



Online Payment Service Providers Innovation in Payments

Southern Financial Exchange Conference
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Federal Reserve Bank of Boston

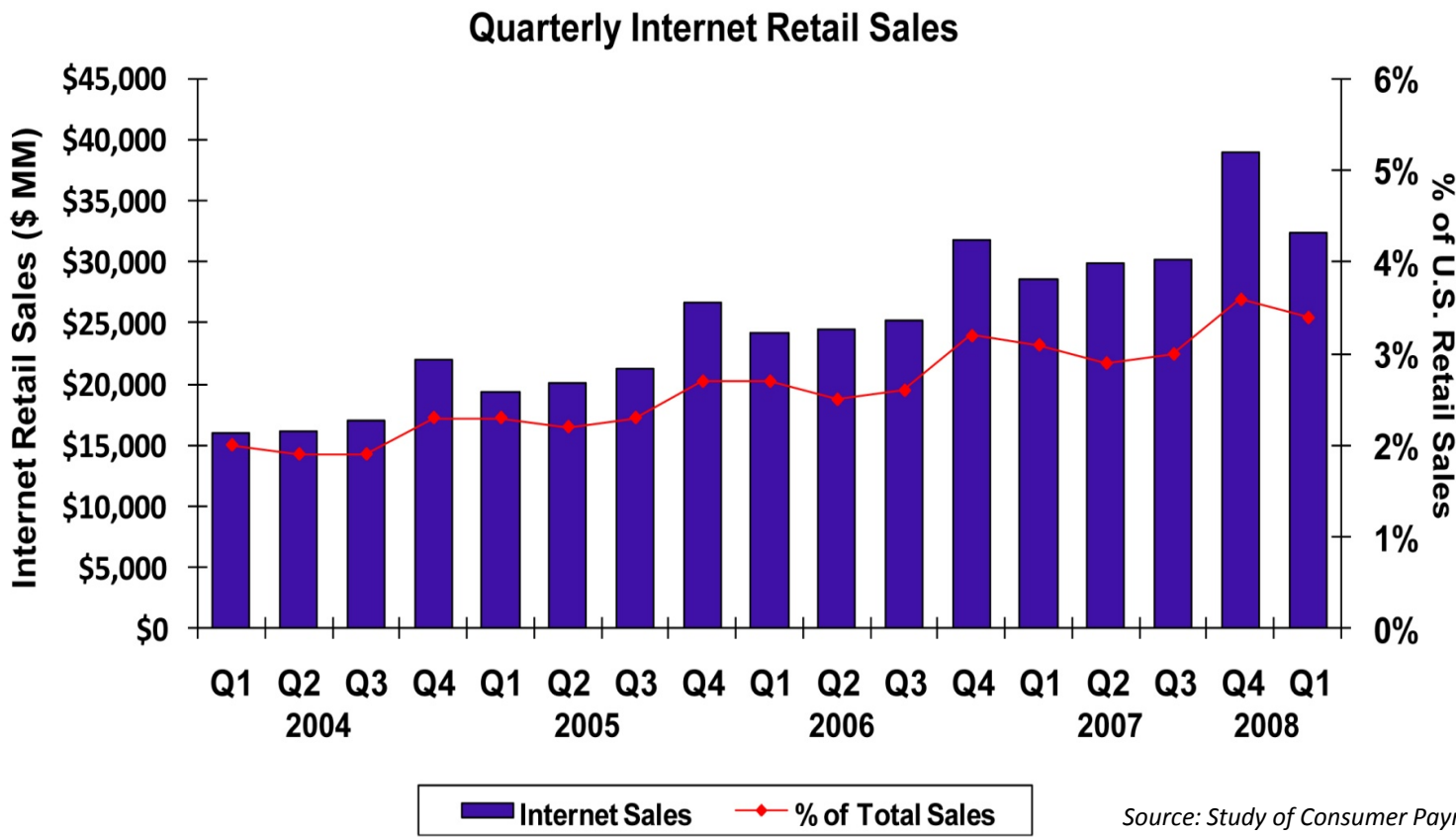
AGENDA

- Growth of e-commerce
- Evolution of Online Payment Service Providers
- Consumer Internet Payment Trends
- Risks & Regulations
- Looking Forward



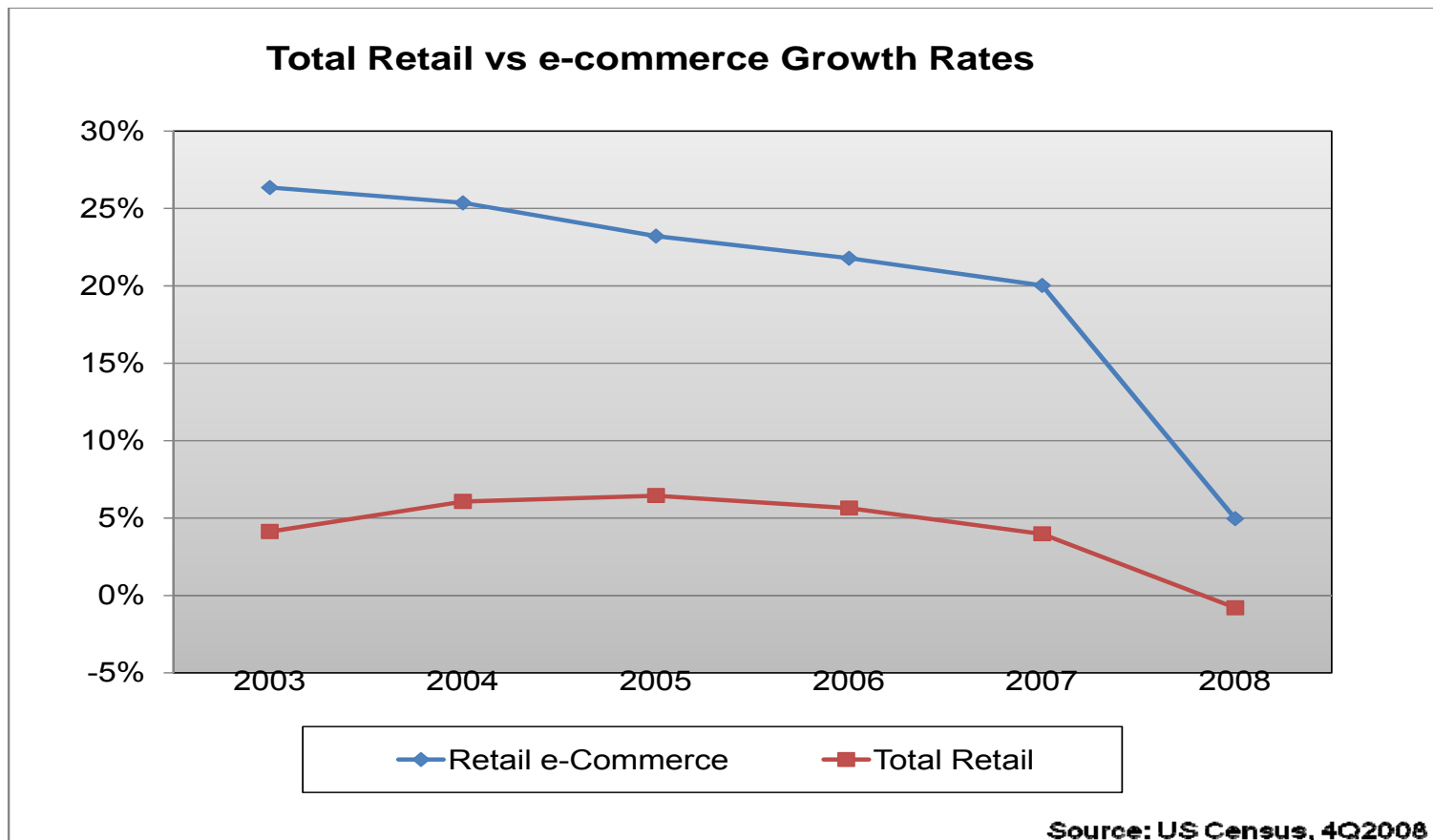
e-Commerce Sales represented 3.3% of Total Retail Sales in 2008

Percentage continues to grow even as overall growth rates decline



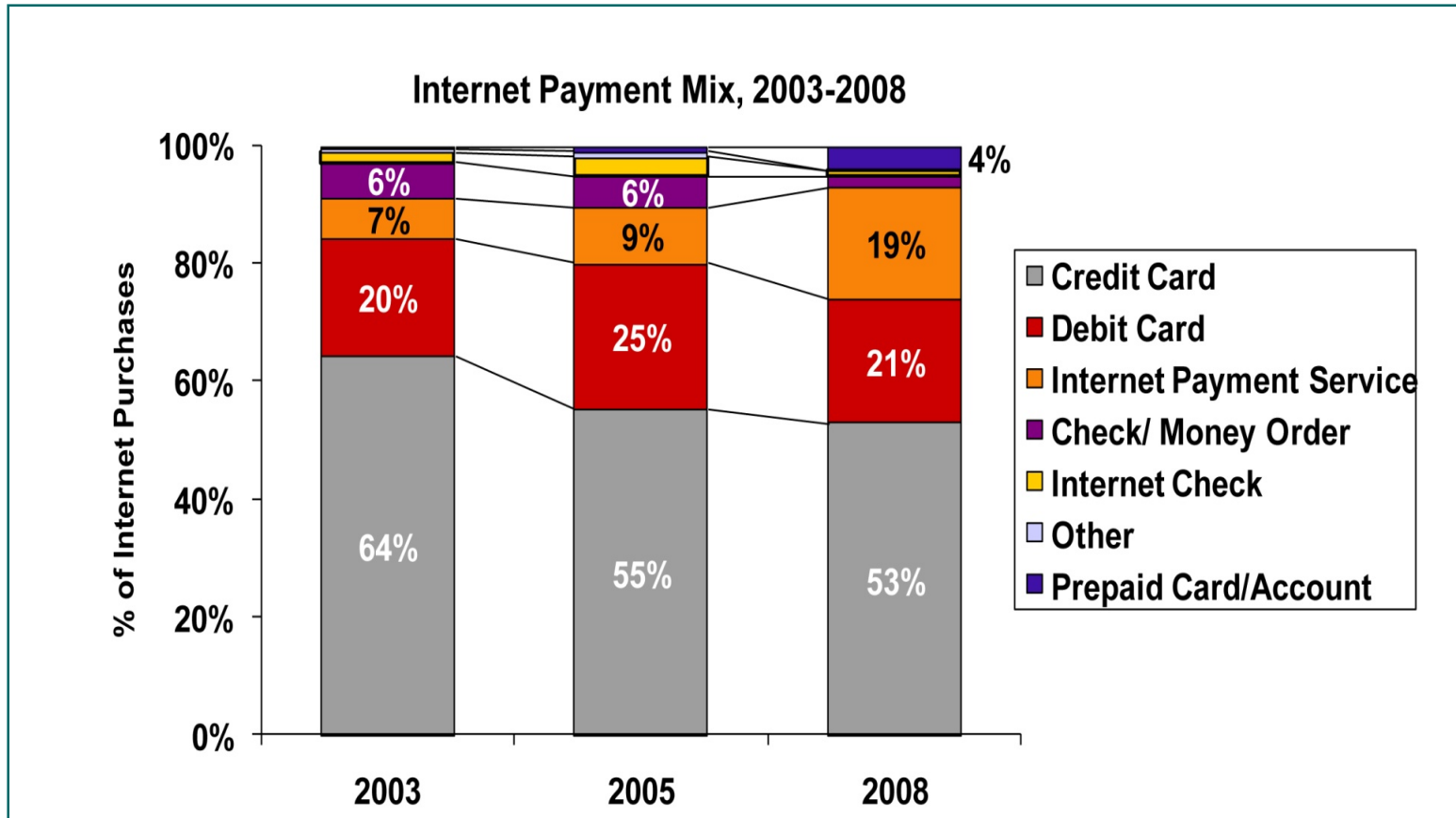
Source: Study of Consumer Payment Preferences 2008, Hitachi & BAI.

U.S. Retail e-Commerce Growth Rate declines sharply in 2008

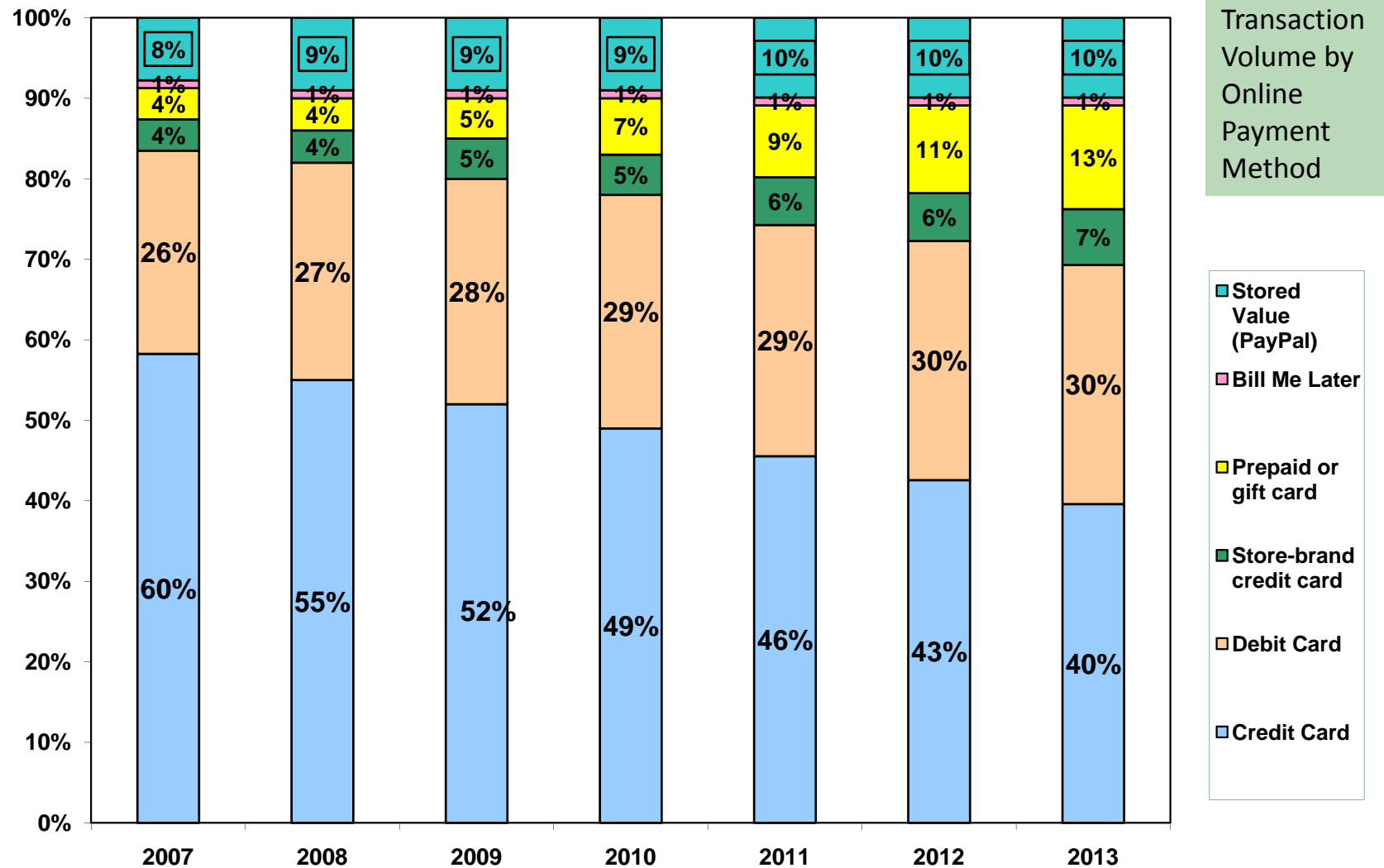


Electronic payments are 98% of Internet purchases

Most Internet Payments (74%) are still card-based



Trend for Internet purchases shifting to alternative online payment methods





EVOLUTION OF ONLINE PAYMENT SERVICE PROVIDERS

What is an Online Payment Service Provider?

- A non-bank payment intermediary that enables completion of an Internet purchase between a buyer and a seller without sharing the buyer's personal or financial information with the seller (merchant)
- OPSP may offer alternative payment methods instead of/in addition to credit card
- Alternative payment methods usually process/settle over the existing payments networks:
 - ACH, EFT/Debit, Credit Card, Check 21
- May offer card acceptance services and act as merchant of record for small Internet merchants

Before 2000 e-Commerce used for Internet auctions

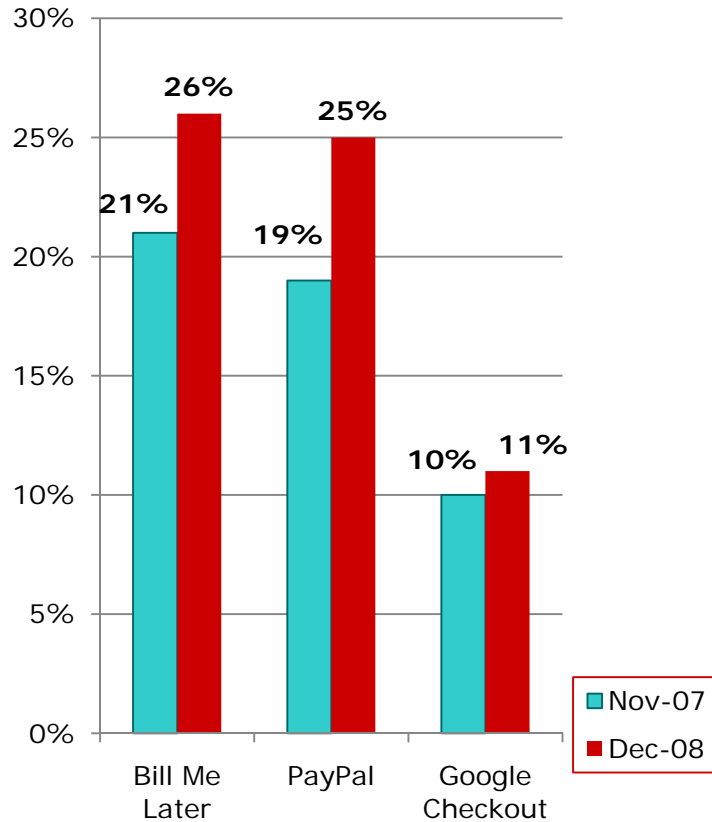
- Payment options limited to offline methods, e.g. checks.
- Little credit card use
- First OPSP created by dot.com start-up in 1999 to electronify online auction payments (later became PayPal)
 - Replaced slow check payments (5 days to clear)
 - Provided immediate payment
 - Helped small online merchants not equipped or eligible to accept credit cards (low volume, too risky)
 - 'Rode the rails' of traditional payment networks (ACH, EFT, credit card)
 - Used email to deliver payment information

e-Commerce expanded to Internet merchant purchases

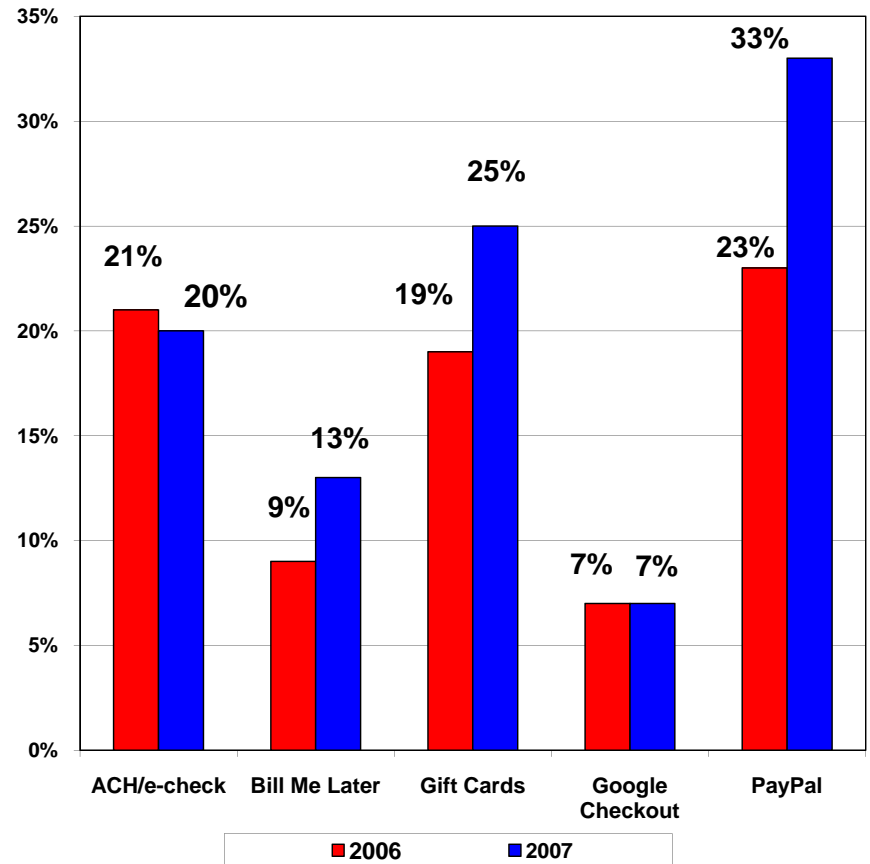
- Use of credit card payment method still a problem for e-commerce merchants
- Financial Institutions had no viable alternative payment solutions
- Non-banks saw opportunity to enter the Internet payments market & meet consumer/merchant demand for safer & convenient Internet payment options
 - Offered choices for consumers without credit cards
 - Provided alternatives to merchants
 - Some OPSPs enabled merchants to offer credit card indirectly
 - Enabled additional revenue from new customers
 - Offered lower transaction costs than interchange fees
 - Reduced fraud rate with guaranteed payment

More merchants adopting alternative payment methods

Comparison of Online Merchant Adoption (%)



100 Leading online retailers, Rosetta.com, January 2009.



300 online merchants, CyberSource, 2007, 2008.



OPSP LANDSCAPE – WHO ARE THE PLAYERS?

Online Payment Service Providers not much different than any other set of innovations

- Many in the market
- Very few well-known, mature, or have critical mass
- Few big players
- Most are small start-ups, shaky clones
- Few will survive long-term
- Some will be bought, change business model or fail

PayPal
Google Checkout
BillMeLater
eBillme
Western Union
iKobo

Amazon Payments
Secure Vault Payments
Moneta
Revolution MoneyExchange
MyEcheck
noca Secure Check
mazooma
Acculynk PaySecure
NYCE SafeDebit

Online Payment Service Providers...**RIP**

Few have experienced long-term success.....and have tried & failed. The list keeps growing.

Citibank C2it	(2003)
eBay BillPoint	(2003)
Yahoo! PayDirect	(2004)
BidPay (FDC)	(2005)
Payko	(2006)
Payko	(2006)
StormPay*	(2006)

**Changed model auction only*

EasyPay80	(2006)
Money Zap	(2007)
BitPass	(2007)
GreenZap	(2007)
PayStone	(2008)
SafePaySolutions	(2008)
PaidByCash**	(2008)

***Changed model*

Survival of the Fittest

Characteristics of Successful Providers

- Critical mass – Active customer base
- Trusted/Good reputation
- Viral marketing
- Strong risk mitigation and customer service
- Well-known brand or bank
- Niche market, product differentiation

...and the Not so Successful

- No payments experience
- No customer demand, low membership
- Didn't address risk, fraud, customer complaints
- Naïve – assumed easy entry guaranteed success
- Focused on easy, quick way to make money
- Encountered legal issues/shut down

OPSP Model Framework

- New participants enter (& leave) regularly in this evolving market
- Model framework helps analyze the different companies, making it easier to identify and compare costs, benefits, and risks
- OPSPs map to one of several *models*
- Each model combines different payment features
 - Payment methods offered
 - Funding sources
 - Financial or personal information stored
 - Settlement and payment channels
 - Some OPSPs are hybrid models depending on services they offer

OPSP Payment Models & Players

<p>e-Check ACH or Check21 debit from consumer checking account to merchant. Pay now.</p>	<p>ACH e-check (WEB) Moneta NOCA SecureCheck MyEcheck (C21)</p>
<p>Stored Value/Money Transfer Pre-load funds to non-bank proprietary balance account or debit card to transfer money online.</p>	<p>PayPal Amazon Payments Ikobo, Xoom Revolution Money Western Union</p>
<p>Instant Credit Real-time credit approval at time of transaction. Deferred billing - Pay Later.</p>	<p>Bill Me Later PayPal Pay Later Cred-Ex</p>
<p>Online Banking Pay for internet purchase via Online Banking Bill Pay function.</p>	<p>eBillme Secure Vault Payments Mazooma</p>
<p>e-Wallet One online account to access & pay multiple web merchants.</p>	<p>Google Checkout</p>
<p>Virtual Card One-time or reloadable debit or credit card number generated via Internet to purchase online.</p>	<p>PayPal debit ShopSafe credit (BAC) Safe Debit (NYCE) SafPay VirtuCard</p>
<p>Internet Pin Debit Link to online banking system. Use bank debit card & floating PIN.</p>	<p>Acculynk PaySecure</p>



OPSP PROFILES

E-CHECK



noca Secure Check™

- Start-up by former VISA executives
- Facebook pilot in 2008, Beta launched February 2009
- Claim number of merchants in triple digits, mostly sites with micropayment transactions*
- Merchant value - Low cost fee structure
- Risks
 - Consumer must give OPSP direct access to his bank account
 - **noca** saves personal information (bank account number, password) to access bank account & verify funds
 - Claims end-to-end encryption & PCI compliant data storage
- Other Challenges
 - Consumer demand & value?
 - How is this different than other e-check OPSPs?

**Source: noca founder, Gupta.*

noca

Secure Check™

Process

Pay now using Secure Check™ Powered by noca

Leena Rao
leena@techorunch.com
2-8-2009

PAY TO THE ORDER OF Klatcher com \$ 10.00
Ten Dollars And No Cents DOLLARS

For Leena Rao

Routing Number Account Number

Account Type:
 Checking Savings
[Where can I find my routing number and account number?](#)

Submit

CANCEL

Cell Phone for verification
Provider: AT T
Must be text message enabled

SiteSafe™ Feedback?
If you're having trouble call us:
650-366-6100

- At registration, consumer completes e-check (above) by entering account information, name, address, email (for customer to view transaction details at noca.com site)
- For future purchases, consumer verifies bank account & pays with single click
- noca creates ACH debit using customer bank account information



- In operation since 2006, (originally owned by CheckFree)
- 75,000 enrolled users, 10 merchants (as of October 2008), including Delta Airlines
- Enrollment
 - Customer opens account with FI name, DDA account number to establish credentials
 - Moneta verifies account directly with customer's financial institution
- Checkout
 - Customer picks <Moneta>, enters username & password, confirms payment amount
 - Moneta authorizes & approves transaction
 - Funds clear through ACH
- Benefits
 - Alternative to credit card for airline ticket purchases
 - No personal information shared with merchant
 - Lower cost to merchant; revenue to partner banks
- Risks
 - Consumer - Moneta stores consumer online banking credentials
 - Merchant – bears fraud liability



OPSP PROFILES
STORED VALUE/MONEY TRANSFER
E-WALLET
INSTANT CREDIT



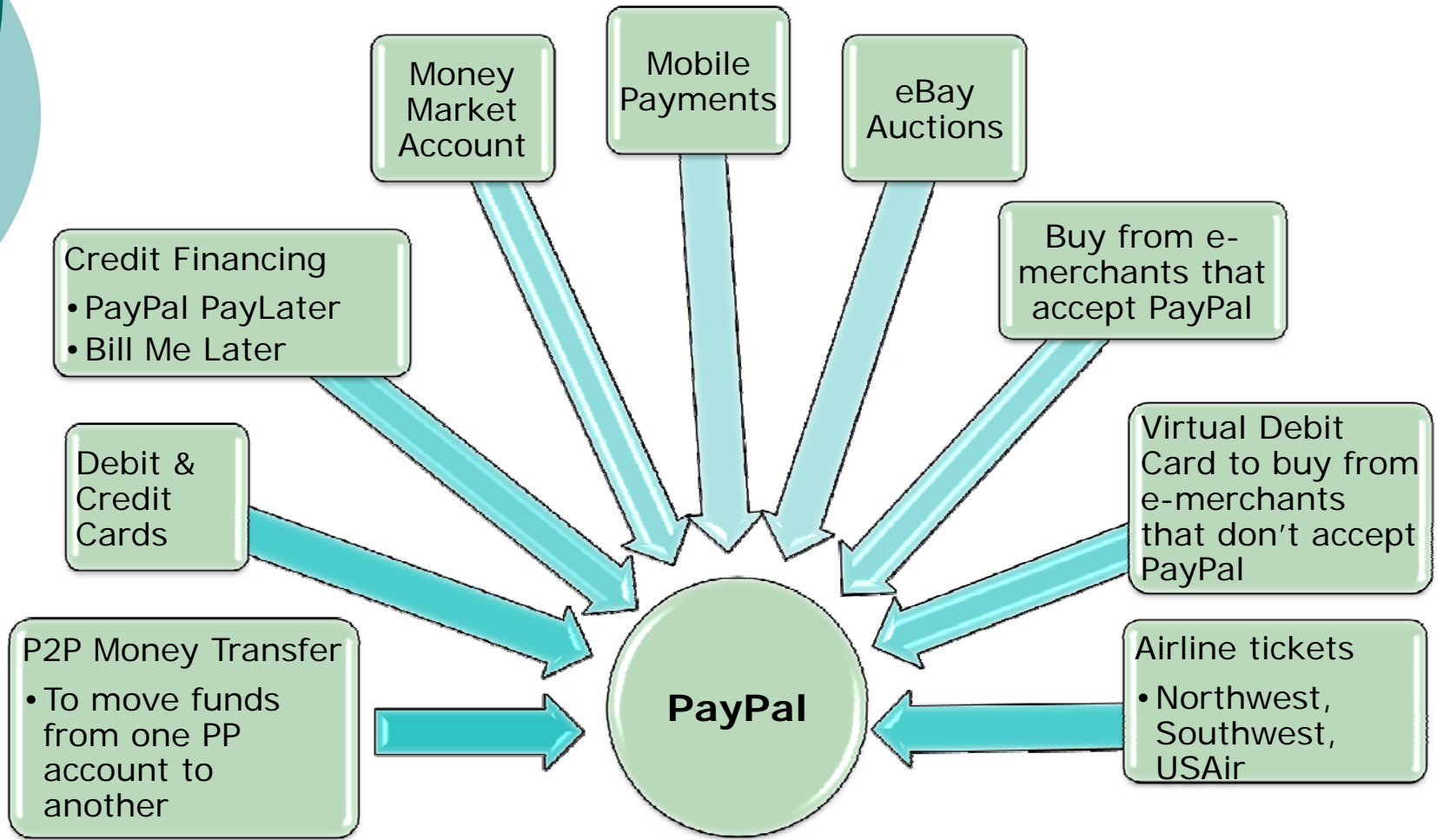
Stored Value/Money Transfer Model

PayPal still dominates OPSP market

- | | |
|---|---|
| <ul style="list-style-type: none">▪ eBay company▪ 193 countries▪ 18 currencies▪ 175 MM accounts<ul style="list-style-type: none">▪ 70 MM active▪ 15% of U.S. e-commerce business▪ Over 1 million merchants<ul style="list-style-type: none">▪ 35 of top 100 online▪ 51% of transaction volume from merchants vs eBay (3Q08) | <ul style="list-style-type: none">▪ International business = 45% of revenue (4Q08)▪ 68% of PayPal accounts use credit cards as <i>one</i> of their funding sources▪ 28% of accounts only funded with credit card▪ 50% of PayPal accounts funded with credit <i>or</i> debit card |
|---|---|

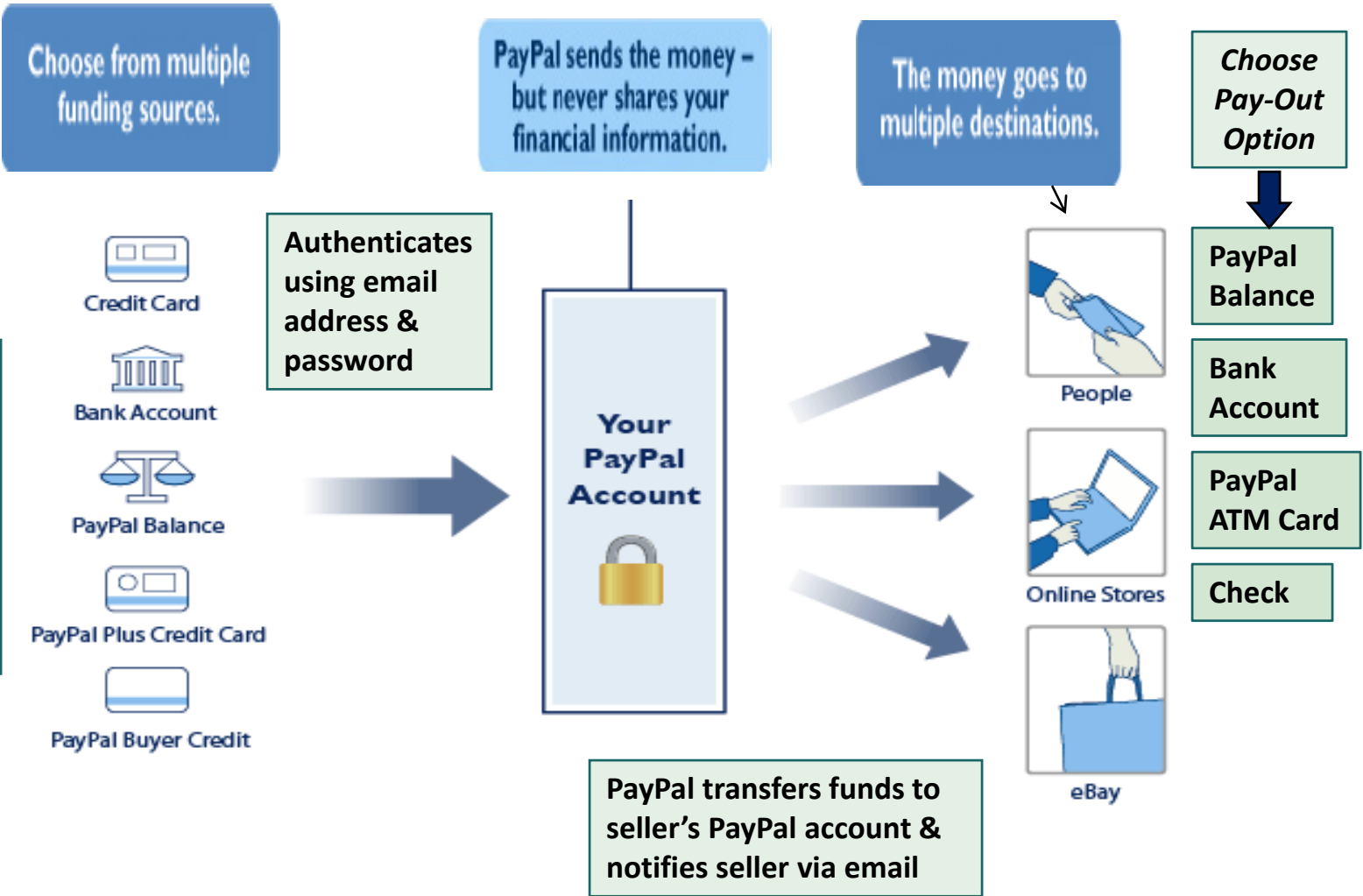


Many Features and Uses





Process



- | | |
|--|--|
| <ul style="list-style-type: none">■ amazon.com[®]
trusted internet retailer brand■ Huge customer base<ul style="list-style-type: none">■ Almost 90 million active buyers■ Links to original amazon.com account | <ul style="list-style-type: none">■ Registration required■ No personal or financial information shared with merchant■ Features of e-wallet & stored value account■ Beta 2008, live 2009 |
|--|--|

amazon payments

Process



1 When your customers are ready to buy, they select the Amazon Payments radio button and click your Continue button.



2 Customers are taken to the Amazon Payments website.



3 Customers choose a payment method and make the payment.



4 Customers are returned to a URL that you specify. Amazon Payments sends a confirmation e-mail to you and the customer.

Customer logs in with email address & password

Customer funds with credit or debit card, bank account, or amazon payments stored value account



e-Wallet Model

- Major Brand Name
- Launched June 2006
- Strong advertising links
- Critical mass - large customer and merchant base
- Adopted by 25% of top 500 e-retailers
- Still way behind PayPal
 - 500,000 merchant websites*
 - 6 MM accounts (2008)
 - 2009 increased fees & eliminated ad discount
- Registration required
- Fund with credit card or signature debit card
- Authenticate with email address & password at check-out
- Single log-on & payment thru Google to buy across web
- Google stores email address, password, credit card number, CCV
- No personal or financial information shared with merchant

*Investors Business Daily, January 2009

Instant Credit Model

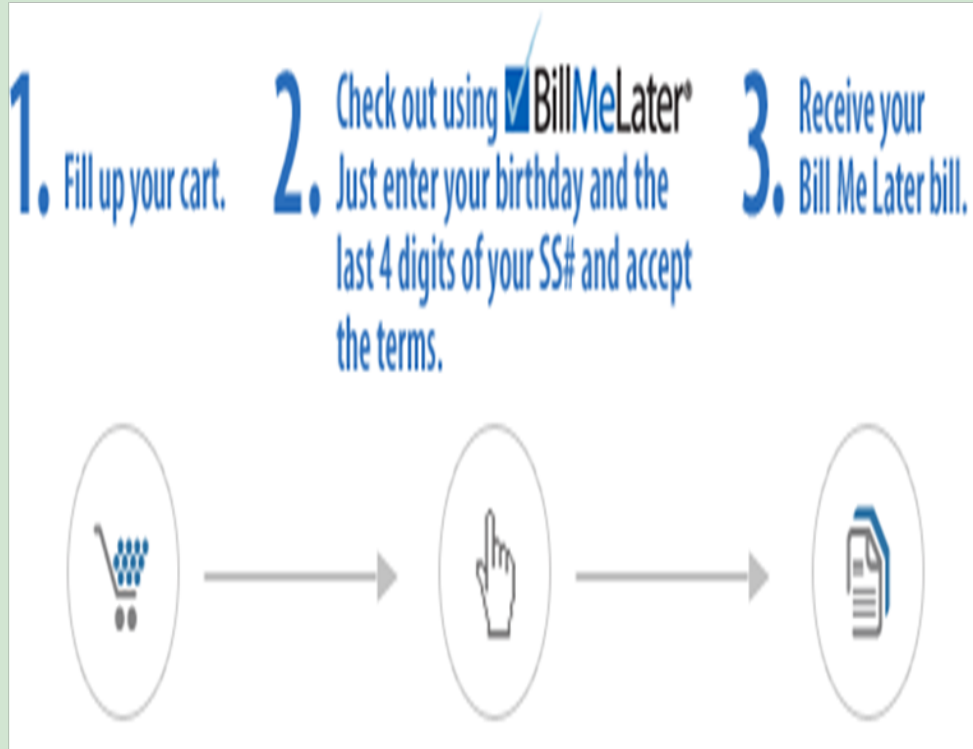
- Credit-like transaction-based payment method
- Easy, safe & convenient way to pay online for credit-card averse consumers who want to pay later
- No bank or credit card account information required
- No personal or financial information shared with merchant
- Lower merchant cost



- 4 million users, U.S. only
- 36% annual growth in payment volume
- Over 1000 e-retailers; 30 of top 100
- Higher ticket items (travel, electronics) & larger merchants than PayPal
- eBay bought in 10/08. This complementary payment method creates a powerful combination with PayPal



Process



*Instant credit
decision*

*Deferred
billing*

- 4-second background Credit Check
- Full credit report review first time buyer, then periodically
- Pay bill however other monthly bills paid
- Pay full balance or as revolving credit with monthly finance charge



Online Banking Model

- Customer Benefits
 - Leverage customer trust in FI
 - Use of online bill payment system
 - Private: No account information shared with merchant
 - Online 'cash' alternative to credit card
- Bank/Merchant Value
 - New revenue, potential new online banking customers
 - Good funds guaranteed to merchant
 - Drive more traffic to bank website
 - Help maintain customer stickiness
- Issues
 - Must have online bank account
 - To achieve critical mass need merchant & FI acceptance



- 200 merchants (1/2009)
- Transaction volume tripled from Year-end 2007 to Year-end 2008
- Merchant
 - Lower cost
 - Guaranteed payment
- Owned by ModaSolutions
 - U.S. & Canada
 - Three years old
- No eBillme registration
- Authenticate and pay at online banking site
- No FI interface to eBillme
- Personal/financial information not shared with merchant



Process

CONSUMER

MERCHANT

Consumer enters email address on merchant website for ebill

1. Select eBillme at checkout

7. Fulfillment

3. eBill

2. Transaction info
6. Payment info

4. Pay eBill



eBillme pays merchant

5. Payment info

MasterCard
RPPS

Processing Network

CONSUMER'S BANK

MERCHANT'S BANK

Customer receives ebill instructions & logs into online banking

eBillme set up as payee only once



- Developed by NACHA
- Pilot since Q2/2008
- Benefits
 - Buyer pays through online banking function
 - Bank authenticates buyer, reducing fraud risk
 - Real-time authorization of good funds to merchant
 - Access to 12,000 NACHA members & hundreds of merchants
- Issues
 - Merchant must connect to SVP switch to offer SVP option & access all FIs in SVP program



Secure Vault Payments™

Process



Consumer keys FI name & is routed to online banking site to initiate payment.



Customer logs on, selects account to debit & confirms purchase

FI routes customer back to merchant site



FI sends merchant real-time authorization, payment confirmation

FI transfers funds via ACH credit by next business day to merchant account

- Hybrid online banking/
e-check ACH model
- Customer Risks
 - Registration requires phone #, SS#, DOB, email address
 - Consumer provides bank credentials to **mazooma**
- Merchant receives instant notification of completed transaction
- Lower merchant cost

Customer picks <**mazooma**> at checkout & signs in with **mazooma** username & ID

Customer selects FI from drop down menu

Keys username & password to sign in to online banking. Allows **mazooma** to verify funds, confirm consumer ID, & authorize funds transfer.

Customer sees purchase amount & approval button.

Customer approves & returns to merchant

mazooma informs merchant purchase complete

Merchant issues receipt & fills order

Next day ACH settlement



OPSP PROFILES
VIRTUAL CARD
ONLINE PIN DEBIT

The SafPay logo consists of the word "safpay" in a lowercase, sans-serif font. The "sa" is in orange and "fpay" is in blue. The logo is enclosed in a thin orange rectangular border.

Virtual Card Model

Cash-based virtual (debit) mall card

- Niche market - Online payment alternative for high risk merchants & consumers who want to keep their purchases anonymous
- Consumer funds reloadable VC account up to \$1000 through online bill pay service
 - Can cash out balance on card for a small fee
- Safe, private shopping experience
 - Neither SafPay nor merchant has access to consumer checking account or consumer purchase information
- In pilot with selected merchants since November 2008. U.S.only.

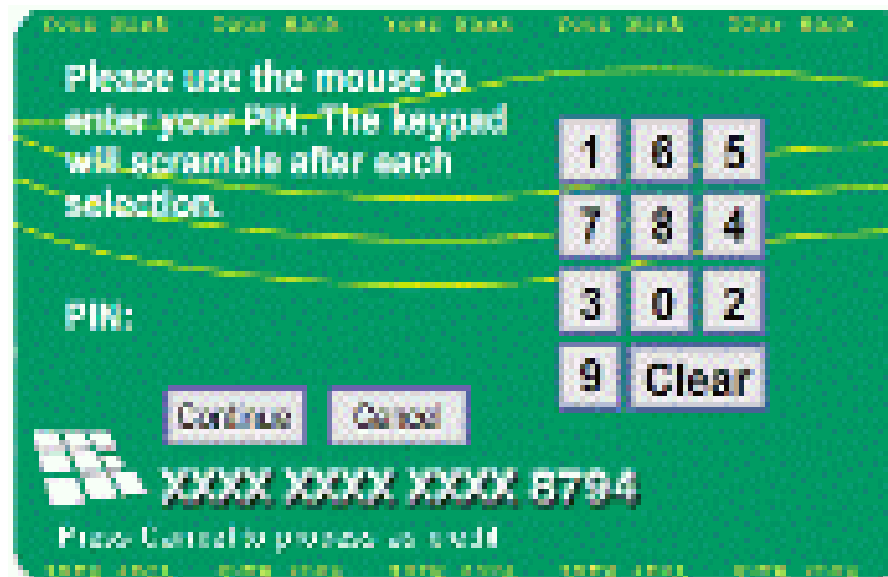
- Integrates Pin Debit & *floating* PIN pad technology into merchant's online checkout system
 - Consumer pays with bank debit card & PIN
 - Issuer name appears on screen
 - Lower merchant fees
 - Pilots launched in March 2009 with Pulse, NYCE, Accel/Exchange
- Floating PIN Pad Security
 - Pay safely online with PIN debit
 - Floating PIN encrypted after digits keyed
 - Does not travel over payment channel as the actual, numerical PIN
 - Prevents PIN key logging
 - PIN & debit card number transmitted separately to Acculynk

At Merchant checkout

- Consumer enters debit card number, expiration date and CVV
- PaySecure verifies if card can be used with PIN
- If yes, Acculynk displays graphical PIN pad →
- Customer enters PIN
- Processed as debit over EFT rails
- Can opt out of PIN & process as signature debit

Please use the mouse to enter your PIN.

The keypad will scramble after each selection.

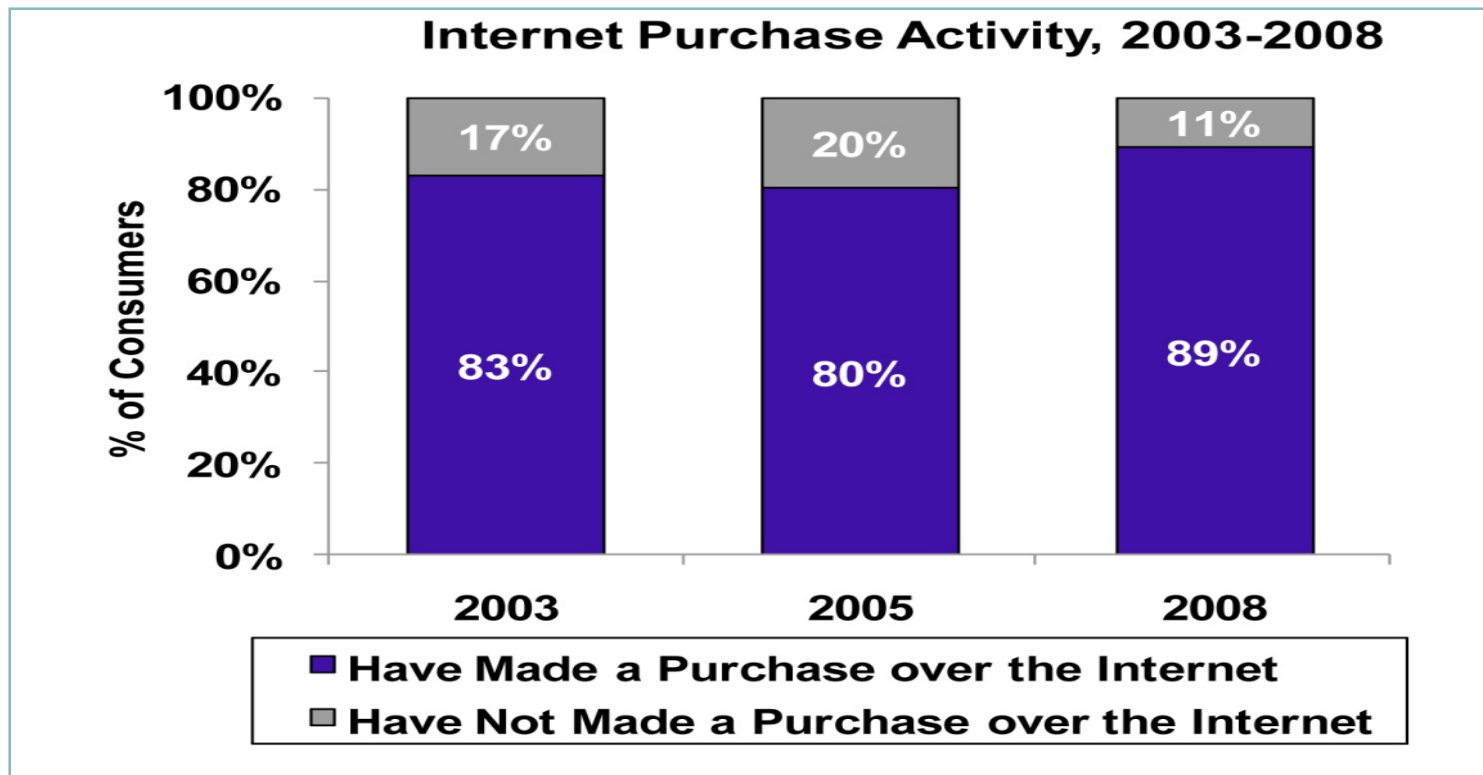




CONSUMER INTERNET PAYMENT TRENDS

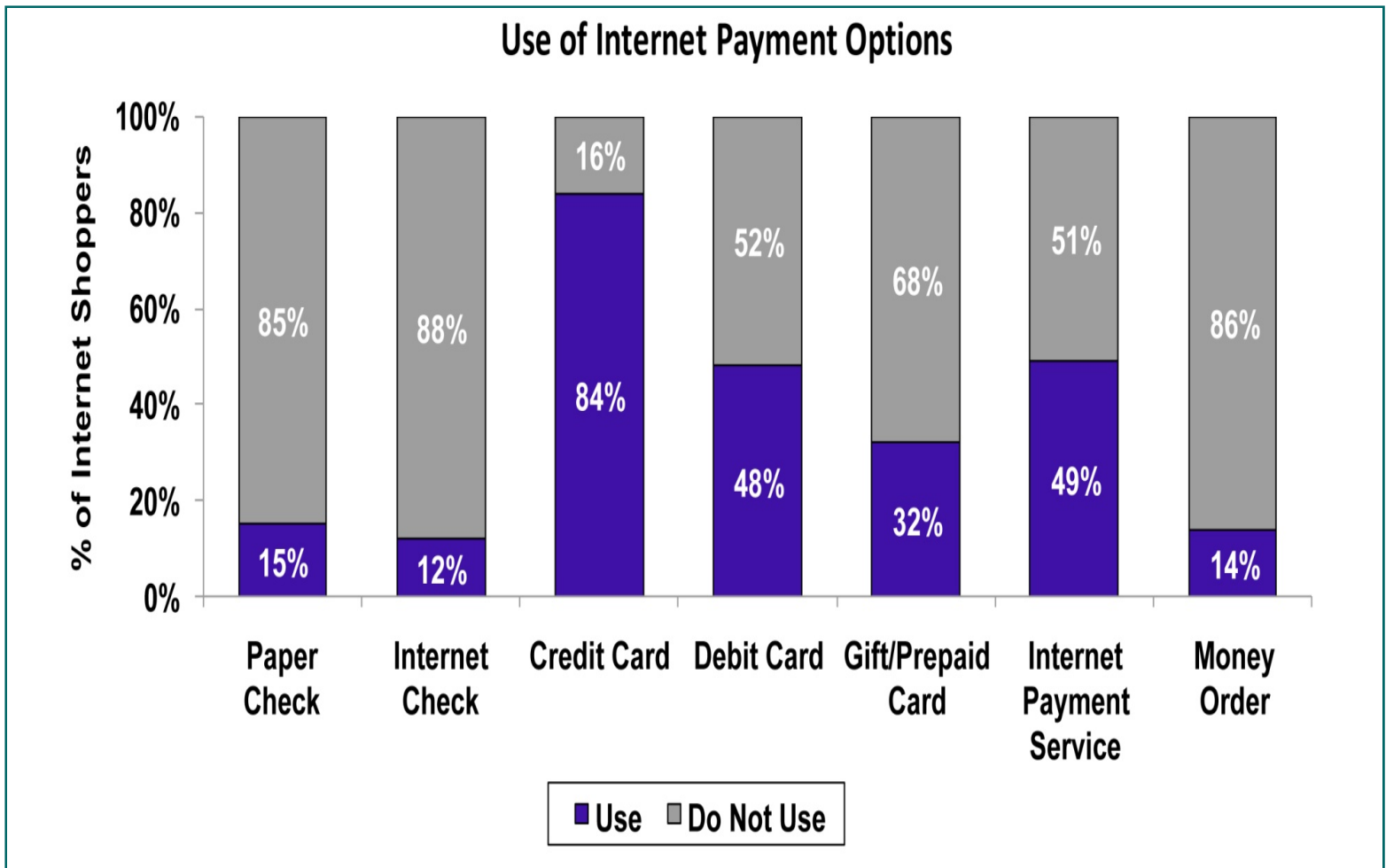
More consumers are making Internet purchases

Almost 90% of consumers made at least one purchase over the Internet in 2008.



Source: Study of Consumer Payment Preferences 2008, Hitachi & BAI.

How consumers pay for Internet purchases is changing



Source: Study of Consumer Payment Preferences 2008, Hitachi & BAI.

Consumer Choice – Something for Everyone

Sophisticated
Internet users

Different demographics

Credit card averse users

Online bill payment
users

Small merchants

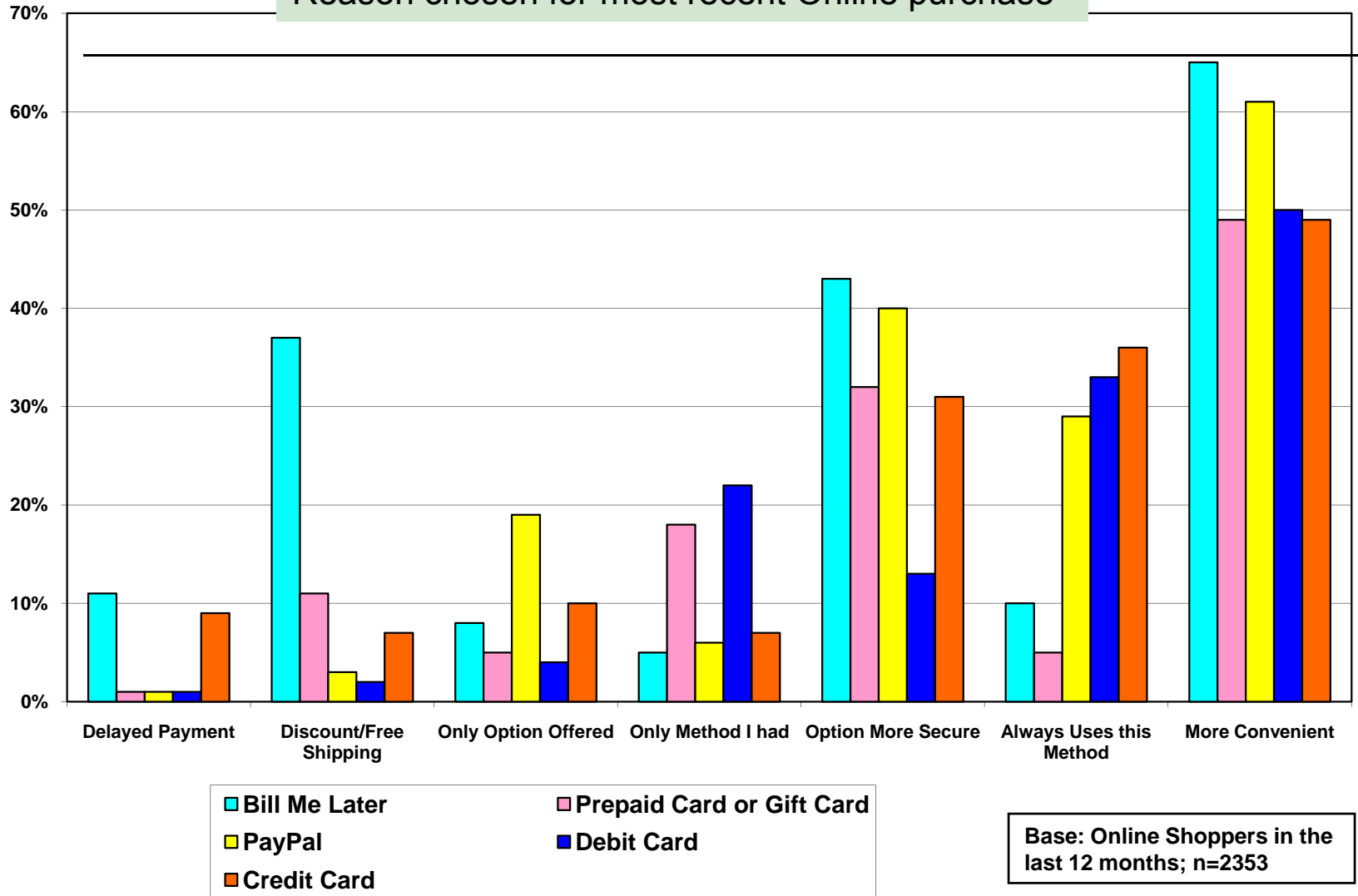
ID Fraud averse users

- Female head of household
 - ↳ *Loves to shop, highly credit-oriented*
- Internet Savvy Male Executive
 - ↳ *Loves to shop, values convenience & repeatability*
- Online Engaged Bargain Hunter – Younger Female
 - ↳ *Searching for best deal, prefers debit over credit*
- Lifestyle Shopper
 - ↳ *Rewards oriented, responds to incentives*
- In-and-Out Shopper → *Hates to shop, least likely to share personal data*
- Small Business Head → *Requires instant buying power*

Source: Glenbrook Partners, 2008

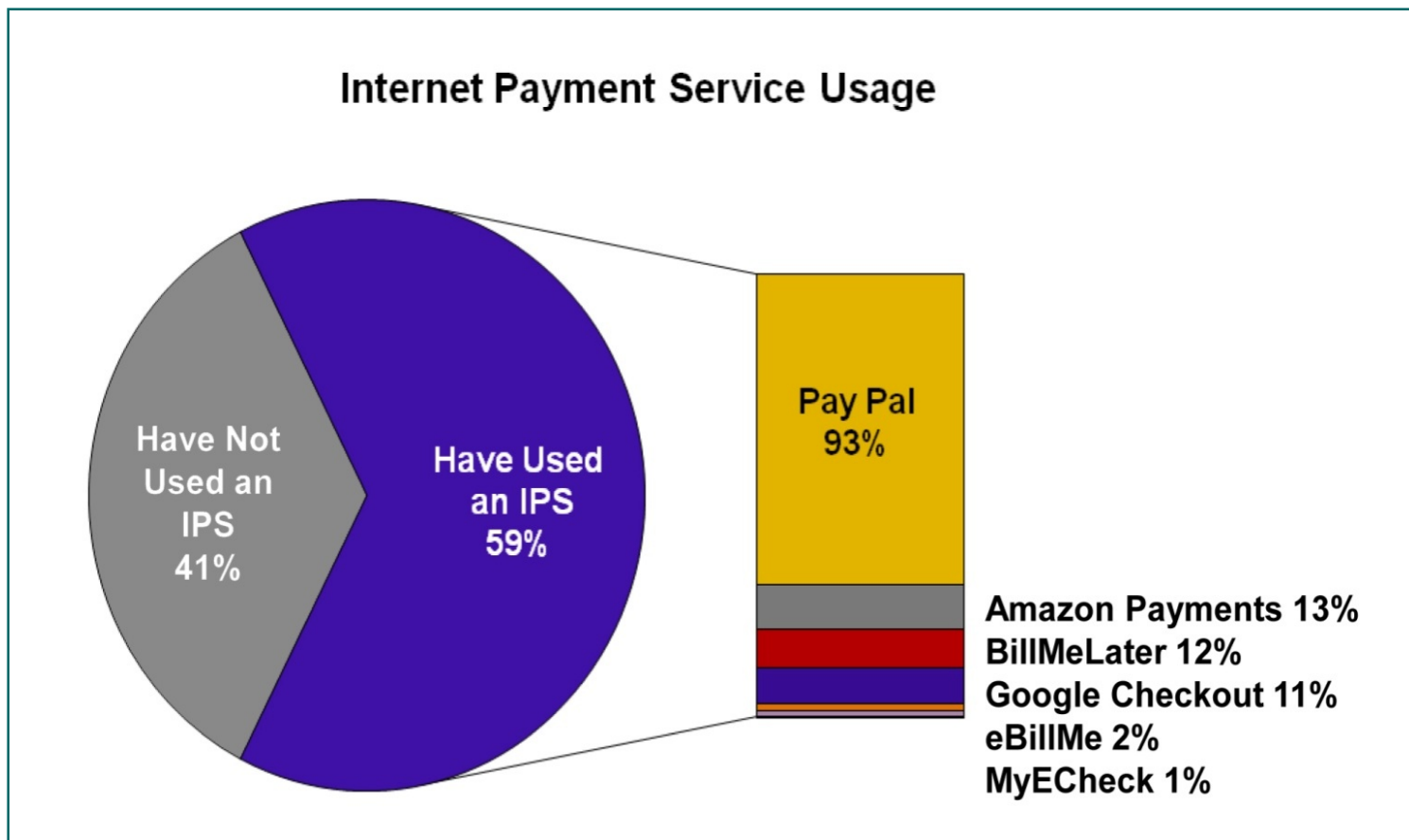
Factors Driving Choice of Payment Method

Reason chosen for most recent Online purchase



Big Gap Between Consumer Use of PayPal & Other Known Competitors

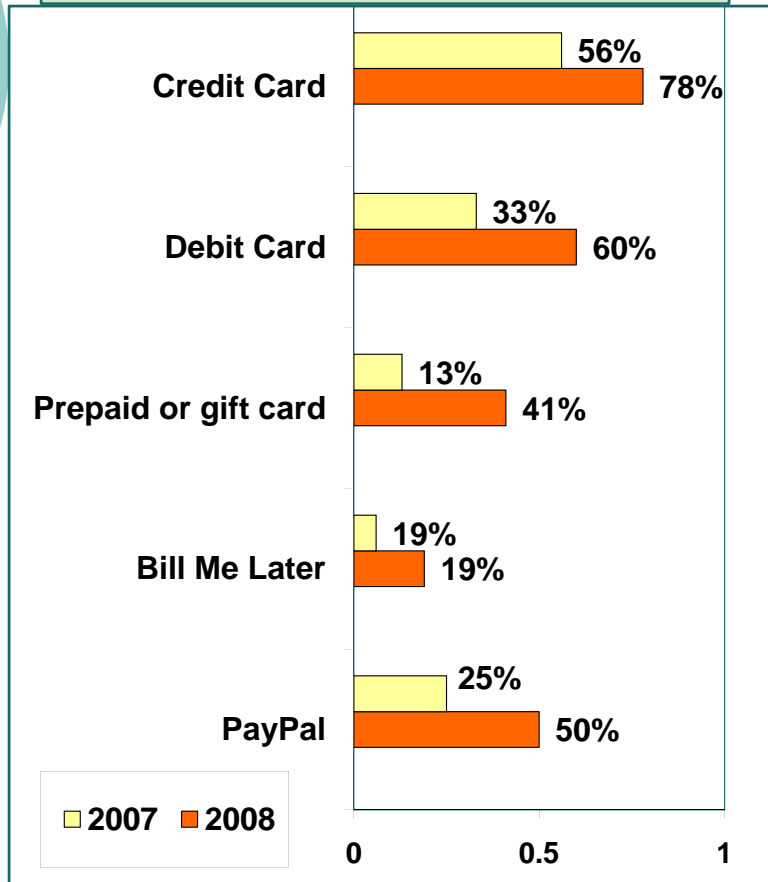
PayPal continues to dominate market, while newer entrants lag way behind



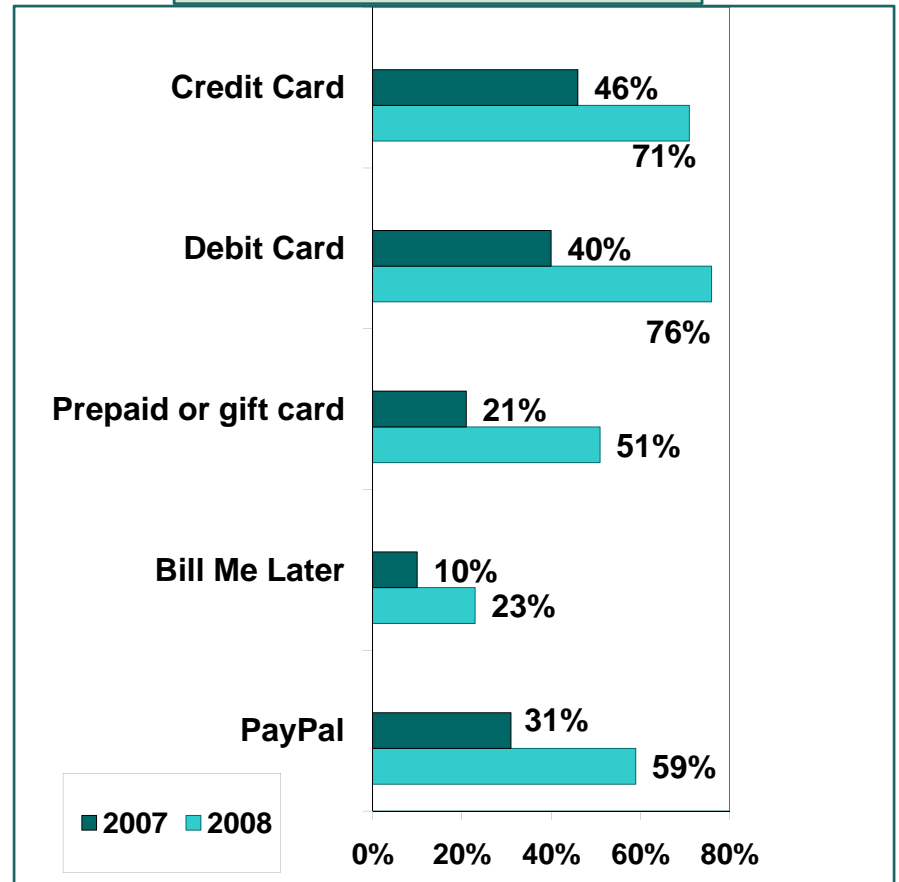
Source: Study of Consumer Payment Preferences 2008, Hitachi & BAI.

Baby Boomer vs Gen Y Use of Payment Method for Online Purchases

Baby Boomer 2007 - 2008



Gen Y 2007 - 2008



2007 n=711, 470, 2008 n= 870, 417

Base: Online Shoppers in the last 12 months

Source: Javelin Strategy & Research 2007, 2008

U.S. Seniors (70+) lead the way in adoption rates for Internet use

US Internet Users, by Age, 2005 & 2008
(% of respondents in each group)

Age	2005	2008
12-17	87%	93%
18-24	82%	89%
25-29	85%	85%
30-34	83%	87%
35-39	80%	80%
40-44	76%	83%
45-49	73%	80%
50-54	68%	78%
55-59	68%	71%
60-64	55%	62%
65-69	57%	56%
70-74	26%	45%
75+	17%	27%

U.S. Seniors are banking & making payments on the Internet

Online Activities of US Senior Internet Users, by Age, 2008
(% of each group)

	64-72	73+
E-mail	91%	79%
Use search engines	85%	70%
Research products	73%	60%
Get health information	70%	67%
Make travel reservations	69%	65%
Buy something online	56%	47%
Get news	56%	37%
Visit government sites	60%	31%
Bank online	45%	24%

Source: Pew Internet & American Life Project, "Generations Online in 2009," January 28, 2009.

...And now our children can too

Is Social Networking the Future of Internet Payment Providers?



BillMyParents is a new payment intermediary application developed for Internet social networks

Marketed as safe & secure way for children age 13 and over to shop online

Available on Facebook

Child selects *BillMyParents* on merchant site

BMP notifies parents via email of potential purchase to approve



Set up accounts for child & contributor (person who pays, usually parent)

Unique password & secret code

\$.50 fee per transaction

If parents approve, enter credit card information in BMP to complete purchase

Parents retain control over payment

Is this the Future of Internet Payment Providers?

twitter

tipjoy

twitpay

twitter

is a social networking website that allows users to share short blogs and now exchange money

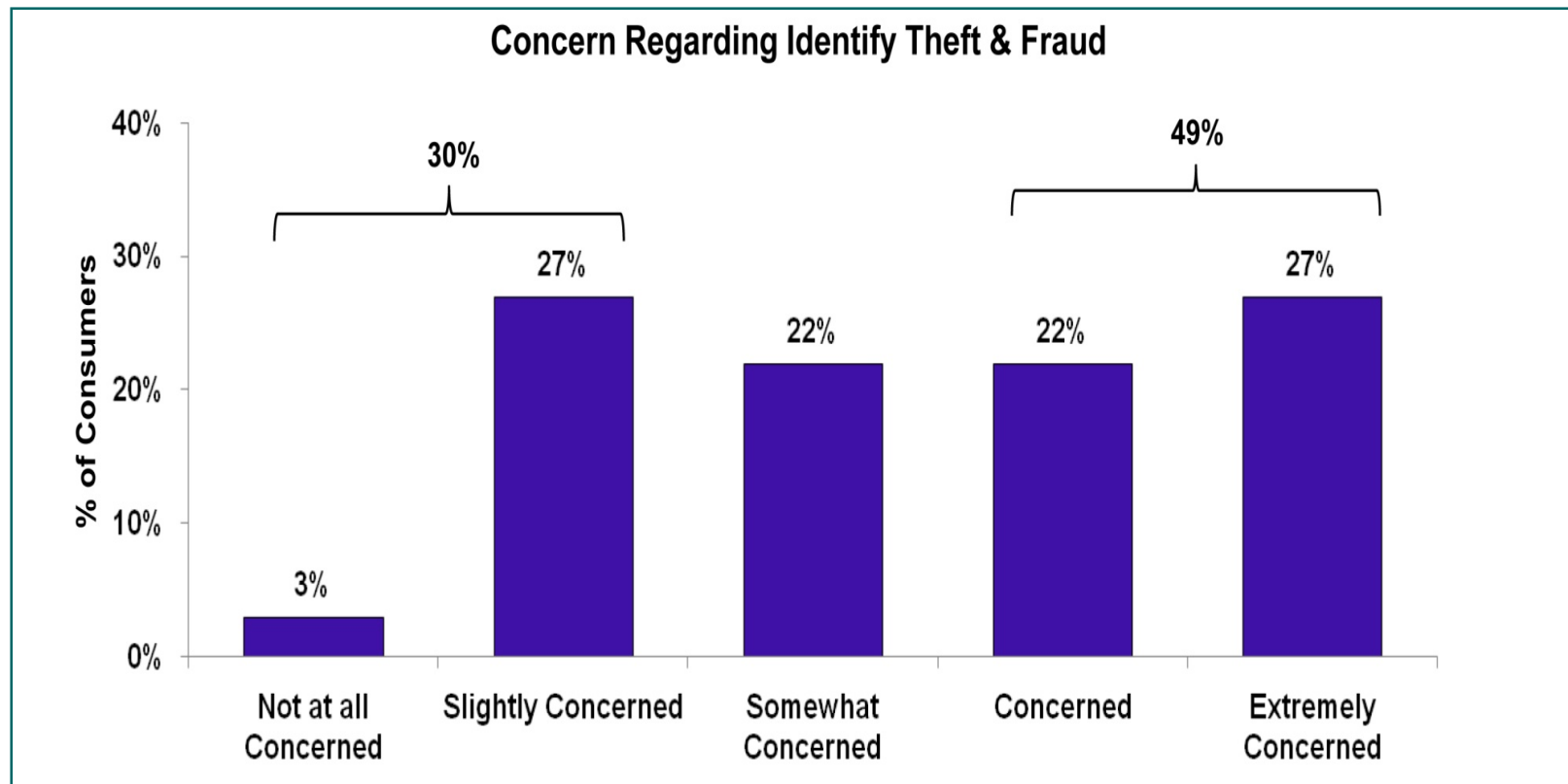
- **tipjoy** is Twitter's social payment method
 - Members can send and receive money
 - Members use PayPal to deposit money in **tipjoy** account
 - Used for tipping, small donations
 - **tipjoy** earns 3% commission when users spend their earnings
 - **tipjoy** holds unclaimed funds indefinitely
- **twitpay** is another Twitter social payment method
 - Users send & receive money from \$.01 to \$1000 via amazon payments
 - \$.05 charge for each transaction over \$.99
 - Cash out with amazon.com gift card

The Consequences – More Risk & Worry



Consumer Internet Security Concerns

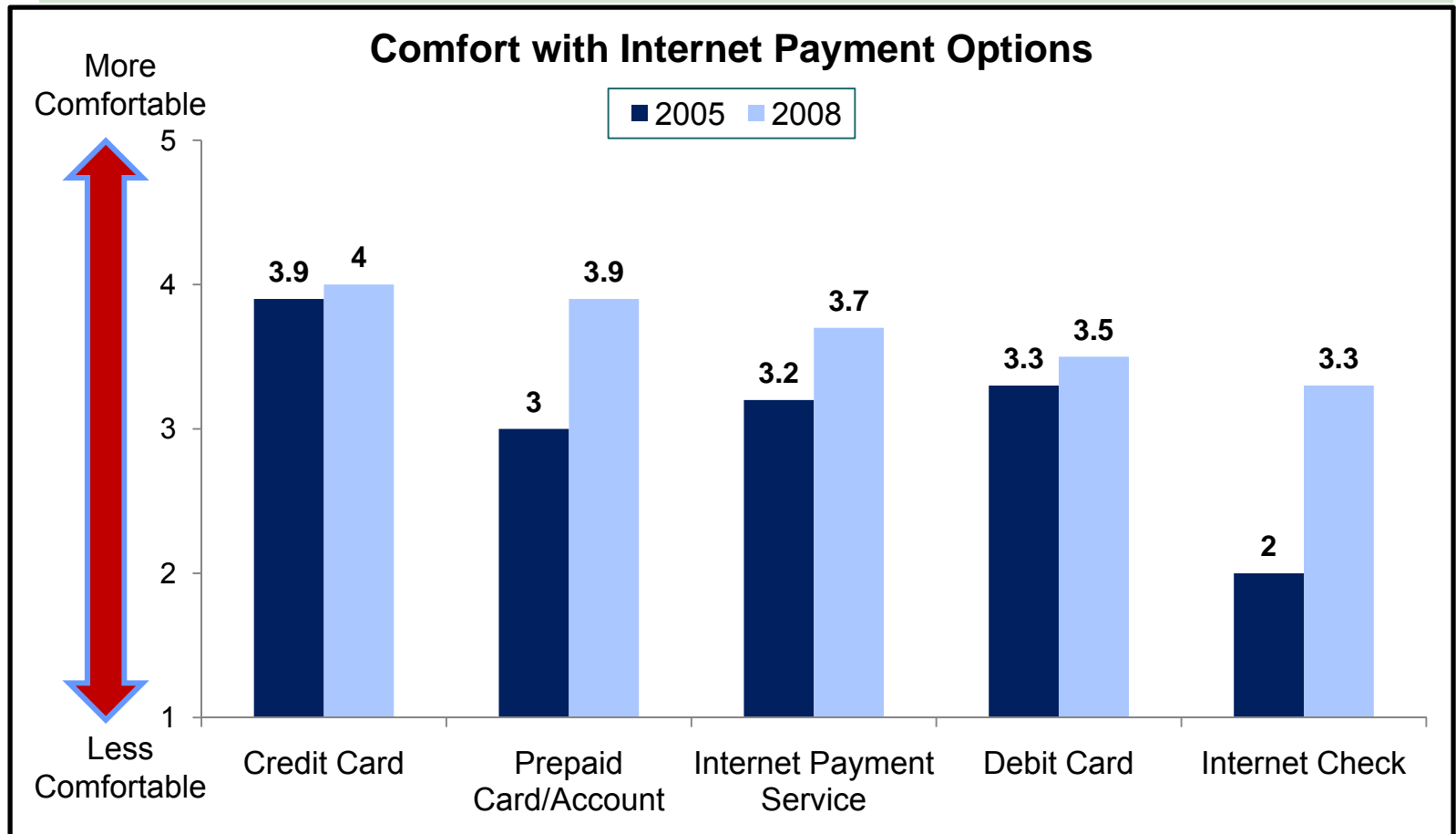
Almost 50% of consumers are seriously concerned about online Identify Theft & Fraud.



Source: Study of Consumer Payment Preferences 2008, Hitachi & BAI

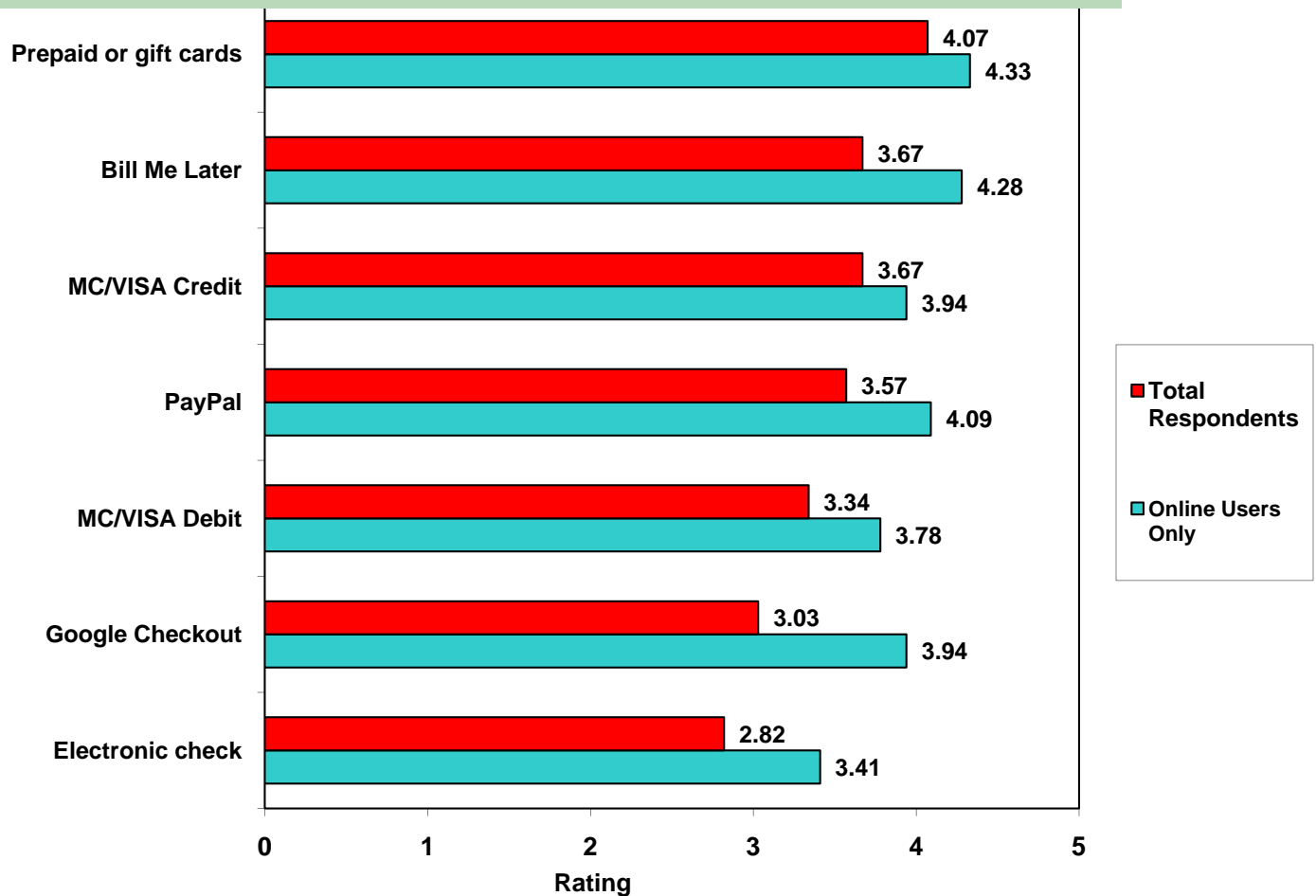
Consumer comfort with Internet payment options is increasing

Consumers are less comfortable with payment options that access their checking accounts directly. Yet some new OPSPs are offering these services.



Consumers Rank Security and Safety of Online Payment Methods

Total Population vs. Users of Online Payment Methods



1 = not safe & secure, 5 = extremely safe & secure.

The very traits that attract consumers and merchants can make OPSPs risky

- Risk level depends on how well OPSP manages and controls these traits
 - Few restrictions attract rogue players (buyers, sellers, money movers)
 - Not bank regulated, no special licenses
 - International business component
 - Anonymity (KYC important) makes fraud easier
 - Transportability and speed of money transfer
 - Online – no human interaction
 - Disintermediation – obscures data on user identity, usage pattern

Possible Consumer Impact of Risks Related to Use of OPSPs

RISK	IMPACT
Identity Theft	Loss or theft of personally identifiable information obtained illegally through fraud, deception or data breach
Personal Information & Privacy Loss	If unauthorized access to consumer's financial or other personal data occurs If sensitive non-public customer information disclosed
Financial Loss	Loss of real funds or inability to access funds
Credit Worthiness	May impact consumer's ability to meet financial obligations and hurt consumer's reputation

Risk impact (H, M, L) depends on the model and individual OPSP. Type & value of internet purchase will also impact risk of OPSP.

What Rules & Regulations Apply to OPSPs?

OPSPs subject to bank regulations depending on underlying payment method

FIs & Electronic Payments governed by

- NACHA ACH Rules
- EFTA/REG E
- UCC Article 4A
- OFAC – U.S. Treasury



- Credit & Debit Card Association & Network Rules

- REG Z - Truth in Lending Act
- Fair Credit Reporting Act



OPSPs governed by

- Terms & Conditions
 - User Agreement
 - Privacy Policy
- Money Service Business & Money Transmitter Licenses (State)
- Unlawful Internet Gambling Enforcement Act (UIGEA)
- Bank Secrecy Act (BSA)
 - Money Laundering
- Gramm Leach Bliley (GLB)
 - Data security

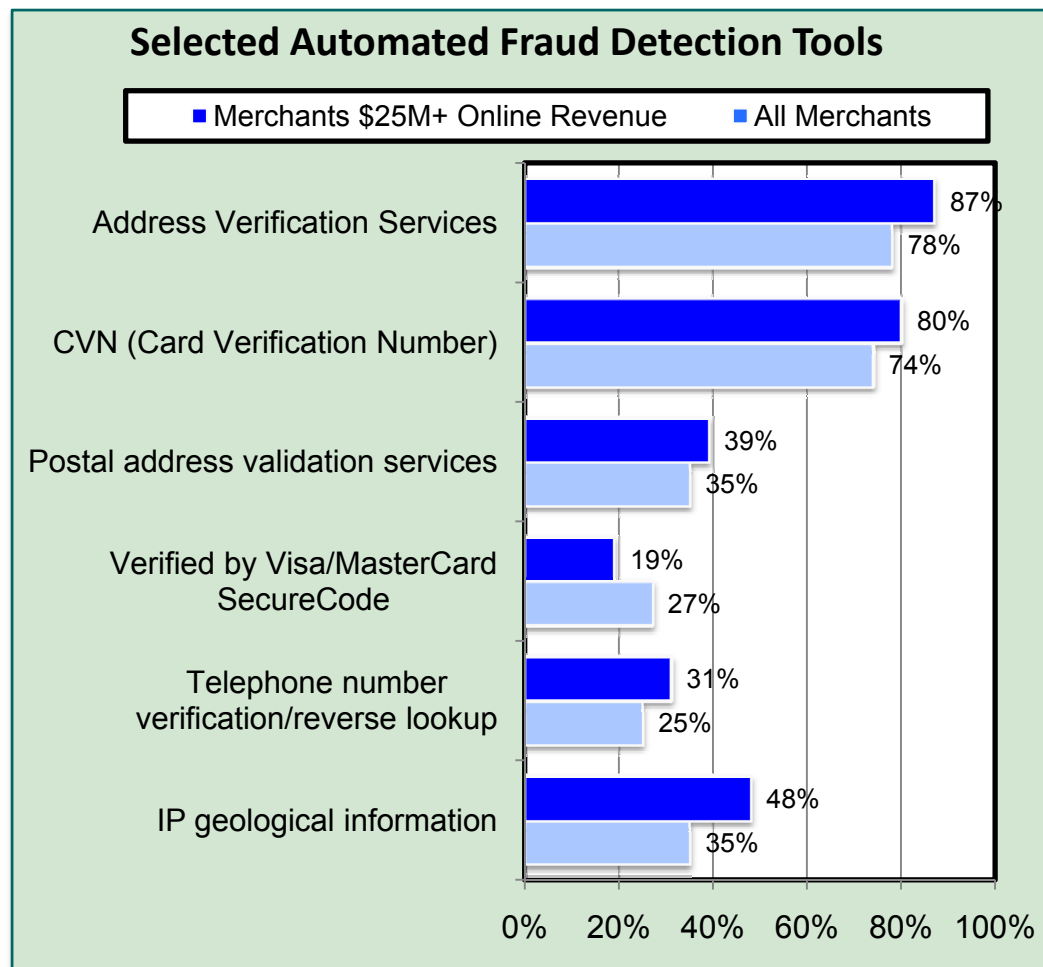
How Major OPSPs Manage Risk

	Risks	Protections
	<ul style="list-style-type: none"> Major phishing target Easy enrollment/ anonymity may encourage fraud or illicit use 	<ul style="list-style-type: none"> 100% protection against unauthorized payments from sender's account Security Key for multi-factor authentication Sophisticated fraud models Buyer/Seller Protection Programs for eBay Spoof@paypal.com www.paypal-promo.com/safety
	<ul style="list-style-type: none"> No 'payments' experience Phishing target 	<ul style="list-style-type: none"> Fraud protection – 100% refund if consumer reports transaction in 60 days Privacy policy Merchant Payment Guarantee Policy Google Buyer Protection Plan

How Major OPSPs Manage Risk

	Risks	Protections
	<ul style="list-style-type: none"> ▪ Settles with merchant ▪ Bears credit & collections risk ▪ Interest rates may be higher than traditional credit card 	<ul style="list-style-type: none"> ▪ Buyer Credit check for each purchase ▪ Merchant quality evaluation before joining BML ▪ BML handles fraud & most charge-backs
	<ul style="list-style-type: none"> ▪ Minimal – no direct link to online bank account ▪ Risks associated with traditional payment methods used to pay invoices offline 	<ul style="list-style-type: none"> ▪ Security features of online banking ▪ Good funds model: Authorization pushed to merchant with good funds ▪ Funding from bank account avoids NSF ▪ Buyer Price Protection

How Merchants Respond to Risk and Internet Fraud



- On average, merchants use 4.7 fraud tools
- Larger merchants use 6.3 tools
- 4% do not use any fraud tools
- 66% use at least 3 fraud tools

N=399

Source: CyberSource 2008 Report.

Key Take Aways

- Internet payments no longer under sole control of banking system
- Financial Institution-driven internet payments are being replaced by non-bank payment services, not subject to most bank regulations
- FIs risk revenue loss
 - OPSPs offering bank or stored-value accounts erode online purchase volume from cards
- FIs risk loss of customer relationships

Looking Forward – What Can FIs Do?

- As e-commerce grows, expect more online payment transactions from alternate payment providers – they are not going away
- Focus your services on younger generation - today's 20-somethings & teens will drive growth
- Find opportunities to partner with compatible OPSPs to offer internet payment services. Partnerships around comparative strengths will be the most successful
- Ensure good risk management tools and provide ongoing consumer education to ensure their confidence in safety & security of e-commerce and the FI role
- Prepare for Mobile commerce & payments - logical extension of e-commerce that will driving future payments innovations for FIs to be involved in

Thank You

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