Quantifying financial crime risk at the individual entity level via a benchmark index: methodological overview and sample findings

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Abstract: *This paper introduces a methodology for quantifying financial crime risk at the individual banking entity level via a standardised Financial Crime Index, and shares findings from two applications of the model. Firstly, drawing on a sample of Wolfsberg CBDDQ data covering 240 banks, it presents median scores for each of nine standardised financial crime risk themes, and explores a selection of underlying findings driving the scores. Secondly, it introduces transaction risk profiles for two anonymised banks which are built by complementing CBDDQ data with the banks' transactional and operational data.*

1. Introduction: Why a standardised Financial Crime risk index

After decades of political and policy action with the stated intention of stopping the global financial system from being used to launder the proceeds of financial crime, impact in terms of improved outcomes remains elusive.[1]

The limited effectiveness of the global anti-money laundering system has become something of an obligatory reference point in the field. To cite perhaps the most prominent among recent examples, the then executive secretary of FATF in May 2020 reflected on country-level performance and concluded that "everyone is doing badly, but some are doing less badly than others".[2]

Law enforcement officials in the EU have estimated that professional money launderers have a 99 percent success rate in running criminal profits through the financial system.[3] A similar estimate for the US is that less than 1 percent of the financial proceeds of crime is recovered by authorities each year.[4]

Since 2014, the FATF has been carrying out its fourth round of in-depth country assessments,

[1] Ronald F. Pol, "Anti-money laundering: The world's least effective policy experiment? Together, we can fix it ", Policy Design and Practice, Volume 3, 2020 – Issue 1.
https://www.tandfonline.com/doi/full/10.1080/25741292.2020.1725366
[2] https://www.icij.org/investigations/panama-papers/everyone-is-doing-badly-anti-money-laundering-czar warns/
[3] https://www.politico.eu/article/europe-money-laundering-is-losing-the-fight-against-dirty-money-europol crime-rob-wainwright/
[4] John A. Cassara, "Statement to the Cullen Commission of Inquiry into Money Laundering in British Columbia", https://cullencommission.ca/data/exhibits/341%20-%20002%20J.%20Cassara%20-%20Final%20 Statement%20to%20the%20Cullen%20Commission.pdf

including looking at the effectiveness of AML/CFT systems. For over 100 countries assessed as of early 2021, the majority of effectiveness ratings are either "moderate" or "low". Across the 11 outcome areas reviewed by FATF, no more than a handful of countries have achieved high levels of effectiveness, in any of the areas assessed.[5]

Also well-known among AML policy analysts and practitioners are the unintended consequences of the increased pressure on banks to tackle financial crime.[6] Prominent among these unintended consequences is de-risking: international banks choosing to entirely exit relationships with jurisdictions or market segments seen as high-risk.

De-risking can severely affect access to financial markets and has a wide range of societal costs such as the adverse impact on remittances and financial inclusion. Paradoxically, de-risking has not eliminated the risk of illicit flows, but often simply reallocated these risks to less transparent channels, be they overburdened local banks or the informal market.[7]

Despite aggregate expenditure in compliance running to hundreds of billions of USD a year[8] AML/CFT effectiveness in business is particularly low: to date FATF has yet to find a country with a high level of private sector effectiveness in preventing financial crime. FATF country reports contain multiple references to sector-wide gaps in businesses' understanding of their risks and in the implementation of their AML/CFT obligations.[9]

It is in this context that the questions of 1) what drives the (lack of) effective implementation of AML/CFT measures at individual firms and 2) what are specific areas of strength and weakness at the individual entity level have received surprisingly limited research and policy attention.

Regarding the underlying reasons for the lack of effective AML/CFT implementation - the first question above - an expression frequently heard among analysts is that firms view expenditure on compliance as a "cost of doing business" or as a "tick-the-box" exercise aiming to satisfy regulatory requirements, rather than being driven by the primary purpose of reducing financial crime.

Why this might be the case has rarely been addressed, requiring further research which is outside the scope of this paper. We mention it here, however, because the dataset that we will be analysing has its origins in a commercial initiative - briefly outlined below - which aims to

[5] Fundamental critiques of FATF's approach to effectiveness do not dispute the overall conclusion of limited effectiveness in the global AML/CFT system. See e.g. Pol 2020.
[6] See for example https://www.fatf-gafi.org/publications/financialinclusionandnpoissues/documents/unintended-consequences-project.html
[7] https://www.worldbank.org/en/topic/financialsector/brief/de-risking-in-the-financial-sector
[8] https://www.gcffc.org/wp-content/uploads/2021/02/GCFFC-Financial-Crime-Information-Wall-2021.pdf
[9] See https://www.fatf-gafi.org/publications/mutualevaluations/?hf=10&b=0&s=desc(fatf_releasedate)

directly address the core industry challenge of limited implementation of AML/CFT measures at the individual entity level.

Practitioner experience and available evidence suggest that when it comes to tackling financial crime risk, decision-makers within businesses face misaligned or competing incentive structures, from the C-suite level down. An individual employee such as a relationship manager in a bank is, on paper, expected to undergo compliance training, follow the bank's policies and make use of its reporting system. At the same time, their personal performance and compensation package are most often linked to business targets, and assessed via a different system to the one used for reporting and compliance.

In 2019 and 2020 the UK's Solicitors Regulation Authority (SRA) visited 74 law firms to assess their readiness to tackle financial crime. After completing its review, two thirds of the firms were requested to make improvements. Among the SRA's findings were that in 21% of cases the source of funds had not been checked adequately or at all.

This finding, in itself, is not unusual. What makes the SRA report specifically worth mentioning is that it touches on a key underlying reason for the gap between policy and practice: 'often…the fee earners were not following procedures'.[10]

A 2020 survey of C-suite management and senior compliance officers again supports the view that anti-money laundering concerns take a backseat to business decisions. Out of the 600 interviewees, 24,9% admitted that they choose to incur the risk of anti-money laundering fines and violations when doing business 'all the time', while another 35,6% admitted to doing so 'regularly'. Just 14,9% responded that they did not incur the risk of an anti-money laundering violation when doing business 'and are right not to'.[11]

Where incentives are misaligned, there is a market opportunity. In 2019 the Elucidate FinCrime Index (EFI), a financial crime risk benchmark, was launched by Elucidate, a Berlin-based financial crime risk rating agency. As detailed in section 2, on a monthly basis the EFI provides financial institutions with a benchmarked financial crime risk rating and underlying report. By quantifying financial crime risk via a standardised approach, the EFI aims to allow financial institutions to better integrate financial crime risks into their business and strategic decision-making processes.

Through the application of the model to the company's customer base of financial institutions and their networks, the EFI is generating a growing dataset that allows for analysis of

[10] Solicitors Regulation Authority, AML visits 2019-2020. Via https://www.sra.org.uk/globalassets/documents/sra/research/anti-money-laundering-aml-visits-2019-2020.pdf
[11] Comply Advantage, The State of Financial Crime 2021. Via https://complyadvantage.com/resource-hub/type/reports/the-state-of-financial-crime-2021

entity-level risk exposure and control effectiveness, which is the primary source of data for this paper.

Section 2 below introduces an outline of the risk model, followed by the core of the paper in Section 3 which presents median scores for a sample of 240 banks and discusses selected aggregate drivers of the median scores. Section 4 then introduces a more detailed transaction risk profile of selected (anonymised) banks. Section 5 concludes and outlines steps for further research.

2. Overview of the Elucidate FinCrime Index (EFI)[12]

The starting point for the Elucidate FinCrime Index (EFI) is the Correspondent Banking Due Diligence Questionnaire (CBDDQ), developed by the Wolfsberg group of banks[17], together with a set of open source data points. The Wolfsberg questionnaire collects approximately 350 data points for each financial institution across a range of areas including its product and channels, bribery and anti-corruption policies, customer due diligence policies, and audit process, among others.

The EFI complements the data collected via the CBDDQ and publicly available sources with a bank's own data and Elucidate's proprietary data. It then runs up to 1200 discreet, automated tests against this dataset to generate an overall EFI score on a monthly basis, as well as scoring each bank across nine standard risk themes, which are:

1. Organisational reputation
2. Transactional activity
3. Geographic footprint
4. Culture and employee conduct
5. Bribery and corruption
6. Sanctions
7. Customer portfolio
8. Products and channels
9. Governance framework

The EFI assigns a score out of 100 for each of these themes, where 0 indicates the highest level and 100 the lowest level of risk, and the average of which is the final EFI score. Each theme score is driven by its underlying tests (also referred to as eventualities in the EFI model). The score for each theme varies based on a) the number of tests found to be true, and b) the impact score of true tests.

Examples of tests run by the EFI under the nine themes include:

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[12] Elucidate GmbH is an authorised Benchmark Administrator under the EU Benchmarking Regulation (BMR) on the ESMA register, overseen by the Federal Financial Supervisory Authority (BaFin) in Germany.

- Transactional activity: Do >98% of outgoing payments include account name, address and number?
- Customer portfolio: Does the private banking portfolio consist of >25% of total clients, with >25% offshore/non-resident portfolio?
- Governance framework: What is the frequency of AML/CFT & Sanctions functions reporting to the Board (or equivalent senior management committee): monthly, quarterly, half-yearly, yearly?

While the EFI is designed as a holistic and quantitative assessment of any financial institution it has limitations, which are progressively being addressed as more data and iterations of the model application become available. Current limitations include:

1. Data completeness: The EFI relies to a significant extent on the Wolfsberg DDQ and data shared by institutions themselves. Where either the DDQ or the data provided by institutions is incomplete, as does occur, the model's capability to estimate a single score for each risk factor is reduced. In such cases, the EFI model performs Monte Carlo simulations and gives a range of scores rather than a single score to depict the impact of data completeness. An improvement in a financial institution's data completeness results in the narrowing of the range of possible scores.
2. Binary nature of the Wolfsberg DDQ questions: The binary nature of most questions in the Wolfsberg DDQ affects the variability of the overall EFI score. It also limits the scope for more granular analysis of results. Over time, the incorporation of transactional and operational data obtained directly from institutions is increasing both the differentiability quotient of the model and the granularity of findings.
3. Impact scores: The impact scores for the first iteration of the model were allocated through qualitative research and documented expert judgement. Those scores are reviewed continuously and will increasingly be driven by data and model findings.
4. Predictive capability: As additional users are onboarded and the dataset expands, we expect the model´s predictive capability to evolve. The target state, in terms of using conditional probability as a risk metric, is defined as being able to measure the correlation between the applicability of a given risk factor and the occurrence of a substantiated FinCrime risk event.

Model controls established for the EFI include a formal Model Governance and Control Framework and an external Model Oversight Committee.[13]

[13] For more detail on the model please see the white paper at https://www.elucidate.co/whitepaper

3. Sample Financial Crime risk index ratings and underlying factors

As mentioned above, the Elucidate FinCrime Index provides an overall risk score for each bank on a monthly basis, together with risk scores for each of nine standardised risk themes. This section presents average EFI ratings and underlying findings for a sample of 240 banks over a period of 60 days in October-November 2021. The banks in the sample are located in 105 countries with around 23% situated in the European Economic Area (EEA). The data is drawn from the most recent available Wolfsberg CBDDQ for each institution.

In terms of size, 87.5% of the 240 banks in the sample have total assets greater than $500 million, the highest available size category in the Wolfsberg DDQ.

It is important to note that $500 million is a relatively low threshold; the majority of banks in the sample are likely to hold assets worth significantly more than this amount. According to European Banking Federation data for 2019, the average total assets of credit institutions in the Eurozone were EUR 7.2 billion (US$ 8 billion). In EU jurisdictions with banks of small average size, such as Estonia, the average credit institution holds EUR 719 million in assets. Taking an example from outside the Eurozone, in Albania, another jurisdiction with a comparatively small banking sector, the average credit institution holds assets of over EUR 1 billion.[14]

Table 1 shows an overview of the observed industry median for each of the nine standard risk themes, together with the average EFI score.

Table 1: FinCrime risk medians for nine risk themes

Risk Theme	EFI Sample median
Organisational reputation	82
Transactional activity	76
Geographic footprint	69
Culture and employee conduct	73
Bribery and corruption	75
Sanctions	73
Customer portfolio	69
Products and channels	67

[14] Source: https://complyadvantage.com/resource-hub/type/reports/the-state-of-financial-crime 2021

Governance framework	91
EFI Score average	**74**

As can be seen, the risk theme "governance framework" has the highest median score in the sample, while the theme "products and channels" has the lowest median score. The remainder of this section presents findings underlying the risk theme scores.

Governance framework and resourcing for compliance functions

All banks in the sample report that they have policies, procedures and processes in place to comply with FATF Recommendation 16 (Customer Due Diligence Diligence) and a programme that sets minimum standards regarding Enhanced Due Diligence (EDD).

Similarly, 100% of banks in the sample report having documented policies consistent with preventing, detecting and reporting sanctions violations in place. Practically 100% (99.68%) of banks report they screen customers, including beneficial ownership information, during onboarding and regularly thereafter against sanctions lists. A similar number report having a programme that sets minimum standards regarding Transaction Monitoring.

Enterprise-Wide Risk Assessments (EWRA) for AML/CFT are widely reported as being implemented, with just 2.5% of banks stating they have not completed an EWRA in the last 12 months. EWRAs are also self-reported as being comprehensive. Under 2% of banks in the sample report their EWRA does not cover any one of the following elements: conduct and culture, geographic risk, control effectiveness of name screening, control effectiveness of management information, and inherent risk components of products and channels.

In the specific area of anti-bribery and corruption (ABC), reported implementation of risk assessments and policies is relatively lower. In 16.25% of cases the entity does not perform an enterprise-wide ABC risk assessment. 72.5% of entities in the sample perform an enterprise-wide ABC risk assessment with a frequency of 12 months, and 6.67% do so with a frequency of 18 months. Ten banks in the sample (4.16%) do not have a global ABC policy that prohibits the giving and receiving of bribes.

Regarding resourcing for relevant functions, as mentioned in the introduction, estimates of aggregate industry expenditure on compliance start at hundreds of billions of US$ a year. In light of these estimates, it is worth highlighting that 43.75% of the 240 banks in the sample report having less than 10 full-time employees in the entity's AML, CTF and Sanctions Compliance Department. Within the subset of 210 banks in the largest size category (banks with assets above $500 million), 39.04% report having less than 10 full-time employees working in compliance.

Culture and conduct

All banks in the sample state they provide mandatory training which includes examples of different forms of money laundering, terrorist financing and sanctions violations relevant for the types of products and services offered, including to 1st line of defence. Virtually all (98.33%) provide customised training for AML, CTF and Sanctions Staff.

Specifically regarding training on anti-bribery and corruption (ABC), results are again comparatively lower in relation to AML/CTF. 5.83% of banks in the sample report they do not provide mandatory ABC training to 1st line of defence; 6.25% report they not provide mandatory ABC training to 2nd line of defence; 9.17% report they do not provide mandatory ABC training to 3rd line of defence; and 11.25% do not provide mandatory ABC training to Board and Senior Committee Management.

Larger gaps in implementation can be observed when it comes to ABC training of third parties and non-employed workers. 15% of banks in the sample do not provide mandatory ABC training to third parties to which specific compliance activities subject to ABC risk have been outsourced. 25% do not provide mandatory ABC training to non-employed workers such as contractors and consultants as appropriate.

Products, channels and transaction monitoring

As might be expected from a sample of responses to a correspondent banking questionnaire, 54.17% of banks in the sample offer correspondent banking services to domestic banks, and 19.58% allow domestic bank clients to provide downstream relationships. Turning to transaction monitoring, 3.33% (8 banks) report that monitoring of transactions for suspicious activities is exclusively manual, while 46.25% report that monitoring of suspicious activities is both automated and manual.

Organisational reputation

When dealing with organisational reputation from a governance perspective, in 7% of cases the entity's AML/CFT Enterprise-Wide Risk Assessment does not cover the control effectiveness of name screening against adverse media and negative news.

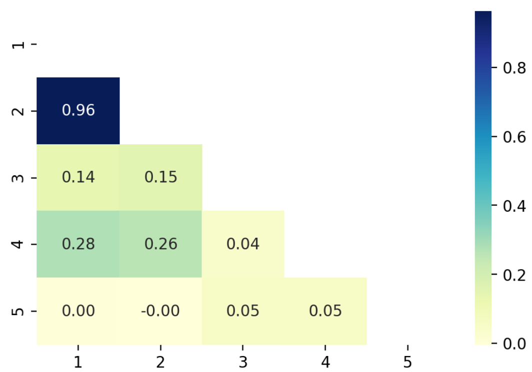
Regarding operational screening methods, in 52.92% of cases screening for adverse media / negative news is both automated and manual, while 19.17% of entities use manual screening. This manual approach to screening includes 26 banks (10.83% of the sample) which have less than 10 full-time employees working in anti-money laundering compliance.

Correlations and cross-referencing of risk factors

As an example of the correlations which can be estimated using the data set, Fig 1 below shows the correlation matrix for the following five risk factors:

1. The Entity does not provide mandatory ABC (Anti-Bribery and Corruption) training to 1st Line of defence.
2. The Entity does not provide mandatory ABC training to the 2nd Line of defence.
3. The Entity has less than 10 full-time employees in the AML, CTF and Sanctions Compliance.
4. The Entity does not perform an Enterprise-Wide ABC risk assessment.
5. The Entity's AML and CTF EWRA does not cover name screening against adverse news.

Fig 1. Correlation matrix among 5 risk factors



Source: authors' calculations based on EFI platform data

The high correlation (0.96) between factors 1 and 2 is to be expected, but is also confirmed by the data: an entity that does not provide mandatory training to 1st line of defence is unlikely to do so for 2nd line of defence (and vice versa).

The correlation between governance and training is also worth highlighting: a correlation of 0.28 implies a 28% probability that a financial institution does not perform an Enterprise-Wide ABC risk assessment and does not provide mandatory ABC training to its first line of defence. In comparison, the factors "less than 10 employees working in compliance" and absence of mandatory ABC training have a 0.14 correlation.

While correlation can serve to highlight patterns across the data set as a whole, cross-referencing of factors can be used to identify subsets of banks with particular characteristics. We include here two examples (out of thousands of possible permutations) which could indicate the presence of significant overall risk levels in the relevant financial institutions, due to the combination of risk exposure and gaps in control effectiveness. The first set of factors identifies institutions which:

a) hold assets greater than $500 million
b) offer correspondent banking services to domestic banks
c) use manual screening for adverse media / negative news

18 financial institutions (7.5%) in the sample meet these three criteria.

The second set of factors identifies institutions which:

a) hold assets greater than $500 million
b) have less than 10 full-time employees in the Entity's AML, CTF and Sanctions Compliance Department
c) do not perform an Enterprise-Wide ABC risk assessment

17 financial institutions (7%) in the sample meet these three criteria.

As noted above, this section has relied on data self-reported by banks via the Wolfsberg correspondent banking questionnaire (CBDDQ). The following section illustrates the in-depth risk profiles that can be constructed when CBDDQ data is complemented with transactional and operational data provided directly by the banks via the EFI platform.

4. Expanded transactional risk profiles

For a subset of 30 banks (as of November 2021) the EFI model complements CBDDQ and open source data with analysis of the bank's transactional and operational data, which is uploaded monthly to the EFI platform by financial institutions themselves.

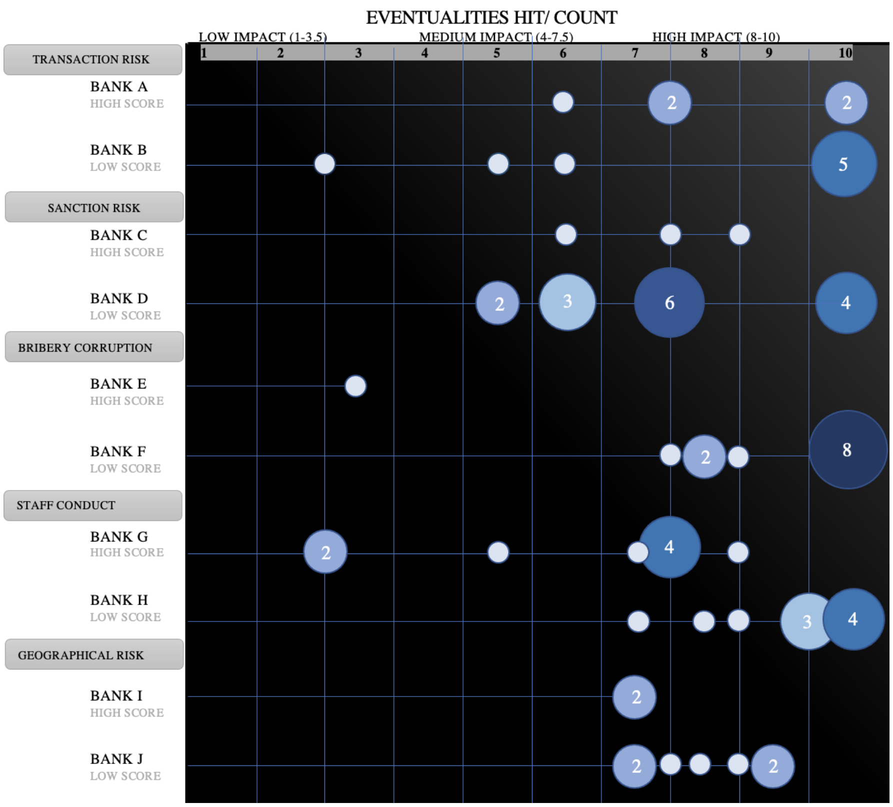
Drawing on the standardised tests run by the model against this expanded dataset, for this subset of banks more detailed risk profiles can be built. As outlined in section 2 above, each theme score is driven by its underlying tests (also referred to as eventualities). The score for each theme varies based on a) the number of tests found to be true, and b) the impact scores of tests rated as true.

Fig 2 below illustrates the count of tests rated as true and their impact scores across five risk themes: transaction risk; sanction risk; bribery and corruption; staff conduct; and geographic risk.

The vertical axis shows the five themes, taking the two different (anonymised) banks with the highest and lowest score for each particular theme in October-November 2021. The horizontal axis bar indicates the impact (ranging from 1 being the lowest negative impact to 10 being the highest negative impact). The size and colour saturation of the bubbles show the count of tests rated as true.

For example, in the bribery and corruption risk theme, the single true eventuality for Bank E (which has the highest score/lowest risk for this theme) has a relatively low impact score. The bank with the lowest score (highest risk) for the theme, Bank F, however, has multiple medium and high impact eventualities rated as true.

Fig 2. "True" test count, impact score and theme score for selected banks



Source: authors' calculations based on EFI platform data

Overall, as Fig 2 shows the expanded model including transactional and operational data generates significant variance in terms of true test count, impact scores, or both when comparing across financial institutions.

To illustrate the types of tests rated as true, we focus here on the transaction risk theme. Tables 2 and 3 below compare the transactional risk profiles for two of the anonymised banks in Fig 2: Bank A and Bank B.

Table 2 shows that for Bank A (highest score - lowest risk) the majority of "true" tests have medium impact and relate mainly to policies and procedures.

Table 2: Bank A (highest transactional risk score in sample) - Selected tests with "true" result

Test with "true" result	Impact
Cross-border Remittances constitute >5% of total transactions	High
Monitoring of transactions for suspicious activities is automated and manual	Medium
SAR reporting: ≤25% of alerts are manual escalations	Medium
Policies, procedures and processes to review and escalate matters arising from the monitoring of customer transactions and activity: ≤25% of alerts are manual escalations	Medium
>1% of outgoing payments have originator information populated which does not match the account details	High

In contrast, for Bank B which has the lowest score (highest risk) for the transactional risk theme - see Table 3 - a greater number of "true" tests are of high impact, and are for the most part related to gaps in operational and compliance systems. For instance, a significant percentage of payments lack identifiers such as account number or name.

Table 3: Bank B (lowest transactional risk score in sample) - Selected tests with "true" result

Test with "true" result	Impact
Cross border remittances constitute >5% of total transactions	High
>1% of outgoing payments omit account name	High
>1% of outgoing payments omit account address country	High
>1% of outgoing payments omit account number	High
<99% of outgoing payments have beneficiary information populated	High

In this manner, detailed data-driven risk profiles can be produced for each bank, identifying specific risk exposures and areas of weakness in control effectiveness systems.

5. Conclusion and areas for further research

This paper illustrates how the application of a standardised risk model can generate empirical insights on areas of strength and weakness in tackling financial crime risk. The standardised approach enables the aggregation of data to analyse and compare areas of weakness both at the sector and individual entity level.

Overall, the findings from this exercise suggest that a small but significant minority of banks may be generating a disproportionate level of financial crime risk in the market. Firstly, while AML/CFT policies, training programmes and enterprise-wide risk assessments have a high level of implementation, the distribution of compliance expenditure across banks may be uneven. In addition, in specific areas such as Anti-Bribery and Corruption (ABC), implementation of policies, enterprise-wide risk assessments and training programmes is comparatively lower.

Secondly, a subset of higher risk banks have control effectiveness gaps across both governance and operational areas, including continued use of manual screening methods, a finding that also applies to banks in the highest size category in terms of assets held. The practical implications of these gaps can be seen in the results of tests run against bulk transactional data, for example showing that a non-trivial proportion of payments lack critical identifiers.

As the volume and completeness of data grows, the goal is to make the dataset used for this paper available to external researchers. The ability to analyse trends over time and run more advanced analytics will allow for a greater understanding of areas in which investments in control systems are needed to improve outcome effectiveness, providing relevant intelligence for both supervisory authorities and private sector practitioners.