

WOMEN IN IGNITE



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Putting Machine Learning in AML

ODSC  **EUROPE**
VIRTUAL CONFERENCE

June 8th–10th



³⁵Br⁵⁶eaking
Bad

N

O ŻARK

NEW EPISODES

ALL HAIL
THE KING



³⁵Br⁵⁶eaking
Bad

PREMIERES JULY 15
SUNDAYS 10/9C

amc

JASON
BATEMAN

LAURA
LINNEY

OZARK

THEIR LAST RESORT.



A NETFLIX ORIGINAL SERIES

NETFLIX | JULY 21

Both, Walter White and Marty
Byrde **launder money**

1. **PLACEMENT**

Dirty money deposited into a bank



3. **INTEGRATION**

Purchase assets with
laundered money



2. **LAYERING**

Disguising the money
through layers of
transactions, such as
transfers to off shore
accounts





AML MACHINE LEARNING



TBC Bank

500K clients and
80K transactions
per day in **2010**



TBC Bank

2.7M clients and 3M
operations **globally**
per day in **2020**

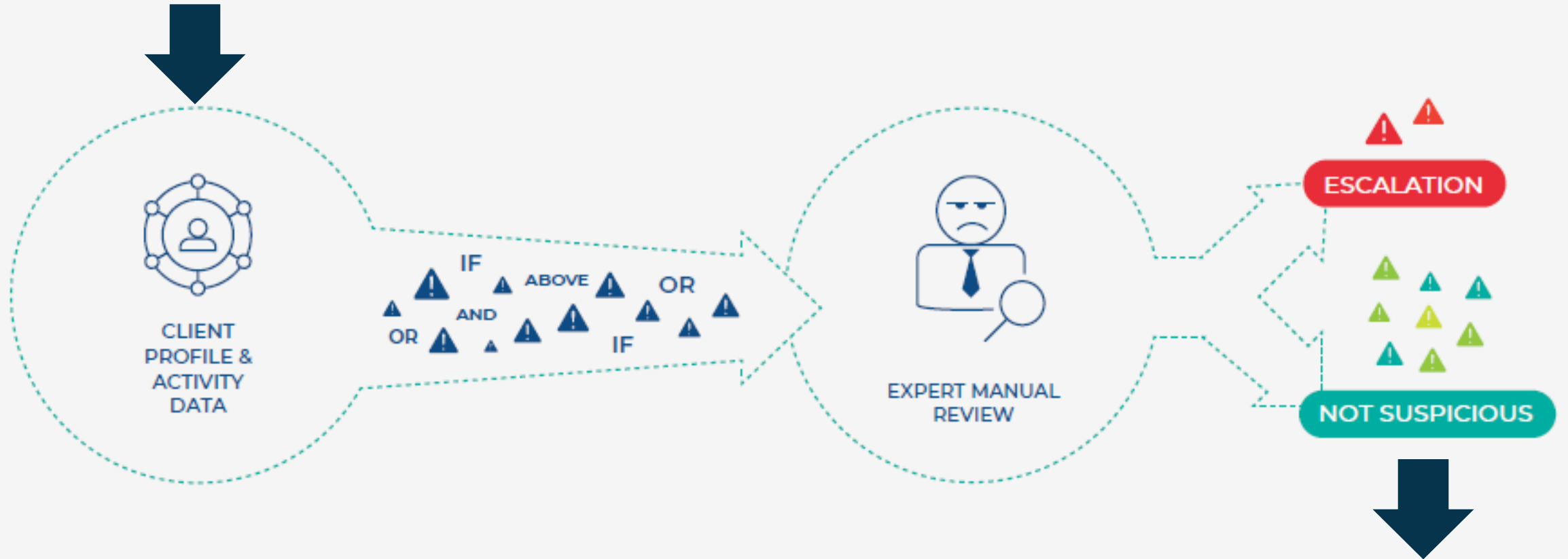


Increased Interest from Money Launderers Globally ?



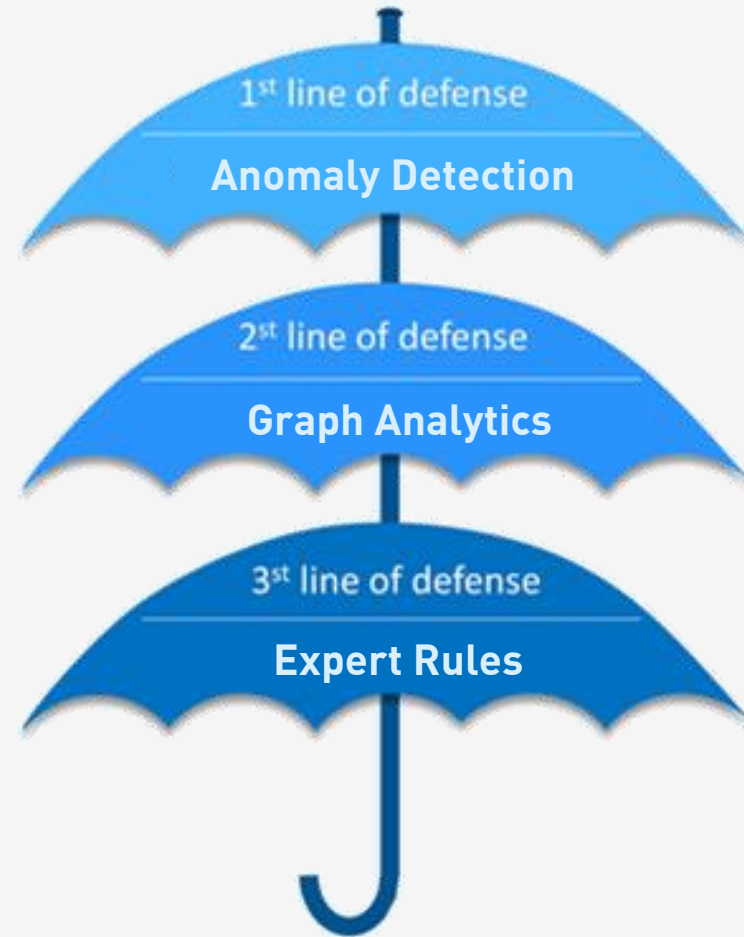
TBC Bank grew globally however monthly **numbers of Money Laundering cases** detected by AML team **remained the same**

TRADITIONAL RULE BASED APPROACH



PROBLEM: could not be generalized on new clients and was easily adoptable

Three lines of defense for AML Using **Machine Learning and Analytics**



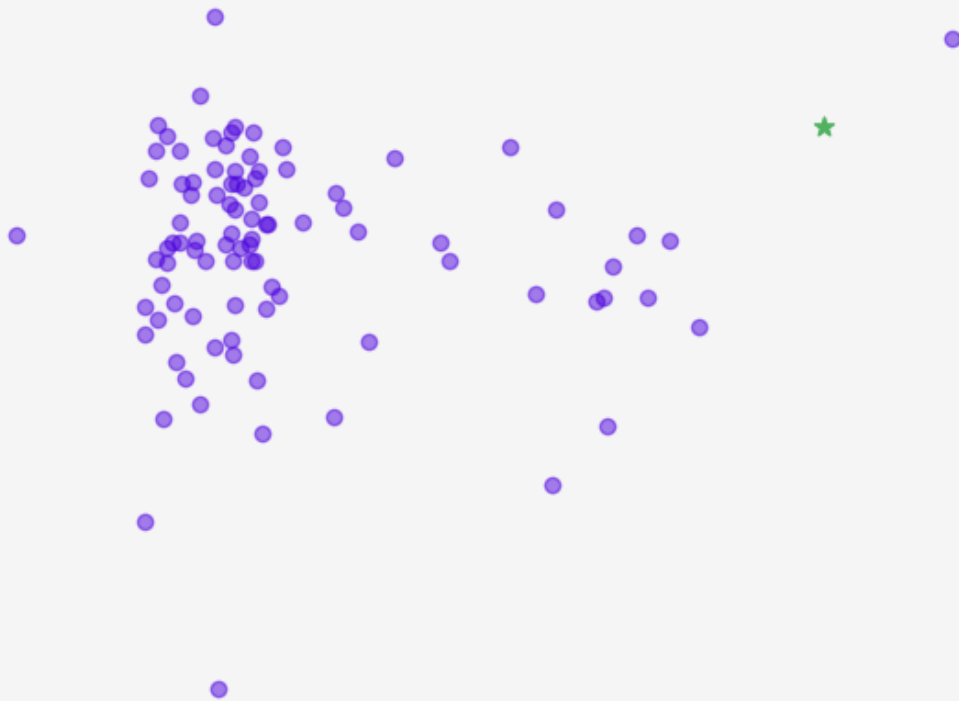
FIRST LINE OF DEFENSE

ANOMALY DETECTION MODEL



ISOLATION FOREST

Isolating an outlier



**TRUE
POSITIVE
RATE 98%**



BEST FRAUDSTERS DO
NOT LAUNDER ALONE

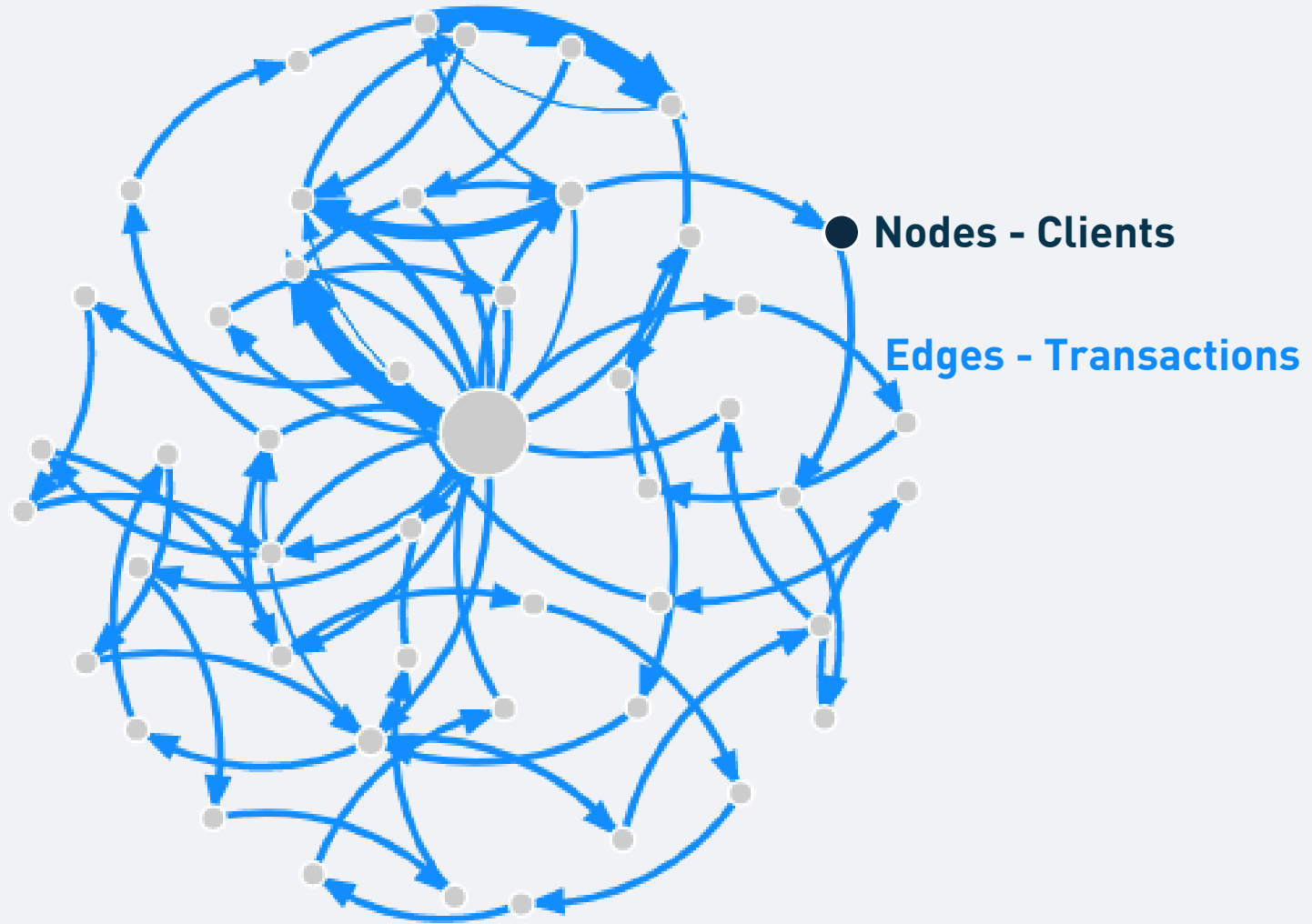


SECOND LINE OF DEFENSE
GRAPH ANALYTICS



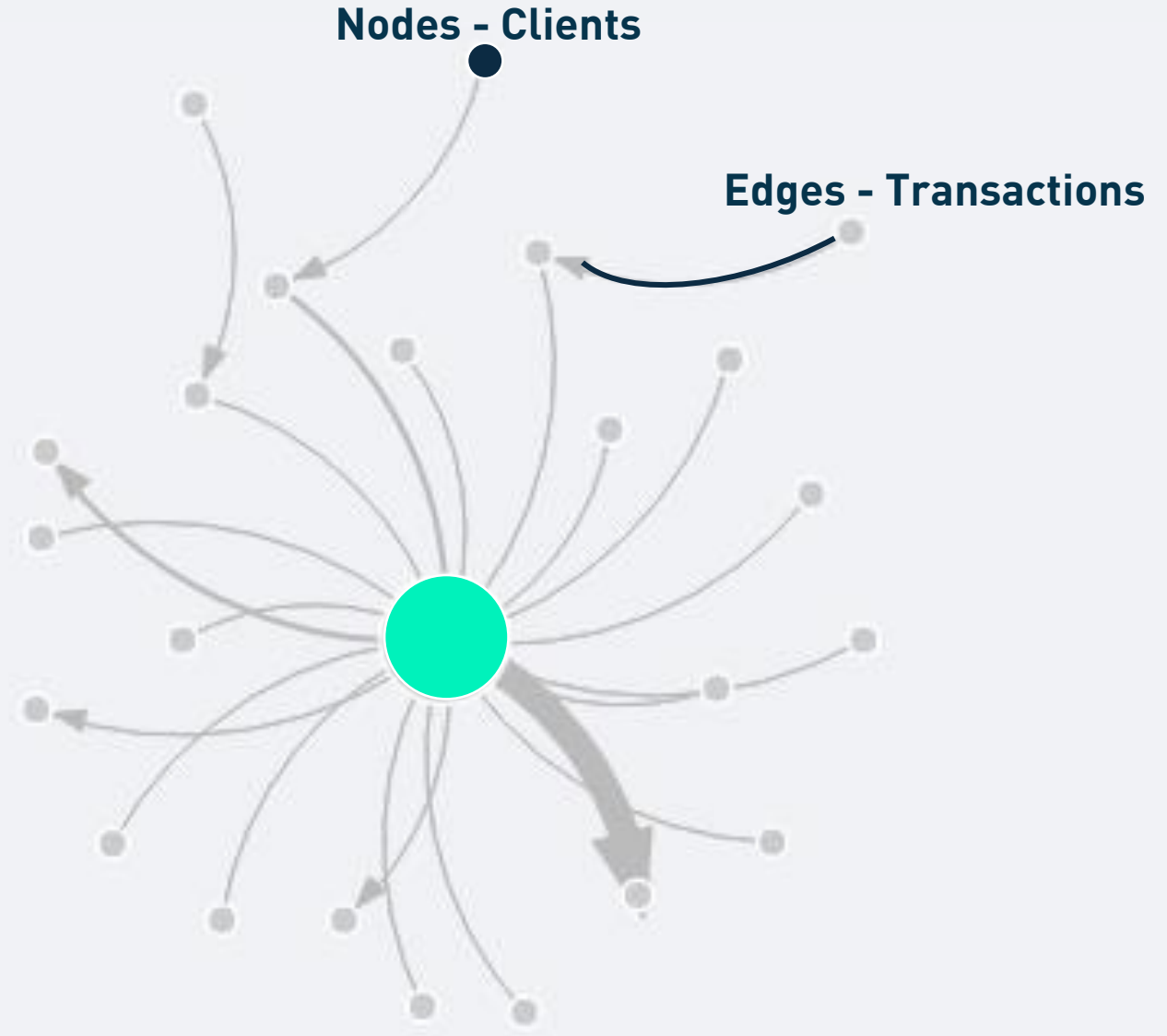
**Picture suspicious
money movements
using graph algorithms**

STRONGLY CONNECTED COMPONENTS



Egonet

money movement
graphs around
specific clients



GRAPH ANALYTICS + ANOMALY DETECTION

Big Business Value

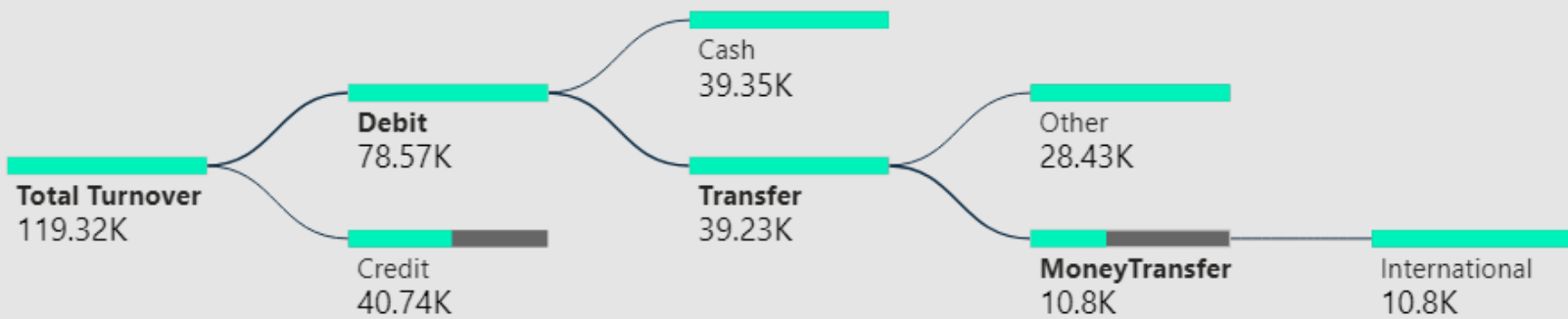
An illustration from a top-down perspective showing a collaborative business environment. In the center is a large magnifying glass with a black frame and a white lens. Inside the lens, the text "Big Business Value" is written in a bold, dark blue, sans-serif font. Surrounding the magnifying glass are several hands and arms of different skin tones (light, tan, and dark brown) engaged in various business tasks. One hand points towards the center, another uses a calculator, one interacts with a tablet displaying a colorful app interface, and another points at a document with a bar chart. Other elements include a cup of coffee, a blue folder, a blue pen, and various documents and charts scattered around the central focus.

THIRD LINE OF DEFENSE
HONED EXPERT RULES

ANOMALY DETECTION+ GRAPH ANALYTICS+ SCENARIOS

ClientID	rank	rank (-1 month)	rank (-2 month)
ClientID	1	30	97
	1		324
	2	89	361
	2	1	1
	3		137
	3	1 175	49

Client Name		37	9	Country	Mass
Deposits	Loans	Payroll Company	Salary	Self Employed	
0	0		0		
# of Related companies	Related companies with turnover	Highest turnover company	Client turnover/Company turnover		
2	1	Company	71		



Egonet Graphs

#	Amount	# of Clients
0	95,070,044	1

Strongly Connected Comp

#	Amount	# of Clients
0	2,612,911	4

Strongly Connected Comp Legal

#	Amount	# of Clients
0	1,875,423	5

Variable	PN Credit Turnover	PN Debit Turnover	Currency Ratio	Debit Count	Credit Count	Distinct Countries	Distinct Branch	Distinct Merchants	Unique SWIFT MT	Current Month Ratio	Current to Previous Ratio	Average Gambling
Value	0	0	100%	14	2	2	0	4	6	5	1	0
Rank	100%	100%	3%	3%	27%	1%	100%	1%	1%	41%	69%	100%

5X more

suspicious
cases monthly

2X less

time of review
of each case

Do not even bother to launder money using TBC Bank



YOU