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National Assessments of Money Laundering Risks: Learning from Eight Advanced Countries' NRAs

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WORLD BANK GROUP

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Contents

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Foreword

A robust assessment and understanding of the risks of money laundering and terrorist financing in a jurisdiction are prerequisites to effectively protecting it against criminal abuse and contributing to the global efforts against financial crime.

The World Bank Group (WBG) has been at the forefront of international efforts to help countries implement risk-based approaches to anti-money laundering and countering the financing of terrorism (AML/CFT). The WBG has supported more than 100 client countries in building their capacity in this area.

The WBG has always sought to enrich and influence the international debate about AML/CFT with analysis and research, often in collaboration with academia. A data-driven and academic perspective should aid policy makers in designing evidence-based policies and in assessing the impact and effectiveness of those policies.

Nearly a decade after the Financial Action Task Force (FATF) introduced requirements for assessments of money laundering and terrorism financing (ML/TF) risks, the international community is at the right point to review the past 10 years and assess whether the risk-based approach to AML/CFT is developing as intended. What is working, what is not working, and how can we bolster a risk-based culture and operational focus? The answers to those questions are particularly relevant to most of the World Bank's client countries, which need to prioritize their limited resources strategically to fight financial crimes while strengthening financial inclusion.

It is in this spirit that we welcome the work done by two distinguished academics, Joras Ferwerda and Peter Reuter, that evaluates the quality of ML/TF risk assessments by eight countries and draws lessons to guide future risk assessments. This research was conducted independently by the authors in their academic capacity. In recognition of this study's added value to current literature, the World Bank has facilitated and led a peer review of the study, with contributions from internal and external experts.

Any opinions or findings in the study belong to the authors only and do not necessarily reflect the views of the WBG, its management, or its board. Indeed, differences exist between the views of the authors and the approach used by World Bank technical teams—in capacity-building activities, for instance—in defining, describing, and analyzing ML/TF risks. Those differences are healthy, however, as they can contribute to a welcome debate on the topic.

We hope that this study will guide the international community, notably World Bank clients, in improving its approach to assessing and understanding ML/TF risks. I would like to take this opportunity to thank the authors and peer reviewers of the study for their important contribution to the AML/CFT literature. The World Bank teams leading the work on financial integrity will continue to actively contribute to the global discussion on ML/TF risks and the effectiveness of AML/CFT policies and actions while helping emerging markets and developing economies protect themselves from the insidious impact of financial crime.

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Abstract

The Financial Action Task Force (FATF) requires national governments to demonstrate an understanding of the money laundering risks in the country. Such an understanding is the foundation for effective control of money laundering under the risk-based approach the FATF calls for. We analyzed the National Risk Assessments (NRAs) published by eight systemically important countries to test whether they demonstrate that basic understanding and to draw lessons for national governments from those NRAs. The eight show very different conceptualizations, analytic approaches, and products. Each raises serious issues regarding the risk assessment methodology. For example, most relied largely on expert opinion, which they solicited in ways that are inconsistent with the well-developed methodology for making use of expert opinion. They misinterpreted data from suspicious activity reports and failed to provide risk assessments relevant for policy makers. Only one described the methodology employed. Although the challenge of conducting strong risk assessments is great, given the difficulty of estimating the extent of money laundering in any sector, the findings based on this limited sample point to ways to improve substantially on existing practices. The report concludes with a set of suggestions for (international) policy makers and those conducting NRAs for improving risk assessments. Suggestions include increased clarity about the conceptualization of risk, transparency about data and methods so that each country can learn from others, and the adoption of more formal and standardized methods of eliciting expert opinion.

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Introduction

Making the laundering of criminal money riskier and more expensive is now seen as a routine function of government. To achieve that goal, a far-reaching set of controls, which we shall refer to as the anti-money laundering (AML) regime, has been developed. The creation of the AML system has occurred largely under the aegis of the Financial Action Task Force (FATF), created in 1989 by the G7 and now a permanent body.[1] The FATF has a membership of 37 nations, but almost all other countries are members of the FSRBs—FATF-style regional bodies—that are themselves associate members of the FATF. The AML system imposes a set of obligations on financial institutions—including banks but extending much more broadly to other financial institutions, businesses, and professions (DNFBPs: Designated Non-Financial Businesses and Professions)— to prevent criminals or terrorists from establishing accounts or conducting transactions through existing accounts. Among other requirements, these institutions, businesses, and professions must undertake customer due diligence (CDD) checks and identify and report suspicious transactions. Failures to do so may lead to criminal and civil fines issued by national authorities against the financial institution or DNFBP; fines occasionally have been in the hundreds of millions of dollars.[2]

The FATF regime deals with the fight against money laundering and terrorist financing; it is usually referred to as the AML/CTF (Anti-Money Laundering and Counter Terrorism Finance) regime. This report focuses on money laundering only. Whereas the goal of money laundering generally is to make large sums of illegally earned money appear legal, the goal of terrorist financing generally is to use relatively small sums of often legally earned money for an illegal act (Ferwerda 2012). Although some of the observations and conclusions in this report also apply to the fight against terrorist financing and the related risk assessments, this analysis focuses on money laundering and uses only money laundering examples in the argumentation. The risk assessments of terrorism finance in the NRAs are much briefer than those for money laundering,[3] which surely reflects the highly classified nature of much that is relevant to CTF risk assessment; thus, outside observers can do less to evaluate the adequacy of terrorism finance risk assessments.[4]

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1. The 2019 Ministerial mandate declared that the FATF was no longer a temporary body. https://www.fatf-gafi.org/media/fatf/content/images/FATF-Ministerial-Declaration-Mandate.pdf.
2. The list of major banks receiving large fines includes HSBC, ING, Wachovia, Credit Suisse, Danske Bank, and Wells Fargo. All of the 10 largest European banks have been fined for money laundering violations, primarily related to sanctions violations.
3. Generally, vulnerability sections discuss preventive measures and therefore cover money laundering and terrorist financing together, but in threat assessments, money laundering and terrorist financing are separated. To give an idea of how brief terrorist financing threats tend to be discussed in NRAs, the terrorist financing threat section of the NRA of Canada (2016) consists of only four pages; Italy (2014), six pages; Japan (2015), one page; Singapore (2013), four pages; Switzerland (2015), seven pages; UK (2015), nine pages; and the United Kingdom (2017), three pages. The published NRAs of the Netherlands and the United States that were analyzed focus only on money laundering.
4. The Interpretive Note to Recommendation 26 states, "Risk-based approach to supervision refers to: (a) the general process by which a supervisor, according to its understanding of risks, allocates its resources to AML/CFT supervision; and (b) the specific process of supervising institutions that apply an AML/CFT risk-based approach" (FATF 2012, 94).

In 2012, the FATF introduced an important new requirement—namely, that nations carry out a National Risk Assessment (NRA). The requirement is motivated by the shift from a rule-based AML system, in which financial institutions (FIs) had to follow procedures specified by law and regulation, to a risk-based approach (RBA), in which FIs and DNFBPs adjust their procedures and policies on the basis of their specific relevant risks. The risk-based approach is not just a challenge to entities subject to AML requirements; it also imposes new obligations on the government because regulators must determine whether the FIs understand the relevant money laundering risks and adapt accordingly.

In effect, the question that the NRAs set out to answer is whether the nation's government[5] understands how money laundering risks are distributed. Insufficient understanding of money laundering risks makes it challenging for a government to implement an effective risk-based anti-money laundering regime. If, for example, a government cannot assess whether retail banks are more or less risky than private wealth funds as institutions through which to launder criminal earnings, then the government will be unable to determine how it should allocate supervisory and investigative resources among the different classes of banks. At a minimum, AML will be less effective than it should be—perhaps even highly ineffective.

This report examines the published NRAs of eight countries identified by the International Monetary Fund (IMF) as systemically important; they are indeed, as explained later, among the most important.[6] They were chosen as among the most sophisticated countries in terms of financial regulatory capacity and stability and are therefore expected to have among the most advanced anti-money laundering frameworks and National Risk Assessments. This report assesses whether, on the basis of information that is publicly available, these NRAs demonstrate adequate knowledge of money laundering risk. The report identifies ways in which NRAs and, thus, the international AML regime could be implemented more effectively. We discuss the implications of our choice of these countries in section 3.

Contributions of the report

This report attempts to make two broad contributions. First, sections 3 and 4 offer the first systematic review of multiple NRAs. A lengthy search for published critiques of specific NRAs turned up only one (Hopkins and Shelton 2019, on the UK). Only our earlier article comparing the NRAs of Italy and Switzerland has attempted anything more ambitious (Ferwerda and Reuter 2019). This report shows the great variety of methods and outputs of just these eight NRAs; the nature of the data used reveals less variety. We also suggest that current practice fails to conform to what is called "risk assessment" in fields other than terrorism, which provides a poor fit with the risk assessment needs for money laundering. Current practice also does not provide much useful information for policy makers (whether regulators or law enforcement agencies). Following guidance from the FATF, the NRAs present a great deal of information on "threats" that is eventually not used to determine risks. Some countries present no actionable findings. The empirical analysis of suspicious activity reports is often misleading and incorrectly interpreted. The outputs of the NRAs vary greatly in their utility. Overall, our findings are distinctly critical.

Second, this report offers possible explanations for the weaknesses of the NRAs (section 4) and, more importantly, suggests a path forward (section 6) and concrete recommendations (section 7). We note that except for the Dutch NRA, the publications fail to describe how data were collected and analyzed, even though the NRA exercise is intended to be regularly conducted. The NRAs examined here are generally first efforts at risk assessment in a field that does not have much of a scholarly research base. We identify the appropriate risk concepts, how expert opinion (the bedrock source of data) can be used more systematically, what databases on transactions need to be created, and how "mystery shopping" could advance understanding. The report shows relatively simple ways in which the field could develop more rapidly.

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5. We use the vague term *government* because so many agencies are involved in AML regulation—notably, supervisory and investigative agencies—that the number may amount to tens of agencies. For example, in Singapore, the smallest jurisdiction in our sample, the NRA listed 15 agencies involved in its preparation (p. 2).
6. The International Monetary Fund identifies 29 systemically important jurisdictions in its Financial Sector Assessment Program: https://www.imf.org/en/About/Factsheets/Sheets/2016/08/01/16/14/Financial-Sector-Assessment-Program.

2. NRAs and the Risk-Based Approach to Fighting Money Laundering

The FATF formally introduced the risk-based approach to the fight against money laundering in its *Forty Recommendations* of 2003 by specifying that "Financial institutions … may determine the extent of such measures on a risk sensitive basis" (FATF 2003). The Risk-Based Approach (RBA) only became mandatory in 2012. RBA means that banks and other reporting institutions could no longer follow the specified rules blindly (as under the rule-based approach) but had to actively assess the risk of money laundering associated with a specific customer/transaction to match the rigor of their AML measures. For example, transactions involving complex and opaque corporate vehicles might be identified as high risk, so that any transaction involving such an entity would be subject to more intense scrutiny or a product (small retail bank deposits) might be identified as very low risk and receive less than average scrutiny.

The risk-based approach has been applied not only to the reporting entities. This point is so central to our analysis that we quote the FATF (2012, 9) Recommendation 1 in full:

> *Countries should identify, assess, and understand the money laundering and terrorist financing risks for the country, and should take action, including designating an authority or mechanism to coordinate actions to assess risks, and apply resources, aimed at ensuring the risks are mitigated effectively. Based on that assessment, countries should apply a risk-based approach (RBA) to ensure that measures to prevent or mitigate money laundering and terrorist financing are commensurate with the risks identified. This approach should be an essential foundation to efficient allocation of resources across the anti-money laundering and countering the financing of terrorism (AML/CFT) regime and the implementation of risk-based measures throughout the FATF Recommendations. Where countries identify higher risks, they should ensure that their AML/CFT regime adequately addresses such risks. Where countries identify lower risks, they may decide to allow simplified measures for some of the FATF Recommendations under certain conditions.*
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> *Countries should require financial institutions and designated non-financial businesses and professions (DNFBPs) to identify, assess and take effective action to mitigate their money laundering and terrorist financing risks.*[7]

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7. The FATF Recommendations were updated in 2020. Recommendation 1 did not change regarding money laundering risks; a paragraph was added about *proliferation financing* risks.

We take "countries" to refer to "governments." This makes clear that supervisors of AML regulations (for example, bank regulators, insurance regulators, sometimes professional associations[8]) should apply their supervision on a risk basis as well. Those reporting institutions and sectors that are deemed riskier should receive more supervisory attention. Recommendation 1 implies, less clearly, that enforcement agencies should also allocate their resources to reflect the distribution of risk across potential channels[9]—thus, the importance of risk assessment by the government.

Although the risk-based approach in the field of money laundering was promulgated in 2003, no published focused risk assessment on the national level appeared until about 10 years later.[10] The FATF revised its *Forty Recommendations* in 2012 and declared that countries must demonstrate knowledge of the distribution of risks within their jurisdiction, although without explicit mention of a National Risk Assessment. The next year, the FATF published general guidance for performing national risk assessments (FATF 2013a). The published NRAs came only after the requirement to perform one, when Serbia, Singapore, and Sweden published so-called National Risk Assessments in 2013.[11] As Rausand (2013), an authority in the field of risk assessments, warns, "A risk assessment should never be performed simply to satisfy some regulatory requirement. Rather, it should be performed with the intention of providing information for decision making about risk." That

warning suggests pessimism about the initial NRAs of these eight countries, almost all of which were done in the looming shadow of a fourth-round mutual evaluation report.[12]

So what is the exact policy issue or issues that NRAs are trying to inform? As noted, the FATF Guidance states that an NRA "assists in the prioritization and efficient allocation of resources by authorities" (FATF 2013a, 4). Spending resources efficiently is desirable, in line with the risk-based approach, but what should be the dimensions for allocation? Different regions? Different sets of financial institutions? Different kinds of crimes? The FATF Guidance is vague on this point except for stating that assessments "may also form the basis for determining whether to apply enhanced or specific measures, simplified measures or exemptions from AML/ CTF requirements" (FATF 2013a, 4). That statement clarifies that the policy decision the NRA should inform is how FIs and regulatory agencies allocate resources and indicates that the concern is how the risks are spread across different sectors, which we take to mean classes of regulated institutions. We conclude that an NRA should at least provide information about the relative risks of each sector, which is what most of the 11 NRAs aimed to do.[13] Obviously, an NRA can provide much more information about money laundering risks, such as the most significant forms of laundering, but insights on the relative risks across sectors should be considered the bare minimum.

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8. In some countries, the government may place regulation of a particular profession in the hands of a professional body, not itself governmental. For example, the British NRA identifies 15 separate professional associations with AML responsibilities.
9. FATF's 2013 NRA Methodology refers to the Interpretive Notes for Recommendations 26 and 28. These are both explicitly addressed to supervisors and regulators and contain no comparable text explicitly for enforcement agencies.
10. This raises the question of whether risk assessments were prepared but not published. Some such assessments for specific threats were prepared in the United States, but we have found no evidence of similar efforts in the other seven countries. Certainly, none are referred to.
11. Countries trying to inform their policy decision making in the 10 years in between (2003 through 2012) did not feel the need to prepare such risk assessments (see appendix A).The most notable exception is New Zealand, which published a national risk assessment in 2010.
12. Some form of evaluation has been part of the FATF system since its founding. The fourth round of evaluations, which began in 2014 and will extend over eight years, is the first round requiring that governments demonstrate a knowledge of risks. Canada published its NRA in 2015 and was visited for evaluation later that year. Italy published its NRA in 2014 and was visited in 2015. Japan published its NRAs in 2015 and 2017 and was visited in 2019. The Netherlands published its NRAs in 2017 and 2020 and was visited in 2021. Singapore published its NRA in 2013 and was visited in 2015. Switzerland published its NRA in 2015 and was visited in 2016. The United Kingdom published its NRAs in 2015 and 2017 and was visited in 2018. The United States published its first NRA in 2015 and was visited in 2016.
13. The World Bank tool to conduct a money laundering NRA estimates those risks per sector but can also be used to identify, for example, main predicate crimes, the risks of different financial products, financial inclusion effects, and money laundering risks coming from different types of legal persons.

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Study Data and Methods

This section analyzes 11 National Risk Assessments published by eight advanced countries—Canada, Italy, Japan, the Netherlands, Singapore, Switzerland, the United Kingdom (UK), and the United States (US)—before 2020.[14] Three countries—Japan, the UK, and the US—published two NRAs during that time. All eight countries are FATF members. Included are two of the jurisdictions most prominent in the creation of the FATF, the UK and the US. Those two countries, plus Singapore and Switzerland, are among the most important global financial centers (*Long Finance & Financial Centre Futures*, 2020, 4). The jurisdictions span the globe—four in Europe, two in North America, and two in Asia. The IMF identifies these countries as jurisdictions with a systemically important financial sector.[15] Five of the G7 are included (only France and Germany are not in our list); thus, the NRAs of these eight countries might be seen as including those most capable to be state-of-the-art, providing a particularly striking finding if the maintained hypothesis (competent at risk assessment) is disconfirmed.

The data in this report come from what the nations chose to publish. Other risk assessment documents may exist that were not published.[16] Only the NRA of the Netherlands explicitly states that the published risk assessment is the only one that was produced.[17] The existence of other unpublished reports suggests that we cannot assess the government's competence simply from what is published; however, our analysis focuses not on the specific risks but on the way the analysis was performed. The logic for the government choosing to publish a report that shows less analytic competence than it demonstrates in the unpublished versions is hard to fathom. The unpublished reports may simply be more detailed and include information that should not be made public.

We interviewed individuals who contributed to five of the NRAs: Canada, Italy, the Netherlands, Switzerland, and the UK. Primarily, we relied on the NRAs. Most reports provide only brief descriptions of methodology, a point that we emphasize as a weakness because NRAs are not one-time efforts but are intended to provide ongoing guidance.[18] All except that of Singapore show the extent to which they relied on specific data sources: suspicious activity reports (SARs), expert opinion, vignettes, and so forth. We made no effort to assess the accuracy with which they represented those sources.

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14. Two other NRAs by these countries were not included. A 2019 Italian NRA has not been published in English. Since this work finished, three of these countries have published additional NRAs: Japan published a third NRA, the Netherlands published a second NRA, and the UK published a third NRA. A further analysis into NRAs succeeding the ones this report focuses on can indicate to what extent a learning effect takes place within countries.
15. https://www.imf.org/external/np/fsap/mandatoryfsap.htm.
16. For example, the 2014 mutual evaluation report for Spain referred to a variety of risk assessments that were prepared for specific sectors and agencies. It stated that "Spain has a high level of understanding of its ML/TF risks" (p. 5). Spain did not publish or execute an overall NRA.
17. In an interview with Canadian authorities (on April 1, 2018), we learned that Canada has an unpublished version of the report with more sensitive results. In the published NRA of Italy, sensitive results concerning the distribution of predicate crimes were left out; for this report, we gained access to the unpublished version of the Italian NRA.
18. The FATF Guidance states, "Recommendation 1 requires that countries assess risks 'on an ongoing basis' and that they keep assessments up-to-date" (FATF 2013a, 18).

For analysis purposes, we used a four-part framework to summarize and compare the eight NRAs:

1. **CONCEPTS USED.** Threats and vulnerabilities—the central concepts in the FATF framework—were almost universal, although variably interpreted; however, some NRAs also incorporated the concepts of inherent risk, country risk, and consequences.

2. **DATA SOURCES.** Most used suspicious activity reports,[19] enforcement actions, and expert opinion; occasionally, they also used vignettes (brief case descriptions).

3. **ANALYTIC METHODS.** This was the hardest category to code because little was said explicitly except in the NRAs of the Netherlands and Switzerland.

4. **OUTPUTS REPORTED.** A few countries provided detailed tables, showing, for each sector, the levels of threat and vulnerability. Only Italy went the next step and showed which additional regulatory interventions would be most effective for each sector.

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19. In some countries, these are called suspicious transaction reports; in the Netherlands, the term is unusual transaction reports. SARs is used to cover all three terms.

Characterizing the Eight NRAs

Conceptualization

Whether or not a country's NRA was explicit about concepts (Japan's was not), it always adopted the FATF framework of identifying threats and vulnerabilities;[20] given that those NRAs were usually prepared in advance of the FATF's mutual evaluation, that finding is hardly surprising because conformity with the FATF NRA methodology was an element of the judgment made by Mutual Evaluation Report (MER) assessors. We discuss the threat assessment and the vulnerability assessment separately. The FATF Guidance (2013a) states that the consequences of money laundering, which ideally should be part of a risk assessment, are likely difficult to measure. No country made an explicit effort to assess consequences except the Netherlands, where experts were asked about the potential impact of 10 specific risks. Canada's NRA provided an appendix of possible consequences not included in the analysis of the body of the report.

Threat Assessment

All but the Japanese NRA include an explicit threat assessment (TA), thus conforming to the broad FATF Guidance; however, the seven countries conduct the TA in a variety of ways. Given our skepticism about the utility of the threat assessments as implemented, we examined whether the TA played a role in the NRA conclusions.

What was meant by "threat" varied substantially. Some countries identified persons as threats: for example, Canada identified a threat as "a person or group who has the intention, or may be used as a witting or unwitting facilitator, to launder proceeds of crime or fund terrorism" (p. 15). Threats were identified then as specific groups, such as organized crime groups and professional money launderers. Other countries, such as Singapore, identified particular crimes as constituting the threat. None presented quantitative measures of the threat but simply identified the principal ones, perhaps with an implied ranking. In all cases, the threat assessment was at the national level, not specific to a particular kind of financial institution or DNFBP.

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20. See appendix B for a discussion of the FATF approach to risk assessment and the risk-based approach.

A threat assessment for money laundering is useful to show knowledge of the crime and money laundering situation in the country, but as operationalized in these eight NRAs, the threat assessment generally does not inform the risk-based approach. In only one of the eight NRAs did the eventual risk level findings for a sector depend on information or results from the threat assessment: Switzerland uses an explicit formula (see Ferwerda and Reuter 2019, 17–18) to relate characteristics of SARs (such as the amount of money involved and the country of origin) to estimate the risk for different sectors—that is, to what extent transactions in the sector share characteristics of known suspicious transactions. Canada, Italy, and the UK refer to the results of the threat assessment when reporting risk level findings, but because the threat to all sectors is, by definition, the same in their methodologies, the threat assessment does not affect the relative risk scores for different sectors. Japan, the Netherlands, and Singapore make no explicit reference to information in the threat assessment when discussing the conclusions on sectoral risk levels. None of the eight NRAs use information or results from the threat assessment for policy recommendations. Countries are including threat assessments in NRAs, but they are struggling to find ways to use the results of those threat assessments (see table 1).

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T A B L E 1 - The (Main) Focus of the Threat Assessment and How the Information Is Used

Country	What is the (main) focus of the TA?	TA affecting risk level findings?	TA affecting policy recommendations?
Canada	Ranking importance of a long list of crimes	Not really; threat is the same for all sectors	No recommendations
Italy	Ranking importance of different crimes	Not really; threat is the same for all sectors	No explicit reference
Japan	Share of predicate crimes in ML cases	No explicit reference	No explicit reference
Netherlands	Listing of relevant ML methods and channels	No explicit reference	No explicit reference
Singapore	Little domestic ML; limited categorization of international predicate crimes	No explicit reference	No explicit reference
Switzerland	Share of suspected ML offenses for a limited categorization of crimes	Yes, but with debatable formula[21]	No explicit reference
UK	Description of predicate crimes and the available revenue estimates	Not really; threat is the same for all sectors	No explicit reference
US	Description of predicate crimes	No risk level findings	No recommendations

ML = money laundering. TA = threat assessment. UK = United Kingdom. US = United States.
Source: Created by the authors from individual NRAs.

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21.   See Ferwerda and Reuter (2019, 17–18) for a discussion.

Vulnerability

The UK provides an explicit definition of vulnerability. "[V]ulnerability is a concept encompassing things that can be exploited by the threat or that may support or even facilitate its activities. Distinct from threat, vulnerabilities are factors that represent weaknesses in the AML/CFT systems" (p. 9). Other NRAs are less explicit; indeed, the Japanese NRAs barely mention either vulnerability or inherent risk. [22]

Considerable emphasis was given to vulnerability, although it was often identified as "inherent risk," a serious misuse of standard risk assessment terminology. Canada provided the most detailed guidance to experts for assessing inherent risk, with five distinct components, such as geographic reach, demography, and economic structure. For example, because the country has a large and diverse foreign-born population (with more than 200 ethnic origins), it will have financial connections to high-risk countries. Similarly, the very open borders with the US facilitate cross-border laundering from the US. A sector that deals with high-risk regions is more vulnerable.[23] The extent of non–face-to-face transactions was an instance of product characteristics affecting vulnerability.

The section of the NRA that is supposed to discuss vulnerabilities often seems to equate them with risk (see the NRAs of Japan, Singapore, Switzerland, and the Netherlands)—another example of conceptual confusion.

A money laundering vulnerability can be caused by legal or institutional weaknesses. Most countries[24] devote a significant part of their NRA to a section describing the relevant AML regulations. An overview alone of the AML regulations in place, however, is not a vulnerability analysis; the description of weaknesses of the system is the relevant area for the vulnerability analysis. Countries such as Singapore, Switzerland, and the UK include comments on legal and institutional weaknesses in their vulnerability analysis, but for other countries, such as Japan and the US, such comments are absent. Table 2 gives a comparative overview of the main differences in vulnerability analyses.

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TABLE 2 - Vulnerability Analysis

Country	Has a section devoted to vulnerabilities?	Analyzed inherent or remaining vulnerabilities?	Described legal and institutional weaknesses?	Analyzed different sectors?
Canada	Yes	Inherent	No, not part of the inherent vulnerability	Yes
Italy	Yes	Remaining	Yes	Included some comments on differences between sectors but not the focus
Japan	Mixed with risks	Both	No	Yes
Netherlands	Only national vulnerabilities described in the introduction	Remaining	Not specifically, only a measure of the resilience of policy instruments	No
Singapore	Mixed with risks	Both	Yes, explicit institutional weaknesses per sector	Yes
Switzerland	Mixed with risks	Remaining	Yes	Yes
UK	Mixed with risks	Both	Yes	Yes
US	Mixed with risks	Remaining	No	No

UK = United Kingdom. US = United States.
Source: created by the authors of this report. This is a summarizing table, which does not show details and nuances. For instance, some countries' NRAs mention both inherent vulnerabilities and observed vulnerabilities (for example, Japan), but not necessarily with a side-by-side analysis of the inherent and observed vulnerabilities for each sector.

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22. The term *vulnerabilities* appeared three times in the Japanese NRA in 2015 and four times in 2017; *inherent risk* four times in 2015 and once in 2017 but only in lists, never as the label for any data or specific judgments.
23. The five were listed and described as follows:
    "1) Inherent Characteristics: the extent of the sector's economic significance, complexity of operating structure, integration with other sectors, and scope and accessibility of operations.
    2) Nature of Products and Services: the nature and extent of the vulnerable products and services and the volume, velocity, and frequency of client transactions associated with these products and services.
    3) Nature of the Business Relationships: the extent of transactional versus ongoing business, direct versus indirect business relationships, and exposure to high-risk clients and businesses.
    4) Geographic Reach: the exposure to high-risk jurisdictions and locations of concern.
    5) Nature of the Delivery Channels: the extent to which the delivery of products and services can be conducted with anonymity (face-to-face, non-face-to-face, use of third parties) and complexity (e.g., multiple intermediaries with few immediate controls)." (p. 31)
24. Six of the eight countries have a significant section devoted to describing AML regulations: Italy, Japan, the Netherlands, Singapore, Switzerland, and the UK. The other two, Canada and the US, describe specific AML regulations where relevant but do not have a section providing an overview.

Risk

Canada, Italy, the Netherlands, Switzerland, and the UK distinguish between inherent risk and "mitigated risk."[25] Canada's NRA describes only the inherent risks; indeed, that fact is made explicit in the title: *Assessment of Inherent Risks of Money Laundering and Terrorist Finance in Canada*. The UK produces a table that specifies (with a precise number) the amount of inherent risk and the amount of risk remaining after mitigation. The Netherlands implicitly tries to do something similar.[26] Estimating both inherent risk and mitigated risk seems useful as a way of making the effect of AML efforts explicit. Even though the FATF Guidance does not prescribe that approach, most countries in our sample effectively did so. Without more specific guidance, it is not surprising that the operationalization of these concepts diverges significantly across countries. Appendix C discusses to what extent such an analysis is useful and feasible.

The risk analysis is generally mixed with the vulnerability analysis. Risk analysis is therefore not suitable for a summary table in the manner we used for threat and vulnerability. The discussion on outputs in this section gives an overview of what the NRAs report in terms of risk rankings and to what extent the outputs inform a policy decision.

Data Sources

Canada, Italy, the Netherlands, and the UK use expert opinion as their principal source of data. Switzerland, where the financial intelligence unit (FIU) is the central institution for the NRA, mainly uses the FIU access to the SAR database. The US primarily bases its 2016 analysis on a set of 5,000 closed cases related to money laundering. Even though this is an unprecedented source of information in the field of money laundering research, the US NRA unfortunately does not produce a single table about the contents of that database; instead, it is used only as a source of vignettes. Countries often mention other sources of data, but when the rest of the report does not clarify whether and how those data sources were used, we classify the sources as minor in table 3. For example, Canada mentions that the assessment is based on "a rigorous and systematic analysis of qualitative and quantitative data and expert opinion" (p. 15), without ever making explicit which qualitative and quantitative data were used. The rest of the Canadian report lists only the results of expert elicitation, making impossible a determination of whether and which other sources were used in the assessment. Japan and Singapore are not explicit enough about their sources of data or their methodology to determine what served as the main source of data.

The data sources were inadequately described except in the Netherlands NRA, which was an outstanding exception. For example, none of the other NRAs gave the number of experts who were consulted, and only rarely were their professional qualifications listed. The quality of statistical series (for example, whether the total number of money laundering convictions covered all levels of government in federal nations, such as the US and Canada) were rarely assessed.

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T A B L E 3 - Specified Data Sources for Assessment[27]

	Expert opinion	STRs/SARs	Closed cases	Vignettes	Statistics from agencies	Literature/reports
Canada	Main					
Italy	Main	Minor	Minor	Minor	Minor	Minor
Japan	Minor			Minor	Minor	
Netherlands	Main					Minor
Singapore	Minor					
Switzerland	Minor	Main			Minor	Minor
UK	Main					
US	Minor	Minor	Main	Minor		Minor

SAR = suspicious activity report. STR = suspicious transaction report. UK = United Kingdom. US = United States.
Sources: Canada, pp. 15; Switzerland pp. 13–14: Italy methodology, pp. 5–6; Italy, pp. 30[28]; Netherlands, pp. 20–22; Singapore, pp. 2; UK, p. 10;[29] US, p. 7. Main data source is a direct, principal source of information used to assess risk or relevant risk concepts (main sources are shaded green to increase visibility). Minor data source is mentioned or shown and has been used (a) to describe context, (b) as input for expert elicitation, or (c) to support an assessment, but it is not a direct, main, explicit source to assess risk or relevant risk concepts. Because the way risks are assessed (and with which data) in Japan and Singapore is insufficiently clear, the table lists only minor sources for those two countries.

25.   Terminology on this point was inconsistent; we believe this term best captures the general notion.
26.   The concluding section of the Dutch NRA provides tables on the amount of potential risk and the resilience per risk (pp. 64–65), but whether those tables must be combined to find the residual risk remains unclear.
27.   The table gives an overview of the data sources that are specified in the NRAs as data sources. Unspecified data sources are not shown in the table. For the countries that produced two NRAs, we do not see significant differences in the use of data between the two reports and therefore present them together in this table.
28.   This is the published version, called "synthesis."
29.   "The conclusions of the assessment in this paper draw heavily on expert judgment from law enforcement agencies, supervisory authorities, and those responsible for AML/CFT within firms" (UK 2015, 10).

Only the United Kingdom gave attention to the limits of government knowledge about money laundering and the consequences of those limits. The UK NRA noted that more was known about the use of cash because that had been the focus of investigations, hence cash was probably given too much emphasis as a source of threat.[30] That circumstance surely was true for other countries as well, but we believe that only the UK acknowledged that limitation and its consequence.

Method of Analysis

Countries vary greatly in how explicitly they describe the method of analysis (see table 4). The Netherlands was most transparent about the methodology—for example, providing a full description of the scripts used in workshops with experts. Although the US NRA of 2018 had a section called methodology (p. 6), that section actually described nothing more than the terminology used in the NRA. Singapore gave no information about the method of analysis.

In a field in which strong quantitative data are hard to come by, that the knowledge of experts is relevant for all NRAs is not surprising. How that expert knowledge is collected and used in the analysis differs widely. Canada, Italy, the Netherlands, and the UK all explicitly used expert elicitation[31] as their main method of analysis. The UK and the Netherlands used a formal model for expert elicitation. The Netherlands seems to have the most advanced analytical model, with a multi-criteria decision analysis applied in two expert meetings.[32] Canada and Italy also convened experts in workshops to elicit opinions, which raises the question of what to do when experts disagree. The Dutch NRA reports the standard deviation in the answers of the experts but then just uses the simple average in drawing conclusions. In Canada, the authors of the NRA listened to the different opinions and the argumentation offered in support of those opinions; they then decided themselves which opinion to choose.[33] In Italy, the workshop participants were told that they had to reach consensus.[34] Countries that did not use expert elicitation as their main method of analysis still used expert opinion in their analysis in some way. Singapore and Japan used experts to validate the findings from other analyses. The US consulted 15 government agencies for the NRA, without making explicit what was asked and how the information was used. The UK mentioned a specific model that was used for data analysis (MoRiLE: Management of Risk in Law Enforcement), but we could not find a detailed description of that model or how it was implemented in this case.[35]

Switzerland stated that the quantitative analysis was supplemented with a qualitative analysis, without making explicit how this was done. Mixing quantitative and qualitative analysis is notoriously difficult (Creswell and Clark 2017), but the analyst can use some simple, sound practice principles, such as providing explicit statements about the relationship between findings in the two modes and which one, if either, is dominant. Those principles were not followed in any of the NRAs.

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30. "The UK's law enforcement agencies know most about cash-based money laundering. This is a result of the resources that law enforcement agencies have invested over a number of years in tackling cash-based money laundering and the drugs trade (which largely generates proceeds in the form of cash) which has long been recognized, and continues to be recognized, as posing a high money laundering risk." UK, 2015, p4
31. Expert elicitation is a structured approach to systematically consult experts on uncertain issues (Knol et al. 2010).
32. *Multi-criteria decision analysis* "is a method used to facilitate the most rational choice possible from a range of potential policy decisions or other decisions. MCA gives both structure and transparency to complex decision-making processes, allowing the MCA method itself to be developed and fine-tuned. If new information becomes available on the elements in the method, such as the criteria, the method can be adapted accordingly." (Netherlands NRA 2017, pp. 24–25). One disadvantage of the MCA applied in the NRA is the reliance on expert judgments that are themselves inherently subjective and are expressed in the scores used for the MCA calculations.
33. This method has not been made explicit in the NRA. The source for this information is an interview on April 1, 2019, by Joras Ferwerda with three Canadian government officials responsible for the ongoing risk assessment.
34. One hypothetical advantage of requiring consensus is that the group ultimately defers to its most knowledgeable member. Assuming that such expertise will dominate, however, or that a measure of expertise exists to determine who ought to be the highest authority is too optimistic. Considerable evidence exists that face-to-face interaction between group members can create destructive pressures of various sorts, such as domination by particular individuals for reasons of status or personality unrelated to their capability as probability assessors (Myers and Lamm 1975). Seaver (1978) conducted a series of experiments with 10 four-person groups and concluded that simple aggregation of opinions without interaction produces the best results. He also noted that experts have more faith in assessments with face-to-face interaction, which might be important in persuading them to accept the results.
35. We not only conducted a web search for MoRiLE but also asked UK NRA staff for the details; neither effort was successful.

T A B L E 4 - Method of Analysis

	Expert opinion
Canada	**Expert elicitation.** Experts informed with basic facts and figures for 22 crimes and 27 products/sectors. Experts rated the characteristics to generate threat and vulnerability ratings in a workshop. Criteria for ranking made explicit; no specification of how the data were analyzed.
Italy	**Expert elicitation.** Experts informed with basic facts and figures for two amplifiers (cash and shadow economy), nine crime categories and structural risks, and preventive safeguards in 20 sectors. Experts discussed in a workshop until consensus reached about rating.
Japan	Many statistics show **no analysis conducted.** Expert validation of findings.
Netherlands	**Expert elicitation** with multi-criteria decision analysis. E-mail survey to select 10 main threats, followed by two workshops with experts. Full description of workshop scripts. Validation with interviews.
Singapore	**Method of analysis not made explicit.** Expert validation.
Switzerland	**Analysis of database** of SARs with explicit formula. This quantitative analysis was supplemented with a qualitative analysis of all relevant information in an unspecified manner.
UK	**Expert elicitation** on nine sectors and three products. Explicit formulation of some factors considered for assessment. Lack of expert knowledge of money laundering through a sector as indicator of vulnerability. Explicit chains of logic to explain some scores.
US	**Database** with closed cases and 15 government agencies. No further specification on method of analysis.

SAR = suspicious activity report.
Note: This table was created by the authors of this report to provide a succinct overview of the methods; some less relevant details are necessarily omitted. The full descriptions can be found in the NRAs.
Sources: The NRAs of the countries, mostly—but not exclusively—the methodology sections: Canada, pp. 15–17 and interview; Italy, methodology report pp. 5–7 and interview; Netherlands, pp. 17–28, appendix 4, and interview; Switzerland, pp. 13–14 and interview; UK 2015 pp. 9–11 and interview; US, pp. 6–9.

Outputs

The goal of the NRA is to inform governments about the distribution of risk across sectors, products, transactions, or some other dimensions among which AML effort might be distributed so as to permit the effective implementation of the risk-based approach.[36] As noted previously, "In the cases of higher and lower risk determination, country-level risk assessments have very specific roles: Where countries identify higher risks, they should ensure that their AML/CFT regime addresses these risks. Where countries identify lower risks, they may decide to allow simplified measures to be applied in relation to some of the FATF Recommendations" (FATF 2013a, 6).

The most explicit statement of that goal is in the UK NRA: the goal is to assist "the government, LEAs [law enforcement agencies], supervisors, and the private sector in targeting their resources at the areas of higher risk, ensuring that the UK's approach … is risk-based and proportionate" (p. 4). A set of risk rankings in some dimension thus seems reasonable to expect.

As shown in table 5, most countries provide that risk ranking; Singapore and the United States do not. Canada, Italy, and Switzerland provide "heat maps" showing the distribution of threats and vulnerabilities across sectors, which enables identification of sectors by overall risk. Figure 1 is an example from the NRA of Switzerland (banking sector) to illustrate this technique: the deeper the shade, the higher the risk.

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36. One expert noted that distinguishing between conducting an NRA and publishing an NRA is useful. He suggested that the purpose of publishing, as opposed to conducting, an NRA was to inform the private sector. It may also provide some assurance to the general public that the government is competently controlling money laundering.

F I G U R E   1 - Money Laundering Risks for Universal Banks, Private Banking, and Retail Banks in Switzerland
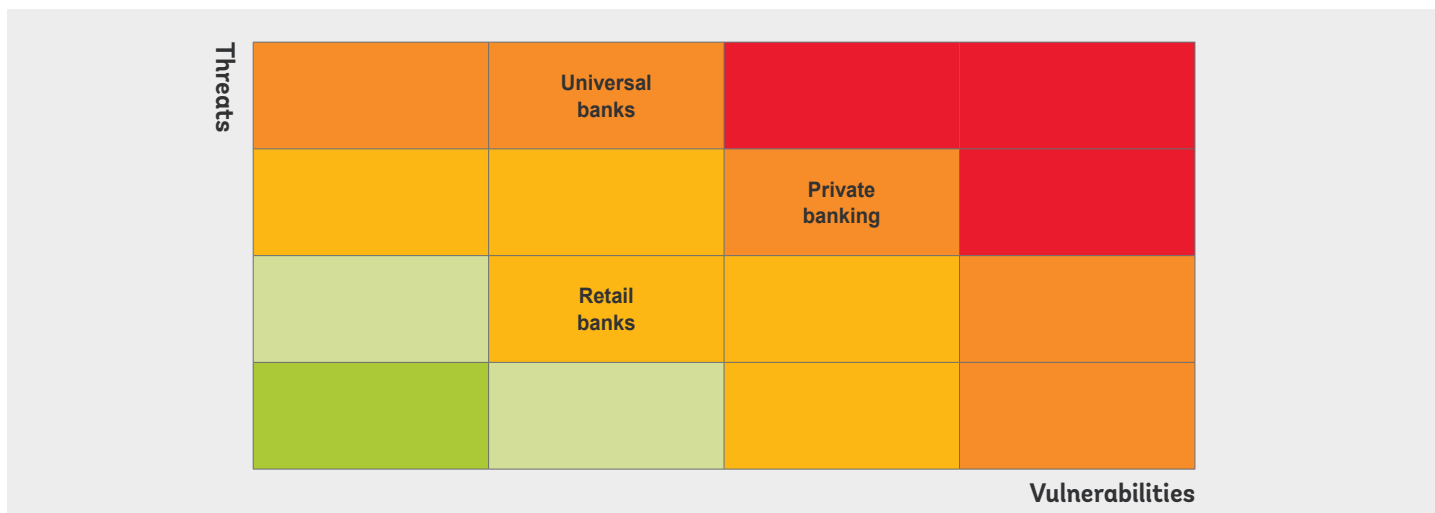
Source: NRA Switzerland (2015, p. 68).

The relatively high threat to "universal banks" in Switzerland is associated with low vulnerability, so it is no riskier than private banking, whose vulnerability is greater but whose threat is smaller. No sector was associated with both high threat and high vulnerability. None of the NRAs were explicit as to what constitutes "high risk."

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T A B L E   5 - Outputs of the NRAs

	Risk rating or ranking	Informed policy decision in the NRA?
Canada	Yes, 198 risk ratings, one for each combination of 9 crime categories and 22 sectors/products	Yes, risk ratings per sector can be used to decide sectoral AML efforts; no recommendations specified
Italy	No risk rating or ranking; synthesized (combined) rating for all threats, but none for vulnerabilities	Yes, a detailed overview of priority of actions for each of the 20 sectors; identified which of four specific action types might be appropriate
Japan	No risk rating or ranking, but a list of transactions that are considered low risk	No
Netherlands	Yes, risk and risk mitigation ratings for the 10 most important methods/channels	No
Singapore	No risk rating or ranking, but a list of more vulnerable sectors	Yes, next steps per sector and what to study further (virtual currencies, precious stones and metals dealers, and freeports
Switzerland	Yes, risk ratings for 18 sectors	Yes, with 8 specific recommendations
UK	Yes, structural risk rating and risk rating after mitigation for 9 sectors and 3 methods of payment	Yes, but mostly on knowledge gaps
US	No risk rating or ranking—only a list of laundering methods that remain relatively difficult to catch	No, positive statements about mitigation ability without informing the policy decision*

* The conclusion of the US NRA is that the US is "generally successful in minimizing money laundering risks. Although criminals respond …, the underlying vulnerabilities remain largely the same" (p. 86).
Source: created by the authors of this report
Risk rating or ranking: Canada, pp. 44–65; Italy, p. 31; Netherlands, pp. 9–11; Switzerland, p. 5; UK 2015, p. 12. Information for policy decision: Italy, pp. 31–32; Singapore, pp. 41–83; UK 2015, p. 6; US, p. 4. Cells shaded green indicate "yes" answers.

How Strong Are the NRAs?

The 11 NRAs by eight systemically important countries provide a useful picture of the state of the art for money laundering risk assessments by governments around the world. We note again the great variety of ways in which the eight went about the task. The FATF had indicated in its Guidance document that it was not prescribing the process, so this variety is hardly surprising. Indeed, the possibility of different approaches being tried is arguably a strength, given the lack of established models for risk assessment in money laundering. This section presents our conclusions from the study of the NRAs as a group before we suggest how the exercise could be improved.

We begin with an important and useful negative lesson. Although all NRAs devoted considerable space to discussing predicate crimes and their importance in terms of generating proceeds of crime, the assessments played a minor or no role in the recommendations or policy analysis section of the NRA. This outcome is consistent with the analytic framework that has informed our approach, in which the nature of the predicate crime that generates money for laundering is largely irrelevant for the purposes of risk assessment. Even for enforcement agencies, the value of knowing the distribution of money laundering volumes across predicate crimes is difficult to see. Their allocation of anti-money laundering effort should be determined by the social costs of crime—a very different concept from the proceeds of crime—and the utility of AML in reducing those crimes. If AML is useful for solving homicides, that should get considerable attention, even if fraud generates more criminal revenue. The utility of AML for reducing crime is also good news because no country has strong measures of the proceeds of crime, and most countries lack any estimates at all.[37]

Each NRA captured some of the required elements. Even those we assessed as quite weak offered something different and useful. For example, the US NRA, which produced no sector risk rankings and a dearth of data, provided insights by identifying relevant money laundering methods. The Singapore NRA showed that little evidence of substantial laundering of domestic crime proceeds exists.

None of the NRAs provided a well-founded and comprehensive risk assessment, however. The published NRAs suffer from fundamental problems, which we divide into conceptual framework, sources of data and methods of analysis, and the utility of the outputs.

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37. For example, the Canadian mutual evaluation refers to Proceeds of Crime estimates of $47 billion and RCMP estimates of Money Laundering of $5 billion–$15 billion—figures that are hard to reconcile. An unpublished 2013 IMF study examined Proceeds of Crime estimates for 35 jurisdictions encompassing about one-third of global GDP. The IMF sought estimates for 24 different crimes; for 10 of those 24 crimes, fewer than one-half of the countries had estimates.

Conceptual Analysis

We identify four major flaws in the conceptualization:

1. Concepts are lacking clear operationalization. Most NRAs simply repeat the FATF Guidance definitions but then do not say how, for example, threats might be measured; they simply list a series of offenses. The Canadian NRA comes closest to operationalizing threat by providing a long list of potential indicators for crime types (proceeds of crime is last).[38] Vulnerability is operationalized in a confusing fashion. The section of the NRA that is supposed to discuss vulnerabilities often seems to equate them with risk (see the NRAs of Japan, the Netherlands, Singapore, and Switzerland). Only the NRAs of Canada, Italy, the Netherlands, Switzerland, and the UK reference "inherent" or "structural" risk that is associated with the nature of the sector or service. Banks are inherently attractive because they permit rapid transactions with many other institutions, scattered around the world, and allow easy access to assets, which means they are likely to face a serious threat. Countries such as Singapore, Switzerland, and the UK include comments on legal and institutional weaknesses in their vulnerability analysis, but for countries such as Japan and the US, such comments are absent.

2. Many risk assessments operationalize threats and vulnerabilities at different levels. Threats are national aggregates, and vulnerabilities are sectoral. For example, Italy provides an innovative analysis of the threat posed by the use of cash and by the presence of organized crime (including by region) but then conducts an analysis of vulnerabilities for a very fine-grained set of 18 sectors. Canada appears as the sole exception; its NRA ties threat and product or sector together—that is, it assesses the risk that each kind of financial institution or DNFBP has for each of 21 crimes. The basis upon which Canada makes its assessments, however, is mysterious, and the results show an inexplicable constancy of threat severity across sectors, indicating that the ranking of threats from different crimes is the same for all sectors; that circumstance is implausible and needs explanation.

3. Risk assessments are designed to inform decisions, as the FATF Guidance notes. An early task, then, is to identify the decision makers and frame the analysis to help them. If banks have a specialized regulatory authority, then the assessment should consider risk in the banking sector specifically. By creating a sector category described as "financial institutions, particularly banks," the Dutch NRA informs no specific decision maker because the category includes a variety of sectors—such as insurance companies—that have their own regulators.[39] Another example from the Dutch NRA is the analysis of "money laundering via fiscally driven/complex corporate structures." Which decision maker can use the results of such analysis? Similarly, the United States, by just highlighting the methods to which the system is most vulnerable, provides at best modest guidance to regulators or even law enforcement. By not specifying which sectors are vulnerable to the different methods, the NRA left US regulatory authorities in the dark regarding whether the identified risks are relevant in their field.

4. Terminological confusion exacerbates and signals the problem. *Risk* is used in variable ways within the same NRA, so knowing what is being measured is simply impossible. For example, the NRA of the Netherlands starts with stating that risks are a function of threats, vulnerabilities, and consequences, just as in the FATF methodology, but later, the top 10 threats are called "risks" without consideration of the vulnerability and consequence level of those threats. The Swiss NRA contains a table (on p. 45) in which "threat" is on both the horizontal and vertical axes under different rubrics, rendering the cell entries meaningless.[40] There is little understanding of the ambiguity of some indicators. For example, some NRAs (such as, the Japan NRA) interpret the characteristics of closed cases as providing evidence of patterns of money laundering, whereas others (such as the UK NRA) interpret them as indicative of the pattern of enforcement. In fact, closed cases reflect both patterns of money laundering and what enforcement agencies choose to investigate; it is a major analytic undertaking to separate the two effects.[41] Closed cases provide useful information, such as the kinds of money laundering associated with a particular kind of offense. For a risk-based approach, the underlying patterns of risk must be identified; closed cases do not provide the basis for that information.

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38. The Canadian NRA cites "the extent of the threat actors' knowledge, skills, and expertise to conduct money laundering; the extent of the threat actors' network, resources, and overall capability to conduct money laundering; the scope and complexity of the ML activity; and the magnitude of the proceeds of crime being generated annually from the criminal activity" (p. 16).
39. No attempt was made to determine whether the threats and vulnerabilities are similar for each of the categories in this sector category.
40. The Swiss NRA states that "the threats associated with bribery and participation in a criminal organisation expose the Swiss financial sector to greater vulnerability because of the larger sums of money involved and more significant potential consequences in terms of reputation both institutionally and systemically."
41. Many researchers have devoted considerable effort to just this endeavor for crime generally; see, for example, Black (1970), Tonry (2016), and van Dijk and Tseloni (2012).

Data Sources

Most NRAs relied on just one or two data sources. At an extreme, the Dutch NRA made use only of expert opinion; it presented no data of any other kind. Switzerland's NRA relied almost entirely on SARs, with expert opinion used only to test the plausibility of the findings from the SAR analysis. Japan showed a wide array of data on every aspect of enforcement, with minimal reference to expert opinion. Italy made use of the greatest variety of data sources, although expert opinion ultimately determined the assessments with the other data sources as inputs for the discussion.

The quality of the data sources was never systematically assessed but taken at face value; indeed, it was rarely described. No effort was made to triangulate so as to test the plausibility of conclusions from one source with data from another source. For example, if retail banks are the principal source of SARs and hence seem to be the channel for most money laundering, does expert opinion support that assertion? Does scientific (data) research find a similar pattern of money laundering? Is that finding in line with the insights from intelligence reports of investigative authorities? If those findings differ, what could explain the differences?

Outputs

As shown in table 4, the outputs of the NRA reveal great variation. Some countries (such as the Netherlands and the UK) provided detailed rankings of the risk associated with sectors and products. Uniquely, Italy went even further and identified which of four different methods could be used to improve the effectiveness of AML in a specific sector. At the other extreme, the US provided no relative risk measures, even of the vaguest kind, but only the reassurance that the system was robust—hardly consistent with the evidence from its own investigations or the results of numerous investigations, such as those of Global Witness (2016) and Sharman (2010). The FATF Methodology provides no guidance on this issue, a matter we take up later.

Some countries went beyond relative risk statements and provided risk classifications—that is, some sectors were described as high risk and others as low or moderate risk. No evidence indicates standardization of those labels across countries, so Canada's alarming 16 out of 27 sectors or products being labeled high risk—suggesting a system that is highly exposed[42]—cannot be compared with the UK finding that only 3 out of 12 should be labeled high risk. Terms such as *high risk* and *low risk* are not as helpful as they could be unless countries agree on their definitions.

That fact also raises a question of interpretation. The Swiss NRA correctly notes that money laundering risk cannot be eliminated; however, a fair question is whether a system in which six separate classes of institutions are classified as high risk is consistent with the claim that "Switzerland has a full, coordinated and effective range of legal and institutional resources for combating money laundering and terrorist financing" (Swiss NRA, p. 4). Perhaps the US claim to a "robust" system is simply a different national tolerance for money laundering risk.

Analysis

Discussing the analytic methods for most of the NRAs is hard because they were not described. Some NRAs did nothing more than present numbers; that statement seems to be true of the NRAs for Japan, Singapore, and the United States. For example, Japan presented numerous tables describing criminal justice processing of various kinds of cases; the relationship of those data to money laundering risks was never explained. The UK stated that it used a model developed by law enforcement agencies that cannot be found in open-source form, so no one can assess its credibility for the purpose. The Dutch explained their method in detail, but that method has internal inconsistencies[43] that make it of little value for risk assessment.

Finally, as already noted, the description of methodologies mostly varies from nonexistent (Singapore) to very thin (the US) except in the Netherlands and Switzerland NRAs. Progress both for successive NRAs in a given country and for the field as a whole is dependent on better documentation of methods and procedures. Our interviews with participants in second-round NRA efforts gave the strong impression that documentation was inadequate even within the agency files.[44]

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42. The Canadian finding is perhaps less alarming if one remembers that this categorization is based on "inherent risk" rather than "mitigated risk"; the latter was never published.
43. To give an example, experts were told, "What we ask is that you select the ten threats that you believe represent the greatest potential impact." That is a complex question that should have been split into at least two components: the probability of a laundered dollar going through a specific channel or method and then the impact. The latter, after all, was then assessed through the multi-criteria analysis (MCA) that followed. In effect, the experts were asked to do the MCA implicitly and then, having done so, to apply it explicitly to the "risks" that already had it built in. At various points (for example, p. 48), it is difficult to tell whether experts were being asked just about the frequency with which a channel or method was used or the amount of money that was flowing through that channel or method.
44. For example, when specific methodological questions were posed to the Canadian team responsible for the second NRA, they admitted that they did not know exactly how the first NRA was conducted because they had not been involved in the first NRA, and the colleagues who had been involved had left the department.

The experience of reviewing 11 published National Risk Assessments from leading nations is troubling. They lack conceptual clarity, the data are highly limited, most are analytically weak or fail to explain the methodology, and the whole goal of the NRA—to inform policy decisions—is often missed or at least not made explicit in the published version. Several reasons may help explain why these NRAs do not seem to meet their stated objective. The most fundamental explanation is simply that the NRAs are not strong because nations have been asked to undertake a task that has never been done well before. Conducting an NRA may also be seen as just a box-checking exercise to meet international standards, leading to a lack of motivation to do anything more than the internationally accepted bare minimum. The narrow and relatively closed world of AML—and thus the lack of general risk assessment experts—may be another reason. Appendix D speculates in more detail on why the current NRAs are not stronger.

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Path Forward

We offer here a set of suggestions about a tighter and more explicit conceptual framework and the kinds of data and analytic methods that offer prospects of improving the quality of NRAs. These recommendations are not detailed but arise from our study of the limitations of the eight NRAs and are intended primarily to stimulate discussion. The concluding section of this report presents three specific recommendations.

Risk Assessment Lessons from Other Fields

As we argue here and in a preceding article (Ferwerda and Reuter 2019), the FATF Guidance for risk assessment (2013a), in particular its conceptual inconsistencies, has created problems. As a result, countries have adopted a variety of conceptual frameworks, at times inconsistently. The different focus that countries apply leads to risk assessments that do not provide the needed understanding of risks.

A central formula used in the more general literature on conducting a risk assessment (see, for example, Rausand 2013) is Risk = Probability of Hazard x Consequences. Consequences are measured in money units (for example, dollars), and Probability is a percentage, so the Risk is measured in dollars. This means that risk is not a percentage but a dollar value, which might feel inconsistent with the more common language usage of the term *risk*. We suggest that threat and vulnerability together define the probability of the Hazard for money laundering (as is suggested for terrorism risk assessment as well; Willis et al. 2005).

Money laundering is not a one-time event or one that happens only occasionally, such as a flood, a nuclear power accident, a terrorist attack, or a virus outbreak. Because money laundering occurs more or less frequently, we should not focus on the probability but on the frequency of its occurrence. A year would be an intuitive time period for money laundering calculations (in line with Rausand 2013, 40). Applying the more general literature on risk assessments to money laundering, the risk is the frequency that money laundering events occur multiplied by the consequences for the society as a whole each time money laundering occurs.

Although the FATF Guidance (2013a) refers to a list of 25 possible adverse consequences of money laundering mentioned in the literature, empirical support for those consequences is missing (Ferwerda 2013). None of those consequences have been reliably estimated—indeed,

almost none have been examined empirically at all; thus, the analysis needs to be simplified. The FATF quite sensibly suggests that NRAs may ignore consequences, but what would then happen to the conceptual framework? It would mean that the formula Risk = Frequency x Consequences would be simplified to Risk = Frequency (in line with Savona and Riccardi 2017, 27–31). Leaving out the consequences changes the unit of measurement of risk. Risk is typically a dollar value (basically, the expected value of the consequences measured in dollars); if we ignore consequences, then risk would be measured as a number without dimensions.

For the conceptual framework to work and to have the right unit of measurement, the consequences of money laundering cannot be ignored. We therefore suggest the following simplification: assume that consequences scale with the amount of money laundered in a transaction. If more dollars are laundered, we expect that the consequences are greater.

Measuring risk with a direct dollar value (a money laundering estimation) and no probability might seem strange and unconventional; however, this convention is also used in other fields in which risk assessments are more established. For example in preparing a guideline for engineers, Hara (2002 page 1) states, "The most appropriate definition of risk is the expectation of loss because it is necessary to be a dimensional value for comparison. Two components of risk are severity and probability of occurrence. Severity is the amount of loss measured in units of value. The probability, which should be defined as the degree of belief, has no dimension. Accordingly risk has also a dimension of value and should be measured in units of value."

We suggest a conceptual framework in which Risk = Frequency of money laundering events x Amount of dollars laundered per event. Risk then is simply the total amount of money laundered in each specific sector or product being assessed. This calculation can be done at any level of disaggregation. The level of disaggregation should be chosen on the basis of the policy decision that is to be informed. For example, the FATF seems to suggest that knowing the risk level in each sector determines in which sectors to intensify AML efforts; hence, one should estimate the amount of money laundered per sector. A bank should aim to estimate how much is laundered through its different services and products to determine which to scrutinize more intensely. Supervisors should aim to estimate the amount of money laundering per institution they supervise to know which institutions to monitor more closely (that is, risk-based supervision).

Estimating the amount of money laundering is difficult to do in practice, but by defining money laundering risk this way,

one can at least be clear about what is to be analyzed and what could be relevant risk factors: factors that increase the amount of money laundering. These factors could be related to threat—more predicate crimes or factors that make predicate crimes more profitable—or they could be factors related to vulnerability—legal loopholes, unsupervised sectors, weak borders, and so forth. Our suggested framework therefore does not contradict the concepts put forward by the FATF (2013a) but tries to use them in such a way that the goal and operationalization are focused and can contribute to the stated goal of a risk assessment: to inform relevant policy decisions. Such estimates can be used for what we can call the bare minimum: decisions about the distribution of risks across sectors, but such risk estimates can also be aggregated across other dimensions to make decisions about, for example, risks across different predicate crimes, different financial products, and different regions.

The Problem of Endogeneity

The FATF approach assumes money laundering threat and vulnerability of any one sector as independently determined because the approach suggests that high-risk sectors (classes of institutions or products) should be subject to greater scrutiny and low-risk sectors to less. That assumption creates a potentially important problem because sector risks are likely to be linked. Further, FATF Guidance on risk assessment has been understood as a static relationship between threats and vulnerabilities, whereas a dynamic approach (over time) is essential.

Drawing an analogy to a risk assessment for flooding shows the problem of that assumption. Under some conditions, threat and vulnerability are indeed independent of each other. New Orleans faces a high probability of flooding, which requires the city to invest heavily in, for example, levees to mitigate that inherent risk. Washington, DC, faces a very slight probability of flooding, so it invests little in flood mitigation; thus, Washington, DC, is more vulnerable to a flood, contingent on such an event occurring. That is still an optimal allocation. Greater vulnerability does not lead to more floods, and the New Orleans decision does not affect the Washington, DC, threat.

For money laundering, however, the threat is not exogenous per se (that is, determined independently of vulnerability), as it is in the previous floods examples, nor are sectors independent of each other in that respect. Money laundering threats to an individual sector are influenced by vulnerabilities of that sector relative to that of others. With a lag, money

launderers can shift their business away from a given sector if other sectors become increasingly vulnerable, *ceteris paribus*. A sector with weak AML controls may face little threat if other, more vulnerable sectors exist in the same country. Increasing the stringency of controls on one sector may raise the threat in other sectors. Foreseeing which sectors will have higher threat and how much higher are both major challenges for dynamic risk management. The value of the NRA exercise would be significantly increased if those dynamics were better recognized and became part of risk management.

The relevant floods analogy is New Orleans and its neighbors. The threat of flooding to New Orleans may increase if neighboring communities strengthen their levies and the flooding is displaced downstream. If the measure of damage is community specific, then the stronger levees in Jefferson, Louisiana, reduce flooding damage for that city. If the measure includes all the communities that are affected by the stronger levees, the result may be negative, as the New Orleans problem is worsened.

The same holds for increasing sector-specific money laundering controls; if banks are made less risky, then more money may be laundered through currency exchange operations. Willis et al. (2005, 52) and the National Research Council (2010, 66) signal similar endogeneity issues when the risk concepts of threat and vulnerability are applied to terrorism risk assessments. Cox (2008, 1752–3) shows with some simple examples how significant the bias can be when correlations between risk factors are ignored.

One fundamental challenge from this approach is that FATF risk assessments are focused on criminals laundering their proceeds locally. The approach to risk assessment in countries that mainly deal with foreign illegal investments or dirty money just flowing through must be different (Ferwerda et al. 2020). The FATF Guidance is not clear about whether to assess imported and exported money laundering risks.[45] Switzerland may find its money laundering threat increases if Luxembourg reduces the overall vulnerability of its AML system. For NRAs—which, despite the name, assess just relative risks at sector level, not the risk of the country as a whole—that threat may be only a peripheral consideration. At present, NRAs consider only money laundering that occurs within the country; thus, it includes the threat from other countries in terms of money flowing in for laundering but ignores money flowing out of the country for laundering elsewhere. An understanding of the different types of money laundering flows is important to adapt enforcement strategies.

The goal of national risk assessment is to assess relative risks within the country, not differences in risk across countries. Discussions with AML officials indicate that the FATF did not want to facilitate cross-national comparisons—the creation of a league table. Unsurprisingly, the demand for cross-national comparisons has generated its own supply. Since 2014, the Basel Institute on Governance has published an annual AML index, which gives an absolute score and a rank on the effectiveness of AML efforts for each of 146 countries.[46] Although the index seems to have only moderate use for scholarly purposes, one reviewer observed that "Representatives of some Wolfsberg Group members confirmed that they were using it."

Audiences for the Published National Risk Assessments

Because risk assessments are produced to inform decisions, the first task is to identify the decisions and decision makers involved. The FATF correctly identifies two distinct policy audiences for NRAs—regulators and investigative agencies (FATF 2013a, 8)—each with its own responsibilities. By adopting the FATF framework of threat and vulnerability, one can see that the two audiences have distinct responsibilities.

(1) Regulatory authorities aim to reduce vulnerability by improving prevention, detection, and sanctioning within the financial system. What they cannot do is directly affect the volume and revenues of predicate crimes; that goal can only be accomplished through feedbacks that are weak and uncertain, from increased difficulty of money laundering to incentives for committing crime. Regulators do not articulate priorities for the kinds of predicate crimes they are most interested in detecting, and in this sense, every laundered euro is the same to them. The same would apply to a third audience of a published NRA: the private sector with anti-money laundering duties. Suspected money laundering transactions need to be

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45. Countries should care about the money laundering risks they export, but if those risks do not materialize in the country, they might not have to be included in a national risk assessment.

46. "The Basel AML Index measures the risk of money laundering and terrorist financing of countries based on publicly available sources. A total of 14 indicators that deal with AML/CFT regulations, corruption, financial standards, political disclosure, and rule of law are aggregated into one overall risk score. By combining these various data sources, the overall risk score represents a holistic assessment addressing structural as well as functional elements in the AML/CFT framework. As there are no quantitative data available, the Basel AML Index does not measure the actual existence of money laundering activity or amount of illicit financial money within a country but is designed to indicate the risk level, i.e. the vulnerabilities of money laundering and terrorist financing within a country" (https://index.baselgovernance.org). The NRA is not yet part of the index, perhaps because it is available for a relatively small number of countries.

reported irrespective of the possible predicate crimes that generated the money.

(2) By contrast, investigative agencies such as the police or tax inspectors aim to reduce the threat. Their goal is to reduce predicate crimes; AML is one of the tools they use for that purpose. By lowering predicate crime, they reduce the proceeds of crime that generate money for laundering. They lack the tools to reduce the vulnerability of specific sectors of the financial system.[47] Investigative authorities have a priority list of which proceeds of crime they would prefer most to reduce due to differences in the severity of the harms that specific crimes inflict on society or for other reasons. For those authorities, some contaminated dollars are more equal than others; they might make refined judgments even within sectors, for example, that the dollar from a major fraudster is more valuable to detect and prevent than the dollar from a small-scale fraudster.

One operationally significant implication of identifying the two perspectives, regulatory and investigative, bears on expert opinion, the most important data source for NRAs. Experts from those two groups have to be separated when asked these kinds of questions about sectoral risk. Regulators and enforcement agents will naturally have a different focus and therefore interpret concepts (such as threat and risk) differently. When asked which sector is most risky, representatives of an investigative agency focused on drugs might say "banks" because they see drug criminals depositing cash at banks. Regulatory experts, such as FIU employees, might say "lawyers" because they see that lawyers do not report as frequently as other groups with reporting responsibilities. The most important distinction is thus on the denominator that colors the view of the expert. Enforcement agents see all the crimes (as this is their job, after all) and how they are dispersed, whereas regulators see all operations within the sector they oversee, with instances of bad behavior among those operations. Those differences in experts framing must be considered in expert opinion elicitation exercises.

Data Sources

Credible NRAs will require the use of multiple sources of data. Our suggestions here are intended to be practical in the sense

that they do not involve large-scale novel data collection or untested methods, yet they represent a different and demanding approach to the risk assessment exercise. Our proposals also emphasize transparency about data collection and methodology even if not about the data themselves; AML risk assessment will improve only with more sharing of how the NRAs are done and discussion of the strengths and weaknesses of the different approaches.

TRANSACTIONS, not suspicious transactions, must be a starting point for creating risk profiles. The focus on analyzing patterns in suspicious activity reports or suspicious transaction reports—reflected in the Japanese, Singaporean, and Swiss NRAs—starts at the wrong point. The issue is not what common characteristics of SARs are but how SARs differ from other transactions. For example, if 50 percent of Canadian SARs come from the US, that does not of itself make the US a high-risk country; if 75 percent of all transactions are from the US, then the 50 percent of SARs indicates that this is a low-risk country. A sample of transactions for a regulated sector could be created and the characteristics of SARs compared with the characteristics of the total population of transactions.

MYSTERY SHOPPING. In a landmark 2011 study, the World Bank undertook a set of "mystery shopping" exercises (van der Does de Willebois et al. 2011). A sample of Trust Service Providers (TSPs) in a number of countries were approached by e-mail to set up a shell corporation. The pattern of responses in terms of willingness to breach basic AML protections, such as requiring proof of beneficial ownership and authentic identification documents, was very revealing. TSPs in the US and the UK were much more willing to violate the rules than were TSPs in notorious secrecy jurisdictions such as the British Virgin Islands and the Bahamas. This approach has been used in other studies of other intermediaries (see, for example, Findley, Nielson, and Sharman 2013 and 2021) and less formally by AML consultants—for example, by attempting to make suspicious-looking deposits at banks and finding out whether it leads to the filing of an SAR. [48]

Those efforts suggest a plausible method for testing the credibility of claims to have an effective AML system for a particular sector or product. The method's breadth and depth should not be overstated, but as the methodology is developed through further testing, it may help estimate the probability of detection of money laundering at various points in the system.

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47. In principle, a focus on specific financial sectors by investigative agencies might increase the perceived risk associated with the laundering of that sector. For example, if fraud investigative units put more emphasis on using SARs from international transfers to target potential offenders, that scrutiny might make such transfers less attractive to fraudsters. We assess this outcome as a second-order effect compared with direct regulation of that class of transactions.
48. This method was described by John Chevis at the following two conferences: 36th Cambridge International Symposium on Economic Crime, Plenary Workshop 10: AML National Risk Assessments—The Way Forward, Cambridge, UK, September 2–9, 2018; and 4th International Conference on Governance, Crime and Justice Statistics, organized by UNODC for the Sustainable Development Goals, Lima, Peru, June 4–6, 2018.

ELICITING EXPERT OPINION. Expert opinion will undoubtedly remain an important source of data, even if new data sources are developed; however, a specific method is available for obtaining relevant, comprehensive, and unbiased data under the general rubric of "eliciting expert opinion." This method involves painstaking preparation of the instruments for asking questions, techniques for establishing the competence of experts, methods for reconciling results, and learning from differences in opinions (Morgan 2014). This report is not the place to describe those techniques in detail, but we offer a broad rationale for their development and one example of the kind of exercise that is used to validate experts' competence.

Tversky and Kahneman (1974) describe and model human heuristics and biases in estimating probabilities. Many studies after that seminal publication have shown (similar) biases but also provide lessons on how to improve the results of expert elicitation across disciplines such as psychology, decision and management science, computing, forecasting, and statistics (Kynn 2008). To give some examples, Bolger and Wright (1994) emphasize the importance of having experts questioned within their expertise and experience in a familiar metric, that they must understand the tasks being asked of them, and that they must be expert. Finding the right expert is critical. Shanteau (1992) expands on this issue, describing the different thinking and problem-solving patterns in experts, which novices (even graduate students with several years of experience) may not have yet acquired (Kynn 2008, 259).

Learning from the diversity of opinion among experts is important, as is the expert's confidence in his or her judgment, when consulting experts for their opinion (Morgan 2014). None of the eight countries explicitly referred to how confident experts were except the Netherlands in a follow-up NRA exercise that was done for the overseas part of the kingdom (van der Veen and Heuts 2018). The lack of attention to uncertainty is "a chronic disease of planners" (Quade 1975). It is especially important when experts from very different government organizations and private entities are brought together to determine risk ratings for a large variety of crimes and sectors because each of them is expert on only some of the sectors and modes of money laundering about which

their opinion is being sought. "Differences in response may result from different paradigms by which the experts view the world and the data. This often is true when the experts come from different disciplinary backgrounds" (EPA 2012 page 89). For example, how knowledgeable is a customs official when asked about the money laundering risks for casinos?

To establish consistency, researchers might offer experts a series of pairwise comparisons; consider the following example. A money launderer tries to launder US$20,000 through a bank and US$20,000 through a casino. Where do you think it is more likely the money laundering is detected, at the bank or the casino? Then compare a bank and a real estate transaction, then a real estate and a casino transaction. Failure to pass a transitive consistency test throws doubt on the individual expert.[49]

MONEY LAUNDERING CASES. Some NRAs include vignettes of specific detected money laundering transactions. To our knowledge, no country has created a database of proven money laundering transactions to determine what can be learned about threats and vulnerabilities.[50] A useful model can be found in the work of Edward Kleemans in the Netherlands, who has created databases on organized crime cases that have proven valuable in providing insights about careers in organized crime, contrasting them with careers in property and violent crime (Kleemans and de Poot 2008; Kleemans and van Koppen 2020). By examining a body of cases in the specific country, one can learn, for example, what kinds of institutions and products have been used by money launderers or whether specific locations are more vulnerable. The World Bank has just begun an effort to encourage countries who use its NRA tool to build such a database.[51] Creation of such databases is a long-term effort that should be started now but will yield useful insights only after a few years.[52]

Surely still other data sources can be tapped, such as investigative reports by media. Our message is less that any specific set of sources will be sufficient than that multiple sources will be needed and attention has to be given to their systematic integration.

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49. The World Bank NRA workshops also have an elevator pitch exercise, in which the experts are invited to market their country as a good destination for money laundering and guide a criminal about the best methods and sectors to launder his or her money without being detected. This exercise practically asks the experts to put themselves into criminals' shoes. This exercise has proven very useful and many times yielded more meaningful and realistic conclusions than filling the Excel templates of the World Bank tool.
50. The US 2015 NRA refers to such a database, but in the published NRA, this database is never analyzed or used for any purpose other than providing vignettes.
51. The database methodology can be found at Proceeds of Crimes Data Collection Tool: http://pubdocs.worldbank.org/en/422681580318460585/POC-Update-04.pdf.
52. A commercial site, amlpenalties.com, offers a database on cases that led to penalties. We cannot assess its provenance, accuracy, or comprehensiveness.

Analytic Methods

The data do not speak for themselves. Explicit multiple methodologies are needed to relate the data to the estimated risks; no single methodology will allow synthesis of the very varied data that should be used.

An intuitive start for a vulnerability assessment is to assess the strength of the policy framework with critical path analysis. The chain is only as strong as the weakest link. An example of consequential steps in the field of anti-money laundering policy is from investigation via prosecution to conviction. The investigation and prosecution may be successful but are useless when the convictions are hampered by incompetent or corrupt judges. Analyzing where the bottleneck is in such systems is a good start for a vulnerability assessment. Other examples of such chains in the field of AML policy are (a) detection of money laundering by banks, which can be rendered useless if the FIU is unable to do its part in processing STRs; or (b) monitoring of customers by banks, which may be hampered by an unreliable identification infrastructure in a country. The World Bank Tool for National Risk Assessments for money laundering and terrorist financing already includes such a critical path analysis.[53]

One reviewer suggested that developing a cadre of professionals to do risk assessments for many countries might improve the NRAs, in particular with respect to analytic methods. Such a cadre would ensure that the reports reflected a good knowledge of the risk assessment field and consistency in the results across countries. They would learn over time from conducting the exercise in many different contexts. This method has some serious disadvantages, though–in particular, loss of buy-in by the domestic agencies involved in AML and of specific local expertise. Nonetheless, if the NRAs are to continue to be an important part of the mutual evaluation report process, fundamental revisions in the process are worth considering, and this is one such proposal.

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53.   See Risk Assessment Support for Money Laundering/Terrorist Financing," World Bank brief, 2016 https://www.worldbank.org/en/topic/financialsector/brief/antimoney-laundering-and-combating-the-financing-of-terrorism-risk-assessment-support.

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Concluding Comments and Recommendations

Before drawing conclusions about the strength of the NRAs, we should note that whatever the weaknesses of the NRAs as risk assessments, the process of conducting the assessment is valuable in itself. AML is a very widely distributed responsibility. Conducting a National Risk Assessment requires bringing together all those agencies for the purpose of sharing data and insights. Each of the authors has witnessed just such a phenomenon when participating in the development of an NRA. That sharing is likely to increase the effectiveness of the AML system. Harnessing that energy to produce stronger NRAs is a very worthwhile goal.

As articulated by the FATF, a meaningful risk-based approach requires a good understanding of how risks are distributed, yet the first NRAs showing their understanding of money laundering risks appeared at least 12 years after the FATF included it as an option in its recommendations and at least 3 years after it was made mandatory. Perhaps that lapse reflects the difficulty of doing an NRA well. No existing model provides real guidance; the FATF Guidance document (2013a), as already noted, claimed only to provide general guidelines. The common methodology of the mutual evaluation reviews, the typology exercises, and the peer review was designed to facilitate comparative lesson drawing and diagnostic testing, with regular updates to the standards over time. The possibility of different NRA approaches being tried is arguably a strength, given the lack of established models for risk assessment in money laundering; however, the lack of both a common understanding of the conceptual framework and a clearly formulated focus for the NRA makes the conducted NRAs so different from one another that learning from each other becomes challenging or even impossible.[54]

The National Risk Assessment exercise is in its early stages. There is no shame in stumbling at the starting gate; that has happened in other spheres of risk assessment as well.[55] A variety of approaches is healthy for an institutional setting that does not have a strong history of empirical analysis. To move this field forward, we recommend the following three steps.

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54. One possible and troubling explanation for the limited development of the risk-based approach is that it has implausible premises for money laundering control. It requires an alignment between the incentives of the bank and those of the regulator (Ferwerda 2017). With prudential regulation, such an alignment can be assumed. A bank wants to reduce the extent of fraud and to do so efficiently; so does the regulator. That same bank is not harmed by the laundering of money, however. Money laundering may result in economic and social harms, but none of the harms identified in the long list provided by Ferwerda (2013) are borne by the bank. Au contraire, as revealed in such scandals as the 2018 Danske Bank (https://sevenpillarsinstitute.org/the-case-of-danske-bank-and-money-laundering/) and the 2012 HSBC scandals (see, for example, Naheem 2015), the bank may see laundering as a profitable business line. The costs it faces are imposed directly or indirectly (through the loss of reputation) if its complicity in money laundering is discovered. From the bank's point of view, the risk to which it is being exposed is not money laundering but the risk of being detected laundering criminal proceeds.

55. For instance, see Masse, O'Neil, and Rollins (2007) for an overview of the development of risk assessment methodologies by the US Department of Homeland Security for terrorism risks. Crevel et al. (2014) show how risk assessments evolved for food allergens. Dourson, Felter, and Robinson (1996) show the progress made in toxicological noncancer risk assessments. Omenn (2003) analyzes the evolution of risk assessments for chemicals in the environment. See Ball (2007) for a general reflection on how risk assessments have evolved over time and the relevant controversies.

1. The concepts and focus of NRAs should be made clearer and universally applicable to maximize the possibility of countries learning from each other.

2. Trying a new and different NRA approach should be welcomed, and possible failures of such methods should be accepted beforehand. A lack of transparency about research methods and data used, however, is not acceptable if countries are to eventually want to learn what works and what does not.

3. If the aim is to advance the field of money laundering NRAs, the executing national institutions need help to develop sufficient expertise. Setting up an international research center focused on money laundering risk assessment is needed to advance understanding of how to conduct such an assessment well.

Fortunately, those recommendations are relatively low-hanging fruit that can readily be implemented.

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Appendix A. NRAs Published by OECD Countries*

T A B L E   A . 1 -   Overview of NRAs of OECD Countries

OECD country	Year NRA	Comment	OECD country	Year NRA	Comment
Australia	2014	TF focused	Lithuania	2015	
Austria	2015		Luxembourg		No public NRA found
Belgium	2018		Mexico	2016	
Canada	2016		Netherlands	2017	
Chile		No public NRA found	New Zealand	2010	
Czech Republic	2016		New Zealand – 2	2018	
Denmark	2015		Norway	2014	
Estonia	2014		Poland		No public NRA found
Finland	2015		Portugal	2013	
France	2016		Slovakia		No public NRA found
Germany		No public NRA found	Slovenia	2016	
Greece	2018		South Korea		No public NRA found
Hungary	2015		Spain	2014	Fragmented, not one NRA
Iceland	2017		Sweden	2013	
Ireland	2016		Switzerland	2015	
Israel	2017		Turkey		No public NRA found
Italy	2014		UK	2015	
Japan	2015		UK – 2	2017	
Japan – 2	2017		United States	2015	
Latvia	2017		United States – 2	2018	

NRA = National Risk Assessment . OECD = Organisation for Economic Co-operation and Development. TF = terrorism financing. UK = United Kingdom. US = United States.

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* Appendix A. NRAs Published by OECD Countries

F I G U R E   A . 1   -   Number of NRAs Published by the 38 OECD Countries over Time
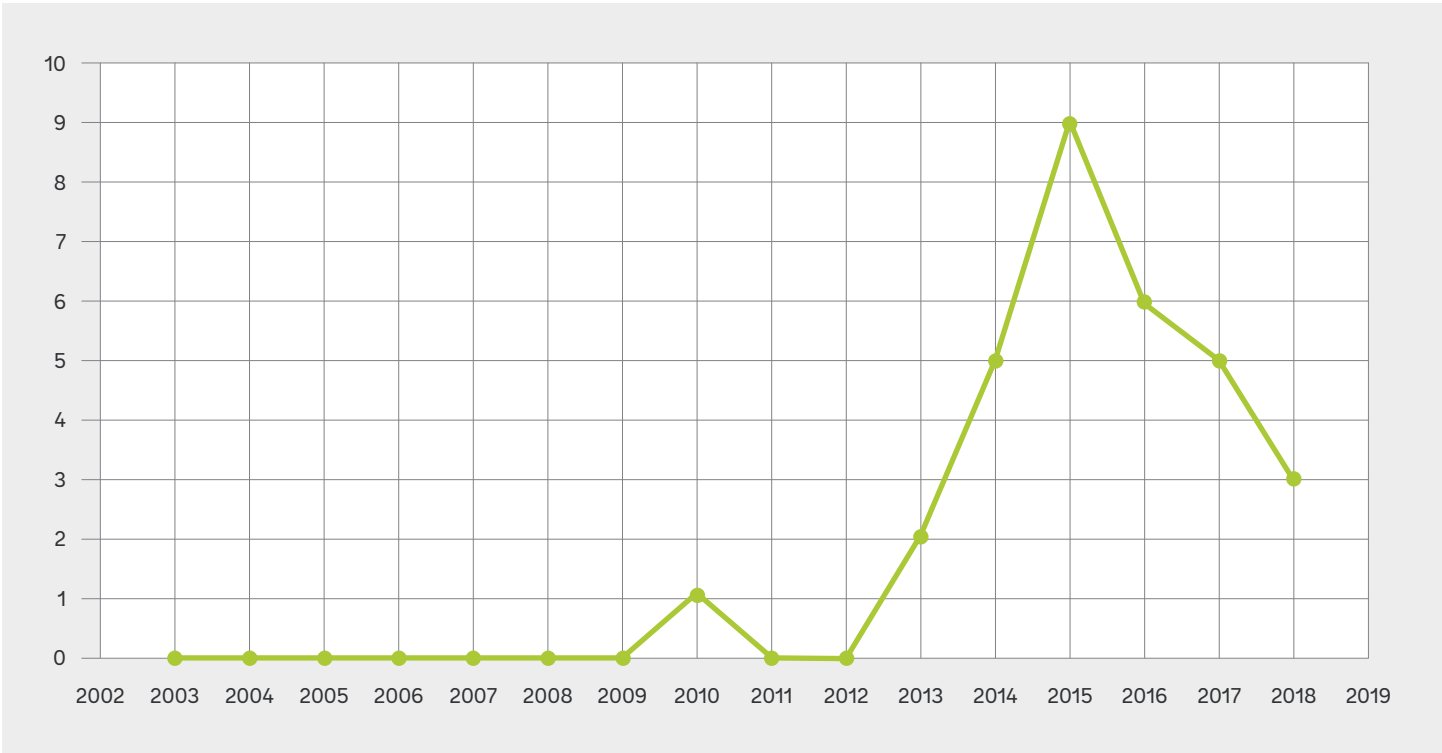
OECD = Organisation for Economic Co-operation and Development.
Source: Based on the data above Table A.1. The risk-based approach was introduced in 2003. In 2012, the FATF made explicit that countries should perform a National Risk Assessment.

Appendix B. The FATF Approach to Risk Assessment

The FATF did not give its members an exact prescription for how a risk assessment ought to be conducted, reflecting the novelty of the exercise. The FATF published a guidance document in which only the goal and some concepts are explained. We focus our attention here on the concepts.[56]

According to the FATF, money laundering risk for a sector is a function of threat, vulnerability, and consequences. With this, the FATF applies the terminology commonly used in risk assessments of terrorism (see, for example, National Research Council 2010; Willis 2007; Willis et al. 2005) to money laundering. Although those labels have intuitive appeal as a means of structuring the NRA exercise, they are in fact confusing when applied to money laundering (see also Ferwerda and Reuter 2019).

a. A threat is a person or group of people, object or activity with the potential to cause harm to, for example, the state, society, the economy, etc. In the ML/TF context this includes criminals, terrorist groups and their facilitators, their funds, as well as past, present and future ML or TF activities. (FATF 2013a, 7)

In the more standard risk assessment terminology, threat is the hazard to which the entity is being exposed. The above definition of threat is so heterogeneous as to defy coherent description, let alone measurement. Putting together people, money, and activities to form one variable to work with is impossible. What might be meant by "object" that constitutes a threat? Annex 1 of the Guidance provides a list of more than 150 threat factors (FATF 2013a, pp. 32–39). Most are simply predicate crimes, and the implication is that threat should be measured by revenues, but it also includes such items as "sources, location, and concentration of criminal activity, including within illegal underground areas in the economy." If one could combine such different threat factors, what is the unit of measurement of such a variable? A simple and intuitive version of the level of money laundering threat faced by a nation is the amount of money that seeks laundering, perhaps proxied by the estimated proceeds of predicate crimes in the country. In a standard economic frame, that variable would be described as the demand for money laundering services. Dawe (2013) argues for such an approach; the FATF methodology does not invite that operationalization and offers no alternatives.

b. The concept of vulnerabilities as used in risk assessment comprises those things that can be exploited by the threat or that may support or facilitate its activities…. In the ML/TF risk

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assessment context, looking at vulnerabilities as distinct from threat means focusing on, for example, the factors that represent weaknesses in AML/CFT (as elsewhere) systems or controls or certain features of a country. They may also include the features of a particular sector, a financial product or type of service that makes them attractive for ML or TF purposes.

Again, how can one combine a legal loophole and the features of a financial product? Perhaps the FATF just aimed to identify which factors to take into account when assessing money laundering risk without suggesting a natural way of measuring it. That intention is reasonable as far as it goes, but the failure to be more explicit might explain why so many money laundering risk assessments are struggling with their conceptual focus and thus fail to inform relevant policies. Creating an index that combines those elements is a major analytic task.

The Methodology document provides an extraordinarily lengthy list of examples of vulnerability, occupying seven pages with about 15 items described on each page. The risk factors are in six broad categories, most of which are national (for example, political stability, demographics) and only a few of which are specific to a particular component of the financial sector (for example, types and ranges of customers and nature of business relationships). That is not how "vulnerabilities" were generally interpreted by the individual countries. In their analyses, vulnerability refers to characteristics of a sector that make it attractive (for example, the speed of bank transactions) or weaknesses in the prevention of, detection of, and enforcement against money laundering events, which get distinctly second billing in the FATF Methodology.

c. Consequences are the adverse effects of money laundering. The guidance, as noted, states that measuring consequences of money laundering can be challenging and that therefore a focus on only threats and vulnerabilities is acceptable. (FATF 2013a, 8)

Our analysis of the NRAs of eight developed countries shows that no country made an explicit effort to assess consequences except the Netherlands, where experts were asked about the potential impact of 10 specific "risks." A focus on only threat and vulnerability means that the harms inflicted per dollar laundered are implicitly assumed to be the same for all types of money laundering, all predicate offenses, and all sectors.

Even acknowledging that such an assumption is unrealistic, the question then is how to measure consequences and which consequences to focus on. A fundamental issue is whether the consequences of a predicate crime such as selling drugs are part of the consequences of the drug proceeds being laundered. Yes,

money laundering helps dealers to freely spend the proceeds from selling drugs, but technically, selling drugs is not part of the money laundering process. The FATF Guidance (p. 7) states that the underlying criminal activity is part of the consequence of money laundering, which means that it matters for a risk assessment whether a laundered dollar initially came from selling drugs, fraud, or corruption because different predicate crimes have different effects for society (see, for example, Cohen 2004 and McCollister, French, and Fang 2010).

Risk-based regulations promise many advantages over rule-based regulations: less obedience merely for the sake of compliance, less formalism, less administrative burden—in short, less (unnecessary) bureaucracy. The risk-based approach aims to achieve this goal by simplifying and focusing on critical points—on those parts in a system or process where things could go wrong, where the risks are greatest. Moreover, risk-based regulation offers to respect those involved by making use of their experience and knowledge. Companies and other private-sector actors, the subjects of the law, are treated as resourceful actors rather than ignorant children who have to be taught a lesson.

The risk-based approach assumes that compliance could be achieved by intrinsic rule internalization rather than requiring extrinsic threats; thus, it promises to enhance not only the effectiveness and efficiency of regulations but also their legitimacy. Who would not like freedom, less bureaucracy, more legitimacy, and more policy effectiveness? (Unger and van Waarden 2013)

A risk-based approach has costs as well as benefits, however. Crucial for a good risk-based approach is adequate information about the risks, which is gathered and analyzed; resources have to be spent to determine those risks. There is a trade-off between assessment and execution of the risk-based policy: resources spent on determining the risk (and which risk levels to tolerate) cannot be spent elsewhere (Black 2010). For many kinds of prudential risk, the task is relatively straightforward; for example, corporate bankruptcy is a well-measured and much-studied phenomenon (see, for example, Hillegeist et al. 2004 for an overview of how the estimation models have developed since 1966). Models of varying degrees of sophistication have been developed for assessing the risk that a corporate client of a bank will go bankrupt.

The problem is much more daunting in the field of money laundering. It is universally agreed that most money laundering is never detected (see, for example, Levi 2002). How can one properly assess money laundering risk with such limited information? (see also Levi, Reuter, and Halliday 2018). The very feasibility of a risk-based approach is dependent on answering this question.

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Appendix C. How Useful Is Estimating the Risk Before Policy Intervention?

Canada, Italy, the Netherlands, Switzerland, and the UK distinguish between inherent risk and "mitigated risk."[57] This distinction raises the question of how useful and feasible it is to divide the money laundering risk in two: the risk before policy intervention (the inherent risk) and the risk after policy intervention (the mitigated risk).

Such an analysis would directly inform policy makers about the effectiveness of AML policy because effectiveness is the difference between inherent risk and mitigated risk. That is not the goal of risk assessment, however; it is the goal of policy evaluation. No matter the inherent risk, policy makers have to adjust policies on the basis of the current, actual risks. Adding the measurement of inherent risk thus only adds a challenge to an already challenging task without helping to inform the relevant policy decision.

The measurement of inherent risk is arguably an even more challenging—if not impossible—task, especially with the currently dominant method of analysis: expert elicitation. Measuring inherent risks with expert elicitation means that experts have to be asked what the risk would be in a hypothetical world without any AML policy. Who would have enough expertise to answer such a question credibly?

Consider the relevant question for measuring inherent risks: what would be the money launder-ing risk in a world without anti-money laundering policies? We would need to ask ourselves some other questions to start this analysis. Is there no AML in the whole world? Or just not in the country we analyze? Or just the sector we analyze?

Let's say we want to determine the inherent risks of casinos in Italy, as an example. If the whole world and all other sectors have AML policies except casinos in Italy, we might expect an unreal-istically big inflow of money to casinos in Italy, just for money laundering purposes—an amount that might be bigger than the current turnover of casinos in Italy. That would not provide a useful measure.

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57.   Terminology on this point was inconsistent; we believe that this term best captures the general notion.

An alternative, more helpful scenario assumes that other sectors in the country have no AML policies and ignores the potential inflow of money from abroad. That scenario assumes that no sector in Italy has any AML policy and that the total amount of money laundered in Italy stays the same. One could argue that criminals prefer banks for their financial transactions due to the speed, ease, and availability. Criminals would then generally use banks in a country without AML policies. The attractiveness of banks in a country without AML policies means that criminals will use banks in other sectors less, so the inherent risk of casinos would be lower than the mitigated risk. That generates a paradox: AML policies can increase the money laundering risk of certain sectors. What is the value of such information? Why conduct an analysis that is unhelpful for risk assessment and potentially generates paradoxes? And to what extent can experts be expected to follow such a theoretical exercise and give a reliable answer?

Measuring the inherent risks in the future with other research methods might be valuable. As long as expert elicitation is the dominant method for risk assessment, focusing on the actual money laundering risks might be better. In a next step, money laundering risk assessments can be extended to money laundering risk management models in which the effectiveness of policies to mitigate risks could be valuable for policy makers. The current struggles to assess money laundering risks indicate that it seems too soon to take this next step.

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Appendix D. Why Are the Current NRAs Not Stronger?

We start by repeating a comment that appeared earlier in this report. The task of assessing money laundering risk is truly daunting. Indeed, one might even ask if it is feasible at all or at least just how precise one might reasonably expect the results to be. The most fundamental explanation is simply that the NRAs are not strong because nations are being asked to undertake a task that has never been done well before. Developing a robust and coherent assessment methodology can be considered a standalone task that requires substantial effort and time. Only Italy produced a standalone methodology document. The NRAs that this report analyzes are elaborate exercises involving many different stakeholders and conducted over a period of many months. We can provide only a speculative explanation for why the NRAs are not stronger.

BOX CHECKING [AS ON P. 26] – One plausible interpretation of the limited value of the NRAs is that they were executed simply as a "box-checking" exercise, a concern that has been expressed about many elements of the FATF mutual evaluation report process (Levi, Halliday, and Reuter 2014). The FATF requires that each government identify, assess, and understand the risks of money laundering in its jurisdiction. Although the FATF does not mandate a published national risk assessment, it does encourage one, as indicated by the publication of the 59-page Guidance on how to conduct such risk assessments. For the six countries analyzed in this report[58] that had a mutual evaluation by 2019, the published NRA had been given high marks; thus, those are NRAs that the FATF community thinks well of.

At least one participant explicitly supported this box-checking interpretation. In his country, the preparation and publication of the NRA had attracted no attention from the many agencies involved in its development. He had received no comments once it was published nor been asked to brief anyone about the findings. Further evidence for this claim is that almost no country had published a risk assessment before the FATF requirement was imposed in 2012, notwithstanding the effort to create a risk-based approach for AML in 2003. Repeatedly, we were told that the NRA was conducted in preparation for an MER, not because it was believed to be important for efficient operation of the money control system.

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58.   Japan and the Netherlands did not have a mutual evaluation in which the NRA was assessed at the time this study was done.

Because the FATF Guidance is so general, it is an easy box to check; the variety of approaches taken and approved by mutual evaluations is evidence of that statement. None of the NRAs, of limited value as they are, have attracted serious criticism in their mutual evaluation report. One experienced observer noted that the FATF plenaries, at which draft MERs were discussed, had occasionally suppressed criticisms of specific NRAs, suggesting that these exercises only had to show an "understanding" of the risks, a relatively low bar.

THE NARROW WORLD OF AML. None of the NRAs show awareness of the broader risk assessment literature. An occasional ritual reference was made to ISO 31000, which lays out how a risk assessment should be conducted, but no use of any specifics of the framework is presented in that document. The ISO reference in the individual NRAs is essentially cut and pasted from the FATF Guidance, which itself makes little use of the ISO standard. The lack of use of consulting firms, which have expertise in risk assessment, is also indicative of a reluctance to embrace a broader array of technical skills.

The FATF Guidance (p. 6) mentions that concepts are "usefully described elsewhere" when referring to the international ISO standard for risk assessments but continues without using those concepts and introduces its own conceptual framework, in which risk is a function of threat, vulnerability, and consequences. The word *hazard* (as standard in the international literature on risk assessment and the ISO standard) is not used once in the FATF Guidance. In the ISO (2009) standard 31010 document, the word *hazard* is used 83 times in 92 pages. On the other hand, in the ISO standard 31000—so frequently mentioned by the FATF—the term *vulnerability* never appears.[59]

Without an explicit reference, the money laundering risk assessment concepts put forward by the FATF (threat, vulnerability, and consequence) seem borrowed from terrorism risk assessments. The more general literature on conducting a risk assessment (see, for example, Rausand 2013) states that Risk = Probability of a Hazard x Consequences of that Haz-

ard. It is specifically in the field of terrorism risk assessment, where Risk is determined by Threat, Vulnerability, and Consequences (see, for example, National Research Council 2010; Willis 2007; Willis et al. 2005). For terrorism, those concepts fit more naturally. Terrorism has two fundamental probabilities: the probability of an attack (by a threat) and the probability that the attack leads to damage (dependent on vulnerabilities). Studying both probabilities separately, represented by the clearly defined concepts Threat and Vulnerability, therefore seems fitting. (Willis 2007, 598) Even though terrorism—more specifically, countering terrorism financing—is seen as related to anti-money laundering as a policy domain, applying the same risk concepts is questionable. Fundamental differences between terrorism risk and money laundering risk affect how those risks can be measured. First, terrorism events are sporadic; money laundering events happen hundreds or thousands of times every day in each country. For such patterns, considering money laundering frequency would be better than considering the probability of a money laundering event. Second, terrorist attacks have a direct visible consequence. When money laundering is performed successfully, it should generate no visible impact and go completely unnoticed. Whereas the use of the concepts Threat and Vulnerability seems natural and well-focused for terrorism risk assessments,[60] money laundering risk assessments struggle to measure and analyze Threat and Vulnerability.

It is also striking that there has been no effort to develop a stronger NRA methodology. Some NRA participants whom we interviewed reported that they had read two or three other NRAs but rarely had reached out to consult with other nations about their experiences. The FATF plenaries have regular side events (sponsored by the Risks, Trends, and Methods Group) in which a nation presents its NRA, but observers report no meaningful critique emerging from those events. We are unaware of any symposia or workshops that have tried to cultivate an NRA community. That only the Netherlands provided an adequate description of its methodology is a further indication of the limited interest in the development of the field.

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59. The term *vulnerability* appears in a related ISO Report, ISO 31010 Risk Assessment Techniques (Section B.11.4), and in ISO Guide 73:2009 (Risk Management Vocabulary): 3.6.1.6 vulnerability intrinsic properties of something resulting in susceptibility to a risk source (3.5.1.2) that can lead to an event with a consequence (3.6.1.3).
60. See National Research Council (2010) and Cox (2008) for a discussion on to what extent the risk concepts Threat and Vulnerability work well in terrorism risk assessments.

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