

Can Smart Cards Reduce Payments Fraud and Identity Theft?

Presentation to the
KFC Customer Advisory Board

June 11, 2009

Richard J. Sullivan
Economic Research

Federal Reserve Bank of Kansas City

The views expressed in this presentation are those of the author and do not necessarily reflect those of the Federal Reserve Bank of Kansas City or of the Federal Reserve System.

Agenda

- Payment authorization and smart cards
 - Information-intensive payment authorization
 - The UK EMV rollout
- Why is it hard to stop payments fraud?
 - The “business case” and incentives
 - Coordinated criminal activity
 - Network technology and coordination
 - Standards development

Card payment authorization in the United States

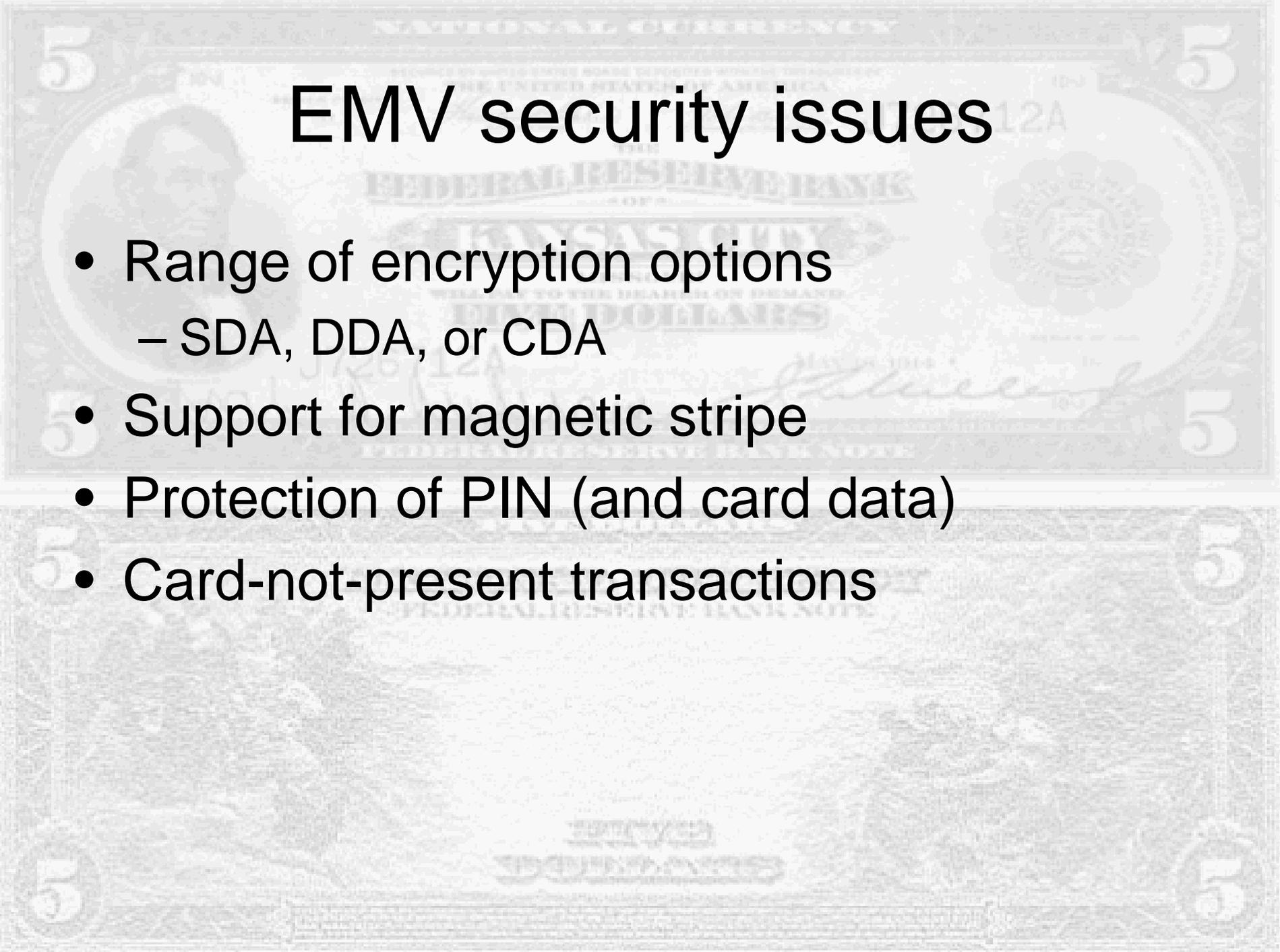
- Major tool used to fight payment fraud
- Information intensive
 - Card number, transaction information
 - Transaction analysis
 - Brick-and-mortar transactions: POS location, transaction patterns, customer zip code
 - Online transactions: customer address, transaction history at retailer, CVN, IP address, computer profile
- Card with PIN more secure
 - Two factor authentication
 - Often supplemented with transaction analysis

Payment smart cards

- Embedded computer chip
 - Makes counterfeiting cards difficult
 - Allows encryption to aid authorization
- EMV standard (“Chip and PIN”)
 - Most commonly used and becoming the de facto standard
- Worldwide adoption
 - UK, Euro area, Canada, Mexico, Brazil, Japan, and many other countries

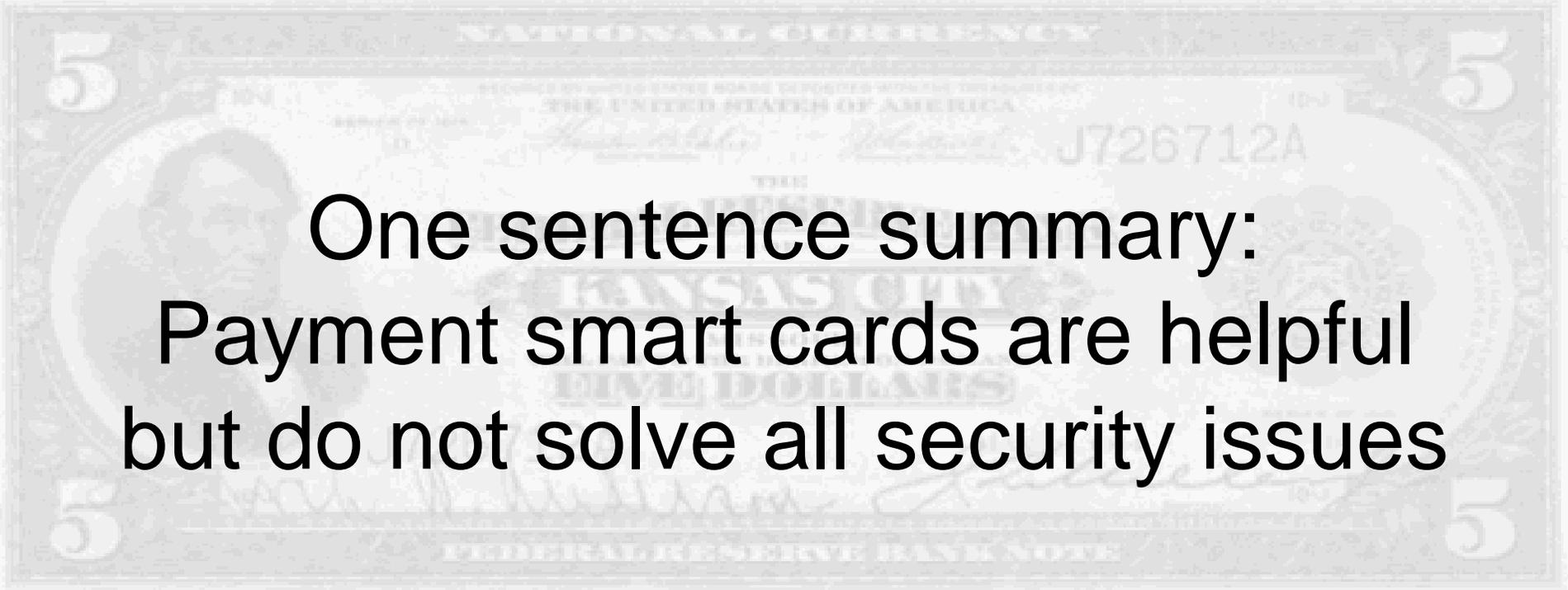
UK Rollout

- Reduced fraud at domestic ATMs and POS terminals
- Fraud migrated to areas of security weakness
 - MOTO, internet, foreign ATMs and POS
- Fraud on UK cards in other countries rose by 124% (2007 over 2004)
 - The U.S. was the number 1 target for this fraud in 2007



EMV security issues

- Range of encryption options
 - SDA, DDA, or CDA
- Support for magnetic stripe
- Protection of PIN (and card data)
- Card-not-present transactions



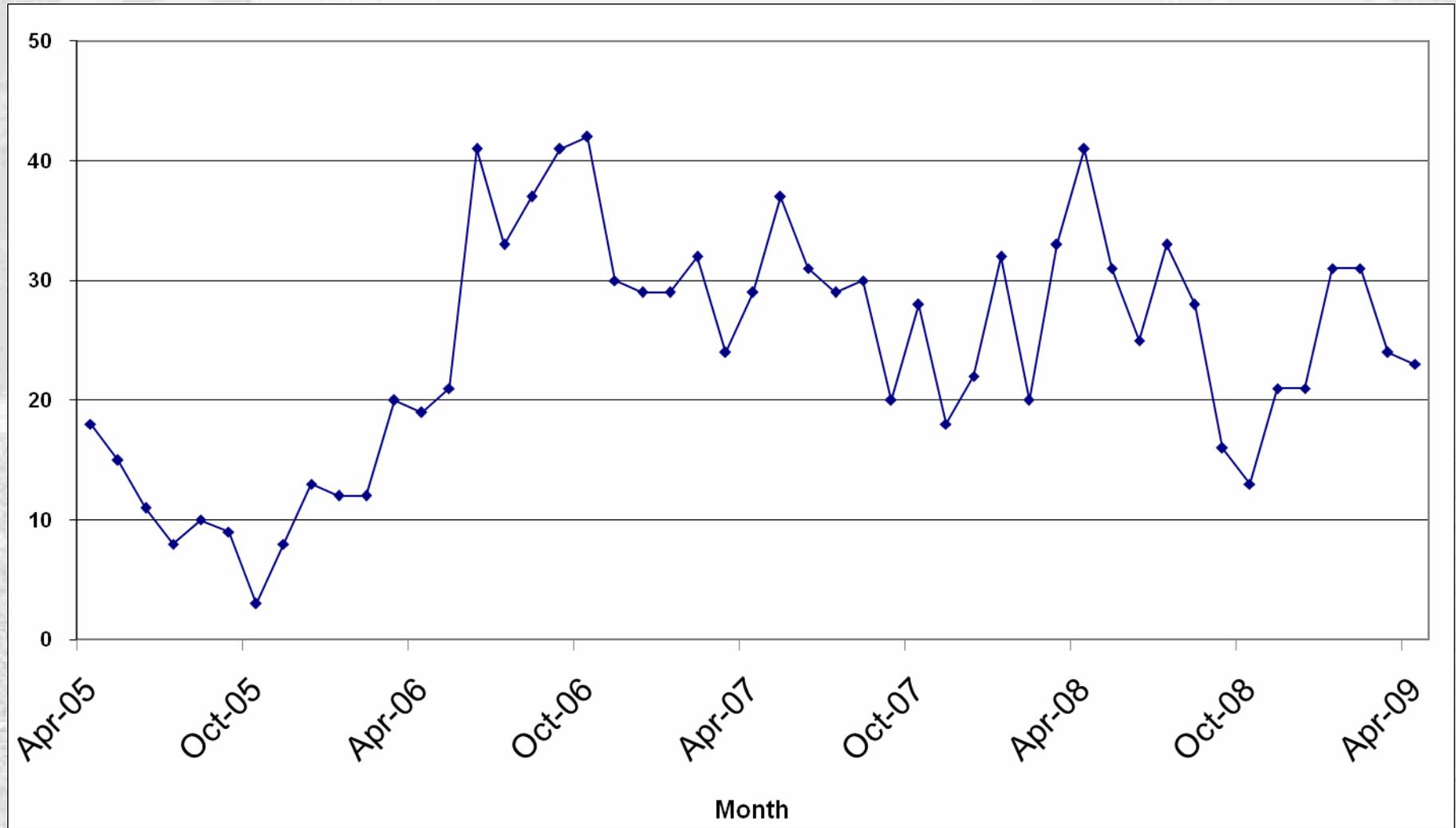
One sentence summary:
Payment smart cards are helpful
but do not solve all security issues

Challenges to adopting payment smart cards in the U.S.

- The “business case” is difficult to make
 - Private cost/benefit not favorable to issuers and networks
- Industry consensus: current fraud control methods are adequate
 - No one likes the losses but most trends do not suggest an increasing problem

Number of Publicly Reported Data Breaches

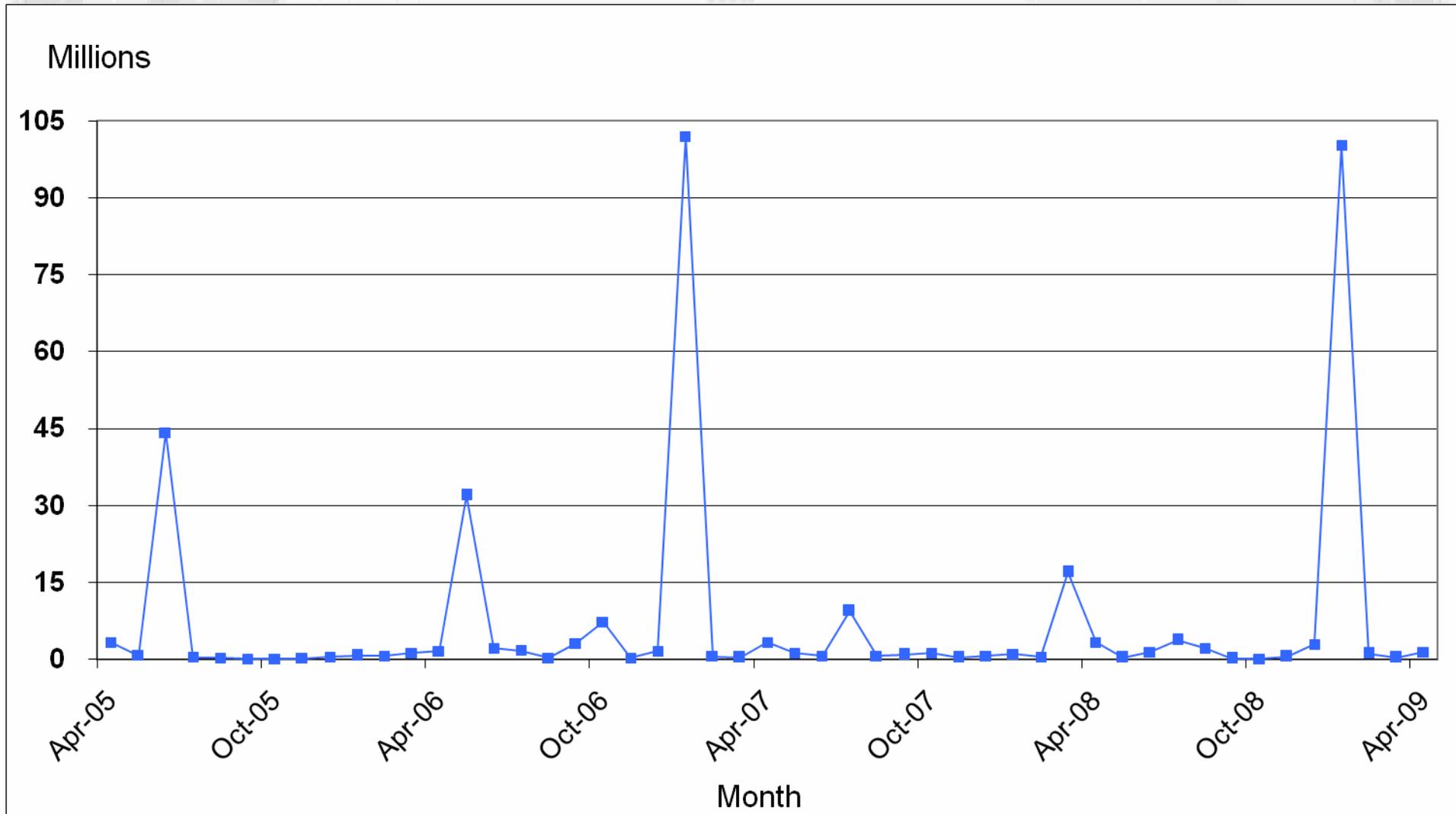
U.S., Monthly, April 2005-April 2009



Sources: Privacy Rights Clearinghouse website and author calculations. Note: twenty-one states implemented breach notification laws through May 2006, and 24 additional states implemented notification laws from June 2006 to July 2008. ; (See Perkins Cole law firm web site.)

Records Compromised in Publicly Reported Data Breaches

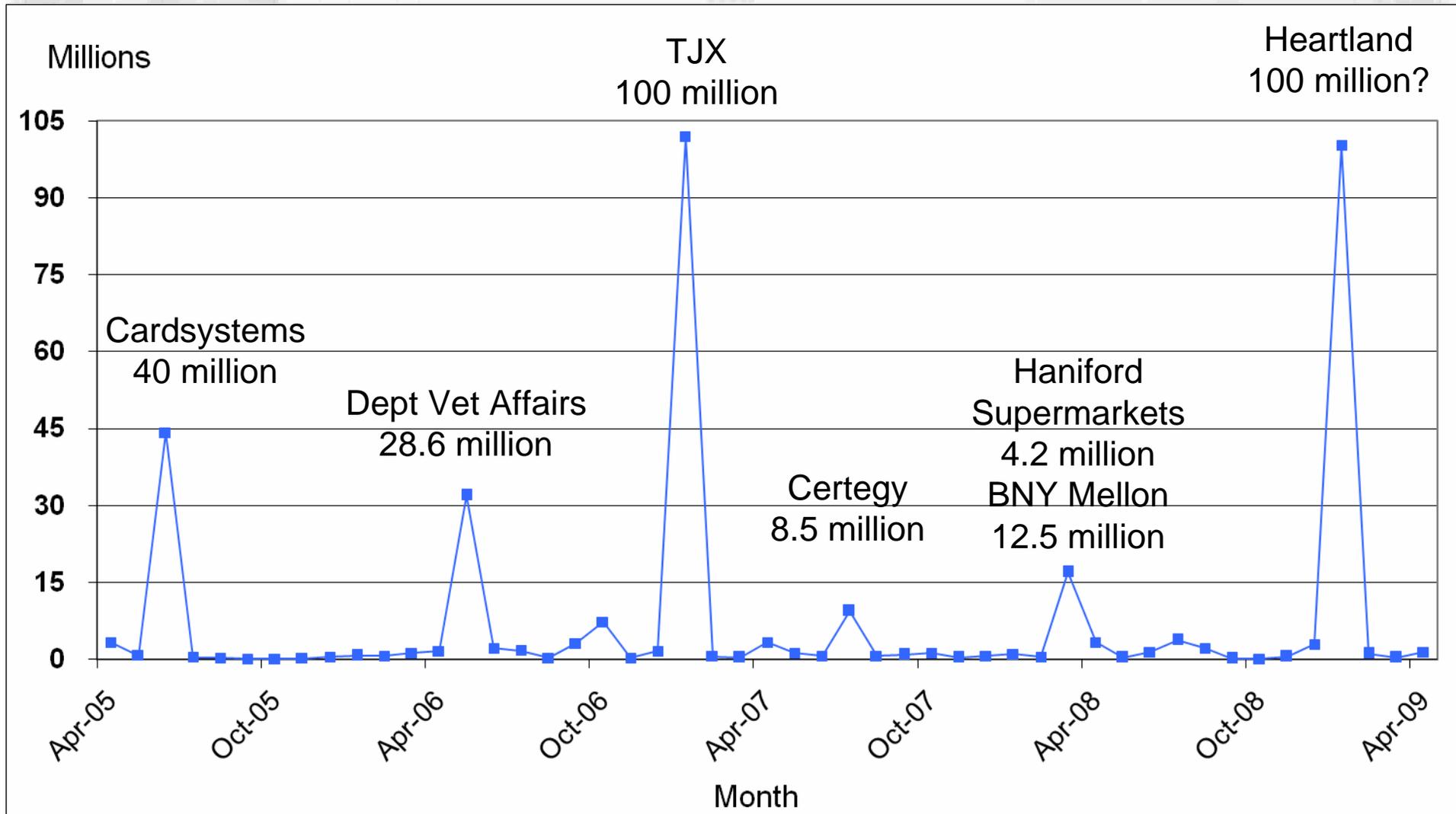
U.S., Monthly, April 2005-April 2009



Source: Privacy Rights Clearinghouse website and author calculations.

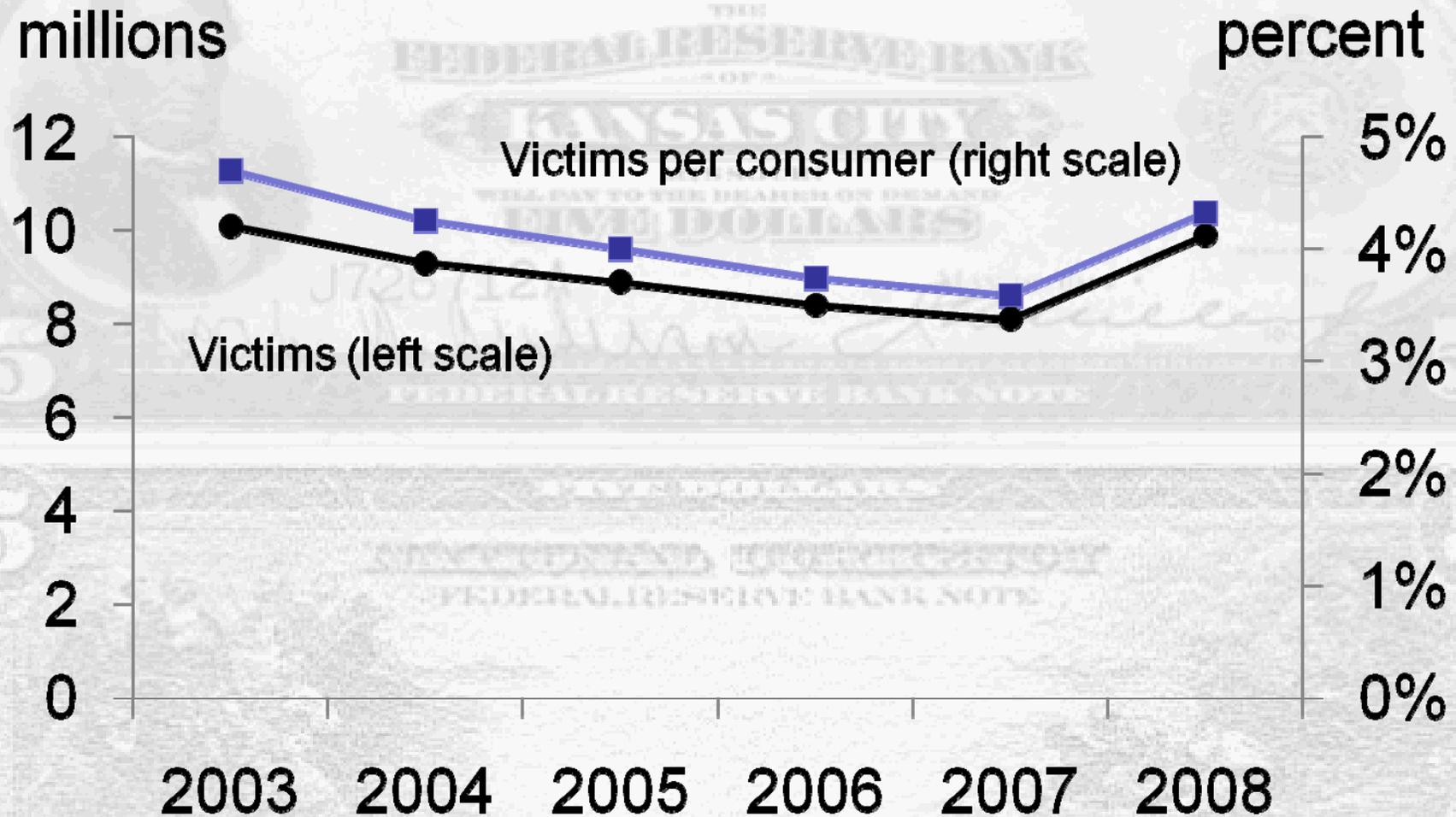
Records Compromised in Publicly Reported Data Breaches

U.S., Monthly, April 2005-April 2009

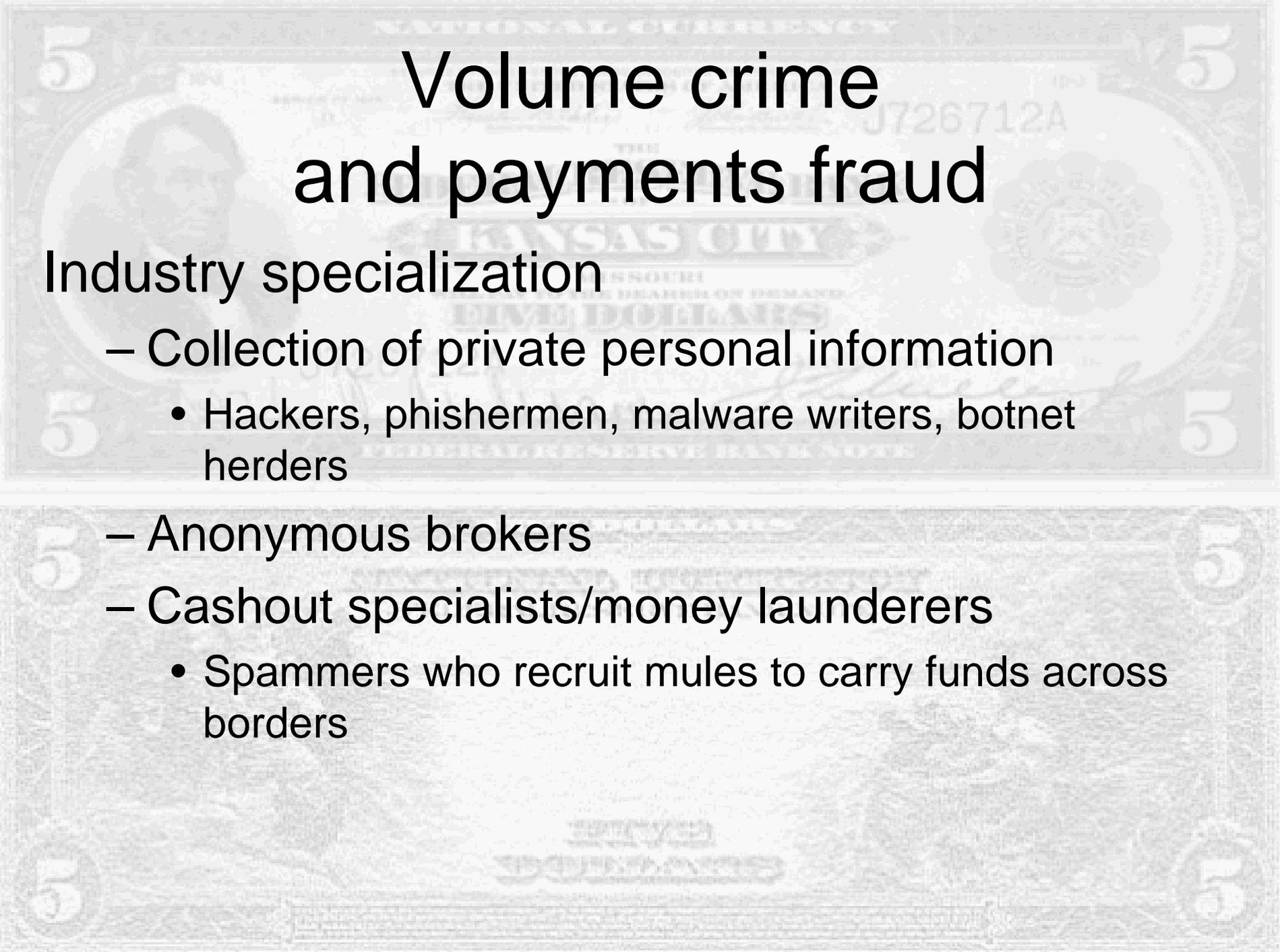


Source: Privacy Rights Clearinghouse website and author calculations.

Trends in ID Fraud



Source: Javelin Research

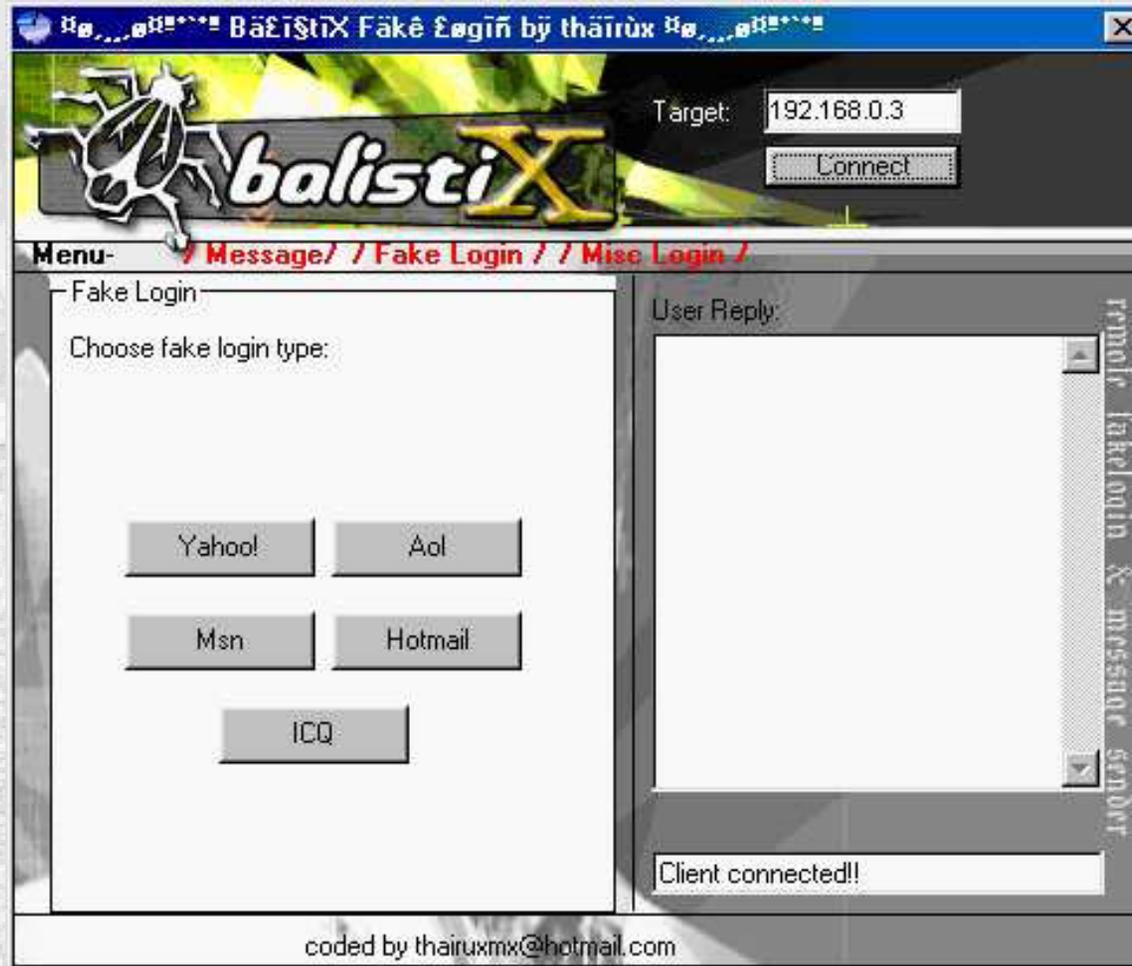


Volume crime and payments fraud

Industry specialization

- Collection of private personal information
 - Hackers, phishermen, malware writers, botnet herders
- Anonymous brokers
- Cashout specialists/money launderers
 - Spammers who recruit mules to carry funds across borders

Web trojan generator



Data theft crimeware interface

-- herman agent -- coded by matiteman

settings : _____

smtp server for your account :

the vic name :

receiver email address :

misc : _____

enable antivirus and firewall killer

add file to download and execute when done

install server

melt server

enable p2p spreading

information that will be sent _____

reorded password by Internet Explorer, Outlook Express and MSN Explorer,AutoComplete password

incredimail,eudora,group mail free,Microsoft Outlook 2002,2003 (POP3, IMAP, HTTP and SMTP Accounts + password)

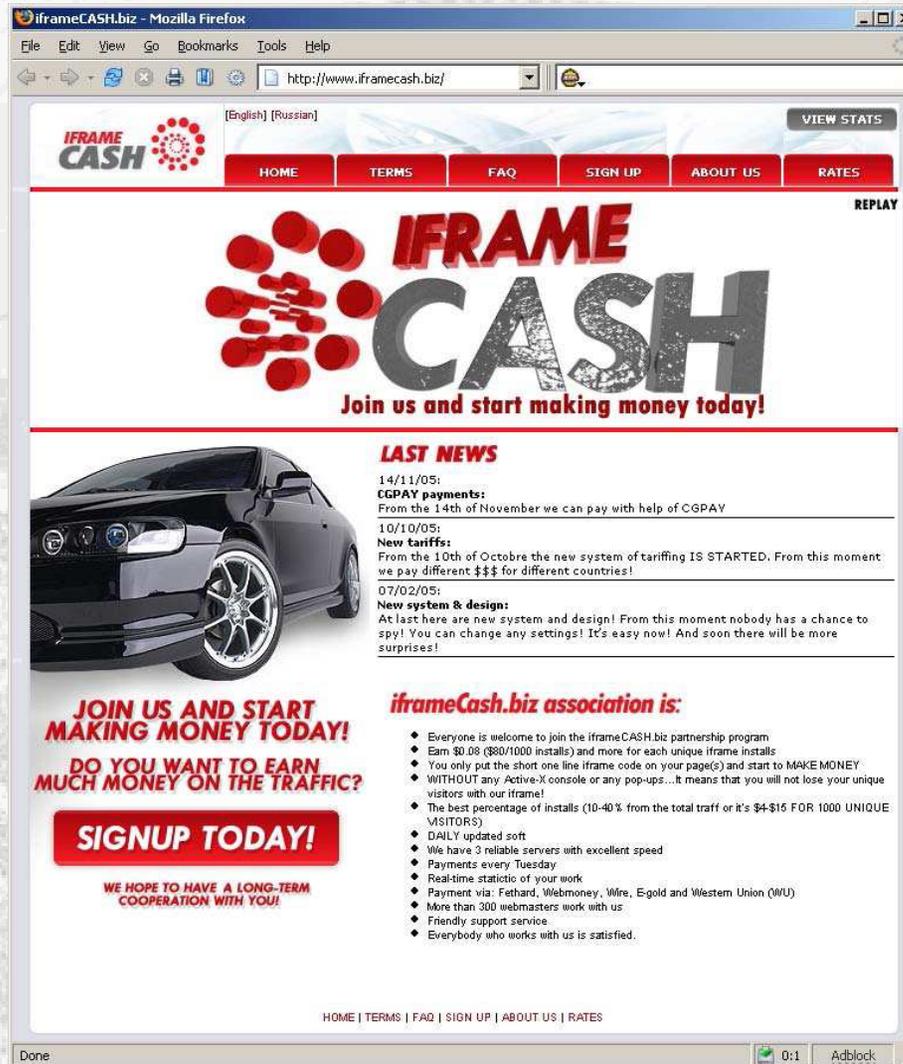
all Dial-Up entries their logon details: User Name, Password and Domain,the phone number .

the list of all applications that are loaded automatically when Windows boots

the list of all URLs stored in the history file of the current logged user

the list of installed services on remote system

Crimeware affiliate marketing



iframeCASH.biz - Mozilla Firefox
http://www.iframecash.biz/

[English] [Russian] [VIEW STATS](#)

IFRAME CASH

HOME | TERMS | FAQ | SIGN UP | ABOUT US | RATES

IFRAME CASH
Join us and start making money today!

LAST NEWS

14/11/05:
CGPAY payments:
From the 14th of November we can pay with help of CGPAY

10/10/05:
New tariffs:
From the 10th of Octobre the new system of tariffing IS STARTED. From this moment we pay different \$\$\$ for different countries!

07/02/05:
New system & design:
At last here are new system and design! From this moment nobody has a chance to spy! You can change any settings! It's easy now! And soon there will be more surprises!

JOIN US AND START MAKING MONEY TODAY!
DO YOU WANT TO EARN MUCH MONEY ON THE TRAFFIC?

SIGNUP TODAY!

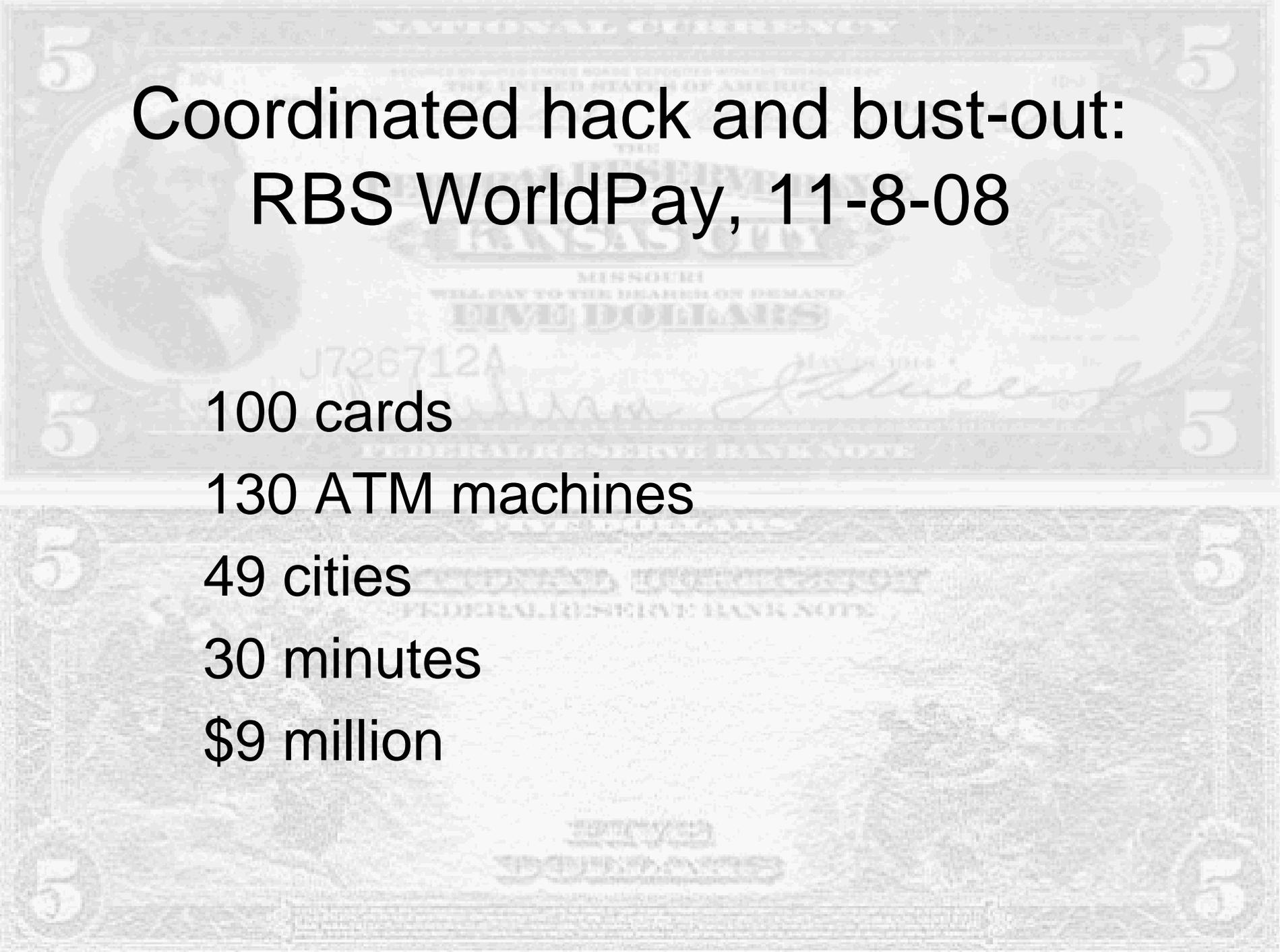
WE HOPE TO HAVE A LONG-TERM COOPERATION WITH YOU!

iframeCash.biz association is:

- Everyone is welcome to join the iframeCASH.biz partnership program
- Earn \$0.08 (\$80/1000 installs) and more for each unique iframe installs
- You only put the short one line iframe code on your page(s) and start to MAKE MONEY
- WITHOUT any Active-X console or any pop-ups... It means that you will not lose your unique visitors with our iframe!
- The best percentage of installs (10-40% from the total traff or it's \$4-\$16 FOR 1000 UNIQUE VISITORS)
- DAILY updated soft
- We have 3 reliable servers with excellent speed
- Payments every Tuesday
- Real-time statistic of your work
- Payment via: Fethard, Webmoney, Wire, Egold and Western Union (WU)
- More than 300 webmasters work with us
- Friendly support service
- Everybody who works with us is satisfied.

HOME | TERMS | FAQ | SIGN UP | ABOUT US | RATES

Done 0:1 Adblock



Coordinated hack and bust-out: RBS WorldPay, 11-8-08

100 cards

130 ATM machines

49 cities

30 minutes

\$9 million

Other challenges to payment smart cards adoption

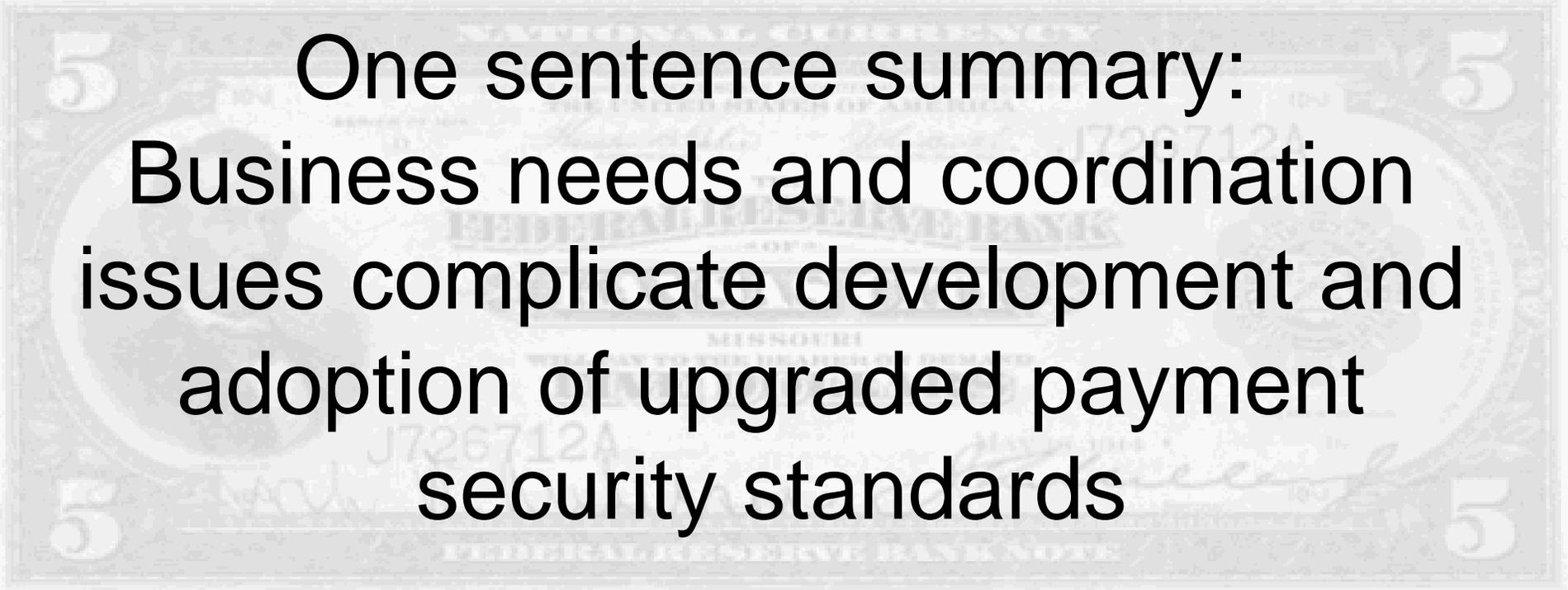
- Network structure of retail payments
 - Race to establish market share reduces priority of security development
 - Security standards require coordination across of network participants
- Market
 - Mismatch of costs and benefits across banks, merchants, consumers, and government

Could the U.S. develop a new standard for payment smart cards?

- X9.59
 - Requires simple computer chips, little authorization overhead, adaptable to non-card payments
 - Does not rely on personally identifiable information
- Standards setting
 - Centralized or decentralized

Success of SSOs

- Carefully design governance and scope
- Participation
 - Open with broad representation
 - Include key industry members
- Decision process fosters consensus
- Standard is well-defined, complete, and flexible
- Follow-up to maintain the standard

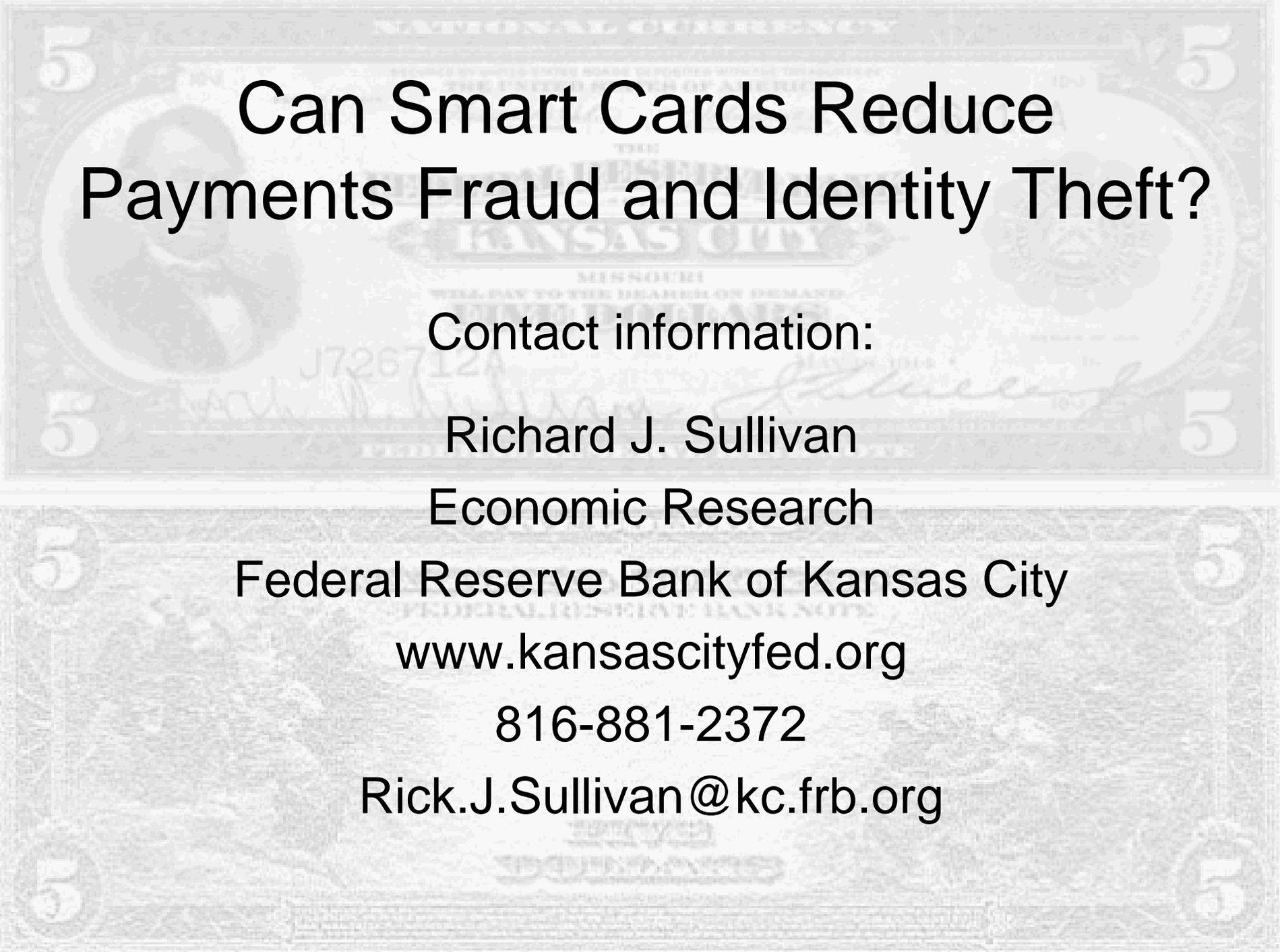


One sentence summary:
Business needs and coordination
issues complicate development and
adoption of upgraded payment
security standards



Summary

- The cost of payment fraud is manageable for now
- Payment smart cards can reduce some payment fraud but fraud is shifting towards security weaknesses
- The U.S. is not adopting these cards and will be an attractive target for fraud
- New standard could be developed but it would require leadership



Can Smart Cards Reduce Payments Fraud and Identity Theft?

Contact information:

Richard J. Sullivan

Economic Research

Federal Reserve Bank of Kansas City

www.kansascityfed.org

816-881-2372

Rick.J.Sullivan@kc.frb.org