

Efficiency of Retail Payments



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Macedonian Financial Sector Conference on
Payments and Securities Settlement Systems

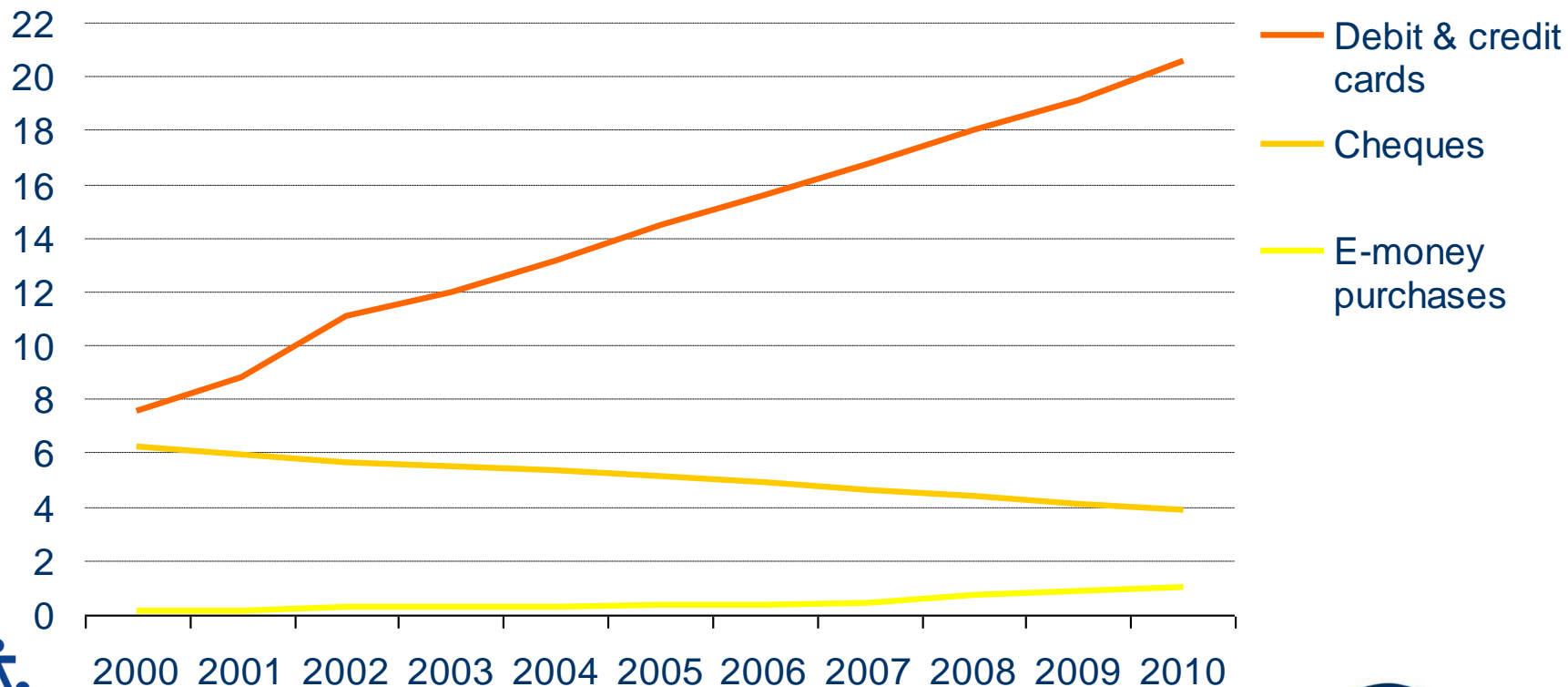
Ohrid, 6 June 2012

Outline

- Payment patterns around the world
- Concepts & definitions
- How to measure costs?
- The Dutch example
- How to improve efficiency?
- Final remarks

Trends at the POS – euro area

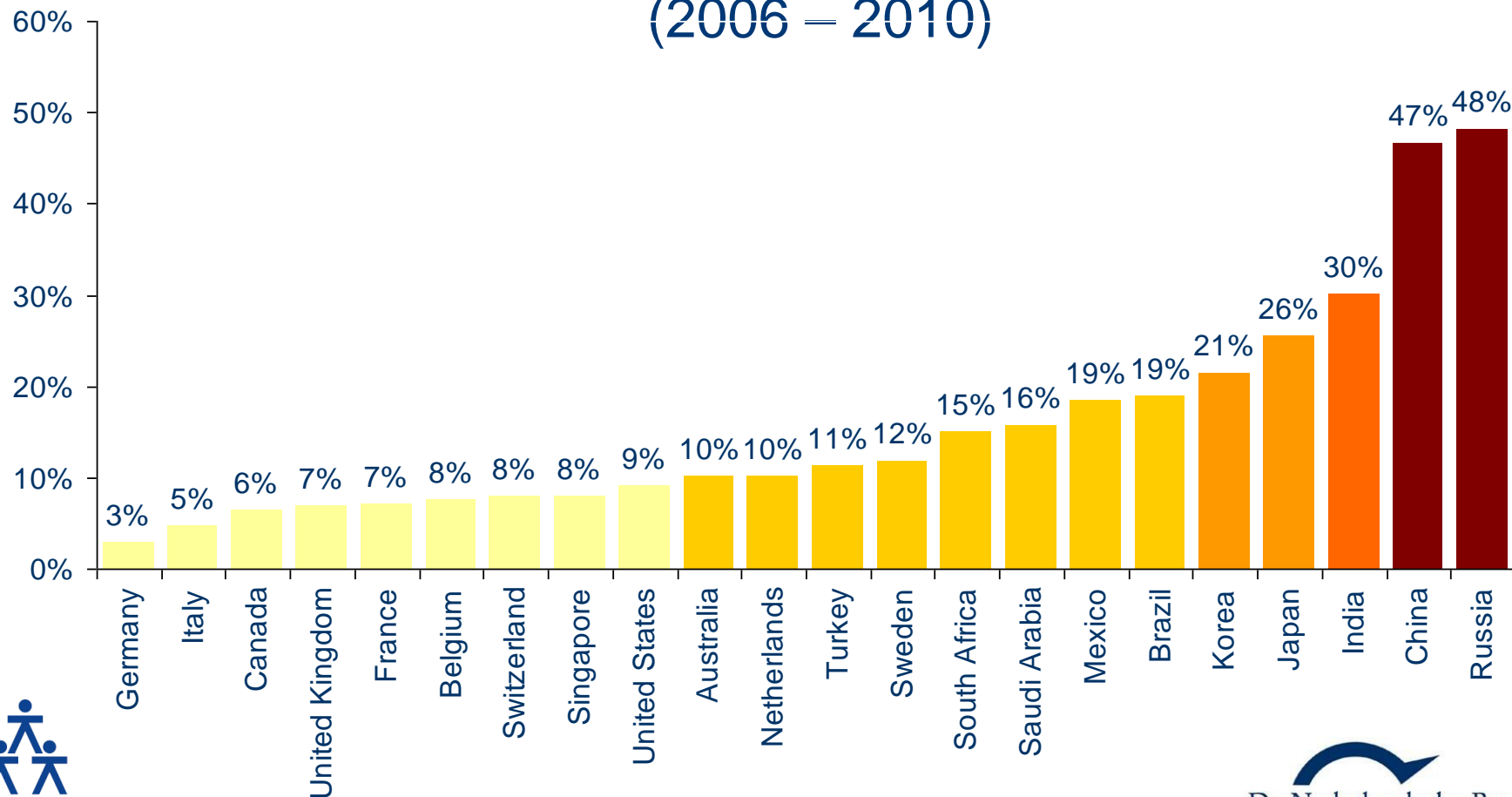
POS payment transactions (billions)



Source: ECB

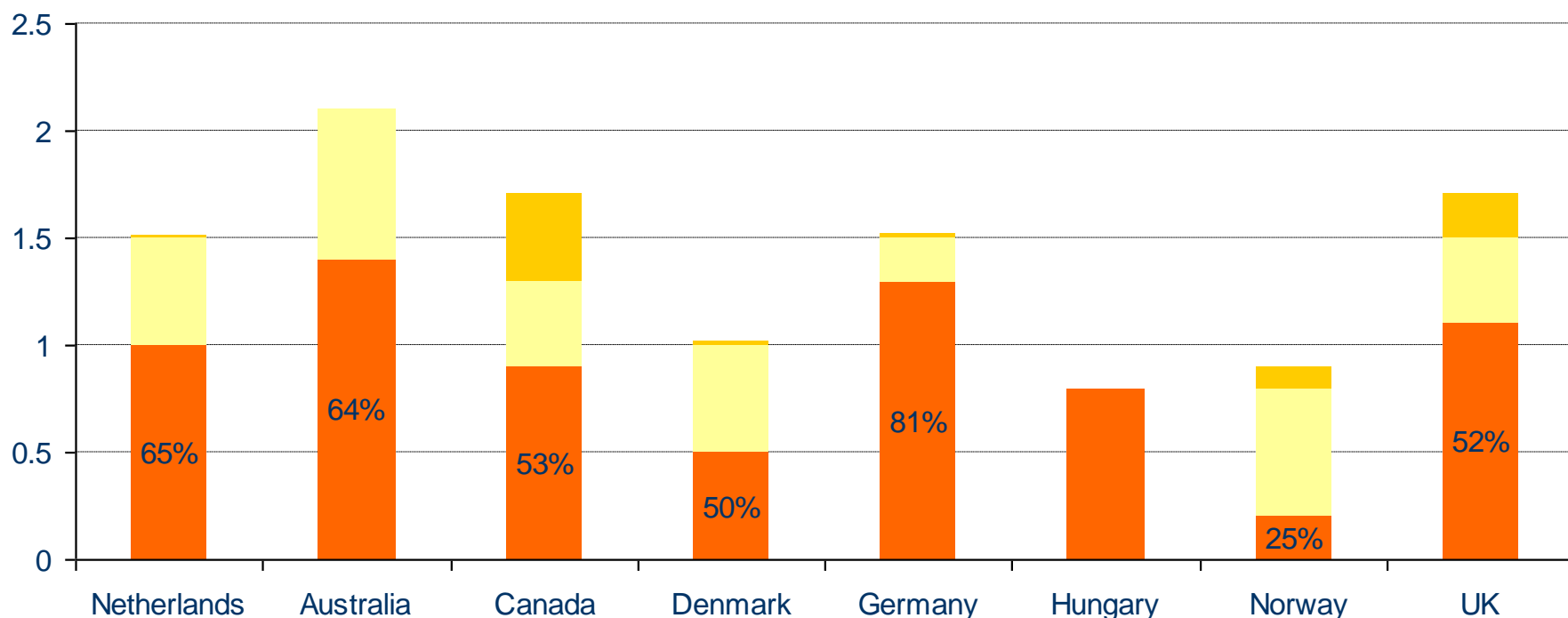
Trends at the POS – world wide

Average yearly growth debit & credit card payments
(2006 – 2010)



Trends at the POS – world wide

Number of POS payments per person per day



Center
of Excellence
in Finance

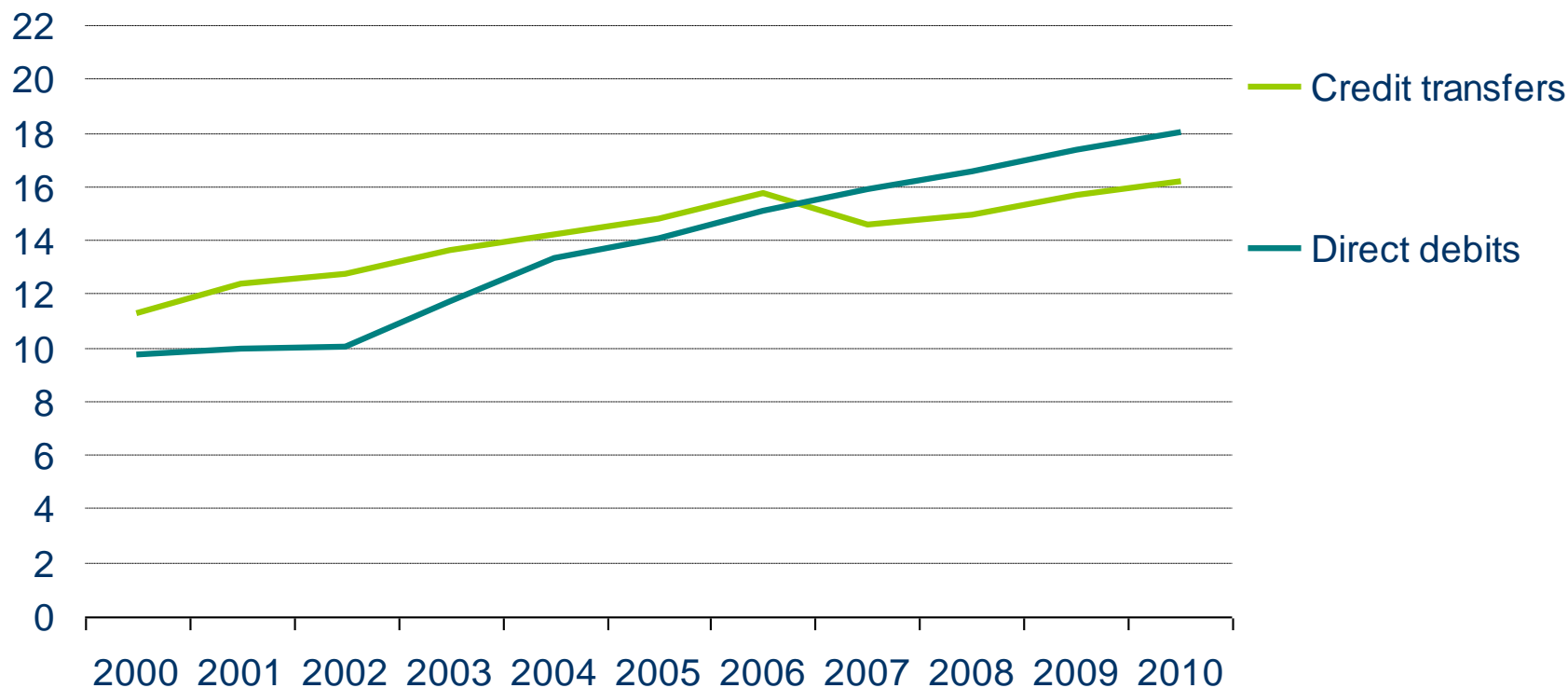
Source: Various country studies

■ Cash ■ Debit card ■ Credit card



Remote trends – euro area

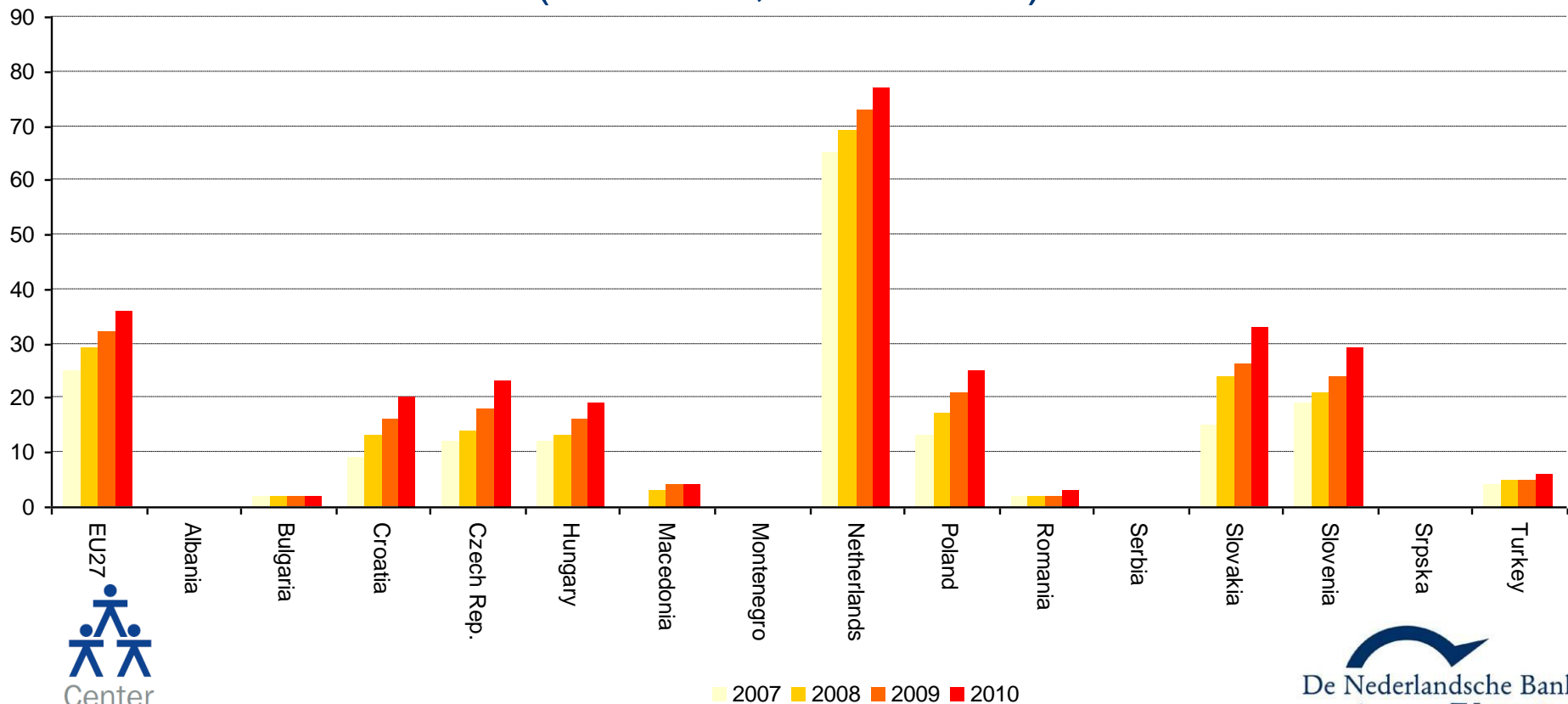
Remote payment transactions (billions)



Source: ECB

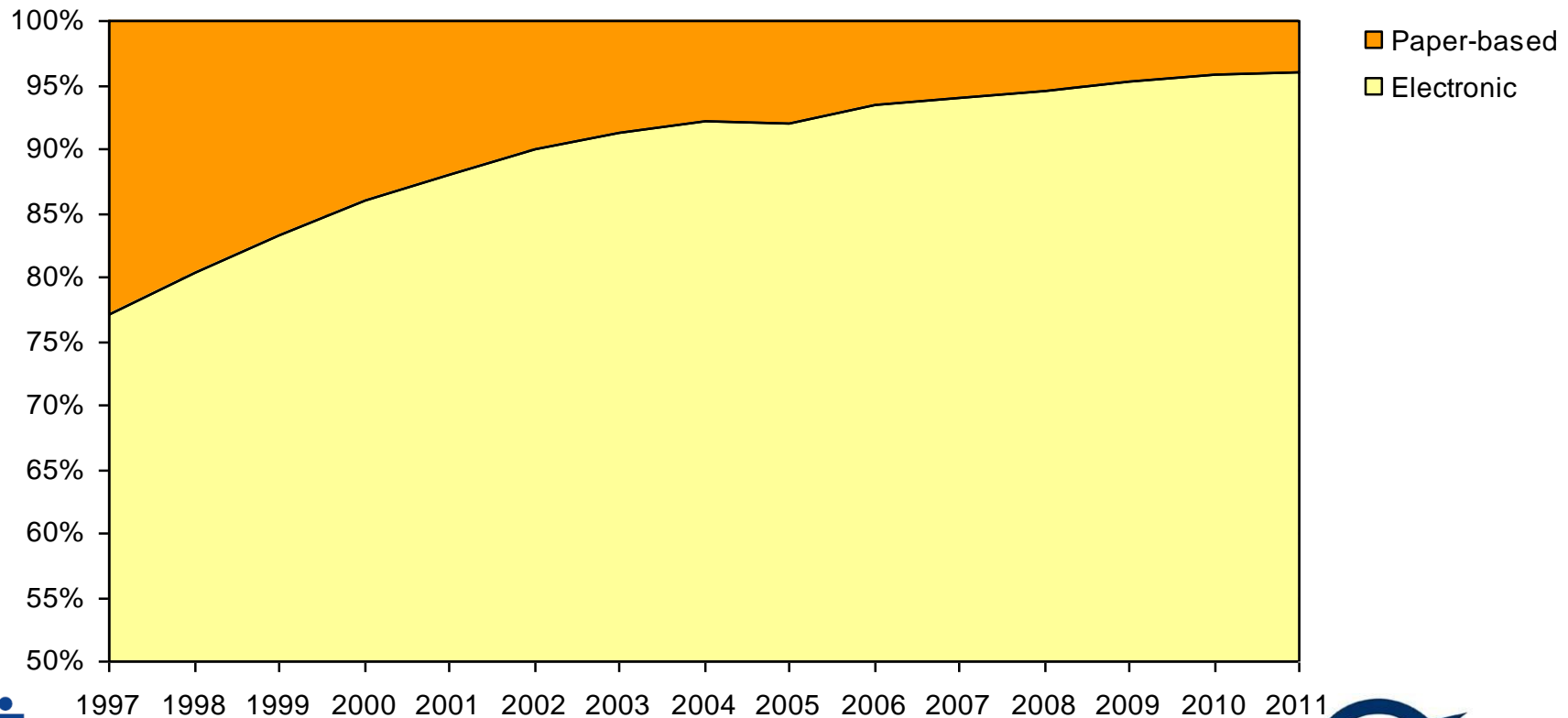
Remote trends – euro area

Percentage of households using internet banking
(Eurostat, Feb. 2012)



Remote trends - NL

Share of paper based funds transfers Transactions as percentage of total volume



Outline

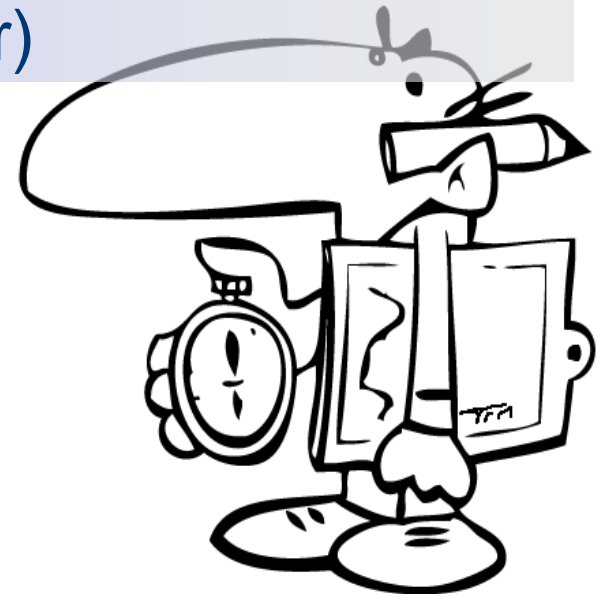
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Public Policy Goals for maintaining & Promoting Efficiency in Retail Payments

- Policies relating to the efficiency and safety of retail payments should be designed, where appropriate, to:
 1. *Address legal and regulatory impediments to market development and innovation.*
 2. *Foster market conditions and behaviors.*
 3. *Support the development of effective standards and infrastructure arrangements.*
 4. *Provide central bank services in the manner most effective for the particular market*

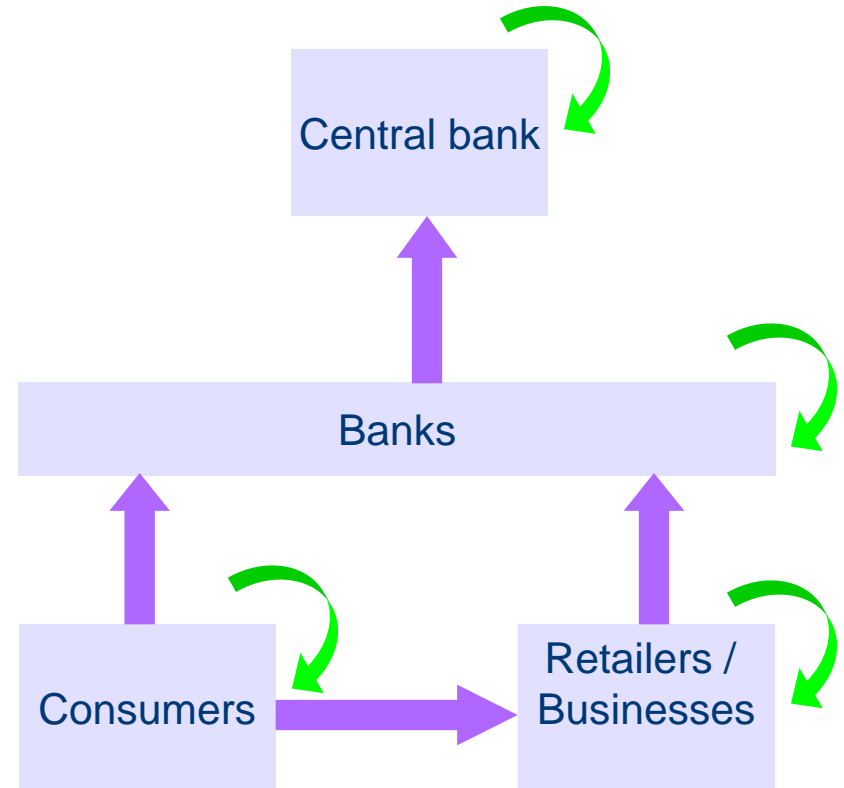
Efficiency

1. Productive efficiency
(e.g. reduction of processing costs)
2. Allocative efficiency
(e.g. change payment behaviour)
3. Dynamic efficiency
(e.g. product innovation)



Costs: different concepts

- ➡ 1. **External costs**
Fees paid
- ↻ 2. **Internal costs**
Own production costs
- ➡ ↻ 3. **Private costs**
External + internal costs for each party
- 4. **Social costs**
Sum of internal costs of all parties



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Measuring costs

Step 1:

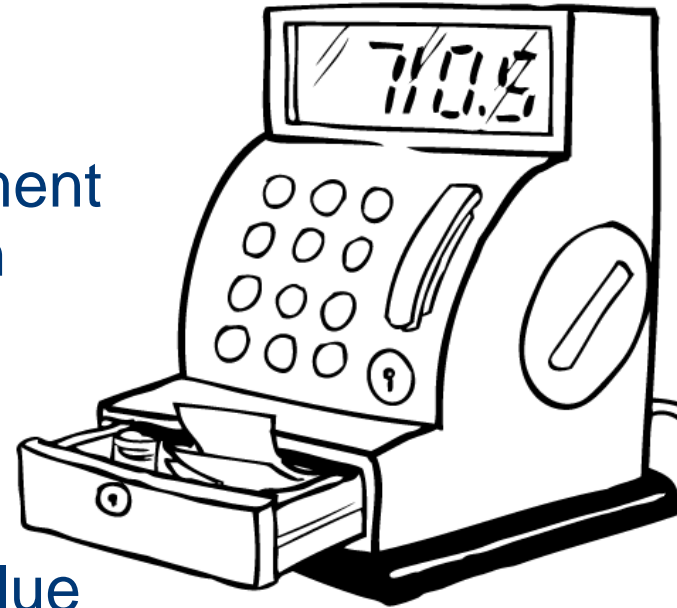
Estimate total yearly costs per payment instrument, and distinguish between fixed and variable, and internal and external costs.

Step 2:

Estimate total yearly volume and value of transactions per payment instrument.

Step 3:

Determine total, internal, external, fixed and variable costs per transaction per payment instrument.



Step 1: Estimate total costs

Main ingredients of a cost study:

- Determine what payment instruments to look at.
- Determine what parties in the payment chain to include.
- Determine what cost (and revenue) items to include.
- Set up a questionnaire & desk research.
- Distribute questionnaire among representative sample.

Plus:

- Involve all relevant stakeholders.
- Be realistic about the planning: at least 1 year.
- Decide whether or what to outsource.

What cost items to include?

Costs for (central) banks

Cash

Back office:

Production money
Transportation
Cash centres: staff,
buildings, equipment
Fraud & control

Front office:

Branch offices: staff,
buildings, equipment
ATM maintenance
Overhead
Armoured car
services

Debitcards

Back office:

Production cards
Transportation
Telecommunication
Fraud & control

Front office:

Branch offices: staff,
buildings, equipment
ATM maintenance
Overhead

E-purse

Back office:

Production cards
Transportation
Telecommunication
Fraud & control

Front office:

Branch offices: staff,
buildings, equipment
E-purse charge
terminal maintenance
Overhead

Credit cards

Back office:

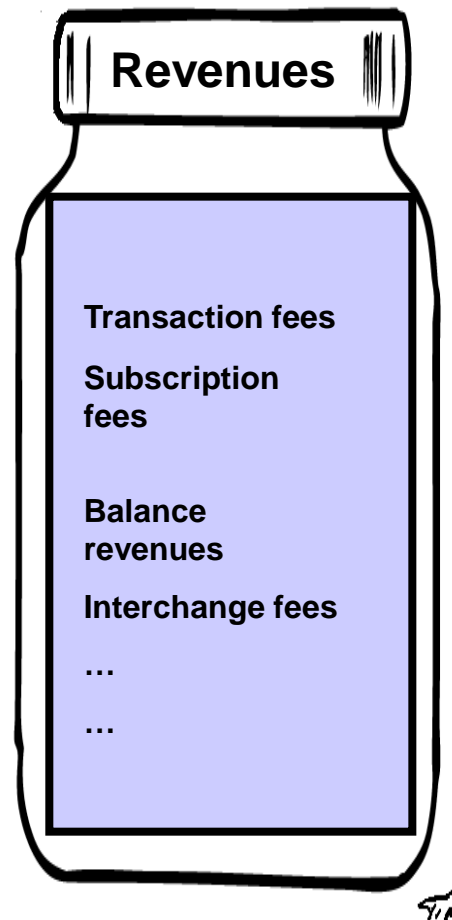
Production cards
Transportation
Telecommunication
Fraud & control

Front office:

Branch offices: staff,
buildings, equipment
ATM maintenance
Overhead

What cost items to include?

Revenue for (central) banks



What cost items to include?

Costs for retailers

Cash

Back office:

Till shortages, fraud
Theft insurance
Money purchase
Prepare cash registers
Counting daily receipts

Front office:

Transaction time
Filling /emptying cash
register during the day

Deposit, storage,

transport:

Deposit fees, safe rental
Fees prof. transport
Time own transport

Terminals/devices:

Authentication
devices
Depreciation, rental,
maintenance tills

Debitcards

Back office:

Bank fees
Fraud
Printing daily overview
Account keeping

Front office:

Transaction time

Telecommunication:

Telecom fees

Terminals/tills:

Depreciation, rental,
maintenance

Credit cards

Back office:

Bank fees

Printing daily overview
Account keeping

Front office:

Transaction time

Telecommunication:

Telecom fees

Terminals/tills:

Depreciation, rental,
maintenance

E-purse

Back office:

Bank fees

Printing daily overview
Account keeping

Front office:

Transaction time

Telecommunication:

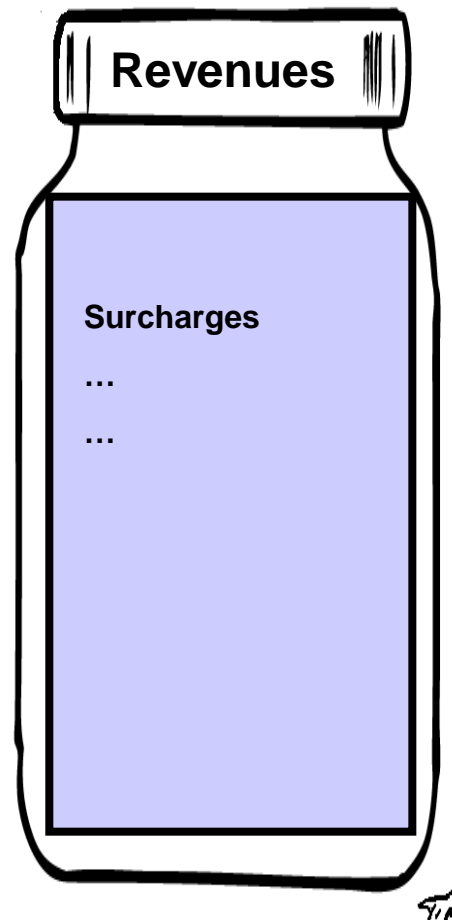
Telecom fees

Terminals/tills:

Depreciation, rental,
maintenance

What cost items to include?

Revenues for retailers



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- Be realistic about the planning: at least 1 year.
- Decide whether or what to outsource.

Survey: challenges

- Response rate:
 - How to contact respondents? (phone, online, mail)
 - User-friendly questionnaire
- Reliability of answers:
 - Test the questionnaire!
 - Try to validate
- Aggregation and extrapolation:
 - Representativeness of the sample
 - Weight factors



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Stakeholder involvement: why?

- Increase commitment of banks and retailers
- Agree on purpose and survey set-up
- Expertise & know-how
- Provide support with survey distribution
- General endorsement of survey outcomes



Stakeholder involvement: how?

- Regular meetings:
 - Multilateral and bilateral
 - At different stages of the research
- Provision of relevant results

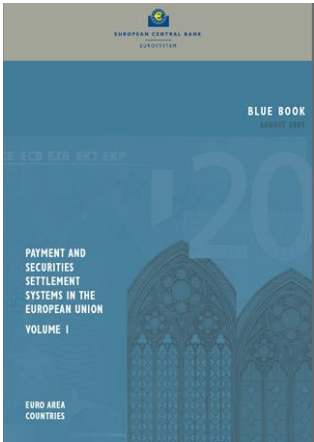


Stakeholder involvement: challenges

- Confidentiality:
 - Costs & revenues
 - Turnover & market share
- Resources
- What is in it for them?



Step 2: Estimate transactions



Card payments, credit transfers, direct debits and other electronic payments:

- Banks
- Payment processor(s)
- Blue Book (ECB)
- Red Book (BIS)



Cash:

- Not centrally registered
- Occur at a wide variety of places
- Person-to-person (P2P)

Question:

How many cash payments did you make yesterday?



Step 2: Estimate transactions

What is the best methodology to measure the number of cash payments?



Measuring cash usage

Retailer approach:

- + High number of observations
- + Availability of 'true' transaction records
- Difficult to draw representative sample
- Availability of transaction records biased
- Exclusion of P2P transactions

Consumer approach:

- + Inclusion of P2P transactions
- + Less difficult to draw representative sample
- Measurement error
(omission, invention, behavioural change)



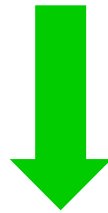
Measuring cash usage

Research design matters a lot!

Main challenge: Low value transactions

Conclusions DNB research:

- Omission is smallest with 1-day transaction diary
- ... and highest with questionnaire, or
- ... 1-week transaction diary



1-day transaction diary

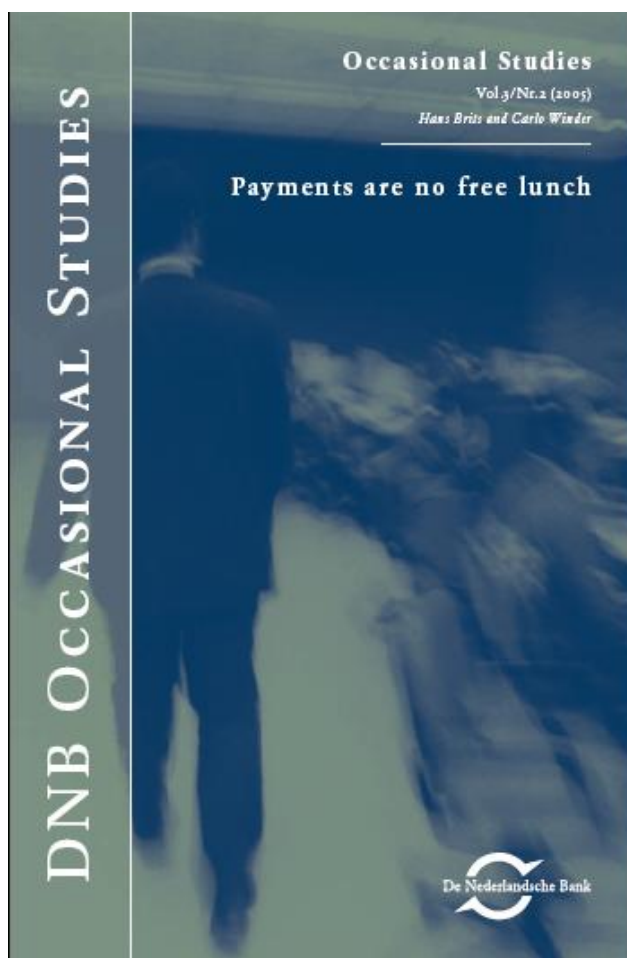
1-day transaction diary

	When?	Where?	How?	How much?	Preference?
1	1	7	2	3 7 5 0	N
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

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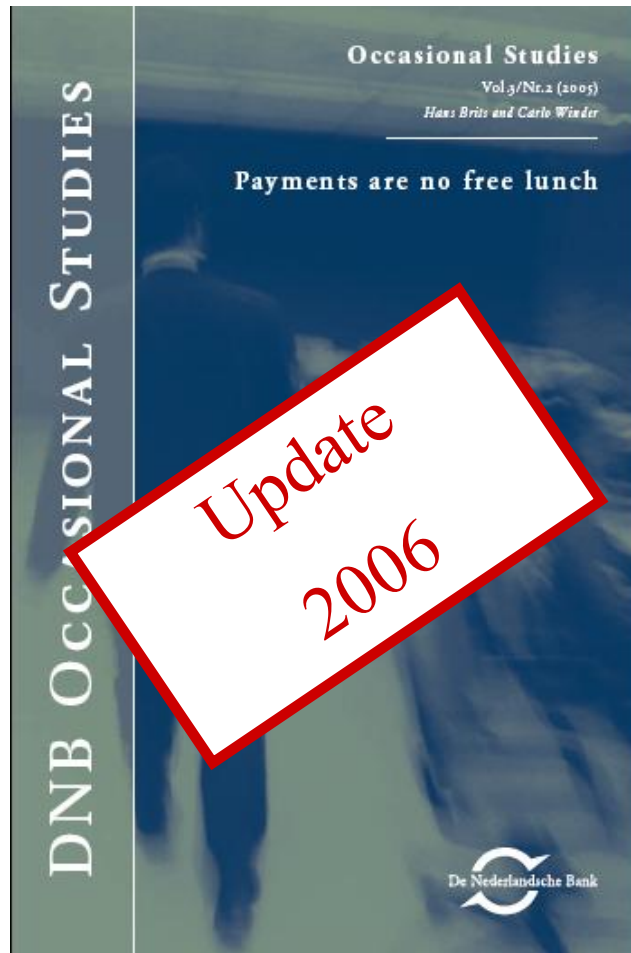
Step 3: Costs per instrument



Main results:

- Social costs POS payments 0.65% GDP
- Per POS transaction: € 0.35
- Per € sales: 2.4%
- Per household per annum: € 400

Social costs



Average total costs per transaction

	2002
Cash	€ 0,30
Debitcard	€ 0,49
E-purse	€ 0,93
Credit cards	€ 3,59

Average variable costs per transaction

	2002
Cash	€ 0,18
Debitcard	€ 0,20
E-purse	€ 0,03
Credit cards	€ 1,09

Costs for banks



Main results:

- Costs & revenues in balance
- Net costs € 23 million
- Loss on all instruments, except credit cards
- Loss made up by balance related revenues
- Loss on debitcard trx: € 0,08
- Loss on cash trx: € 0,12

Costs for retailers



Average total costs per transaction

	2006	2009
Cash	€ 0,18	€ 0,22
Debitcard	€ 0,20	€ 0,21
E-purse	€ 0,14	€ 0,24
Credit cards	€ 2,70	€ 1,88

Average variable costs per transaction

	2006	2009
Cash	€ 0,21	€ 0,23
Debitcard	€ 0,16	€ 0,16

Main conclusion

Substitution paper-based by electronic payments

- POS payments: cash → debit card
- Remote payments: paper transfers → internet banking, e-invoicing, direct debit

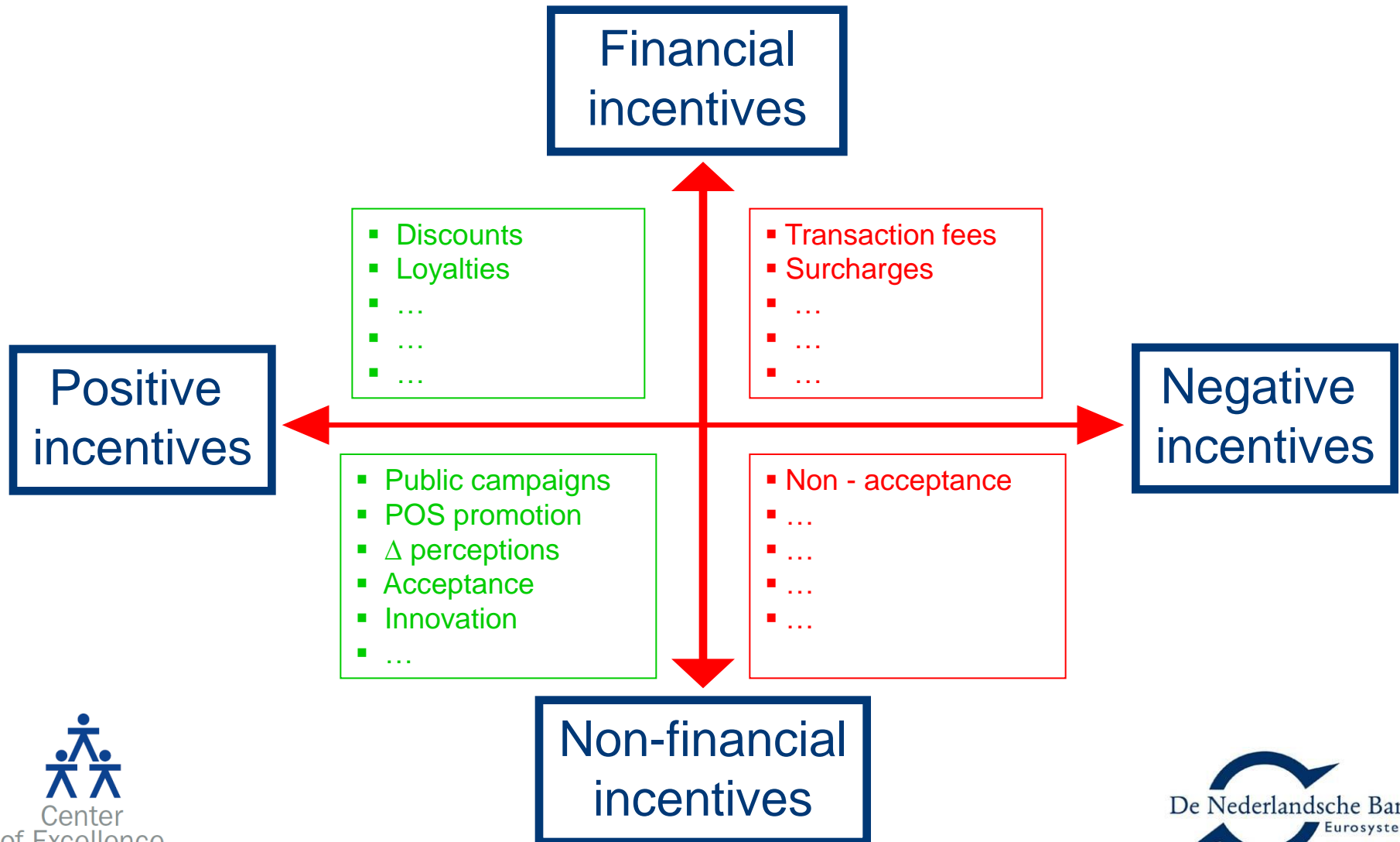
International cost studies

POS payments	Social costs (% GDP)	Cash share (% sales)	Debitcard share (% sales)	Share of other instruments (% sales)
Norway (2007)	0.39%	39%	61%	
Sweden (2002)	0.40%	39%	50%	11%
The Netherlands (2002)	0.65%	56%	40%	4%
Australia (2006/07)	0.67%	38%	14%	48%
Belgium (2003)	0.74%	63%	32%	5%
Hungary (2009)	0.99%	97%	2%	1%

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How to stimulate efficiency?



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Role of DNB

“Smooth, reliable and efficient payment system”

- Catalyst and facilitator of national discussions
- Active contribution in European discussions
- Research on payment patterns and underlying drivers and barriers

Vision of DNB

- Research = important ingredient for further improving the social efficiency of retail payments
- We support initiatives to stimulate usage of cost efficient payment instruments, but safety and accessibility should be guaranteed!

LESS CASH rather than CASH-LESS society!

Do you have

