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# Consumer Perspectives on Payment Speed & Security

**Reed Douglas Luhtanen** *Walmart Stores, Inc.*

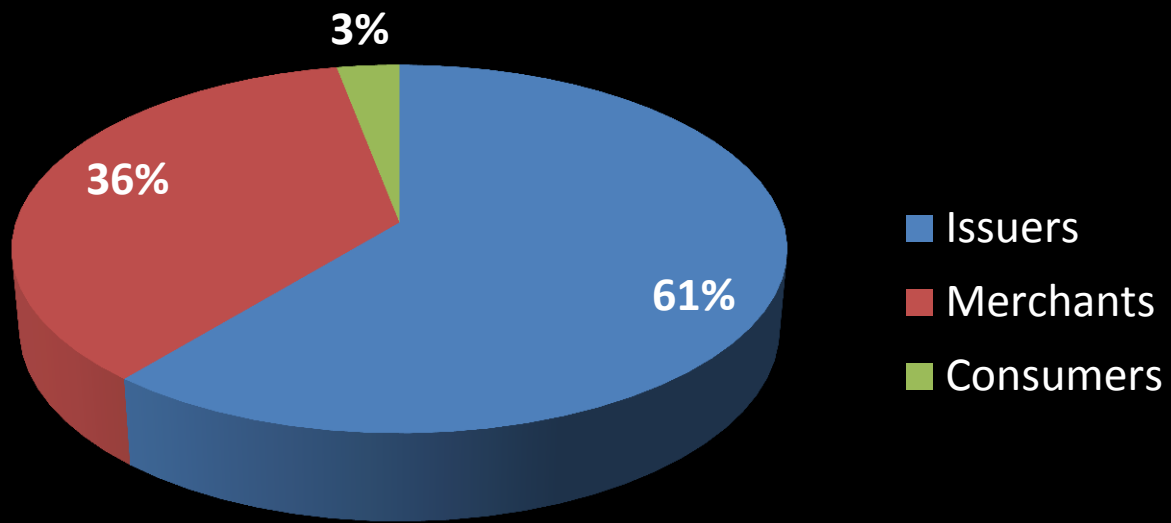
**Joanna Stavins** *Federal Reserve Bank of Boston*

**Martin Weiderstrand** *IKEA*

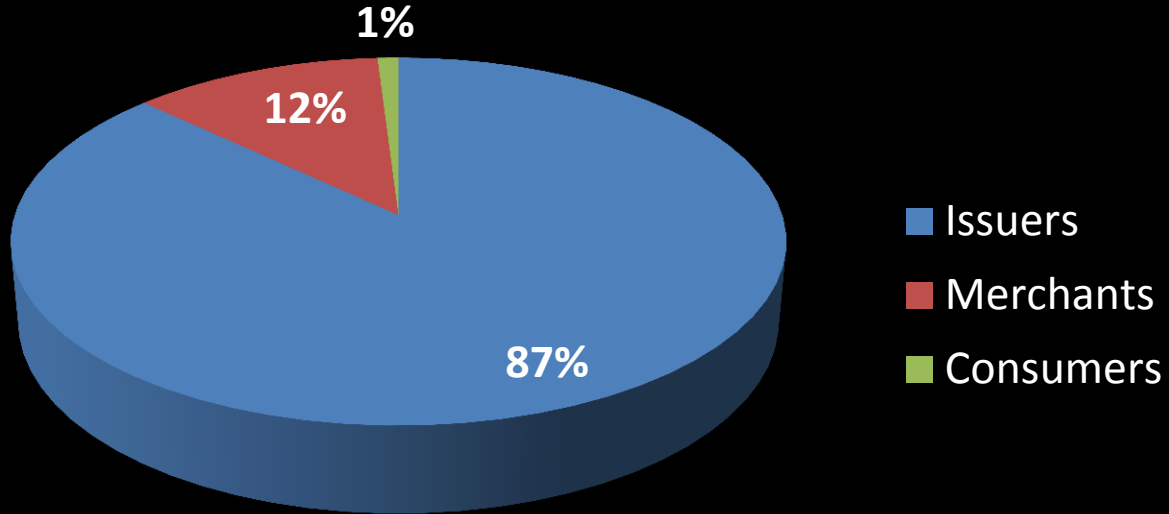
*NACHA Payments 2015 April 20, 2015*

\$4,000,000,000

# Fraud Losses



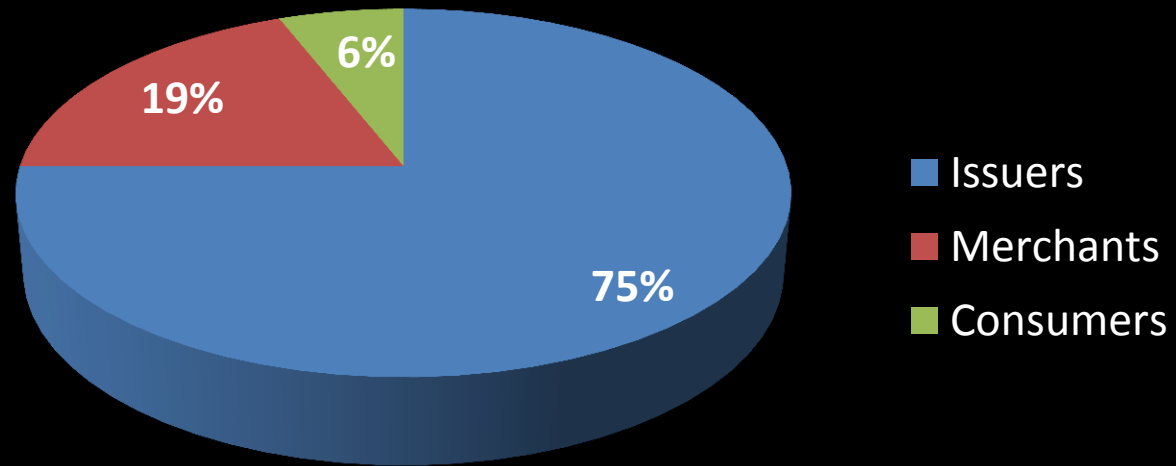
## Counterfeit Fraud Losses



**\$1,550,000,000**



## Lost and Stolen Fraud Losses



**\$500,000,000**



## Debit card fraud hit record low in Canada last year

### Canada AM: Decrease in debit card fraud



Mark Sullivan, head of Interac's Fraud Risk Programs explains what makes chip and pin technology difficult to fabricate.

“Because your Personal Identification Number (PIN) replaces your signature, the transaction is more secure.”

-- Visa in Canada

[Credit Cards](#) > [Credit Card News](#) > U.K. credit card fraud on the decline

## U.K. credit card fraud on the decline

By UK CreditCards.com

Published: 14 October 2010

g+1

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1



Email story



SHARE



A new report from the UK Cards Association shows initiatives undertaken by industry insiders are helping to reduce the risk of credit card fraud.

### Credit card fraud declining

According to the UK Cards Association, an umbrella organisation for the cards industry in the UK, the first six months of 2010 saw a 20% reduction in total fraud losses on UK cards. By June this year, losses had fallen to £186.8m, which constituted the lowest half-year total for a decade. Melanie Johnson, chair of the UK Cards Association, says this can be attributed to the determination on the part of UK card companies to limit fraud losses.

### How has progress been achieved?

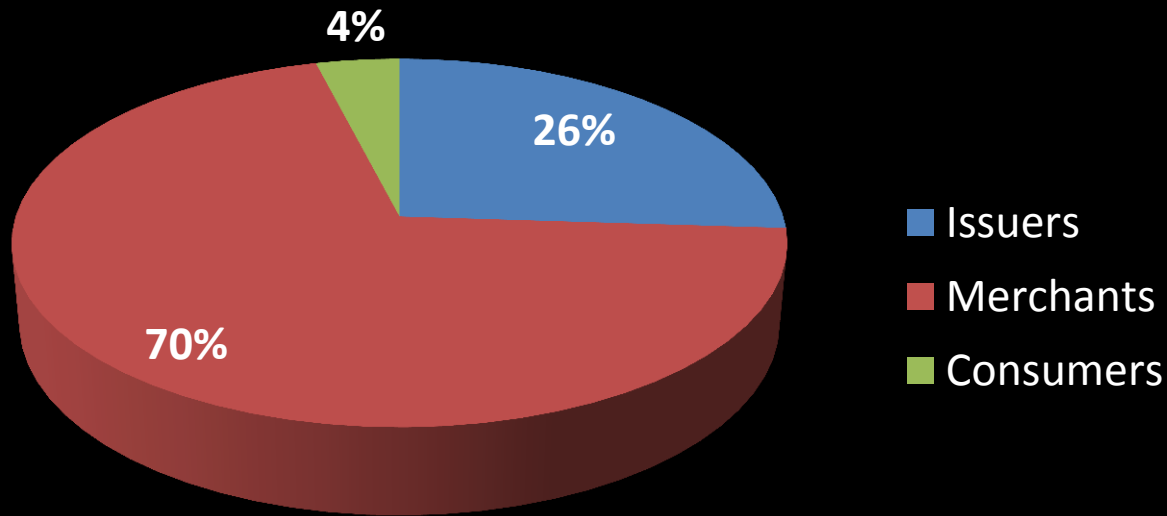
Action has been taken in a number of areas, including the continuing roll-



“The decline in Lost/Stolen and [Not Received as Issued] fraud in the United Kingdom...is considered by Visa to be substantially, if not entirely, attributable to mandatory PIN@POS.”

-- Visa and MasterCard

## Card-not-Present Fraud Losses



**\$1,750,000,000**



## The Impacts of EMV:

### **WHY CARD NOT PRESENT ("CNP") MERCHANTS NEED TO BE PREPARED**

As EMV rolls out in the U.S., CNP fraud is predicted to more than double by 2018, from \$2.8 billion to over \$6.3 billion.<sup>1</sup> Given the recent data breaches and overall increases in ecommerce fraud, account takeover and card fraud are top of mind for merchants. The rollout of EMV is widely expected to increase these risks as the CNP channel becomes the most accessible and profitable route for fraudsters.



So what should CNP merchants be doing to strengthen their risk management against emerging and increasing threats online? Our white paper will explore the projected growth rate of both e-commerce and CNP fraud and how the EMV rollout will compound this already alarming problem. We will also discuss some prudent, preventative measures to consider in advance of EMV implementation to protect their business as the CNP landscape evolves.

“One of the most effective ways of combating fraud...is to make the use of PIN for customer verification compulsory.”

-- Visa and MasterCard

**Enter your PIN onto the PIN-pad using your mouse.**





“Static data is the problem we are having.”

-- Ellen Richey, Visa



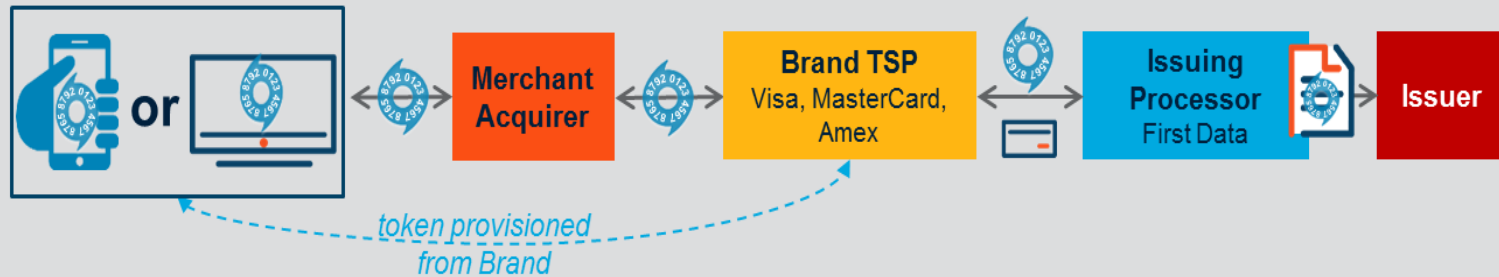
“The EMVCo spec supports static, domain-specific payment tokens with a token cryptogram. ”

-- Mobile Payments Industry Workgroup

**Visa**  
**Discover**  
**JCB**

**MasterCard**  
**American Express**  
**UnionPay**

## Digital Payment Tokens – In App and COF



Token is stored in Device or card-on-file (COF) merchant and is unique for each

Brand sends the PAN and token through to Issuing Processor

Token data reports provided to Issuer

Standard Chartered



123456



5149 1612 3456 7890 PLATINUM

5149 valid to 01/08

DARYL TAN



1

2

3

4

5

C

6

7

8

9

0

OK

OTP

SIGN



camera

# \*PINWISE

AN INDUSTRY SECURITY INITIATIVE





Ditch your pen for a **\*PIN**

From August 1st you'll need a PIN  
for credit and debit card transactions.

Get yours now.



Use your *pen*

**NOT YOUR PIN.**

PULASKI BANK

*DreamMiles*  
Rewards!

Earn DreamMiles® Reward points with your Pulaski Bank Visa® check card purchases!

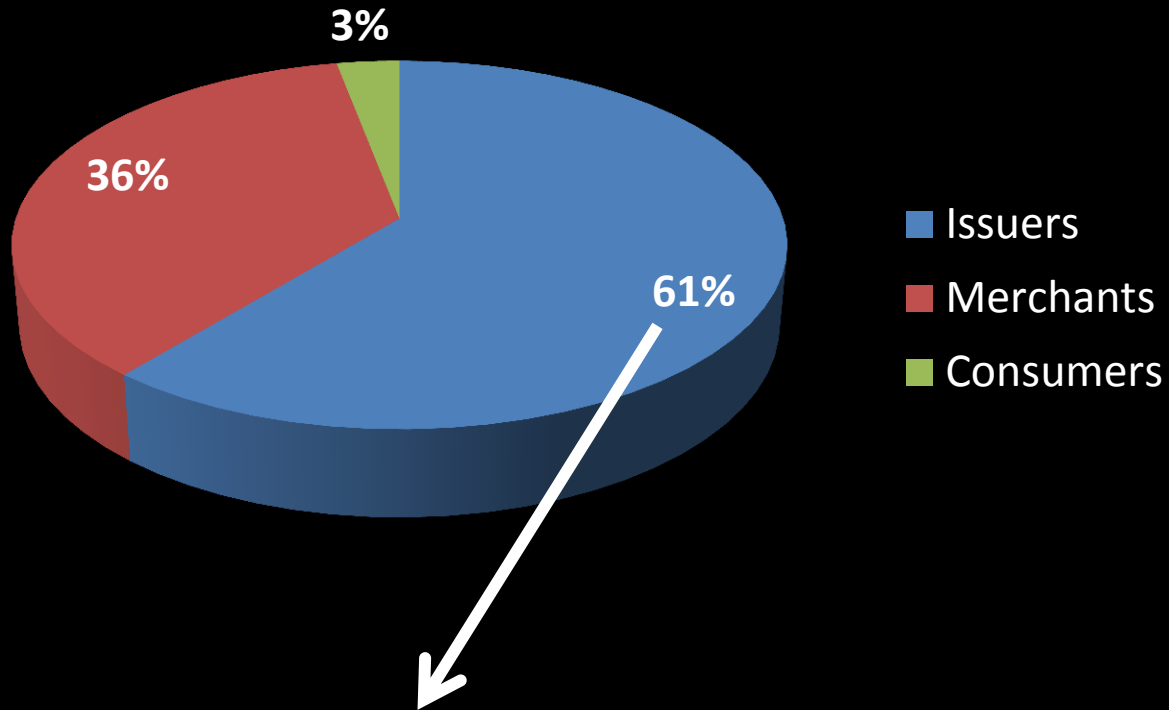
Member **FDIC**



Our objective is to get chip cards out there [In the United States]; “chip and choice” is our recommendation.

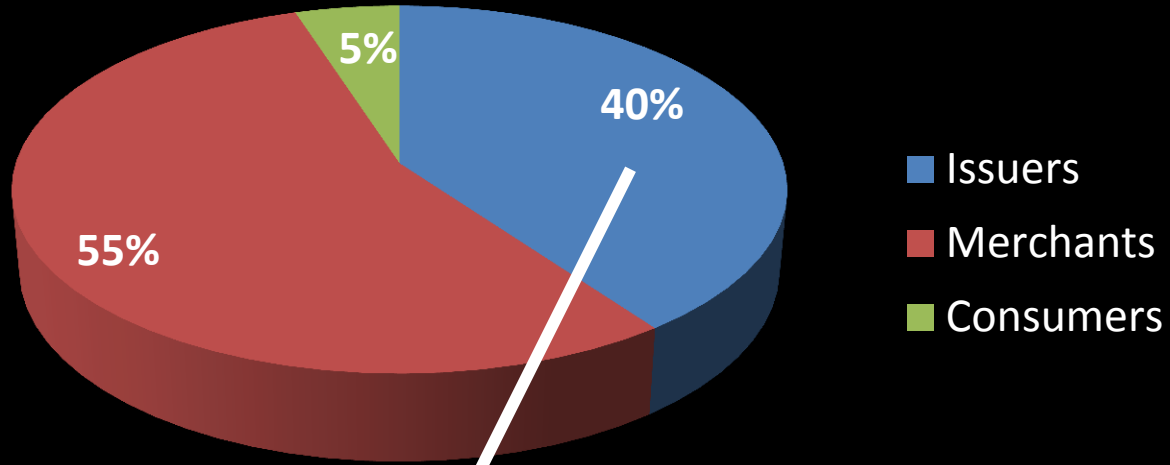
-- Ellen Richey, Visa

## Fraud Losses



**\$2,400,000,000**

# Fraud Losses w/o Counterfeit



**\$1,060,000,000**

	<b>Issuers</b>	<b>Merchants</b>	<b>Consumers</b>
Current Fraud	\$2,420,000,000	\$1,430,000,000	\$119,000,000
Fraud Eliminated	\$1,350,000,000	\$210,000,000	\$5,000,000
Remaining w/o Counterfeit	\$1,060,000,000	\$1,220,000,000	\$114,000,000
<b>Percent of Fraud Remaining</b>	<b>44%</b>	<b>85%</b>	<b>96%</b>

# How Do Speed and Security Influence Consumers' Payment Behavior?

**Joanna Stavins\***

Senior Economist and Policy Advisor  
Federal Reserve Bank of Boston

Presented at the NACHA Payments 2015 Conference

New Orleans  
April 20, 2015

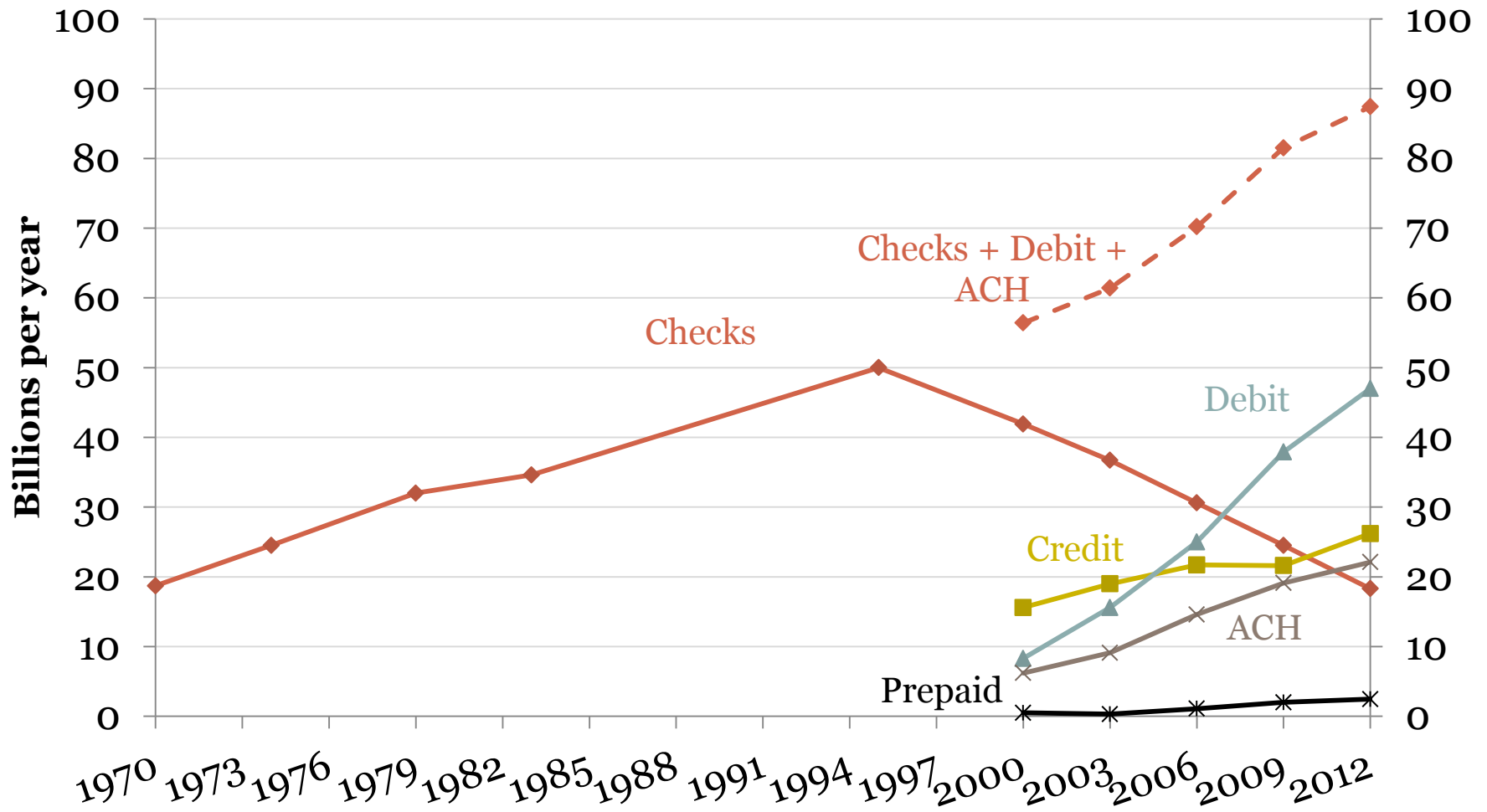
\*Views expressed here do not necessarily represent the views of the Federal Reserve Bank of Boston or the Federal Reserve System. 2013 and 2014 survey results are preliminary and subject to revisions.

# Background

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- Speed and security: main strategic goals
  - Federal Reserve's Financial Services Strategic Plan
- Federal Reserve followed up with market research on speed and security
- We estimate effects on consumers
  - What do consumers care about?
  - How does speed and security affect their payment use?
  - Merchants and banks might get additional benefits

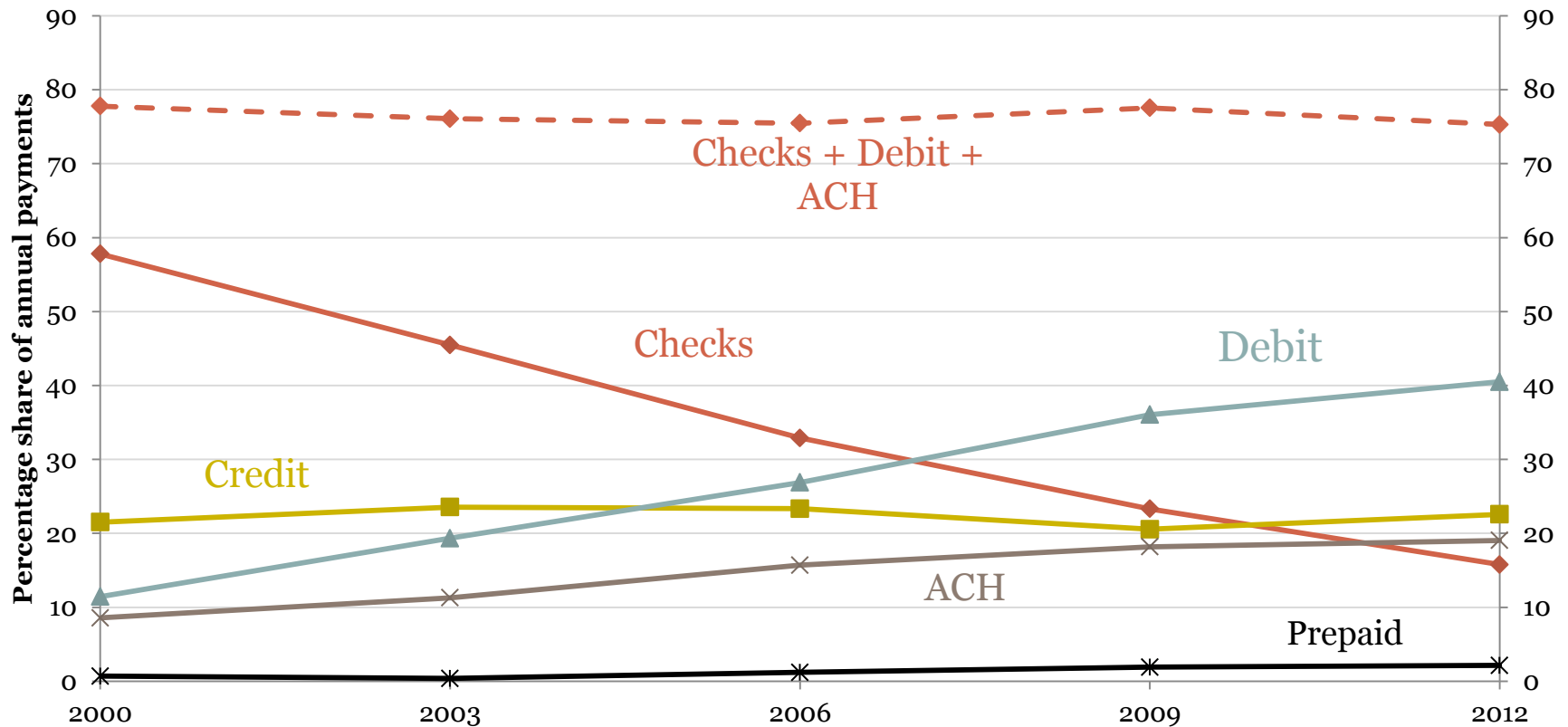
# Number of noncash payments, U.S. total *substitution among ways of accessing bank accounts*



Source: Federal Reserve Payment Study (FRPS); Benton, et al. (2007)

# Share of U.S. noncash payments

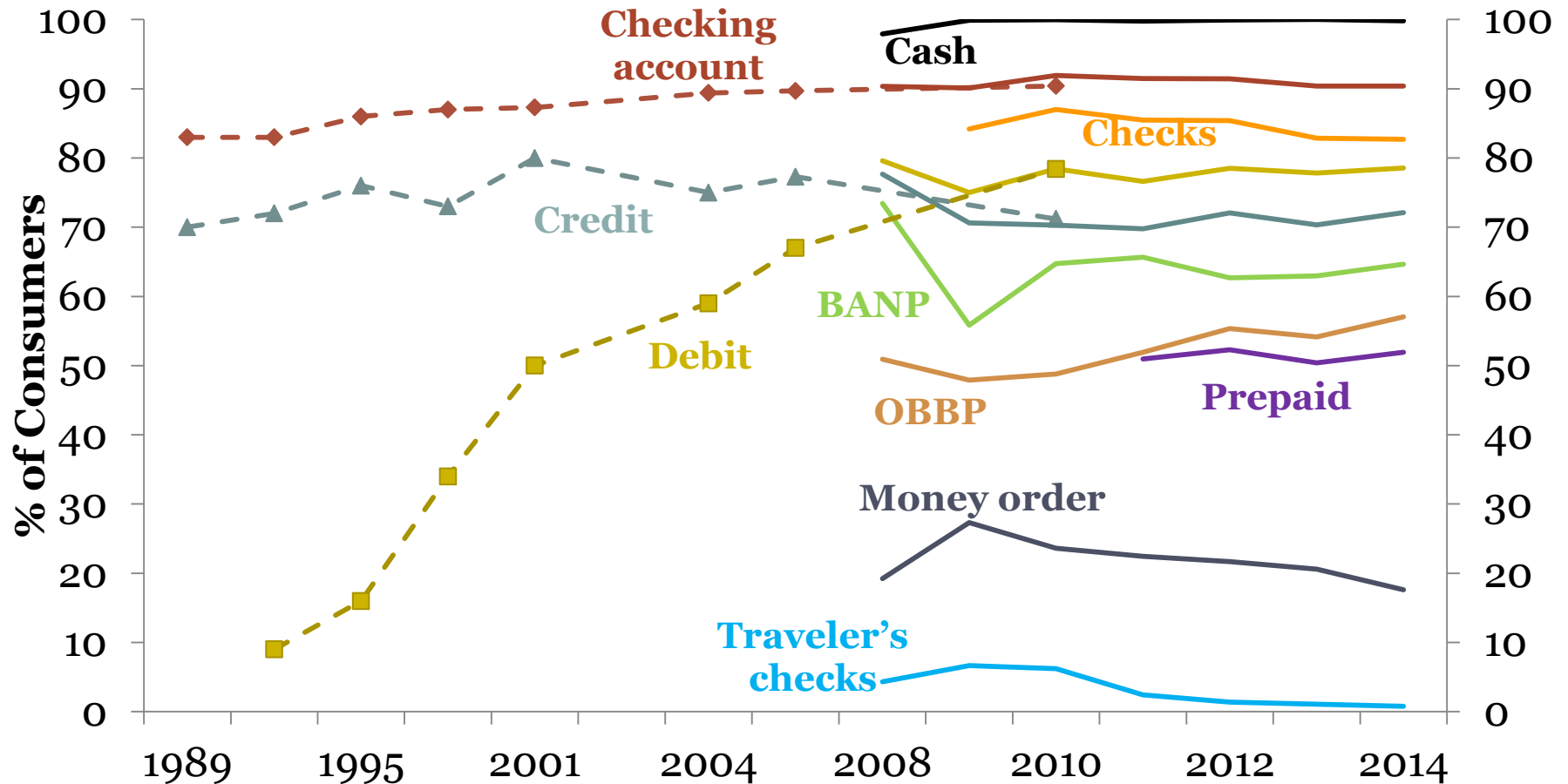
## All sectors (household, business, government)



Source: Federal Reserve Payment Study (FRPS).



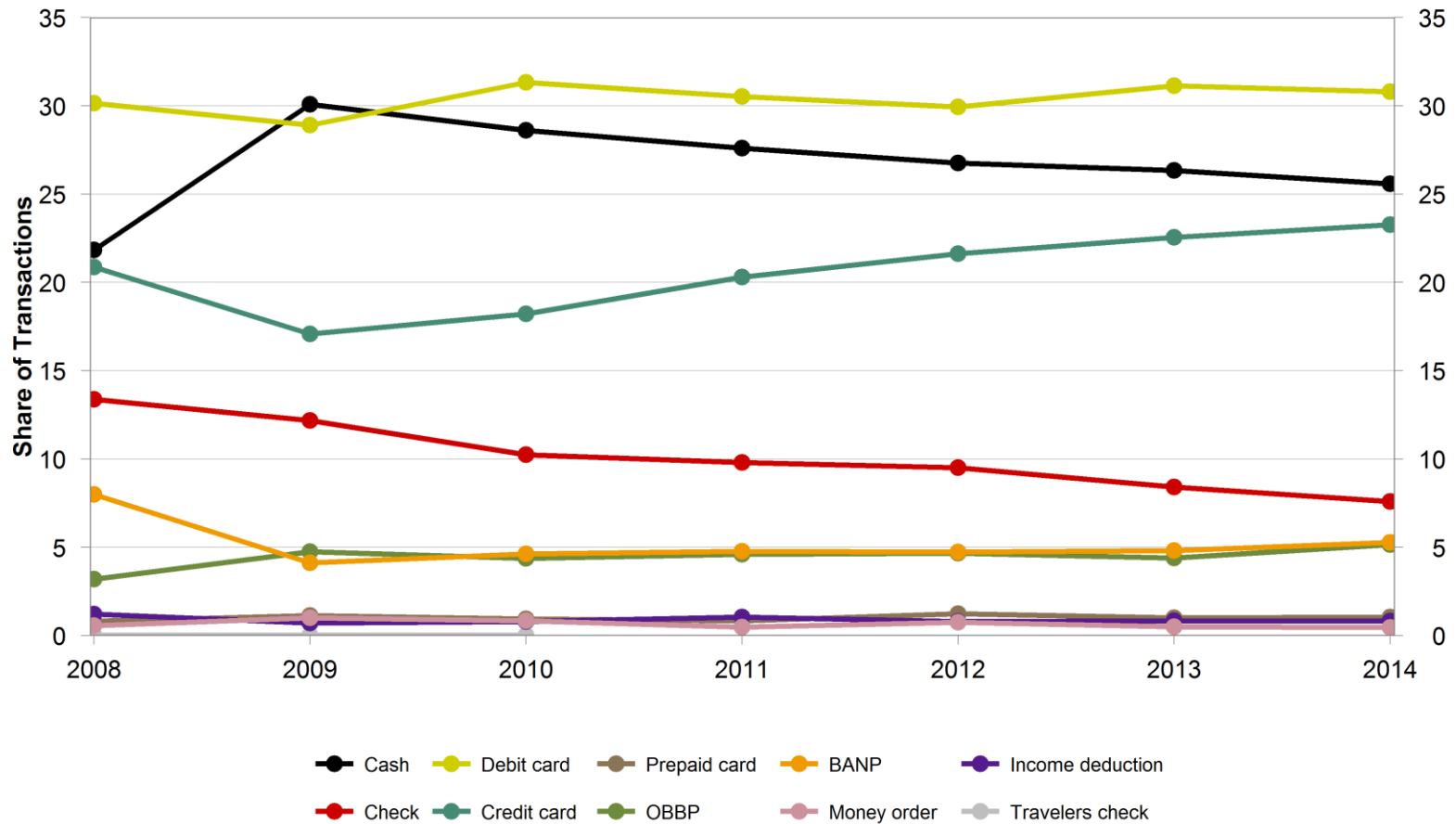
# Consumer holding of payment instruments



Source: Survey of Consumer Payment Choice; Survey of Consumer Finance

# Payment use fairly stable year to year

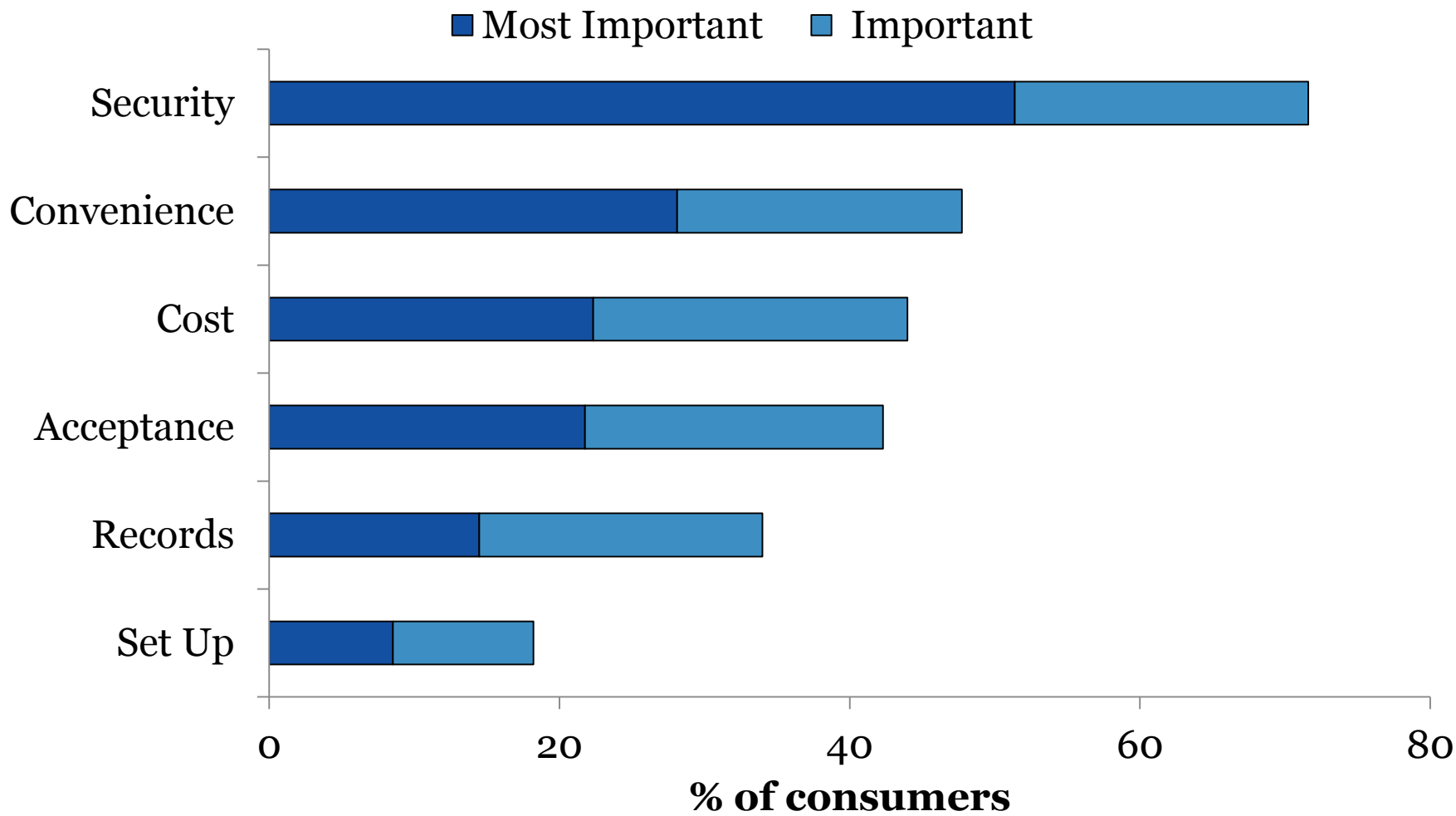
*shares of all transactions by method, 2008–2014*



# What we measured in prior surveys

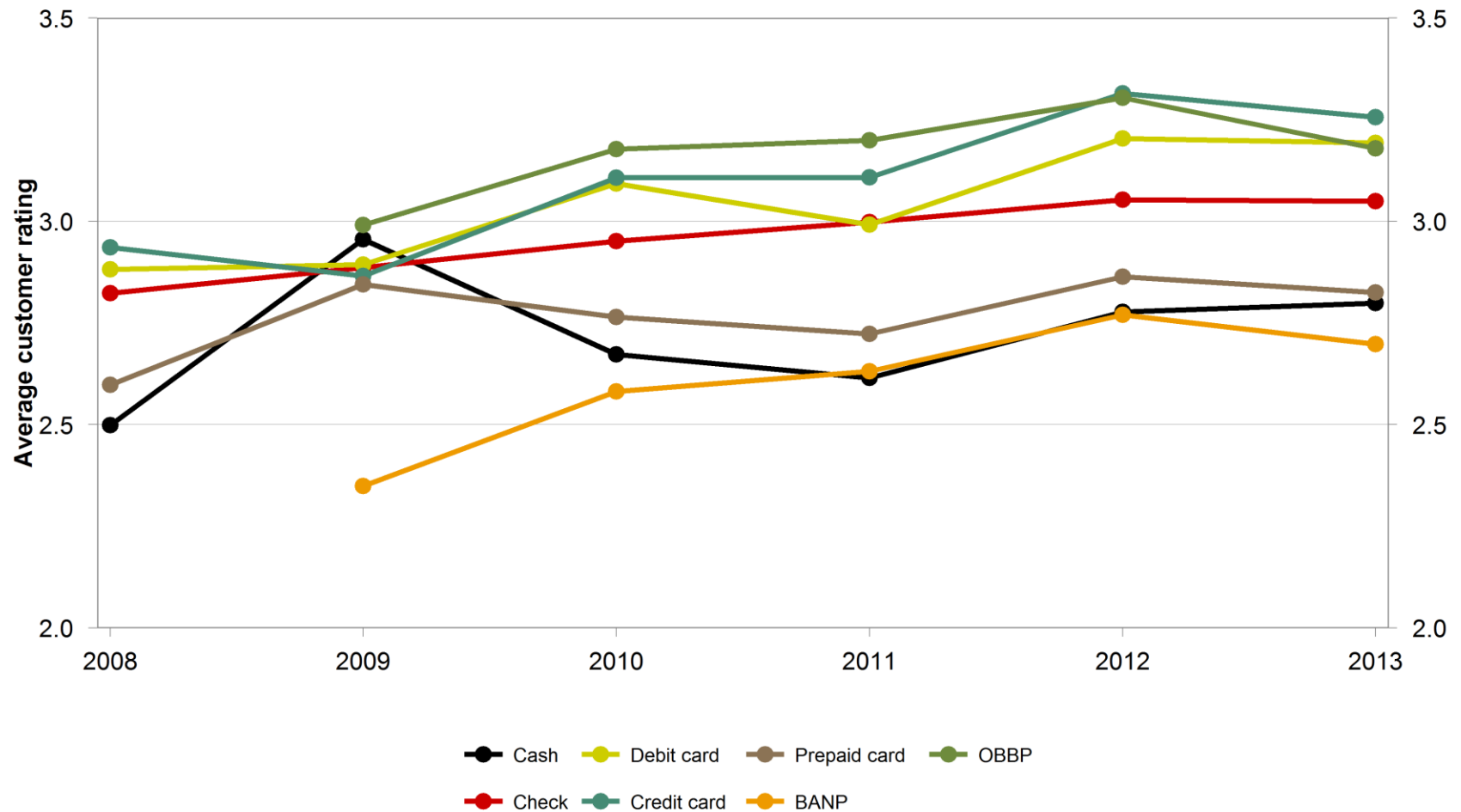
	2008	2009	2010	2011	2012	2013
Acceptance	✓	✓	✓	✓	✓	✓
Speed	✓					
Security	✓	✓	✓	✓	✓	✓
Cost	✓	✓	✓	✓	✓	✓
Convenience	✓	✓	✓	✓	✓	✓
Record keeping	✓		✓	✓	✓	✓
Control over timing	✓					
Setup	✓		✓	✓	✓	✓

# Importance of payment characteristics (2012)

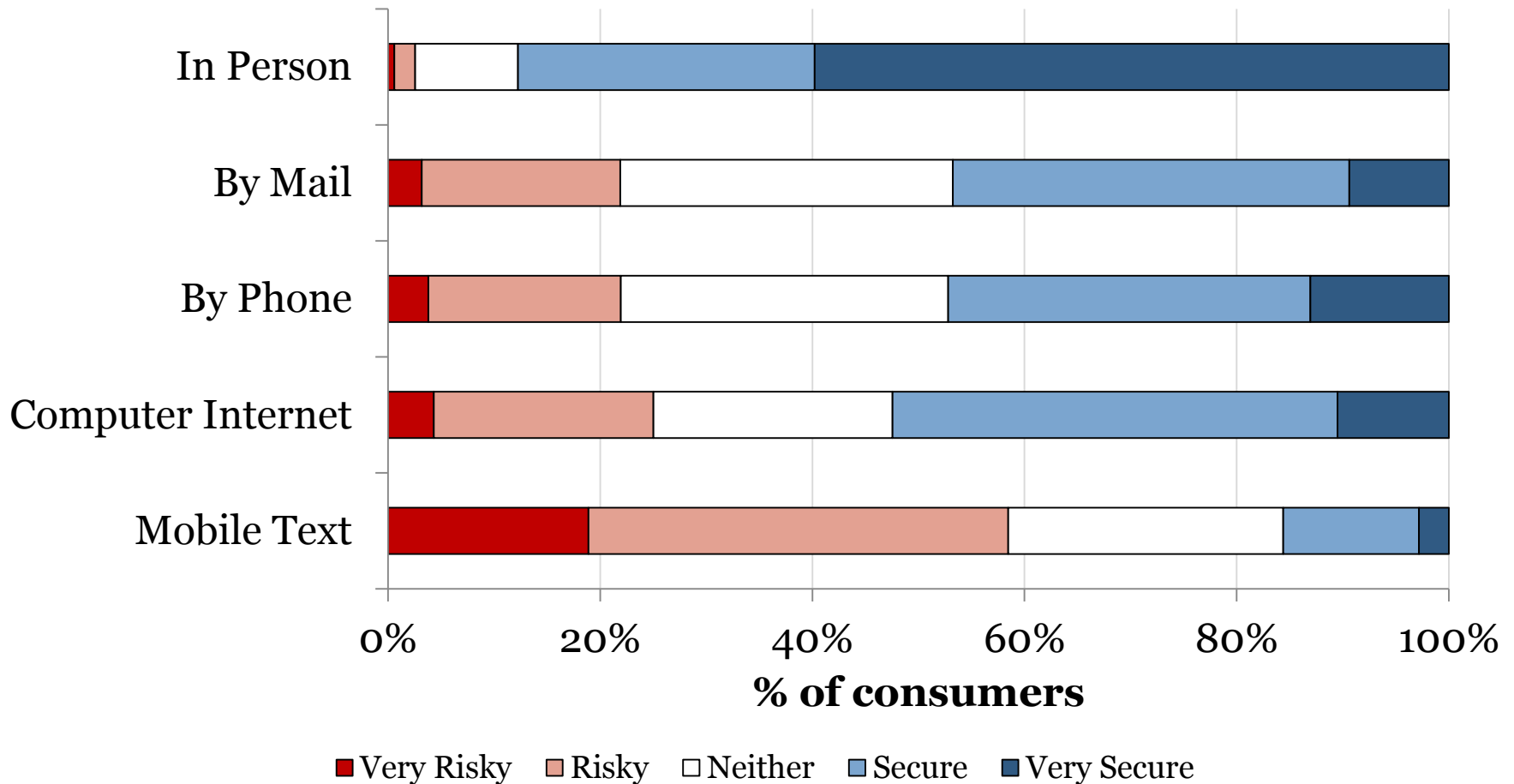


2012 Survey of Consumer Payment Choice

# Security ratings improved slightly over time



# Security by payment location



Source: 2012 Survey of Consumer Payment Choice;

# Speed questions added to survey in 2013

- Speed at time of payment
- Speed of payment deduction
- Speed of recipient receiving payment
- Speed of notification of balances



# Security questions added to survey in 2013

- Financial loss
- Disclosure of personal information
- Confidentiality of payment transactions







# Security is rated least favorably

	Cash	Check	Debit card	Credit card	Prepaid card	OBBP	BANP
Acceptance for payment	4.6	3.4	4.4	4.5	3.9	3.5	2.7
Acquisition & setup	4.2	3.7	4.0	3.7	3.5	3.5	3.4
Cost	4.4	3.8	4.0	2.9	3.3	4.0	3.9
Convenience	4.1	3.3	4.3	4.3	3.4	3.9	3.2
Record keeping	2.3	4.1	4.1	4.3	2.8	4.2	4.0
Security	2.8	3.0	3.2	3.3	2.8	3.2	2.7

## Components of Security...

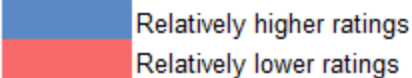
	Cash	Check	Debit card	Credit card	Prepaid card	OBBP	BANP
Security of financial wealth	2.6	2.7	2.9	3.1	2.6	2.9	2.8
Security of personally identifiable information	3.9	2.7	2.9	2.9	3.3	2.9	2.6
Security of transaction confidentiality	3.6	2.9	2.9	2.8	3.1	2.8	2.8

Source: 2013 Survey of Consumer Payment Choice.

 Relatively higher ratings  
 Relatively lower ratings

# Cash gets highest security ratings

	Cash	Check	Debit card	Credit card	Prepaid card	OBBP	BANP
Security of financial wealth	2.6	2.7	2.9	3.1	2.6	2.9	2.8
Security of personally identifiable information	3.9	2.7	2.9	2.9	3.3	2.9	2.6
Security of transaction confidentiality	3.6	2.9	2.9	2.8	3.1	2.8	2.8


 Relatively higher ratings  
 Relatively lower ratings

Source: 2013 Survey of Consumer Payment Choice

# Importance ranking

- Security ranked more important than speed

		Least important	Most important
Security	Financial loss	2.0	56.3
	Personal info	3.3	30.5
	Confidentiality	7.1	19.8
Speed	At checkout	13.2	13.1
	Deduction	14.5	10.9
	Notification	12.9	10.0
	Recipient	24.7	9.7

Note: percentages add to 100; 2013 SCPC

# Econometric research

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- Used survey data to test whether and how faster speed or more secure payments affect consumer payment behavior.
  - Do they affect adoption and/or use of payment instruments?
  - What would happen if payments are processed faster or become more secure as a result of Fed policy?

# Only security of wealth makes a (small) difference

	Debit	Credit
Percent share of use (2013)	28.63	19.49
	10% increase in assessment	
Increase All Components of Security	.16	.10
<b>Security of Wealth</b>	<b>.16</b>	<b>.22</b>
Security of Personally Identifiable Information	.02	-.04
Security of Confidential Information	-.02	-.08

**For every 1% improvement in security → less than 0.1% ↑ in card use**

# Changes in security of payments

- Direct effect of security changes on consumer behavior likely small in the short run
- Target and other breaches did not lower credit or debit use from 2013 to 2014
- Fraud is a big issue, even though no quantitative reaction
  - *may reinforce payment system stability and trust*

# Only speed of deduction makes a (small) difference

	<b>Online Banking Bill Pay</b>	<b>Bank account number payment</b>
Adoption, Percentage of Consumers (2013)	55%	63%
	10% increase in assessment	
Increase Speed of Deduction and Notification	.43	.37
Increase Speed of Deduction	.32	.41
Increase Speed of Notification	.11	-.04

**For every 1% improvement in speed → less than 0.1% ↑ in adoption**

# Changes in speed of payments

---

- Speed at checkout most important for consumers
- Faster payment deduction for ACH would increase adoption of ACH-based payment methods
  - **But effect small in magnitude**



# Other research on speed and security

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- Effects of security breach announcements in newspapers are small and short lived (Kosse 2013)
- Negative perception of security lowers adoption of new payment methods and use of established methods (Stavins 2013)
- Experiencing identity theft might affect payment behavior (Kahn and Liñares-Zegarra 2013)

# Consumer Payments Research Center (CPRC)

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<http://www.bostonfed.org/economic/cprc>

Joanna Stavins  
Senior Economist and Policy Advisor  
Federal Reserve Bank of Boston  
joanna.stavins@bos.frb.org

# Speed & Security

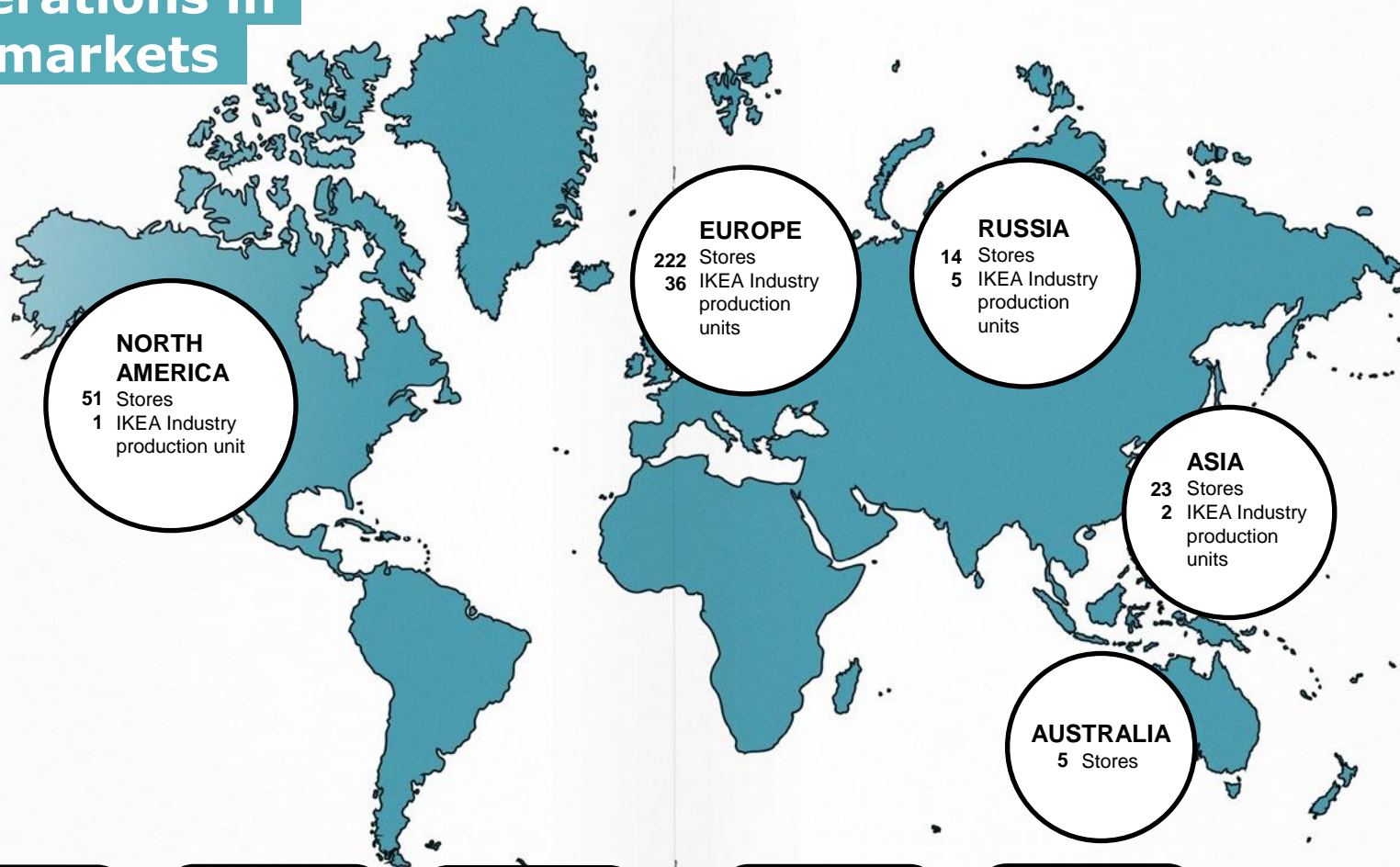
Some reflections on  
consumer behaviour  
from IKEA data and  
studies



Martin Weiderstrand – Senior Advisor Payments



# Operations in 42 markets



**315**  
IKEA Group stores located in 27 countries\*

**716**  
Million store visits

**1.5**  
Billion visits to IKEA.com

**59%**  
of production takes place in Europe

**1002**  
Home furnishing suppliers in 51 countries

\*We had 315 stores in 27 markets as of August 31, 2014





# IKEA Group at a Glance FY14

**€28.7 billion**

Total sales FY14

**147,000**

Total number of co-workers FY14

**47%**

of managers are women

**315**

IKEA Group Stores in 27 countries

**270 million**

visits to our 14 shopping centres in Russia

**224**

**Wind turbines**

We've committed to owned and operated 224 wind turbines

**700,000**

**Solar panels** on our buildings

**716 million**

store visits to IKEA Group stores

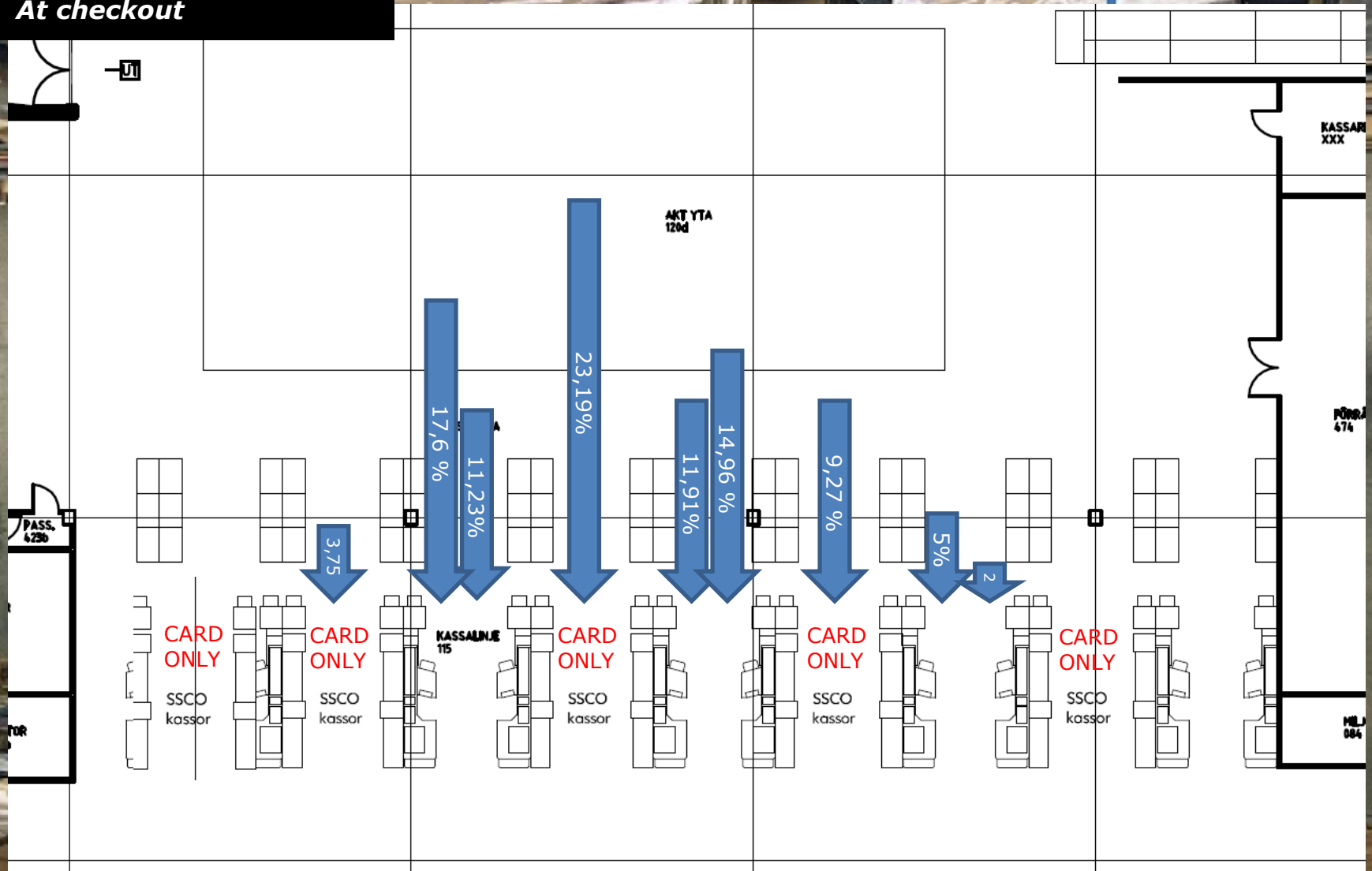


Attitudes towards payment Speed & Security

**NOBODY LIKES TO Q...OR**

# Customer Choice

At checkout



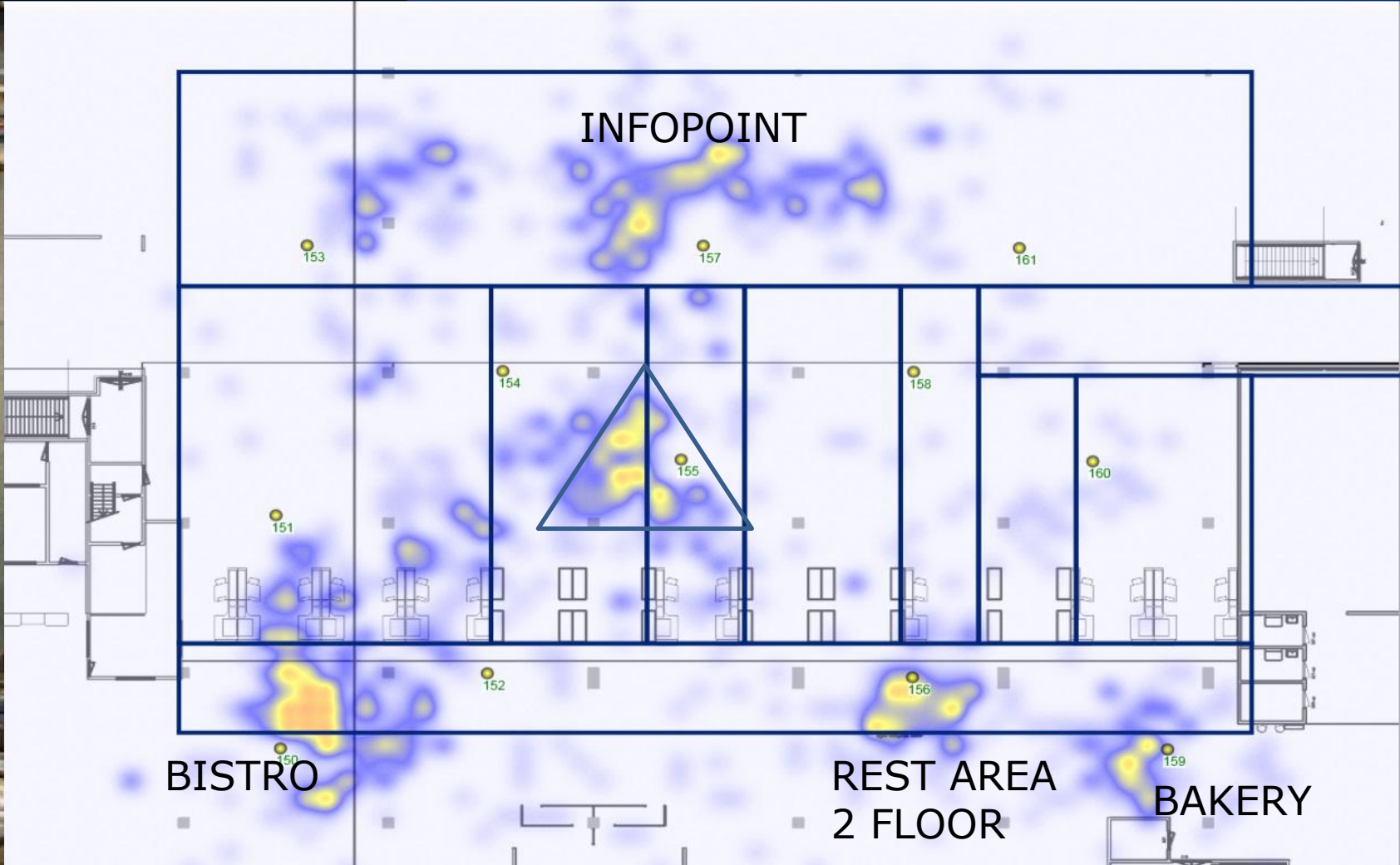
Karlstad store, Sweden 2009-2014



# Customer Choice

At checkout

Reports Benchmarks



Delft Concept store, NL 11:31  
March 30<sup>th</sup> 2015



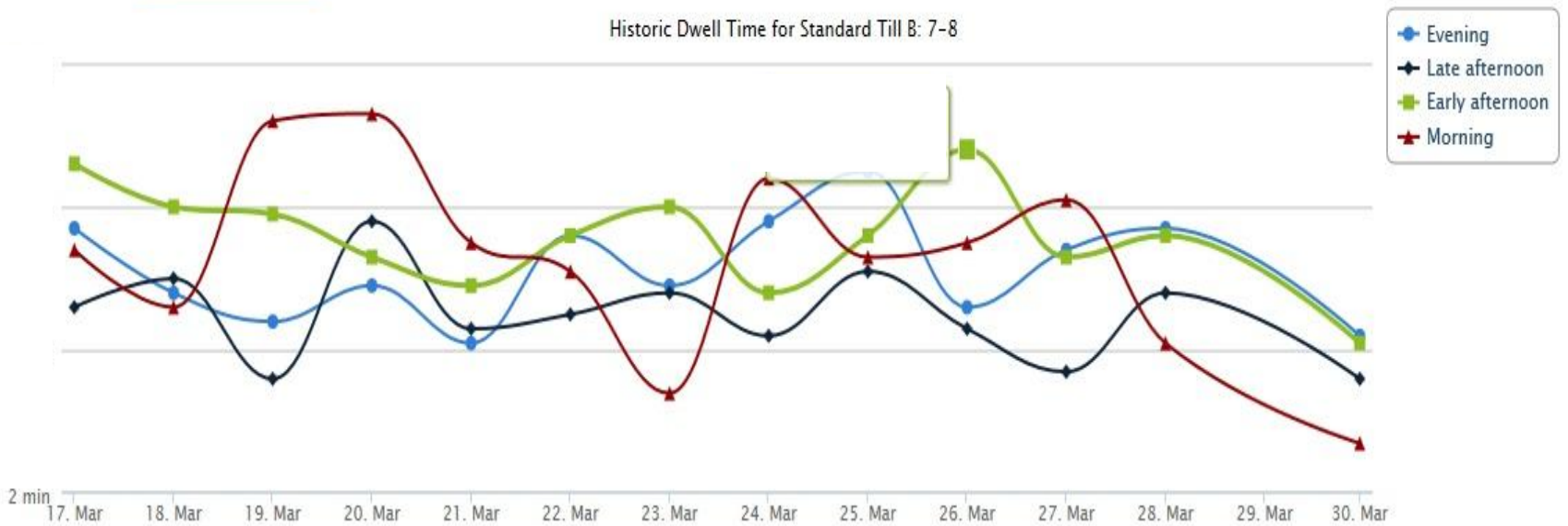
# Customer Choice

At checkout

## Region-Specific Occupancy Rate and Dwell Time

Choose region:

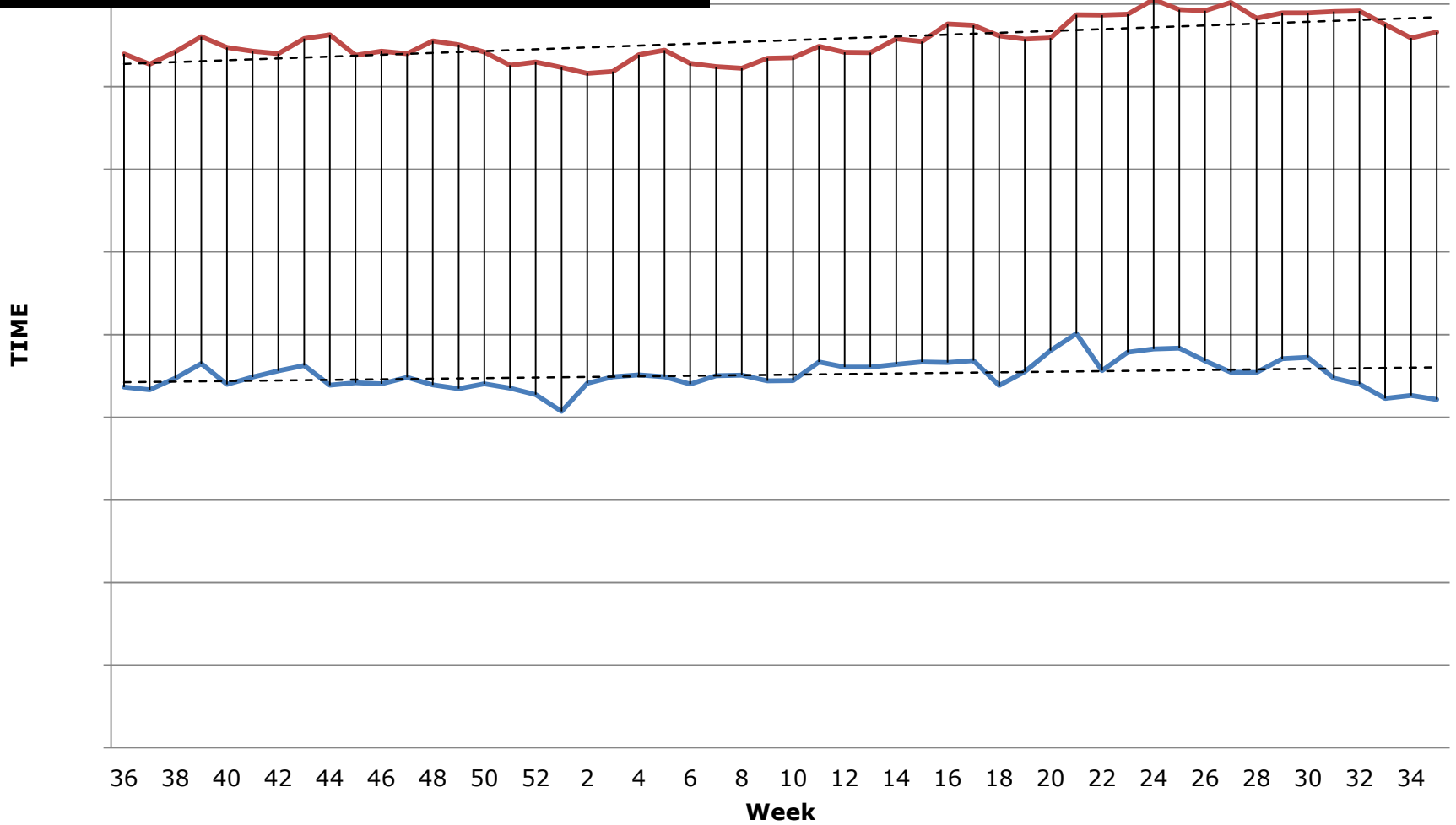
Historic Dwell Time for Standard Till B: 7-8



Delft Concept store, NL 11:31  
March 30<sup>th</sup> 2015

# Customer Choice

## ECO vs. Standard Pos Efficiency



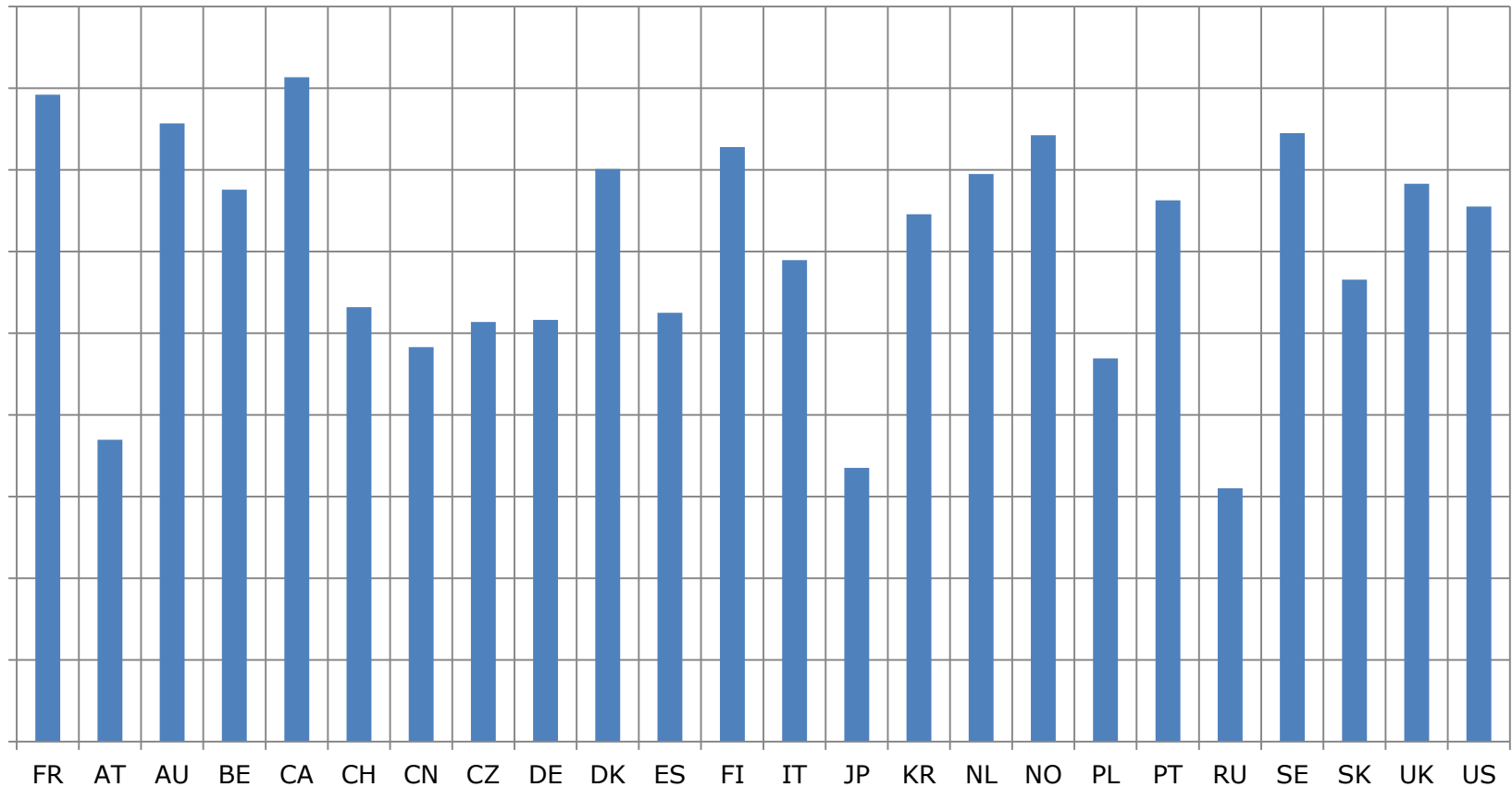
— per Cust Reg POS GLOBAL

— per Cust ECO POS GLOBAL



# ECO usage potential

*Variations in usage between countries*



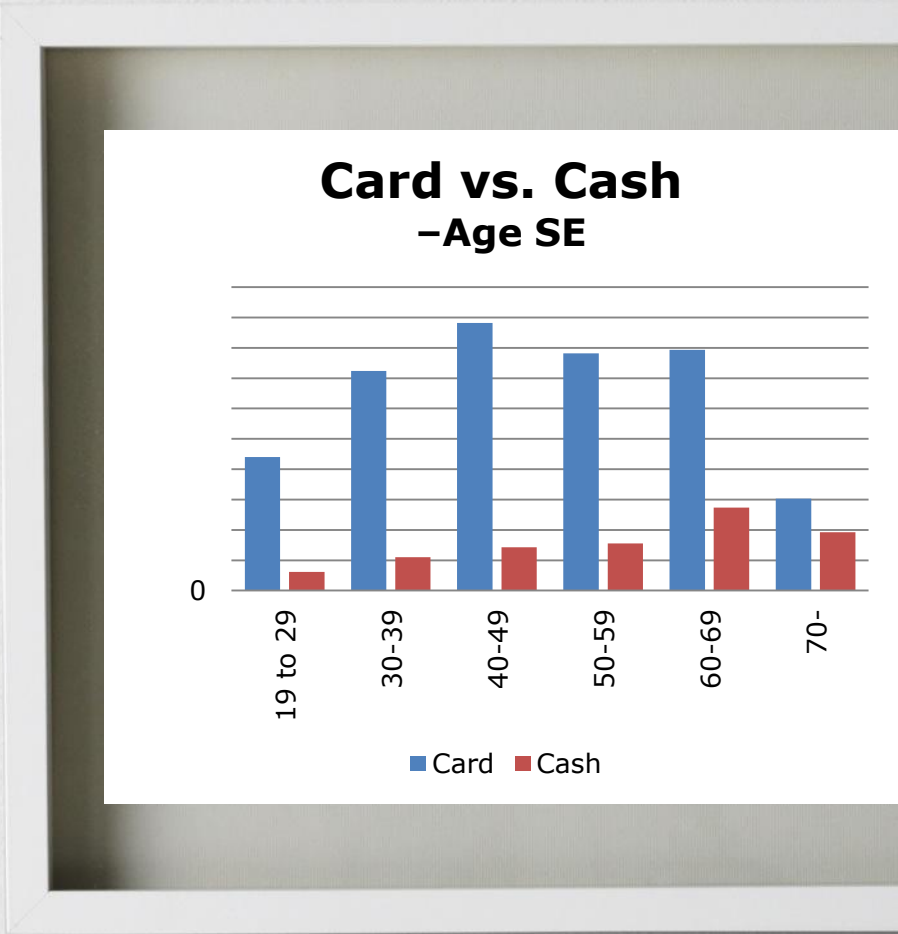
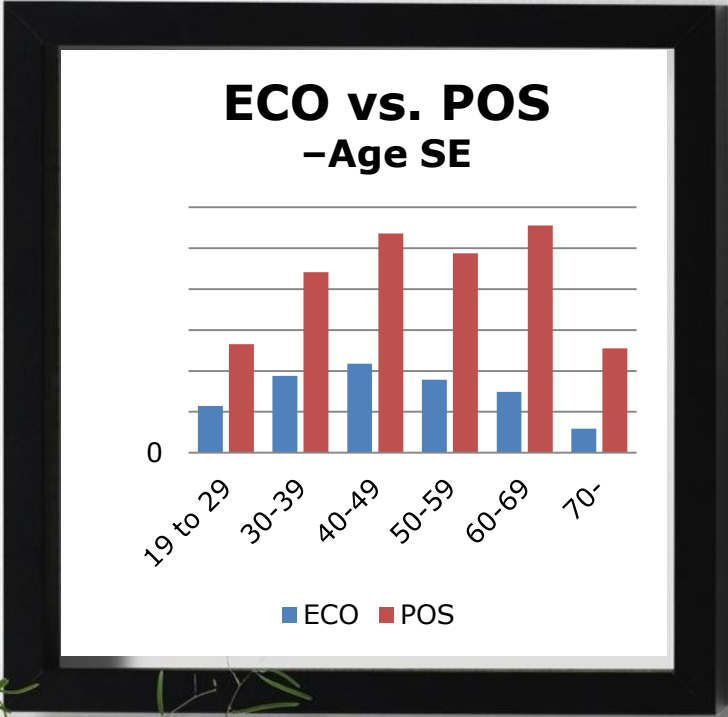
Potential ECO user: Card Paying customers with less than 15 items







# Does Age decide payment means and POS type ?

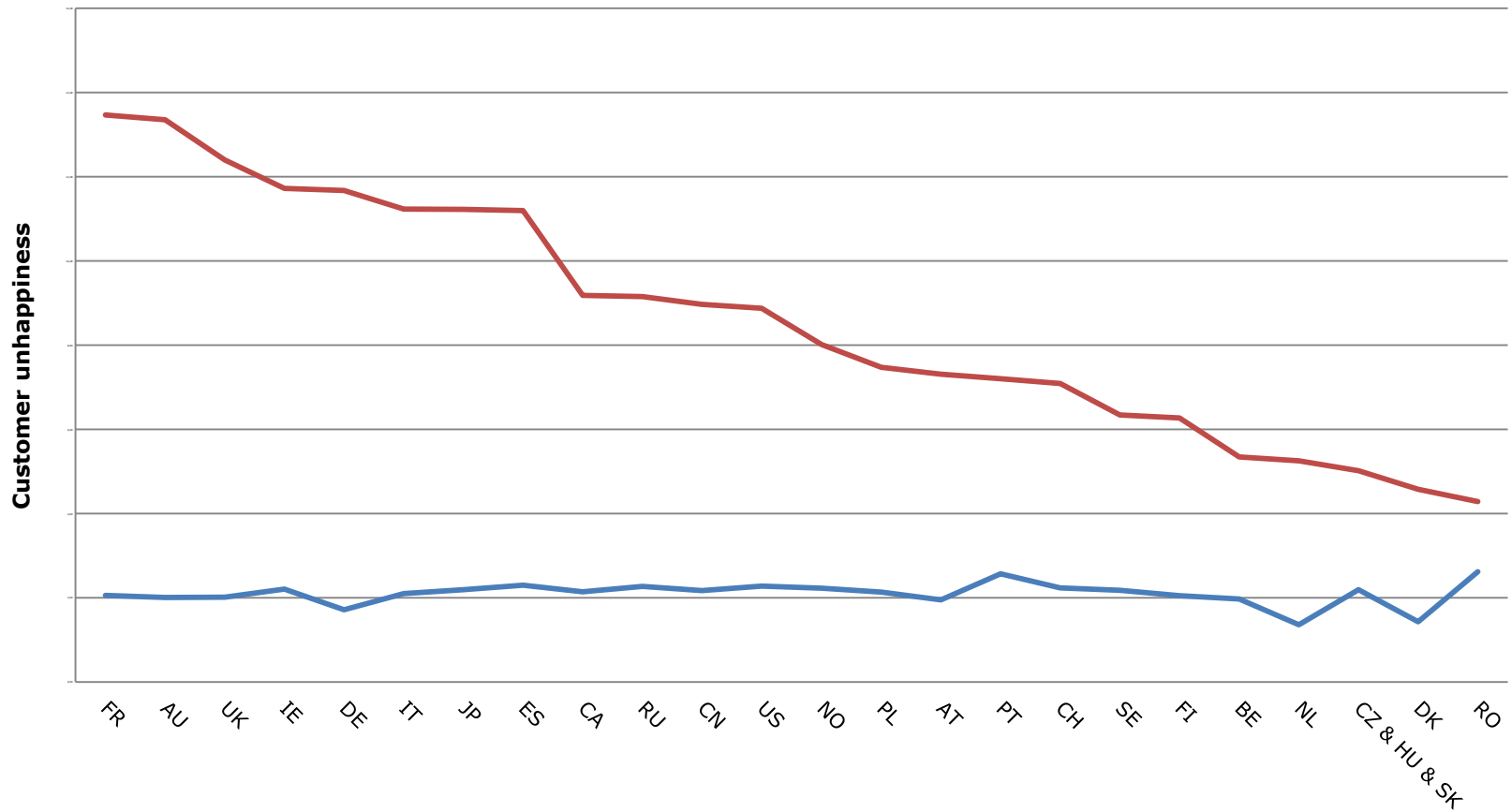


Speed and Efficiency as reasons for

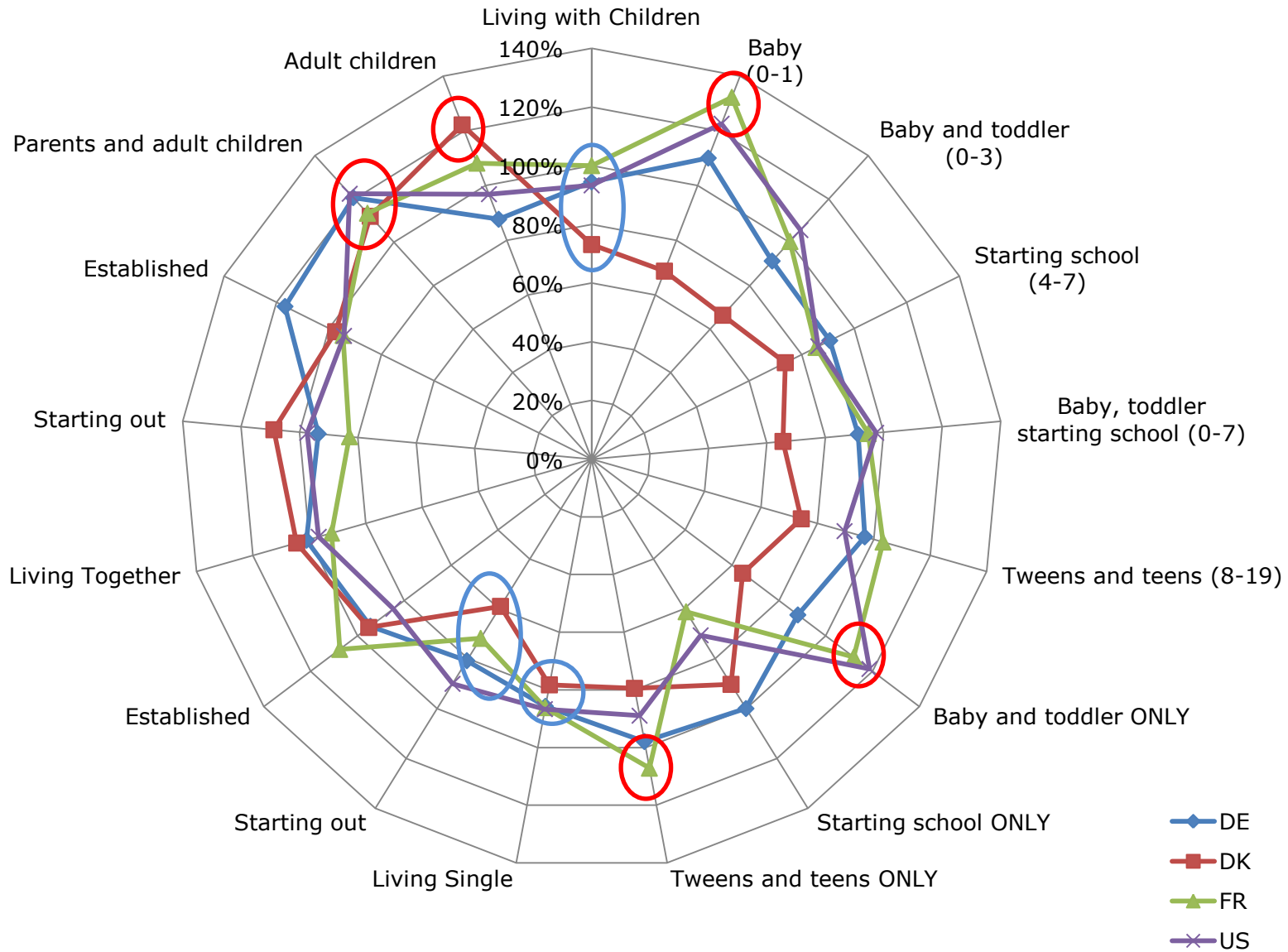
**CUSTOMER SATISFACTION**

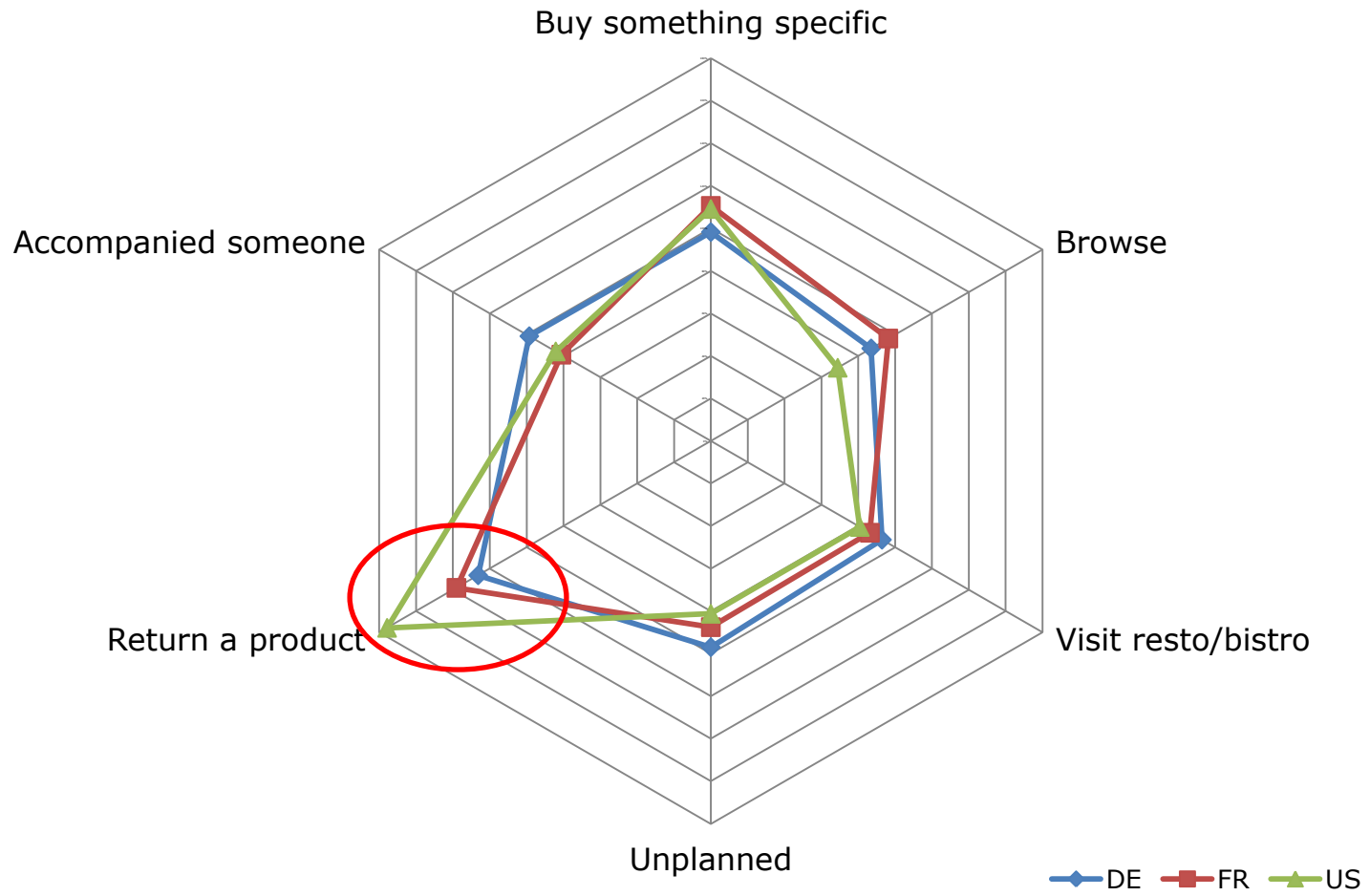
# Customer satisfaction

*Variations in how customer sees checkout time between countries*



**Checkout efficiency vs. Customer Unhappiness**







# Customer satisfaction

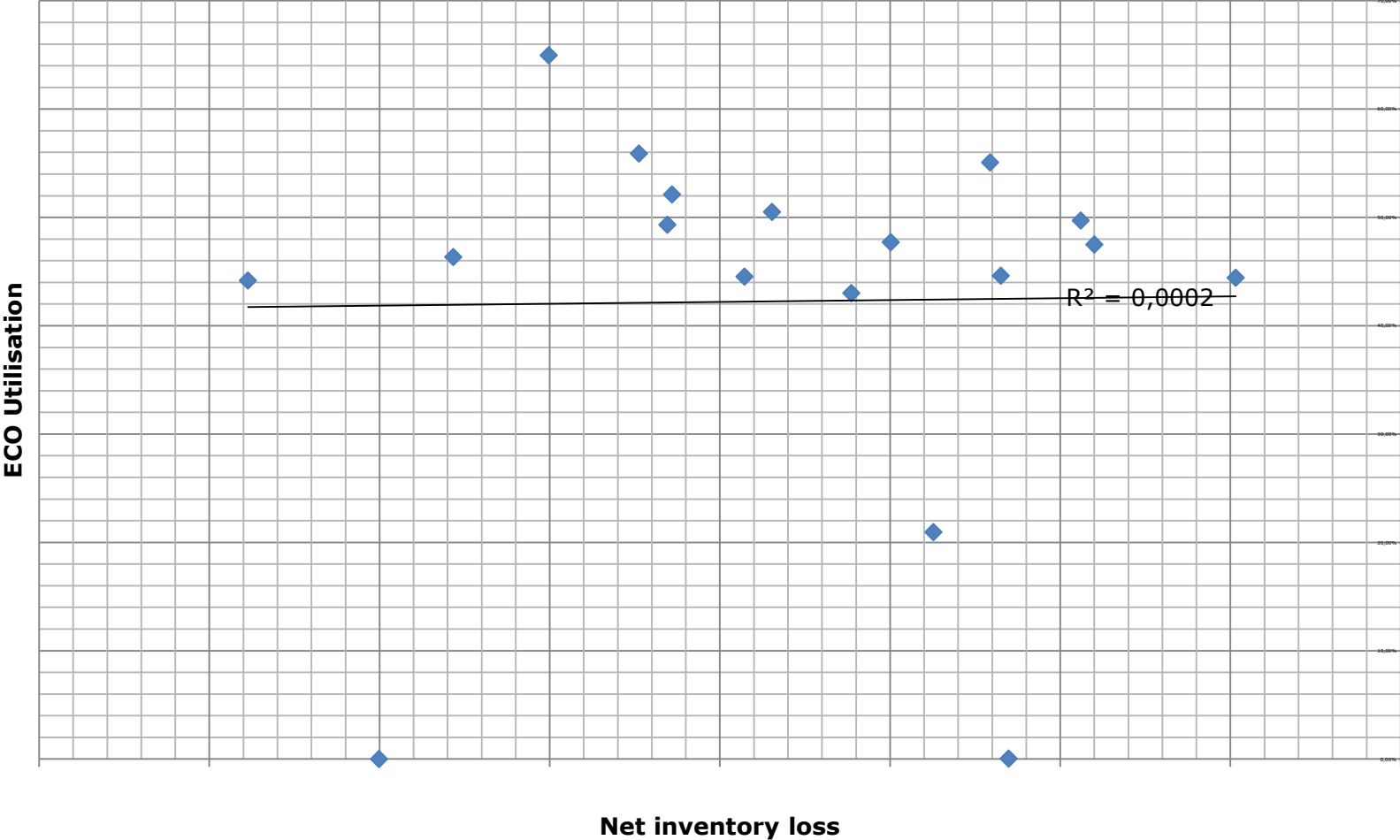
*Amount spent vs. unhappiness with Q time*



Customer attitudes towards payment safety

# **FRAUD & PAYMENTS**

# Is there a correlation between net inventory loss and ECO use?



◆ UK inventory loss vs. ECO utilisation      — Linear (UK inventory loss vs. ECO utilisation)

# Payment fraud in EU

**Chart 7 Evolution of the value of domestic and cross-border transactions and fraud**

(percentages)

- cross-border acquired outside SEPA
- cross-border within SEPA
- domestic

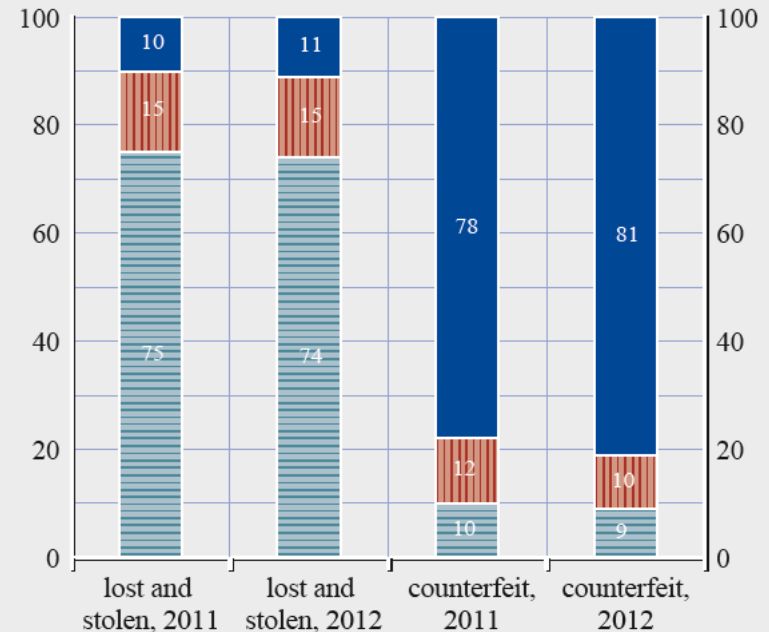


Source: All reporting CPSs.

**Chart 8 Geographical composition of lost and stolen fraud and counterfeit fraud at ATMs and POS terminals according to fraud value**

(percentages)

- cross-border acquired outside SEPA
- cross-border acquired inside SEPA
- domestic



Source: All CPSs, 2011 and 2012.

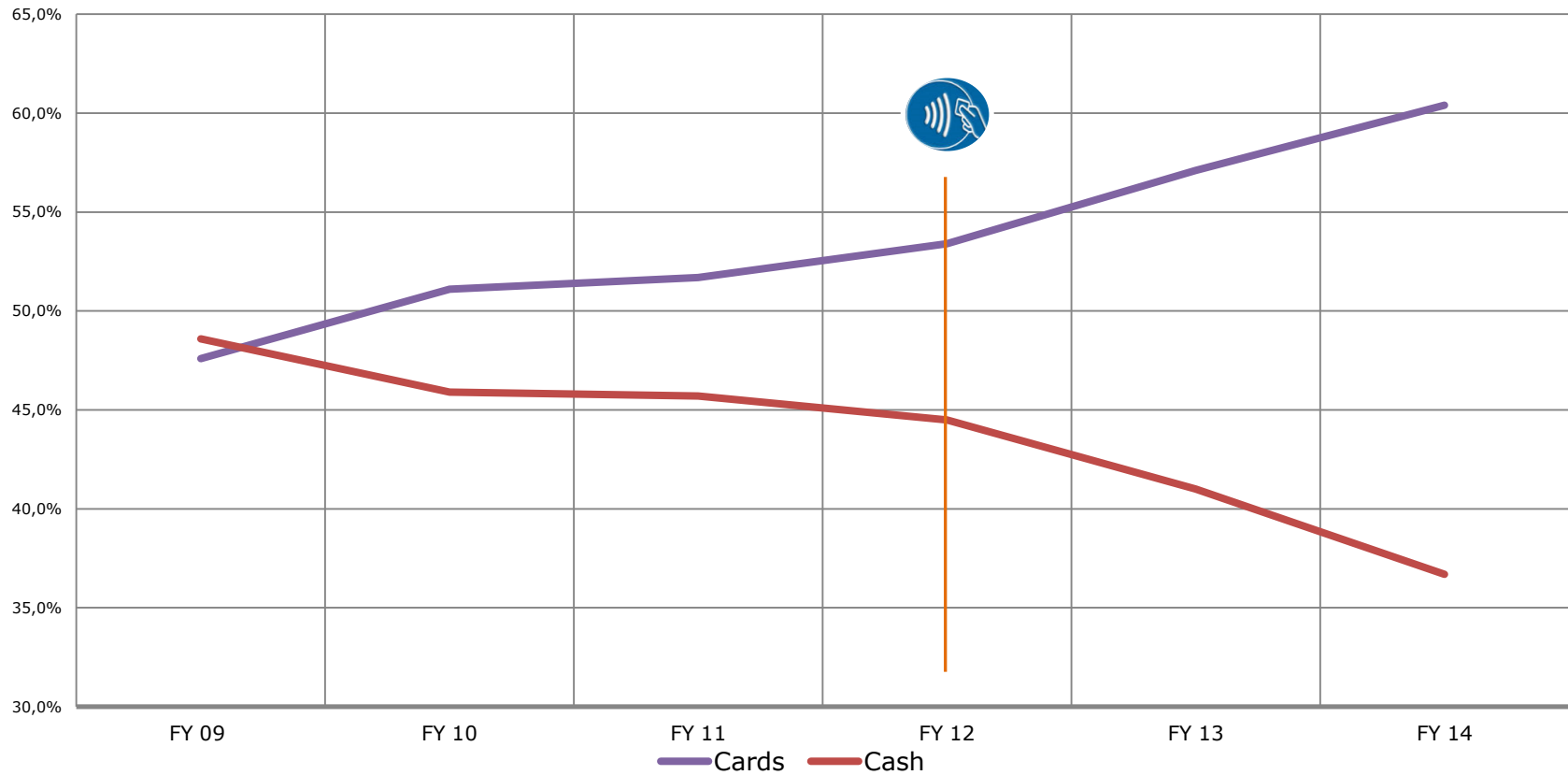
Source: ECB, SEPA migration indicators.

1) An "EMV transaction" is understood to be a card payment transaction in which the following criteria are satisfied: an EMV-compliant card is used at an EMV-compliant terminal and EMV technology is used in the processing of the transaction.

What do customers and companies like?

**FAST PAYMENTS**

## Card & Contactless - CZ





## Why is faster payments important?

Example: Move half of the restaurants cash transactions to contactless

**50% of Restaurant TX**

**10 sec saving per TX**

**~240 FTEs Saving**

**-One store in time savings**

**-What if  
The whole chain  
where faster?**





# Summary

- Customers are complex.
- Local behavior makes a big difference
  
- Customers does not always act as we like them to – or as they say they do.
  
- There are many underlying reasons why a customer is not happy with speed in the checkout or the payments
  - many reasons not related to the checkout at all.
  
- Use data to see how customer really acts.
  
- Improve speed in all parts of the chain to gain efficiency and lower costs







Home is the most important place in the world