

Consumer finance fraud tendencies across EU markets

Problems, solutions and perspectives

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1. Fraud and credit risk: where the border lies

Credit risk vs. fraud

Credit risk: probability of loan default (customer won't be able to pay it)



Credit fraud: intentional action in order to take loan and disappear with the money



Definitions of fraud

- **HFPL** (high fraud probability loan): NPLs with no contact to customer. Might be highly correlated with loan default.
- **Police investigation** open. There is a victim, like in case of identity theft.
- **Internally** found and marked schemes or fraud rings, either due to complaints or internal investigation (family fraud, many other schemes)
- **Other** types of definitions, depending on company and product

Traditional score cards

Key factors are in payment history, age, liabilities and debt / income levels.
In most cases personal data proves to be much less relevant.



Key indicators of fraudulent behaviour

Geography



Velocity



Historic changes



Behaviour



Device fingerprint

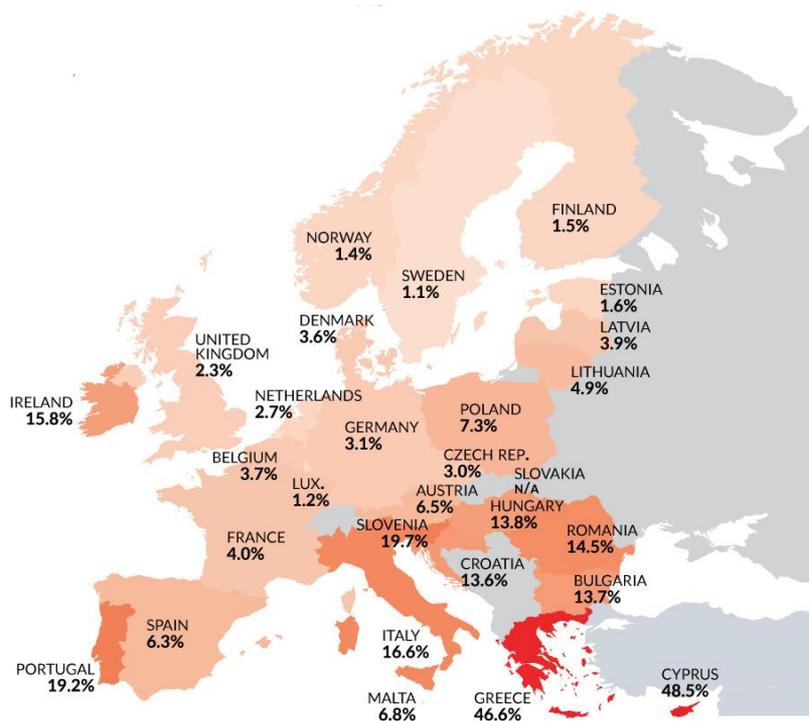


Device reputation



2. Different products, different markets:
what we observe

NPLs and fraud in EU countries



EU non-performing loans, including fraudulent applications, lead to interesting observations:

- Obvious correlation with North to South geography.
- Moreover, region segmentation inside one country is also very noticeable in many cases

Main types of fraud observed

First party fraud	<ul style="list-style-type: none">● HFPL ('cash and run')● + forged data	Fake or forged personal and financial data (income, employment...)
Third party fraud	<ul style="list-style-type: none">● Identity theft● Synthetic identity● Ghosting	Stolen or generated fake identity
	<ul style="list-style-type: none">● Family fraud	Where identification regulations are tight
Offline fraud	<ul style="list-style-type: none">● Brokers / partners● Third party collusion schemes	<i>(not covered in the scope of this presentation)</i>

Identity theft fraud

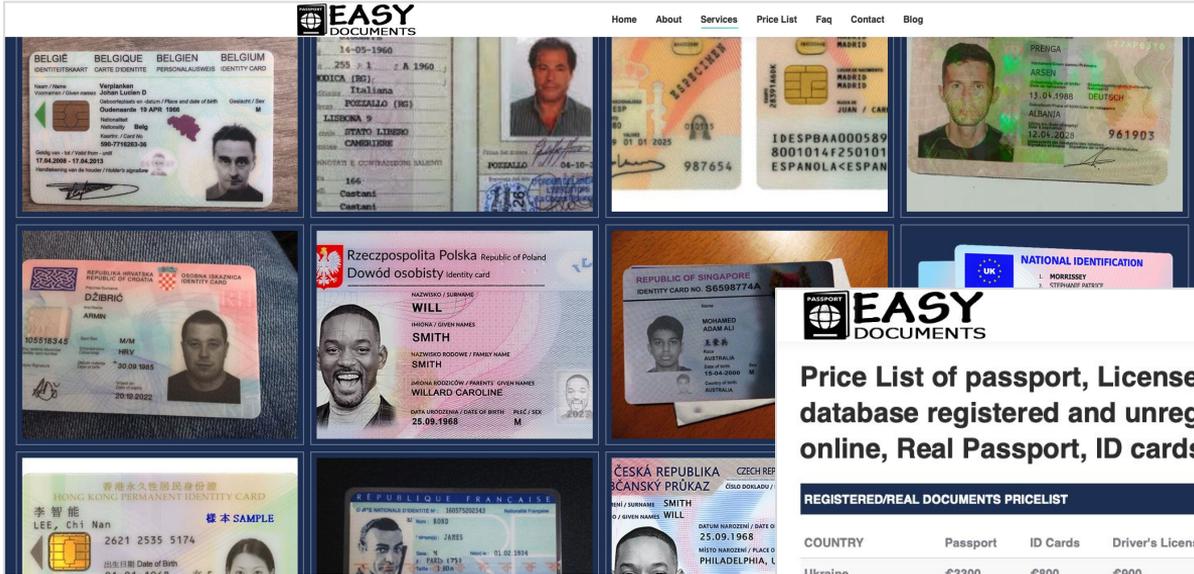
It is a **huge** problem in countries with weak bank regulations and lack of reliable online tools for identity check and confirmation.

Data analytics company FICO estimates number as high as **€1.8 billion** stolen in total through identity theft in 2017 in Europe alone

(<https://www.readersdigest.ca/home-garden/money/identity-theft-europe/>).

Can't buy me love, buy me identity

You don't even have to visit dark web for that!



Both unregistered / **fake** and registered / **real** identities are available (screenshots are taken from the web)

EASY DOCUMENTS

Home About Services Price List [FAQ](#) Contact Blog

Price List of passport, License and I.D cards we produce that are database registered and unregistered. You can buy real drivers license online, Real Passport, ID cards AND Also Fake of ALL.

REGISTERED/REAL DOCUMENTS PRICELIST				UNREGISTERED/FAKEDOCUMENTS PRICE LIST				
COUNTRY	Passport	ID Cards	Driver's License	Wholeset	Countries	Passport	I.DCard	Driving License
Ukraine	€3300	€800	€900	€4000	Ukraine	€700	€350	€350
Sweden	€3500	€800	€1000	€4000	Sweden	€700	€350	€350
Russia	€3500	€900	€900	€4000	Russia	€700	€350	€350
Poland	€3300	€900	€1000	€4000	Poland	€700	€350	€350
Norway	€3000	€1000	€1000	€3500	Norway	€700	€350	€350
Moldova	€3100	€600	€800	€3000	Moldova	€700	€350	€350

Complete synthetic identity is easier than you think

FAKE NAME GENERATOR™

Name Generator Free Tools Order in Bulk Smiley Generator FAQ

Your Randomly Generated Identity

Gender: Male
Name set: Polish
Country: Poland

Generate Advanced Options

These name sets apply to this country:
Polish

Emergency Alerts **save lives** FEDERATION OF INTERNET ALERTS

Przemko Król
ul. Majora Sucharskiego Henryka 80
91-755 Łódź

Mother's maiden name: Nowak
PESEL: 83061313975
Geo coordinates: 51.847796, 19.443018

PHONE
Phone: 67 601 95 10
Country code: 48

BIRTHDAY
Birthday: June 13, 1983
Age: 36 years old
Tropical zodiac: Gemini

GETTING HOME SAFELY IS JUST A CLICK AWAY
SaferCar.gov/ TheRightSeat
NHTSA Child Car Safety

Logged in users can view full social security numbers and can save their fake names to use later.
Sign in

Family fraud

Family fraud happens mostly in countries where online identification tools are reliable and it's hard to steal the identity from a stranger.

Instead, same happens between family members.



3. Advances in fraud prevention: when traditional systems meet AI and data science



Rules **vs** Machine Learning

Why rules can be weaker

- Rules can be reverse engineered.
- As rules become stricter, you risk negatively impacting good customers.
- Integration of rules is time-intensive and costly.
- Performance issues are common when sudden changes are introduced into the system.
- Rules-based systems are prone to human errors.

Why ML can be more complicated

- You need to train ML models.
- You need to possess enough volume of quality historic data.
- Sometimes models can be treated as “black boxes”, hence less interpretable.
- You need to build proper tech infrastructure.
- ML solutions are more costly.



Device reputation global data

Provides us with scoring and risk level for 10,000,000s of online devices, often shared between customer and provider, available within milliseconds through APIs and often utilizing sophisticated machine learning models.

Some examples of device fingerprinting and scoring solution global providers:

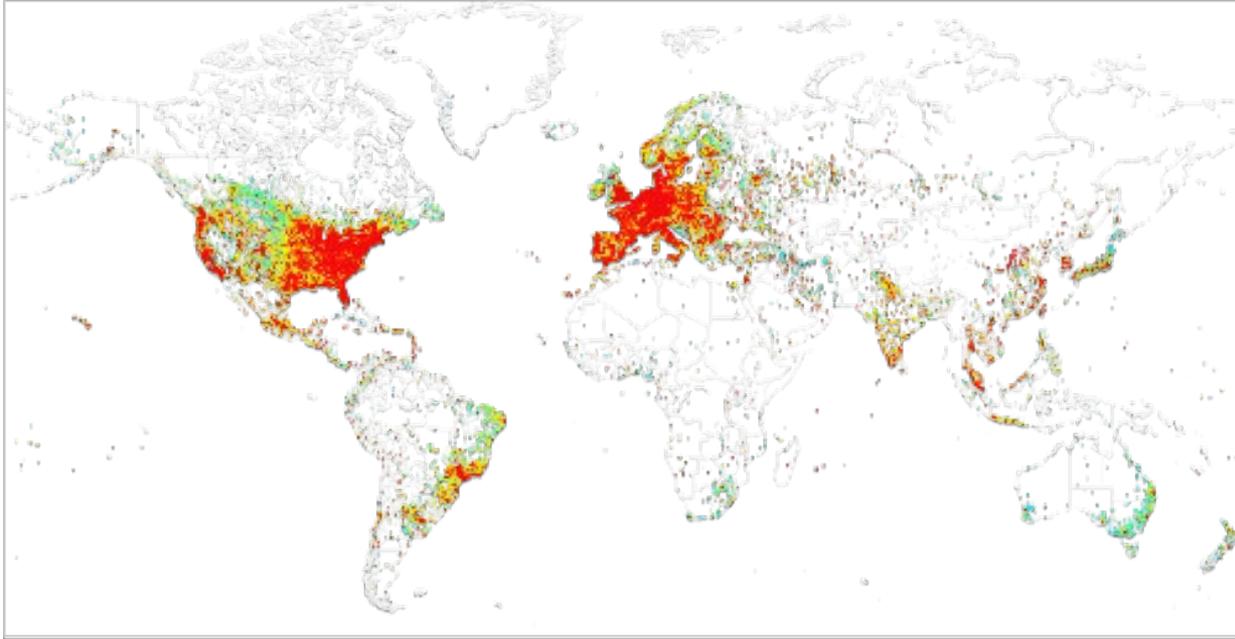


Why device reputation is so important?

- Fraudster usually tries to look like a good customer
- Fraudster usually tries to hide his true identity
- Most likely, he has been already accused in fraud before, and his devices were seen somewhere else

Device databases with global coverage (10,000,000+ devices) provide reliable device risk scoring and scale between worldwide consumer finance markets

Global coverage is the key



Over **5 billion** people use internet today. This is around 66% of Earth population.
Over **7 billion** devices are connected to the internet today.

Use cases highlights

Device reputation providers

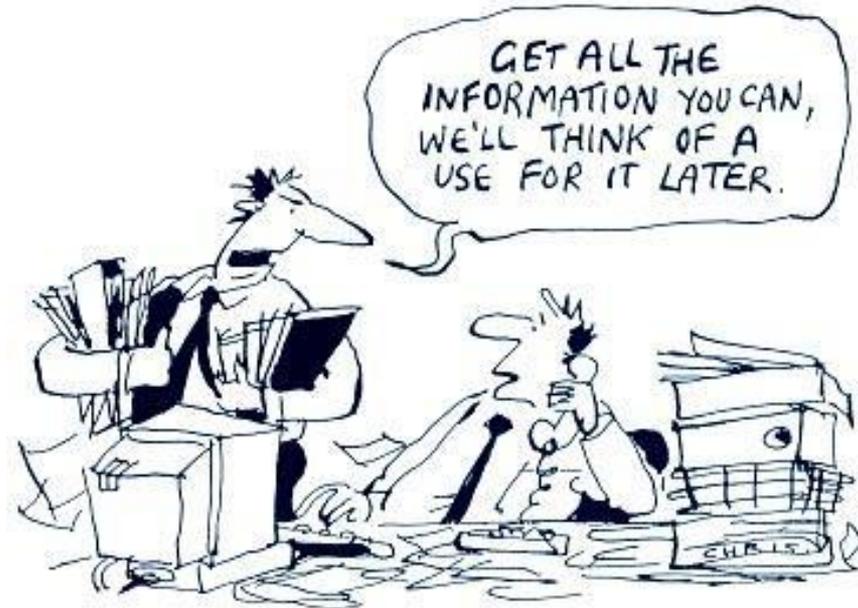
- Multiple use cases indicate ROI within 3 months for 80% of consumer finance companies, and close to 100% within 1 year
- Maintaining fraud rate steadily on negligible level (say 0.1 - 0.5%)
- Saving on credit check costs (might be €10.000 to €100.000s)

Machine learning systems to add up to rule systems

- Investment value for machine learning system is usually harder to model, but expert opinions are actually very convincing

Consumer loan fraud modelling: main challenge

Many companies have collected lots of data from various sources (sometimes **too** much), but they don't know how to use it effectively



Good practices

- Using the **right data**: behavioral, geographic, device data is essential
- Data **segmentation**: geography, product types, customer groups
- Make **simpler** but more interpretable models. No need in deep learning where logistic regression works well.
- Optimize for **business metrics**.

4. Threats of tomorrow

(Bright) Future of online credit business

- **More personalization**
 - customer gets better product tailored for his needs
- **Faster credit decisions and more automation**
 - querying external data sources instead of asking the customer (income, liabilities, family data)
- **Instant, lightning-fast payouts**
 - happy customers getting money in a fraction of a second
-

So what to fear? *

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“Fraud is the daughter of greed”



- John Grant, Scottish writer and publicist

Key takeaways

1. Fraud may usually have unique patterns and key indicators. Fraud diversity varies greatly by market and product, so no universal receipt against it would ever be introduced.
2. Using right data is the key to proper fraud modelling and detection.
3. AI and data science will be ruling consumer finance fraud detection all the way in the future.
4. However, new progressive market trends and products will introduce us to complete new fraud threats.



*"I fight fraud
and do it good"*

Thanks!

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