

View on Consumer Lending trends in Europe

TFI event – Fairness in Consumer Credit Markets

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Lund, 09 May 2019

Topics for discussion today

1. Developments in Credit standards, terms and conditions, and net demand for loans in the Euro area
2. Regulatory changes impacting household financing: GDPR and PSD2
3. The availability of Credit Bureaus in Europe
4. ING Risk's approach with regards to Lending to households: Alternative Data & Machine Learning

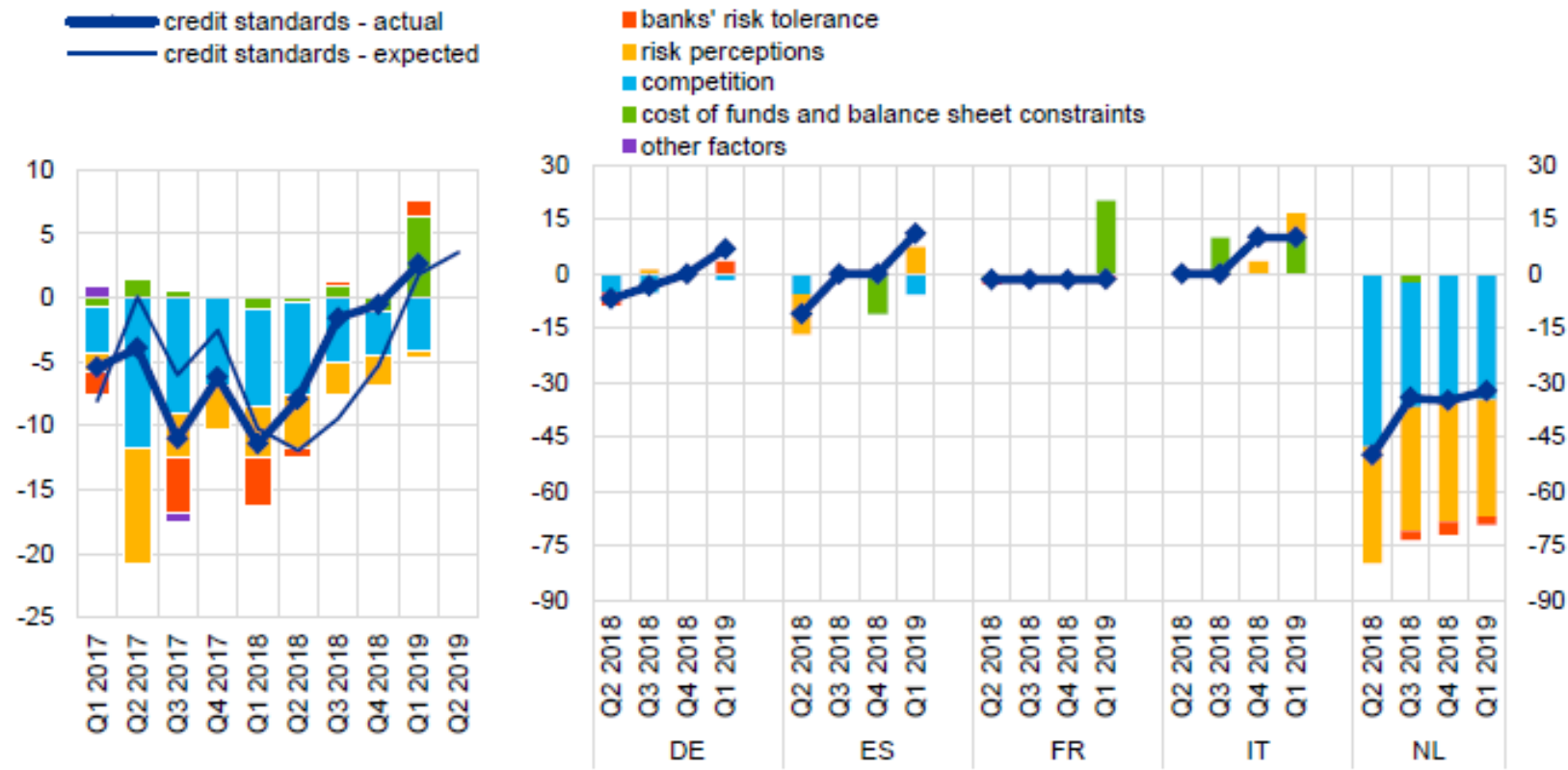
Developments in credit standards, terms and conditions, and net demand for loans in the Euro area

April 2019 European Central Bank lending survey

Housing loans: recent shift to tighter standards related to B/S constraints after long run of narrowing margins, higher reject rates, demand increase. Competition has big impact.

Changes in credit standards applied to the approval of loans to households for house purchase, and contributing factors

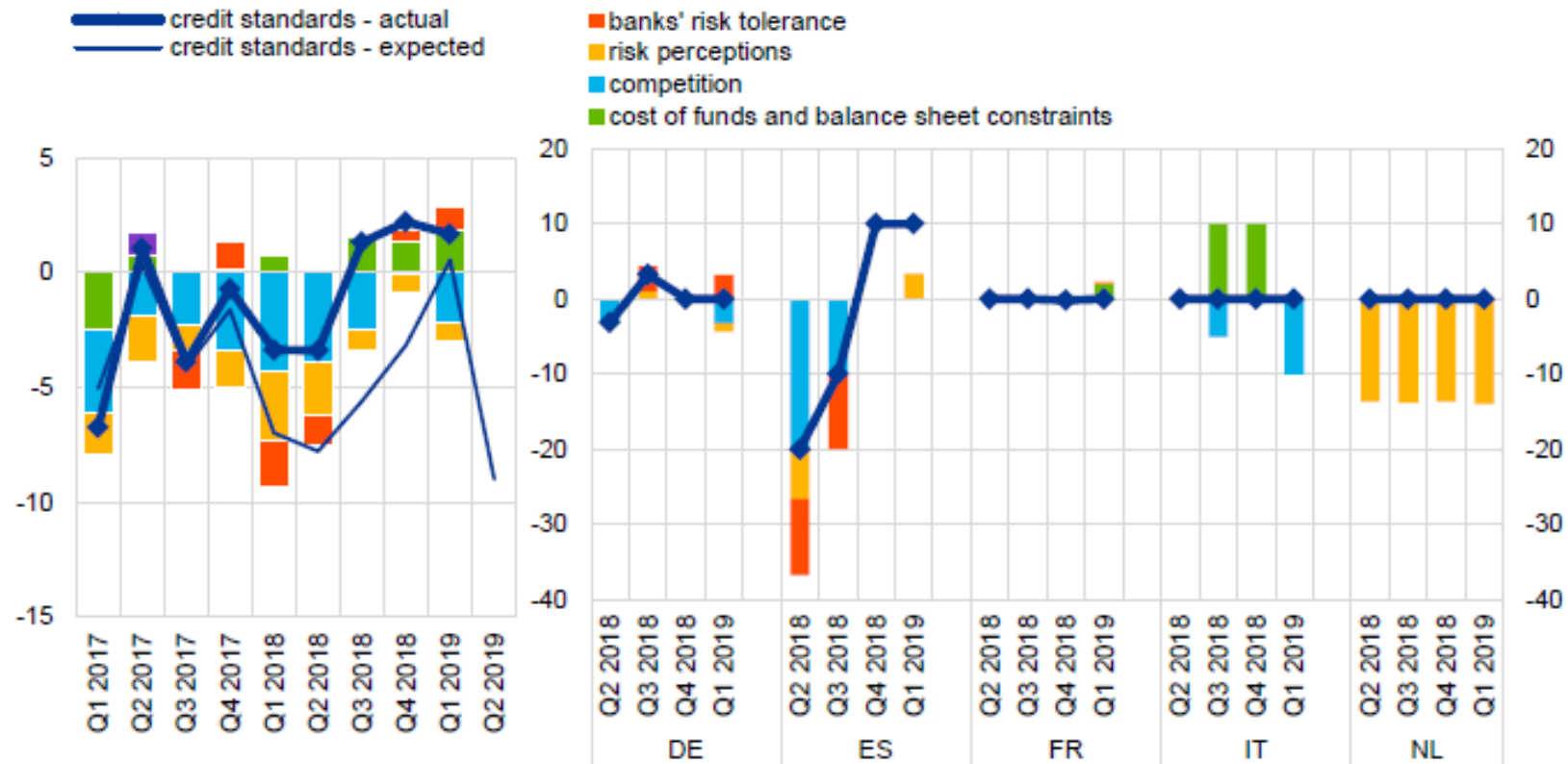
(net percentages of banks reporting tightening credit standards and contributing factors)



Consumer credit: similar trends, but margins continue to narrow. Recent drop in change in demand, but increase is expected.

Changes in credit standards applied to the approval of consumer credit and other lending to households, and contributing factors

(net percentages of banks reporting tightening credit standards and contributing factors)



GDPR and PSD2 are changing the European Consumer Lending Landscape

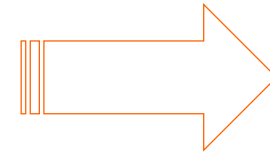
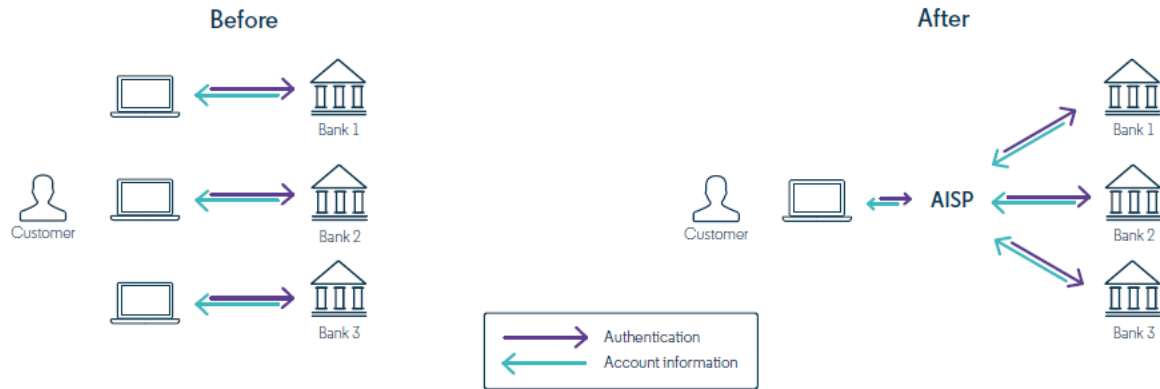
Data Ethics versus Innovation

The use of data: GDPR and Data Ethics

- The GDPR raised the expectations on what is expected from companies in order to protect the data of their customers and employees.
- It required companies to be more in control of data processes and more transparent about what data is processed and for what reason.
- The expectation is that companies will differentiate themselves more and more by their “data promise”: What are we doing with your data and more importantly what are we not doing with it?
- The fact that a bank has a utility function and holds what is perceived to be “sensitive personal data” must be taken into account in any data strategy.
- ING is a company with strong values and is recognized as such. Its philosophy and use of personal data must fit in with those values and this goes beyond compliance with the law.

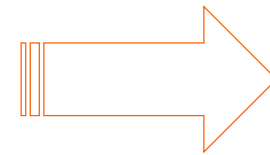
PSD2 aims to improve innovation, reinforce customer protection and improve security of internet payments and account access within the EU

Account Information Service Providers



Use transaction data to analyze a user's spending behavior or aggregate account information from different banks

Payment Initiation Service Providers



More secure payments, peer-to-peer transfers between friends, bill payments

Credit Bureaus within Europe

A lot of diversity in European credit reporting space continues to exist, however with a trend to share more data

2017 Survey of ACCIS covering 32 members across 23 countries

There remains potential for a greater supply of alternative data such as utilities and telecommunications

	AT	BE	HR	CY	CZ	DK	FI	DE	EL	HU	IC	IT	PL	XK	RO	RU	RS	ES	SK	SW	CH	NL	UK
Banks	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Credit unions	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Debt collectors / debt purchasers	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Leasing	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Credit card suppliers	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Retail credit suppliers	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Health insurance	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Other insurers	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Energy	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Water	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Telecommunication companies	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Television suppliers	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Internet providers	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Mortgage providers	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Home rental companies	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Brokers/Intermediaries	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Courts	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Government departments	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Crowd-funding platforms	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Payment services providers	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Tax authorities	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Police	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Central banks	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Acquirers of credit portfolios	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Investors	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Others	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

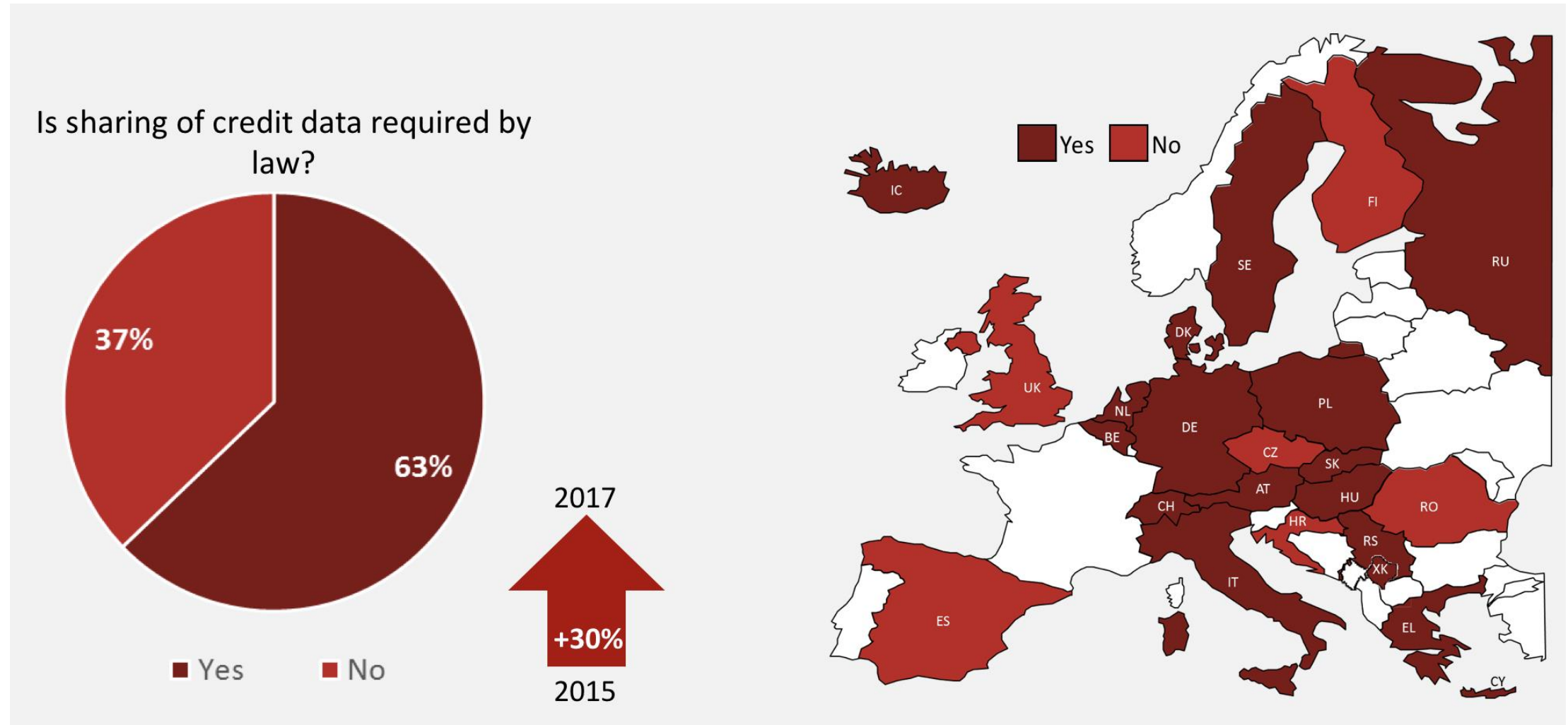
Yes, organisations supply data to CRA
 In discussions
 No, organisations doesn't supply data to CRA
 Not answered

The depth of mainstream lending products is highest, however this varies significantly across the European Single Market

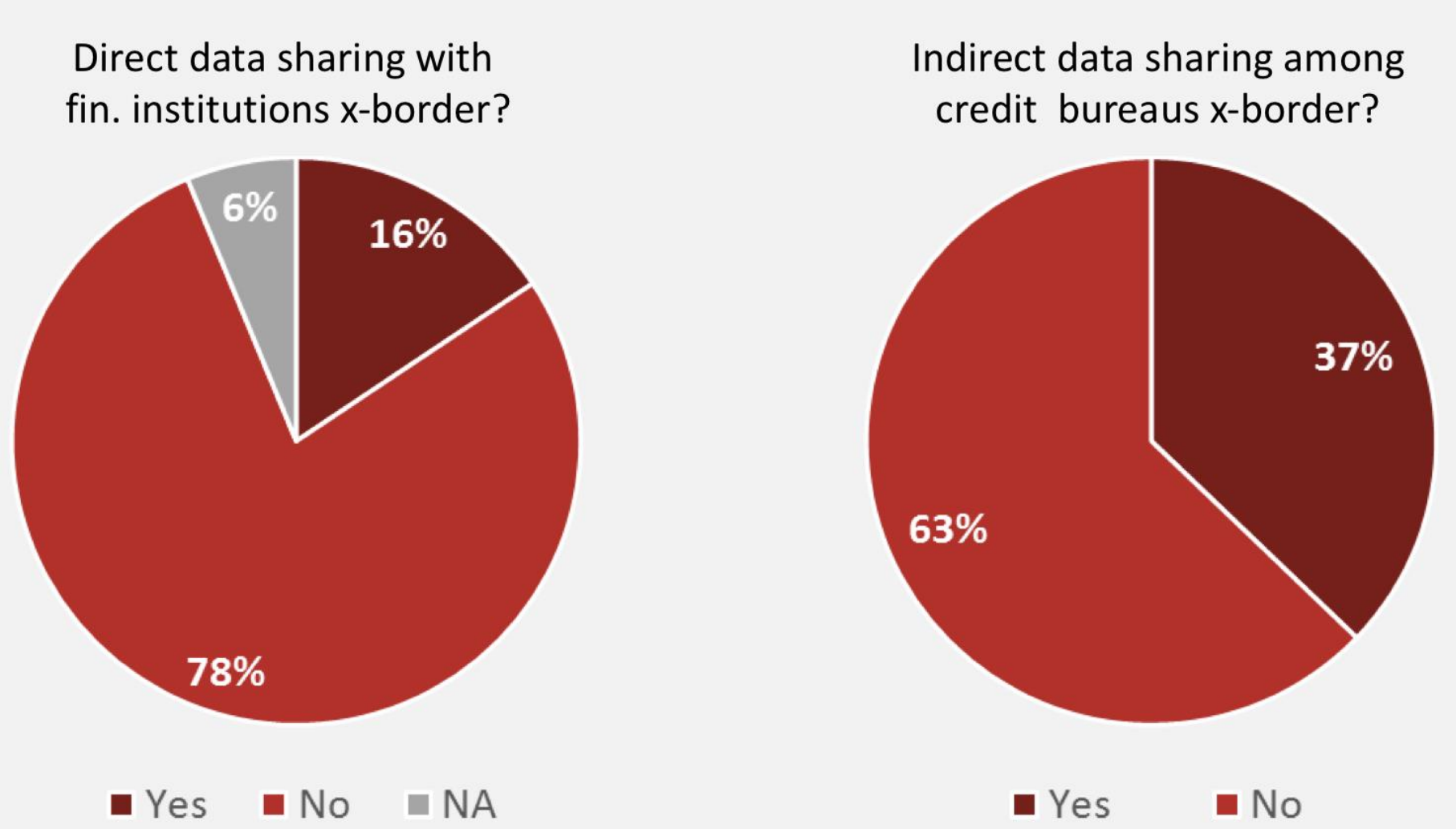
	AT	BE	HR	CY	CZ	DK	FI	DE	EL	HU	IS	IT	PL	XK	RO	RU	RS	ES	SK	SW	CH	NL	UK
Mortgage	Yes	Yes	Yes	Yes	Yes	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Consumer Loans	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Credit and store card	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mail order	NA	Yes	Yes	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Point of sale credit	Yes	Yes	Yes	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Energy (gas, electricity, oil)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Water	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Education loans	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Credit line on a current account	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Internet service provider	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Satellite/cable TV	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed line Telecoms*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Telecoms - mobile	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Payday loans/SMS loans	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Home rent	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Leasing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Health insurance	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other insurances	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Others	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Yes, both positive and negative
 No, only negative
 NA

More and more European countries are making sharing of data a legal requirement



Cross border data sharing remains limited and has not shown any significant changes since 2012



ING approach to consumer lending

Data & Analytics as a driver for sustainable financing in line with consumer needs

Fit for purpose risk models are essential to create a competitive advantage for ING

Efficient and fast process

- Instant lending to non-ING customers
- Pre-approved loans for primary customers

Customer Targeting

Propensity models
Affordability models
Default models

Customer onboarding

Score card models
Fraud models

Customer management

PD, EAD and LGD
Early warning
Collections

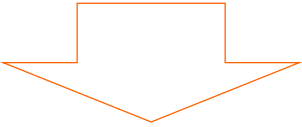
Low risk costs

Starts with the 'right' customer

Application of new data sources, modelling methods and technologies crucial to develop better risk models

Data to develop better drivers

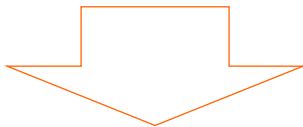
Transactional data
Economic data
Open data



For example:
Google adwords
Google search
Credit bureau
IFRS 9 data
Behaviour
Other bank accounts

Modelling methods to optimize estimations

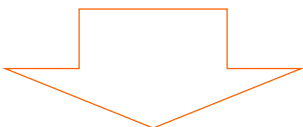
Shortage of data points
Model approaches
New models



For example:
Reject inference
Champion challenger
Machine Learning

Technologies for better data calculation

Real time data

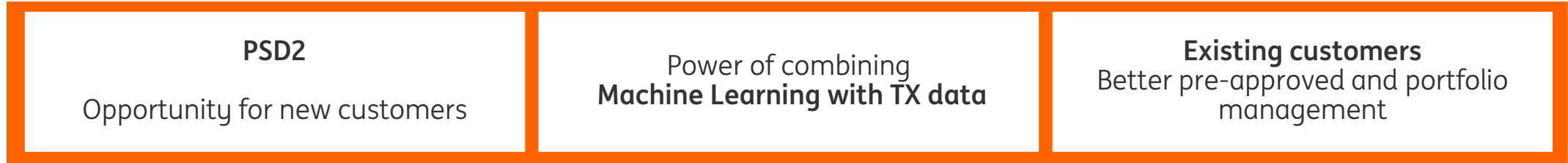


For example:
Real time processing of behaviour

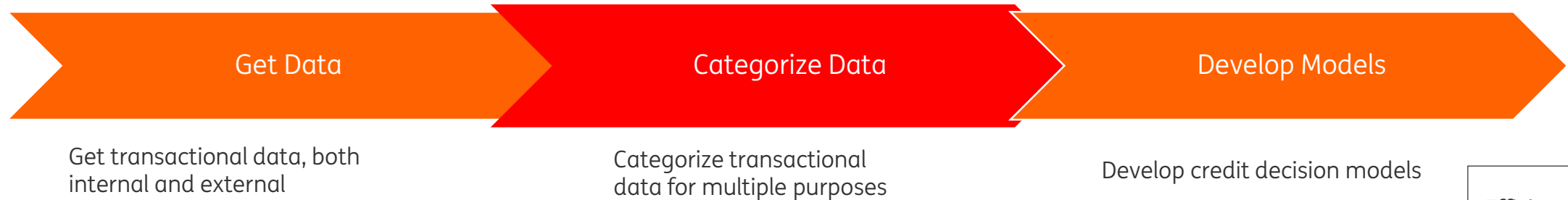
- Traditional credit risk relies on linear models but we live in a non-linear world;
- More data can be processed resulting in a more granular and inclusive description of customer behavior;
- From the ING experience, Machine learning models achieve a 10% increase in performance compared to traditional models

Focus on TX models results in less bias and broader access to credit

- 3 Reasons to focus on transactional models



- High level flow for transactional data usage in lending

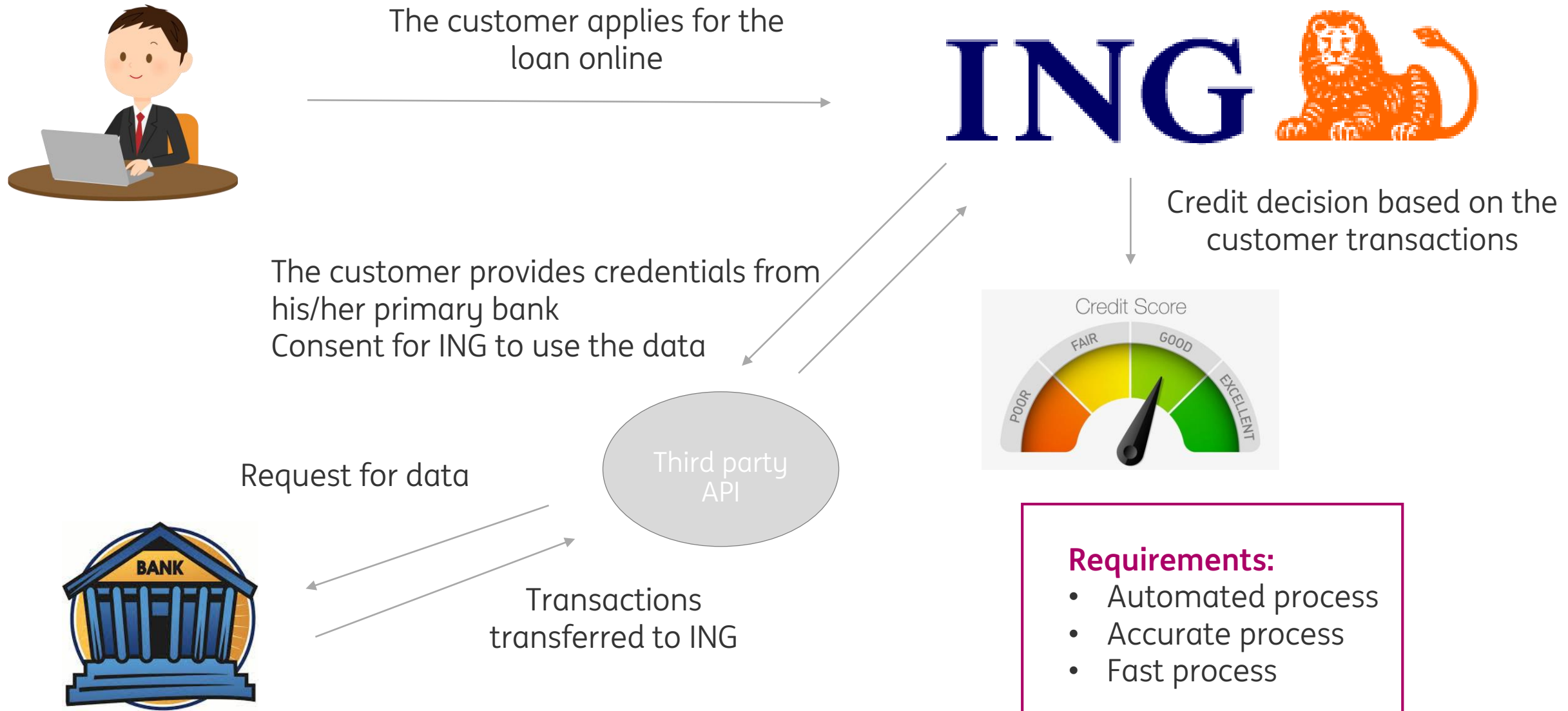


- **In addition to more traditional data sources:**

- Usage of other banking products (Credit Cards, Overdrafts...)
- Repayment behavior of other loans where applicable
- External information (Credit Bureau, Central Bureau of Statistics) data where applicable
- Socio-demographic information about the customer

Efficiency	▲
Acceptance	▲
Risk Costs	▼

Use Case: Instant lending to non-ING customers



Use Case: Pre-approved loans for primary customers



Every customer in the database gets evaluated via a monthly batch process



The loan is preapproved and the customers can access the money quickly