credit model** (owned by eBay)
- DOB & last four digits of SS# for instant credit check at merchant website
- 4 million users (U.S.) & over 1000 e-retailers
- Higher ticket items (electronics, travel)



- **Online banking model**
- Customer receives e-bill at merchant website & is directed to online banking platform to authorize and pay



- **Online banking model** – Customer directed to bank website from merchant site to approve payment

Will Growth of Person to Person (P2P) Move more Paper to Electronic?

- Today U.S. P2P market is dominated by independent payment service providers such as PayPal
- Online banking driving interest in bank P2P (2009 CashEdge survey)
 - 81% of respondents would use a P2P payment service if offered by their bank
 - 73% of respondents felt that a bank-offered P2P service is more secure than an independent P2P service
- Fed *2007 Retail Payments Study* showed that 6.6% of all checks written in 2006 (about 206 million) were consumer 'casual' or P2P checks
 - Shows extensive potential for online (or mobile) P2P growth
- CashEdge offers interbank P2P service using ACH to transfer funds
- Bank of America recently introduced fee-based online banking P2P
 - Send money to accounts at another bank, inside or outside the U.S.
- ING Direct offers an external P2P service with recipient email confirmation

Mobile Banking and Payments

- **Mobile Banking** uses a mobile device to connect a customer to a financial institution's website to conduct self-service banking

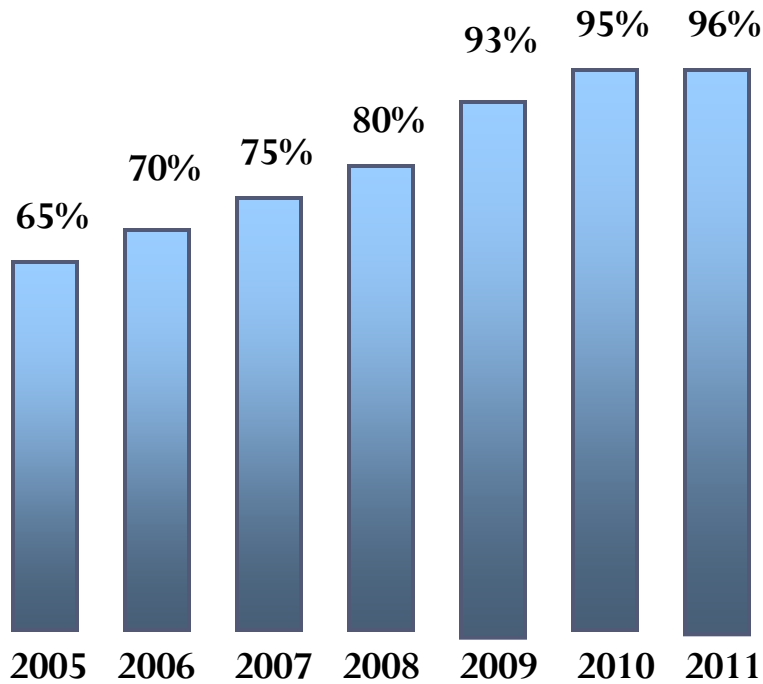
- View account balances and receive alerts
- Pay bills and transfer funds between accounts

2007 Javelin Survey of Consumer Mobile Banking Users showed that 71% checked balances, 41% monitored recent transactions and 25% paid bills

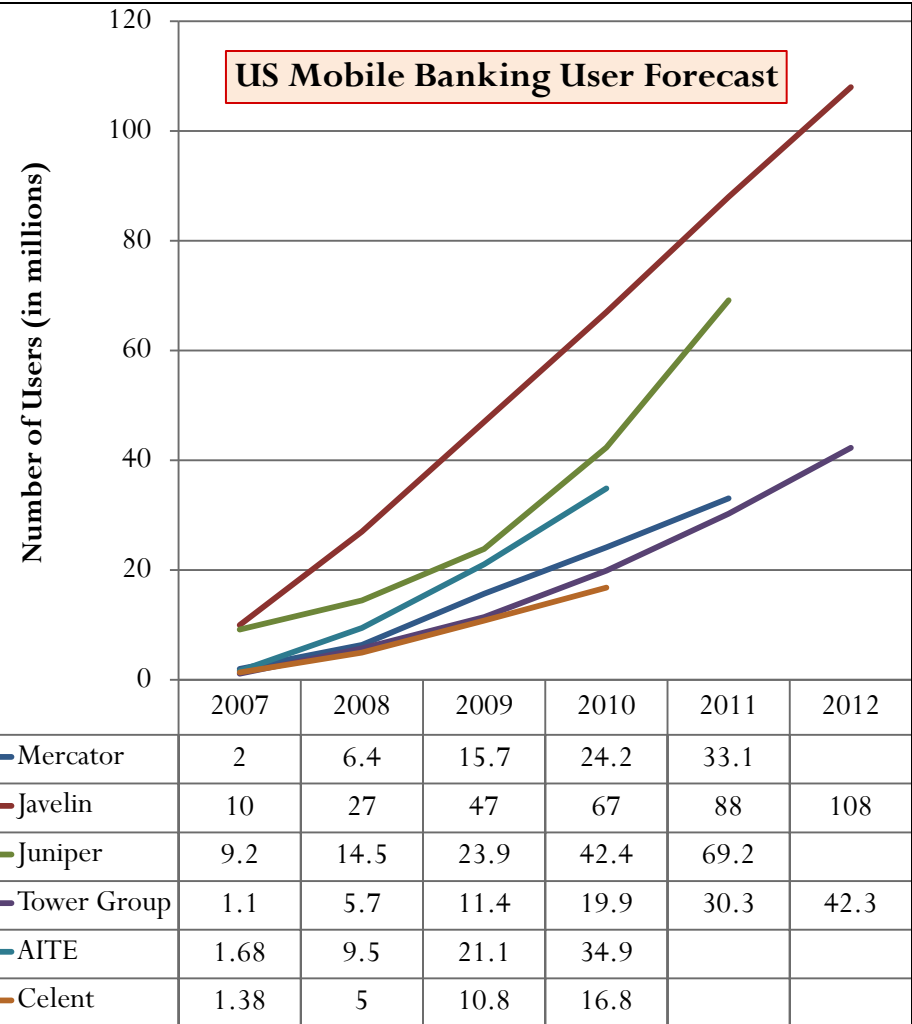
- Most large banks offer Mobile Banking services today
 - Smaller Banks determining competitive strategy
- **Mobile Payments** uses a mobile device to purchase goods or services or make other payment-related transactions outside of the bank
 - Much noise, little growth in mobile payments in the U.S. so far

U.S. Mobile Phone Population Shows Steady Growth A Key Driver for Mobile Banking and Payments

Mobile Phone Subscribers as
Percentage of Total U.S. Population



Source: Celent, September 2008



Mobile Banking and Payment Platforms

- **SMS** (Short Message Service) sends & receives simple text messages (160 characters) – better suited for alerts than payments since unencrypted
 - 90% of mobile phones in U.S. have SMS
- **WAP Browser** (Wireless Access Protocol) allows users to use mobile browser to access information on the Internet
 - 60% of mobile phones in U.S. are enabled with web browser
- **Downloadable applications** pre-loaded on mobile phone
 - 30% of mobile phones can use downloadable apps (smart phones)
- **NFC** (Near Field Communication) – for POS card and mobile payments
 - A short-range proximity technology that uses radio frequency (RFID) to communicate between two devices
 - NFC chips are embedded in mobile phones to enable contactless ‘tap and go’ capability
 - Very few U.S. mobile phones equipped with NFC chips today



Barriers to Mobile Payments

- Carrier/Vendor technologies incompatible; lack standards & interoperability
- Regulation emerging – liability issues unresolved
- Security and privacy
 - Authentication and fraud, especially cross-channel
 - Mobile phones more prone to being lost or stolen
 - Secure access via wireless network
- Complexity around using device and technology
 - Entering passwords and commands; loading and using applications
- Bank/Carrier Issues
 - Customer ownership and support
 - Revenue sharing
- Consumer Demand and need for education

Future Direction of U.S. Payments

- U.S. payment system continues to shift from paper to electronic methods, driven in particular by consumer preferences, while businesses lag behind
- Most newer payment methods (built on existing rails e.g. card, ACH) are showing growth but newest – contactless, mobile – face substantial barriers
- New non-bank players continue to enter the payments space
- Risk attributes of payment changes are not fully understood and need to be monitored
- Consumers are faced with many payment choices and unclear about benefits and risks
- Further consumer education and collaboration among payments stakeholders is needed to ensure a safe environment

Questions??

<http://www.bos.frb.org/economic/eprg>