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TECHNICAL PAPER

Red flags for prioritizing asset declarations

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Executive Summary

All asset declaration oversight bodies encounter the following challenge: They receive thousands of declarations annually while each year they can audit only a fraction of these declarations in detail as to whether the declared data is correct and declarants do not profit from illicit income. On the one hand, one can select declarations based on general criteria, such as high-level positions of the declarants or whether they work in a specific high-risk sector (police, taxes, etc.). On the other hand, one could look for red flags or risk indicators in the declarations as such (suspicious items or values, etc.).

This technical paper reviews the concept of red flags as well as the advantages and limitations of their use. The use of red flags in the field of asset declarations of public officials is at a nascent stage with little previous research and national experience available. The paper argues that red flags should be used together with other methods of selections. If the system of red flags has been well developed it can help detect noncompliant declarants who passed through other criteria and have not been subject to complaints or attracted the attention of an oversight body due to other irregularities.

An oversight body can use two methods for developing red flags. One method is based on current statistical outliers where declarations with extreme values (e.g. highest savings or outside income) are to be selected. Another method is based on defining multiple rules – patterns, which correlate with noncompliance. The paper describes main approaches to developing systems of red flags for example the identification of systematic features, which in the past occurred more often in the group of declarations with violations, and scanning new declarations regarding the presence of the same features (red flags).

Creating a red-flags system rests on several prerequisites such as the availability of appropriate software, machine readable and generally conclusive data in the declarations, and the engagement of experts of different profiles (lawyers, IT specialists, statisticians, etc.). Moreover, the oversight body must continuously adjust and validate the red flags to ensure that they help identifying the noncompliant declarations more efficiently than a pure random selection. The paper contains a selection of examples of red flags that oversight bodies could consider, adapt as appropriate and use along with red flags of own design. The authors also drew upon the experience of the use of red flags in the areas of tax administration and anti-money laundering.

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1 Introduction

1.1 What are “red flags”?

“Red flags” belong to a loose set of terms, which refer to probabilities of irregularities, violations, risks, etc. Similar terms are risk indicator,¹ warning sign,² or risk factor.³ They all describe a similar concept: Red flags are indicators of a **probability** that a certain **irregularity** has occurred or a **risk** exists. For example, the Good Practice Guidelines on Conducting Third-Party Due Diligence (World Economic Forum, 2013) explain:

“Red flags refer to circumstances suggesting a strong corruption **risk** that should be properly identified and mitigated through adequate safeguards.”⁴

The use of red flags extends widely beyond the area of prevention of corruption. For example, the US Code of Federal Regulations (Title 16 Commercial Practices) defines red flag as

“a pattern, practice, or specific activity that indicates the **possible** existence of identity theft”.

In the context of analysing **asset declarations** of public officials, red flags can serve as a tool for:

- selecting, which declarations to **analyse**,
- following initial analysis, selecting, which declarations to **audit fully**,
- in circumstances of stretched capacity, determining, which declarations to analyse **first** and which later (subject to available capacity).

In other integrity areas, red flags could be of use in the future for example for prioritising the audit of political finance reports or of information submitted to registers of beneficial ownership. In 2018, the Community of Valencia (Spain)

¹ Article 25 part 1 item 4 of the Law of the Republic of Armenia “On Commission for Prevention of Corruption”.

² [Federal Government Directive Concerning the Prevention of Corruption in the Federal Administration](#) (2004), available at www.bmi.bund.de. Accessed 10 July 2020.

³ [International Standard on Auditing 240](#), available at www.ifac.org. Accessed 10 July 2020.

⁴ World Economic Forum (2013) [Good Practice Guidelines on Conducting Third-Party Due Diligence](#), available at www3.weforum.org. Accessed 10 July 2020 (emphasis added).

launched an IT system to analyse data generated by the administration, detect possible instances of fraud or corruption, and produce automatic alerts regarding, for example, split contracts, collusion in bidding, or unjustified periodic payments to the same company.⁵

1.2 What “red flags” are not

It is a frequent misunderstanding that, if a case triggers a “red flag”, that case must contain a **violation**. In other words: red flag = violation. This is wrong. A red flag refers only to a **probability**.

Another frequent misunderstanding is between a red flag and a **suspicion**. A suspicion is “a feeling or belief that someone has committed a crime or done something wrong”.⁶ A red flag is something very different. It is only a statistical probability that something is relevant for further attention. In the words of the Financial Action Task Force (on Money Laundering) – in the context of money-laundering prevention: “The mere presence of a red flag indicator is not necessarily a basis for a suspicion [...]”.⁷

1.3 State of research

The last 10 years, international organisations published a growing body of literature on asset declarations:

- OECD (2011), *Asset Declarations for Public Officials – A Tool to Prevent Corruption*, 152 pages
- World Bank (2012), *Public Office, Private Interests: Accountability Through Income and Asset Disclosure*, 172 pages
- World Bank (2012), *Income and Asset Declarations: Tools and Trade-Offs*, 179 pages
- World Bank (2012), *Using Asset Disclosure for Identifying Politically Exposed Persons*, 55 pages

⁵ Mas, A. (2018) *Rapid alert system*, presentation at the regional seminar “New Approaches and Practical Tools to Prevent Corruption at the Local Level”, Vienna, 5-6 November 2018.

⁶ Cambridge University Press (2020) [Cambridge Dictionary](https://dictionary.cambridge.org), available at <https://dictionary.cambridge.org>. Accessed 10 July 2020.

⁷ FATF/OECD (2013) [Money Laundering and Terrorist Financing Vulnerabilities of Legal Professionals](http://www.fatf-gafi.org), available at www.fatf-gafi.org. Accessed 10 July 2020.

- World Bank (2013), Income and Asset Disclosure: Case Study Illustrations, 276 pages
- ReSPA (2013), Comparative Study – Income and Asset Declaration in practice, 222 pages
- World Bank (2017), Getting the Full Picture on Public Officials: A How-To Guide for Effective Financial Disclosure, 149 pages

Despite the very commendable added value of these international publications, and even though “risk criteria” are mentioned in passing for prioritising declarations, the total of 1,200 pages provides almost **no guidance** on the following simple question: What would be a method or an exemplary set of concrete criteria that one can use to flag declarations that should be audited? The four main reasons for this lack of guidance are probably:

- Research so far has mostly been oriented on standards, while **practical**, concrete guidance, based on practitioner’s accounts is missing.
- Risk criteria for prioritising asset declarations up for audit are usually **confidential** – oversight bodies do not want declarants to use the criteria for targeted cheating. Therefore, research faces certain difficulties.
- Asset declarations are a rather **young discipline**. There is little if any practical experience yet with risk criteria for prioritising asset declarations subject to audit.
- **Laws** sometimes still limit selection for audit to fixed criteria such as pre-defined categories of public officials.

As a result, risk criteria cannot lean on international guidance and to a large extent not even on comparative examples.

1.4 What is the added value of “red flags”?

Countries use various criteria to select and/or prioritize declarations for verification. Besides risk-based selection, by and large three major kinds of approaches to selection exist:

- Selection based on indications of **suspected violations** (notifications from other public bodies, submissions of citizens, reports by the media, etc.). For example Albania: The complete audit or re-audit of the declaration is carried out any

time by the Inspector General, when he has data from legitimate sources, putting in doubt the authenticity and accuracy of the data contained in the declaration of an official [...].⁸ Georgia: The ground for initiating the monitoring of an official's asset declaration shall be: [...] b) a substantiated written statement.⁹

- Defined groups of public officials whose declarations are selected **mandatorily** (*ex officio* or by law). These are high-level officials and/or officials in sectors or positions believed to have high risks of corruption or even without such a risk, who should be subject to regular scrutiny because of their political accountability. For example Ukraine: Declarations of officials that hold position of high and especially high responsibility, of declarants who hold positions associated with a high level of corruption risks, the list of which is approved by the National Agency, are subject to mandatory, full verification.¹⁰

Random selection. For example, Georgia: The ground for initiating the monitoring of an official's asset declaration shall be: a) a random selection by the Unified Declaration Electronic System [...].¹¹

All of these methods build on different **assumptions**:

- Concrete suspicions about inexplicable wealth have a high probability of turning out to be justified if the respective declaration is audited;
- Certain positions have a higher potential for generating inexplicable wealth;
- Declarants who cheat will do so carefully in order to stay under the radar; only random selections can expose such declarations.

In addition, the assumption for **red flags** is the following:

- "Unusual" items or patterns in a declaration or a set of declarations have a high probability of being linked to inexplicable wealth, which can be exposed if the respective declaration is audited.

It is obvious, that each of the four above assumptions has its own merits. They all have a different starting point to connect the risk to. For example, while mandatory selection relates to the official and his/her position, red flags only relate to the

⁸ Article 25/1 part 4 of the Albanian Law on the Declaration and Audit of Assets, Financial Obligations of Elected Persons, and Certain Public Officials.

⁹ Article 18¹ part 1 of the Georgian Law on Conflict of Interest and Corruption in Public Service.

¹⁰ Article 50 part 1 para. 2 of the Ukrainian Law on Prevention of Corruption.

¹¹ Article 18¹ part 1 of the Georgian Law on Conflict of Interest and Corruption in Public Service.

declaration and the data contained within. As such, none of these approaches trumps each other, and they all **complement each other**. The importance of the red flags approach is that it can add another angle at selecting relevant declarations and thus increase the overall rate of audits detecting inexplicable wealth.

At least theoretically, the added value of red flags is the possibility to **focus** more sharply on the potentially problematic part of the pool of declarations. A system, which uses a well-developed system of red flags, could reduce or even totally abandon the *ex officio*/mandatory selection because, for example, a higher-level position *per se* is not in all countries a valid predictor of a higher probability of cheating in declarations. For reasons explained further in this paper, an oversight body should still audit at least some declarations based on random selection, but also the randomly selected sample could be kept relatively small once a good system of red flags has been developed. Thus, the red-flags-based selection is a method for reducing the proportion of audits that do not reveal irregularities and achieve a greater level of deterrence with the same or even smaller expense of resources.

1.5 National examples of red flags

In some countries, the regulatory framework envisages the verification of declarations based on red flags or equivalent criteria, for example:

- Armenia: The Commission for the Prevention of Corruption “shall carry out [...] declaration analysis based on risk indicators [...]”.¹²
- Ukraine: “Declarations filed by other declarants [who do not hold high positions], in the event of discrepancies discovered as a result of logical and arithmetical control, shall also be subject to full verification.”¹³

Furthermore, even without mentioning risk criteria in the national legislation, some asset declaration oversight bodies apply certain risk criteria for selecting which declarations they want to subject to an in-depth audit. For example, in Bhutan, Georgia, and Indonesia, a certain **misbalance** of the incoming and outgoing cash-flows is considered a red flag.

¹² Article 25 part 1 item 4 of the Armenian Law “On Commission for Prevention of Corruption”.

¹³ Article 50 part 1 para. 3 of the Ukrainian Law on Prevention of Corruption.

Use in the AML system and tax administration

Financial institutions and designated non-financial businesses and professions as well as Financial Intelligence Units (FIU) have a similar challenge as asset declaration oversight bodies. Financial institutions engage in a larger number of customer relationships, and FIUs receive a larger amount of reports on possible **money-laundering** or terrorist financing than they can analyse in depth. Thus, the Financial Action Task Force (FATF) provides “guidance” with

“a collection of **red flags** and indicators for suspicion that can be used to assist in the detection of misuse of the financial systems by PEPs [politically exposed person] during a customer relationship”.¹⁴ “Examples of such red flags are the use of corporate vehicles to obscure ownership by PEPs, **information** being provided by the PEP being **inconsistent** with other publicly available information (such as asset declarations and published official salaries), or doing business with PEPs that are connected to higher risk countries (such as those for which FATF issues public statements) or high risk industries or sectors.”¹⁵

Publications by the FATF and the Egmont Group provide list of red flags which the private sector and FIUs can use for their risk-based selection prioritisation of information received.¹⁶

In the area of **taxes**, risk criteria play an equally important role for the purpose of increasing tax revenues:

“Most tax administrations have developed audit strategies focusing on taxpayer noncompliance risks [...]. This experience has shown that an efficient audit selection strategy must identify those taxpayers who are the most likely to be noncompliant, that is, who have the **highest likelihood** of yielding large amounts of audit adjustments and penalties. In this spirit, many tax administrations have developed audit selection strategies based

¹⁴ FATF/OECD (2013) [FATF Guidance. Politically Exposed Persons](https://www.fatf-gafi.org/publications/fatfrecommendations/documents/FATF-Guidance-Politically-Exposed-Persons.pdf), available at www.fatf-gafi.org. Accessed 10 July 2020.

¹⁵ FATF/OECD (2013) [FATF Guidance. Politically Exposed Persons](https://www.fatf-gafi.org/publications/fatfrecommendations/documents/FATF-Guidance-Politically-Exposed-Persons.pdf) (Recommendations 12 and 22), available at www.fatf-gafi.org. Accessed 10 July 2020.

¹⁶ Egmont Group [EG-Bulletin-02/2019](https://www.egmontgroup.org/publications/EG-Bulletin-02/2019), available at <https://www.egmontgroup.org>. Accessed 10 July 2020.; FATF/OECD (2013) [Money Laundering and Terrorist Financing Vulnerabilities of Legal Professionals](https://www.fatf-gafi.org/publications/fatfrecommendations/documents/FATF-Guidance-Money-Laundering-and-Terrorist-Financing-Vulnerabilities-of-Legal-Professionals.pdf), available at www.fatf-gafi.org. Accessed 10 July 2020.

on **risk-scoring** techniques comparable to those used to select clients in banking or insurance.”¹⁷

As FIUs and tax authorities have decades of experience ahead of asset declaration bodies, it is essential for an asset declaration body to seek **cooperation** with these bodies and try to profit from their experience.

2 Frequent misunderstandings

2.1 Myth 1: Red flags are the “all-inclusive”-solution

An oversight body should not regard red flags as the only necessary type of criteria for the selection of declarations to audit. Red flags focus only on the declarations and the information disclosed **therein**. This entails two weaknesses: First, there is always a chance that one or several red flags will be “**falsely**” **defined**. For example, a red flag could be if a declaration contains an unusually high amount of cash (e.g. > 100,000 €). Still, in reality, after an audit none of these declarations might turn out to hide anything illegal. Thus, the red flag is “false” as it does not produce relevant results (= higher amounts of audits with findings of violations). Second, even the most refined set of red flags does not work where “smart” declarants submit a “**smooth**” **declaration** (not raising any red flag), but still cover up hidden large amounts of income or assets (for example behind beneficial ownership or simply abroad). In other words: Red flags can only work with what one sees in the declaration, but rather not, with what cannot be seen from the declaration. As one practitioner from an asset declaration oversight body put it: “The problem is not, what is declared, but what is not declared.”¹⁸ Therefore, red flags can only be **one of many** criteria for prioritizing asset declarations that should be subject to audit. The most common criteria are:

“Randomly selected sample [...], High-risk sectors [...], High-risk functions [...], Hierarchy [...], Red flags [...], Referral from another agency [...], Complaint or allegation [...], Media reports [...]”¹⁹

¹⁷ World Bank (2011) [Risk-Based Tax Audits](https://openknowledge.worldbank.org), page 20, available at <https://openknowledge.worldbank.org>. Accessed 10 July 20; see also European Commission (2010) [Compliance Risk Management Guide For Tax Administrations](https://ec.europa.eu), page 26, available at <https://ec.europa.eu>. Accessed 10 July 20: “Traditionally, many tax administrations concentrated on this risk area [risk that tax yield will be affected where the amounts shown on the tax return are incorrect by error or deliberate act] with the intention of determining which cases should be selected for conducting audit activity.”

¹⁸ Gregor Pirjevec, Slovenian Commission for Prevention of Corruption, in an exchange with the authors on 26 June 2020.

¹⁹ World Bank (2017) [Getting the Full Picture on Public Officials](https://star.worldbank.org), page 71, available at <https://star.worldbank.org>. Accessed 10 July 2020.; see also [Western Balkans Recommendation on Disclosure of Finances and Interests by Public Officials](https://www.respaweb.eu) (2014), no. E.5: “The sample of public officials should be based on a random choice, as well as on risk-criteria”, available at www.respaweb.eu. Accessed 10 July 2020.

One could add to this list the declarations of officials who have been disciplined or otherwise sanctioned or whose official acts have been subjects of complaints.

2.2 Myth 2: Red flags are the most effective tool of prioritizing

It is possible that a well-developed system of red flags becomes a highly effective tool of prioritising, but this outcome cannot be taken for granted. First, there is **no statistically** representative practice available allowing for any valid conclusion in this direction. As far as can be seen, Ukraine is one of the few countries world-wide applying a comprehensive set of red-flag rules. Ukraine does not audit a random pool of declarations which would provide a statistical reference point for comparing effectiveness. Furthermore, the National Agency for Corruption Prevention started using the red-flag rules only in 2019, encountered several challenges, and is considering changes to the system. Thus, it is too early to call in for results on the effectiveness of the red flag system. Second, several practitioners from asset declaration bodies in other countries confirmed that the highest rate of “hits” is usually within the pool of **complaints** by citizens about declarations, in some instances even well above 90% (in countries where declarations are available online and ideally are electronically searchable). Third, **other prioritisation** criteria might also have higher “hit-rates” (such as focusing on declarants from sectors of high-occurrence of corruption in a given country, such as police, judiciary, or taxes).

2.3 Myth 3: There is a “best practice” set of red flags

First, internationally the use of red flags for the verification of assets declarations of public officials is yet an **underdeveloped** field. Second, depending on the overall level of wealth in the society, a certain number and kind of assets can be regarded as a red flag in one society while a perfectly regular pattern of **welfare** in another. For example, in one country owning 2 or 3 cars may be a red flag, while in another country it may be “normal”. Third, in different countries, corrupt officials will use different **methods** of hiding expenditure or legalising wealth, and will leave different **traces**. The methods and traces will depend on the level of control and the reliability of registers in that country. Generally, the better the overall enforcement, at greater length corrupt officials will go to hide illicit enrichment or private interests. Furthermore, the level of detail and the format of **data** in declarations will affect how red flags can be defined.

2.4 Myth 4: Red flags are written in stone

Red flags need **constant updating**, especially in the early years of their use. Behaviour of corrupt officials changes over time. For example, at one period fictitious cash savings declared in the beginning may be a favoured method of explaining illicit income generated in later years. When this starts drawing much attention or technologies develop, declarants may shift toward the use of cryptocurrencies or move assets into corporate vehicles. The system of red flags should evolve along with such changes.

2.5 Myth 5: Red flags don't require work

"Anything can be suspicious"²⁰ – this statement from a practitioner in an asset declaration oversight body encapsulates the challenge in extrapolating the most relevant red flags from a vast sea of options. Successful use of red flags requires several working steps: collection of intelligence, analysis, definition of the red flags, testing, upgrading over time. The more sophisticated the red flags are, the more **analytical effort** is needed. For example, complex patterns of relationships between different types of declared data or comparisons of cash flows, do not just fall into one's lap. The work will be even more demanding if the oversight body does not have analytical software, which allows for statistical analysis of past and current declarations and easy screening of the data based on specific criteria.

2.6 Myth 6: Red flags improve any given declaration system

"Garbage in, garbage out" – this colloquial expression from computer science describes "the concept that flawed, or nonsense input data produces nonsense output".²¹ Translated to asset declarations, this means: Where declaration systems contain significant **gaps**, the use of red flags is not possible or the meaningfulness of the red flags will be limited at best. For example, where a declaration system does not require the declaration of transaction values, any red flag such as "value of asset purchased is disproportionate to the income" is not possible. At the same time, a red flag such as "more than three vehicles" is limited without the value of the three vehicles – they could all be close to scrap. In these cases, it could make sense to run the analysis of red flags only after additional data have been gathered (ideally electronically) or estimates made, for example: sources of income obtained from the

²⁰ Gregor Pirjevec, Slovenian Commission for Prevention of Corruption, in an exchange with the authors on 26 June 2020.

²¹ Wikipedia [Garbage in, garbage out](https://en.wikipedia.org/wiki/Garbage_in,_garbage_out), available at <https://en.wikipedia.org>. Accessed 10 July 2020.

tax administration, the value of real estate transactions retrieved from the cadaster, dates of awarded credits retrieved from credit bureaus or equivalent, etc.

2.7 Myth 7: For each possible violation, a red flag exists

For certain **financial** violations by declarants no corresponding red flag exists: For example, hidden earning of income abroad (e.g. through consultancies) and just keeping it on a foreign bank account may not reflect in the declaration in any way. Probably no red flags will alert the oversight body to a situation where remote family members are the formal owners of assets (possibly through corporate vehicles) while the declarant is (secretly) the beneficial owner.

This aside, in practice, most red flags aim for a financial misbalance and thus for the financial side of declarations: Financial data is usually machine readable (e.g. “loan taken by the declarant > than estimated life-time income = risk”). **Private interests** (conflicts of interest) are less suitable for being programmed into algorithms: An algorithm cannot decide, whether a company of a judge’s husband constitutes a private interest that conflicts with the judge’s job duties. Monitoring software could identify formal connections between an official and private entities (e.g. the system PREVENT in Romania²²), but no software (so far) can read and process judge’s cases, determine the parties involved, and fully assess the involved interests. In most cases, it requires a human being to detect even only the red flags.²³ A few very limited indicators are possible in the area of conflict of interest (see below at 6.5).

3 What do I need to set up a system?

3.1 Software

Risk criteria would need to be programmed into **software**, which would scan the oversight body’s database and flag declarations with a high priority for audit. Wherever possible, agencies should avoid manual screening for red flags. To apply risk criteria manually, staff would need to check each dataset/declaration and calculate how they correspond to the criteria. One of the purposes of risk criteria is to avoid exactly this manual work. Where an agency wants to screen both newly submitted and past declarations, it must design the software to enable processing the

²² National Integrity Agency (ANI) [PREVENT](http://www.uti.eu.com), available at www.uti.eu.com. Accessed 10 July 2020.

²³ For detecting conflicts of interest through manual audits (in addition to automated risk checks), the following provides guidance: ReSPA/Tilman Hoppe (2017) [*Detecting hidden conflicts of interest, Methodology for oversight bodies and other stakeholders, Albanian, Bosnian, English, Serbian*](#), available at www.respaweb.eu. Accessed 10 July 2020.

archived declarations. In some cases, it means that the software may have to be able to process declarations of different formats.

There is no universal of-the-shelf software for the processing of asset declarations. Each oversight body uses their own customized software. Regarding red flags, the **functionalities** of the software should include the following:

- Interface for entering logical rules (such as: “if income > X then Y”);
- Automatic red-flags screening of new declarations immediately after their submission;
- Retrospective user-initiated analysis of declarations archived before the introduction of the software;
- Filters of declarations by the category of the official, the area where red flags are identified (i.e. selecting only the declaration where red flags associated with real estate are present), the presence of formal violations (e.g. late submission), etc.;
- Possibility to record data on violations identified in or based on past declarations (including proceedings of law enforcement agencies and final convictions in cases that were originally triggered by irregularities in declarations);
- A tool for descriptive statistics, which permits, among other things, creating summaries regarding the frequency of certain data (e.g. the distribution of declarations by the number of declared vehicles or the total amount of savings) and cross tabulation;
- A tool for certain analytical statistics such as logistic regression.²⁴

Oversight bodies, which currently have software not intended for risk/ red-flags monitoring, would at least have to modify the existing system significantly to create all of the mentioned functionalities. However, it is likely that an entirely new software would be needed.

3.2 Machine readable data

Risk criteria can only work to the extent **machine readable** data is available. The database of declarations has to ensure that:

²⁴ Wikipedia [Logistic regression](https://en.wikipedia.org), available at <https://en.wikipedia.org>. Accessed 10 July 2020.

- Data are unequivocally structured (e.g. it must be absolutely clear whether income from the sale of an object shall appear in the line of changes in assets or the line of income in the covered period);
- Data formats are predetermined for all categories where it is possible (e.g. there should be only one way to indicate the currency and other standardized data, preferably by choosing from a drop-down list);
- A machine can read the data.

Electronic submission of declarations is an advantage because it prompts the declarant to enter data in the necessary machine-readable format without the need for the oversight body's personnel to transform the data.

Another aspect of machine-readable data is **automated access** by the oversight body to other public **databases**. In ideal systems where such automated access exists, the red-flags system can be designed to consider unusual patterns or inconsistency with data automatically retrieved from other databases as well.

3.3 Conclusive data

Machine readable data in itself is not enough. Declarants also need to fill out forms (formally) correctly: Red flags do not work, where declarations still contain a significant number of **formal mistakes** and the prevailing quality of filled data is poor. For example, if declarants confuse which value to put into the fields or simply are careless regarding what to enter in what field, red flags will lead to **false alarms**. Practitioners underline these formal mistakes and false alarms as a key reason why red flag systems do not work. The intense "background noise" of false alarms effectively prevents distinguishing substantive red flags.

Conclusive data depends mainly on the following factors: A clear, precise, conclusive, and user-friendly **declaration form**; clear instructions and other advice available to declarants; formal checks on all verifications to weed out mistakes before they lead to false alarms; effective sanctions for negligent filling of the declarations at least when committed repeatedly. Declarations automatically prefilled based on data from other public registers can increase the quality of data significantly.

3.4 Working group

Designing requirements for the software and defining criteria of red flags require expertise of several kinds. The oversight body should set up a working group for these purposes. Participants of the working group shall be selected to represent the following competences and perspectives:

- legal expertise regarding consequences of violations, possibilities and limitations in obtaining and using data;
- verification/investigation experience to take into account practical challenges and identify methods for overcoming them;
- IT expertise regarding IT solutions to be used in the system;
- statistical expertise regarding possibilities that statistical analysis can provide;
- senior/mid-level management to ensure the development is consistent with the strategy of the agency and receives appropriate managerial support;
- where available, civil society, media or academic expertise regarding the analysis of declarations.

3.5 Confidentiality

The red flags should **not** be **public information**. The number of staff who have access to the full risk criteria should be as small as possible. This means, among other things, that the membership of the working group must, on the one hand, bring all necessary kinds of expertise and, on the other hand, include no more persons than really necessary. The software developers shall have relevant security certificates or equivalent as required by legislation in the country.

Practitioners from asset declaration bodies as well as from the anti-money-laundering sector confirmed that red flags should be guarded with the utmost secrecy. In Slovenia, for example, even the selection of a certain focus group, such as MPs or judges, for the annual round of audits is only revealed after the audits are done. Otherwise, declarants would know in advance that they are subject to an audit and might still influence the outcome (e.g. by creating or deleting paper trails about relevant cash flows or private interests). As Daniel Thelesklaf, former Chairman of MONEYVAL, puts it for the area of anti-money-laundering: “Risk criteria for prioritizing reports are the **best kept secret** at an FIU”.²⁵ With the same rationale, tax

²⁵ In an exchange of thoughts with the authors on 26 June 2020.

authorities keep confidential their systems, by which they prioritize tax declarations that should be subject to an in-depth audit. As maybe the only exception known, in **Ukraine**, the rules and the weight of each rule are public information. An assessment by a European Union project gave the following recommendation in 2017: “The rules and formula for the calculation of the risk rating, and any other aspect of what is considered a red flag by the NACP should be confidential.”²⁶

3.6 Regulation

In general, running a system of red flags is an **internal procedure** of an oversight body in the course of verification. Thus, it would (and should) not need legislation, provided the oversight body is mandated to carry out audits and is not restricted in its discretion in a way that excludes red flags (for example, if the legislation only foresees audits for certain positions, for randomly selected declarations, and otherwise in case of complaints). It is probably fair to say that the legislation of most asset declaration systems allows for setting up a system of red flags at the discretion of the oversight body.

4 Two methods

4.1 Overview

An oversight body can use two methods for developing red flags. One method is based on current statistical outliers. Another method is based on defining multiple rules. The below table summarizes key features of both methods. Chapters 3 and 4 describe the methods in detail.

	Method 1	Method 2
Name	Current statistical outliers	Multiple rules
Description	This method is based on one basic rule: Which declarations stick out most? This means, the declarations with the highest number of square meters in real estate, number of cars, amount of income, etc., are subject to audit.	This method uses a set of multiple rules, based on which the system assigns a number of risk points to a declaration. These are rules such as “number of cars > 5 = 3 risk points”. Where declarations have

²⁶ EUACI/Tilman Hoppe/Valts Kalnins (2017) [The business process of verifying e-asset declarations at the NACP Ukraine](http://tilman-hoppe.de), Recommendation 83, available at <http://tilman-hoppe.de>. Accessed 10 July 2020.

		risk points above a certain threshold, they are subject to an audit.
Advantages	This method is simple to programme and to understand. A system based on this method requires little or no maintenance. This method is a bit less predictable than the method 2. If rules of the method 2 are known in public, declarants can work around them (e.g. the rule “more than 5 cars = risk” could be played by not declaring 1 car or transferring it to someone outside the household). In method 1 the concrete reference value is less clear: How many cars are clearly above average, 3, 4, or 5? Each year, this value can be different depending on the data declared. This method is suitable also for systems where limited data is declared.	This method describes concrete risk patterns and can be adapted to certain experiences in practice over time.
Disadvantages	The module does not work with small signs of risks, such as statistically unlikely lottery wins, foreign income, etc., as long as they are not outliers. A great number of declarations are excluded from scrutiny based on a single basic rule. The method could be less sensitive in cases where information is underdeclared (“officially poor” persons). If this approach is known, declarants can make sure they do not declare too much.	The method requires rather high maintenance (defining thresholds for each rule and then adjusting them to reach a desired number of prioritised declarations). The benefit of detailed rules might not outweigh the effort in defining and updating the rules. If rules of the method 2 are known in public, declarants can work around them.

4.2 Which method should be the starting point?

4.2.1 A mix is always the best

So far, there is **no *ex ante* evidence** that any of the two methods works in general better than the other one. This aside, it seems fair to assume that both could complement each other. Therefore, one could start out by selecting half of the declarations based on red flags outliers, and the other half based on multiple rules (in addition to all other possible triggers for an audit). After one round of audits, one could compare both with each other, and with the control group of randomly selected declarations (see also below at 7.1). It may be, that even after adaptation over time one of the two approaches may have to be dropped for lack of effectiveness.

4.2.2 Building on an existing record of irregularities

One approach to developing a new system of red flags is to analyze previous declarations by comparing those that were found compliant with those where violations were found. The aim of the analysis is the identification of **systematic features**, which tend to occur more often in the group of declarations with violations. This, however, applies in systems where there is a significant past record of detected non-trivial irregularities. For the area of red flags in the anti-money-laundering sector, Daniel Thelesklaf, former Chairman of MONEYVAL, summarized: “The best red flags are the ones extrapolated from past cases. Because these are cases that actually happened.”²⁷ Irregularities in previous declarations could inform both, criteria for statistical outliers as well as multiple rules.

Logistic regression could be run regarding past declarations. Logistic regression is a statistical tool, which predicts relationships between one or more independent variables, for example, the number of cars or the value of savings declared and a binary (yes or no) type of dependent variable, for example, the presence of a violation. Logistic regression can answer questions like: “How does the probability of undeclared sources of income (yes vs. no) change for every additional declared 1,000 currency units in cash savings?”

The dependent variable would be **binary** – compliant/non-compliant declaration (values 0; 1 on the vertical axis in the below fictional graph). The independent variable would be a certain category in the declarations. In the below graph (fictitious

²⁷ In an exchange of thoughts with the authors on 26 June 2020.

example), we see that declarations with savings of approx. 5,000 and above are more likely to be non-compliant than compliant.²⁸ The statistical report of this analysis will provide probabilities (P), which will range from 0 to 1, for each value of the independent valuable (savings in this example). P=0 will mean that a declaration with certain savings will never be non-compliant based on the sample of declarations analyzed. P=1 will mean that a declaration with certain savings will always be non-compliant.

Note that this manual only indicates the potential use of this statistical technique without a review of all relevant technical and mathematical aspects. A **professional statistician** should be involved in developing the statistical analysis tool and interpreting the results.



4.2.3 Starting without a record of irregularities

In case there is no record of irregularities yet, the oversight body needs to develop the criteria of red flags based on more abstract reasoning. Start with the mix of methods. For the part based on multiple rules, the working group will have to develop **hypotheses** regarding, which features could be associated with non-compliance. The task could be approached by posing a number of questions:

- If I wanted to **conceal** certain income or create a false impression that an asset has been obtained based on legal income, how would I do it in a declaration? In what ways could this remain visible (as red flags) in the declaration?

²⁸ Graph produced on the [Stats-website](http://stats.blue), available at <http://stats.blue>. Accessed 10 July 2020.

- From the point of view of common sense and analytical reflection, what kinds of data should be **associated**? For example, the presence of certain properties is likely to require expenses for maintenance.
- From the point of view of common sense and analytical reflection, what **ratios** between certain kinds of data can be expected. For example, what is the normal upper limit of credit for a person with a certain income?
- Are there risk criteria that could be **borrowed** from tax authorities, or private financial and insurance institutions?

Adapt the rules to the way data are presented in the actual declaration system.

5 Method 1: Statistical outliers

5.1 What are outliers?

Definition: Technically “an outlier is a data point that lies outside the overall pattern in a distribution”.²⁹ Consider the salary of ten officials in the below table. The salary of the official 10 is outside the overall pattern.

Official	1	2	3	4	5	6	7	8	9	10
Salary	900	950	950	1,000	1,000	1,020	1,030	1,100	1,130	4,500

A key assumption behind the method of statistical outliers is that sooner or later the wealth of highly corrupt officials will show. It will appear in one or another way in the declaration, and, since highly corrupt officials tend to become richer than honest ones, their declarations will become conspicuous with unusual levels of income, assets, other economic activity, etc. The same assumption applies to declarations of family members of such officials.

5.2 Purely numerical outliers

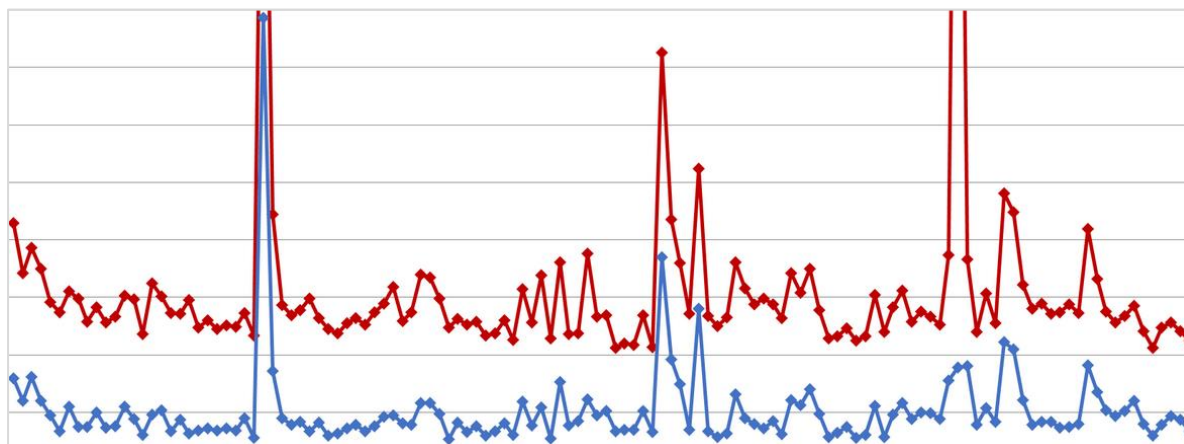
5.2.1 Description

There are several ways how outliers can be calculated. For example, from each of the financial categories of the declaration form, one may take the 20 highest outliers. Alternatively, the system could select the highest 10 percent (decile), or outliers, which

²⁹ Khan Academy (2020) [Identifying outliers with the 1.5xIQR rule](https://www.khanacademy.org/identifying-outliers-with-the-1.5xIQR-rule), available at www.khanacademy.org. Accessed 10 July 2020.

exceed a certain value from the mean. For some categories of information – both highest and lowest values could be selected. For example, for high-level officials it would be reasonable to select declarations with the highest savings as well as those with the lowest or no savings.

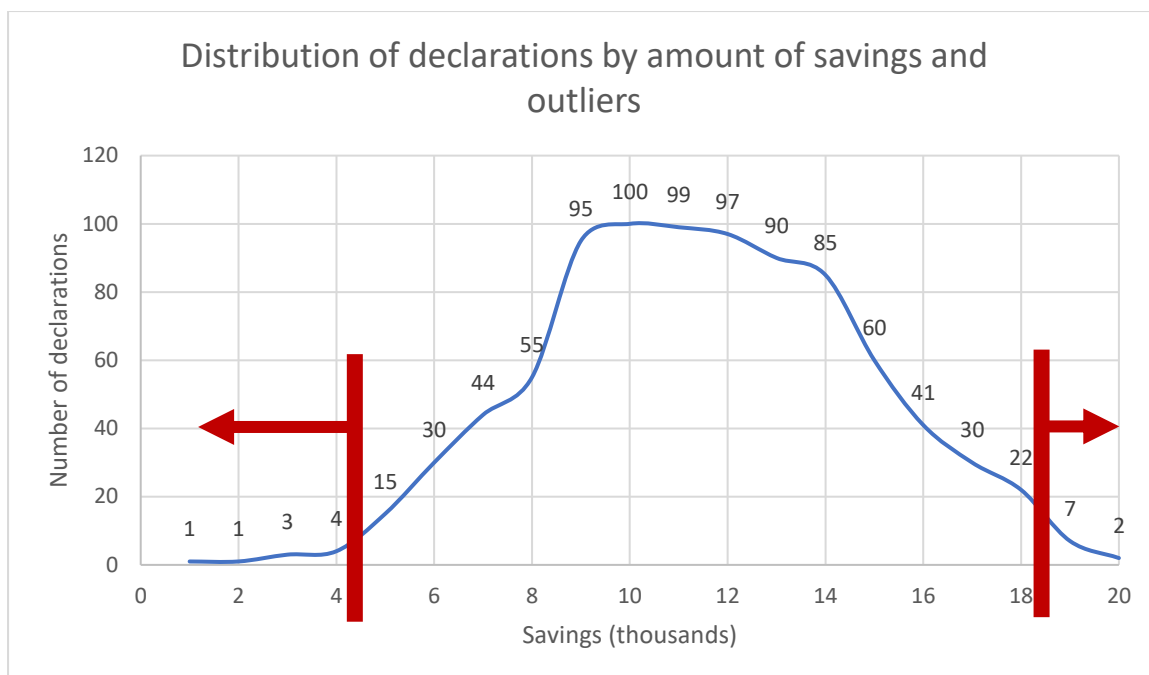
A graphical result of software running through the pool of declarations could look as follows:



In this exemplary graph,³⁰ each dot of a line represents a value in a different declaration. The red line could for example represent the values of real estate, the blue line the values of loans. Thus, one could identify outliers for each line (the highest deviations from the average to be calculated by the system), going upwards. There is no line fixed once and for all to separate outliers from “the normal” values. It can be adjusted to capture a larger or smaller share of the “peaks” depending on the capacity of the oversight body, estimated likelihood of detecting noncompliance and other factors.

An alternative graphic presentation (fictional example):

³⁰ Graph based on the following open license picture on [Wikipedia](https://commons.wikimedia.org), available at <https://commons.wikimedia.org>. Accessed 10 July 2020.



Outliers can also be calculated for more sophisticated indicators.

- Ratio between annual income and debt.
- Ratio between annual income and property (or other type of assets).
- Ratio between income from the public office and outside income.
- Year-on-year increase in savings, extended loans, etc.

A system, which identifies outliers based on sophisticated indicators, could be considered a **hybrid method** between the outlier and multiple rules method.

Outliers can be calculated for the **whole pool** of declarations or separately for different categories of officials. For example, a certain declaration of an investigator might look perfectly average in the total pool of declarations, which includes high-earning top-level officials. However, when compared only among officials of similar level and specialization, it could turn out to be an outlier.

5.2.2 Parameters for determining outliers

The exact parameters for determining the outliers will vary depending on the declaration form. The below table provides examples of parameters for different categories of declarations:

Declaration form category	Parameter for determining outliers (above or below the threshold)
---------------------------	--

Income	
1. Official's income public sources	(none – official income is not a risk)
2. Incomes deriving from other job or business	Total amount
3. Incomes deriving from certain permitted outside work, for example, research and scientific, educational, cultural, humanitarian and sports activities	Total amount
4. Incomes deriving from copyright, patent and other intellectual property rights	Total amount
5. Incomes deriving from membership in bodies of associations	Total amount
6. Other incomes	Total amount
7. Incomes of family members (and similar)	Total amount
Assets	
1. Immovable assets in the country and abroad	Total number of properties, total square meters or value
2. Movable assets subject to registration	Total number or value
3. Movable assets of a higher value (valuables, collections, artistic objects, animals and so forth)	Total number or value
4. Shares	Total nominal/market/purchase value
5. Other securities and financial instruments (bonds, commercial papers, treasury bills, insurance policies, promissory notes and so forth)	Total nominal/market/purchase value
Deposits, debts and claims	
1. Current account (national and foreign currency)	Total amount

2. Other bank (national and foreign currency) accounts	Total amount
3. Leasing of safety deposit boxes in banks	Number of boxes; value of content if declared
3. Debts due to loans	Total amount
4. Claims	Total amount
Legal entities and entrepreneurial activity	
1. Legal entities with direct participation of the declarant	Number of legal entities
2. Legal entities with indirect participation of the declarant	Number of legal entities
3. Entrepreneurial activity	Total value of business or total amount of income – depending on the declaration form

Identifying outliers can be programmed into the software of the oversight body. It also is a standard function in the Excel spreadsheet.³¹

5.3 Outliers extrapolated from violations

As described under section 4.2.2, one can extrapolate relevant outliers from a pool of past violations. It may be, for example, that in 80% of the cases of significant false declaration and/or inexplicable wealth, the declarants had declared amounts of cash > 30,000 Euro or the declarants were high level officials with savings < 100 Euro.

6 Method 2: Multiple rules

6.1 Preliminary note

6.1.1 Stand-alone and combined criteria

In a set of multiple rules, some criteria are so serious signs that they in **themselves** call for an audit (stand-alone criteria), while others would only do so if **combined** with 1

³¹ See for instructions on the web: Murray, A. (2019) [How \(and Why\) to Use the Outliers Function in Excel](https://www.howtogeek.com/107112/how-to-use-the-outliers-function-in-excel/), available at [www.howtogeek.com](https://www.howtogeek.com/107112/how-to-use-the-outliers-function-in-excel/). Accessed 10 July 2020.

or 2 other criteria. In the methodology, this can be stipulated by assigning a certain number of risk points to each criterion. When a declaration fulfils a criterion, the respective points are added to the declaration's score. It could be set that any declaration, which scores 5 or more points, is selected for audit. Then the stand-alone criteria would count 5 points each, while others would count fewer points. Like the rules themselves, also the risk points would ideally be determined based on the analysis of past irregularities. 5 points would be assigned to criteria, which are present almost exclusively in non-compliant declarations. For example, a criterion X shall be assigned 5 risk points if, in the past, at least 80% of declarations, which corresponded to the criterion, were found noncompliant. In the absence of relevant past record, the risk points shall be defined as hypotheses based on common sense and anecdotal experience and revised based on practice in the coming years.

If one wants to further prioritise the already selected declarations, one can sort all the declarations in the order of total risk scores. The declarations with the **highest totals** of risk scores are subject to audit (total number of declarations audited depending on capacity available).

6.1.2 Calibration of thresholds

Any thresholds are only **indicative** and need to be lowered or raised before starting operations to adapt the number of flagged declarations down/up to an appropriate, workable level ("playing with different variety of sets of thresholds"). For example, if the threshold for bank deposits EUR 500 leads to the selection of 65% of all declarations, it obviously has to be raised to, for example, EUR 5000. This exercise of calibration of thresholds needs to be repeated regularly in order to adapt to changing living and lifestyle conditions. In this sense, the method 2 is a living body.

6.1.3 Simple and advanced rules

There are risk criteria which will require little if any **effort** in **programming** a computer system (marked in the "feasibility" column of the below tables of examples with a "1"). There are others, that require more programming or data from the entry declaration (marked with "2"), but do not require constant feeding in of outside data (e.g. price lists of cars). More complex risk criteria (marked with "3") will require, in particular, outside data or further definitions to be fed into the system (e.g. the software will need to be able to make a distinction between domestic and foreign accounts, or domestic and foreign contract partners, or to compare declared values of assets with defined reference values such as price lists or national statistical data).

A system only working with a selection of risk criteria of feasibility categories “1” and “2” can certainly be sufficiently effective (keeping in mind that, anyhow, risk criteria are no panacea, see above 2). The feasibility categories in the below tables are determined based on the general experience and would have to be adjusted in view of the specifics of the system, for which the rules would be set.

Note that the below criteria are examples and should be seen as a catalogue from which to choose rather than a complete prescription. A meaningful red-flags system can work even if the number of criteria is much smaller. It is also a fully valid option to launch the system with a set of simpler criteria and to add more sophisticated criteria once significant practice of risk monitoring is accumulated.

6.2 Set 1: Internal coherence of declaration

6.2.1 Numerical criteria

6.2.1.1 Absolute monetary thresholds

Description	Risk points	Feasibility
- Bank savings above a total of X [currency] multiplied by age of declarant/family members	3	2
- Vehicles above a total value of X [currency] multiplied by age of declarant/family members	3	2
- A vehicle worth more than 30,000 €	3	1
- Foreign income above a total of X [currency] per year	3	2
- Foreign bank accounts above a total balance of X [currency] multiplied by age	4	1
- Loans or debts to third parties above a total of X [currency]	3	1

- Loans or debts to foreign parties above a total of X [currency]	4	1
- Sudden pay down or pay off of loans above X [currency] /year	3	1
- Shares or stocks above an investment value of X [currency]	3	1
- Financial instruments above an investment value of X [currency]	3	1
- Large income from entrepreneurial activity > X [currency]	4	3

Note: The rules are based on certain assumptions. One such assumption is that older persons are likely to have more valuable assets. This may hold in some societies more than in others. Therefore, each assumption of this kind must be assessed and validated in the national context where it is to be applied.

6.2.1.2 Absolute thresholds of the number of items

Description	Risk points	Feasibility
- Number of real estate items more than 2	3	1
- Number of vehicles more than 2	2	1
- More than one vehicle per 10 years of age of declarant/family members.	3	2
- Number of movables of higher value more than 10	3	1
- More than three assets of higher value per 10 years of age of declarant/family members	3	2

- Shares of more than 50 % in more than 3 legal persons	4	1-3
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6.2.1.3 Absolute size thresholds

Description	Risk points	Feasibility
- Real estate larger than 500 square meters	4	1
- Real estate above space of 5 square meters multiplied by age of declarant/family members	3	2
- A vessel longer than 7 meters	4	3

Note: Above thresholds could be set at different values for different levels of official positions to reflect the differing income and wealth levels.

6.2.1.4 Thresholds of financial relations between declared items

These thresholds relate selected items of incoming cash flows to items of outgoing cash flows:

Description	Risk points	Feasibility
- Current savings above "initial savings + income in office/as declarant"	5	2
- Current savings above "initial savings + salary received"	3	2
- Current savings of family members are bigger than 90 % of the total savings of the "family + declarant"	3	2
- Loans granted to third parties above "initial savings + income in office"	5	3
- Savings of family member > the family member's annual income	3	2

- Loans received > annual salary multiplied by average remaining years until retirement age of family member or declarant	5	2
- Loans received > annual salary multiplied by (80% of estimated remaining years until retirement age of family member or declarant)	3	2
- Other income by declarant > income in office	5	2
- Income from family member > 2 times income in office (declarant)	3	2

6.2.1.5 Thresholds of financial relation between incoming and outgoing cash flows

These thresholds relate total incoming cash flows and total outgoing cash flows of declarants. To apply these thresholds, it is necessary to carry out the **plausibility check** of declarations. The plausibility check focuses the declared data within a certain time period (usually a year) and aims to determine the total incoming cash flow (income, loans received, savings at the start of the period, etc.) and the total outgoing cash flow (expenditure, loans extended by the declarant, savings at the end of the period, etc.) of a declarant. Then the incoming and outgoing cash flows are juxtaposed. In principle, both cash flows should be equal. In practice, given that many of the expenses are not declared, the declared incoming cash flow should exceed the declared outgoing cash flow. If the declared incoming cash flow exceeds the declared outgoing cash flow by a small margin or if the incoming cash flow is even smaller than the outgoing cash flow, it is a sign of possible illicit/undeclared income.³²

Description	Risk points	Feasibility
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³² Council of Europe/Tilman Hoppe/Valts Kalnins (2014) *Practitioner manual on processing and analysing income and asset declarations of public officials* (English and Russian), not publicly available; EUACI/Tilman Hoppe/Valts Kalnins (2017) [The business process of verifying e-asset declarations at the NACP Ukraine](#), page 27, available at <http://tilman-hoppe.de>. Accessed 10 July 2020.; UNODC/Tilman Hoppe (2019) [Income and Asset Declaration Systems in Myanmar](#), page 9, available at www.unodc.org. Accessed 10 July 2020.

- Total declared incoming cash flows < total declared outgoing cash flows	5	2
- Total declared incoming cash flows < declared outgoing cash flows plus annual subsistence minimum, household expenditure per capita, or similar value for the declarant and his/her dependents.	4	3
- Total declared incoming cash flows > declared outgoing cash flows by no more than the annual subsistence minimum (or similar) and the declarant owns two or more objects of immovable property, and there is no income from the property declared.	3	3
- Total declared incoming cash flows > declared outgoing cash flow by no more than the annual subsistence minimum (or similar), the declarant owns property, which requires expensive maintenance (because of its high value or large size), and no income from the property declared.	3	3
- Total declared incoming cash flows > the declared outgoing cash flows by no more than the annual subsistence minimum (or similar) and the declarant made acquisitions above a set value threshold.	3	3
- Total declared incoming cash flows > declared outgoing cash flows by no more than the annual subsistence minimum (or similar) and the declarant has major outstanding debt above a set threshold.	3	3

6.2.1.6 *Thresholds of relations to reference values*

These thresholds relate declared data to what is on average statistically normal within the economy.

Description	Risk points	Feasibility
- Annual other income by declarant is 50 % higher than average annual public service income	5	3
- Real estate value 30 % below reference values (reference values as per zip-codes, clusters of zip-codes)	5	3
- Annual savings is 50 % higher than average national savings (as per national statistical data)	5	3

Criteria related to reference values could be refined as follows: For example, **national statistics** may provide data on average income and savings as well as the distribution of income and savings by quintiles. Quintiles are five equal groups into which a population can be divided according to the value of a certain parameter. For example, the lowest quintile by income are the 20% of the population that have the lowest income. Thus, if an official's income falls within the second quintile but savings within the fourth quintile, these can be regarded as, *prima facie*, disproportionally large savings and a red flag. In everyday language, one could say that a person with this level of income usually does not have so large savings. See the graph below. In this fictional example, a person with the annual income between 1,001 and 10,000 would normally have savings in banks in the order of 401 – 2,000.

Quintiles by annual income	Income of official	Quintiles by savings	Savings of official
19,001 – 500,000		25,001 – 3,000,000,000	
14,001 – 19,000		5,001 – 25,000	12,000
10,001 – 14,000		2,001 – 5,000	
1,001 – 10,000	9,000	401 – 2,000	
0 – 1,000		0 - 400	

6.2.2 Non-financial criteria

6.2.2.1 Empty fields

It can be suspicious, if a declarant does not insert data in certain fields, in particular:

Description	Risk points	Feasibility
- Family members [above a set age] exist, but there is no information for family members' income or assets or it is all set at zero	5	2
- Savings/bank deposits empty or zero	3	1
- Income of declarant empty or zero	5	1

6.2.2.2 Non-empty fields

Certain kinds of income and assets could be to some degree associated with risk in and of themselves. Therefore, their presence *per se* represents a red flag (minor value thresholds could be set since, for example, income abroad worth a few hundreds of EUR may be regarded as insignificant):

Description	Risk points	Feasibility
- Real estate abroad	3	1
- Bank accounts abroad	3	1
- Income abroad (including loans)	3	1
- Business/companies abroad	3	1
- Airplanes (domestic and/or abroad)	5	1

- Ownership of foreign legal persons in defined “off-shore” locations (the FATF has a list of “high-risk and other monitored jurisdictions” on its website) ³³	5	3
- Ownership of any foreign legal persons.	3	1
- Cryptocurrencies > X [currency]	5	1

Note: One key assumption for non-empty fields as red flags is that non-compliant officials, who wish to create seemingly legitimate incoming cash flows or deflate their outgoing cash flows, will declare false data of kinds that are difficult to verify. Monitoring agencies typically have challenges to access data in foreign institutions.³⁴ Therefore, significant income or assets abroad could be regarded as red flags.

6.2.2.3 Logical relations between items

These thresholds detect combinations of fields that in reality are unlikely or even impossible:

Description	Risk points	Feasibility
- Real estate “garage” + vehicle “empty”	2	1
- Income from business, but no ownership of business	5	2
- Large debt with no assets available as collateral	4	1
- Income from rent but no ownership of relevant real estate	4	1

³³ FATF-GAFI (2019) [High-risk and other monitored jurisdictions](https://www.fatf-gafi.org/publications/fatfgafr/publications/High-risk-and-other-monitored-jurisdictions.pdf), available at www.fatf-gafi.org. Accessed 10 July 2020.

³⁴ See to this end the “International agreement on the exchange of data for verification of asset declarations”, which is about to be signed. Any state or autonomous territory is welcome to join the agreement, see [RAI-webpage](https://www.rai-see.org/), available at www.rai-see.org. Accessed 10 July 2020.

6.2.2.4 Key words/phrases

Certain key words/phrases flag fabricating legal income (“I found the money on the street”). This requires that the declarant indicates the respective key word or phrase in the declaration field “source” or similar:

Description	Risk points	Feasibility
- Casino winning > X [currency]	5	1
- Lottery > X [currency]	5	2
- Find > X [currency]	5	2
- Certain luxury brand names (Porsche, Patek Philippe, etc.)	3	3

6.2.2.5 Business patterns

- Income from certain forms of businesses with little registration/documentation known to be only facades (depending on the country regulations: farming, harvesting wild plants, etc.) > X [currency]	5	3
- Ownership of business with unusually high return on investment > X %	5	3
- Profit from business, which exists for less than 2 years but is already highly profitable > X [currency]	5	3
- Large income from consultancy contracts > X [currency]: These are typical cover ups for faking legitimate income. Compared to a purchase contract, it is hard to prove whether the consultancy advice was given at all, and whether it was worth the fee paid in exchange.	5	3

Note: Some of these red flags will not be detectible in the course of automated screening. For example, often a declaration form will indicate that income stems from

a certain business entity but it will not contain information on the type of service provided, the field of business or the economic performance data such as return on equity/assets of a company. Such red flags can still be useful during audit when in-depth analysis is already under way. Namely, they serve as signs that further steps should be made (the principle: never stop exploring).

6.2.2.6 Refusals for cooperation

Description	Risk points	Feasibility
- If family members (allegedly) refuse to provide information to the declarant, this raises the suspicion that they have something to hide or that they try to avoid scrutiny.	5	1
- If declarants refuse cooperation, such as giving consent to access their banking data. ³⁵	4	1

6.3 Set 2: External coherence with previous declarations

6.3.1 “Jump” in income

Description	Risk points	Feasibility
- More than 30 % increase in annual income (not counting income from public sources)	4	2

6.3.2 Patterns of income

- More than 2 years in a row or within a total of 5 years receipt of monetary gifts or similar “income for free” (casino/lottery winning etc.) above X [currency]	5	2
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³⁵ As a standard feature for example in Indonesia or Montenegro, declarants are asked to consent to providing access to their banking data (as a necessary prerequisite for such access in these countries).

6.3.3 “Jump” in assets

- More than 5 new asset items (separately applied for each asset category – real estate, vehicles etc.)	3	2
- More than 2 years in a row or twice within a total of 5 years, acquisition of significant assets that remain with the declarant for less than a year	5	2

6.3.4 Selling assets

- An asset disappears without relevant income for selling it	5	2
- Parameters for assets change more than 10 % (e.g. size of real estate is indicated with 200 square meters in 2019, and with 350 square meters in 2021; living space changes, etc.)	5	3

Note: In principle any acquisition or alienation of a significant asset can be used as cover for unsubstantiated lifestyle (acquisition at a deflated price) or illicit income (sale of an asset at an inflated price). Meanwhile in many cases assets are acquired or alienated in a perfectly legitimate manner and for legitimate purposes. Therefore, apart from transactions with unrealistic declared values, only unusually frequent acquisitions/alienation should be considered red flags.

6.3.5 Drop in wealth

- Total amount of savings drops by at least 40 % and at least X [currency] while at the same time the structure of all other assets and loans granted to third parties remains the same.	3	3
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6.3.6 Repeated extraordinary income

- Income from sale of assets, e-currency, casino, lottery, finds, gifts combined above a total of X [currency] more than 1 time in 2 years, or more than 2 times in 4 years.	5	2
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6.3.7 Repetition of same declaration

- Annual income > X [currency] and the same set of values is submitted for more than 5 years in each declaration (the assumption in this case is that a rather high-income declarant should have some declarable expenditures at least every 5 years).	5	2
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6.4 Set 3: External coherence with other data

Where automatic access to external databases (cadaster, vehicle registry, etc.) exists, any significant discrepancy with such databases could also be considered a red flag. Furthermore, certain patterns related to other declarations in the same database could be considered a red flag. For example:

- Significantly different average levels of assets for two or more categories of officials who have similar levels of official income but different corruption risks (based on the assumption that corruption opportunities of the high-risk category result in the accumulation of extra assets);
- Discrepancies in cases when a declarant has engaged in a transaction with another declarant and such transaction is reflected in the declaration of one of the declarants only.

6.5 Conflicts of interest

The variety of standardised red flags specifically for **conflicts of interest** is rather limited, among other things, because the detection of such a conflict is largely contingent on considering the specifics of the function and tasks of an official. However, some general red flags for conflicts of interest are possible, for example:

- Ownership of profitable business by a declarant or a family member (regarding possible conflicts of interest in contracting with the public official's employer);
- Depending on the local context and on the function of the official: ownership of any business or simply ownership of shares;
- Employer of family members is the same as that of the declarant (possible conflicts of interest in hiring these persons or in their hierarchy);
- Name of a family member or his/her business appears in the procurement database of the declarant's employer, or in any procurement database (possible facilitation of that procurement in favour of the family member), or any similar

database (concessions, subsidies, other public support, public contracts such as rent).

7 What do I need to maintain the system?

7.1 A pool of randomly audited declarations

As mentioned earlier, a pool of randomly audited declarations is needed as a **statistical control** group.³⁶ Only random-selection-based audits provide a reference group free of any bias in selection. The control group of declarations could be relatively small, say, 10-15% when the number of declarations, which feature the respective red flag, is large, say, 1,000 or more. If the number of declarations with the red flag is smaller, say, 100, then the control group should be at least 50%. A too small control group would not allow inferring with confidence that the declarations with the red flag are more likely to be non-compliant than the declarations in the control group. Ideally, the exact size of the control group should be determined based on advice from a professional statistician. This aside, recommendations by **GRECO** support the necessity of a pool of randomly audited declarations (“coupling the disclosure system with an effective control mechanism (including random verifications)”).³⁷ In the area of **tax** audits, a similar recommendation exists:

“Of course, [...] at least a small number of random audits is useful for **calibration purposes**, and random audits are a common component of even the most sophisticated audit strategies.”³⁸

7.2 Continuous validation

Practitioners from the anti-money-laundering sector as well as from asset declaration oversight bodies confirm that at first try, red flag systems always produce by far **too many** hits. As a result, red flags have to be “sharpened” for example by raising

³⁶ See for the area of taxes, World Bank (2011), *Risk-Based Tax Audits*, page 19: „It [random selection] provides statistically robust results that can be used to assess the effectiveness of the tax system and potential compliance-improvement programs.“, available at <https://openknowledge.worldbank.org>. Accessed 10 July 2020.

³⁷ See for example GRECO (2015) *Evaluation Report Bosnia and Herzegovina* (Eval IV Rep (2015) 2E), recommendation v, available at www.coe.int. Accessed 10 July 2020; see also the Western Balkans *Recommendation* on Disclosure of Finances and Interests by Public Officials (2014), no. E.5: “The sample of public officials should be based on a random choice, as well as on risk-criteria.”, available at www.respaweb.eu. Accessed 10 July 2020.

³⁸ World Bank (2011) *Risk-Based Tax Audits*, page 20, available at <https://openknowledge.worldbank.org>. Accessed 10 July 2020.

threshold-values, by lowering the weight of some red flags, or by introducing additional rules to be combined with the existing ones.

Regardless of the method used, the parameters of red flags should be periodically validated. Only those parameters need to be kept, which lead to the detection of a **higher percentage** of violations than random selection. If declarations verified based on a certain red flag, consistently return a lower share of violations than declarations randomly selected, then the respective flag apparently leads to the adverse selection of less problematic declaration. Or the methods and tools of audit could turn out faulty and insufficient, i.e. unable to prove violations.

Aside from the need for continuous “sharpening” of the red flags, continuous adjustment of the red flags supports the **confidentiality** of the red flag system. Even if – some or all – red flags have been leaked or guessed at some stage, declarants can never be sure if new ones have been introduced in the meantime or if the existing ones have been recalibrated.

Self-adjusting systems (e.g. using artificial intelligence) are probably still dreams of the future. Red flag systems in the verification of asset declarations are still in their nascent phase, at best. Talking about artificial intelligence would be jumping five steps ahead, while no proof yet exists that it is realistically applicable with added value justifying the investment in time and money.

7.3 Adjustment of the declaration system

All too often, declarations systems and particularly declaration forms are designed without a clear vision of **what** kind of data **is needed** in detail for a precise and well-calibrated monitoring. As a result, for example, data will not be fully machine readable, data necessary for red flags might be missing, or the occurrence of formal mistakes by declarants might be more likely. Therefore, introducing red flags is often an opportunity to reform the asset declaration format so that sufficient data is gathered and in such a format, which actually permits the detection of as many relevant red flags as possible.

7.4 Involvement of civil society

As far as publicly available information permits, members of the civil society also can develop their own **methodologies** for the identification of red flags in declarations.³⁹ However, providing civil society organisations with the set of red flags the oversight body is using, would probably be too risky in light of the confidentiality of these red flags (see above 3.5).

This aside, in Georgia, the legislator foresaw the participation of civil society in the risk-based selection of asset declarations. To this end, Article 18-1 para. 3-6 of the Law on Conflict of Interest and Corruption in Public Service (as amended in 2015) established a **commission** consisting of representatives of civil society:

“3. Declarations of state-political officials defined by the Law of Georgia on Public Service selected by the Permanent Commission set up by the Head of the Bureau and declarations selected on the basis of special factors also fall within the category of official's asset declarations subject to annual examination. The special factors are: **particular risk** of corruption, high public interest, and violations revealed as a result of the monitoring.

4. In the cases provided for by paragraph 2(a) and paragraph 3 of this article, the number of official's asset declarations subject to annual examination shall not exceed 5% of the total number of officials in each case.

5. In the cases provided for by paragraph 2(a) and paragraph 3 of this article, official's asset declarations subject to annual examination shall be selected in the beginning of each calendar year.

6. The Head of the Bureau shall determine the composition of the Permanent Commission under paragraph 3 of this article. The Permanent Commission shall **not** be composed of **public servants**.”

³⁹ See for example Balkan Investigative Reporting Network in Albania (2017) [Analysis of the System of Asset Declarations of Constitutional Court Judges in Albania](https://birn.eu.com), available at <https://birn.eu.com>. Accessed 10 July 2020. Balkan Investigative Reporting Network in Albania (2018) [Analysis of the System of Asset Declarations of the Judges of Administrative Courts in Albania](http://dokumente.reporter.al), available at <http://dokumente.reporter.al>. Accessed 10 July 2020. The reports followed trainings based on the Council of Europe Practitioner Manual on processing and verifying income and asset declarations (2014): BIRN (17 June 2016) [The Integrity Gap: Albania's Appeals Court Judges Asset Disclosures Raise Red Flags](https://balkaninsight.com), available at <https://balkaninsight.com>. Accessed 10 July 2020.

It should be noted, though, that interest in being a member of the Permanent Commission was rather low **in practice**.⁴⁰ In 2019, the public call for expression of interest in becoming a member remained unanswered. A possible reason could be that the option of submitting complaints regarding concrete asset declarations (followed by a mandatory audit) appears to be more attractive than working in a commission on the general prioritization of declarations.

⁴⁰ See for the initial interest, OECD (2016) [Anti-corruption reforms in Georgia, 4th round of monitoring of the Istanbul Anti-Corruption Action Plan](#), page 36, available at www.oecd.org. Accessed 10 July 2020: „The Permanent Commission will be set up by the CSB Head and composed of 5 representatives of the non-governmental sector, who will be selected on the 'first come principle', will work pro-bono and will rotate annually. While the monitoring team was not sure that the arrangement proposed for the Commission is effective, NGOs confirmed their agreement with the arrangement and confirmed high interest and engagement in the monitoring of asset declarations.“

8 KEY RECOMMENDATIONS

1. Use red flags (indicators of probabilities of irregularities) only as **one of many criteria** for prioritizing asset declarations for audit.
2. At least in the beginning, use a mix of **two methods** for developing red flags: current statistical outliers in declared data and a set of rules (if $X > Y$ then a red flag).
3. Where there is a significant **past record** of detected irregularities, analyze previous declarations to identify systematic features, which occur more often in the group of declarations with violations than in compliant declarations. Define the rules of red flags based on the systemic features.
4. Program the criteria for determining outliers and the rules into **software**, which scans the oversight body's database and flags declarations with a high priority for audit.
5. Ensure that the declared data is **machine readable**, generally **precise** and **conclusive** to avoid a large number of false red flags due to formal mistakes.
6. **Regularly calibrate** (lower or raise) thresholds for red flags to adjust the number of flagged declarations to an appropriate level, and adapt to changing living and lifestyle conditions.
7. Maintain a statistical **control group**: a pool of declarations audited based on random selection.
8. **Regularly validate** the red flags. Keep only those red flags, which lead to the detection of a higher percentage of violations than random selection.
9. Keep the red flags **confidential** to prevent declarants from manipulating the declared data to avoid selection for audit or preparing for the expected audit by manipulating paper trails of cash flows, etc.
10. Try to profit from the experience with other red flag systems in your country, in particular of **tax authorities** and **Financial Intelligence Units**.