Cash to Electronic Payments

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Panelists
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1. Consumers and merchants need to be convinced of advantages over existing payment alternatives;

2. Payment providers must convince consumers and merchants simultaneously of its benefits to achieve critical mass;

3. There must be an assurance that adequate safety and security measures have been implemented

Source: “Why Has Stored Value Not Caught On?”
Sujit Chakravorti, Federal Reserve Bank of Chicago

FRB research highlights two key aspects of payment determination:
- consumer demographics (age, education, income, etc.)
- attributes of methodology (speed, safety, cost, ease of use, etc.)

Borzekowski and Kiser, Federal Reserve Board, Washington DC
Did you know?

2005 IPSOS / MasterCard Consumers Payment Study Findings
- 49% carry less cash than five years earlier
- 60% carry less than $20 cash
- 62% use cash less often than five years earlier

2006 MC / PayPass Performance Study Findings
- average credit/debit transaction <$20
- 75% of transactions <$25
- 45% of transactions <$10

Why Consumers Still Like Cash
A recent ABA/Dove Consulting survey found that more than half of consumers are using cash as much as or more than they were in 2003. The leading reasons they gave:

- Easy to use: 66%
- Fast: 57%
- Good for small purchases: 42%
- Helps them stay on budget: 28%
- No fees: 22%
- Store accepts only cash: 21%
- Gives them control over money: 19%
- Keeps money and/or accounts safe: 15%
- Store prefers cash: 14%
- No access to other payment methods: 11%
- No reconciliation required: 8%

Demand for Debit
Debit outstripped other payment types in average of annual growth rates, 2000-2003

Source: Mercator Advisory Group
If there were easier and more secure alternatives to using credit cards, how much more would you purchase online?

- More than $100: 16%
- $26-$100: 34%
- $10-$25: 17%
- Less than $10: 8%
- Will not spend more: 25%

Quantified Average Annual Spending Increase when offered safer and more convenient payment alternatives: $960

Note: Those who responded “Not sure” (20%) not shown or included in the average © 2006 Javelin Strategy & Research

Online Consumer Payment Poll 2006 Annual Survey

- The majority of online consumers would be inclined to purchase more if given easier and more secure payment options
- By a four-to-one ratio, more secure and more convenient payment options are the overwhelming drivers in motivating consumers to make more online content purchases
- Nearly two-thirds of all consumers would prefer to add small online purchases to their existing telephone or broadband bills

As an alternative to using your credit/debit card over the internet for small purchases, to which of the following would you prefer the small purchases be billed?

- Local phone bill: 43%
- Broadband account bill: 19%
- Wireless account bill: 18%
- Cable/Dish TV bill: 18%
- Other Please Specify: 3%

Base: Those who would prefer to charge small purchase amounts to their phone bill, wireless or broadband account, and would spend more online with an easier and safer payment method © Michael Kasavana
Non-Cash Payments Mix, 1979–2003

Source: Federal Reserve

<table>
<thead>
<tr>
<th>Year</th>
<th>Paper</th>
<th>Electronic</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td>85%</td>
<td>15%</td>
<td>100%</td>
</tr>
<tr>
<td>1995</td>
<td>77%</td>
<td>23%</td>
<td>100%</td>
</tr>
<tr>
<td>2000</td>
<td>58%</td>
<td>42%</td>
<td>100%</td>
</tr>
<tr>
<td>2003</td>
<td>45%</td>
<td>55%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Electronic Payments:
Annualized Change in Percentage Points

<table>
<thead>
<tr>
<th>Period</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979–1995</td>
<td>+0.5</td>
</tr>
<tr>
<td>1995–2000</td>
<td>+3.8</td>
</tr>
<tr>
<td>2000–2003</td>
<td>+4.3</td>
</tr>
</tbody>
</table>
65 percent of Internet users shopped online in 2005 [Jupiter Research]

71 percent of Internet users will buy online in 2010 [Forrester Research]
E-Payments Surging Worldwide

There are more electronic transactions in Europe and North America, but they are growing the fastest in Eastern Europe and Asia.

Transactions in billions:

<table>
<thead>
<tr>
<th>Region</th>
<th>'99</th>
<th>'04</th>
<th>'09 (est)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle East/Africa</td>
<td>1.8</td>
<td>3.3</td>
<td>6.9</td>
</tr>
<tr>
<td>South America</td>
<td>3.8</td>
<td>3.8</td>
<td>9.7</td>
</tr>
<tr>
<td>Eastern Europe</td>
<td>24.7</td>
<td>25.8</td>
<td>31.1</td>
</tr>
<tr>
<td>Asia-Pacific</td>
<td>74.8</td>
<td>74.8</td>
<td>111.9</td>
</tr>
<tr>
<td>Western Europe</td>
<td>50.2</td>
<td>44.9</td>
<td>78.3</td>
</tr>
<tr>
<td>North America</td>
<td>140.0</td>
<td>384.2</td>
<td></td>
</tr>
</tbody>
</table>

Debit on the Net

Consumers will use debit for almost half of all online purchases by 2010, according to Jupiter Research.

- Other: 5% (2005), 4% (2006), 4% (2007), 4% (2008), 3% (2009), 3% (2010)
- Credit card: 42% (2005), 41% (2006), 39% (2007), 38% (2008), 36% (2009), 35% (2010)
- Peer-to-peer payments: 5% (2005), 4% (2006), 4% (2007), 4% (2008), 3% (2009), 3% (2010)
- Stored value card: 1% (2005), 1% (2006), 1% (2007), 1% (2008), 1% (2009), 1% (2010)
The Relative Value Propositions of Online Alternative Payments

- E-check / ACH
- Secure Bill Pay
- Traditional Bank Card
- Email Payments
- Invoicing
- Pin-Debit
- NACHA Consumer Push

Customer Value Proposition

Merchant Value Proposition

Source: Celent Analysis
Note: Blue = Live; Yellow = In Pilot
Online Payment Alternatives

Email Payments – customers pay online using a credit card, bank account or other form of payment; an email invoice is sent as verification.

NACHA Credit Push -- consumers are authenticated by own bank and initiate private, secure electronic payments for online fund transfers, bill payment, and purchases via online banking web sites; consumers view a billing statement using online banking and authorize bill settlement with ACH credit.

PIN Debit – consumer enters basic contact information, swipes an ATM or Debit card and enters a PIN code.

Invoicing – emailing of customer invoices (often with an embedded payment Button); customer receives invoice and clicks button to pay.

The market for e-commerce is growing between 14-25% annually. (nacha.com)
Survey: analysis of 633,120 cashless transactions ($1.2 M) through 500 vending machines equipped with an e-Port cashless transaction reader.
1. **Self-Service Economy** – pay at the pump, ATM machines, self-checkout kiosks, and e-commerce exert positive influence on the move to cashless. “The Internet has become the world’s largest vending machine.”

2. **Machine Interface** – implementation of MDB technology that simplifies the connection of peripheral equipment to a machine controller board enables less expensive hardware/software for transaction processing.

3. **Competitive Influences** – the ability to conduct cashless transactions at convenience stores and quick service restaurants conditions consumers to expect to use credit/debit cards to complete simple transactions.

4. **Processing Fees** – the implementation of fixed transaction fees (5 percent) helps smooth the cost of transaction processing across a diverse collection of micro-transactions.

5. **Communication Fees** – the ability to transfer data from machine to ACH or similar processing centers at a cost of $7-10 per machine per month has also helped facilitate the attractiveness of cashless payments via wireless communications.

6. **Remote Machine Monitoring** – the fact that data is being moved from the machine to a remote processing center will enable the movement of other machine captured data for minimal or no additional expense.

7. **Combination Readers** – reduction in cost of hardware for electronic data capture through a combination reader and/or contactless RFID reader. Given the dedicated bevel location and applications, a combo unit solves much of the concern for hardware accessibility.

8. **Cashless Purchase Habits** – with cashless purchasing consumers tend to spend more and make multiple purchases. Units can be programmed to secure pre-specified credit limits, number of items purchased, or number of transactions per card per machine.

9. **MC and Visa Incentives** – micro-payment options for credit and debit transactions at lower costs, without PIN code or signature are further incentives driving implementation.

10. **Security** – no cash, minimal auditing, reduced fraud, and no stored proprietary data.
<table>
<thead>
<tr>
<th>Quote</th>
<th>Author</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>“The revolution waiting in the woods is smartcards!”</td>
<td>Walter Wriston, Formerly of Citicorp/Citibank</td>
<td>1996</td>
</tr>
<tr>
<td>“Cash is dirty, inefficient and obsolete!”</td>
<td>James Gleick, New York Times Magazine</td>
<td>1996</td>
</tr>
<tr>
<td>“Until you change the way money works, you change nothing!”</td>
<td>Bernard Lietaer, The Future of Money</td>
<td>2001</td>
</tr>
<tr>
<td>“Only ten percent of transactions will be cash by 2020…”</td>
<td>AC Nielsen Research, FastCompany.com</td>
<td>2006</td>
</tr>
<tr>
<td>“Digitized money will eventually be embedded in everything from clothes to people!”</td>
<td>Richard Watson, Global Innovation</td>
<td>The Future of Money, 2006</td>
</tr>
<tr>
<td>“PayPass was specifically designed to replace cash payments and our data shows that goal is being met!”</td>
<td>Art Kranzley, Advanced Payments, MasterCard Worldwide</td>
<td>2006</td>
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Which cashless payment option do consumers prefer most often for small dollar (<$25) transactions?

Do consumers want availability of identical payment options at all POS locations?

How has consumer purchase behavior at self-service, unattended points of sale changed relative to small dollar ($25) transactions?

What differences exist between consumer settlement behavior at physical POS (retail) and virtual POS (e-tail) locations?

Do consumers modify their choice of payment option based on dollar value and/or number of products purchased?

Which demographics are most likely to influence consumer adoption of a cashless payment option for small dollar transactions?
“You can’t solve current problems with current thinking. Current problems are the result of current thinking.”
- Albert Einstein