

**Iceland: Financial Sector Assessment
Program-Technical Note on
Anti-Money Laundering/Combating
the Financing of Terrorism**



ICELAND

FINANCIAL SECTOR ASSESSMENT PROGRAM

TECHNICAL NOTE ON ANTI-MONEY LAUNDERING/COMBATING THE FINANCING OF TERRORISM

July 2023

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July 17, 2023

TECHNICAL NOTE

ANTI-MONEY LAUNDERING/COMBATING THE FINANCING OF TERRORISM

Prepared By
Legal Department

This Technical Note was prepared by Grace Jackson and Maksym Markevych (LEG) in the context of the Financial Sector Assessment Program (FSAP) in Iceland led by Etienne Yehoue. It contains technical analysis and detailed information underpinning the FSAP's findings and recommendations. Further information on the FSAP program can be found at <http://www.imf.org/external/np/fsap/fssa.aspx>

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Glossary

AML/CFT	Anti-Money Laundering/Combating the Financing of Terrorism
CBR	Correspondent Banking Relationship
Central Bank	Central Bank of Iceland
FATF	Financial Action Task Force
FSAP	Financial Sector Assessment Program
GDP	Gross Domestic Product
IFC	International Financial Centers
ML	Money Laundering
NRA	National Risk Assessment
NT	Near Term
SWIFT	Society for Worldwide Interbank Financial Telecommunications
TF	Terrorism Financing
VA	Virtual Asset
VASP	Virtual Asset Service Provider

EXECUTIVE SUMMARY

Iceland's banking sector is comparatively small, and the geographical reach of cross-border payments activity is limited. This limited payments' activity is also well explained by the economic fundamentals (e.g., foreign trade, direct investments) which reduces the overall inherent money laundering (ML) risk exposure.¹ In addition, Iceland has minimal flows with countries at high ML risks (as identified by authorities), low levels of outlier cross-border payments, and low levels of financial flows insufficiently explained by the economic fundamentals.

The Anti-Money Laundering and Combating the Financing of Terrorism (AML/CFT) supervisory understanding and assessment of ML and terrorism financing (TF) risks in the banking sector has improved in recent years. AML/CFT supervisors have invested resources to collect and analyze more detailed information regarding bank's inherent ML/TF risk exposure. Through increased offsite and onsite supervisory activities, AML/CFT supervisors have developed a more comprehensive understanding of the adequacy of bank's key AML/CFT systems and controls (for example, ML/TF risk assessment, customer due diligence measures, transaction monitoring and suspicious transaction reporting).

Further refinements to the supervisory risk assessment tools and increased data collection will enhance the accuracy of the authorities' focus for AML/CFT risk-based supervision of banks.

The sectoral risk assessment for banks would benefit from greater granularity in determination of risk variables, and the risk assessment model for entity-level assessments could be further developed to ensure a clearer delineation between inherent risk and AML/CFT systems and controls. While positive steps have been taken to better incorporate data into the supervisory ML/TF risk assessment, additional data could be captured as part of AML/CFT supervisory returns and opportunities to invest in the data analysis toolkit should be explored.

The authorities have conducted thorough full-scope AML/CFT inspections of all banks since the Financial Action Task Force (FATF) Mutual Evaluation in 2018. Going forward, a continued focus on thematic inspections would be a welcome. In some instances, the pace of completion of inspections has been slow. To drive meaningful change in the levels of AML/CFT compliance and the effectiveness of AML/CFT controls in banks (in particular, enterprise ML/TF risk assessment, customer due diligence, and suspicious transaction reporting), an enhanced supervisory presence through more frequent onsite activities and an increased pace in the completion of inspections would be beneficial.

Iceland has taken significant steps to establish a registration regime for virtual asset service providers (VASP) established in or operating in the country, however, efforts should continue to detect unlicensed activities. Given the borderless and transient nature of virtual assets (VAs), unlicensed activities may go undetected unless active monitoring is conducted. While the Central

¹ Annex I Using Society for Worldwide Interbank Financial Telecommunications (SWIFT) Data and Machine Learning for Financial Integrity Surveillance.

Bank of Iceland (Central Bank) is actively monitoring VA activities, an expanded toolkit to identify unauthorized VASPs (particularly foreign VASPs serving Icelandic residents)² would strengthen these detection efforts.

² Including increased cooperation with other domestic competent authorities, blockchain analysis tools, creation of whistleblowing mechanisms for other reporting entities and the general public along with information-sharing and collaboration with other licensing/registration authorities.

INTRODUCTION

1. This Note provides a targeted review of Iceland’s AML/CFT regime in the context of the 2023 Financial Sector Assessment Program (FSAP).³ It builds upon the 2018 FATF Mutual Evaluation Report, subsequent follow-up reports, information provided by the authorities, and publicly available materials. It covers the below-noted aspects stemming from the ongoing regional Fund’s Nordic-Baltic Technical Assistance Project⁴ (due to be finalized in September 2023) that focuses on cross-border ML threat and related aspects of banking sector and VAs AML-supervision, and potential financial integrity implications on financial stability. The content greatly benefitted from discussions, as part of the FSAP, in a virtual setting with key agencies, particularly the Central Bank and the Ministry of Justice.

2. The note highlights the key developments and progress made by the authorities in three important AML/CFT areas: (i) understanding of ML risks related to cross-border payments, (ii) supervisory ML/TF risk assessment, and (iii) risk-based supervision of banks and VASPs.

Table 1. Iceland: Main Recommendations

Recommendation	Responsible Agency	Timeline
Supervisory ML/TF Risk Assessment		
1. Understanding of ML risks. Strengthen the supervisory ML/TF risk assessment through better collection and analysis of data (including information related to geographic risk, cross border financial flows analysis, and the use of more granular data) and refine the risk assessment methodology.	Central Bank	NT
AML Supervision		
2. Supervision of banks. Enhance AML/CFT supervision of banks (through the move toward thematic inspections and more frequent supervisory interactions).	Central Bank	NT
3. AML/CFT Supervision of VASPs. The authorities should continue in their efforts to detect unlicensed VASPs, in line with the ML/TF risk exposure that Iceland faces. Consideration should be given to the need for further investment in technological tools to support these efforts.	Central Bank	NT
NT (Near-Term) is 1–3 years.		

³ Under the Fund’s FSAP policy, every FSAP should incorporate timely and accurate input on AML/CFT issues. Where possible, this input should be based on a comprehensive AML/CFT assessment conducted against the prevailing standard. See the Acting Chair’s Summing Up—Review of the Fund’s Strategy on Anti-Money Laundering and Combating the Financing of Terrorism—Executive Board Meeting 14/22, March 12, 2014 (<http://www.imf.org/external/np/sec/pr/2014/pr14167.htm>).

⁴ Project co-managed by Grace Jackson and Maksym Markevych, with Alexander Malden, Santiago Texidor Mora, and Indulekha Thomas as team members, under the oversight and guidance of Chady El Khoury (Deputy Division Chief, Fund’s Legal Department).

RISK AND CONTEXT RELATED TO MONEY LAUNDERING, AND MACRO-TRENDS IN CROSS-BORDER FLOWS

3. Iceland’s designation, in October 2019, as a jurisdiction with strategic AML/CFT deficiencies resulted in momentum for reform of the AML/CFT risk-based supervision of banks. The 2018 mutual evaluation found significant deficiencies in the AML/CFT framework. Notably, Iceland received a low-level of effectiveness rating for the AML/CFT risk-based supervision.

4. Iceland’s subsequent FATF Follow-Up Reports⁵ noted improvements in technical compliance with several of the FATF recommendations. In 2020, technical compliance regarding the “Regulation and Supervision of Financial Institutions” was re-rated “Largely Compliant”. The re-rating was driven by several improvements, including, enhancements to the ML/TF risk assessment, and a new inspection schedule that better incorporated ML risks.

5. Iceland’s banking sector, compared to other Nordic-Baltic countries, is comparatively small and self-contained, with all assets being held by domestic institutions and low levels of non-resident deposits. The authorities’ ML/TF risk assessment concludes that commercial banks present high levels of ML/TF risk, while savings bank, due to limited customer bases and cross-border exposure, are considered medium-low risk. Due to the lack of foreign institutions in the country, all assets are held by domestic banks. Three systemically important banks stand out as particularly relevant, representing approximately 95 percent of the banking sector total assets. Non-resident deposits in Iceland are among the lowest in the Nordic-Baltic region, accounting for 4.0⁶ percent of the total amount.

6. The 2021 National Risk Assessment (NRA) included an overview of ML/TF risks associated with key financial sector products. The NRA identified key ML risks related to tax fraud as a predicate offence, use of cash (transport, transactions, and cash in circulation), from financial sector products, designated non-financial services, and differing types of legal persons. For the financial sector products (including deposits, lending, payment services, and cryptocurrency), the NRA provided a high-level scale of operations in Iceland as well as an analysis of key threats and vulnerabilities.

7. The limited geographical reach of Iceland’s payments activity, which is also well explained by the economic fundamentals (e.g., foreign trade, direct investments) reduce the inherent ML risk exposure. Based on the staff’s analysis of payments data⁷ among the

⁵ Iceland 2019, 2020, and 2021 FATF Follow-Up Reports.

⁶ As of 31.12.2022.

⁷ The financial flows analysis conducted for the Nordic-Baltic Regional AML/CFT project is based on the payments between the customers of financial institutions, which includes payments by households, non-financial corporates, and non-bank financial corporates that do not have bank identifier code number.

Nordic-Baltic region, Iceland has the lowest levels of aggregate cross-border financial flows, most limited geographical reach of financial flows, and the least material flows when benchmarked against gross domestic product (GDP) and the value of deposits in the country. Iceland's cross-border financial flows have remained stable since 2013, with a slight reduction during the period of FATF increased monitoring ('grey-listing'). Iceland's flows are predominately with the European Union (EU), Group of Seven, and Nordic-Baltic countries, in line with Iceland's main cross-border economic linkages. To further enhance the national understanding of ML/TF cross-border and non-resident risks, the authorities could consider leveraging detailed payments data collection and incorporating additional sources of data (e.g., economic indicators, tax vulnerabilities abroad) into the national and sectoral risk assessments.

8. Iceland has minimal flows with higher risk countries (as identified by authorities), low levels of outlier cross-border payments and financial flows insufficiently explained by the economic fundamentals. The authorities rely on the list of jurisdictions under the FATF increased monitoring and the EU's list of high-risk third countries. The countries on these lists accounted for 0.7 percent of Iceland's aggregate flows since 2020—considering Iceland's immaterial flows with countries on these lists, it could be beneficial to refocus the enhanced monitoring on jurisdictions with substantial flows that have the potential for material ML threat. Iceland also has the lowest number of countries with flows insufficiently explained by the economic fundamentals of any country in the region and the highest average value of economic linkages with its counterparty-countries. This suggests a strong link between the cross-border payments' value and underlying economic activity and lower ML risks. In addition, Iceland had insignificant outlier payments activity as identified by AML screening of cross-border payments using machine learning methods. Iceland also has the least material correspondent banking activity in the region, indicating lower ML risk from provision of correspondent banking services. While the overall ML risk from cross-border payments activity appears low, the country could benefit from developing a higher-risk country list based on financial flows analysis and country-specific risk factors in coordination with all relevant AML/CFT agencies. The higher-risk jurisdictions can be identified as part of an in-depth assessment of cross border ML/TF risks specific to Iceland's risk profile, context, and financial sector.

9. Iceland's financial flows with International Financial Centers (IFCs)⁸ have accelerated in recent years. Notably, the financial flows with Ireland and Luxembourg have increased as the two countries have become Iceland's top-10 payments counterparties. However, the level of flows with these two IFCs could be explained by the economic fundamentals, primarily investment flows. In contrast, less material flows with five IFCs are insufficiently explained by the economic fundamentals.

10. While ML cases in the Nordic-Baltic region have exposed financial stability and integrity risks to the integrated Nordic-Baltic banking sector, the impact on Iceland has been less pronounced. These cases attracted international scrutiny on the effectiveness of AML/CFT supervisory regimes throughout the region. Iceland's banking sector is comparatively small and

⁸ As defined in the past list of Offshore Financial Centers (OFCs) in the Fund Assessment Programs: Past Fund Staff Assessments on OFCs sorted by jurisdiction.

self-contained, with all assets being held by domestic institutions and low levels of non-resident deposits and cross-border payments. Given this context, Iceland experienced less ripples through spillover effects. However, the cases highlight the overall, high ML risk associated with banking activities and the need for effective AML/CFT systems and controls to mitigate the ML risks associated with non-resident activities.

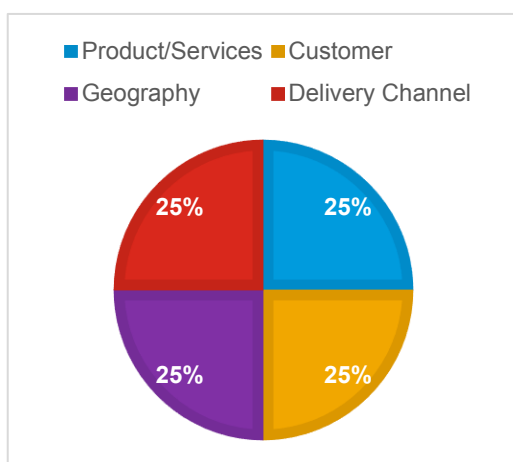
SUPERVISORY ML/TF RISK ASSESSMENT FOR BANKS AND VIRTUAL ASSET SERVICE PROVIDERS

11. The authorities' approach to supervisory ML/TF risk assessment considers all relevant ML inherent risk factors and AML/CFT internal controls. Figure 1 and Table 2 below provide an overview of the current approach.

12. The assessment of inherent risk accords equal (25 percent) weightage to the four traditional risk factors,⁹ and results in the assignment of an inherent risk score on a four-point scale. Each risk factor is further divided into sub-factors with varying weightings (as set out in Figure 1 below). For instance, within product risk (overall 25 percent weighting), differing weightings are accorded to transactions with foreign obliged entities (correspondent relationships) (25 percent), authorized activities (60 percent), and issuance of e-money (15 percent). Some sub-factors are further divided into individually assessed risk criteria. For instance, 'transactions with foreign obliged entities' takes into account the total number of correspondent banking relationships (CBRs), respective shares of CBRs with entities within and outside the European Economic Area, CBRs with entities in the high-risk jurisdictions list, and relationships involving payable-through accounts.

13. The internal controls assessment is combined with the inherent risk score to arrive at a residual risk rating. The assessment of internal controls includes examination of past onsite and offsite inspections, and status of remedial actions, consultations with the Financial Integrity Unit, discussions with prudential supervisors, information from the Central Bank on capital outflows from the obliged entity as well as information from supervisory returns. The returns collect data of various elements of the controls framework including the compliance function, training and resources, audits, and application of preventive measures including transaction monitoring and suspicious transaction reporting, and sanctions screening. If expert assessment considers internal controls weak, the inherent risk score is increased by one to arrive at the residual risk rating. Similarly, if the internal controls are assessed as very good, inherent risk score is lowered by one. If internal controls are determined as adequate, no change is made to the inherent risk score.

⁹ FATF Risk Based Supervision Guidance, 2021. Inherent risk refers to the ML/FT risks present in an entity or sector before mitigating measures are applied. Inherent risk is often assessed based on entities' customer base, products, delivery channels and services offered and the jurisdictions within which it or its customers do business.

Figure 1. Supervisory ML/TF Risk Assessment Model**ML Inherent Risk Assessment Factors Weightings****AML/CFT Internal Control Weightings**

Internal controls	Impact
Very good	Inherent risk score decreased by 1
Acceptable	No effect on inherent risk score
Weak	Inherent risk score increased by 1

Table 2. Iceland: Inherent Risk Criteria

Variable	Weight (percent)
Customers	25
Number of customers	75
Number of foreign trusts or comparable arrangements	5
Customers that engage in high-risk activities	10
Politically exposed persons	10
Distribution channels	25
Use of third parties	50
Distribution channels	50
Products and services	25
Correspondent relationships with obliged entities abroad	25
Authorised activities	60
Electronic money	15
Geographical risk	25
Geographical distribution of customers	50
Cross-border activities	50

14. While the authorities have a good understanding of the ML risks in the banking sector, the model would benefit from further granularity and a greater focus on product risk. Product risk is assigned a weighting of 25 percent in the inherent ML/TF risk assessment. Product risk is a central feature to support a robust ML risk assessment of banks, given the wide variance in product offerings (e.g., mortgages versus correspondent banking) a higher weighting should be considered, in particular when considered against delivery channel as a risk factor (assigned an equal, 25 percent, weighting). Greater focus on product risk would contribute to a more consistent/accurate assessment of the ML risks associated with this sector. Increased granularity could include analyzing the ML risks associated with different products (e.g., loans, mortgages, correspondent banking) that could then be rated and information on the levels of different activities incorporated as part of the entity-level ML/TF risk assessment (i.e., consideration should be given to value and volume of business for the financial services provided). Greater weightage for product risk is also relevant for the VASP sector, as the level of ML risks faced by individual VASPs could vary significantly based on the scope of product/services offered by individual VASPs, with factors including the types of VAs accepted in operations and nature of services provided (e.g., exchange versus custodial services, etc.) significantly impacting individual VASPs' ML risk exposure.

15. The analysis of geographic risk should be further developed to include a more comprehensive analysis and list of high-risk jurisdictions. As noted above, the assessment of geographic risk is informed by a list of high-risk and uncooperative jurisdictions and is based on the FATF and EU commission's lists of high-risk jurisdictions. While this is important information to include in the geographic risk assessment, the authorities should leverage available information on cross-border transactions data as well as information from other competent authorities to tailor this list and develop an internal list of high-risk countries to arrive at a more comprehensive assessment of "country" ML risks.

16. While there have been improvements to better incorporate data into the supervisory ML/TF risk assessment of banks, further enhancements could be made to supervisory returns and the use of data analytic tools. The authorities receive information on cross-border transaction values and volumes from Society for SWIFT and Single Euro Payments Area data collected by the Central Bank's Financial Stability Department. More recently, this data has been used to inform AML/CFT supervisory engagement on an ad hoc basis. This information does not affect risk ratings directly but is indirectly used in controls assessment and to clarify scope of on-sites.

17. This enhanced data gathering could also be informed by a more detailed supervisory return. Such return includes volumes of transactions for each authorized activity undertaken, (product risk) residency of beneficial owners of clients that are legal persons (customer risk), value and volume of non-resident client transactions (geographic risk), split between resident and non-resident clients onboarded virtually, and value of transactions/deposits with remotely onboarded clients (delivery channel risk). This granularity should also extend to VAs, the authorities should seek VASP specific information including on provision of nested services, transactions with un-hosted wallets and any anonymity enhancing services offered (or operations in any anonymity enhanced VAs).

18. Opportunities to invest in the data analysis toolkit along with broadening statistical data sources could also be explored. A move towards greater automation in inherent risk assessment could aid faster and more efficient processing of collected information and free up some supervisory capacity. Further, in coordination with the Financial Stability Department from Central Bank, the authorities could also consider use of advanced data analytic tools including data mining and machine learning tools to effectively process larger volumes of data (including already available payments and deposits data) to inform ML risk assessment.

AML/CFT RISK BASED SUPERVISION OF BANKS AND VIRTUAL ASSET SERVICE PROVIDERS

19. While significant efforts have been made to enhance the AML/CFT risk-based supervision of banks, bank's preventive frameworks are still maturing. A greater focus on thematic inspections is a welcome step (as all banks have been subject to broader AML/CFT inspections, covering all key AML/CFT preventive measures in recent years). In order to drive meaningful change in the levels of AML/CFT compliance and the effectiveness of AML/CFT controls in banks, an enhanced supervisory presence through more frequent/shorter onsite supervisory inspections would be beneficial (this does not necessarily mean a need for increased resources).

20. Increased resourcing in recent years is welcome; however, the adequacy of the resources assigned to the AML/CFT supervision of banks should be regularly reassessed and driven by the need to meet a detailed minimum engagement model. Central Bank indicates that resources are currently adequate to implement the minimum engagement model. The authorities should consider whether further detailing in the model to provision for increased frequency of engagement in higher-risk entities will increase resourcing needs. A Board endorsed minimum engagement model can be an effective tool for an ongoing assessment of resource adequacy and to communicate any increased resourcing needs with changes in composition of supervisory population and in ML risk profiles.

21. Iceland's ongoing move from multi-topic inspections to thematic reviews is consistent with supervisory good practices and can be leveraged to increase frequency in engagement. Better quality ML/TF risk assessment and information will help the authorities identify the most critical areas for thematic review. Iceland focuses on thematic areas that present higher ML/TF risks, including correspondent banking, although this area requires less focus (in Iceland) given the more limited cross-border activities.

22. The AML/CFT supervisory strategy for the banking sector should better link ML risks to activities and be further enhanced for banks the present the highest ML risk. The current supervisory approach includes onsite and offsite activities. To enhance the use of scarce supervisory resources and prioritize the activities, the authorities should consider outlining the ML risks in the banking sector (for example, through use of more detailed information that is gathered in supervisory data returns) and directly linking this to the supervisory strategy in a more specific

manner, for example, targeted correspondent banking inspections, or a thematic desk-based review of bank's ML/TF risk assessment. These strategies would ensure that supervisory activities were adequately tailored to the specific ML risks that the highest risk banks face.

23. Iceland faces limited ML/TF risks from its small VASP sector but could potentially be exposed to increasing risks with the recent expansion in scale of VASP activity. According to the authorities, the VASP sector in Iceland is very small comprising three VASPs serving an overwhelmingly domestic customer base. The aggregate turnover in the sector is 4,3 billion Icelandic Krona with a total volume of transactions of 19,928 in 2021–2022. The total number of active customers is 6,633. The scale of activity has seen a significant recent expansion, with over a 300 percent increase in transaction amounts in 2020 from the fairly low baseline of 312 million Icelandic Krona in 2018. In addition, supervisory engagement with the VASP sector found weaknesses in the application of the preventive framework, including key deficiencies in business risk assessment, customer due diligence, and transaction monitoring. The authorities consider that the deficiencies in the application of preventive measures warrant an upward revision in the sectoral risk-rating of VASPs. If these expansive trends persist, ML risks could correspondingly increase.

24. The Central Bank, in its capacity of supervisor, has a good overview of the ML/TF risks in the VASP sector and implements a registration regime. A 2022 amendment to the AML/CFT Act brings VASPs providing all covered services under the FATF standards within the framework of the AML/CFT regime and obliges them to apply AML/CFT preventive controls; however, the amendments do not incorporate the travel rule for VA transfers.¹⁰ The NRA rates the VASP sector as having medium-low ML/TF risks. It highlights features of VAs that make vulnerable to ML, including greater anonymity and low-cost global reach of transactions and provides some high-level information on VA activity in Iceland, highlighting the recent rise in VA activity. While a very useful foundation of the VASP sector in Iceland, the NRA does not provide details on the scale of the sector in Iceland. The next iteration of the NRA or a sectoral risk assessment should include greater information across all ML risk factors as well as levels in compliance with preventive measures by the sector, including details on the volume of transactions, levels of cross-border activity, number of customers, and types of activities undertaken by VASPs operating in Iceland.

¹⁰ The travel rule requires VASPs to obtain, hold, and submit information about the originators and beneficiaries of VA transfers. The authorities note that they are awaiting an EU Regulation intended to add VA to existing wire transfer rules.

Appendix I. Using SWIFT Data and Machine Learning for Financial Integrity Surveillance

1. SWIFT data: The project uses SWIFT message types 103, 103+, 103R that represent payments between the customers of financial institutions. The SWIFT data is aggregated on the level of a financial institution and anonymized by replacing the name of the financial institution with the corresponding country name. SWIFT data includes the countries of financial institutions that originated and received the payments, as well as countries of correspondent financial institutions that facilitated the payment. The SWIFT data is monthly going back to January 2013. The data includes the currency, number and value of transactions that passed through each of these payment corridors (originator–correspondents–beneficiary)—a hypothetical example:

Period	Message Type Code	Message Type -Name	Ordering -Country	Counterparty -Country	Beneficiary -Country	Currency	Total Number of Transactions	Total Value of Transactions
Nov-13	MT103+	Single Customer Credit Transfer	Serbia	United States	United Kingdom	USD	85	5326336

2. Compliance with AML Standards: The level of compliance with international AML Standards is based on the results of assessments by the FATF (international AML/CFT standard-setter) and respective regional bodies. The index of compliance with the AML Standards is based on the assessment's ratings of effectiveness of a given country's AML/CFT regime. Where not available (mostly earlier periods) the index is based on the technical compliance of a given country's legislation with the AML/CFT Standards. The AML compliance index is a time series, which takes into account new and follow-up assessments.

3. Portfolio and direct investments. Investment data from the Coordinated Portfolio and Direct Investment surveys.

4. Foreign trade. Fund's Direction of Trade data for trade in goods—we use the export data, which appears to be more accurate than the imports data. World Trade Organization and Organization for Economic Co-operation and Development data on trade in services

5. Corruption. Control of corruption indicator from the World Governance Indicators.

6. Financial Secrecy and Tax Haven Indexes. Financial Secrecy Score and Tax Haven Score from the Tax Justice Network.

Methodological Approach

7. Only cross-border payments are used, dropping the payments that originate and are received in the same country.
8. The (i) *value of transactions* and (ii) *the average transaction* sent through a given payment corridor are normalized using z-scores and the means and standard deviations for the outflows from *the ordering country*, as not to bias the results towards the advanced economies and established financial centers that have higher value of transactions and the average transactions.
9. We also normalize the (i) *value of transactions* and (ii) *the average transaction* of a given payment corridor using z-scores and means and standard deviations for the flows via a particular *payment corridor* (unique payment chain of originator–correspondents–beneficiary, in other words a unique set of banks involved in the transaction). The intention is to detect appearance of the new payment corridors or payment corridors that are processing unusually high overall values or have high average transaction value, which may potentially indicate abuse of a financial institution.
10. The AML Compliance data is incorporated into the model by using interaction of the AML index with the variables (i) *value of transactions normalized by ordering country and by payment corridor* and (ii) *average transaction normalized by ordering country and by payment corridor*. We use the AML index for the ordering country to indicate the higher risk of outflows from a country with lower effectiveness of the AML/CFT regime. We multiply the normalized *value of transactions* and the *average transaction* by the AML index of the ordering country, which ranges from zero to one (zero being the lowest level of compliance with the AML/CFT Standards), so the *value of transactions* and the *average transaction* are weighted proportionate to the degree of weakness of the AML compliance, thus increasing the likelihood of a payment corridor being an outlier.¹
11. Economic activity, such as trade and portfolio/direct investment, provides the economic rationale for the financial flows, representing lower risk of ML. We introduce a ratio of the *value of transactions* between the two given countries and the portfolio/direct investment between these two countries. The lower the amount of investments between the two countries, the higher this ratio, thus increasing the likelihood of being an outlier.
12. Portfolio and direct investment have semiannual and annual frequency respectively, so for this ratio we sum up all of the flows between the two countries over six or 12 months correspondingly, which is then added to all payments between the two countries over the respective periods.
13. Similarly, we introduce a ratio of the *value of transactions* between the two given countries and the foreign trade in goods and services (both imports and exports) between these two

¹ The threshold for the outlier payments is set at the 0.0001 percent of all payment corridors.

countries. The lower the amount of trade between the two countries, the higher this ratio, thus increasing the likelihood of being an outlier.

14. Flows to/from countries with high financial secrecy or harmful tax practices represent higher risk and we introduce variables that are the result of multiplication of the *financial secrecy* and *tax haven indexes* and (i) *value of transactions normalized by ordering country and by payment corridor* as well as (ii) *average transaction normalized by ordering country and by payment corridor*. The higher are the indexes for the financial secrecy and tax haven, the higher is the weighting of the corresponding payments, thus increasing the likelihood of being an outlier.

15. Outflows from countries with higher perceived corruption represent higher risk and we incorporate corruption perception variable by multiplying the control of corruption indicator by the (i) *value of transactions normalized by ordering country and by payment corridor* and (ii) *average transaction normalized by ordering country and by payment corridor*. The higher are the corruption perceptions, the higher is the product of this multiplication, thus increasing the likelihood of being an outlier.

16. Trade and investment data have longer lag in availability as compared to the SWIFT data and in order to run the model once the SWIFT data is available we extrapolate the trade and investment data. We use the average of previous periods, adjusted for the projected GDP growth and also for the seasonality of the trade data, which is monthly.

17. A measure of macro-criticality of the outflows adds a focus on outflows big enough to have a potential to destabilize external or domestic stability of the ordering country. We add a ratio of the *value of transactions* (nominal values, not normalized) to the GDP of ordering country.

18. Based on the algorithm's results, the variables with the highest contribution to the output (based on the Shapley values analysis), are the (i) foreign direct investment, (ii) foreign portfolio investment, and (iii) the foreign trade. In other words, whether the high financial flows between the two countries correspond to the high trade or portfolio or direct investment flows is the most important determinant of whether the payments would be identified as outliers.