Payments in the US: the evolution continues

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Agenda

- Evolution of payments
  - What can we learn from other industries?
  - The rise & fall of paper-based payments
  - The Fed’s response to payments system change
  - The broader payment landscape
- Role of the Treasury in the evolution
  - Past
  - Future
The transition of America from a paper-intensive payments system to an electronic one
A wicked quick guide to navigating Bahstun

- Language
- Getting around
Wicked

Wicked:
- “very” - wicked nice check sorter you have there.
- “very good” - wicked check sorter you have there
Cah
Bia
Tonic
“Helpful” signs
The Sox
Let's talk about ice harvesting and refrigeration instead
Refrigeration is *relevant*
For parochial reasons

It is wicked hot outside today

The commercial *natural ice* business was invented in Boston
We only notice refrigeration when it's busted

- When the ice machine is broken
- When you have to defrost the freezer
- When the office air conditioner is on the fritz
Consumers only notice the payments system when it’s busted

When your bank or credit card statement is wrong or payments don’t flow
Refrigeration and payments are both complex businesses with many facets
Refrigeration and payments have long histories
Natural ice was once a huge business in the US, but is now mostly forgotten
Check is still a pretty big business in the US, someday to be forgotten.
Ice in the 18th century
Ice in the mid-19th century
Early-American millionaires

Frederick Tudor
the *Ice King*
Ice in the mid-19th century
Ice in the mid-19th century
Ice in the late-19th century
Early 20th century – factory ice production replacing harvested ice
Ice after WWII
Cycles of refrigeration

Household access to year-around refrigeration, 1800-2000 (hypothetical)
What happened with natural ice?
People did not realize *natural ice* was reaching its peak in the 1890s.

And they did not know where refrigeration was going or going to go in the future.
They did not anticipate the good & bad news that would be forthcoming.
The Good News
Access to year-around refrigeration increased dramatically

Household access to refrigeration went from about 25% in 1910 to 100% in 1990
The Good News
Refrigeration made the world a better place

Weekly shopping instead of daily shopping

Year-around access to fresh “seasonal” foodstuffs
The Good News
Refrigeration made the world a better place

Enormous reduction in food-borne illnesses
The Good News

Natural ice took 50 years from peak to trough

So you might think producers/distributors had lots of time to adjust ... they didn't
But, it’s hard for a complex supply chain to react to change
The functional equivalent of what many of us do in payments

The natural ice supply chain was as complex as the payments system
The natural ice supply had primary & secondary players. Likewise, resembling the structure of the payments industry today.

Different parts of the industry adjusted in different ways.
The substitution away from natural ice was a crushing experience for some.

Industrial-scale harvesting

Core producers/distributors were particularly vulnerable.
The survivors did not stand still
They adopted the full range of “usual” strategies

The same strategies we participants in the paper-intensive payments system are adopting
But was accommodated by others

Icebox manufacturers/distributors

Delivery of block ice

Small producers in local markets
Harvesters consolidated
Distributors in other markets went into the manufactured ice business
Icebox manufacturers eventually invested in refrigerator manufacturing/distribution
Manufactured ice experts eventually went into the air conditioning business
A few companies that arose at the tail-end of natural ice dominance are still around
History of refrigeration – recap

- Capital intensive business
- Complex infrastructure and supply chain
- An evolution filled with innovation and continuous improvement – one big revolutionary step
- Peak was not seen until decline had started
- Then, projections that ice harvesting would disappear quickly premature
- Supply chain adapted or disappeared
What happened to natural ice has happened repeatedly in recent history

- Vacuum tubes - 1950s
- Mag-tape - 1990s
- Pagers - 1990s
- Analogue mechanical watches - 1970s
What is happening with payments?
We too face good news & bad news
Paper substitution is not new
Cash has been declining (in relative terms) for 90 years

And has been accommodated because it is still growing in absolute terms
Paper substitution is not new
Check has been declining (in relative terms) for 35 years

And in absolute terms for 10-15 years, painful adjustment for some
Reports of Check’s demise were premature

- ABA sets up a Checkless Society Subcommittee
- Rand Corp published “Privacy Aspects of the Cashless and Checkless Society”
- Well respected Fed Governor lectures widely on his vision for a checkless and cashless society
Reports of Check’s demise were premature

- ABA sets up a Checkless Society Subcommittee - 1967
- Rand Corp published “Privacy Aspects of the Cashless and Checkless Society” 1968
- Well respected Fed Governor lectures widely on his vision for a checkless and cashless society – George Mitchell 1960’s and 70’s.
So where are we today: harvesting natural ice, manufacturing ice, or using refrigerators?
Impact of electronification on checks processed: Federal Reserve volumes only

Source: Federal Reserve Banks; 2007 figures are projected
Stop paper at remote deposit site

Source: Celent 6/4/07 “State of Remote Deposit Capture” Report
ACH E-Check volumes
Q4 2003 – Q1 2007 (annualized, in millions)

Source: NACHA 2006
Payment Trends: ARC - Accounts Receivable Conversion

Bill Payments – Paper Check and ARC (received in a lockbox)

SOURCE: NACHA and Celent Communications
What is happening & will happen with the payments supply chain, us?

The decline of paper will affect different parts of the processing chain differently
Including the primary & secondary players ...

Cut paper supplies

MICR Ink

Printinig Eq

Courier aircraft mfrs

Proof Machines

Reader/Sorters

Chk Proc software

USPS

Bulk Filing Systems

Stmt Stuffing Machinery
Those who hope to survive cannot stand still
We've adopted the full range of “usual” strategies
The location of check operations is moving from bank backrooms to customer backrooms
Sorter manufacturers/distributors moving from high speed to remote capture devices
Expedited air couriers diversifying their transport business
The Federal Reserve is as much a participant in this change as an observer.
The Fed's check processing infrastructure in 2003
The Fed’s check processing infrastructure in 2010 - 11
The Fed continues to adjust our check transportation infrastructure
Cash payment is flat. Check volume is declining.

Credit cards are growing, but at a slower rate.

ACH continues to grow steadily. Debit card growth has accelerated.

Estimated Total Number of Transactions by Payment Instrument

SOURCE: The Nilson Report, ATM & Debit News
e-commerce – who’s online and why

Consumers Are Connected

- In the U.S., 69% or 207 million use the internet
- 71% of U.S. adult Internet users buy products online vs. 65% in 2005

Some Like Speed

- 47% of U.S. adult Internet users have broadband access at home, up from 42% in 2006

Some Are Really Connected

- 34% of Internet users have wireless mobile devices and use them to access the Internet
- 80% of these users have broadband connections at home

Consumers’ Internet Use

Top Ten List

- Buy a Product Online
- Look for Health or Medical Info
- Research a Product or Service Before Buying It
- Check the Weather
- Get Travel Info
- Visit a Gov’t Website
- Send & Receive Email
- Find Info on a Hobby or Interest
- Use a Search Engine to Find Info
- Find a Map & Driving Instructions

e-commerce: on-line versus in-store

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

e-commerce - how are they paying?

Sources: Nilson Reports; BBD estimates
Government as catalyst to change

- Space program helped give us: Kidney dialysis machines, CAT scanner, new water purification technology, Velcro, cordless appliances, smoke detectors, new insulation and plastic materials, Tang and Space Food Sticks.
Let's talk about a big player in payments - U.S. Treasury

- Treasury (the 800 lb gorilla in payments)
  - disburse about 1 billion payments, to 100 million people worth $1.5 trillion per year
  - collects about $2.7 trillion per year
Treasury/Government as catalyst

- Past
  - ACH
  - Check imaging and archiving
  - Electronic Benefits Transfer (EBT)

- Present/Future
B2B/IPP

- Internet Payment Platform (IPP) - a G2B solution for Federal Agencies managed by FRB Bahstun (Boston)
  - Production year-end 2007
  - Electronifies and links - purchase orders, invoice receipt, payment authorization and payment between Agencies and their vendors
  - Many direct benefits and facilitates move from checks to electronic payments
  - Available to all Federal Agencies and their suppliers
Stored Value Card

- Smart card based stored value card for US military managed by FRB Bahstun.
- Training bases, overseas Army and AirForce peacekeeping bases, Navy ships (Chase)
- Peacekeeping and Navy cards are reloadable.
- Peacekeeping bases include self-service kiosk to load funds from domestic bank accounts via ACH
- Over one billion dollars loaded to-date for all three programs
Pay.gov

- Web system: hosts payment forms for government agencies, collects payment data, and processes payments via ACH or credit card.
- Early adopter - WEB ACH payments and Knowledge Based Authentication
- 102 agencies (317 lines of business) - 170 payments forms and 20 bills
- 4.9 million transactions, $17.7 billion during the first 6 months of 2007
- Managed by FRB Cleveland
Point of sale check conversion (PCC)

Converts checks to ACH or Check 21 items at federal agencies or military locations.

- Early adopter of
  - Remote Capture
  - Electronic Check Conversion
  - Check 21
  - Back Office Conversion

- 32 agencies at 630 worldwide locations
- 1.4 million transactions - $3.6 billion during the first 6 months of 2007
- Managed by FRB Cleveland
Treasury debit card use

- Department of Agriculture
- Department of Commerce, U.S. Census Bureau
- Department of Defense, U.S. Southern Command
- Department of Energy, Bonneville Power
- Department of Health & Human Services, National Institute of Health
- Department of Homeland Security
  - Citizenship and Immigration Services
  - Immigration and Customs Enforcement
  - Transportation Security Administration
- Department of Interior, Office of International Affairs
- Department of Justice, U.S. Marshals Service
- Federal Trade Commission
- International Boundary and Water Commission
- Peace Corps
- Holocaust Museum
Treasury *Direct Express Card*: Debit Card for Benefit Recipients

- EFT solution for the unbanked
- Piloting for one year
- Currently 1,000 SSA and SSI recipients enrolled
- Similar to payroll cards, no/low fees for limited use options
- FDIC insured, interest bearing
- PIN or signature based stripe card
What the future holds
The Big Picture of Payments

Estimated Total Number of Transactions by Payment Instrument

- **Check**: Check volumes declining
- **Credit**: Credit Cards are growing, but at a slower rate
- **ACH**: ACH continues to grow steadily
- **Cash**: Cash payment is flat
- **Debit**: Debit card growth has accelerated

**SOURCE**: The Nilson Report, ATM & Debit News
In Closing
Thank you!

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