

Online Payment Service Providers -- Risky Business

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Agenda

- e-Commerce Growth
- Transition to Alternative Payment Methods
- Online Payment Service Provider Landscape
- Key Risks & Mitigations



Drivers of e-Commerce Growth

Popular online services include banking & bill payment. Online banking users influence e-commerce growth by spending more online.

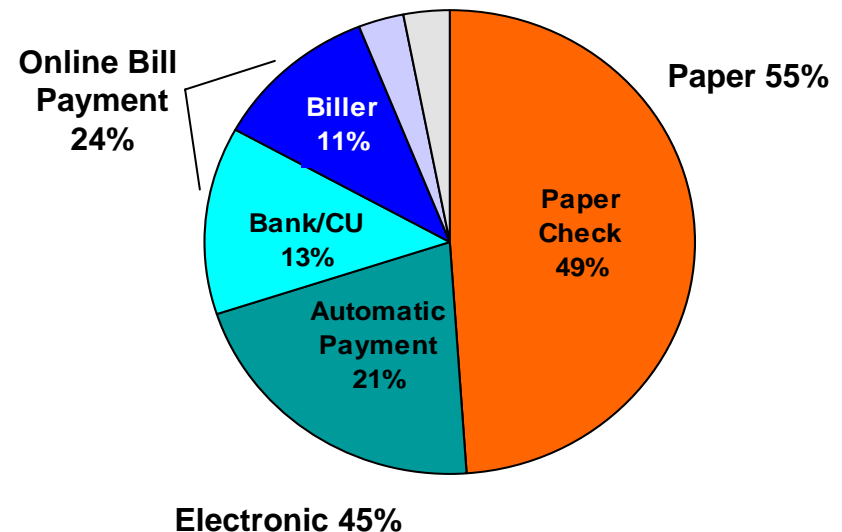
Online Banking

- 73 million Americans banked online in 2006
- On a typical day, over 20 million Americans perform banking activities online
- Higher adoption rates among younger, higher income, and college educated
- Online banking usage grows as high-speed broadband connections increase
- **Online bankers spent 34% more online than average over 6 month period**

Online Bill Payment

- More than two-thirds of U.S. online households pay at least one bill online
- **50% of e-commerce buyers paid at least 1 bill online in last 6 months**

Consumers are shifting bill payments from paper to electronics



Sources: Pew Research, eMarketer 2007, [ModaSolutions](#)

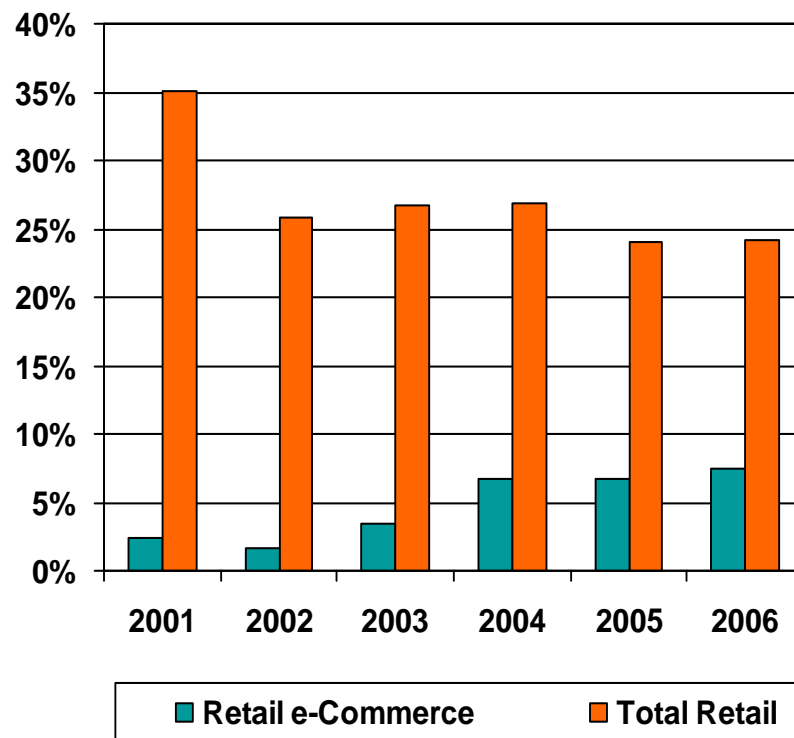
Source: 2005/2006 Dove/ABA Study of Consumer Payment Preferences

Drivers of e-Commerce Growth

Consumers & e-Commerce

- 71% of U.S. adult Internet users bought products online in 2006 vs 65% in 2005
- On a daily basis
 - 10 million adults buy or sell products or services on the Internet
 - 5.7 million adults pay to download or access digital content
 - 4.3 million adults participate in online auctions
- Consumers pay online via:
 - Credit, debit, or a prepaid cards
 - Online Service Providers that clear and settle payments via cards and ACH
 - Direct DDA transactions via ACH e-checks, demand drafts or online banking function

US Retail Sales Growth
January - June Sales 2001 - 2006
(Excludes Travel)



Source: Pew Research 2006, U.S. Census Bureau February 2007

Barriers to e-Commerce Growth

SECURITY: Payment options must meet consumer needs and overcome security issues to further growth in e-commerce

- **Q2 2007 Comscore Survey of 1974 U.S. internet users:**
 - While online consumer spending more than doubled in 4 years between 2004 & 2007, security remains primary barrier to further online purchasing
- **2006 Mintel Survey of 2000 Adults:**
 - 68% very or somewhat concerned that credit/debit card information will be stolen if used for online purchases
 - Over one-third see internet as medium most likely to result in identity theft

Source: Comscore Online Credit Card Report, August 2007 & Mintel Comperemedia 2006

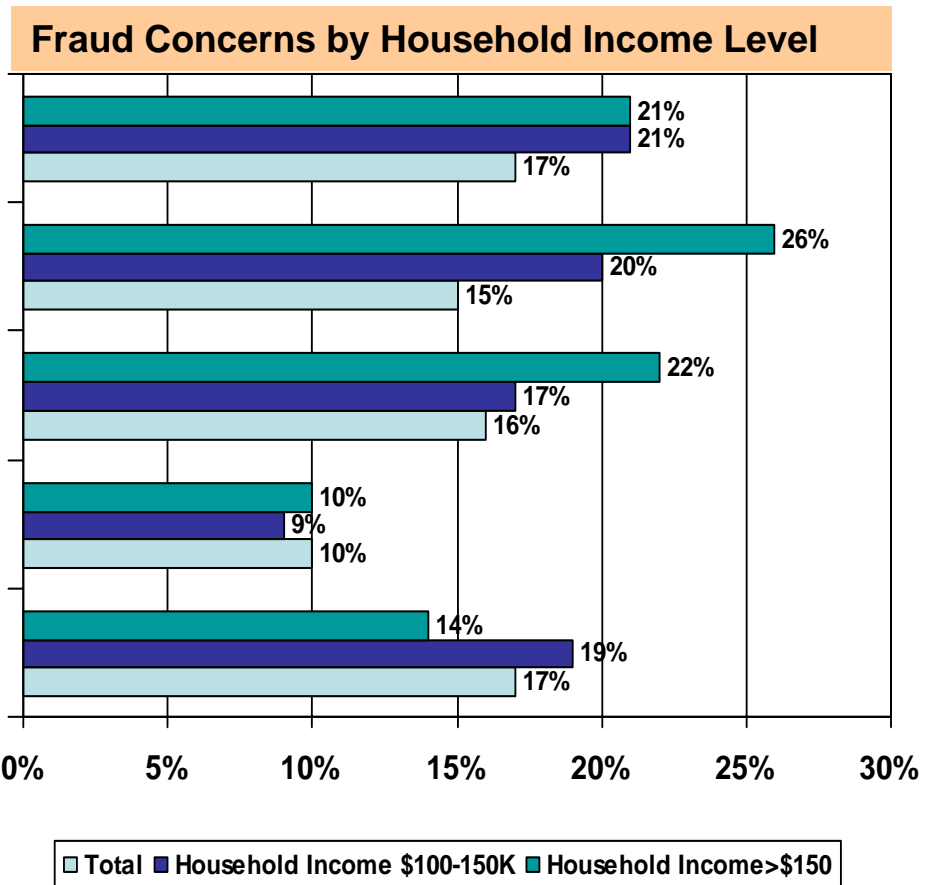
Security Concerns	
Concerned about identity theft	24%
Concerned about privacy of personal information	23%
Unsure which businesses are legitimate	4%
Afraid of spam	3%
Afraid of spyware	1%

Source: Visa Research Services 2005

Barriers to e-Commerce Growth

FRAUD: Consumer concerns about fraud impact their online purchasing behaviors & drive them to seek alternative payment methods

- Concern that the site will start sending me junk e-mail
- Concern that unauthorized parties will access my information saved in merchant's database
- Concern personal info will be sold to other merchants
- Concern credit card data will be misused
- Concern credit card data will be intercepted

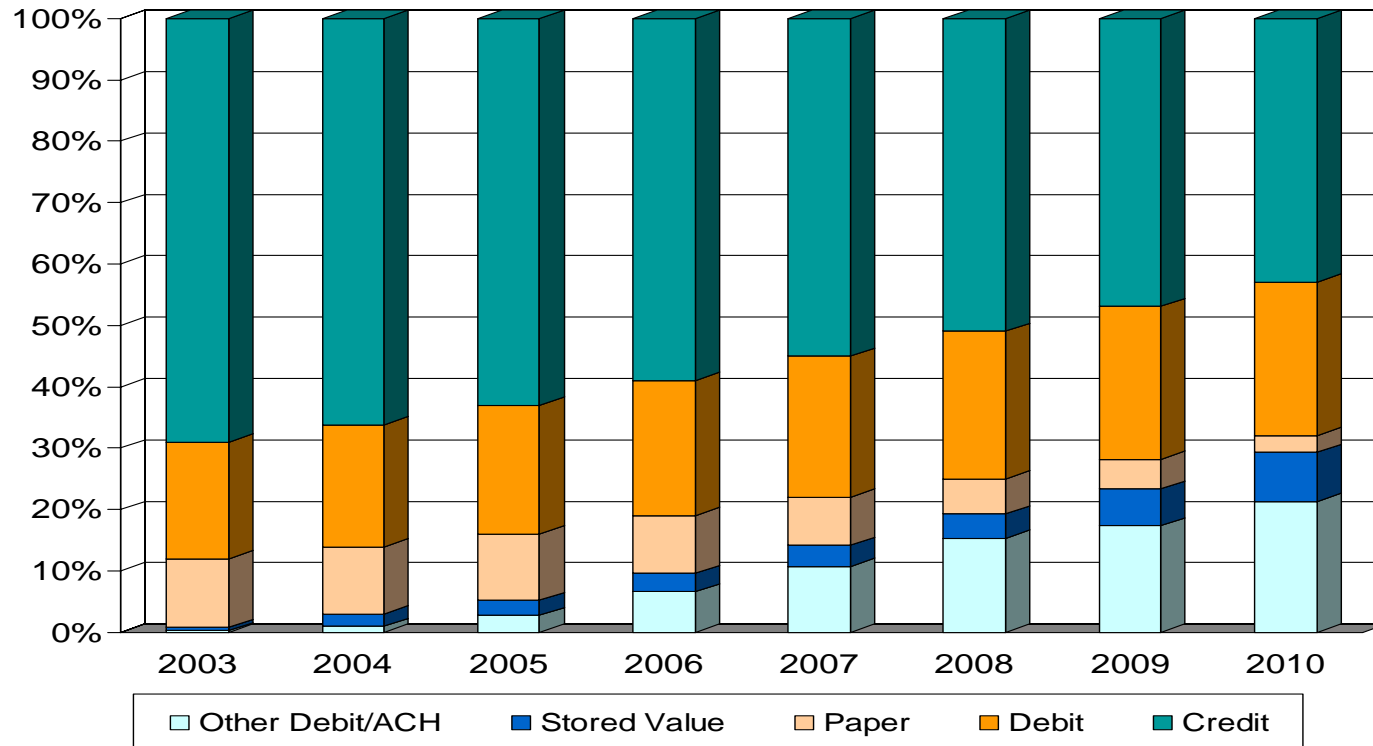


Source: *Payment One, 2005 Commissioned Study*

Transition to Alternative Payment Methods

Credit Card Volume as % of Internet Payments is Declining

Internet Transaction Mix by Payment Type (%)



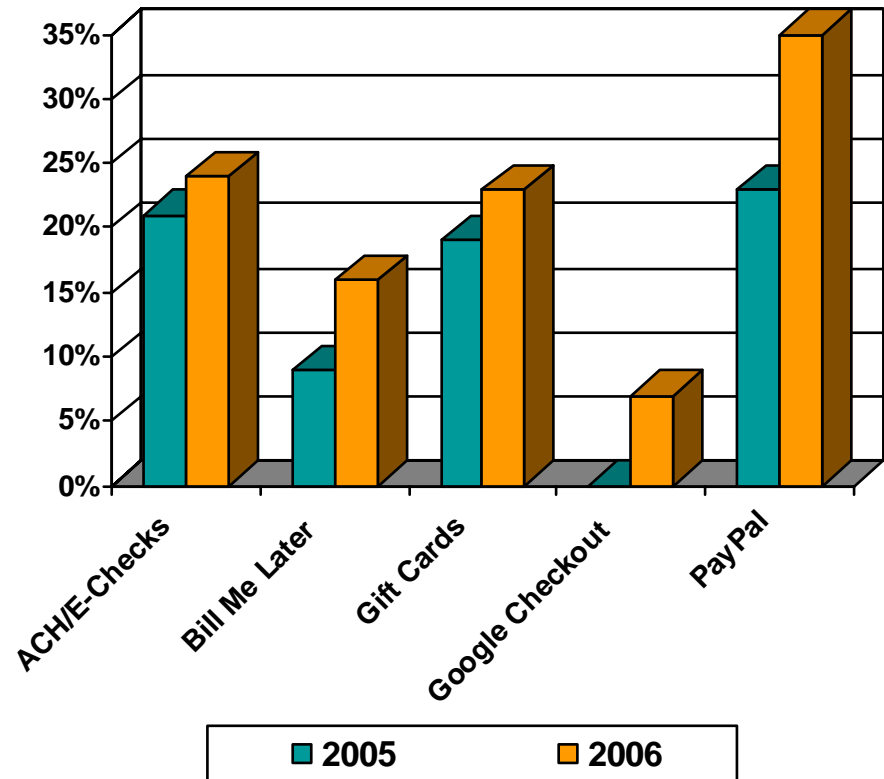
Sources: Nilson Reports

Transition to Alternative Payment Methods

Merchant Profile

- e-Commerce merchants provide an average of 3.5 online payment options
- Merchants increase completed transactions by 14% when 3 more online payment options are offered
- e-Commerce benefits to merchants:
 - Business is available 24 x 7
 - Global reach
- Increasingly easy to implement given technology changes

Online Merchant Adoption Rate of Payment Alternatives to Credit & Debit Cards



Source: Digital Transaction News, CyberSource 2007

Growth of Online Payment Service Providers

Value of Alternative Providers

- Filled Gap:** Banks did not meet needs of small-value Internet buyers & sellers in the Internet space
- Credit Card Alternative:** Provides an alternative for those without credit cards and drives additional revenue from new customers
- Lower Transaction Costs:** Offers alternative to high interchange fees
- Lower Cart Abandonment:** Easy, secure way for customers to pay without sharing financial information & deters abandonment

Something for Everyone

Sophisticated
Internet users

Different demographics

Credit card averse users

Online bill payment users

Small merchants

ID Fraud averse users

Growth of Online Payment Service Providers

There are many online payment service providers...

- Very few are large and mature with significant volume
- Most are small start-ups and/or shaky clones
- Few have experienced long-term success, several have failed

Growth of Online Payment Service Providers

Successful Providers

Early Innovators

Buyer Beware

Mature

- PayPal
- Google Checkout
- BillMeLater
- eBillme
- Western Union-
MoneyZap

- Yahoo! PayDirect
(06/00-12/04)
- Citibank C2it
(10/00-11/03)
- eBay BillPoint
(06/01/03)
- BitPass
(2007)
- Payko
(2006)
- EasyPay80
(2005-2006)
- Western Union/
FDC BidPay
(07/01-12/05)

- Neteller
- GreenZap
- StormPay
- eGold
- Alertpay

Evolving

- eCharge²
- iKobo
- PaidByCash
- Metafos
- Amazon Flexible
Payments

Growth of Online Payment Service Providers

Characteristics of Successful Providers

- Achieved critical mass – customer base is loyal & active
- Gained trust early
- Strong marketing plan for continued growth – viral marketing
- Reacted quickly to problems with fraud, customer service
- Backed by a well-known brand or bank

Factors Affecting Success

- Lack of experience in payments space
- Lack of demand by potential users
 - Low account membership
- Lack of understanding of risks, fraud, customer service
- Easy entry to become OPSP
 - Little financial investment
 - Not bank regulated
 - Assumed easy, quick way to make money

Growth of Online Payment Service Providers

Buyer Beware

- Operate very close to legal limit
 - Create opportunities for fraud, money laundering, pyramid schemes
- Respond to niche markets within the online payments space
 - Online gambling
- Not as vigilant in monitoring use of their online services
 - Provide easier entry & anonymity for criminal or shady activities
- May be headquartered offshore to avoid U.S. jurisdiction

Online Payment Service Provider Models

Payment Models	Characteristics	Providers	Clearing and Settlement
e-check ACH	One-time user registration. Authorize payments with user id & password. Direct debit from consumer checking account	MoneyZap (Western Union)	ACH
e-Money Transfer	Transfer money online without account via pre-loaded debit card. Fund from credit or debit card, or bank account	iKobo	ACH
Stored Value/ Pre-Paid	Funds stored in non-bank proprietary account. Debit from stored value, checking account or credit card	PayPal eCharge ²	ACH or Visa/MasterCard Network
Instant Credit/ Deferred billing	Customer receives credit approval after real-time credit check. Pay later.	Bill Me Later PayPal Pay Later	Varies based on payment option. Credit card network, ACH, traditional check clearing

Online Payment Service Provider Models





Payment Model	Characteristics	Providers	Clearing and Settlement
Online Banking	Directed from merchant web site to customer's bank Online Bill Pay function. Delayed shipping.	eBillme Secure Vault Payments (NACHA) Metafos	ACH MasterCard RPPS
e-wallet	Set up one online account to pay multiple merchants via credit card or offline debit.	Google Checkout Amazon Flexible Payments	Credit Card Network
Virtual Debit Card	Procure one-time debit card number offline or via internet to purchase online	PayPal Paid By Cash	MasterCard Network
Virtual Credit Card	Procure one-time credit card number to purchase online	ShopSafe (Bank of America)	Visa/MasterCard Network

Characteristics of OPSPs

Compared fourteen OPSPs. Each has some combination of characteristics. None are identical.

- Debit consumer checking account (8)
- P2P Online Money Transfer (4)
- Debit thru Online Bill Payment (3)
- Delayed Shipping (4)
- Multiple funding or payment options (8)
- Provide instant credit (3)
- Defer Billing & Payment (2)
- One account to pay for multiple merchant purchases (8)
- Funds stored online in non-bank account (3)
- Re-loadable debit card (1)
- Virtual One-time Debit Card # (1)
- Virtual One-time Credit Card # (1)
- Physical One-time Debit Card # (1)

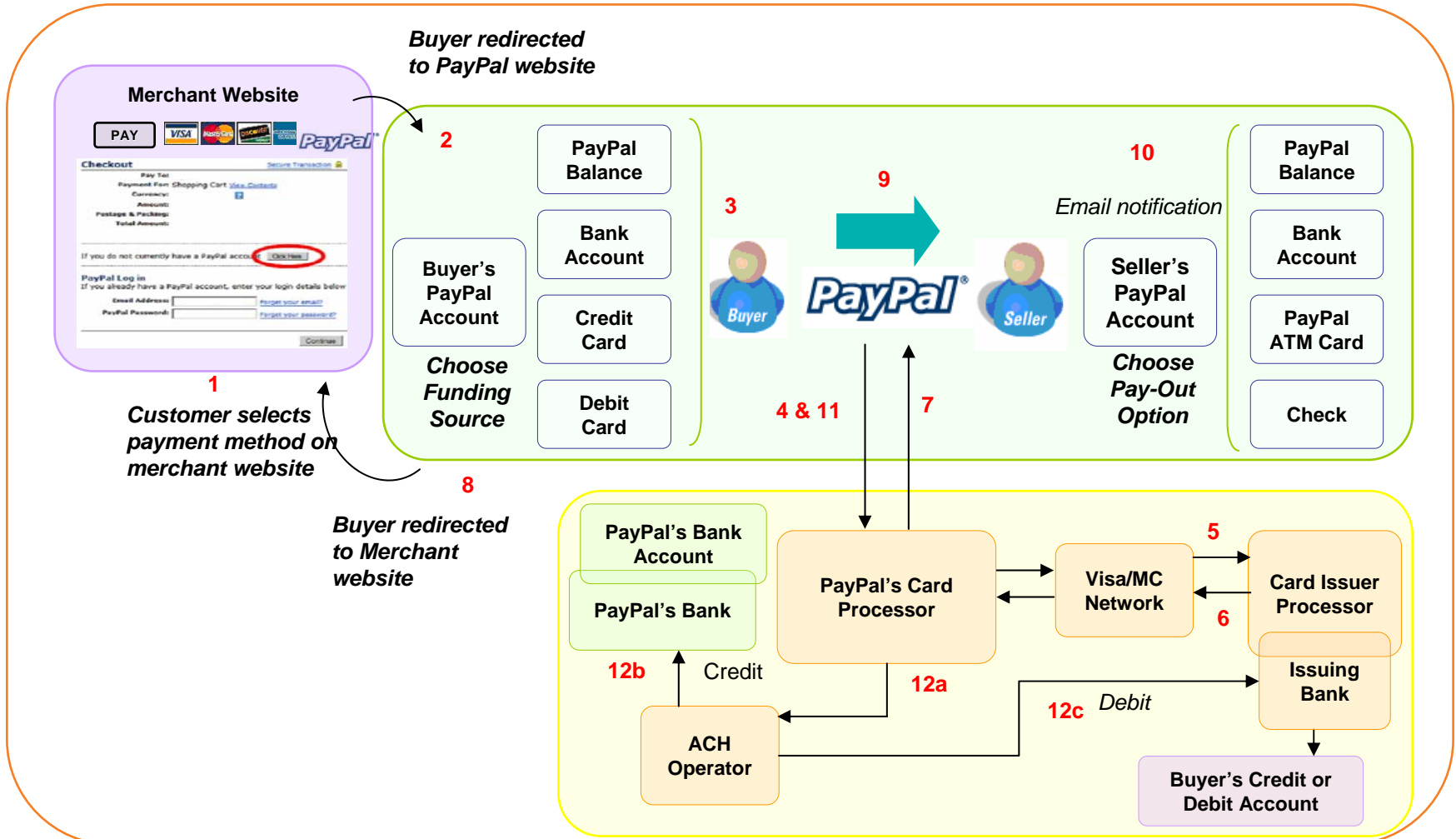
Key Players

Target Market	
	<ul style="list-style-type: none"> • P2P and C2B • U.S. and international buyers & sellers, senders & receivers • 153 million active and inactive accounts (2Q07) • 103 countries and regions
	<ul style="list-style-type: none"> • C2B, U.S., U.K. • Small, web-oriented businesses • Acquiring option for “micro” businesses • Adopted by 25% of top 500 e-retailers since inception 6/2006
	<ul style="list-style-type: none"> • C2B • 3 million users & over 450 e-retailers (2007) • 34% of top 200 online merchants • Top multi-channel retailers, high ticket items (electronics, travel)
	<ul style="list-style-type: none"> • C2B, U.S. & Canadian market • Internet savvy, online banking users • Customers concerned with security • Customers without credit cards & those who prefer cash-like payment options



A secure way for anyone with an e-mail account to buy online

Transactions are charged to customer's bank account, credit card or PayPal balance.





Google has brand recognition and fast, secure checkout across the web

[Help](#)
Google Checkout

Secure Checkout

Order Details - Buy.com, 000 000-0000, 85 Enterprise, STE 100, Aliso Viejo, CA 92656 US [Edit order](#)

Qty	Item	Price
1	D-Link 7DBI Omni-Directional Indoor Antenna 802.11 BG Base - ANT24-0700	\$35.32
Tax :		--
1	Google Checkout Bonus - \$10 off orders over \$30 from this store. (Bonus may not appear on store's web site or emails.)	-\$10.00

Subtotal: \$25.32
Shipping and tax calculated on next page

Create a Google Account to complete this purchase

Email:

Password:
Minimum of 6 characters in length. [?]

Re-enter password:

Credit card number:

Expiration date: / CVC: [What's this?](#)

Or sign in

If you already have a Google Account

Email:

Password:

[I cannot access my account](#)



With Bill Me Later, consumers can buy fast, feel secure and pay later

Example

BillMe Later®

Data Verification

For verification purposes, please provide your date of birth and the last four digits of your Social Security Number.

Date of Birth: Month [v] Day [v] Year [v]

Last 4 Digits of Social Security Number: XXX-XX- []

E-sign Consent and Terms and Conditions

You must read the E-sign consent section of the [Terms and Conditions](#) prior to checking the box below.

I agree to have the Terms and Conditions presented electronically.

[Terms and Conditions](#) of Bill Me Later® ([click here](#) for a printer friendly version)

Terms and Conditions of the Bill Me Later® Payment System

Bill Me Later® is an open-end credit plan offered through CIT Bank (The Bank). By completing this purchase you agree that you have read the Terms and Conditions; you authorize The Bank to review your credit report and you understand that this account is subject to finance charges and late fees and is governed by Utah and Federal law.

[Select Another Payment Method](#)

← Date of Birth

← Last 4 SSN

← I Agree with T&Cs

← Complete Sale

Source: BillMeLater



Consumers sign-on to their online banking web site to pay

Consumers complete purchase & receive e-mail with order details & instructions to sign-on

YOUR FAVORITE STORE 🛒 | Your Account | Contact | United States (Change)

HOME PRODUCTS COMPANY STORE SUPPORT CONTACT

Home / Products / Shopping Cart / Checkout

Select Payment Method Your Purchase: 1 Item Total: \$99.44

Product Description

DeIt xe Cable 892 Factory Reconditioned 2-1/4 HP Variable Speed Router

eBillme

Order Total

Subtotal:	\$99.44
Shipping	\$0.00
Tax:	\$0.00
Total:	\$99.44

Credit Card

*Credit Card Type: *Credit Card Number: *Expiration Date: /

Review order & Select Payment

- Review your order and select eBillme as the payment option.
- No credit card number required.
- No financial data to enter.

Potential Emerging Players – C2B

OPSP	Description
<i>Paid By Cash</i>	<ul style="list-style-type: none"> ▪ Customers without credit cards & those who prefer cash-like payment options ▪ Virtual debit card obtained offline through Western Union ▪ Supports the unbanked consumer, others averse to cards online
<i>Secure Vault Payments (NACHA Pilot)</i>	<ul style="list-style-type: none"> ▪ Uses online banking to initiate Internet payments ▪ Consumer's financial information never disclosed to seller ▪ Seller receives real-time authorization of guaranteed payment (ACH Credit) ▪ Financial institutions authenticate the buyer, reducing fraud risk
<i>Amazon Flexible Payments (Beta)</i>	<ul style="list-style-type: none"> ▪ New payment service from Amazon.com ▪ Huge customer base on web – 69 million registered active Amazon buyers ▪ Target market – merchants who use its technology for their own website ▪ Merchants & buyers create payment instructions ▪ Payment aggregation
<i>Metafos (Beta)</i>	<ul style="list-style-type: none"> ▪ Similar to eBillme model linking to online bill pay ▪ In Beta with a few merchants ▪ No personal financial information provided to merchant

Rules and Regulations

➤ Electronic Payments

➤ ACH

- Reg. E - Electronic Funds Transfer Act (EFTA)
- NACHA Rules
- UCC Article 4A
- OFAC Regulation – U.S. Treasury

➤ Debit Card

- Reg. E - EFTA
- Network Rules

➤ Credit Card

- Reg. Z - Truth in Lending Act
- Fair Credit Reporting Act
- Card Association Rules

➤ OPSP

➤ Terms & Conditions

- User Agreement
- Privacy Policy

➤ Money Service Business License (State)

➤ Money Transmitter License (State)

➤ Unlawful Internet Gambling Enforcement Act (UIGEA)

➤ Bank Secrecy Act/AML

➤ Gramm Leach Bliley (GLB)

Managing e-Commerce Risk

- Internet & other new technologies have enabled new types of payments fraud & other illicit activities, e.g. cyber crime, ID theft
- Several mitigation efforts & tools
 - Anti-Phishing Work Group
 - 2300+ members; many large banks & 4 of top 5 U.S. ISPs
 - Technology vendors, law enforcement agencies
 - Verified By Visa, MasterCard SecureCode
- Mitigation efforts are working:
 - 2006 online revenue losses due to fraud
 - Estimated at \$3 billion or 1.4%
 - Merchant Risk Council “Platinum” merchants
 - Top 110 largest online sellers in the U.S.
 - Used an average of 8.2 fraud detection tools
 - Fraud loss rate is .6% or less of online revenue

Sources: CyberSource, Merchant Risk Council, Businesswire

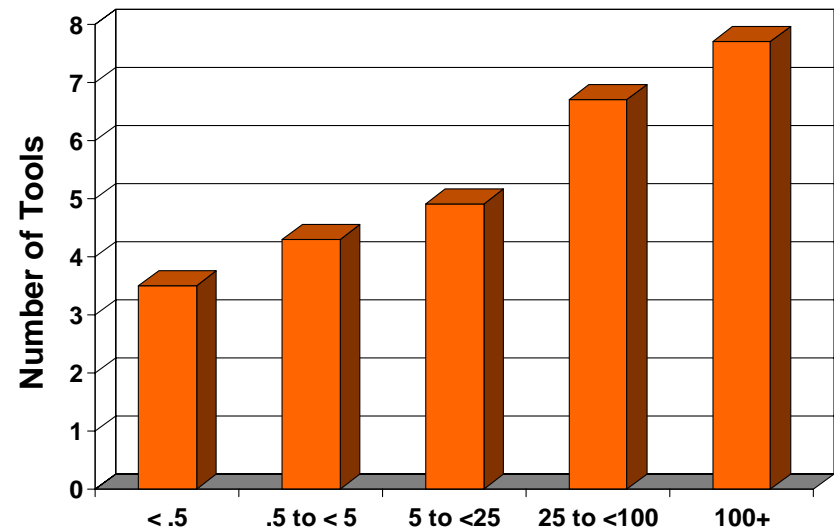
Managing e-Commerce Risk

Merchant Response to Internet Fraud

Fraud Detection Tools Frequently Used by Online Merchants

- Address Verification Service
- Card Verification Number
- Fraud Screens (in house & purchased)
- Negative & Positive Lists
- Order Velocity Monitoring
- IP Geo-location Information
- Automated Decision Order Screening
- Verified by Visa/MasterCard SecureCode

Average Number of Fraud Detection Tools Used
(by Merchant Size)



Merchant Annual Online Revenue
(in Millions of Dollars)

Source: CyberSource Online Fraud Report, 2007

Verified By Visa or MasterCard SecureCode

Suncoast.com: Shopping Cart - Microsoft Internet Explorer provided by Inovant

File Edit View Favorites Tools Help

Address <https://www.suncoast.com/Cart/cart4.aspx?Cart=ef7b879> Go

Search X

Ne >>

Payment Method

Gift Cards

The amount of your gift card(s) will be deducted from your Total Order of **\$42.25**. Any remaining balance will be charged to your credit card.

You must enter gift cards prior to entering any credit card information.

ENTER GIFT CARD

Credit Card


Card Type

Credit Card #

Name on card

Expiration date Month Year

Security Code




The security code is the last 3-digits printed on the signature panel on the back of the card.


Your credit card may be eligible or enrolled in a Verified by Visa™ or MasterCard® SecureCode™ program. If your credit card is already enrolled you will be prompted for your password after clicking Submit.

VERIFIED by VISA [learn more](#)

MasterCard. SecureCode. [learn more](#)





SUBMIT ORDER

 click to verify

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Done Internet

OPSP Risk Management

	Risks	Protections
	<ul style="list-style-type: none"> Major phishing target Fraud from easy enrollment & anonymity Susceptibility to illicit use Adoption heavily dependent on eBay clients (~ 58% of dollars processed on eBay 2Q07) 	<ul style="list-style-type: none"> 100% protection against unauthorized payments transferred from sender's account Security Key for multi-factor authentication Sophisticated fraud models Buyer/Seller Protection Programs for eBay Spoof@paypal.com
	<ul style="list-style-type: none"> No 'payments' experience Checkout relatively new Phishing target Concern about too much personal & financial data being used for marketing 	<ul style="list-style-type: none"> Fraud protection – 100% refund if transaction reported within 60 days for consumer Privacy policy Payment Guarantee Policy for merchant
	<ul style="list-style-type: none"> BML settles with merchant & bears credit & collections risk 	<ul style="list-style-type: none"> Credit check authorization of buyer for each purchase Merchant quality evaluation before joining BML
	<ul style="list-style-type: none"> Minimal Risks associated with traditional payment methods used to pay invoices offline 	<ul style="list-style-type: none"> Maintains security features of existing online banking process Does not link directly to customer's online banking account No credit card payments so no risk of related fraud or charge backs Funding from bank account avoids NSF Buyer Protection

OPSP Dispute Resolution & Customer Support



- Online dispute resolution/PayPal will mediate disputes
- If customer chargeback filed, PayPal freezes amount in seller's account until dispute resolved
- E-mail and phone customer support



- 'Dissatisfied customer form' sent to merchant
- Google mediates disputes, works with merchants on chargeback disputes
- Owns liability & reimburses merchants for chargebacks from unauthorized purchases



- Requires merchants to post return & refund policies for customers
- Prints 'How to dispute' information on back of customer invoices



- Offers dispute resolution process
- Help available via e-mail, chat line & toll-free number posted on website

Mitigating OPSP Risk

- Understand how OPSP process works
 - Is money debited from bank account or charged to credit card
- Consider Payment options
 - PayPal defaults to bank account
 - Credit card allows you to dispute charges & reverse if there is a problem
 - Disputes harder to resolve if money already taken from bank account
- Check seller's reputation
 - Opt for seller who sold at least 10 items & has high satisfaction rating
 - Read past customers' feedback about seller
- Fraudulent sellers may ask you to pay outside the system
 - To ignore regular online payment method & wire them money
 - To put money in a phony escrow system
 - ***Never deviate from regular payment process in this way***

Source: LT Coffey, '10 Tips for savvy use of electronic payment systems.' MSNBC.com, April 4, 2007

Mitigating OPSP Risk – What You Can Do

- Ensure web page is secure at point of payment
 - 'https' not 'http,' 'closed' lock symbol
- Review site's Privacy Policy, Terms & Conditions
- Understand refund & shipping policies & disclosures
- Know who is collecting data before disclosing personal & financial information
- Keep records, check email, review monthly statements
- Report problems immediately & know where to complain
 - Retailer or company 'spoofed' or Online Payment Service Provider
 - Anti-Phishing Working Group
 - Internet Crime Complaint Center



Looking Forward

What's likely:

- As e-Commerce grows, number of payments made through online payment providers will grow too.
- Pace of growth will accelerate as today's 20-somethings and teenagers become tomorrow's primary consumer.
- Given the benefits to consumers and online retailers of payment choices, multiple service providers of online payments will remain, but it's likely only a few will dominate to meet different needs.
- Investments in risk management will be ongoing to ensure continued consumer confidence in the safety and security of e-Commerce and conducting business online.
- Financial institutions and non-bank service providers will continue to compete and form partnerships to offer online payments. Those forming partnerships around comparative strengths will be the most successful.
- Mobile commerce and payments are a logical extension of e-Commerce and payments. Leveraging the natural relationship of m- and e-Commerce will drive future innovation in payments.

Thank You

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References to any organizations in this presentation are for informational purposes only, and do not represent an endorsement by the Federal Reserve Bank of Boston or the Federal Reserve System.

Appendix

Characteristics of OPSPs

Company	Debit consumer checking account	Instant Credit	Deferred Billing & Payment	Pay thru Online Bill Pay	Delayed Shipping	One account -- multiple merchant purchases	Funds stored online in non-Bank account	Online Money Transfer (P2P)	Reloadable Debit Card	Physical or Virtual One-time DEBIT/ CREDIT card #	Multiple Payment Options
PayPal Stored Value	X					X	X	X			X
echarge ²	X	X				X	X				X
Bill Me Later		X	X								X
PayPal Pay Later		X	X								X
eBillme	X			X	X	X					
Secure Vault Payments	X			X	X	X					
Metafos	X			X	X	X					

Characteristics of OPSPs

Company	Debit consumer checking account	Instant Credit	Deferred Billing & Payment	Pay thru Online Bill Pay	Delayed Shipping	One account -- multiple merchant purchases	Funds stored online in non-Bank account	Online Money Transfer (P2P)	Reload-able Debit Card	Physical or Virtual One-time DEBIT/ CREDIT card #	Multiple Payment Options
GOOGLE CHECKOUT						X					X
Amazon Flexible Payments	X					X	X	X			X
iKobo	X							X	X		X
WESTERN UNION								X			X
PaidbyCash					X	X				X	
PayPal Virtual D/C	X									X	
ShopSafe (BoA)	Charges Credit card									X	

Other Players – Buyer Beware

Company	Business Model	Concerns
GreenZap (2005 – 2006)	<ul style="list-style-type: none"> ▪ U.S. & international ▪ Send & receive money online via email. ▪ Fund via checking account, money order or personal check. ▪ PayPal imitator, was banned on e-Bay. 	<ul style="list-style-type: none"> ▪ Issues with webcash rewards for referrals; misconstrued as free money. Complaints filed w/CA BBB; poor rating. ▪ Founder accused of fraud – past Internet ventures. ▪ Appears to be out of business – website access denied, phone number out of service
StormPay (2002)	<ul style="list-style-type: none"> ▪ Functions only as auction site since problems in 2006. ▪ Send & receive payments 	<ul style="list-style-type: none"> ▪ Storm Pay owns NetIBA email validation tool. ▪ Involved in autosurf pyramid/Ponzi scheme with 12DailyPro in 2005/2006.
e-gold, LTD. Incorporated in Nevis, West Indies (2001) P2P, C2B	<ul style="list-style-type: none"> ▪ Facilitates payments in digital gold currency. Account holders buy/sell units of e-gold. ▪ Immediate settlement, finality of payment, no chargebacks. 	<ul style="list-style-type: none"> ▪ Low barrier to entry, anonymity of purchase. ▪ Digital currency not covered by self-monitoring rules of BSA & U.S. Patriot Act. ▪ Indicted by DoJ in May, 2007 for money laundering, conspiracy, & operating unlicensed money transmitting business.
Neteller U.K. (1999) P2P, C2B	<ul style="list-style-type: none"> ▪ Existing international bank structure to transfer funds. ▪ Virtual wallet account to load, withdraw, transfer funds. 	<ul style="list-style-type: none"> ▪ Regulated by U.K. Financial Services Authority (FSA) as e-money issuer. ▪ Large percentage of business from online gambling, much of it until recently from U.S. customers.

Resources

www.federalreserve.gov

www.frbervices.org

www.bai.org

www.bankersonline.com

www.afponline.org

www.aba.org

www.nacha.org

www.bos.frb.org/economic/eprg/