

Emerging Payments – The Changing Landscape

Presented to:

Maine Association of Community Banks
(April 15, 2008)

New Hampshire Community Bankers Association
(April 17, 2008)

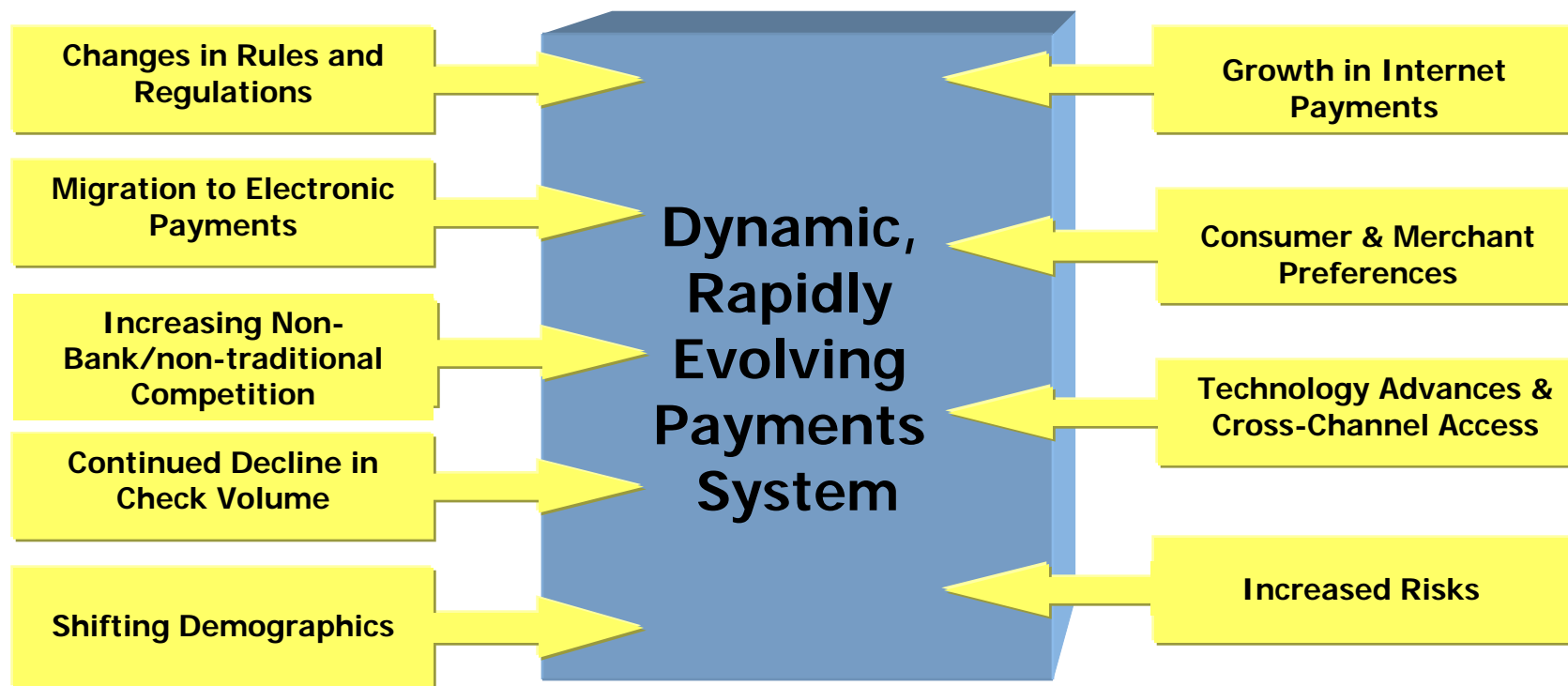
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Federal Reserve Bank of Boston

Agenda

- Payment Landscape Today
- Growth in Electronic Payments
- Future Directions

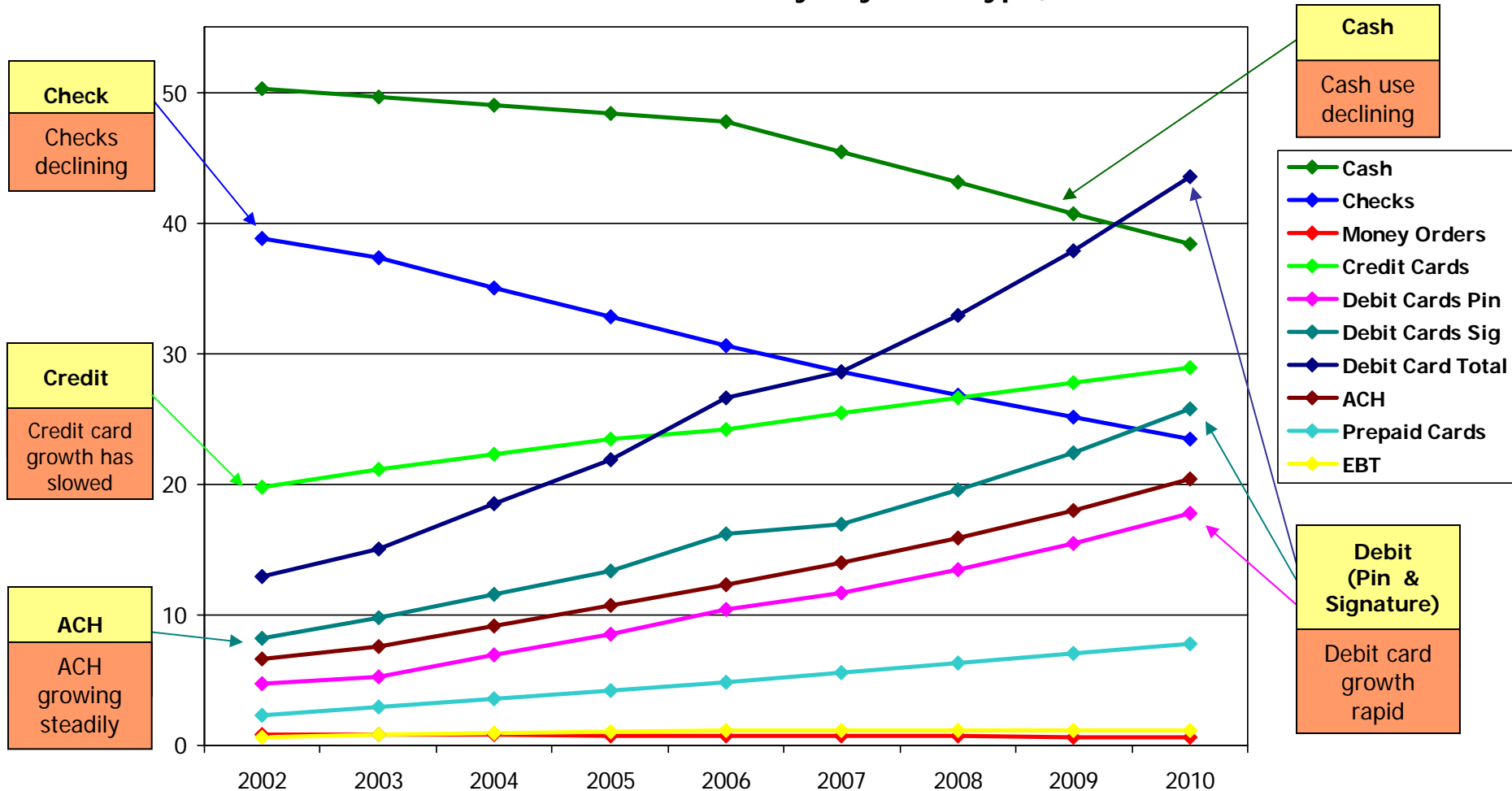
Today's Payment System is Dynamic

Many Factors in Play



Payment System Continues to Shift from Paper to Electronics

Estimated Total Number of Transactions by Payment Type, In Billions



Noncash Payments Increased at Annual Rate of 4.6% from 2003 to 2006

Rate of change in the number of payments
2003 to 2006, CAGR*

Number of noncash
payments (billions)

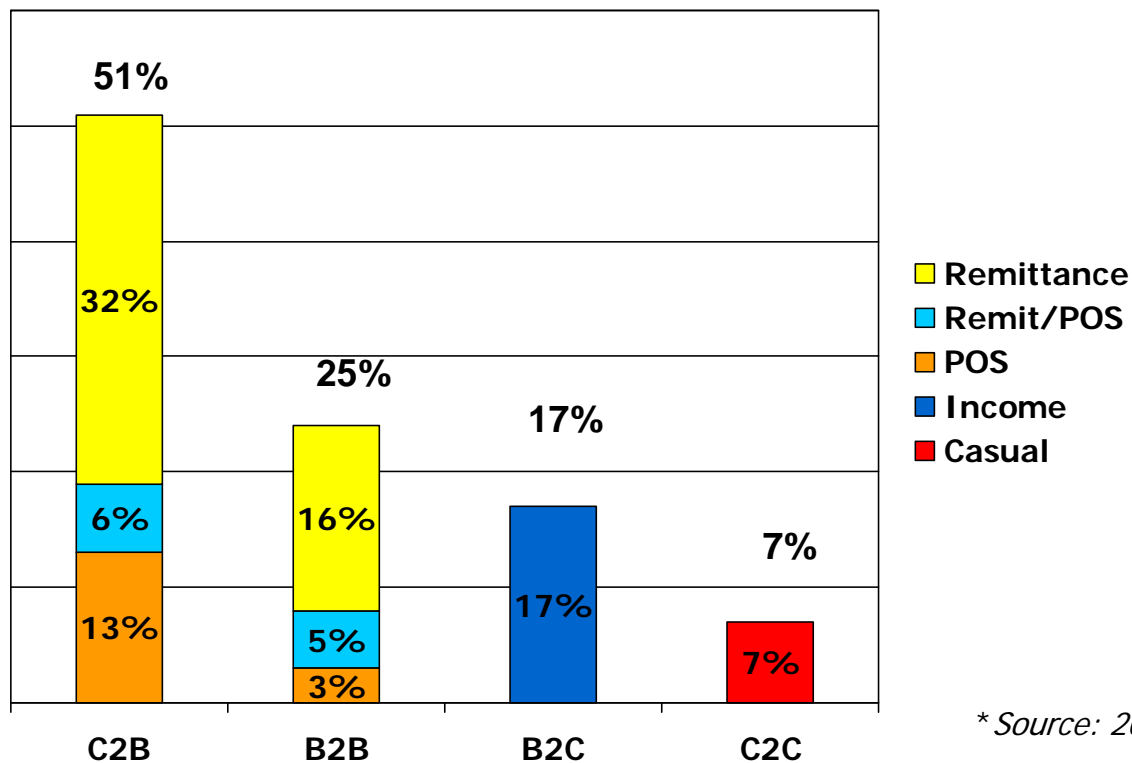
		<u>2003</u>	<u>2006</u>
Total	4.6%	81.4	93.3
Checks (paid)	-6.4%	37.3	30.6
Credit card	4.6%	19.0	21.7
EBT	10.0%	0.8	1.1
Debit card	17.5%	15.6	25.3
ACH	18.6%	8.8	14.6

*CAGR is compound annual growth rate.

Source: 2007 Federal Reserve Payments Study

Payments By Check

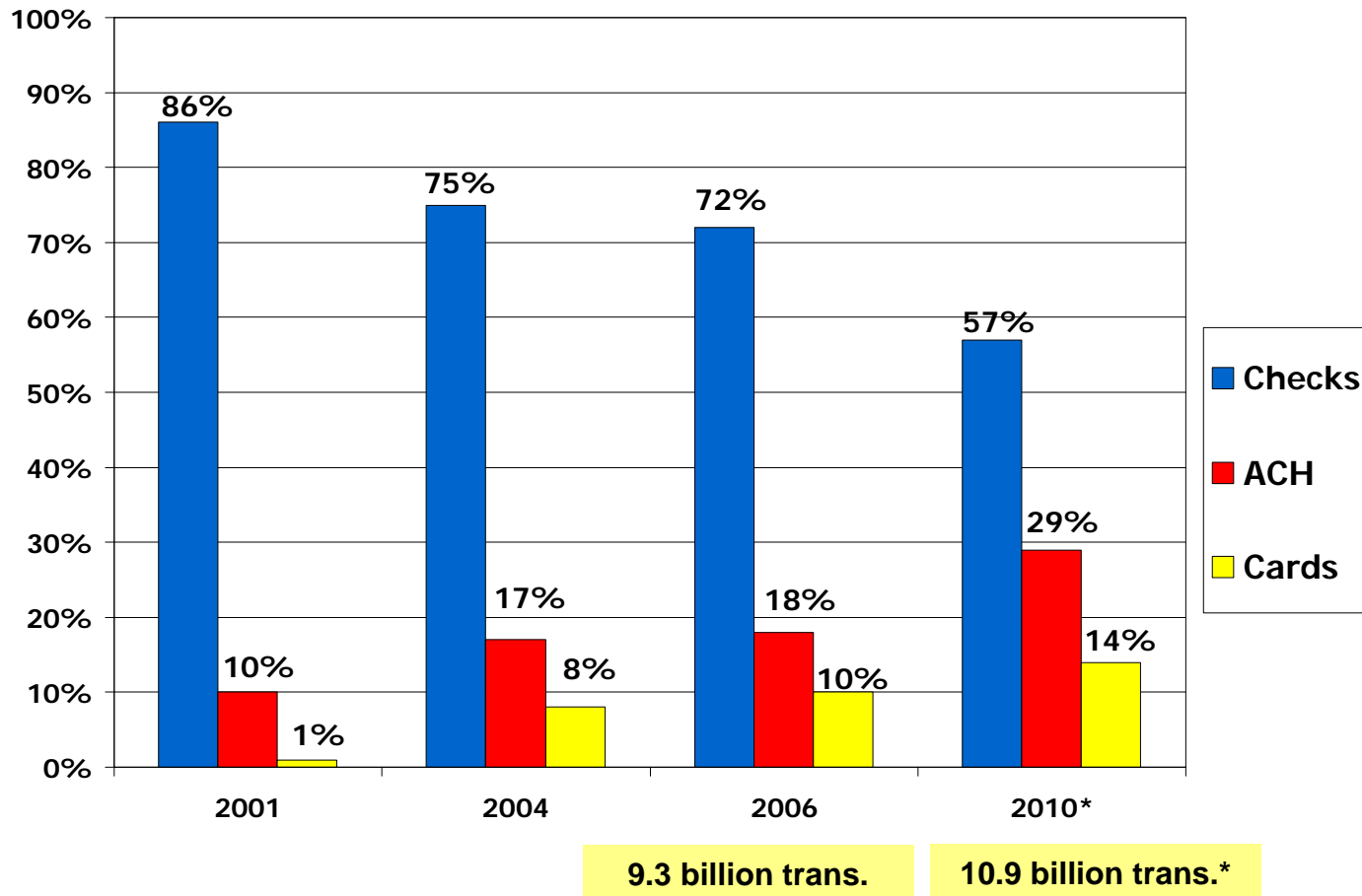
2006 distribution of checks by counterparty and purpose



- Representative random sample of over 32,000 checks
- Sample is ~40% of U.S. "prime pass" checks processed by 9 large commercial banks
- Consumers write 58% of checks paid
- Business/government receive 76% of checks paid

* Source: 2007 Federal Reserve Payments Study

Business Payments Show Slow Decline in Check Usage & Migration to Electronic Payments



Source: *Cards and Payments, First Annapolis, Projected estimate.**

Debit Card Growth

Why Debit Cards are one of Fastest Growing Payment Methods

- Most common in-store & POS payment type
 - Displacing credit card, check & cash
- Both signature & PIN growing but most consumers prefer PIN debit
- Average volume growth of 25% per year for last six years
- Projected to grow at 15-20% over next several years
- 80% of U.S. consumers carry debit card
 - Active debit users do 11 transactions per month
- Consumer debit purchases exceeded \$1 trillion in 2006 globally, up 19% over 2005

Source: First Data, Visa 2006

Decoupled Debit Card As Alternative Payment

- Debit card issued by Financial Institution (DDI) that does not own customer's checking or savings account
 - Debit card NOT linked to customer's DDA account
 - Debit card is 'Decoupled' from customer's DDA bank
- Customer not required to have DDA account at the DDI
- Decoupled debit purchases debited to the customer's DDA account via ACH
- NACHA Rule Changes effective May 5, 2008
 - ACH transactions CANNOT be aggregated for POS or ATM
 - Merchant (payee) must be identified in ACH record, not issuer

Decoupled Debit Card Current Market Players

- Capital One

- MasterCard branded debit card issued by Capital One
- Can be used at POS, ATM or Internet
- Offers higher rewards
- \$500 limit per day per account



- Tempo Debit

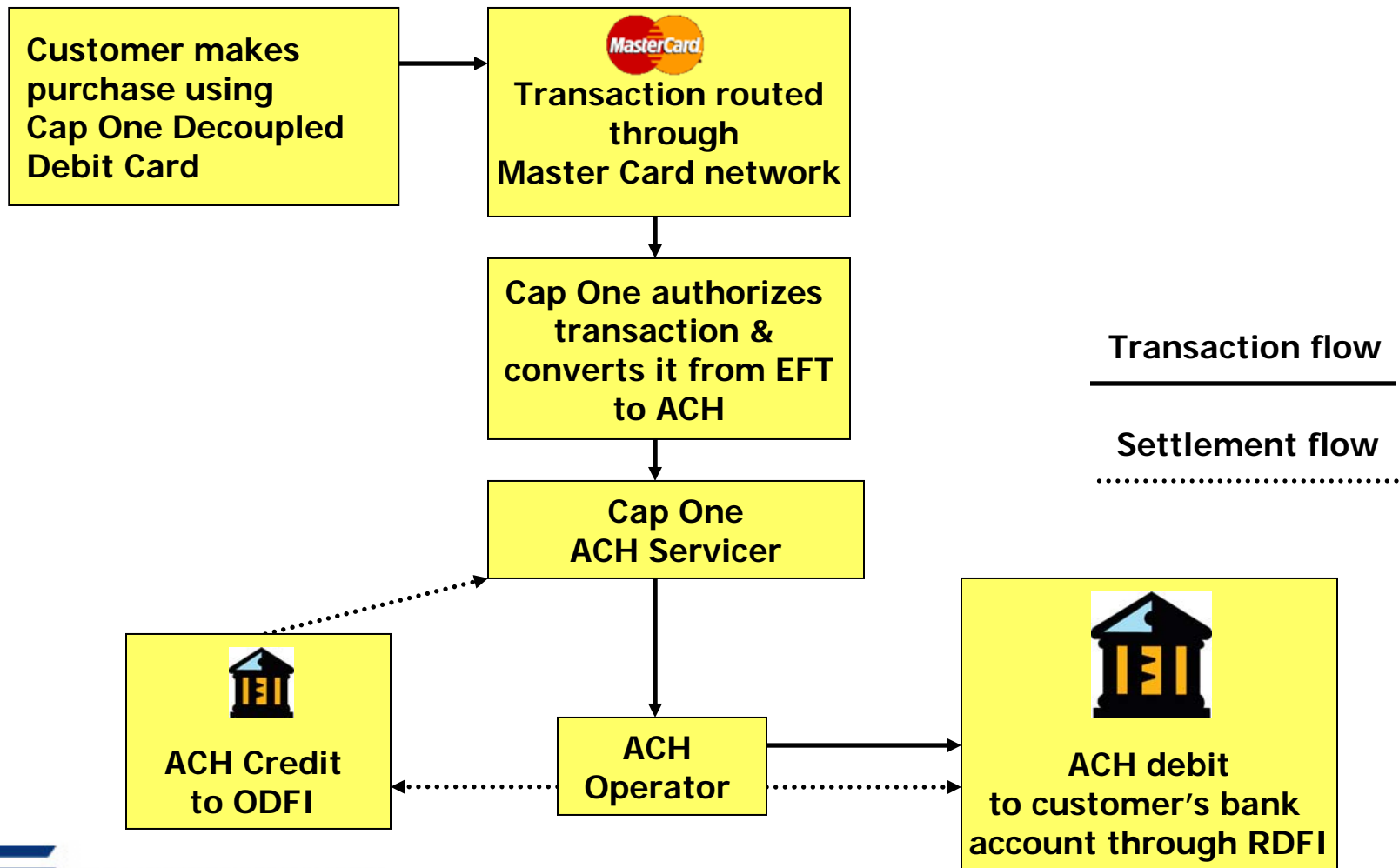
- Offers outsourcing solution to FIs to compete with Capital One
- Provides functionality to allow FIs to offer decoupled debit product
- Tempo manages the operations activities

- PayPal

- MasterCard debit card linked to PayPal account
- Daily limits for ATM & POS



Decoupled Debit Card Process Flow



Decoupled Debit Card Benefits

Consumer Benefits	<ul style="list-style-type: none">■ Can choose debit provider just like credit card■ Higher rewards than standard debit cards■ Pooling of rewards
Merchant Benefits	<ul style="list-style-type: none">■ Co-branding with DD card issuer expands customer base beyond one bank■ Eliminates interchange fees■ Builds customer loyalty

Decoupled Debit Card Concerns

Risks	<ul style="list-style-type: none">▪ Disintermediates DDA banks from debit transaction on their own accounts▪ DDA balance unknown, DDA may be closed or blocked at time of authorization▪ ACH transaction not simultaneous with debit card transaction<ul style="list-style-type: none">▪ Short-term credit risk until ACH transaction clears▪ Capital One sets \$500 daily limit per account to reduce exposure▪ Customer service issues – who to call if transaction problem
Threats to Traditional Bank Model	<ul style="list-style-type: none">▪ Moves relationship & consumer away from Bank to third party▪ Eliminates need for consumer to use DDA FI's debit card<ul style="list-style-type: none">▪ Possible loss of customer loyalty▪ Threatens traditional bank debit card model with richer rewards▪ Low cost way for DDI to get more of customer wallet; cross-sell

Decoupled Debit Bank Response



- Wait to see how decoupled debit takes off
 - Very little data on current volumes
- Discourage customer use of competitor decoupled debit card
 - Charge DDI transaction fees to account holder
 - May risk customer complaints or loss
- National banks - Issue a competitive decoupled debit product
 - 12% of banks surveyed recently indicated they were considering a decoupled debit product
- Mid-size regional and smaller community banks
 - Enhance appeal of existing debit card programs
 - Innovate, market, educate

Pre-Paid Cards

- Payment card with dollar value pre-loaded at ATM, retail venue, other location
- Not linked to individual bank account
- Multiple markets and types

Employer to Employee

- Payroll Cards
- Health Care
- Reimbursement Cards
- Bonus Cards

Consumer to Business

- Gift Cards
- Youth Cards
- Travel Cards

Government to Consumer

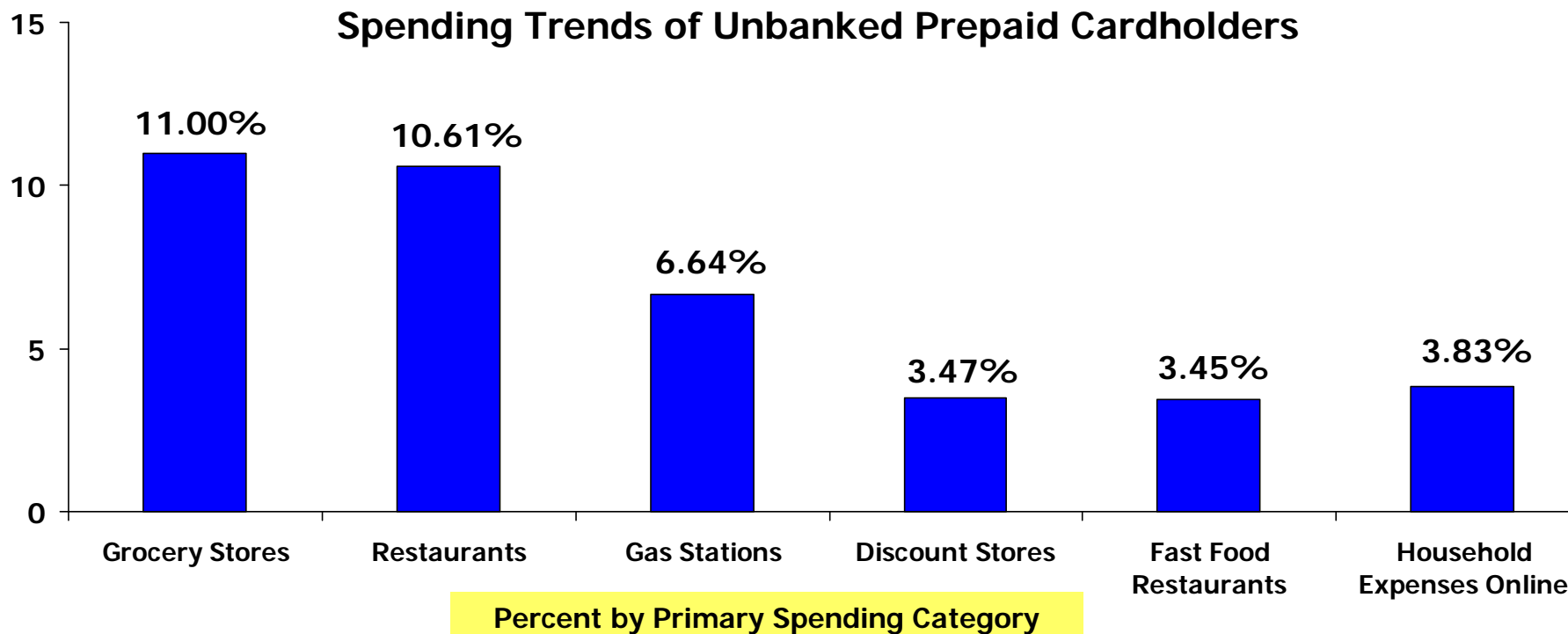
- Social Security Payments
- Welfare Payments
- Other

Business to Consumer

- Insurance Claims
- Rebates
- Store Refunds

Pre-paid Cards for Unbanked Consumers

- More & more unbanked have wages credited directly to cards
- Use cards much like a bank account
- Unbanked cardholders use payroll cards for everyday purchases
- Cash replacement for unbanked?



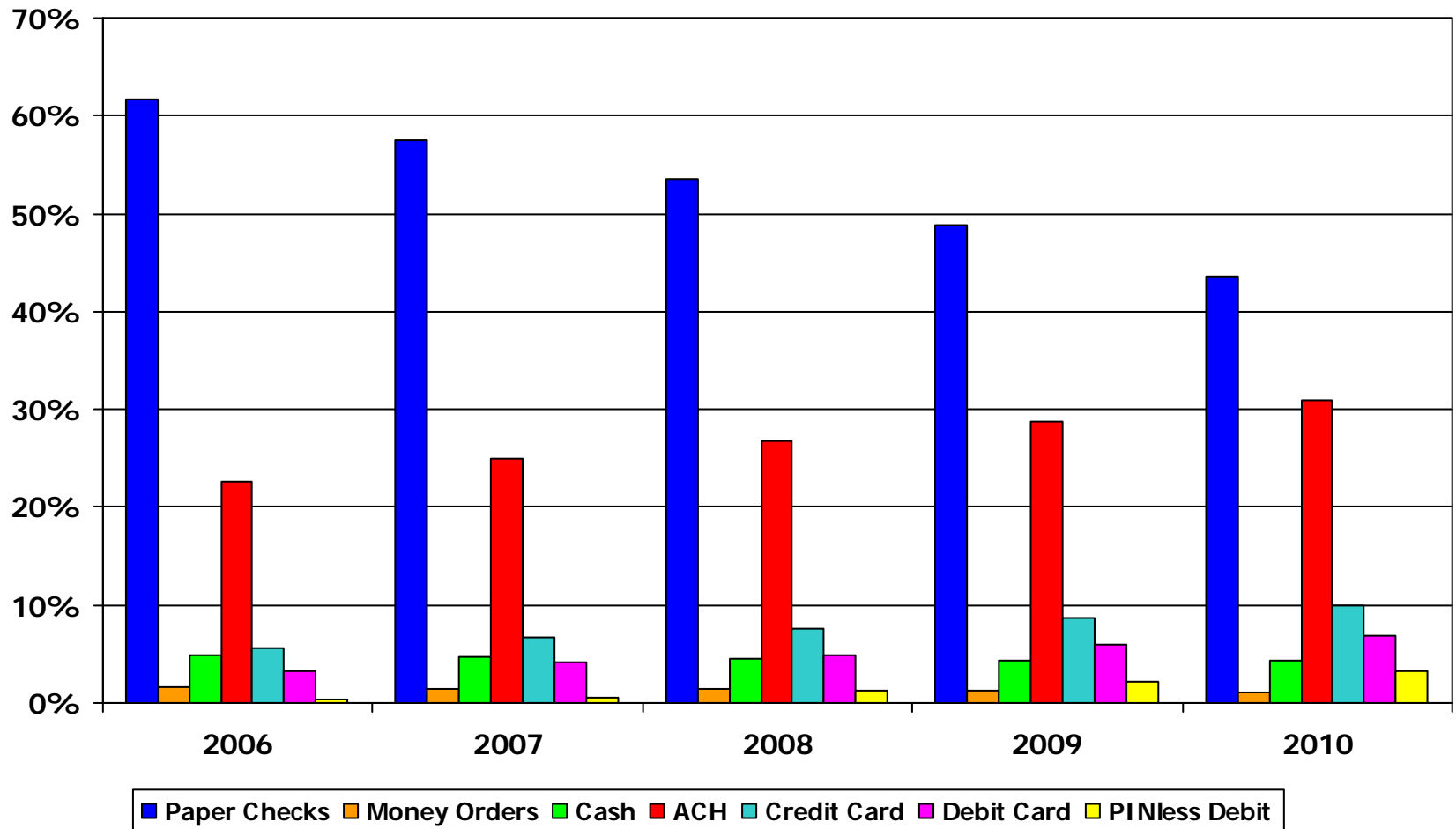
Internet Payments

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

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


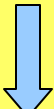
Bill Payment Trends

Percentage Growth By Payment Type



Bill Payment Trends

Consumers Paying More Bills through Online Bill Payment

	<u>2007</u>	<u>2005*</u>
Pay online 	39%	35%
Pay/mail check	34%	38%
Pay at least 1 bill online		
- Online bank site	38%	33%
- Biller website	55%	53%
Concern with online security 	13%	20%

*December

U.S. Consumers Paying at Least One Bill Per Month Online

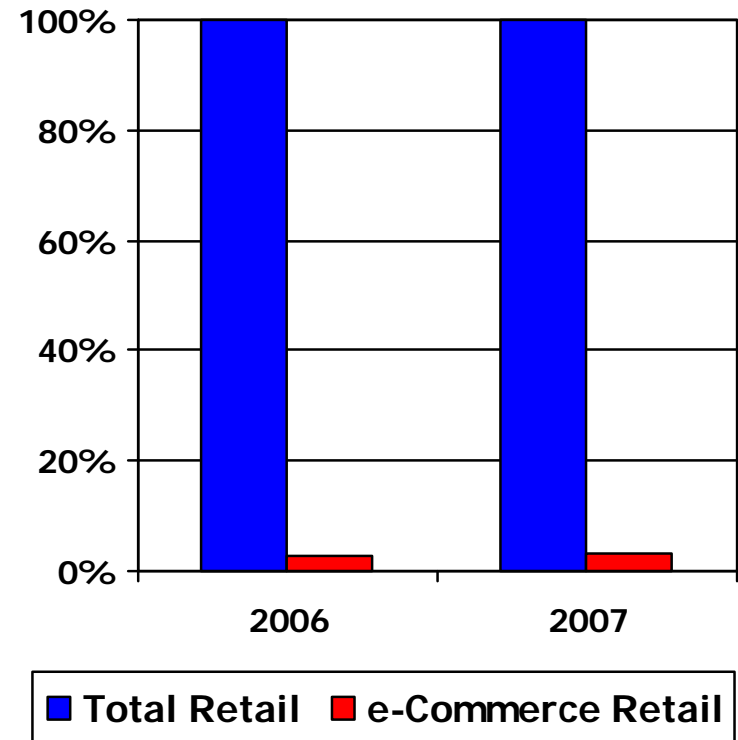
<u>U.S. Region</u>	<u>% of Users</u>
West	78%
South	76%
Northeast	72%
Midwest	71%

Higher broadband penetration and use of online banking tend to drive higher use of online bill payment

Internet Purchases are Growing

- e-Commerce sales increased from 2.9% to 3.4% **of total retail sales** between 2006 and 2007
- While total retail sales far exceed e-Commerce sales, e-Commerce sales are growing more rapidly.
 - e-Commerce sales grew **19%** from 2006 to 2007 vs only **4%** between 2005 and 2006
- Opportunity for increased internet purchases & payments is huge

U.S. e-Commerce sales as % of Total Retail Sales

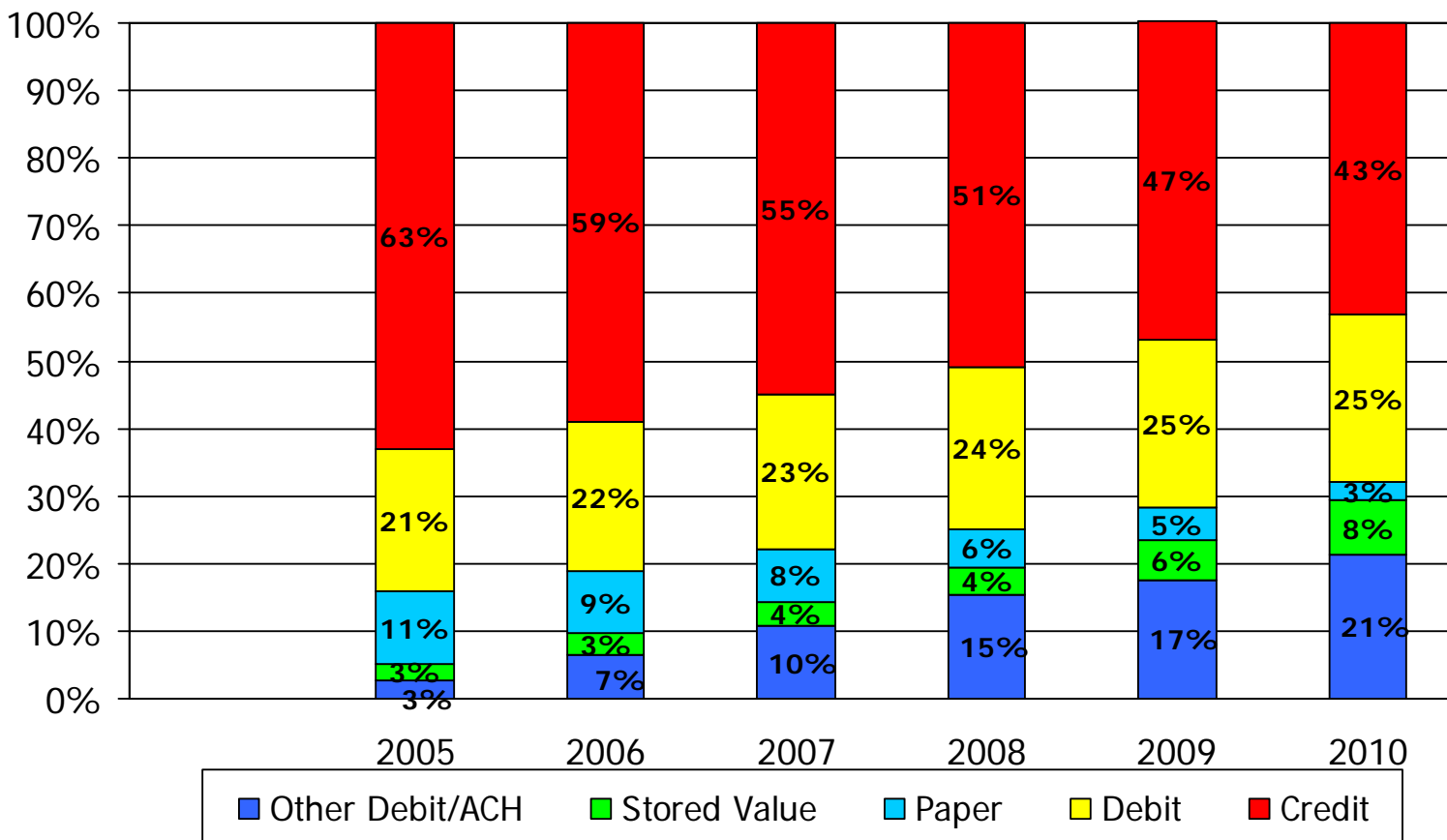


U.S. Census, February 2008

Security Concerns Changing How Consumers Pay for Internet Purchases

Concern that credit card data will be accessed by unauthorized parties, misused, or intercepted.

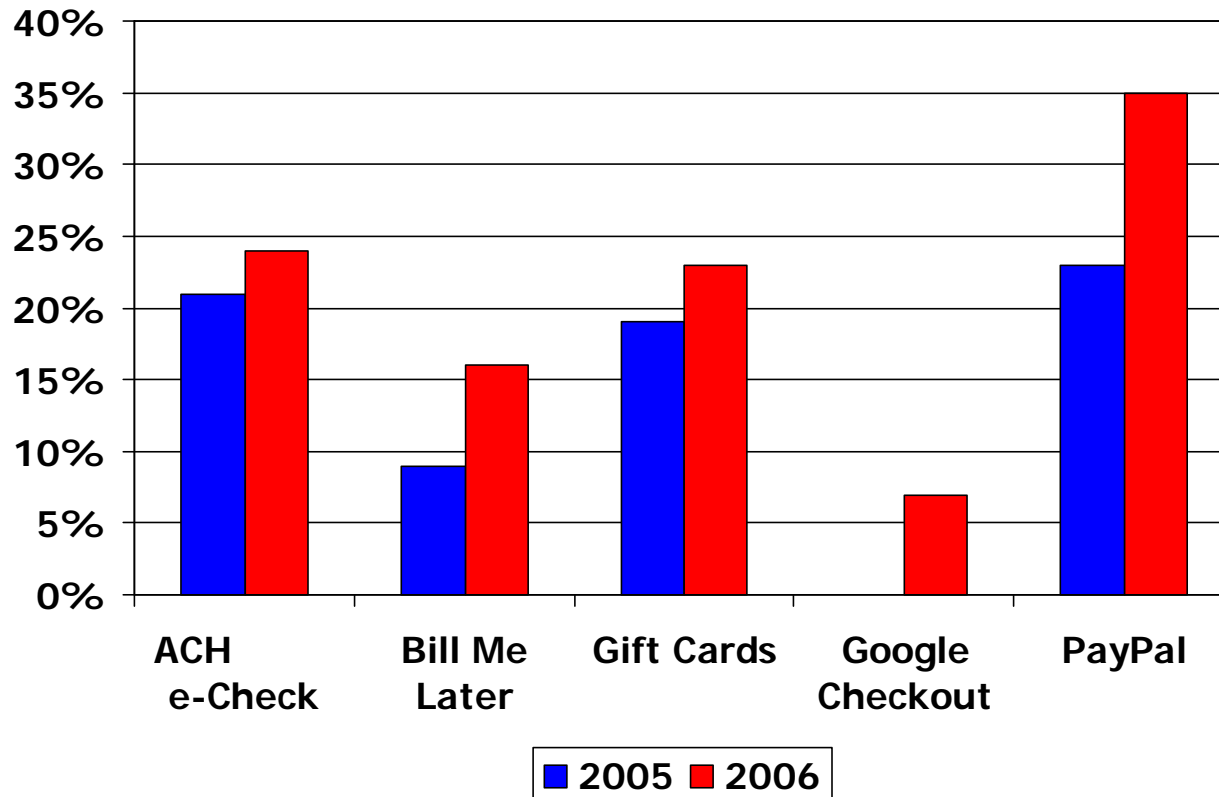
Internet Transaction Mix by Payment Type (%)



Merchants Responding to Security Concerns

Merchants Adopting More Alternative Payment Methods for Internet Purchases

Online Merchant Adoption Rate of Payment Alternatives



Major e-Commerce Payment Providers



- Make internet purchases or transfer money P2P online via email
- Stored-value model: Funds stored in PayPal account
- Huge account base (over 160 million, over 30 million active), in 103 countries



- e-wallet account created at set-up with customer's financial information
- Pay multiple merchants from account with credit or offline debit card
- 25% of top 500 e-retailers since June 2006

Major e-Commerce Payment Providers



- Instant credit model – buy now, pay later
- DOB & last four digits of SS# for instant credit check at merchant website
- 3 million users & over 450 e-retailers (2007)
- Good for high ticket items (electronics, travel)



- Online banking model
- Customer directed from merchant website to online banking platform to authorize payment

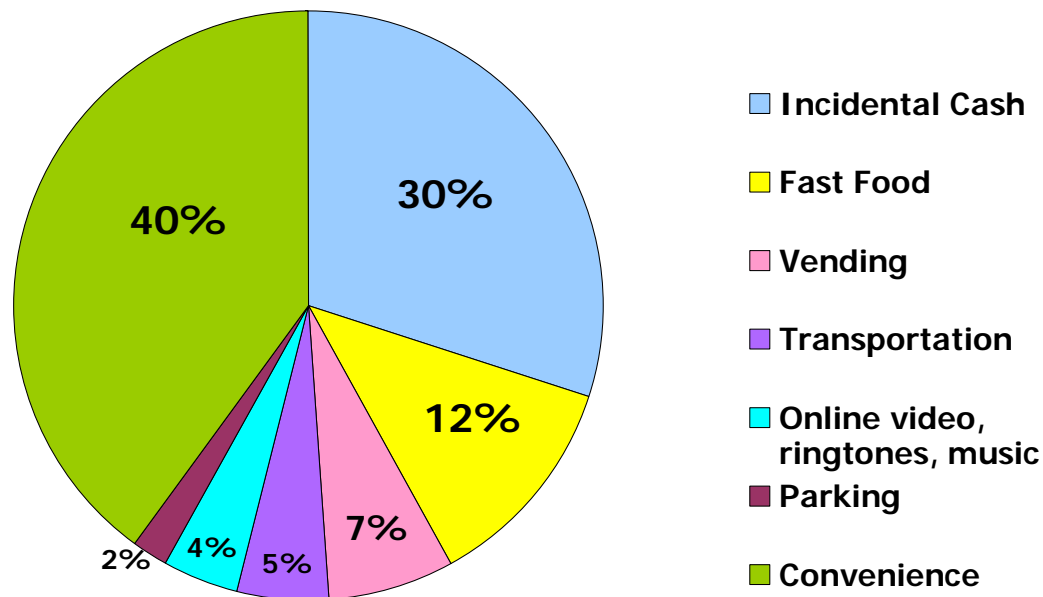


- Merchant set up as payee
- Alternate option if no credit card or prefer cash-like payment

Micropayment Industries Ready for Electronic Payments

- Micropayments defined as every day cash & check sales less than \$5.00
 - Represent ~ \$1.7 trillion annually
 - Represent ~ 400 billion transactions annually
- Estimated potential to pay with credit/debit cards vs. cash ~ \$500 billion

Micropayment Mix by Purchase Type



Source: TowerGroup 2007

Will Contactless Cards Replace Cash for Micropayments?

What is a contactless payment?

- Credit or debit card
- Embedded with wireless communication chip
 - RFID: Radio Frequency ID
- Used for POS purchases LT \$25
- Waved or tapped at POS reader



What is the value?

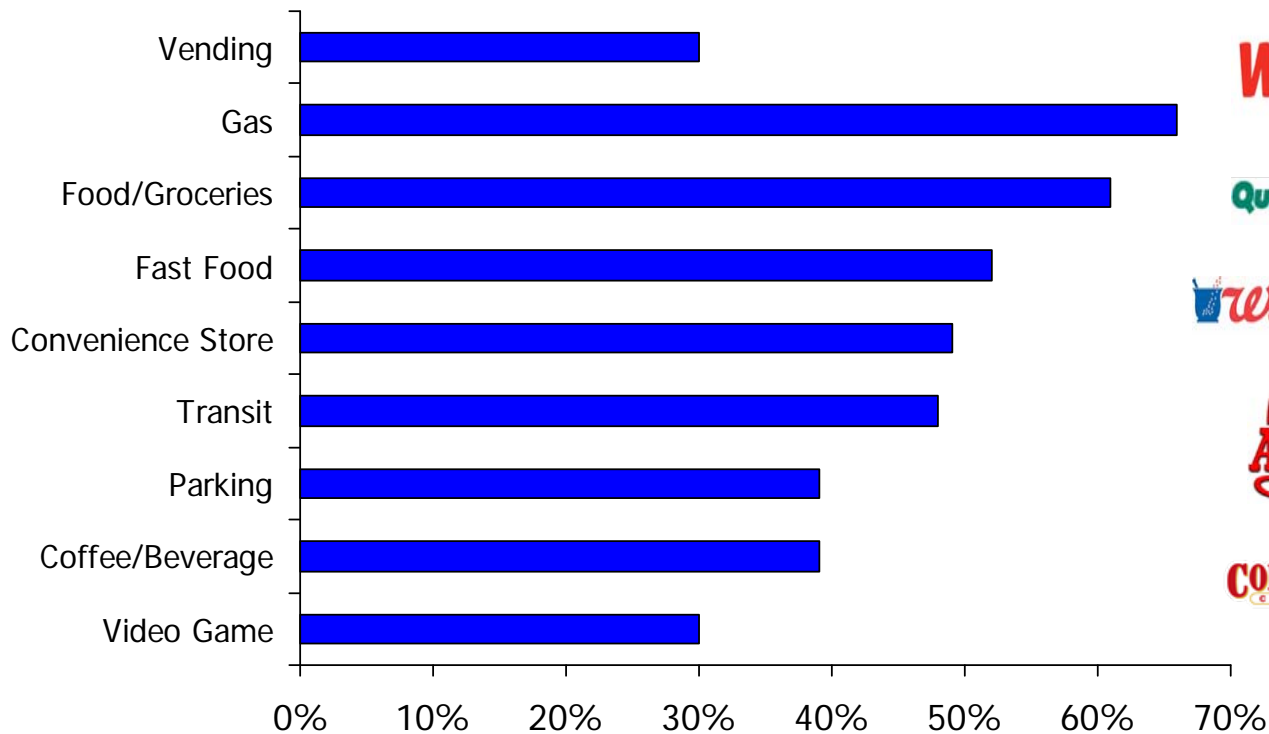
- Consumer
 - Convenience
 - Speed (no swipe, no PIN)
 - Security
 - Control
- Merchant
 - Brand differentiation
 - Increased spend
 - Less cash
 - Speed of transaction
 - 40% faster than cards
 - 55% faster than cash

Contactless Payments – Consumer & Merchant Adoption

Where is Consumer Demand?

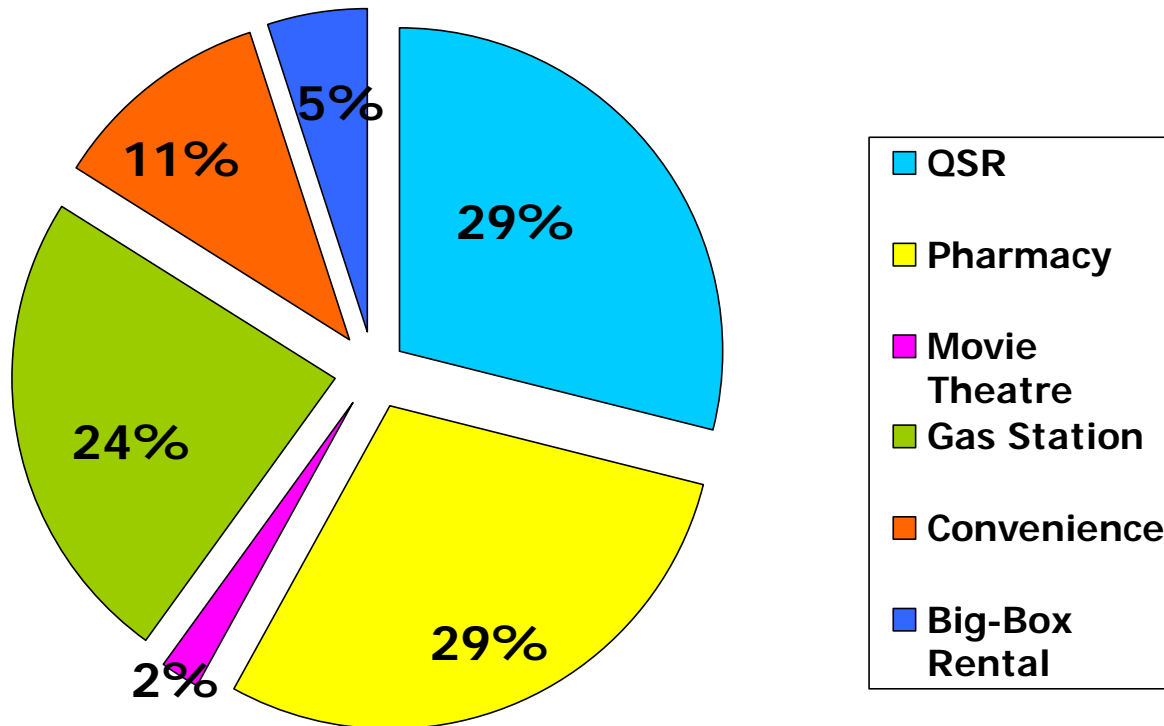
Who Accepts Contactless Cards?

% Willing to Use Contactless



Contactless Payments – Target Industries

US Contactless-enabled Merchants 2007



Source: Aite Group

Mobile Banking

- Definition
 - Use of a mobile device to connect a customer to a financial institution's website to conduct self-service banking and financial business, such as:
 - Viewing account balances
 - Transferring funds between accounts
 - Bill Payment
 - Receiving account alerts
- Several Large Banks offer Mobile Banking services today
 - Wells Fargo, Bank of America, Citi, Chase, SunTrust, USBank, Wachovia, USAA
- Smaller Banks determining competitive strategy

Mobile Banking Channels

- Mobile Banking is made available through different mobile sub-channels
 - SMS (Short Message Service) to send & receive simple text messages (160 characters)
 - WAP (Wireless Access Protocol) allows users to access information instantly on the Internet, using a mobile browser
 - Downloadable or Preloaded applications loaded on phone
- Banks may offer one or more of the above channels

Trends in Use of Mobile Banking

35% growth forecast for online banking consumer use of mobile banking by 2010

Mobile & Internet Banking Household Penetration

	<u>2006</u>	<u>2007</u>	<u>2010</u>
■ Internet banking households (millions)	43.0	46.0	56.0
■ % of all households	37%	40%	46%
■ Mobile banking households (millions)	0.215	1.38	19.6
■ % of online banking households	1%	3%	35%

- BofA has over 600,000 mobile banking customers (2007 Annual Report)
- 3.3 billion mobile phone users = 50% of world population (ITM)

Celent, September 2007

Trends in Use of Mobile Banking

- Javelin 2007 Survey of Mobile Banking Users
 - 71% check balances
 - 41% monitor recent transactions
 - 25% pay bills
- Early adopters
 - High income
 - Professionals
 - Travelers
 - Gen Y/Under 30

Mobile Banking – Potential Benefits

- Build stickier relationship with customers
- Enhance customer payment convenience
- Reduce operations costs by moving some inquiries from branch/call centers to mobile channel
- Incremental revenue from new mobile services: expedited payments, remittances, bill pay, increased transaction volume
- Product differentiation
- Keep up with competition, retain customers

Mobile Banking Challenges

- Technology still incompatible, lacks standards
- Complexity of using mobile device
 - Entering passwords & commands can be difficult
 - Applications on handset can be tricky to use
- Customer Ownership Unresolved
 - Need cooperation from carriers, networks, and banks to support mobile channel, manage customer support, handle billing, collect fees
- Security
 - Need secure access to bank accounts over wireless network
 - Phones more prone to being lost or stolen
 - Authentication & Fraud
- How to build customer demand

The Future Payments Landscape

- U.S. payment system will continue to evolve from paper to electronic instruments.
 - Driven largely by consumer choices today, but business demand is increasing
- Card payments will continue to lead volume growth among electronic instruments, especially debit card
- Pace of e-Commerce will accelerate as today's 20-somethings and teenagers become tomorrow's primary consumers
- Leveraging relationship between mobile- and e-Commerce will drive future innovation in payments
- New types of fraud & other security threats will need to be addressed to maintain consumer confidence
- Increasing globalization will offer rich opportunities to payment systems that are easy to use internationally & convenient to process across borders.

QUESTIONS??

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