

# EUROPEAN DATAWAREHOUSE



# **EDW'S 2026 DUTCH SECURITISATION EVENT**

**23 SEPTEMBER 2026**



# AGENDA

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DR. CHRISTIAN THUN, EUROPEAN DATAWAREHOUSE

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NICOLETTA MASCHER, EUROPEAN STABILITY MECHANISM

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DR. CHRISTIAN THUN, EDW

## CLOSING REMARKS

# SPEAKING AT TODAY'S EVENT



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# **WELCOME & INTRODUCTION**

**DR. CHRISTIAN THUN, EDW**

# **SECURITISATION AND FINANCIAL STABILITY: FOSTERING EUROPE'S GROWTH WHILE SAFEGUARDING RESILIENCE**

**NICOLETTA MASCHER, EUROPEAN STABILITY MECHANISM**

# Securitisation and financial stability

Fostering Europe's growth while safeguarding resilience

**Nicoletta Mascher, Head of Financial Sector and Market Analysis**

Amsterdam, 23 September 2026

European Stability Mechanism



# CONTENTS

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- 1 The ESM in the euro area institutional architecture**
- 2 Securitisation as crisis management tool**
- 3 Securitisation within the SIU: the bridge product**
- 4 Market growth and private securitisation**
- 5 An SME securitisation platform: a European layer on national rails**

# ESM in Europe's financial architecture

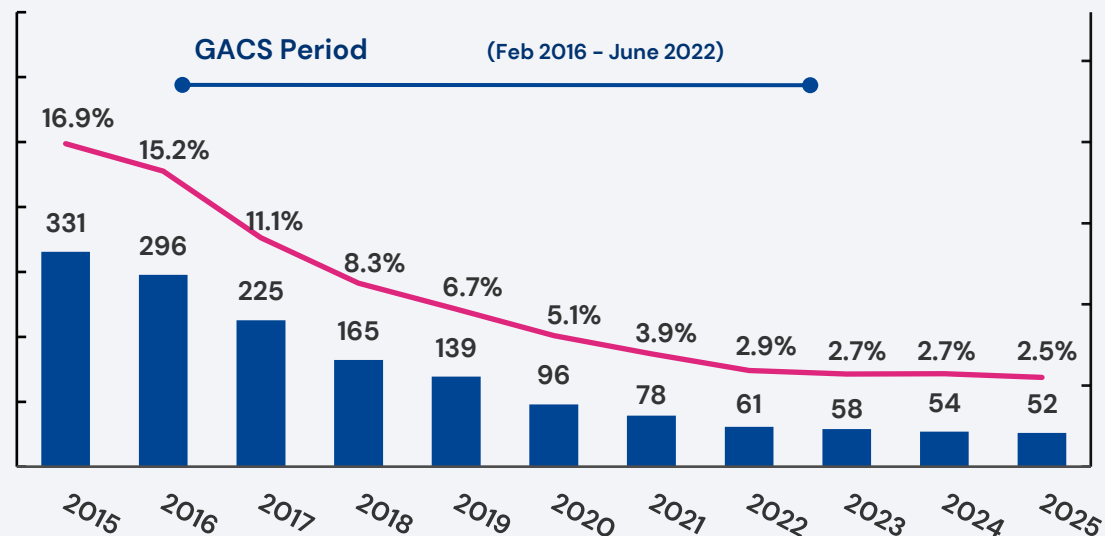


\* Ratification of the Amending Agreement to the ESM Treaty ongoing

# Securitisation can support crisis management and bolster investor confidence

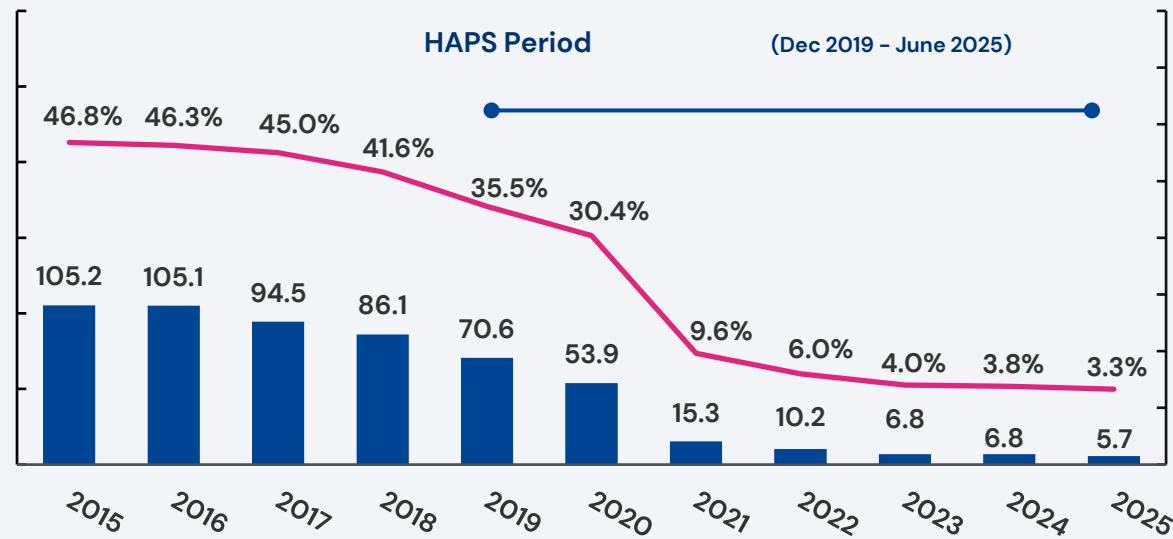
- Two groundbreaking schemes were introduced: GACS in Italy (2016) and HAPS in Greece (2019)
- Pivotal in their role as industrial sized NPL management tools:
  - ✓ Transformed troubled assets into marketable assets
  - ✓ Reduced information asymmetries and bid-ask spread

Italy NPE Stock (€Bn) and NPE ratio (%)



Source: ECB

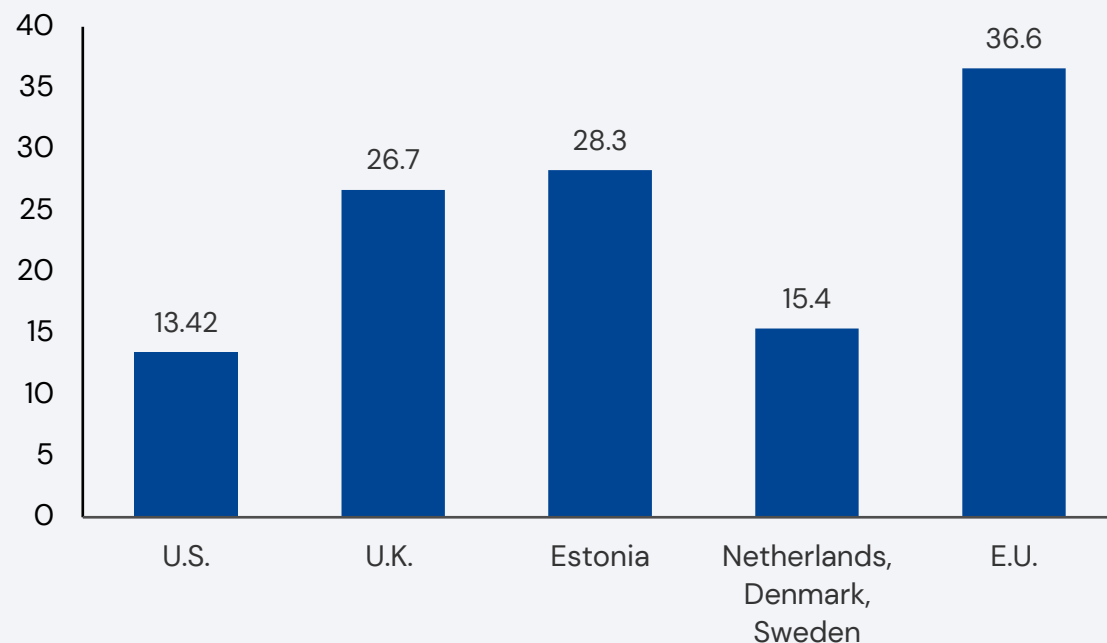
Greek NPE Stock (€Bn) and NPE ratio (%)



Source: ECB

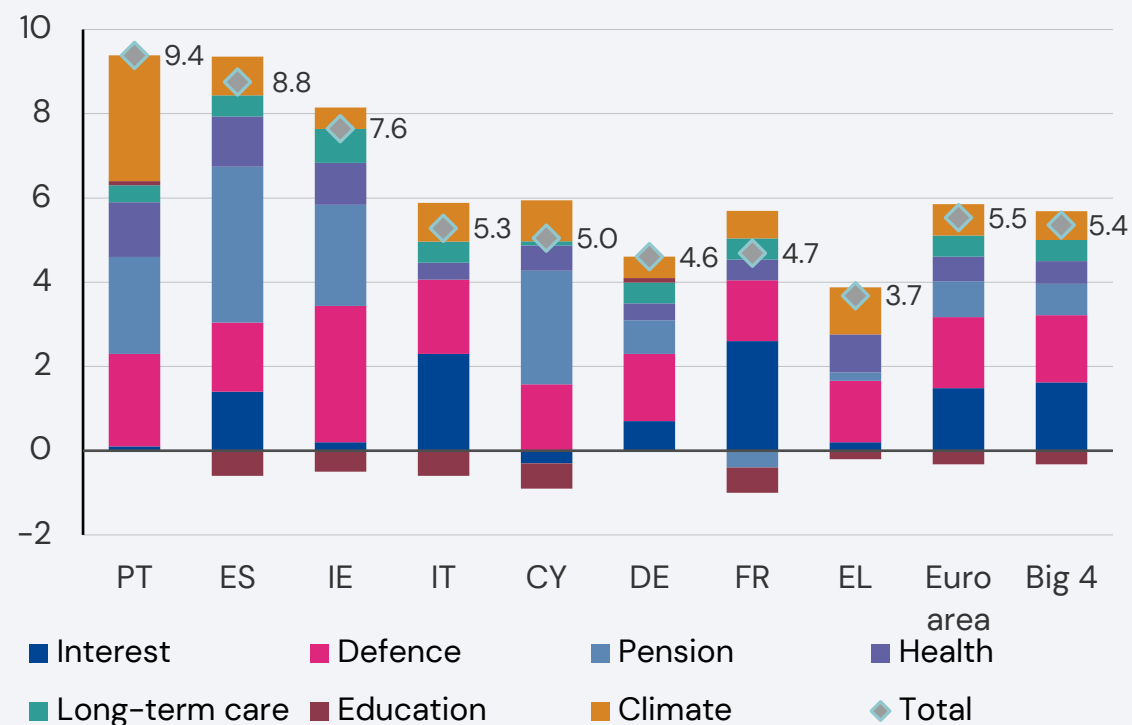
# A bridge to channel untapped investment capacity while fiscal space is increasingly constrained

## Household deposits and cash holdings (% of financial assets)



Source: ESM analysis

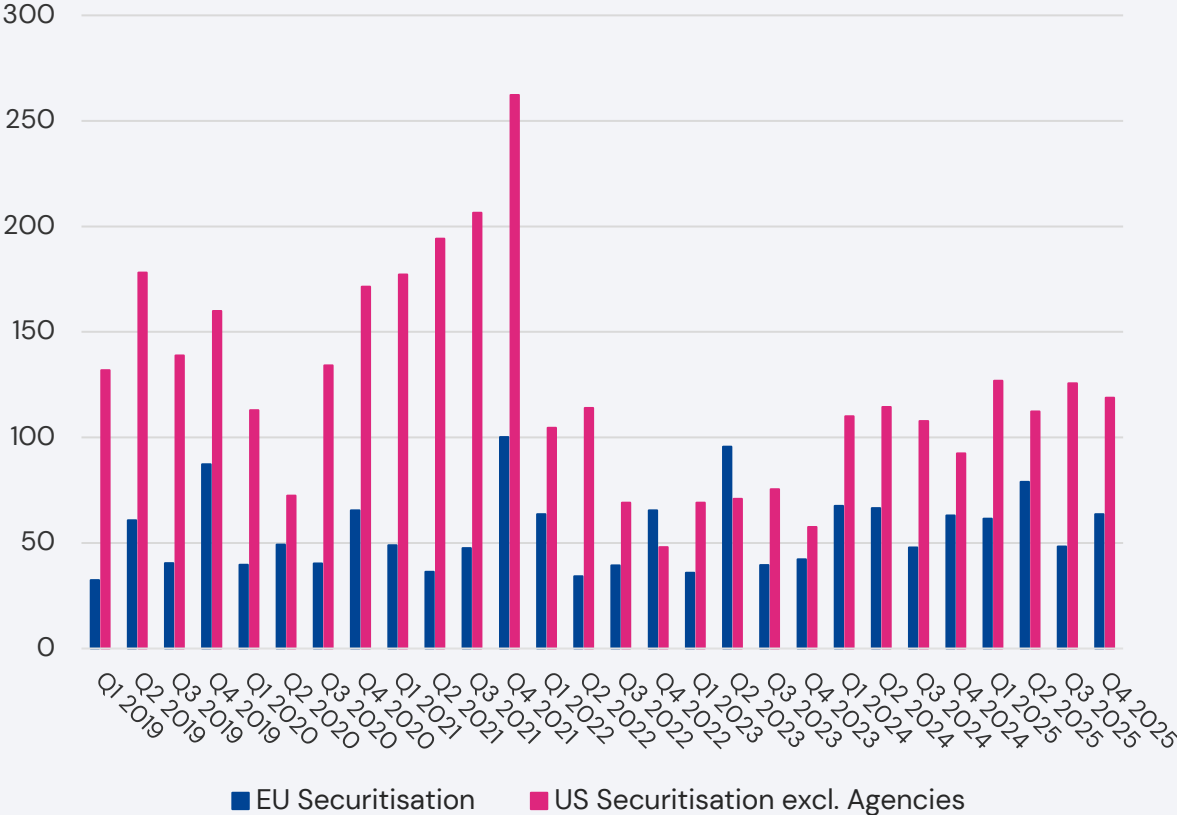
## Incremental euro area spending pressures 2025–2050 (% of GDP)



Sources: European Commission, IMF, Eurostat, NATO, ESM analysis

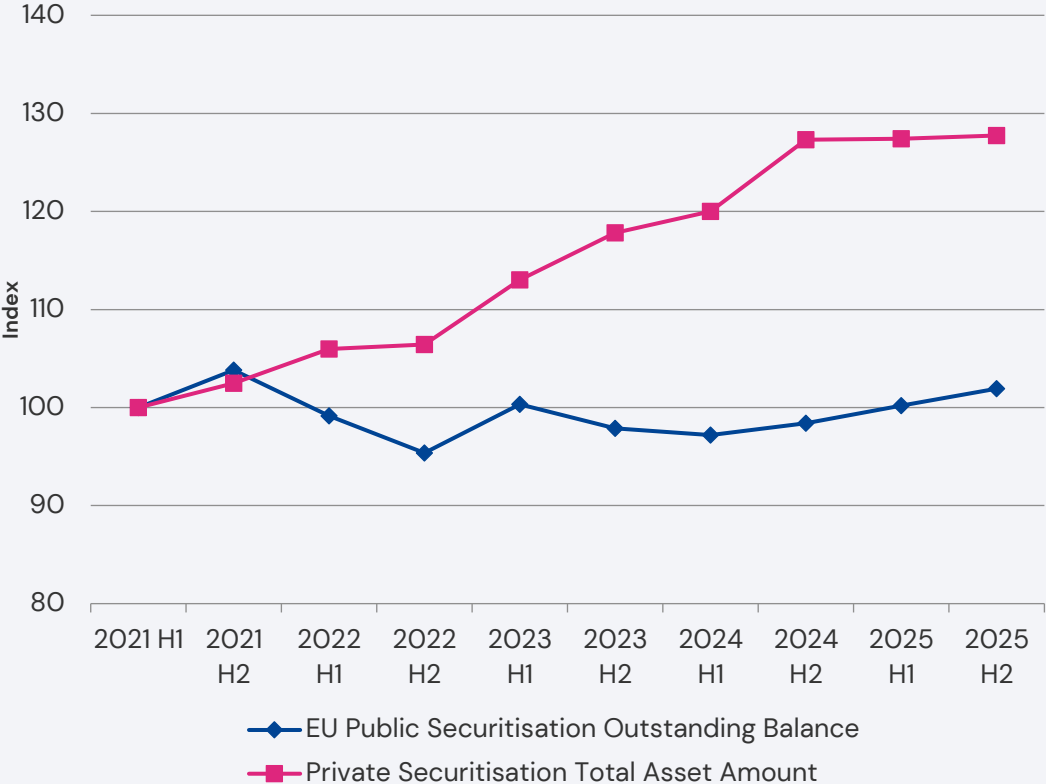
# Is private securitisation becoming market dominant?

Quarterly EU vs US Securitisation issuance volumes



Source: AFME. Data reported in € billions

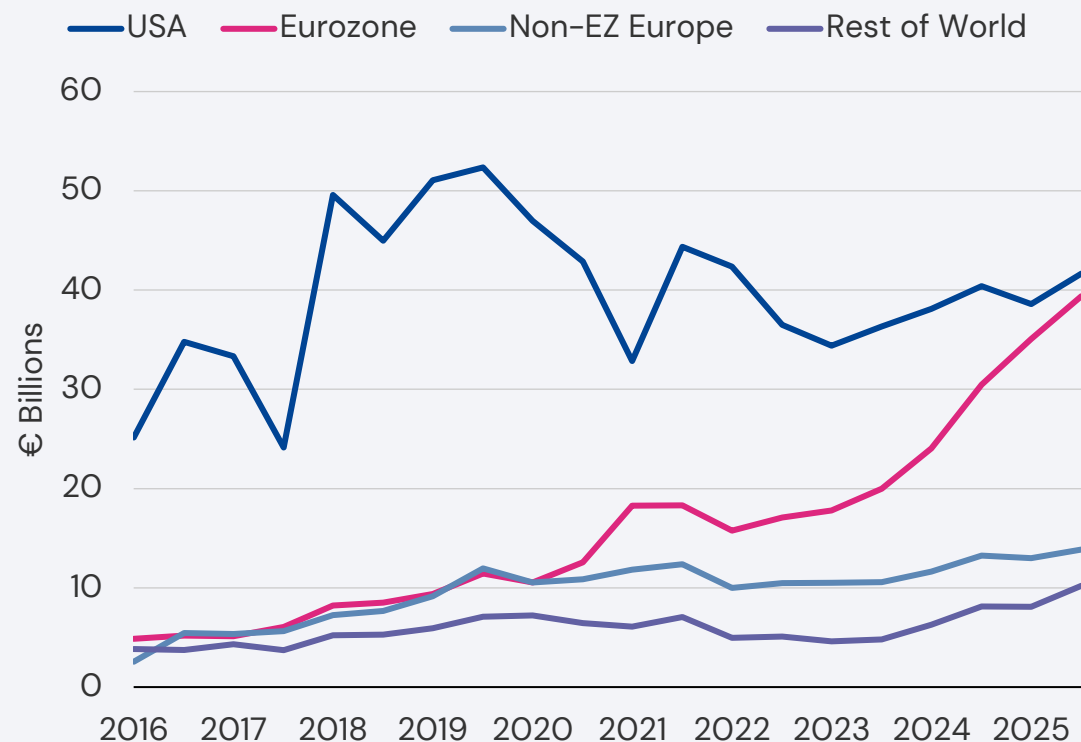
Private Securitisation Growth Outpacing Public Securitisation (2021 H1=100)



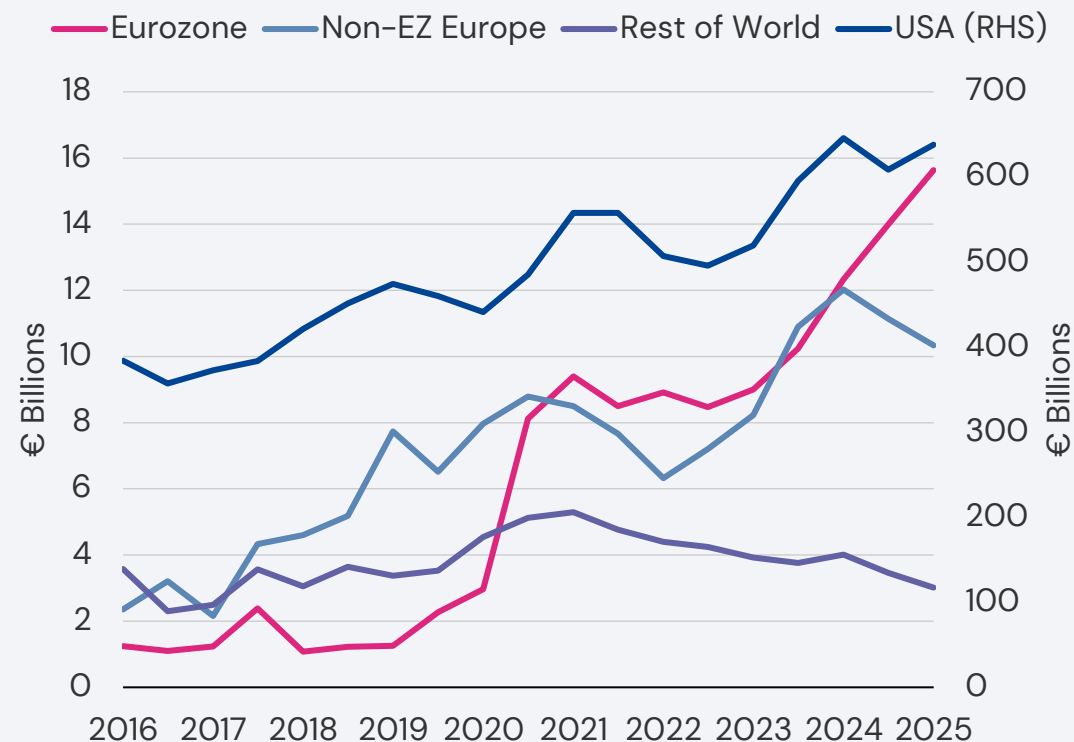
Source: AFME. European Benchmarking Exercise (EBE) for Private Securitisations

# Institutional investors' appetite is changing

Euro area domiciled fund holdings of securitisations, by region of issuance



USA domiciled fund holdings of securitisations, by region of issuance

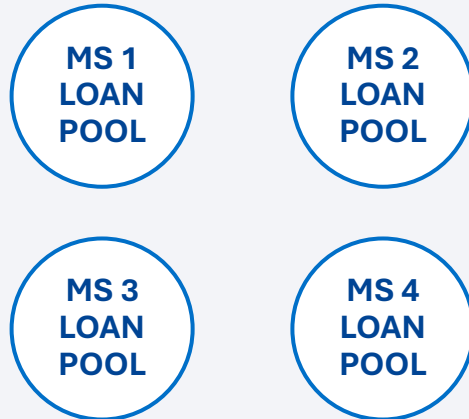


Source: Refinitiv Lipper, European Datawarehouse, and ESM Calculations. US issuances exclude agency

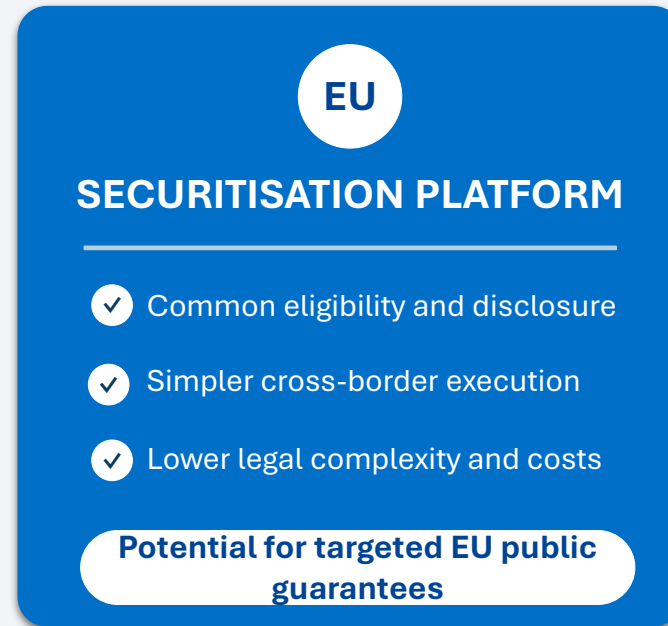
# A common EU securitisation platform

## 1 POOL LOANS

National pools across Member States



## 2 HARMONISATION



## 3 MARKET SCALE

- 01 Depth and liquidity**  
Improved pricing and greater market efficiency
- 02 Diversification and risk mitigation**  
Across Member States, reducing national concentration
- 03 Broader investor base**  
New opportunities for mobilising pension and long-term savings capital

**Potential to support additional lending for EU priorities, including the green and digital transitions.**

*Illustrative concept — scope, governance and risk-sharing arrangements to be developed*

# Euro Area Stability Watch 2026.

Global shocks,  
domestic shields:  
Resilience under strain



European Stability Mechanism



[Go to the ESM website](#)

# Contact

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# KEY DEVELOPMENTS SHAPING SECURITISATION

ROB KONING, DUTCH SECURITISATION ASSOCIATION

# **MACROECONOMIC HOUSING AND CONSUMER OUTLOOK**

**ALASTAIR BIGLEY, S&P GLOBAL RATINGS**



# The European Economy and the Consumer

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**S&P Global**  
Ratings

Alastair Bigley Managing Director  
EMEA Structured Finance  
23 September 2026

*This report does not constitute a rating action*

# Resources

Links to materials referenced today.

- <https://www.capitaliq.com/> (subscription website)
- [www.spratings.com](http://www.spratings.com) (free website, requires registration)
  - European RMBS Index Report Q2 2026 September 01, 2026.
  - EMEA Structured Finance Chart Book July 2026 July 22, 2026.
  - European Housing: Supply Shortfalls Limit Price Relief July 13, 2026.
  - Credit Conditions Europe Q3 2026 Resilient Through Stormy Waters June 25, 2026.

# Macro Position

# Macro Key Takeaways

- **Overall:** Europe's credit conditions remain resilient, helped by adaptable businesses and constructive financing markets, but the macro-outlook is lacklustre. Growth is likely to stagnate in the second half of 2026, while energy-driven inflation continues to weigh on central banks and borrowers.
- **Risks:** Downside risks are evolving rather than disappearing. Key pressure points include potential for renewed Middle East energy disruption, rising EU-China trade frictions in strategic sectors, spillovers from higher long-term yields, and AI-enabled cyber threats that could test operational resilience across sectors.
- **Ratings:** Rating actions broadly remain aligned with underlying credit fundamentals. Structured finance show resilience, while pressure is more concentrated among lower-rated borrowers and weaker sectors, including autos and chemicals, and issuers facing refinancing needs.
- **Political instability:** Broader questions regarding the balance of fiscal priorities--and their impact on public finances--are likely to gain prominence in the coming months.
- **Rate Discussion:** Has moved from a discussion about number of cuts to number of rises. This has impact on both asset and liability side of the ABS and RMBS markets.

# Selected Euro Area Real GDP

Spain is bucking the trend

Real GDP Percentage

Real GDP (%)

|       | Eurozone | Germany | France | Italy | Spain | Netherlands |
|-------|----------|---------|--------|-------|-------|-------------|
| 2025  | 1.5      | 0.3     | 0.9    | 0.7   | 2.8   | 1.8         |
| 2026f | 0.5      | 0.4     | 0.4    | 0.4   | 1.7   | 0.8         |
| 2027f | 1.0      | 1.1     | 0.9    | 0.5   | 1.6   | 1.1         |
| 2028f | 1.3      | 1.4     | 1.2    | 0.7   | 2.0   | 1.3         |
| 2029f | 1.2      | 1.2     | 1.1    | 0.7   | 1.9   | 1.3         |

f--Forecast, annual average. Source: S&P Global Ratings.

- Real GDP growth is predicted to be positive for all major European economies.
- Growth rates downgraded since February 2026. Netherlands projections are in line with the European averages.
- Downside risks remain high energy costs and uncertainly on how prolonged this will be.

# Selected Euro Area CPI Inflation

Inflation remains sticky

CPI Inflation Percentage

CPI inflation (%)

|       | Eurozone | Germany | France | Italy | Spain | Netherlands |
|-------|----------|---------|--------|-------|-------|-------------|
| 2025  | 2.1      | 2.3     | 0.9    | 1.6   | 2.7   | 3.0         |
| 2026f | 3.1      | 3.1     | 2.6    | 3.2   | 3.3   | 3.1         |
| 2027f | 2.2      | 2.4     | 1.8    | 2.2   | 2.5   | 2.5         |
| 2028f | 1.8      | 1.8     | 1.6    | 1.8   | 2.0   | 2.0         |
| 2029f | 1.9      | 2.1     | 1.8    | 1.8   | 2.0   | 2.0         |

CPI--Consumer price index. f--Forecast, annual average. Source: S&P Global Ratings.

- Annual average may mask spikes on a quarterly basis. Eurozone inflation predicted to be 4% in Q3.
- Secondary effects are muted, in the form of higher wage demands are not yet evident, they could materialize over the medium term.
- Downside risks as per GDP.

# Selected Euro Area Unemployment

## Labor Market Is Softening

### Unemployment Rates Percentage

Unemployment rate (%)

|       | Eurozone | Germany | France | Italy | Spain | Netherlands |
|-------|----------|---------|--------|-------|-------|-------------|
| 2025  | 6.3      | 3.7     | 7.7    | 6.0   | 10.5  | 3.9         |
| 2026f | 6.3      | 3.9     | 8.1    | 5.4   | 10.4  | 4.1         |
| 2027f | 6.1      | 3.5     | 8.0    | 5.5   | 10.4  | 4.2         |
| 2028f | 5.8      | 3.2     | 7.8    | 5.5   | 10.2  | 4.2         |
| 2029f | 5.8      | 3.1     | 7.5    | 5.5   | 10.0  | 4.2         |

f--Forecast, annual average. Source: S&P Global Ratings.

- Leading indicators point towards a weakening position.
- Year over year, employment growth in the eurozone slowed to 0.5% in the first quarter of 2026 from 1.0% in 2024.
- Vacancies have fallen in the eurozone and the U.K. Potentially regional risk emerge.
- Based on our predictions, near term outlooks are nuanced by country.
- AI adoption.

# Consumers in European Structured Finance

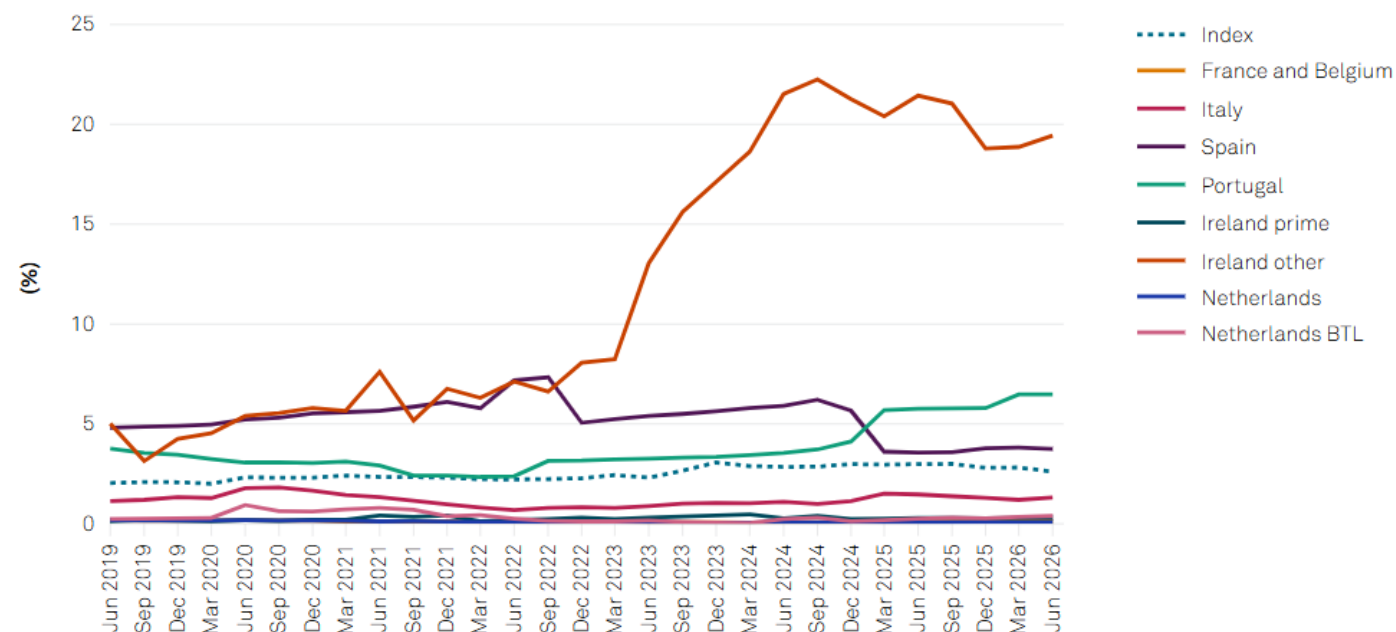
# Mortgage Performance Remains Resilient

## Netherlands Shows Best Performance in Europe

### 90+ Delinquencies S&P Index

#### 90+ days delinquencies

By country



BTL--Buy-to-let. Source: S&P Global Ratings.

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- Improvement trend has stabilized in post prime markets, shock caused by 2022-2023 inflation spike has been absorbed by Europe's mortgage borrowers.
- Shocks may arise from softer employment and higher rates.
- Poor performance of assets in indices still largely attributable to legacy collateral.
- But risks in all markets may not be fiscally driven, policy decisions may lead to emerging risks.
- Post GFC era regulation is largely doing its job.

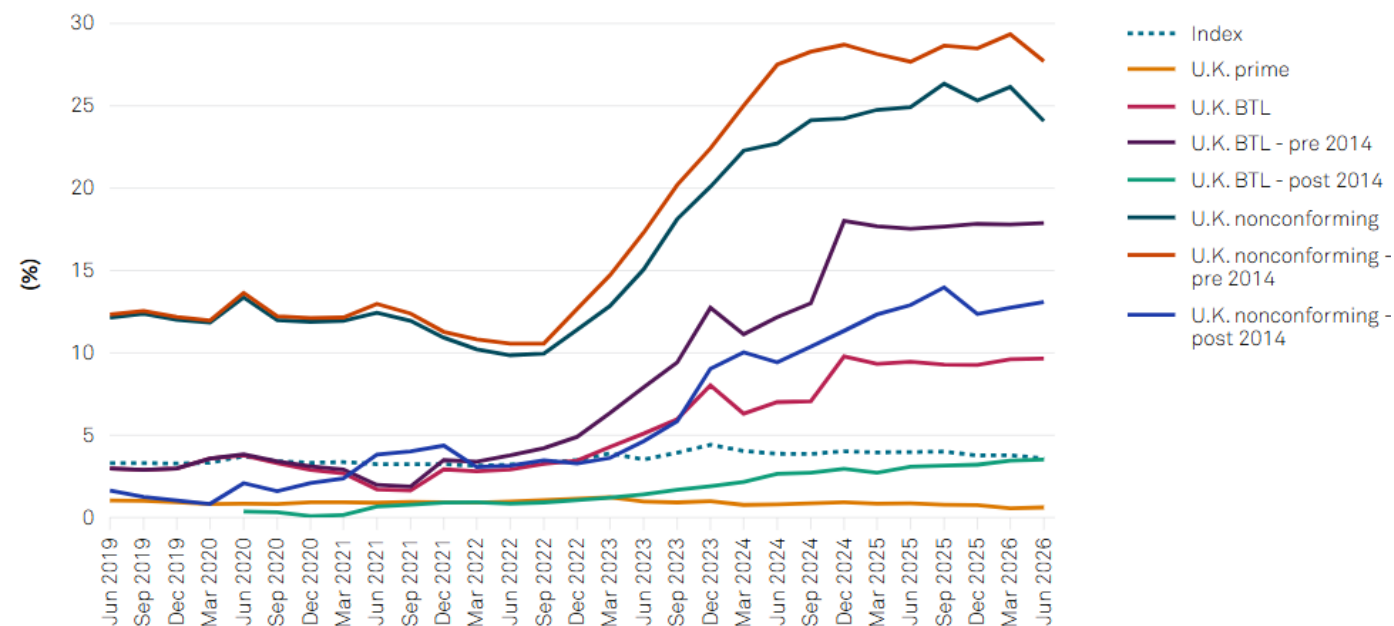
# Mortgage Performance Remains Resilient

## UK as a case study

### 90+ Delinquencies S&P Index

#### Total delinquencies

By country



BTL--Buy-to-let. Source: S&P Global Ratings.

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- Weak underwriting from pre GFC era still an issue in UK RMBS. But not at a systematic level.
- Low and no equity borrowers are also still driving performance.

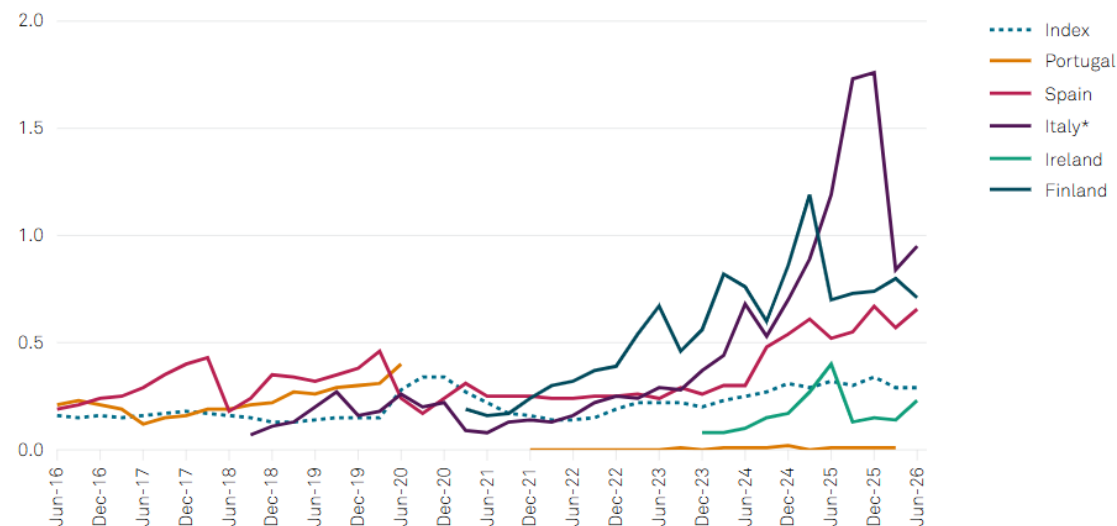
# Core Consumer ABS Performance Remains Strong

- Auto Delinquencies remain low with Minimal subprime markets.
- Minimal underwriting drift means performance is linked to wider macro factors such as GDP.
- What is the canary in the coal mine.

## European Auto 90+ S&P Index (part 1)

### 90+ day delinquency rate: Part 1

By country (%)



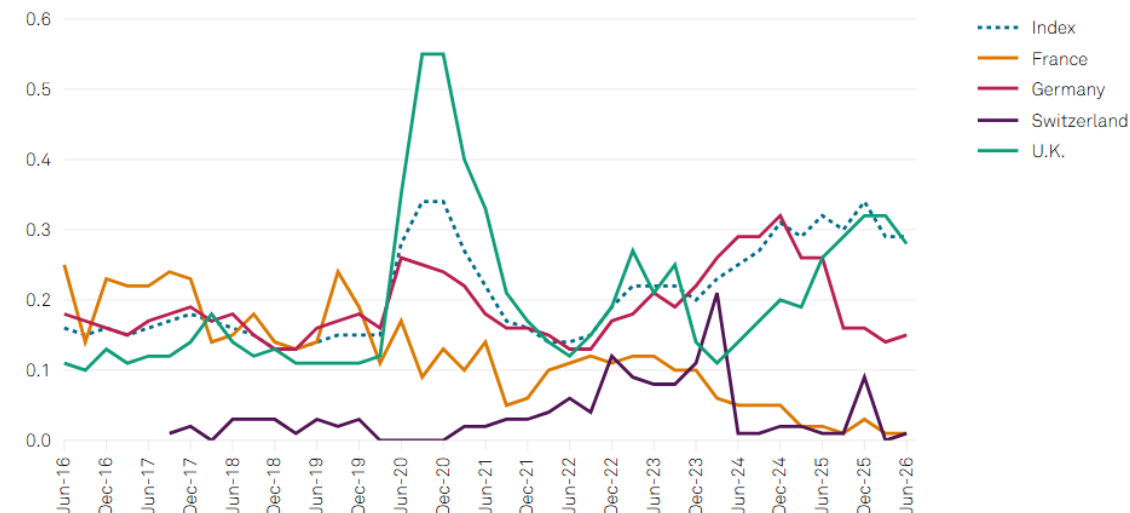
\*Decrease driven by the redemption of the deal Private Driver Italia 2020-1 S.r.l. Source: S&P Global Ratings.

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## European Auto 90+ S&P Index (part 2)

### 90+ day delinquency rate: Part 2

By country (%)



Source: S&P Global Ratings.

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# Nominal House Prices

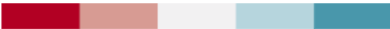
## Outlook is Softening

### Nominal Price Forecasts

S&P Global Rating economists' nominal price forecasts

|             | Year-over-year change in Q4 in nominal house prices (%) |       |       |       |       | Change compared with previous forecasts (Feb. 2026) |       |       |       |
|-------------|---------------------------------------------------------|-------|-------|-------|-------|-----------------------------------------------------|-------|-------|-------|
|             | 2025                                                    | 2026f | 2027f | 2028f | 2029f | 2025                                                | 2026f | 2027f | 2028f |
| Germany     | 2.6                                                     | 1.2   | 2.8   | 2.5   | 2.0   | -0.1                                                | -0.7  | -0.6  | -0.3  |
| France      | 1.0                                                     | 1.4   | 2.2   | 2.1   | 2.5   | 0.0                                                 | -0.4  | -0.4  | -0.2  |
| Italy       | 4.0                                                     | 2.8   | 1.7   | 1.8   | 1.7   | 0.9                                                 | 0.6   | -0.1  | 0.0   |
| Spain       | 12.9                                                    | 9.1   | 7.4   | 6.2   | 5.4   | 0.5                                                 | -0.2  | 0.0   | 0.0   |
| Netherlands | 6.1                                                     | 5.3   | 4.4   | 5.0   | 4.7   | 0.4                                                 | 0.0   | -0.1  | 0.0   |
| Belgium     | 3.4                                                     | 3.0   | 3.0   | 2.8   | 2.7   | 0.1                                                 | -0.1  | 0.0   | -0.1  |
| Portugal    | 18.9                                                    | 10.0  | 5.5   | 5.0   | 5.0   | 3.5                                                 | 3.0   | 0.0   | 0.0   |
| Ireland     | 7.0                                                     | 5.0   | 4.1   | 3.9   | 3.5   | -0.3                                                | -0.1  | 0.0   | 0.1   |
| Poland      | 4.3                                                     | 5.3   | 5.7   | 5.4   | 5.3   | -0.3                                                | -0.3  | 0.7   | 0.9   |
| Switzerland | 5.2                                                     | 2.6   | 2.6   | 2.0   | 2.0   | 1.3                                                 | 0.5   | 0.0   | 0.0   |
| U.K.        | 2.4                                                     | 2.0   | 2.6   | 3.7   | 3.4   | 0.2                                                 | -0.6  | -0.4  | 0.0   |
| Sweden      | 1.2                                                     | 1.5   | 2.5   | 3.1   | 3.0   | 1.1                                                 | -1.8  | -0.7  | -0.1  |

Red = downward revision | Blue = upward revision



Data as of July 2026, f--Forecast. Source: OECD, S&P Global Ratings.  
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- Erosion in house prices is largely a real term issue, nominal declines are muted.
- Delinquency performance over the last decade or so should be seen in against the backdrop of borrowers having large amounts or equity to protect.
- This may not be the case in the future.
- Price stability is also a function of supply side.

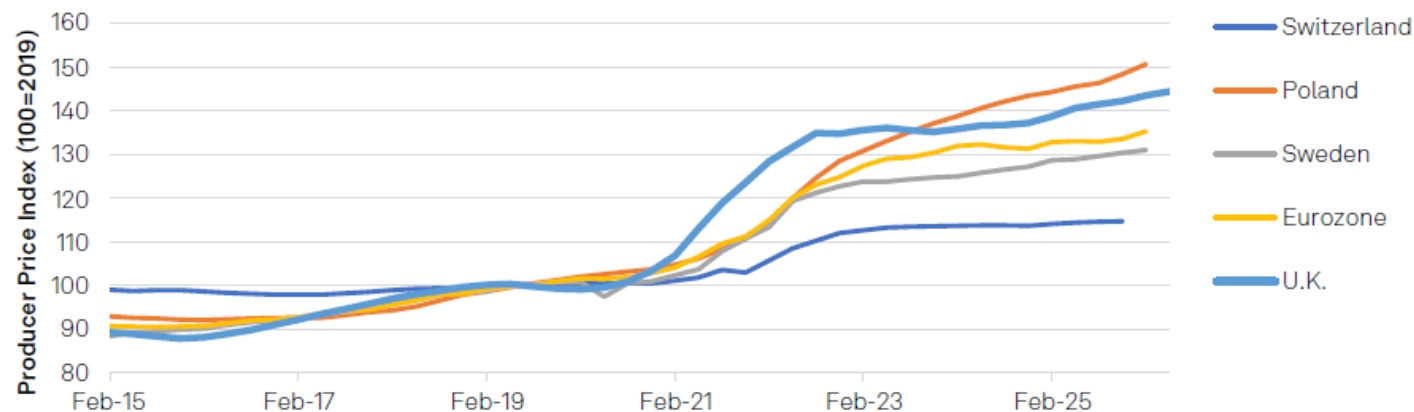
# Nominal House Prices

## Outlook is Softening

### Nominal Price Forecasts

Higher construction costs point to persistent supply constraints

Producer Price Index for residential housing



The chart shows the Producer Price Index (input prices - construction materials for new housing) for the residential housing sector in all countries except the U.K. Sources: Eurostat, national statistical offices, S&P Global Ratings.

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- Shifts in housing preferences and household formation that outpace population growth;
- Longstanding supply bottlenecks, from a fragmented construction sector facing administrative burdens, to tight labor markets and high costs of construction material; but
- This creates risks. Lenders struggling to grow and policy risks.

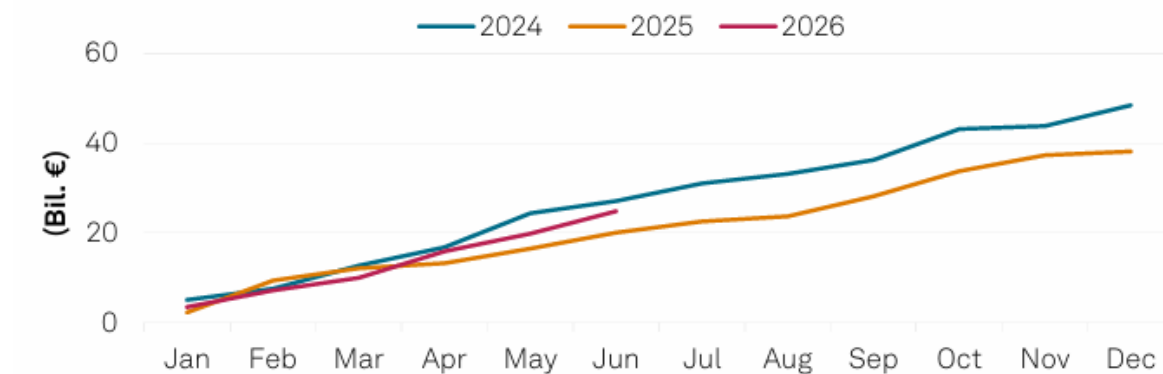
# ABS/ RMBS

# ABS/ RMBS Issuance

- Issuance remains strong.
- Rate expectation shift benefits a variable rate asset class.

## RMBS Issuance

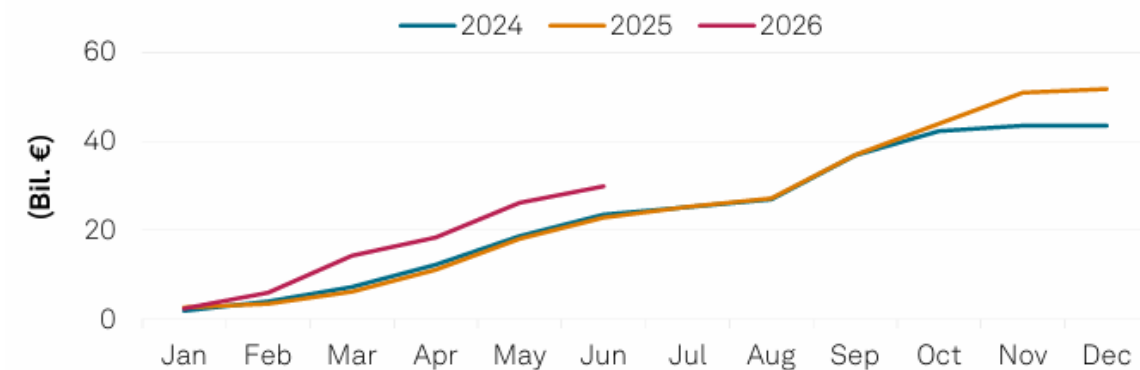
Cumulative investor-placed RMBS issuance



Year-to-date (YTD) figures as of end-June each year. Source: S&P Global Ratings.

## ABS Issuance

Cumulative investor-placed ABS issuance



Year-to-date (YTD) figures as of end-June each year. Source: S&P Global Ratings.

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# **REGULATION IN FOCUS: RECENT DEVELOPMENTS AND FUTURE DIRECTION**

**DR. CHRISTIAN THUN, EDW & JOANA FRAGATA, DLA PIPER**

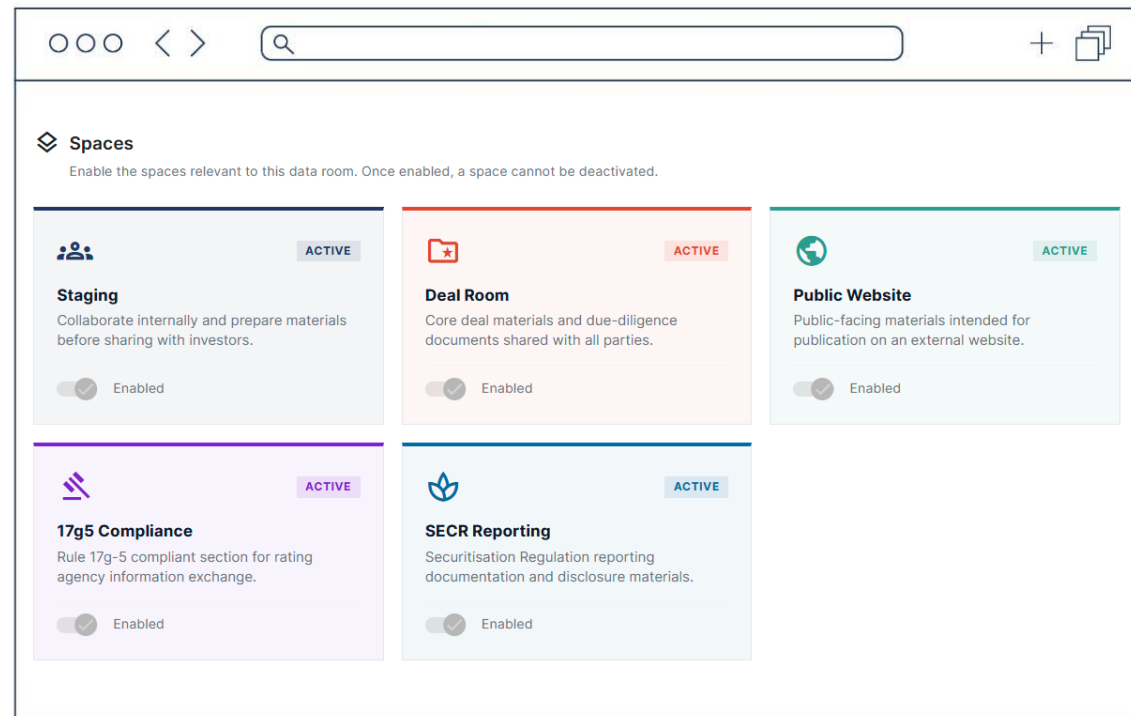
# TRANSFORMING TRANSACTION WORKFLOWS WITH DEALDOX®

GISELA HERKNER, EDW

# DEALDOX®

## A NEW ERA OF EFFICIENCY AND SECURITY IN DEAL DOCUMENTATION HOSTING

In response to the evolving needs of the structured finance industry, EDW has developed a **bespoke virtual data room solution** tailored to the needs of the market. Crafted with **meticulous attention to detail** and informed by years of expertise in data management, this specialised offering promises to **elevate your document management experience**, offering unparalleled features and benefits.



# THE CHALLENGE

## THE PROBLEM

Issuers were stretching EDITOR into a virtual data room.

- Built for regulatory reporting
- Never designed for collaboration
- No deal structuring tools
- No stakeholder coordination

## MARKET SCAN

EDW evaluated every leading VDR provider.

- None understood securitisation
- Generic approach
- No regulatory awareness
- No deal-lifecycle management

## THE GAP

Private deal volumes were growing fast.

- Issuers needed more than reporting
- Investors needed structured access
- Arrangers needed real collaboration
- No SINGLE tool met all of these needs

## THE DECISION

We chose to build it ourselves.

- In the best interest of our customers
- Designed by the securitisation experts
- Built for securitisation experts
- Embedded in the EDW ecosystem

**DEALDOX**

# OUR PRIORITIES

THE FOUR CORE PRINCIPLES BEHIND DEALDOX®

## SPEED & FLEXIBILITY

Launch deals faster with pre-built templates, one-click setup, and zero naming conventions.

## SECURITY

Bank-grade security with SOC2 Type 1, and ISO 27001 certifications, and DORA compliance.

## CONTROL

Granular permissions, NDA management, and full audit trails keep every stakeholder on the right track.

## COMPLIANCE

Native ESMA, FCA, and Prospectus Regulation support. Submit directly from within the deal room.

**BUILT FOR**

**ISSUERS**

**ARRANGERS**

**INVESTORS**

**LAW FIRMS**

**RATING FIRMS**

# COLLABORATION AND CONTROL

EVERY STAKEHOLDER INTERACTION MANAGED INSIDE THE DEAL ROOM

## PERMISSION GROUPS

Give the right access to the right team. Bulk edit, view, edit, and download rights.

## DOCUMENT SIGN-OFF

Request and track stakeholders sign-off in real time, then mark final documents once they are approved.

## VERSION CONTROL

Every upload is versioned automatically, view history and roll back to see changes in real-time.

## FOLDER TEMPLATES

Start from sector-specific templates like ABS public & private, covered bonds, CLOs, and many more.

## LIVE CO-EDITING

Collaborate on Word, Excel, and PDFs in real time, with presence indicators.

## WATERMARKING & AI

Protect sensitive drafts with dynamic watermarks on every view and download.

# NEVER MISS A MILESTONE

DEAL TRACKER: A PROJECT-MANAGEMENT TOOL INSIDE EVERY DATA ROOM

## TEMPLATES

Ship faster with predefined lifecycle templates that map every phase, milestone, and document.

## MILESTONES

Track scheduled and actual dates, variances, notes, and link closing documents.

## PHASES

Define you own phases and build around how your team works best.

LIFECYCLE

PRE-ISSUANCE

ISSUANCE

REPORTING SETUP

ONGOING  
REPORTING

EVENTS

# BUILT FOR COMPLIANCE

MEET EU, UK, AND PROSPECTUS REGULATION REQUIREMENTS FROM ONE DATA ROOM

## ESMA

### EU REPORTING, NATIVE

Generate loan-level XML files with automatic schema validation; publish to the EDW EDITOR in one click.

## FCA

### UK REPORTING, SAME ROOM

One workspace for both regimes; switch between EU and UK tape production without re-entering data.

## PROSPECTUS

### PUBLIC DISCLOSURE LINK

Create a no-login public website per deal, with chosen folders, logos, and custom URLs.

# THE HIGHEST SECURITY STANDARDS

BANK-LEVEL SECURITY AND STABILITY

## Certifications / Attestations:

- ISO 27001
- SOC2 Type 1
- DORA compliant
- ESMA regulated Securitisation Repository Standards



# **THE EU TAXONOMY SIMPLIFICATION – NN BANK'S USE CASE WITH ENGAGE FOR ESG**

**MARTIJN BREED, NN BANK**

# State of the Dutch mortgage market

- Just over 8 million homes
- 57% privately owned
- 60% have a valid EPC
- 21% have an EPC of A or better (i.e. EU Taxonomy aligned)
- Publicly available database EP-online
- Downloadable EPC-data for banks
- 2026-2030: € 3 billion per year needed (€ 15 bn total)
- 2031-2050: € 78.5 billion needed in total



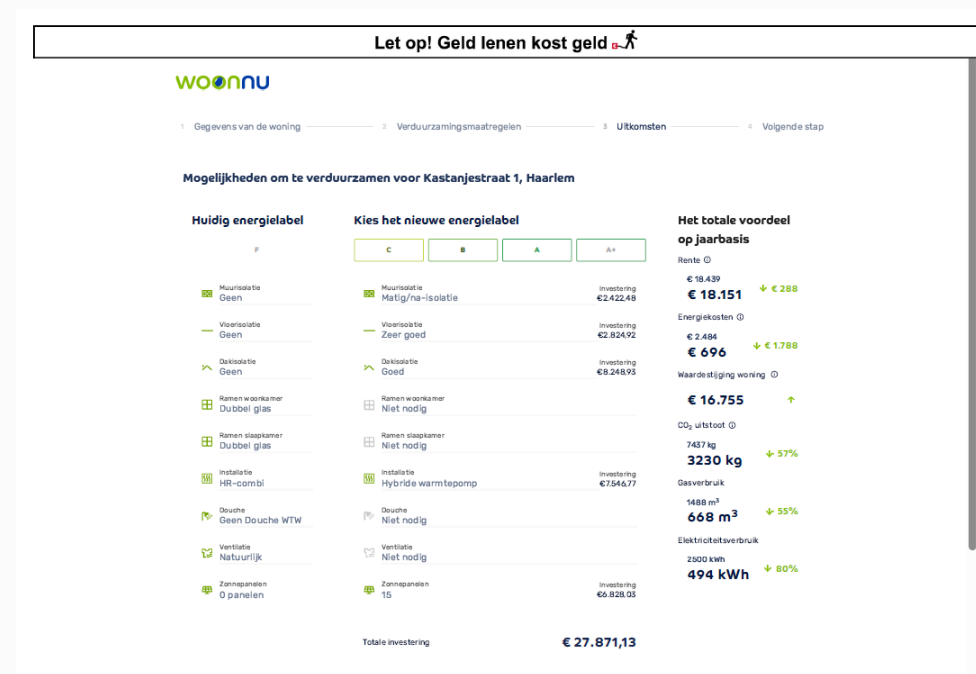
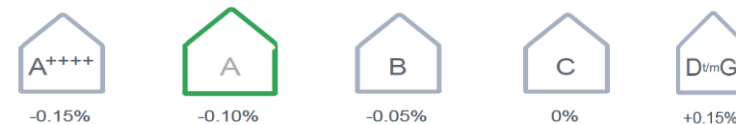


# Examples of measures in place

- The law provides that consumers may borrow more (higher LTV and DTI) to make their homes more sustainable.
- Loans are available for sustainability measures at low interest rates, or sometimes even at zero interest (Warmtefonds).
- Government subsidies and local subsidies are available .
- Banks generally offer a discount on the entire mortgage loan for homes with an energy label A.
- Many online tools are available to provide an indication of the costs of making a home more sustainable.
- Banks point out the benefits of sustainability to customers, such as lower heating costs and more comfortable living.
- Many banks offer support to help customers find the right sustainability partners and guide them through the customer journey

# Woonnu add-ons to customer journey

- Introduction of interest rate discount for better energy labels
- AI-tooling providing insight in:
  - possible home-improvements
  - costs per conversion measure
  - expected savings on energy costs
  - new label after conversion
  - interest discount on mortgage loan
  - property value increase
  - expected decrease of the fossil energy usage
- On-site visit by sustainability advisor + report and offer
- Help with applying for subsidies
- New EPC





# ENGAGE DATA FIELDS

|                                           |                                                 |                                       |                                                         |                                                           |                                                    |                                                  |                                        |
|-------------------------------------------|-------------------------------------------------|---------------------------------------|---------------------------------------------------------|-----------------------------------------------------------|----------------------------------------------------|--------------------------------------------------|----------------------------------------|
| ECONOMIC ACTIVITY INFORMATION             | General Activity Designation                    |                                       |                                                         |                                                           |                                                    |                                                  |                                        |
| BUILDING INFORMATION                      | Construction year*                              | Construction permit application date* |                                                         |                                                           |                                                    |                                                  |                                        |
| ENERGY PERFORMANCE CERTIFICATE (EPC)      | EPC class                                       | Estimated or officially produced EPC  | Issuance date of most recent available EPC registration | EPC validity length                                       | EPC methodology                                    | EPC status                                       | EU-Equivalent EPC Method / EPBD-Regime |
| PRIMARY ENERGY DEMAND (PED)**             | PED of the building                             | Estimated or officially produced PED  | PED based on building or building unit                  | Nearly zero-energy building (NZEB) threshold              | Climate area code                                  | Geographic region – climate area                 |                                        |
| TOP 15% CRITERIA                          | Building unit in top-15% indicator              | Top15 explanatory variable            | Top15 object reference value                            | Top15 object threshold value                              |                                                    |                                                  |                                        |
| ENGAGE GOVERNANCE FILE – TOP 15% CRITERIA | Top15 document name                             | Top15 document issuance date          | Top15 document URL                                      | Top15 document geographic scope                           | Top15 numerator                                    | Top15 denominator                                | Top15 methodology description          |
| ENGAGE GOVERNANCE FILE – OTHER            | Description on how Minimum Safeguards (MSS) are | URL towards MSS issuer statement      | Environmental objective                                 | Link alignment with the OECD Guidelines for Multinational | Link towards UN Guiding Principles on Business and | Link towards eight fundamental conventions (...) |                                        |

\* Data can be provided, but data quality issues may exist

\*\* For buildings with an EPC before 1-1-2021 PED data is not available

## PROGRAMS

[HOME](#) | [PROGRAMS](#)

Data upload entity



ENGAGE

### DATA UPLOAD ENTITY

ENGAGE

ENGAGE PILOT PORTFOLIO



|              |                 |
|--------------|-----------------|
| Asset type   | RMBS            |
| Country      | The Netherlands |
| Status       | Current         |
| Closing date | 8-2018          |

ENGAGE Data Templates



Add file

## ENGAGE SOLUTION

[FAQS](#)  
[DISCOVER ENGAGE](#)  
[GET IN TOUCH](#)

## LEGAL INFO

[PRIVACY POLICY](#)  
[TERMS & CONDITIONS](#)  
[IMPRINT](#)

## LOGIN AREA

[LOGIN](#)  
[LOGIN REQUEST](#)



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- Loan data (ESMA RREL based)
- ENGAGE collateral loan-tape (RRE: collateral loan specific file – building block 1)
- ENGAGE governance -tape (files such DNSH, minimum safeguards, top 15% etc. – building block 1)

# ENGAGE REPORT

Portfolio Name Example Portfolio 2024  
Portfolio Date (DD-MM-YY) 01-08-2024

Total # of Loans 1300  
Total # of Building Units 1100  
Total Balance €444,600,000.00  
TSC passed % 50.94%

## TSC assessment\*

### Section Economic Activity

### Subsection

|         |                                        |                                                                                                                 |     |     |                 |     |     |                 |     |     |                 |
|---------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------|-----|-----|-----------------|-----|-----|-----------------|-----|-----|-----------------|
| 7.7(1)  | Acquisition and ownership of buildings | Buildings built before 31 December 2020: building has at least an Energy Performance Certificate (EPC) class A. | 460 | 411 | €133,400,000.00 | 414 | 370 | €120,060,000.00 | 411 | 363 | €119,190,000.00 |
| 7.7(1a) |                                        | Buildings built before 31 December 2020 - Alternative: building is within Top 15%                               | 392 | 301 | €113,680,000.00 | 353 | 271 | €102,370,000.00 | 349 | 301 | €101,210,000.00 |
| 7.7(2)  |                                        | Buildings built after 31 December 2020                                                                          | 23  | 22  | €6,670,000.00   | 21  | 20  | €6,090,000.00   | 21  | 22  | €6,090,000.00   |
| Total   |                                        |                                                                                                                 | 875 | 734 | €253,750,000.00 | 788 | 661 | €228,520,000.00 | 781 | 686 | €226,490,000.00 |

# ENGAGE REPORT

Portfolio Name                      *Example Portfolio 2024*  
Portfolio Date (DD-MM-YY)      *01-08-2024*

Total # of Loans                      1300  
Total # of Building Units            1100  
Total Balance                        €444,600,000.00  
TSC passed %                        **50.94%**

## TSC pass Total Portfolio

| SCC (check passed) |                       |                    | DNSH (check) passed |                       |                    | TSC Passed (SCC + DNSH) |                       |                    |
|--------------------|-----------------------|--------------------|---------------------|-----------------------|--------------------|-------------------------|-----------------------|--------------------|
| % of all loans     | % of total Building u | % of total Balance | % of total loans    | % of total Building u | % of total Balance | % of total loans        | % of total Building u | % of total Balance |
| 35.38%             | 37.36%                | 30%                | 31.85%              | 33.64%                | 27%                | 31.62%                  | 33.00%                | 27%                |
| 30.15%             | 27.36%                | 26%                | 27.15%              | 24.64%                | 23%                | 26.85%                  | 27.36%                | 23%                |
| 1.77%              | 2.00%                 | 2%                 | 1.62%               | 1.82%                 | 1%                 | 1.62%                   | 2.00%                 | 1%                 |
| 67.31%             | 66.73%                | 57.07%             | 60.62%              | 60.09%                | 51.40%             | 60.08%                  | 62.36%                | 50.94%             |

# ENGAGE loan-by-loan

|    | A           | B       | C       | D     | E     | F     | G     | H     | I      | J      | K      | L      | M               | N      | O          | P      | Q              | R               | S              | T              | U      | V      | W               | X      | Y |
|----|-------------|---------|---------|-------|-------|-------|-------|-------|--------|--------|--------|--------|-----------------|--------|------------|--------|----------------|-----------------|----------------|----------------|--------|--------|-----------------|--------|---|
| 1  | RREC2       | RREC3   | RREC4   | RREC5 | RREC6 | RREC7 | RREC8 | RREC9 | RREC10 | RREC11 | RREC12 | RREC13 | RREC13_CURRENCY | RREC14 | RREC15     | RREC16 | RREC17         | RREC17_CURRENCY | RREC18         | RREC19         | RREC20 | RREC21 | RREC21_CURRENCY | RREC23 |   |
| 2  | 10273163201 | 533330  | 533330  | RBLD  | NL211 | FOWN  | 2     | RHOS  | EPCA   | ND5    | 77.82  | 400000 | EUR             | FIEI   | 2021-07-08 | ND5    | 400000         | EUR             | FIEI           | 2021-07-08     | ND5    | ND5    | EUR             | NGUA   |   |
| 3  | 10273163202 | 533330  | 533330  | RBLD  | NL211 | FOWN  | 2     | RHOS  | EPCA   | ND5    | 77.82  | 400000 | EUR             | FIEI   | 2021-07-08 | ND5    | 400000         | EUR             | FIEI           | 2021-07-08     | ND5    | ND5    | EUR             | NGUA   |   |
| 4  | 10273163213 | 533330  | 533330  | RBLD  | NL211 | FOWN  | 2     | RHOS  | EPCA   | ND5    | 77.82  | 400000 | EUR             | FIEI   | 2021-07-08 | 86.35  | 400000         | EUR             | FIEI           | 2021-07-08     | ND5    | ND5    | EUR             | NGUA   |   |
| 5  | 10273164701 | 533339  | 533339  | RBLD  | NL413 | FOWN  | 1     | RHOS  | ND5    | ND5    | 85.35  | 215000 | EUR             | FIEI   | 2015-12-14 | ND5    | ND4-2021-12-31 | EUR             | ND4-2021-12-31 | ND4-2021-12-31 | ND5    | ND5    | EUR             | NHGX   |   |
| 6  | 10273164702 | 533339  | 533339  | RBLD  | NL413 | FOWN  | 1     | RHOS  | ND5    | ND5    | 85.35  | 215000 | EUR             | FIEI   | 2015-12-14 | ND5    | ND4-2021-12-31 | EUR             | ND4-2021-12-31 | ND4-2021-12-31 | ND5    | ND5    | EUR             | NHGX   |   |
| 7  | 10273166402 | 533346  | 533346  | RBLD  | NL342 | FOWN  | 1     | RHOS  | ND5    | ND5    | 45.47  | 260000 | EUR             | FIEI   | 2016-03-03 | ND5    | ND4-2021-12-31 | EUR             | ND4-2021-12-31 | ND4-2021-12-31 | ND5    | ND5    | EUR             | NGUA   |   |
| 8  | 10273166403 | 533346  | 533346  | RBLD  | NL342 | FOWN  | 1     | RHOS  | ND5    | ND5    | 45.47  | 260000 | EUR             | FIEI   | 2016-03-03 | ND5    | ND4-2021-12-31 | EUR             | ND4-2021-12-31 | ND4-2021-12-31 | ND5    | ND5    | EUR             | NGUA   |   |
| 9  | 10273166405 | 533346  | 533346  | RBLD  | NL342 | FOWN  | 1     | RHOS  | ND5    | ND5    | 45.47  | 260000 | EUR             | FIEI   | 2016-03-03 | ND5    | ND4-2021-12-31 | EUR             | ND4-2021-12-31 | ND4-2021-12-31 | ND5    | ND5    | EUR             | NGUA   |   |
| 10 | 10273168701 | 533364  | 533364  | RBLD  | NL230 | FOWN  | 1     | RHOS  | EPCB   | ND5    | 80.35  | 535000 | EUR             | FIEI   | 2016-02-18 | ND5    | ND4-2021-12-31 | EUR             | ND4-2021-12-31 | ND4-2021-12-31 | ND5    | ND5    | EUR             | NGUA   |   |
| 11 | 10273168701 | 533365  | 533365  | RBLD  | NL230 | FOWN  | 1     | RHOS  | ND5    | ND5    | 80.35  | 535000 | EUR             | FIEI   | 2016-02-18 | ND5    | ND4-2021-12-31 | EUR             | ND4-2021-12-31 | ND4-2021-12-31 | ND5    | ND5    | EUR             | NGUA   |   |
| 12 | 10273168702 | 533364  | 533364  | RBLD  | NL230 | FOWN  | 1     | RHOS  | EPCB   | ND5    | 80.35  | 535000 | EUR             | FIEI   | 2016-02-18 | ND5    | ND4-2021-12-31 | EUR             | ND4-2021-12-31 | ND4-2021-12-31 | ND5    | ND5    | EUR             | NGUA   |   |
| 13 | 10273168702 | 533365  | 533365  | RBLD  | NL230 | FOWN  | 1     | RHOS  | ND5    | ND5    | 80.35  | 535000 | EUR             | FIEI   | 2016-02-18 | ND5    | ND4-2021-12-31 | EUR             | ND4-2021-12-31 | ND4-2021-12-31 | ND5    | ND5    | EUR             | NGUA   |   |
| 14 | 10273168703 | 533364  | 533364  | RBLD  | NL230 | FOWN  | 1     | RHOS  | EPCB   | ND5    | 80.35  | 535000 | EUR             | FIEI   | 2016-02-18 | ND5    | ND4-2021-12-31 | EUR             | ND4-2021-12-31 | ND4-2021-12-31 | ND5    | ND5    | EUR             | NGUA   |   |
| 15 | 10273168703 | 533365  | 533365  | RBLD  | NL230 | FOWN  | 1     | RHOS  | ND5    | ND5    | 80.35  | 535000 | EUR             | FIEI   | 2016-02-18 | ND5    | ND4-2021-12-31 | EUR             | ND4-2021-12-31 | ND4-2021-12-31 | ND5    | ND5    | EUR             | NGUA   |   |
| 16 | 1.05036E+11 | 5025716 | 5025716 | RBLD  | NL411 | FOWN  | 1     | RHOS  | EPCA   | ND5    | 71.97  | 173500 | EUR             | MAEA   | 2015-08-14 | 89.34  | 173500         | EUR             | MAEA           | 2015-07-06     | ND5    | ND5    | EUR             | NGUA   |   |
| 17 | 1.0504E+11  | 5031272 | 5031272 | RBLD  | NL411 | FOWN  | 1     | RHOS  | ND5    | ND5    | 59.94  | 550000 | EUR             | FIEI   | 2014-10-22 | ND5    | 550000         | EUR             | FIEI           | 2014-10-22     | ND5    | ND5    | EUR             | NGUA   |   |
| 18 | 1.0504E+11  | 5031272 | 5031272 | RBLD  | NL411 | FOWN  | 1     | RHOS  | ND5    | ND5    | 59.94  | 550000 | EUR             | FIEI   | 2014-10-22 | ND5    | 550000         | EUR             | FIEI           | 2014-10-22     | ND5    | ND5    | EUR             | NGUA   |   |
| 19 | 1.0504E+11  | 5031272 | 5031272 | RBLD  | NL411 | FOWN  | 1     | RHOS  | ND5    | ND5    | 59.94  | 550000 | EUR             | FIEI   | 2014-10-22 | ND5    | 550000         | EUR             | FIEI           | 2014-10-22     | ND5    | ND5    | EUR             | NGUA   |   |
| 20 | 1.0504E+11  | 5031272 | 5031272 | RBLD  | NL411 | FOWN  | 1     | RHOS  | ND5    | ND5    | 59.94  | 550000 | EUR             | FIEI   | 2014-10-22 | ND5    | 550000         | EUR             | FIEI           | 2014-10-22     | ND5    | ND5    | EUR             | NGUA   |   |
| 21 | 1.0504E+11  | 5031272 | 5031272 | RBLD  | NL411 | FOWN  | 1     | RHOS  | ND5    | ND5    | 59.94  | 550000 | EUR             | FIEI   | 2014-10-22 | ND5    | 550000         | EUR             | FIEI           | 2014-10-22     | ND5    | ND5    | EUR             | NGUA   |   |
| 22 | 1.05041E+11 | 5032614 | 5032614 | RBLD  | NL413 | FOWN  | 1     | RHOS  | EPCA   | ND5    | 76.74  | 539000 | EUR             | FIEI   | 2018-01-01 | 103.75 | 539000         | EUR             | TXAT           | 2018-01-01     | ND5    | ND5    | EUR             | NGUA   |   |
| 23 | 1.05041E+11 | 5032614 | 5032614 | RBLD  | NL413 | FOWN  | 1     | RHOS  | EPCA   | ND5    | 76.74  | 539000 | EUR             | FIEI   | 2018-01-01 | 103.75 | 539000         | EUR             | TXAT           | 2018-01-01     | ND5    | ND5    | EUR             | NGUA   |   |
| 24 | 1.05041E+11 | 5032614 | 5032614 | RBLD  | NL413 | FOWN  | 1     | RHOS  | EPCA   | ND5    | 76.74  | 539000 | EUR             | FIEI   | 2018-01-01 | 87.9   | 539000         | EUR             | TXAT           | 2018-01-01     | ND5    | ND5    | EUR             | NGUA   |   |
| 25 | 1.05041E+11 | 5033281 | 5033281 | RBLD  | NL230 | FOWN  | 1     | RHOS  | EPCA   | ND5    | 41.68  | 850000 | EUR             | FIEI   | 2023-08-31 | 49.02  | 850000         | EUR             | FIEI           | 2023-08-31     | ND5    | ND5    | EUR             | NGUA   |   |
| 26 | 1.05041E+12 | 5033281 | 5033281 | RBLD  | NL230 | FOWN  | 1     | RHOS  | EPCA   | ND5    | 41.68  | 850000 | EUR             | FIEI   | 2023-08-31 | ND5    | 850000         | EUR             | FIEI           | 2023-08-31     | ND5    | ND5    | EUR             | NGUA   |   |
| 27 | 1.05041E+12 | 5033281 | 5033281 | RBLD  | NL230 | FOWN  | 1     | RHOS  | EPCA   | ND5    | 41.68  | 850000 | EUR             | FIEI   | 2023-08-31 | ND5    | 850000         | EUR             | FIEI           | 2023-08-31     | ND5    | ND5    | EUR             | NGUA   |   |
| 28 | 1.05041E+12 | 5033281 | 5033281 | RBLD  | NL230 | FOWN  | 1     | RHOS  | EPCA   | ND5    | 41.68  | 850000 | EUR             | FIEI   | 2023-08-31 | ND5    | 850000         | EUR             | FIEI           | 2023-08-31     | ND5    | ND5    | EUR             | NGUA   |   |
| 29 | 1.05041E+12 | 5033281 | 5033281 | RBLD  | NL230 | FOWN  | 1     | RHOS  | EPCA   | ND5    | 41.68  | 850000 | EUR             | FIEI   | 2023-08-31 | ND5    | 850000         | EUR             | FIEI           | 2023-08-31     | ND5    | ND5    | EUR             | NGUA   |   |
| 30 | 1.05041E+12 | 5033281 | 5033281 | RBLD  | NL230 | FOWN  | 1     | RHOS  | EPCA   | ND5    | 41.68  | 850000 | EUR             | FIEI   | 2023-08-31 | 46.88  | 850000         | EUR             | FIEI           | 2023-08-31     | ND5    | ND5    | EUR             | NGUA   |   |
| 31 | 1.05042E+11 | 5033908 | 5033908 | RBLD  | NL324 | FOWN  | 1     | RHOS  | EPCA   | ND5    | 56.84  | 950000 | EUR             | FIEI   | 2023-04-13 | 104    | 625000         | EUR             | MAEA           | 2015-06-25     | ND5    | ND5    | EUR             | NGUA   |   |
| 32 | 1.05042E+11 | 5033908 | 5033908 | RBLD  | NL324 | FOWN  | 1     | RHOS  | EPCA   | ND5    | 56.84  | 950000 | EUR             | FIEI   | 2023-04-13 | 104    | 625000         | EUR             | MAEA           | 2015-06-25     | ND5    | ND5    | EUR             | NGUA   |   |
| 33 | 1.05042E+11 | 5033908 | 5033908 | RBLD  | NL324 | FOWN  | 1     | RHOS  | EPCA   | ND5    | 56.84  | 950000 | EUR             | FIEI   | 2023-04-13 | 104    | 625000         | EUR             | MAEA           | 2015-06-25     | ND5    | ND5    | EUR             | NGUA   |   |
| 34 | 1.05042E+11 | 5033908 | 5033908 | RBLD  | NL324 | FOWN  | 1     | RHOS  | EPCA   | ND5    | 56.84  | 950000 | EUR             | FIEI   | 2023-04-13 | 104    | 625000         | EUR             | MAEA           | 2015-06-25     | ND5    | ND5    | EUR             | NGUA   |   |
| 35 | 1.05042E+11 | 5033908 | 5033908 | RBLD  | NL324 | FOWN  | 1     | RHOS  | EPCA   | ND5    | 56.84  | 950000 | EUR             | FIEI   | 2023-04-13 | 104    | 625000         | EUR             | MAEA           | 2015-06-25     | ND5    | ND5    | EUR             | NGUA   |   |



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# FROM HYPE TO PRACTICE: HOW AI IS TRANSFORMING STRUCTURED FINANCE

DEJAN MALESIC, BANCA FININT

# FROM HYPE TO PRACTICE

How AI Is Transforming Structured Finance

---

2026 EDW'S DUTCH SECURITISATION EVENT

Dejan Malesic – Director, International Business | Banca Finint

23 September 2026 | Amsterdam



# Banca Finint & AI: from ideas to operational value

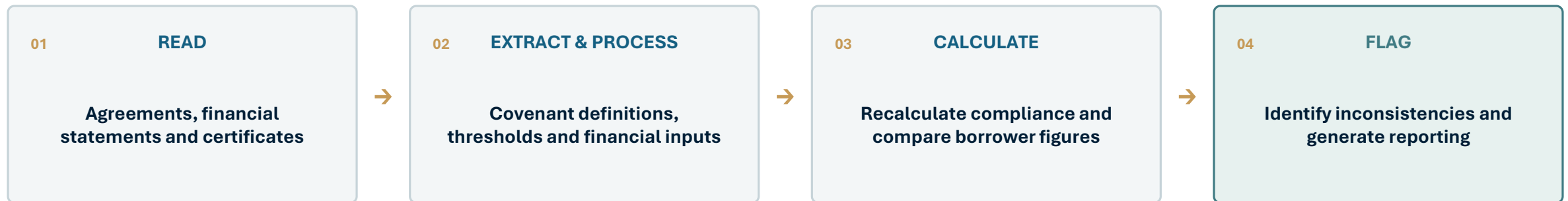
A PRAGMATIC, BUSINESS-LED ADOPTION MODEL

## INNOVATION AMBASSADORS

**A cross-team network that captures ideas, identifies high-value use cases and connects technology with real business needs.**

The starting question: where are we spending time and human intelligence on work that machines can perform more consistently?

## REAL USE CASE | AI-SUPPORTED COVENANT MONITORING (≈300 MINIBONDS) in cooperation with Accuria



### FROM AUTOMATION

**AI industrialises the information layer.**

### TO DYNAMIC RISK

**Professionals interpret exceptions, risks and scenarios.**

### THE REAL GAIN

**More time for judgment, risk interpretation and decisions, not information search.**

**AI is helping us think dynamically about risk.**

# Obstacles to AI adoption in financial markets

THE BOTTLENECK IS INSTITUTIONAL READINESS, NOT MODEL POWER

**AI adoption slows when technology moves faster than the operating environment around it.**

01

## LEGACY SYSTEMS

### Fragmented architecture

Disconnected platforms make integration slow, costly and difficult to scale.

02

## DATA QUALITY

### Incomplete or inconsistent inputs

Weak source data reduces confidence in AI-generated analysis and decisions.

03

## GOVERNANCE

### Explainability and decision rights

Controls, auditability, escalation and accountability must be explicit.

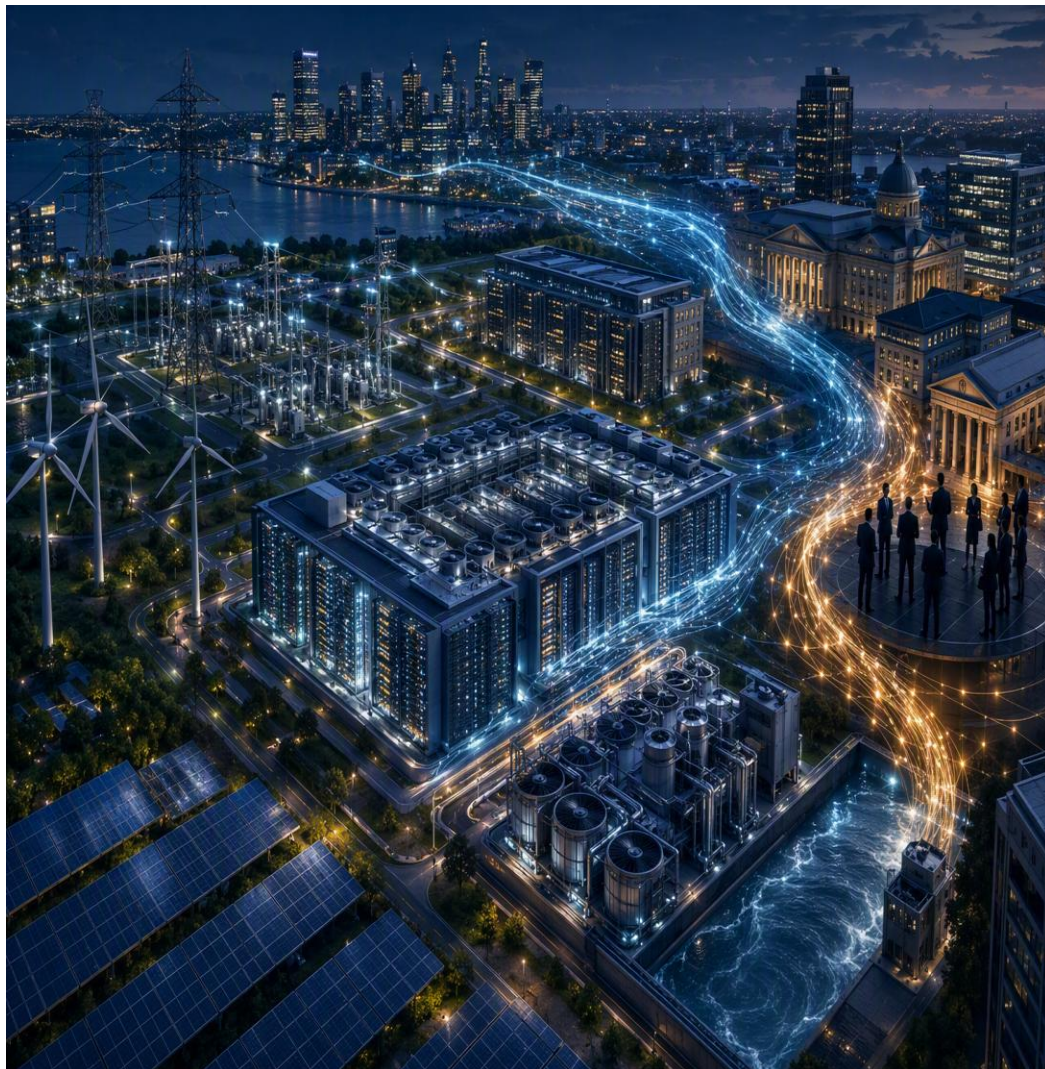
PRACTICAL RESPONSE

Modernise systems | Standardise data | Govern decisions

**At Banca Finint, every extraction and calculation remain fully traceable and auditable.**

# A stronger model: Human-in-the-Loop + AI-in-the-Loop

CONTROL SHOULD WORK IN BOTH DIRECTIONS



## HUMAN → CHECKS → AI

AI performs the heavy analytical work. People retain judgment, accountability and decision rights.

## AI → CHECKS → HUMAN

AI independently recalculates, compares human-reported figures and highlights discrepancies for investigation.

**The objective is not autonomous finance. It is mutual challenge.**

# Will AI change market economics? Indirectly, yes.

LOWER FRICTION CAN EXPAND WHAT IS FINANCEABLE

**AI may not reprice credit risk tomorrow. It can reduce the fixed and friction costs around a transaction.**

LOWER OPERATING FRICTION

**Cheaper due diligence,  
monitoring and reporting**

GREATER SCALE

**More transactions monitored  
without weakening control**

NEW FINANCEABLE ASSETS

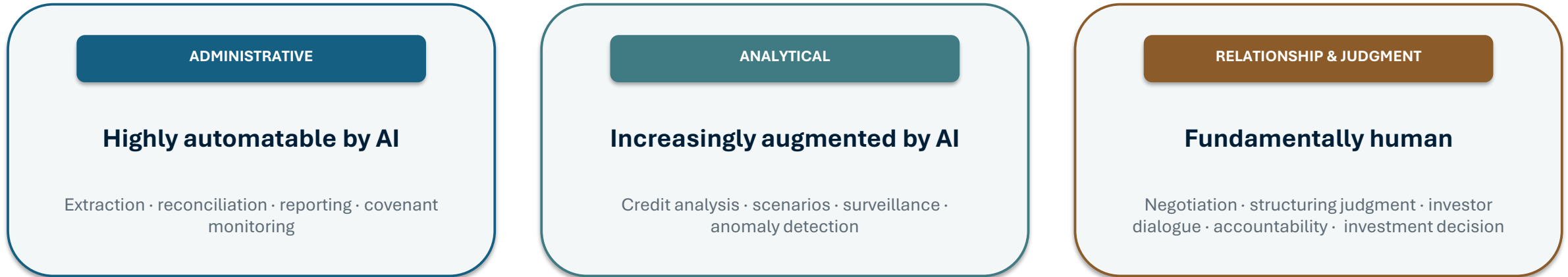
**Granular or heterogeneous  
pools become more viable**

**The impact comes first through lower operating friction, then through scale and market reach.**

# What survives AI?

THE MORE WE AUTOMATE, THE MORE CLEARLY HUMAN VALUE STANDS OUT

**AI can accelerate analysis. It cannot absorb responsibility.**



**What remains distinctly human**



**Focus human intelligence where judgment, accountability and trust matter most.**

# AI is not only changing finance. It is creating assets to finance.

## THE AI INFRASTRUCTURE AND ESG PARADOX



**DATA CENTRES · POWER · GRIDS  
COOLING · WATER · FIBRE**

## The financing opportunity

Capital-intensive, long-duration infrastructure can generate cash flows that structured finance can analyse and transform into investable products.

## AI & ESG Paradox

- Will sufficient electricity be available?
- What if energy prices rise materially?
- Is cooling and water capacity resilient?
- What is the carbon and grid exposure?

**Power availability risk may become as critical as credit risk.**

# The future of structured finance is augmented intelligence

Using human intelligence where it matters most

## TIME AND RESOURCE SAVINGS + COST REDUCTION

Less human information search, focus on risk interpretation and decision making. Reduction of the friction cost of securitization.

## DYNAMIC APPROACH TO RISK

AI simulation of possible alternative and future scenarios.

## DUAL APPROACH

Humans supervise the AI work. AI also simultaneously verifies human work. AI becomes an additional layer of control.

## HUMAN JUDGMENT

Accountability, trust and action.

**The winners will combine technology, governance, infrastructure and human judgment into one trusted ecosystem.**

**Thank you**

# **TURNING DATA INTO INSIGHT: ANOMALY DETECTION FOR BETTER TRANSPARENCY**

**DR. CHRISTIAN THUN, EDW**

# FRAUD RISK ANALYTICS

1. Layered approach
2. Standard deviation refresher
3. Standard Deviation Outputs
4. What is an isolation forest
5. Isolation Forest Graphs

# OUR LAYERED APPROACH TO DETECTING LOAN-LEVEL ANOMALIES

EDW COMBINES RULE-BASED VALIDATION, STATISTICAL AND MACHINE LEARNING TO IDENTIFY UNUSUAL REPORTING PATTERN AND DATA-QUALITY ISSUES

## Layer 1 – Consistency Checks

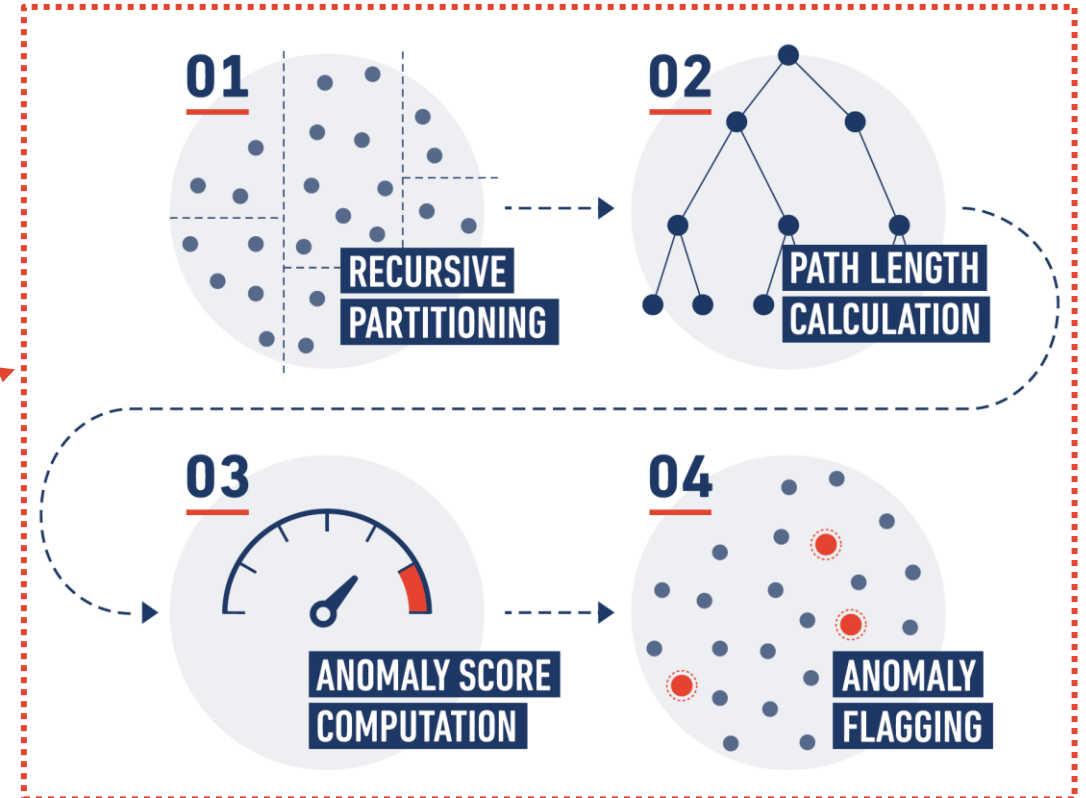
Identifies inconsistent amortisation values and potentially anomalous use of loan or collateral identifiers.

## Layer 2 – Statistical Outlier Detection

Measures how far selected loan characteristics deviate from the mean within comparable geographic segments, flagging observations at least four standard deviations away.

## Layer 3 – Isolation Forest Analysis

Analyses selected data points using an Isolation Forest algorithm. Through recursive partitioning and path-length calculation, each loan receives an anomaly score, helping identify unusual loan profiles based on combinations of multiple characteristics.

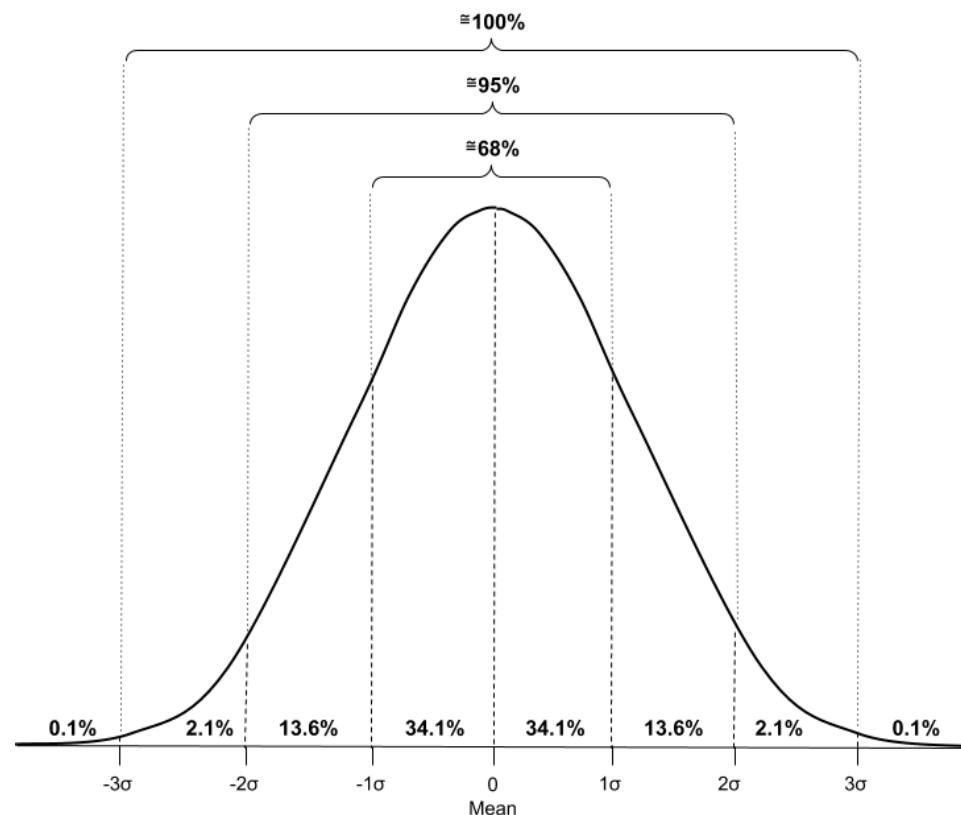


## QUICK REFRESHER: STANDARD DEVIATIONS

**Standard deviation** is a statistical measure that quantifies the **amount of variation** or **dispersion** of a set of values from their **mean**.

To compute how many standard deviations a certain point is away from the mean we use **Z-Scores**.

We compute **regional means** in each data set and calculate Z-scores based on the regional means to see how many Standard Deviations a point is away from the regional mean.



[Standard Normal Distribution - MathBitsNotebook\(A2\)](#)

# STANDARD DEVIATION-WHAT ARE THE OUTPUTS?

WE HAVE THREE LAYERS OF OBSERVATION FOR THE STANDARD DEVIATION ANALYSIS

## 1. FORMATTED RESULT SHEET

The client can see precisely where the variation comes from and what are the actual values that cause the variation.

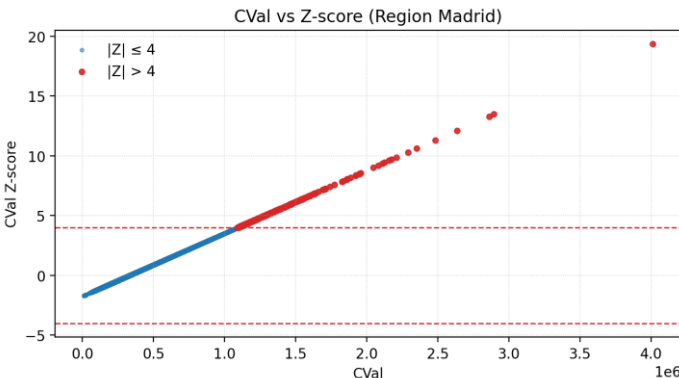
## 2. GRAPHS

A simple plotting has been made primarily to see how wide the distribution is.

## 3. REGIONAL AGGREGATES

This shows the client a regional granularity of the analysed loans.

| LoanID   | Pool_Cutoff_E | NUTS3 | Primary_Income_z | Primary_I | Primary_I | Primary_I | OBAL_z      |
|----------|---------------|-------|------------------|-----------|-----------|-----------|-------------|
| 2C01018F | 2026-03-31    | 413   | 11.17124339      | 1830374   | 70981.33  | 157493    | -0.12014741 |
| 2C01018F | 2026-03-31    | 413   | 11.17124339      | 1830374   | 70981.33  | 157493    | -1.09844216 |
| C1B38COD | 2026-03-31    | 411   | 0.046895398      | 62777.33  | 61115.12  | 35445.09  | 8.41555877  |
| 148AEC37 | 2026-03-31    | 326   | 7.80281048       | 382633.4  | 66066.39  | 40570.9   | 2.83955676  |
| 14E8DE87 | 2026-03-31    | 339   | 7.341688196      | 350000    | 63299.19  | 39051.07  | 3.08544853  |
| 14E8DE87 | 2026-03-31    | 339   | 7.341688196      | 350000    | 63299.19  | 39051.07  | 4.20107889  |
| 1E00B287 | 2026-03-31    | 332   | 0.729165642      | 94711.68  | 67497.54  | 37322.3   | 5.96569693  |
| 3DC25CEC | 2026-03-31    | 310   | 3.374680382      | 148903.8  | 59624.05  | 26455.76  | 5.39276558  |
| 75235B39 | 2026-03-31    | 226   | 6.034009857      | 210200    | 55344.94  | 25663.71  | 1.38863865  |
| 75235B39 | 2026-03-31    | 226   | 6.034009857      | 210200    | 55344.94  | 25663.71  | 2.4678554   |



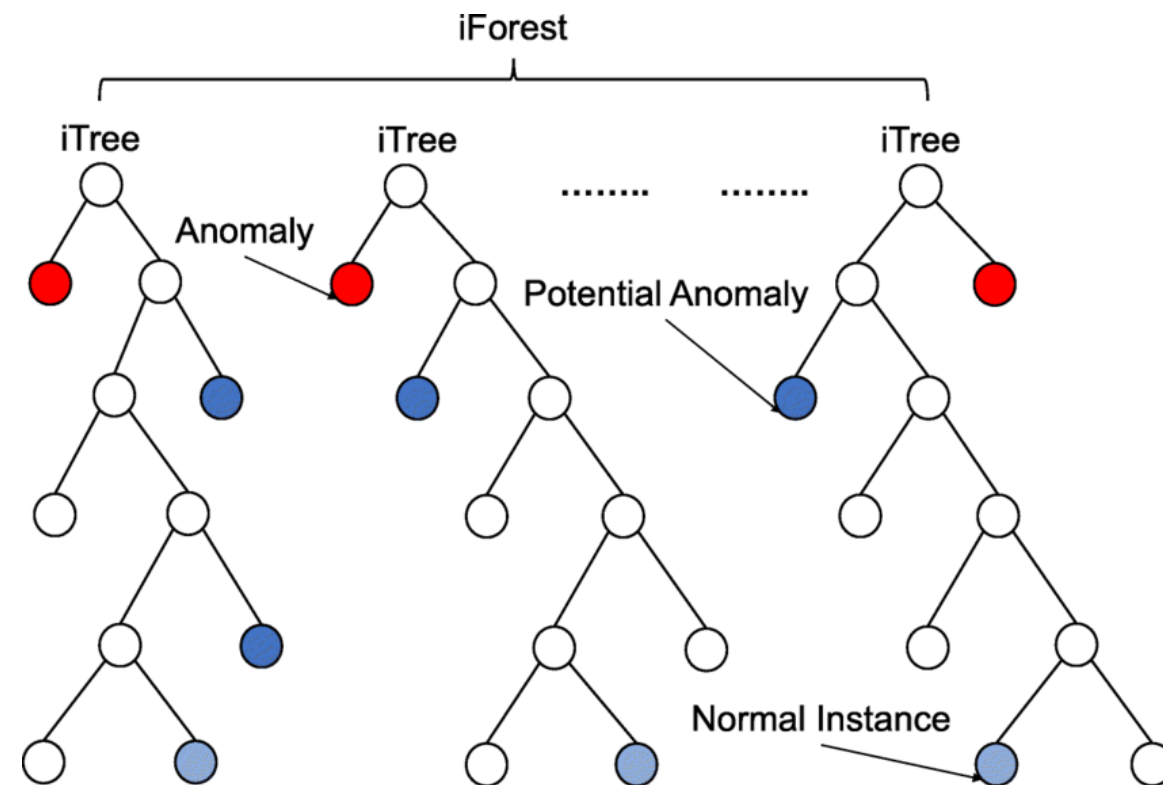
| NUTS3     | total_loans | outlier_loans | % outliers |
|-----------|-------------|---------------|------------|
| Madrid    | 43746       | 942           | 2.15%      |
| Barcelona | 35863       | 605           | 1.69%      |
| Valencia  | 9568        | 192           | 2.01%      |
| Sevilla   | 8612        | 173           | 2.01%      |
| Alicante  | 7237        | 135           | 1.87%      |
| Cádiz     | 5120        | 101           | 1.97%      |

# WHAT IS AN ISO FOREST?

**isoForest Algorithm** is an anomaly detection method based on the idea that anomalies are easier to isolate than normal points.

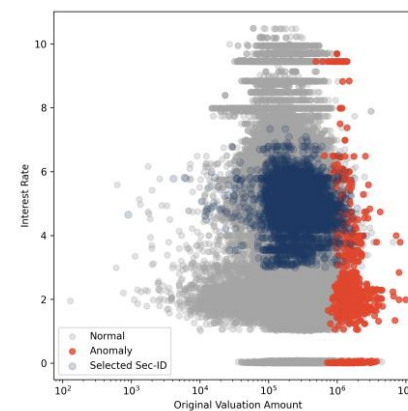
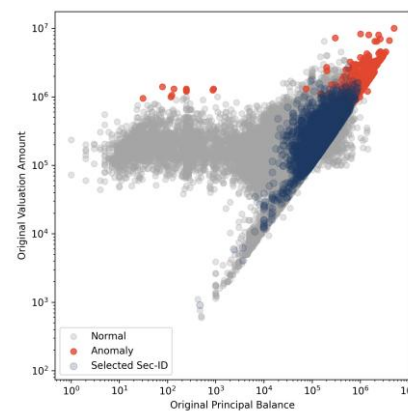
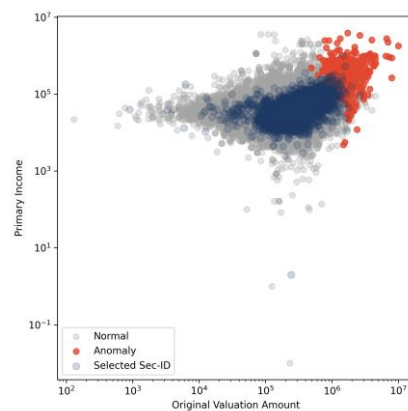
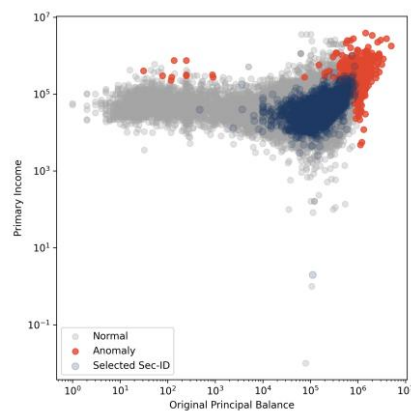
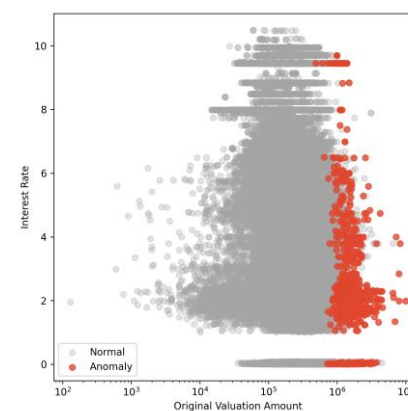
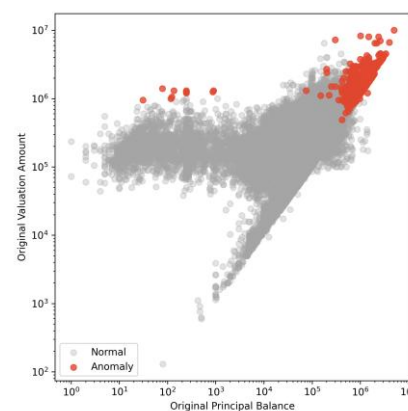
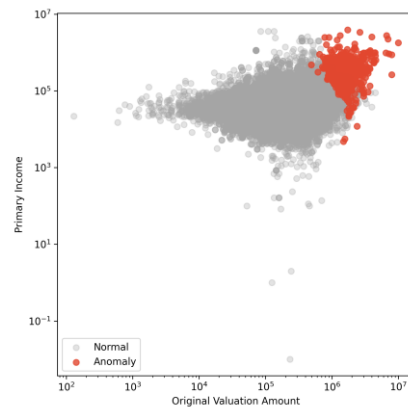
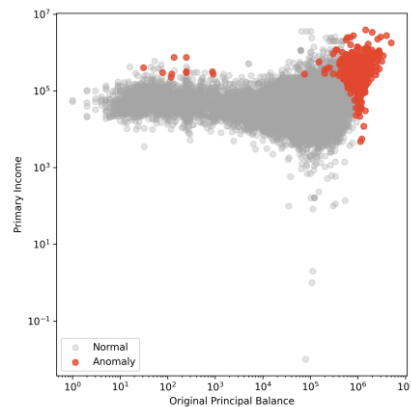
The central idea is that it **recursively partitions** the observation **using random splits** and quantifies anomalies based on their expected isolation depth, with shorter paths indicating higher likelihood of being anomalous.

The code is sourced from a public library, and it functions with three arbitrary inputs.



[Anomaly Detection Using Isolation Forest Algorithm](#) | by Saurabh Singh | Analytics Vidhya | Medium

# ISOLATION FOREST GRAPHS



# **CLOSING REMARKS**

**DR. CHRISTIAN THUN, EDW**

The image features a dark blue, textured background that resembles a night sky filled with numerous small, distant stars. The stars are scattered across the entire frame, with some appearing slightly brighter than others. In the center of the image, the words "THANK YOU" are written in a large, bold, white, sans-serif font. The text is centered both horizontally and vertically, creating a strong visual contrast against the dark, starry background.

**THANK YOU**

# THANK YOU

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