

Data driven (AML) Supervision

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5 September 2022

DeNederlandscheBank

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Risk based supervision principles

- 1. As a supervisor DNB wishes to put its capacity to work on mitigating risks where they are largest
- 2. To determine the size of those risks, first we determine the impact that failure of an institution may have on the trust in the financial sector: the impact class
- 3. Next we determine, per institution, per year, the level of the AML/TF risk they are exposed to and the level of their mitigating measures: the risk score
- 4. The combination of impact class and risk score determines what supervisory actions DNB will take



Risk based supervision – Impact class

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Sector/type	Impact score financial economic crime
Large Bank (SI)	4
Medium bank	3
Small bank	3
Electronic Money Institution	3
Trust offices	3
Life insurers	2
Cryptocurrency service providers	2
PSP's	1-3
Pension funds	1
Non-life insurers	1
Reinsurers	1

Questionnaire: Risk level

	Risk factor	subfactor	Specify the
	Coography	Branches within EU (excl NL)	sectors liste
	Geography	Branches outside EU	2021). This concer
		Foreign customers	
		High risk sectors ->	main activi
	Customers	Characteristics	Raw materials, mine
		Clientacceptation	Oil, natural gas, ene Military goods, defer Precious metals trad
		Payment transactions	
		Payment volume	Jewellers
		Payment countries	
Risk level		Number of cash transactions	
		Volume cash transactions	Does your i
		Private banking clients	services to
	Products, services and transactions	Trade finance number of customers	If yes from
		Trade finance volume ->	II yes, iioli
		Trade finance high risk country customers	Andorra (AD)
		RMA exchange	United Arab Emirates (
		Trade finance risk countries volume	Afghanistan (AF)
		Cryptos and tokens	Anguilla (AI)
		Volume cryptos and tokens	Albania (AL) Armenia (AM)
		Safety deposit boxes	
	A contract of the second s		

Specify the number of customers to which your nstitution provides services that are active in the sectors listed below (reference date: 31 December 2021).

This concerns the sector regarding your customer's main activity.

	Number of customers
Raw materials, minerals, mining	
Oil, natural gas, energy	
Military goods, defence industry	
Precious metals traders	
Loose diamonds traders	
Jewellers	

Does your institution provide trade finance services to customers with international importing or exporting activities? If yes, from which countries

	incoming transactions	outgoing transactions
Andorra (AD)		
United Arab Emirates (AE)		
Afghanistan (AF)		
Antigua and Barbuda (AG)		
Anguilla (AI)		
Albania (AL)		
Armenia (AM)		

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Questionnaire: Risk control



How many business rules were active in your institution's transaction monitoring system in the past calendar year? **DNBUNRESTRICTED**

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Outcome

		Risicobeheersingsscore			
		1	2	3	4
core	1	1	1	2	2
eaus	2	1	2	3	З
so niv	3	2	3	4	4
Risid	4	3	4	4	4

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Sector analysis

MB Team MGK 2019 AML TF Grootbank. LSI SI 2020 2021 Corruptie Sancties - \Diamond Wat wil je zien? Hoog risico land OJa Nee ∧ ■ Betalingsverkeer Arctic Aantal inkomende transacties Ocean Aantal transacties inkomend Aantal transacties uitgaand Aantal uitgaande transacties Volume inkomend (EUR) Volume uitgaand (EUR) △ □ Handelsfinanciering Aantal klanten Volume inkomende transacties Volume uitgaande transacties △ □ Offshore Aantal klanten Volume inkomende transacties ASIA Volume uitgaande transacties NORTH AMERICA ∧ □ Vestiging Aantal bijkantoren Aantal deelnemingen Aantal dochters Aantal particuliere klanten Pacific Atlantic Aantal particuliere klanten buite... Ocean Ocean Aantal particuliere klanten in lan... Aantal vertegenwoordigingskant... Aantal zakelijke klanten Aantal zakelijke klanten buiten l.. Aantal zakelijke klanten in land v... SOUTH AMERICA Indian AUSTRALIA Ocean Bank All \sim 0 Microsoft Bing © 2022 TomTom, © 2022 Microsoft Corporation, <u>© OpenStreetMap</u> Terms

20220809 Sector analyse Banken update 2022 | Data updated 8/10/22

- -----+ 190%

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Sector analysis



Sector analysis



Different types of analytics

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Predictive analytics

Data driven AML Supervision

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15-9-2022

AML Supervision





- Low
- Medium
- High
- Unacceptable
- Transaction Monitoring alerts
- FIU reporting





AML Supervision

- Originally:
 - Request specific files to investigate
 - Based highly on domain knowledge
- New goal:
 - Use data science methods to analyse all clients
 - Make initial selection data-driven



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Can we make an automated selection of files?



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Data



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Methods

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Data quality:

- Missing fields
- Accurate relations
- Duplicate transactions
- Unclear denomination
- Etc.

Logical checks:

- Distribution of variables (e.g. Legal entity, currency)
- Checking risk levels
- Other manual inspections







ID	Account balance	Cash deposited	Cash withdrawn	Foreign transactions	Number of transactions
423154481	42,312	250	2,300	0	14
662475645	1,522	320,100	0	45,396	67





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Isolation Forest

Anomaly Detection		
Data filters	Plot Data About	
Dataset	Plot settings	
Groups All • Risicoclassificatie • Laag • Midden • Hoog	Sample size: Image: Sample size:	utiler_score 0.4 0.5 0.6 0.7 0.8 0.8 0.7 0.6 0.7 0.6 0.7 0.6 0.7 0.6 0.7 0.6 0.7 0.6 0.7 0.4 0.7 0.6 0.5 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8
	Selected points Show 10 v entries Klant jd v cash_0 v cash_0 v cash_0 v cash_0 v giraal_0_bin v giraal	leeftijdsgrot
	No data available in table	
	Showing 0 to 0 of 0 entries Previous	s Next



Results

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Based on the outliers and manual selection a final sample is made by the supervisors. The outlier analysis results in the identification of new risks, combined with extra efficiency gains.

The complete model and outcomes have been shared with the participating bank(s).

What's next?

Process mining

RPA

Text mining





Process mining



Robotic process automation

Business Processes in which RPA can be used С Take over repetitive tasks Periodic reporting, data Mass email generation, entry and data analysis that employees carry out archiving, extracting 50-60 times a day Process lists and Conversion of data **ERP** transactions formats and graphics file storage

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Text mining (nlp)



Thank you

Malala