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Nº 004 - 2025

Documento de trabajo
ISSN 1688-7565

Global Trends and Practices in Financial Stability Reporting: A Comparative Analysis[☆]

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Documento de trabajo del Banco Central del Uruguay 004-2025

Autorizado por: Jorge Ponce
Disponible en línea: 30/05/2025

Resumen

Este trabajo proporciona un análisis exhaustivo a nivel mundial de la publicación histórica de Informes de Estabilidad Financiera (IEF) desde 1996. Examinamos los factores que influyen en la publicación de los IEF, incluyendo caracteristicas económicas y la madurez del sistema financiero de 142 países con IEF públicos. Nuestros hallazgos indican que las economias avanzadas y aquellas con sistemas financieros más desarrollados tienen una mayor probabilidad de publicar IEF, principalmente a través de los Bancos Centrales. El trabajo también revela variaciones en la longitud y frecuencia de los informes, y examina la estructura y el contenido de los mismos, analizando cómo abordan y evalúan vulnerabilidades y riesgos. Este trabajo sirve como una revisión actualizada a 2021 de las prácticas, contenidos y tendencias en la redacción de IEF en el mundo.

JEL: E58, G28, E44
Palabras claves: Estabilidad Financiera, Reporte, Informe

Abstract

This study provides a comprehensive worldwide analysis of the historical publication of Financial Stability Reports (FSRs) since 1996. It examines the factors influencing FSR publication, including the economic status and financial system maturity of 142 countries with publicly available FSRs. Our findings indicate that economically advanced nations and those with well-developed financial systems are more likely to publish FSRs, primarily through Central Banks. The study also reveals variations in report length and frequency, and scrutinizes the structure and content of the reports, examining how they address and assess vulnerabilities and risks. This work offers as a snapshot as of 2021 of global FSR practices.

JEL: E58, G28, E44
Keywords: Financial Stability, Report, Review

☆ The views expressed herein are those of the authors and do not necessarily represent the opinion of the institutions with which they are affiliate. The authors would like to thank Andrea Barón for her invaluable comments, insightful critiques, and continuous guidance throughout the course of this research project.

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1 Introduction

In the aftermath of the 2008 financial crisis, financial stability has garnered increased attention. The crisis served as a stark reminder of the potential systemic risks and vulnerabilities within financial systems worldwide. Consequently, policymakers, central banks, and regulatory authorities have placed a renewed emphasis on monitoring and safeguarding financial stability. To this end, significant efforts have been made, including the publication of financial stability reports (FSRs). The publication of FSRs has witnessed a remarkable growth over the years, with the number of jurisdictions publishing them increasing significantly (Comelli & Ogawa, 2021). In the late 1990s, fewer than ten jurisdictions issued such reports, but by 2021, the number of countries that issed at least one FSR at some point during this period had risen to 142.

Since the issuance of the first financial stability report by the Bank of England in 1996, significant transformations have taken place in the assessment of financial stability, risks, and vulnerabilities, as well as in the presentation of analyses within FSRs. The evolution of FSRs has been driven by the growing recognition of their importance in monitoring and safeguarding financial systems. Over time, there have been advancements in methodologies, data availability, and analytical frameworks, enabling a more comprehensive and nuanced evaluation of financial stability. Furthermore, FSRs improved their communication strategies, with efforts made to enhance the clarity and accessibility of information to a broader audience.

The primary objective of this paper is to provide an up-to-date description and analysis of public financial stability reports to gain insights into their characteristics and practices. Specifically, the focus is on examining comprehensive information, taking into account countries and regions that publish FSRs. This analysis also considers the socio-economic and financial characteristics of these countries, the agencies responsible for producing these reports, and other key aspects, such as the frequency of publication and the length of these reports. This paper goes beyond a surface-level analysis by delving into the content of these reports. To fulfill this objective, we use publicly worldwide available financial stability reports at country or region level for the year 2021. The FSRs of 2021 were selected for analysis as they represents the most extensive and comprehensive sample available in recent years, ensuring a robust foundation for the study's conclusions. This provides a rich dataset comprising the reports of a total of 131 countries.

A more in-depth examination is conducted to compare how different FSRs assess risks and vulnerabilities within financial systems. The structure of the reports is scrutinized to identify commonalities and differences in terms of organization and presentation. Additionally, we explore

how financial stability is defined and determine whether the agencies provide a definition. Where definitions are available, we aim to characterize the common elements among them. Finally, we analyze the objectives outlined in these reports.

In contributing to the existing literature on FSRs, this study builds upon and enriches the field in several ways. First, it updates previous work done on surveying the state of art of FSRs (Cihák (2006), Firano (2016), Muñoz et al. (2012), Comelli and Ogawa (2021), Lim, Klemm, Ogawa, Pani, and Visconti (2017), Ponce and Tubio (2010)). Second, it employs a broader sample, including all countries and territories recognized by the United Nations or included in the BIS Central Bank database. This comprehensive approach ensures a more inclusive and representative analysis, reflecting the global landscape of FSRs and the diversity of practices employed. Third, the study conducts an in-depth analysis of structure, coverage, and content. By documenting and analyzing these aspects, this research aims to contribute to a better understanding of the global landscape of FSRs. While it is acknowledged that the information provided in this paper may evolve over time as new reports are published and practices change, the analysis serves as both a reference and snapshot of the current state of public FSRs. This snapshot allows for comparisons, identification of trends, and provides a foundation for further research and exploration in this field.

The remainder of this paper is structured as follows: Section 2 outlines the data and criteria used for the analysis. Section 3 provides a concise historical overview of the evolution of FSRs. Section 4 offers a comprehensive examination of the global landscape of FSRs, including key statistics on the countries that issue them as well as the socio-economic and financial attributes of these nations and reports. Section 5 explores the content of FSRs, focusing on how financial stability is defined and the objectives outlined in these reports. In Section 6, we examine how FSRs address and assess risks and vulnerabilities. Section 7 examines the structure of the reports, discussing their coverage across various sectors and institutions. Section 8 briefly reviews emerging trends in the transparency and communication of financial stability issues. Finally, the paper concludes in Section 9.

2 Data

In this study, we analyze FSRs that assess the risks and vulnerabilities of the financial system up to the end of 2021, focusing on those that are publicly accessible online. Given the frequent

delays—often exceeding one year—in the publication of FSRs, we exclude data about 2022 due to its incomplete nature.

The country sample includes a total of 193 United Nations (UN) member states, along with other nations that, while not UN members, are listed on the Central Bank and Monetary Authority websites published by the Bank for International Settlements (BIS) in its Central Bank Hub. Combining both data sources yields a comprehensive sample size of 201 countries[1].

According to the definition provided by Cihák (2006), a FSR is a regular, standalone publication that emphasizes risks and exposures within the financial system. Although the author specifies that central banks typically publish FSRs, our study also includes reports issued by other public agencies, provided they align with this definition. It's worth noting that the names of these reports can vary across countries[2]. We do not rely solely on the report names, as a report titled 'Financial Stability' or 'Financial System' may primarily contain statistical data without a focus on risks and exposures.

For instance, in Uruguay, a publicly available report titled 'Financial System Report' exists (BCU, 2021). This report was originally named 'Financial Stability Report' in its earlier editions (BCU, 2011). Despite its title, the content, which is produced by the Superintendency of Financial Services, is primarily statistical and does not focus on the risks and exposures inherent in the financial system. Therefore, while some previous studies, such as Lim et al. (2017), identify Uruguay as a country that publishes a Financial Stability Report, a closer examination of the report's content suggests otherwise.

In France, the 'Financial Stability Review' is not a regular report but rather a compilation of articles or conference materials focused on specific topics (Banque de France, 2021a). However, since 2015, an annual publication titled 'Évaluation des Risques du Système Financier Français' has been publicly available. This publication is dedicated to evaluating risks and vulnerabilities within France's financial system (Banque de France, 2021b). For the purposes of our study, we categorize this publication as a FSR. A more detailed discussion on the naming conventions of FSRs can be found in Section 4.

According to our data, 142 countries, or 70.6% of the sample, had published at least one FSR in the period between 1996 and 2021.[3] When considering the countries that published at

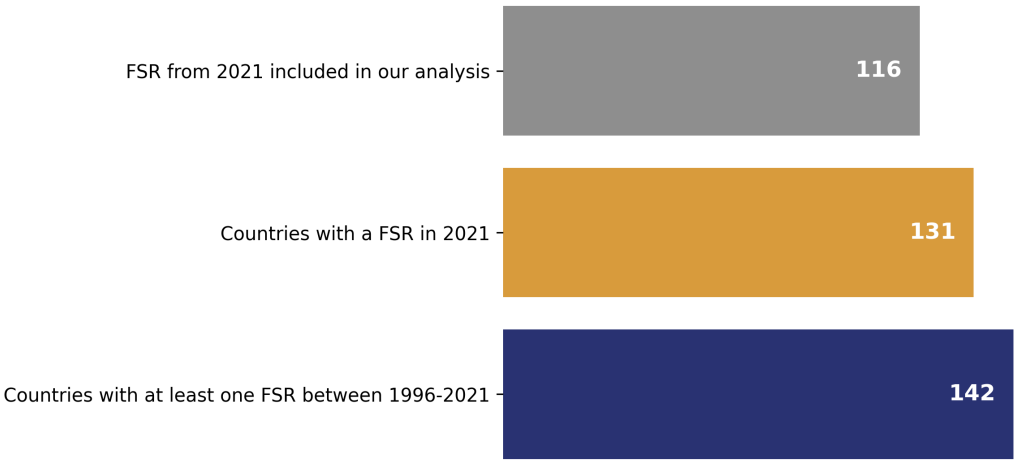
[1] In this document, the term 'country' refers not only to sovereign nations but also to jurisdictions with their own financial stability reports, even if they are not recognized as independent countries.

[2] FSR use different titles, such as Financial Stability Review, Financial System Review, Monetary and Financial Stability Report.

[3] We do not consider Belarus and Indonesia, as we could not access the document to assess whether it complies

least one report about 2021[4], the proportion of countries drops to 65.2%. Although 131 different countries have published reports in 2021, the sample for report analysis includes reports from 116 countries (Figure 1).

Figure 1: Countries and Financial Stability Reports count



Source: Authors' calculation

This discrepancy arises for two reasons: the language of the FSR and the existence of regional FSRs that cover multiple jurisdictions. First, since we use text mining techniques for processing, we consider only reports written in English, Spanish, French and Portuguese. Regarding regional reports, three specific cases contributed to the previously mentioned discrepancy. First, the Eastern Caribbean Central Bank issues a single consolidated FSR on behalf of several countries, including Anguilla, Antigua and Barbuda, Dominica, Grenada, Montserrat, Saint Lucia, Saint Christopher and Nevis, and Saint Vincent and the Grenadines (ECCB, 2021). Second, the Economic and Monetary Community of Central Africa issues a unified FSR for its member countries: Cameroon, Republic of Congo, Gabon, Equatorial Guinea, Central African Republic, and Chad (BEAC, 2021). Lastly, the West African Monetary Institute publishes an FSR covering the financial stability of Gambia, Guinea, Liberia, and Nigeria.

Although the European Central Bank publishes a comprehensive FSR covering the entire euro area, our study focuses solely on the individual FSRs issued by the central banks of each respective member country of the European Union.

with the definition of an FSR adopted in this paper.

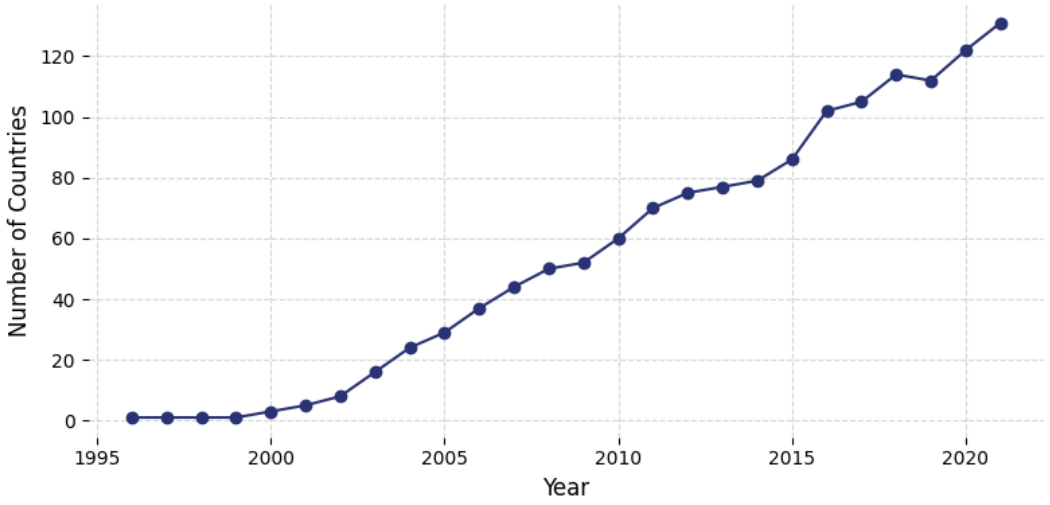
[4]This includes all countries that are confirmed to have published a report in 2021.

In some countries, multiple agencies publish FSRs. For example, in the United States, the Federal Reserve, the Financial Stability Oversight Council (FSOC), and the Office of Financial Research (OFR) each issue such reports. In this context, our study specifically focuses on the FSR issued by the Federal Reserve.

3 Historical Evolution of Financial Stability Reporting

The pace at which FSRs have been published has not been constant. Following the release of the first FSR by the Bank of England in 1996 (Bank of England, 1996), Sweden (Sveriges RisksBank, 1997) and Norway followed suit (Muñoz et al., 2012). These countries, pioneers in publishing FSRs, had also experienced a series of banking failures in the early 1990s (Figure 2).

Figure 2: Number of Countries Publishing FSRs



Source: Authors' calculation based on website available FSRs

Between 2000 and 2007, the number of countries publishing FSRs increased significantly. However, this trend shifted after the 2007 financial crisis. Although the issuance of FSRs continued to grow, the pace of this expansion slowed until 2016, a year that stands out as having the highest number of new countries beginning to publish their FSRs within the sample. In recent years, the number of countries publishing FSRs has stabilized around 131[5].

[5]Among the latest countries to start publishing, though not included in our analysis due to their reports being published after 2021, is Uzbekistan.

Between 1996 and 2021, there were instances where certain countries, having previously issued FSRs, temporarily discontinued their publication. France, Ireland, Israel, and Greece are examples of countries that halted the publication of their FSRs for a period before later resuming.

As outlined by Muñoz et al. (2012), France issued an FSR from 2002 to 2006.[6] After this period, the publication of such reports ceased, particularly those assessing financial risks and vulnerabilities. Although an online-accessible *Financial Stability Review* has been available from the Central Bank of France since 2006, its nature differs, as it consists of a compilation of articles or conference materials focusing on specific themes rather than serving as a standard report aimed at presenting or updating the central bank's evaluation of financial stability. However, a consistent assessment of risks has been carried out in a publication titled *Évaluation des Risques du Système Financier Français* (Risk Evaluation of the French Financial System) since 2015. For our purposes, this publication is categorized as the FSR.

In Ireland, the central bank began publishing its FSR in 2004 but discontinued it in 2008, primarily due to the severe impact of the global financial crisis on the economy. However, according to publicly available information, publication resumed in 2019.

Similarly, Israel issued two FSRs in 2003 and 2004. At the time, the country was grappling with the aftermath of the global dot-com bubble burst in 2000, which had disrupted technology companies and investment markets worldwide, including Israel's tech sector. Internal economic challenges also contributed to a downturn, leading to the discontinuation of the report. Publication resumed in the second half of 2018, with a semiannual frequency.

In Greece, the first Financial Stability Report was published in 2009, followed by another in 2010. During this period, the country experienced a severe loss of confidence in the aftermath of the global financial crisis. Structural vulnerabilities, including high public debt and current account imbalances, were exacerbated by a lack of data transparency. These factors collectively contributed to the economic and financial turmoil Greece faced (Ozturk & Sozdemir, 2015). The publication of the FSR was suspended in 2011, and the country did not resume publication until 2019.

These examples illustrate that some countries have chosen to discontinue the publication of FSRs during periods of economic or financial distress. Regarding the COVID-19 pandemic, the Cayman Islands, Cape Verde, Ecuador, Nepal, Sri Lanka, and Tanzania are the only countries in our dataset that ceased or temporarily halted publication around 2021. Ecuador and Sri Lanka

[6] Based on the online availability of reports, the publication's starting date appears to be 2006, as earlier reports were not accessible at the time of this study.

published their most recent reports using 2020 data, while Nepal's last report was based on 2019 data. In contrast, Cape Verde, the Cayman Islands, and Tanzania suspended publication between 2020 and 2021 but resumed with 2022 data. In some cases, we observed publication delays, suggesting a shift in timing rather than a reduction in reporting frequency.

This pattern in FSR publication, although observed in only some countries, raises an important issue: while publishing FSRs during stable periods may be straightforward, doing so in times of turbulence can be significantly more challenging. As noted by Cihák (2006), one reason for hesitating to publish an FSR during periods of heightened financial risk is the concern that the analysis itself might trigger the very shocks or crises it aims to prevent. This risk is particularly pronounced if the authority responsible for the FSR lacks macroprudential powers to take action. Specifically, if the authority in charge of the FSR possesses only soft power—meaning it can express opinions or issue recommendations without any obligation for compliance or explanation—its ability to mitigate risks may be substantially limited (IMF, 2013). This concern may explain why certain countries hesitate to make their FSRs publicly available, opting instead to use them as internal assessment documents.

On the other hand, during the international financial crisis, numerous countries that had been publishing FSRs continued to do so. Some even launched their publications during this volatile period, contributing to a further increase in the number of countries issuing FSRs. Existing evidence suggests that these reports effectively identified key risks that significantly impacted the crisis, particularly in European countries such as the United Kingdom, Sweden, the Netherlands, and Spain. However, they underestimated the severity of the crisis, according to Wilkinson, Spong, and Christensson (2010). These authors further conclude that FSRs play a crucial role during crises by providing central banks with essential insights into market and institutional resilience, thereby shaping their responses. Overall, FSRs help authorities identify emerging risks and develop a deeper understanding of both domestic and global financial market structures.

Finally, in our dataset, we identified four countries—Belize, Bhutan, Guatemala, and Madagascar—that initially began publishing FSRs but discontinued them before 2019.[7]

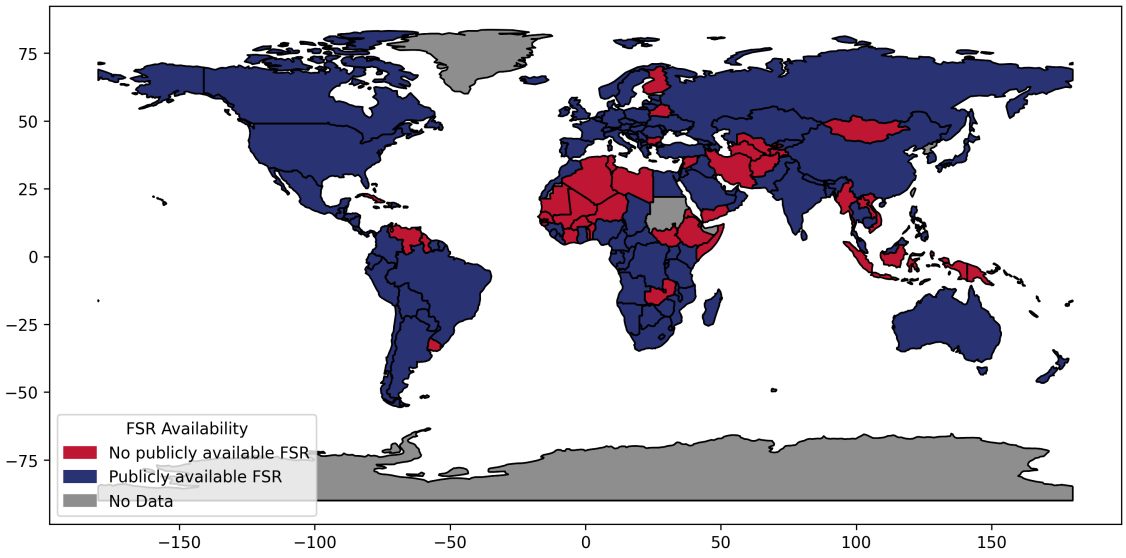
4 Reports and Countries features

In this section, we explore the global landscape of FSRs. Our analysis begins with an overview of the characteristics of the countries and regions that provide public access to these reports. We then examine the institutions responsible for issuing FSRs and the key features of the reports themselves.

4.1 Countries features

When examining the publication rates of FSRs up to 2021 **across different continents**, Europe leads with 87% of its countries publishing FSRs, the highest publication rate globally. The Americas follow closely, with 82.5.% of countries issuing FSRs. Within the Americas, all North American countries have published FSRs.

Figure 3: Map of countries with public FSRs up to 2021



Source: Author's calculation.

[7]Belize published two reports: an annual report in 2014 and a biannual report in 2016, covering both 2015 and 2016. Bhutan published only one FSR, for the year 2015. Guatemala has publicly available FSRs from 2007 to 2012. Finally, Madagascar published its FSRs from 2013 to 2018.

Central American countries have a relatively higher publication rate of 84%, exceeding that of South America, which has a rate of 75%. Meanwhile, Asia stands at 66%, Africa at 63%, and Oceania at 28.6%. In Figure 3, we present a map of the countries that have published at least one FSR up to 2021, shown in blue.

When assessing the prevalence of FSR publication rates across different countries, it is essential to consider a range of socio-economic and financial factors. These factors provide insights into the characteristics of each country such as their size, financial development, and institutional maturity.

An analysis based on the World Bank's **income classification** highlights significant disparities in the publication of FSRs across countries with varying income levels. A robust 84.6% of high-income countries publish their FSRs. In contrast, only 53.6% of low-income countries release an FSR. Interestingly, 54.7% of countries classified as lower-middle income make their FSR public, while a higher percentage of 77.4% is observed in upper-middle-income countries.

To further characterize the countries in the sample that have their FSRs publicly available for 2021, we incorporate descriptive socio-economic and financial data from the World Bank. Since this data is subject to a certain degree of incompleteness, the following comparisons between countries that have or have not published their 2021 FSRs depend on data availability.[8]

Population size serves as a useful demographic variable for gauging the size of a country. According to 2021 data, the mean population size of countries that publish FSRs is 2.4 times larger than that of countries that do not publish FSRs.

Countries with higher levels of **financial inclusion**, as indicated by a greater percentage of people with bank accounts, have a higher probability of making an FSR publicly available. According to 2021 data, countries that released their FSRs had a mean of 70.4% of their population with bank accounts. In contrast, countries that did not publish FSRs had a lower mean value of 47.9%.

When considering the **size and development of the banking system**, as measured by the ratio of credit to the private sector to GDP, as suggested by Levine and Zervos (1999), we would expect that countries with more developed financial systems and higher levels of credit are more likely to publish FSRs. According to the data, countries that published FSRs in 2021 had a mean credit-to-GDP ratio of 64%, while countries that did not publish FSRs had a markedly lower mean ratio of 38.7%. This highlights differences in financial development between the two

[8] A description of data coverage is provided in Table 4 in the Annex.

groups.

Shifting our focus from the banking system to **stock market development indicators**, specifically considering the value of trades of domestic shares on domestic exchanges divided by GDP as an indicator of market liquidity, and market capitalization as a measure of the size of the stock market (as suggested by Levine and Zervos (1999)), reveals that countries issuing FSRs tend to have more developed markets. On average, countries that released their FSRs in 2021 had a mean value of 49.8% for the Stocks Traded over GDP indicator, significantly higher than the mean value of 12.8% for countries that did not publish FSRs for that year. Likewise, the mean market capitalization over GDP for countries that published FSRs stood at 90.2%, in stark contrast to the lower mean value of 56.2% for countries not publishing FSRs.

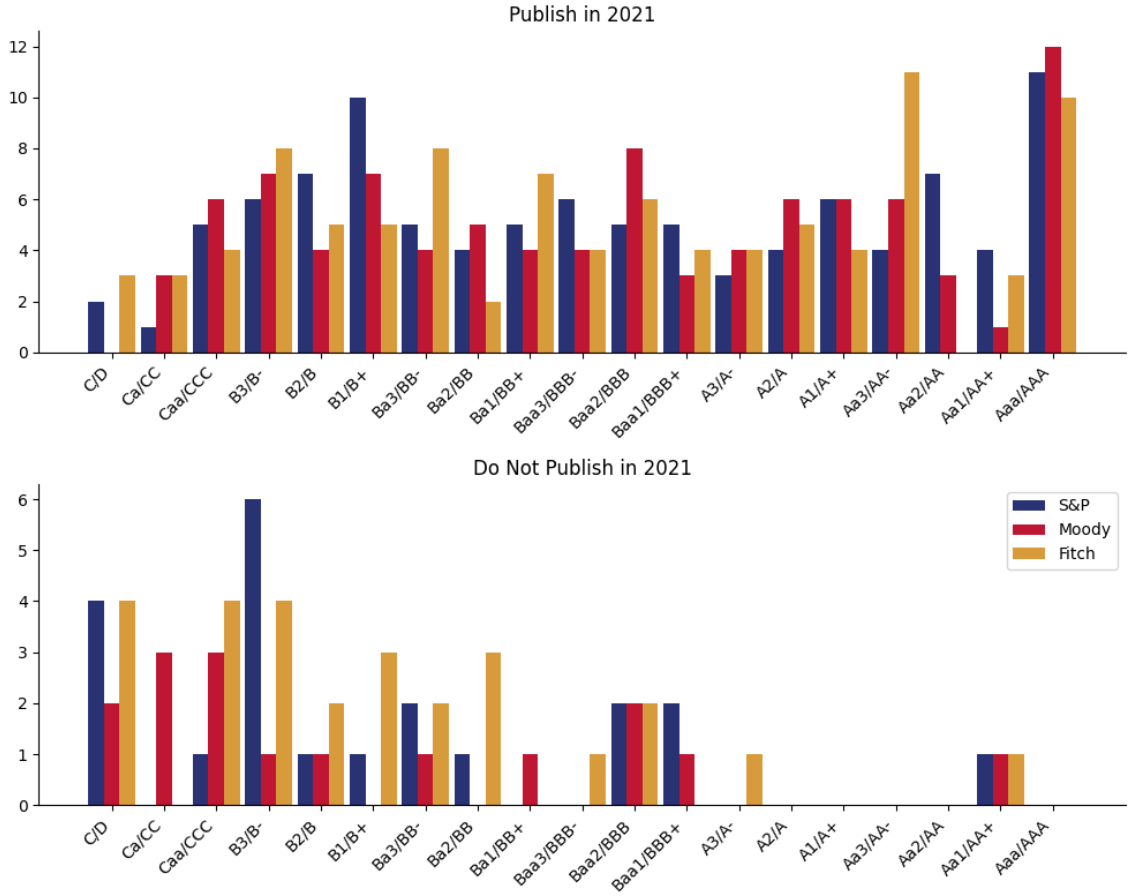
When examining **government indicators**, we find that, when considering government expenditure to GDP as a measure of public resources spent by countries, those that have published their FSRs have a mean value of 29.5%, whereas those not publishing FSRs have a mean value of 24.4%.

On the other hand, when examining government debt levels, we find that countries that released their FSRs in 2021 had a mean government debt as a percentage of GDP of 75.6%. In contrast, for countries not publishing FSRs, the mean value was 60.7%.

This suggests that higher debt levels may attract increased scrutiny of a country's financial stability, leading such countries to publish FSRs.

Considering **sovereign debt ratings**, which are defined as "opinions about the creditworthiness of sovereign borrowers that indicate the relative likelihood of default on their outstanding debt obligations" (Amstad & Packer, 2015), we found that countries that published FSRs in 2021 generally have better credit ratings compared to those that do not publish such reports, as shown in Figure 4. Countries that do not publish an FSR are more concentrated in the lower ratings of the three major agencies (Fitch, Moody's, and S&P). Sovereign debt ratings involve a comprehensive assessment of both the ability and willingness of a sovereign entity to meet its debt obligations. Consequently, qualitative factors such as institutional strength and adherence to the rule of law assume heightened significance in the evaluation process. In their quantitative assessment, these ratings incorporate various measures related to fiscal, economic, institutional, and other factors (Amstad & Packer, 2015). In this regard, countries with better performance in economic, fiscal, and institutional metrics—and thus higher ratings—are more likely to have publicly available FSRs.

Figure 4: Credit rating



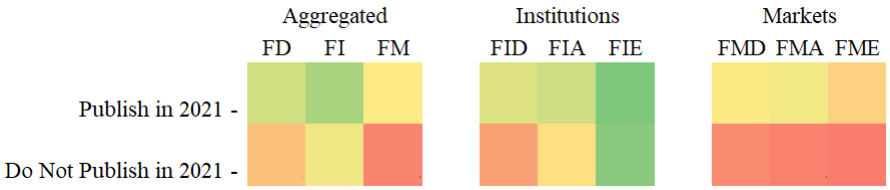
Source: Fitch, Moody´s and S&P

Finally, we consider the **Financial Development Indicators** (FDIs) compiled by the IMF, which are designed to evaluate the depth, access, and efficiency of both financial institutions and financial markets (Svirydzenka, 2016). These indicators offer a comprehensive perspective by combining aggregate data from financial institutions with market-specific metrics that reflect the operating environment. The overall Financial Development (FD) index is composed of two main components: the Financial Institutions (FI) index and the Financial Markets (FM) index. Each of these is further broken down into three sub-indices that evaluate specific aspects of financial systems: depth, access, and efficiency. Accordingly, the Financial Institutions index includes the Financial Institutions Depth (FID), Financial Institutions Access (FIA), and Financial Institutions Efficiency (FIE) indicators. Similarly, the Financial Markets index consists of the Financial

Market Depth (FMD), Financial Market Access (FMA), and Financial Market Efficiency (FME) indicators.

Figure 5 presents the average values of each indicator for countries that published FSRs for 2021 in the first row, and for countries that did not in the second row. Indicators in green signify higher index values, while those in red represent lower values.[9] On average, countries that published FSRs in 2021 display higher scores in indicators related to market development and the financial institutions depth. In contrast, indicators associated with institutions efficiency and access show more similar mean values between the two groups. Nevertheless, it is important to note that the values presented reflect group averages and may not accurately capture the specific circumstances of individual countries within each group.[10]

Figure 5: Financial Development Indicators, by FSR publication status[7]



Note: Indicators are grouped by type — D: Depth, A: Access, E: Efficiency.

Source: Author's calculation based on IMF Financial Development Indicators.

The analysis reveals that the publication of FSRs is closely linked to a country's level of economic development, financial system maturity, and governmental stability. High-income and larger countries, particularly those in Europe and the Americas, are more likely to publish FSRs. These reports are also more prevalent in countries with developed banking and stock market systems, higher levels of financial inclusion, and stronger sovereign debt ratings.

4.2 Reports features

In this section, we explore various characteristics of FSRs published for 2021. Our initial inquiry focuses on the question: **Who publishes these reports?**

[9]The color scale is constructed based on the minimum and maximum mean values of all indicators. The maximum mean value for an indicator is 0.59, and the minimum is 0.04. Therefore, green does not necessarily indicate a mean value of 1.

[10]For example, in the case of Uruguay Financial Institution Access and Efficiency indicators overhead the average values presented by countries that publish FSR.

As pointed out in Section 2, some authors, including Cihák (2006), define an FSR as a publication issued exclusively by a central bank, making this aspect a core part of the definition. In our analysis, we prioritize FSRs released by central banks when multiple reports are available from a single country. However, we also acknowledge that other institutions may publish these reports.

In our sample, 95.7% of the publicly available FSRs for 2021 are issued by central banks or regional central banks (Figure 6 (a)), either alone or in collaboration with other institutions. As noted in Section 2, three institutions in our sample publish FSRs for multiple countries. The Eastern Caribbean Central Bank, the West African Monetary Institute, and the Economic and Monetary Community of Central Africa each issue a unified report for their respective member countries.

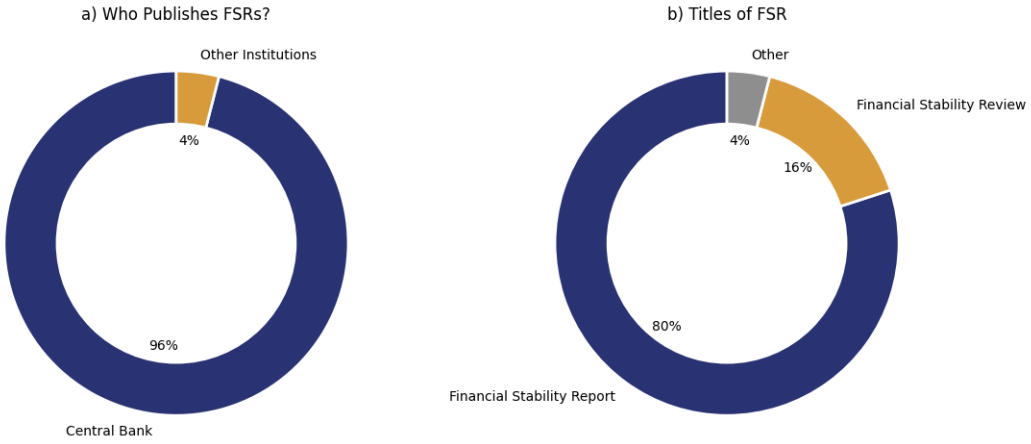
Additionally, we identified instances where FSRs are issued by organizations other than central banks. In Panama, the FSR is published by the Superintendency of Banks (SBP, 2021). In Liechtenstein, it is issued by the Financial Market Authority (FMA, 2021). In the Philippines, the FSR is published by the Financial Stability Coordination Council, an inter-agency body composed of representatives from the Central Bank of the Philippines, the Department of Finance, the Securities and Exchange Commission, the Insurance Commission, and the Philippine Deposit Insurance Corporation (FSCC, 2021).

As previously mentioned, in some cases, multiple agencies collaborate to produce the FSR. For example, in Namibia, the FSR is jointly prepared by the central bank, the Financial Institutions Supervisory Authority, and the Ministry of Finance (BN, NAMFISA, & Ministry of Finance, 2021).

The empirical evidence identifies central banks as the primary institutions responsible for issuing FSRs, a finding that aligns closely with theoretical discussions in the field. According to Ponce and Tubio (2010), there are two natural candidates for issuing an FSR: the central bank and the supervisory agency. As noted by Padoa-Schioppa (2003) and IMF (2004), central banks play an indispensable role in safeguarding financial stability. One of their key strengths is their deep expertise and access to information on the financial system, enabling them to assess risks accurately and understand the complex interconnections among financial institutions and markets.

Beyond risk assessment, central banks also serve a crucial coordinating role, particularly during periods of financial distress. Additionally, they are uniquely positioned to provide liq-

Figure 6: FSR attributes



Source: Author's calculation

uidity support to struggling financial institutions in crisis situations, helping to prevent liquidity shortages and ensure the smooth functioning of the financial system. Their crisis management experien

It is worth noting that, in some circumstances, conflicts of interest between monetary policy and financial stability may arise, requiring balanced decision-making. One such conflict may occur during the transition to a low-inflation environment, where the elevated real interest rates that often accompany disinflationary trends could pose significant challenges for financial institutions (Padoa-Schioppa, 2003).

The supervisory agency benefits from immediate access to data from financial institutions and has expertise in microprudential policy. However, its analysis may be limited to the institutions it oversees, which are constrained by its regulatory scope. A comprehensive assessment of financial stability should not only consider the status of individual financial institutions but also account for risks arising from interconnectedness and external shocks, regardless of their origin (Ponce & Tubio, 2010).

FSRs can sometimes be issued by committees, typically composed of both the central bank and the supervisory agency. One of the primary challenges in this approach is the coordination problem among committee members, as aligning the differing perspectives and responsibilities of the involved agencies can be difficult. Furthermore, as noted by Padoa-Schioppa (2003), involving

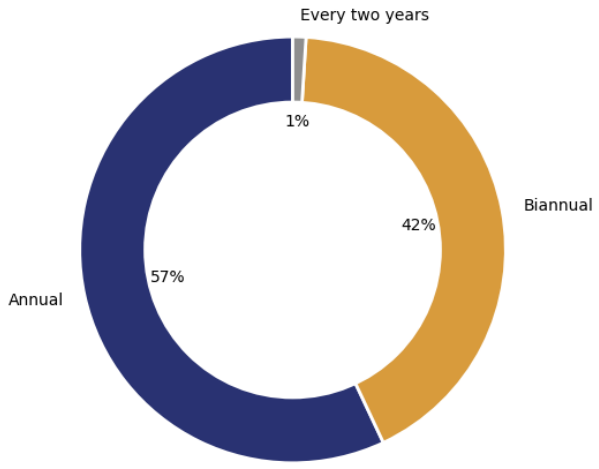
political entities such as the finance ministry in these committees introduces the risk of inaction bias. Additionally, when committees issue FSRs, there is a risk of underestimating financial vulnerabilities, particularly if they stem from previous policy decisions. There may be reluctance to fully acknowledge these risks, especially if addressing them requires politically or economically costly policy actions. This, in turn, could compromise the objectivity and effectiveness of financial stability assessments.

In practice, most countries designate the central bank as the institution responsible for issuing FSRs, recognizing its central role in maintaining financial stability and its advantages in risk assessment. Some authors, such as Cihák (2006), go even further by considering issuance by a central bank as a fundamental component of the definition of an FSR itself.

As previously mentioned, **the title** of FSRs varies across countries and may also change over time within a given country. As of 2021, 80% of these reports are titled "Financial Stability Report", while 16% are referred to as "Financial Stability Review." The remaining 4% have various other titles, including "Financial Stability Analysis," "Financial System Report," "Financial System Stability Review," "Financial Surveillance Report," and "Financial System Risk Assessment" (Figure 6 (b)).

FSRs are generally published regularly, although the **frequency of publication** varies across countries. 57% of countries publish these reports annually, followed by 42.3% that opt for a semi-annual publication schedule. A small percentage, 0.7%, publish their reports every two years (Figure 7).

Figure 7: Frequency of Publication



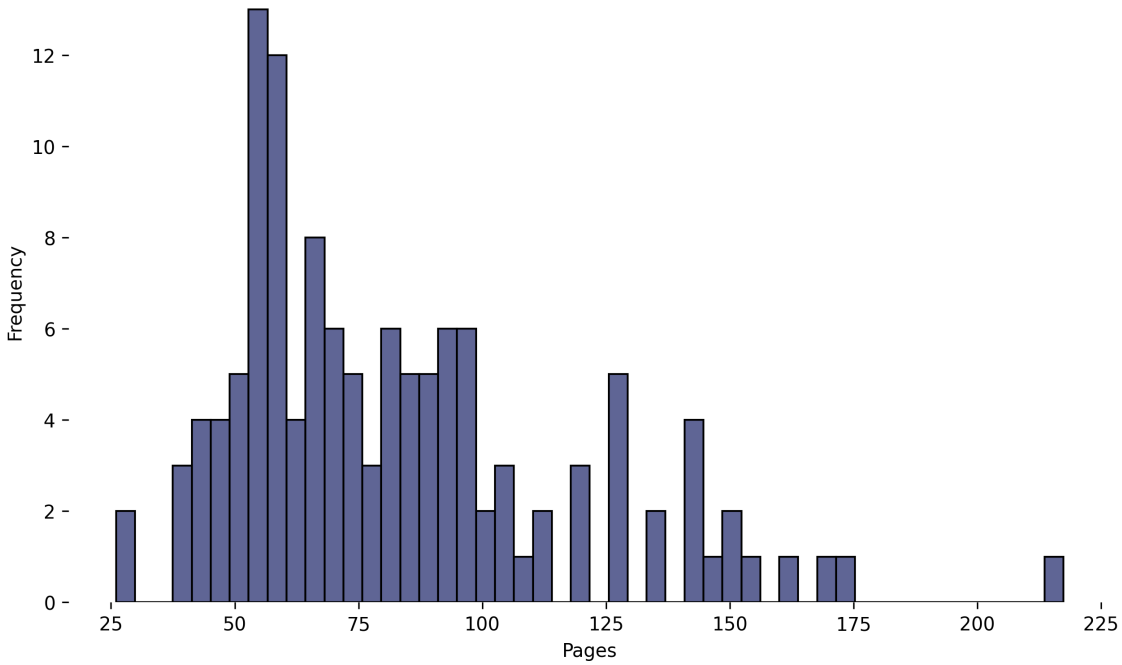
Source: Author's calculation

The frequency of publication affects both the content and the approach to assessing financial stability in FSRs. In particular, reports published every two years tend to be backward-looking. While they evaluate risks and the macro-financial environment, their focus is generally on past years. A similar tendency can also be observed in some annual publications.

Frequency is not the only important factor; the delay in publication is also crucial. Some reports experience a delay of more than six months in publishing the FSR for the previous year. According to Muñoz et al. (2012), this is a significant drawback of several FSRs. Financial stability assessments should be forward-looking, enabling policymakers to proactively identify and address potential risks and vulnerabilities that may not yet be evident but could pose significant challenges in the future. A forward-looking approach not only enhances accountability but also mitigates inaction bias, providing valuable information to financial institutions, investors, and the public for more informed decision-making.

Our examination of FSRs released in 2021 reveals considerable differences in **document length**. The page count varies significantly across the countries studied, as illustrated in Figure 8. On average, reports are 83 pages long, with 69% of them containing fewer than 100 pages.

Figure 8: Distribution of FSR length



Source: Author's calculation

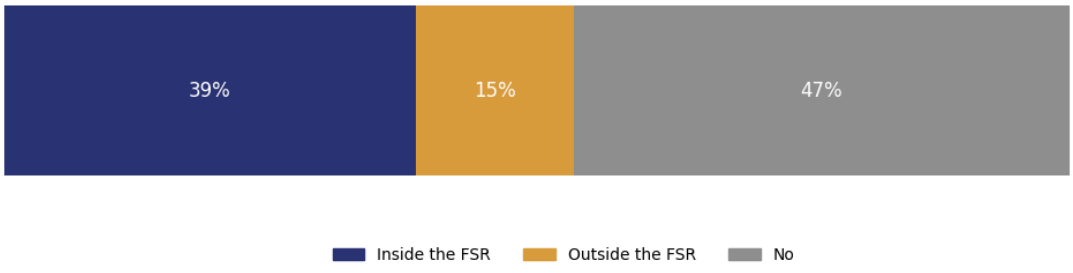
The frequency of publication does not seem to be associated with variations in the length of FSRs. Reports published annually and semi-annually have an average length of 84 and 82 pages, respectively. While FSRs published every two years have an average length of 46 pages, this figure corresponds to a single country, which may limit generalization. Additionally, the average report length varies by region. For example, in Asian and European countries, there is a tendency toward more extensive reports, with average lengths of 94 and 89 pages, respectively. In contrast, other regions, such as Africa and Oceania, exhibit shorter reports, with average lengths of 69 and 49 pages, respectively.

5 Financial stability definitions and reports' objectives

In discussing financial stability, it is essential to acknowledge the complexity of its definition, as noted by Schinasi (2004). Financial stability lacks a singular, universally accepted definition. With this in mind, the objective of this section is to explore various definitions of financial stability and examine the extent to which they are incorporated into FSRs. Additionally, this section provides an updated analysis of previous research on the definition of financial stability, building upon the groundwork laid by Muñoz et al. (2012), while also identifying commonalities among these definitions.

In 53.5% of the analyzed countries, a definition of financial stability is explicitly provided. Specifically, 38.8% of countries include the definition within their FSRs, while 14.7% present the definition outside the scope of the FSRs (Figure 9).

Figure 9: Countries with a definition of financial stability



Source: Author's calculation

When a definition of financial stability is included in an FSR, it is often found in the initial pages of the document, typically within sections such as the preface or prologue. Additionally, it may appear in the introduction or in a chapter providing an overview of financial stability. In some FSRs, the definition is strategically placed at the very beginning, often on a dedicated page. When the definition is located outside the FSR itself, it is typically published on the webpage listing the FSRs or on a dedicated page related to financial stability.

In general, financial stability refers to a condition in which the financial system can function smoothly and efficiently, even in the face of economic or financial shocks. It involves the resilience of financial institutions, markets, and infrastructure to withstand disruptions, ensuring the proper allocation of resources, the continuity of payments, and the availability of credit, even during challenging periods. Financial stability is crucial for the effective implementation of monetary policy, economic development, and maintaining confidence in the financial system.

By contrast, financial instability occurs when the financial system experiences disruptions, imbalances, or shocks that impair the functioning of financial institutions, markets, and the broader economy. It is characterized by a lack of resilience and the inability of the financial system to absorb and mitigate the impact of adverse events. Financial instability can manifest as breakdowns in financial intermediation, disruptions in payment systems, loss of public confidence in financial institutions, and heightened risks to overall economic stability. Essentially, financial instability reflects a compromised financial system, leading to potential negative spillovers into the real economy and affecting economic growth and well-being.

In Figure 10, we present a word cloud that highlights the most frequent words appearing in definitions of financial stability from various sources. The size of each word is proportional to its frequency, with larger sizes representing higher frequency. This word cloud suggests a strong focus on foundational terms such as "system," "financial," "stability," and "risk." Upon considering these dominant terms, other highly relevant words like "economic," "shocks," and "efficient" emerge. These secondary terms offer additional layers of understanding, emphasizing that financial stability is not only about the financial system itself but is also deeply interconnected with economic resilience, adaptability to shocks, and efficiency in financial intermediation.

Additionally, when we consider bigrams,[11] phrases like "capable withstanding," "withstand shocks," "efficient allocation," and "central bank" emerge as the most frequent. For instance,

[11] A bigram is a sequence of two adjacent elements from a string of tokens, which are typically letters, syllables, or words. In this context, bigrams are used to capture two-word combinations from the text to provide more contextual insights.

Figure 10: Word Cloud of Most Frequent Words in Financial Stability Definitions

Source: Author's calculation.

"capable withstanding" and "withstand shocks" underscore the resilience aspect of financial systems. "Efficient allocation" points to the optimal use of financial resources, and "central bank" highlights the role of central banks in maintaining financial stability.

Upon conducting a more in-depth analysis of the content of each financial stability definition, we can identify several common elements that are consistently present across various definitions.

1. **Functioning of the Financial System**: Definitions of financial stability emphasize the importance of a well-functioning financial system that efficiently intermediates funds, facilitates payments, manages risks, and supports the allocation of financial resources.

2. **Resilience to Shocks**: Most definitions highlight the necessity for the financial system to be resilient and capable of withstanding shocks, disruptions, or adverse events without leading to significant failures or disturbances.

3. **Efficient Resource Allocation**: Financial stability involves ensuring that the financial system effectively allocates resources to productive investments, savings, and consumption, thereby contributing to economic development.

4. **Confidence and Trust**: Many definitions emphasize the importance of maintaining public confidence and trust in the financial system.

5. **Access to Financial Services**: A stable financial system ensures that households and businesses have access to financial services, credit, and investment opportunities, even during challenging economic conditions.

6. **Mitigation of Risks**: Definitions commonly mention the management and mitigation of risks within the financial system to prevent the buildup of vulnerabilities and potential cascading disruptions. Many definitions stress the importance of minimizing systemic risks and avoiding negative spillovers between the financial sector and the broader economy.

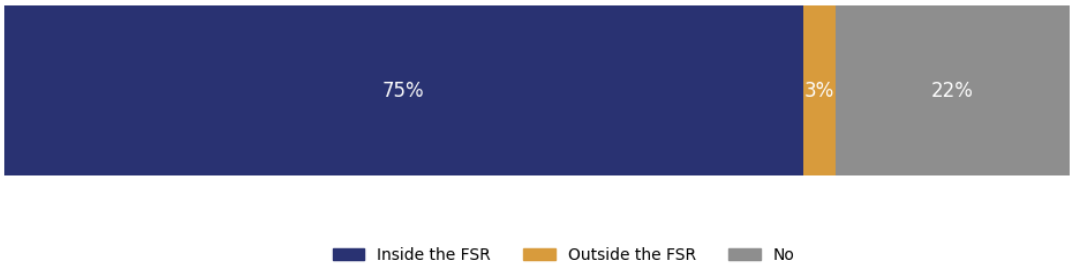
7. **Intermediation and Market Functionality**: The efficient intermediation of funds, proper functioning of financial markets, and smooth operation of payment and settlement systems are emphasized as fundamental aspects of financial stability.

Considering the **objectives** of the FSR, 75% of the analyzed reports include them within the body of the FSR itself, while only 2.6% mention them outside the report. When objectives are incorporated within the FSR, they are typically found in the initial sections, either in the executive summary, the preface, or within the first few pages. Conversely, when objectives are mentioned outside the FSR, they are generally located on the webpage in the section related to financial stability (Figure 11).

The main objectives can be classified into the following categories:

1. **Risk Identification and Assessment**: Identifying and evaluating both current and potential risks to the financial system.

Figure 11: Countries with clearly stated objectives of the FSR



Source: Author's calculation.

2. **Policy Guidance and Recommendations**: Providing policy recommendations to mitigate identified risks, often involving macroprudential measures, regulatory changes, or guidelines for financial institutions.

3. **Public Awareness and Transparency**: Informing the public, stakeholders, and policymakers about the state of the financial system to promote public debate and enhance understanding of financial stability issues.

4. **Resilience Evaluation**: Assessing the financial system's ability to withstand various shocks, including economic downturns, policy changes, or other adverse conditions.

5. **Regulatory and Oversight Efficacy**: Evaluating the effectiveness of existing regulations and oversight mechanisms, often including a review of actions taken by central banks or financial authorities.

6. **Communication and Decision-Making**: Serving as a basis for decision-making by the central bank, financial authorities, or other policymakers. These reports often include extensive data and analyses to guide policy decisions.

In summary, the main objectives of FSRs globally are to identify and assess risks, offer policy guidance, enhance public awareness and transparency, evaluate system resilience, assess regulatory efficacy, and facilitate informed decision-making.

6 Risks and vulnerabilities

In this section, we examine the content of FSRs, with a specific focus on the treatment of risks and vulnerabilities. Our objective is to provide a comprehensive analysis of how these reports address and incorporate risks and vulnerabilities into their content.

To enhance the representativeness of our study, for countries that publish FSRs semi-annually, we analyzed both reports from 2021. This approach provides a more accurate depiction of the year's financial landscape. Consequently, our examination includes a total of 165 reports issued in 2021, covering data from 130 countries. We excluded reports published in languages other than Spanish, English, Italian, or French. In cases where countries have published reports in both English and their native language, this analysis considers only the English version as part of the sample.[12]

We begin by examining the concept of risk within FSRs, analyzing the frequency of occurrences of the word "risk" and its derivatives in the reports. Additionally, we investigate the words that appear before or after these identified terms to gain deeper insight into the specific risks considered in these reports.

Next, we turn our attention to vulnerabilities. Through a comprehensive review, we aim to identify explicit definitions of vulnerability, track the frequency of terms that begin with the roots "vulnerab" and "risk," determine whether vulnerabilities are explicitly mentioned and identified in the reports, and analyze how they are incorporated. Our ultimate goal is to assess the relative emphasis placed on vulnerabilities compared to risks, uncovering potential insights that contribute to a deeper understanding of global trends and reporting practices in financial stability.

6.1 Risks

The assessment of risk is at the core of FSRs. As mentioned in Section 5, one of the primary objectives of FSRs is the identification and assessment of risks, the communication of these risks, and the subsequent evaluation for the benefit of the public, along with the formulation of policy recommendations to mitigate identified risks. Not surprisingly, within the sample, all reports mention the word 'risk' or some derivative of it. In 2021, on average, the word 'risk' or its derivatives is mentioned 200 times, with a minimum of 15 mentions in the case of the FSR of

[12] Additionally, we excluded Cambodia's report as the file could not be processed.

Equatorial Guinea and a maximum of 740 mentions in the case of Bangladesh. The median value for these mentions is 168 (Figure 12).

Figure 12: Frequency term "risk" for all reports in the sample

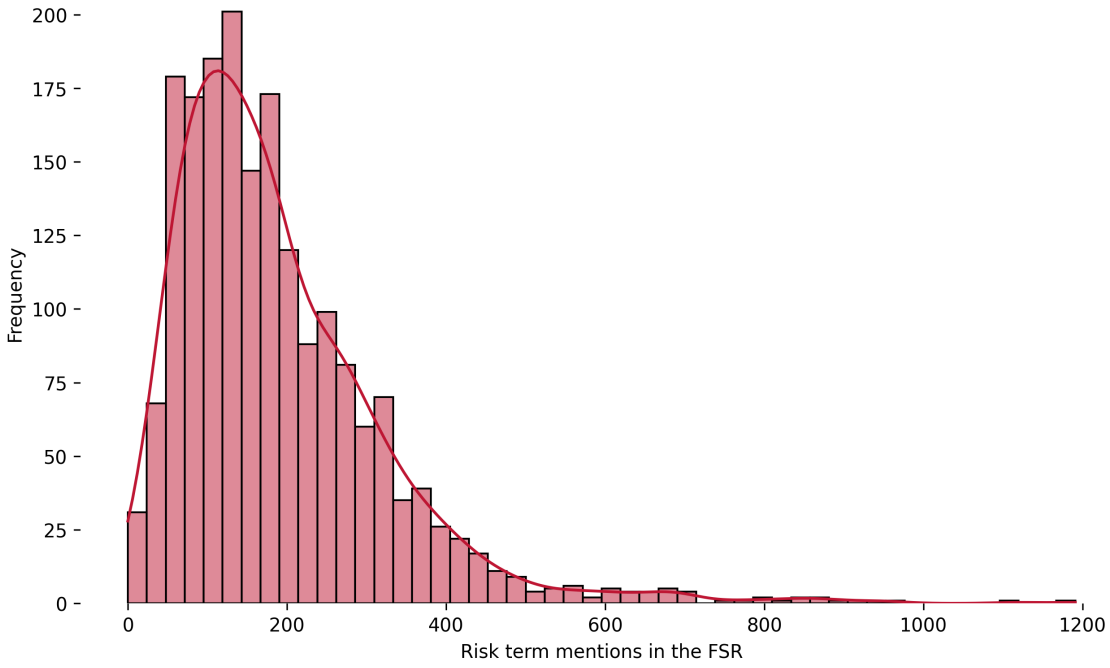


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Figure 13: Contextual Usage of 'Risk' in FSRs

Among the most frequently occurring words preceding and following "risk," we find terms such as "asset," "credit," "market," and "stability," followed closely by "liquidity" and "banks." Interestingly, "transition risk" and "climate risk" appear among the top ten most frequent words, reflecting the recent interest in climate change-related risks and their integration into risk assessment practices. 'Interest rate risk' also appears among the top ten most frequent words, and if we consider these words in conjunction with 'market,' both of which signify aspects of market risk, they would collectively top the ranking.

We classify the words preceding and following "risk" into different categories to identify the various types of risk assessed in FSRs. For this purpose, we analyze the 1.014 unique words and retain those that are related to a type of risk, representing 13.9% of them. Finally, we group these resulting words into the following categories according to the type of risk they are related to:

- **Market risk** refers to the potential for financial losses in investment portfolios and financial instruments resulting from fluctuations in market prices. These price movements can encompass shifts in interest rates, exchange rates, equity prices, commodity prices, credit spreads, and asset prices. Market risk is the most frequently addressed risk in FSRs, with **75.2%** of reports mentioning at least one word related to it. In this category, we consider not only the term "market risk" but also words related to exchange rates or currency risk[13], words related to valuation risks[14], words related to interest rates or yields in general, or referring to a particular interest rate (e.g., LIBOR), and the risk related to "asset".

- **Liquidity risk** is the risk that financial institutions or markets may encounter difficulties in meeting their short-term obligations, potentially leading to disruptions in financial markets and impairments in the functioning of the financial system. This risk includes the inability to sell assets quickly at fair prices, also known as a fire sale of assets, or to obtain necessary funding at reasonable terms, which can result in solvency issues and threaten overall financial stability. **52.7%** of FSRs refer to liquidity risk. We consider, among the words that appear before or after the word "risk" or some derivative of it that belongs to this category, not only "liquidity" but also "illiquidity," "funding," "deposit," "withdrawal," and "mismatch."

- **Credit risk** is the risk of loss arising from the potential that a borrower or counterparty will fail to meet its financial obligations fully. It is mentioned in **70.9%** of FSRs. Among this category, we include the word "credit" when it appears before or after the word "risk" or some derivative, but we also consider the occurrence of the words "counterparty," "rollover," "repayment," "recoverability," "refinance," "default," "borrow/er," "lender," "moratorium," "loan," "delinquency," "debt," and "indebtedness."

- **Solvency risk** refers to the risk that a financial institution may not have sufficient financial resources or assets to meet its long-term financial obligations, and it can imply insolvency,

[13] Among the words that appear before or after "risk" and are classified in this category are: exchange, dollar, currency, appreciation, devaluation, and FX.

[14] In this category, we include the following words: value, valuation, overvaluation, revaluation, pricing.

potentially leading to bankruptcy. **43.6%** of FSRs address solvency risk. In this category, we include the words "solvency," "insolvency," "bankruptcy," and "capital."

- **Operational risk** is the risk of financial loss or other adverse impacts arising from inadequate or failed internal processes, systems, people, or external events. In this category, we include management risk, and it is mentioned in **26.7%** of FSRs. Among the words included in this category are "operation/al," "fraud," "governance," and "management."

- **Macroeconomic risk** refers to the potential adverse effects on an economy or financial system arising from broad and systemic factors related to economic conditions. Within this category, we include the occurrence of the word "macro" or "macrofinancial" before or after the word "risk." We also consider the occurrence of a set of words that refer to macroeconomic indicators when accompanied by the word "risk," such as "investment," "savings," "GDP (Gross Domestic Product)," "economy," "activity," "product," "trade," "supply," "(un)employment," "job," and "sovereign." **70.3%** of FSRs mention macroeconomic risk.

- **Climate change-related risk** is mentioned in **47.9%** of FSRs issued in 2021. Within this category, we include the words "climate" or "climatic," as well as the term "physical risk," which pertains to the risk associated with extreme climate events. In some reports, there is specific mention of certain types of climate events, such as earthquakes, floods, or references to meteorological and weather-related risks. On the other hand, we find "transition risk" mentioned in the FSRs, along with words related to this risk category, such as "greener," "transition," "taxonomy," and "sustainability." Finally, we also include the words "environment" or "environmental risks" within this category.

- **Cybersecurity risk** or cyber risks arise from the materialization of cyber events that can be defined as "events (whether resulting from malicious activity or not) that: (i) jeopardize the confidentiality, integrity, and availability of an information system or the information the system processes, stores, or transmits; or (ii) violate the security policies, security procedures, or acceptable use policies."(FSB, 2018). This risk is mentioned in FSRs as *"cyber," "cybersecurity,"* or *"cybercrime"* risks. **26.7%** of FSRs mention cybersecurity risks.

- **Technological risk** is mentioned in **40%** of FSRs. In this category, we include the words "digitalization," "STEM," "technology," "data," and "digitalization" when they accompany the word "risk."

- **Real estate risk** is mentioned in **23%** of FSRs and is referenced as "real estate" risk, "mortgage," and "housing" risks.
- **Geopolitical risk** is mentioned in **8.5%** of FSRs. Among the words classified in this category are "geopolitical," "political," "war," and "fragmentation" risks.
- **Payment risk** is mentioned in **8.5%** of FSRs.

In a minor proportion, **Social risk**, **Laundering risk**, **Reputational risk**, **Redemption risk**, **Monetary risk**, **COVID-19**, and **Cryptocurrency** risks are mentioned in FSRs[15].

The remaining words that appear before or after the word "risk" and are not classified as a type of risk can be assigned to different concepts. Firstly, they may refer to methodologies used to assess risk, such as the "map," "heatmap," or "matrix" of risk. Secondly, some words are associated with regulatory instruments linked to risk, including capital buffers, loan-to-value ratios, debt-to-income risk, or risk-weighted assets. Additionally, certain references to risk are specific to particular institutions, such as "banking," "(re)insurance," "microfinance," or "brokers." There are also mentions of institutional sectors, such as "corporate," "households," "government," or economic activity sectors like "health," "tourism," "industry," or "agriculture." Lastly, risk is often associated with specific countries or regions.

Furthermore, commonly used words describe the dynamic nature of the risks assessed. For instance, terms like "idiosyncratic" and "systemic" categorize risks as either idiosyncratic or systemic, considering particular "events" or "episodes." Additionally, the description of risk dynamics is facilitated through words like "build," "materialize," "propagation," "occurrence," "transmit," "exposure," "mitigate," "mitigation," and "mitigating." Uncertainty is also addressed through words such as "volatility" and "likelihood." Lastly, the concepts of "interconnectedness" and "contagion" are referenced, with consideration of the amplification mechanisms associated with these interconnections.

6.2 Vulnerabilities

While risks provide a forward-looking perspective on potential adverse events, vulnerabilities offer insights into inherent weaknesses that could amplify the impact of such events. Interestingly,

[15]Laundering risks, monetary risks, COVID risks, cryptocurrency risks, and social risks are mentioned in fewer than 5 FSRs in the sample.

our analysis revealed that only five of the analyzed reports contained an explicit definition of vulnerability (Table 1).

Table 1: Definitions of Vulnerabilities

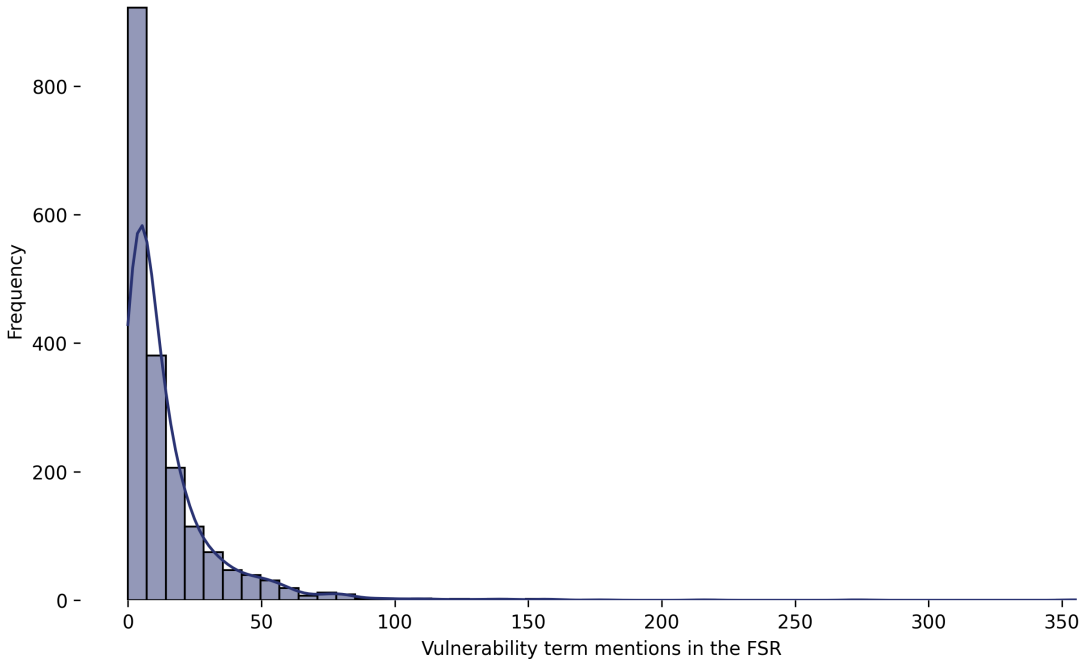
Country (Institution)	**Definition**
Canada (Bank of Canada)	Vulnerabilities are pre-existing conditions that can lead to episodes of financial stress or even a financial crisis. They can amplify and further propagate shocks throughout the financial system. The interaction between vulnerabilities and shocks can generate risks that may harm the financial system and damage the economy. Reducing and managing vulnerabilities enhances the resilience of the financial system and financial stability.
Croatia (Croatia National Bank)	Factors that increase or decrease the intensity of a possible shock.
Spain (Bank of Spain)	Vulnerabilities (V) are defined as those economic and financial conditions that increase the impact or likelihood of risks (R) to financial stability.
USA (Federal Reserve Board)	Aspects of the financial system that would exacerbate tensions can be monitored as they increase or decrease over time.
South Africa (South Africa Reserve Bank)	A property of the financial system that (i) reflects the existence or accumulation of imbalances; (ii) may increase the probability of a shock; and (iii) when affected by a shock, may lead to systemic disruption.

Source: Definitions extracted from Financial Stability Reports of Bank of Canada, Croatia National Bank, Federal Reserve Board, and South Africa Reserve Bank

There is a consensus among the definitions that vulnerabilities amplify the impact of risks. Additionally, South Africa and Spain explicitly state that vulnerabilities can increase the likelihood of a shock or the materialization of a risk. Although Canada's definition does not explicitly address the effect of vulnerabilities on the likelihood of a shock or the materialization of a risk, it is implied that their presence and evolution can affect the probability of risks materializing, as they themselves can lead to episodes of financial stress or crisis.

A definition that views vulnerabilities as broad conditions or factors—rather than limiting the scope to just macroeconomic or financial conditions, or properties of the financial system—offers a more flexible framework for analysis. Vulnerabilities to financial stability can stem from various domains, including sociopolitical factors such as political instability, social unrest, and geopolitical tensions; environmental factors like natural disasters, climate change, and pandemics;

Figure 14: Frequency of term "vulnerability"



technological factors, including the emergence of new financial technologies and heightened vulnerability to cybersecurity attacks; and demographic factors like population growth, aging, and migration patterns. These factors can exert pressures on various systems, including social security. Therefore, it is crucial to consider a wide range of factors and conditions when assessing vulnerabilities to financial stability, as each can significantly impact the financial system. Adopting a definition that restricts the scope could result in biased analysis and may overlook factors that could contribute to, or amplify the impact or likelihood of, a systemic event.

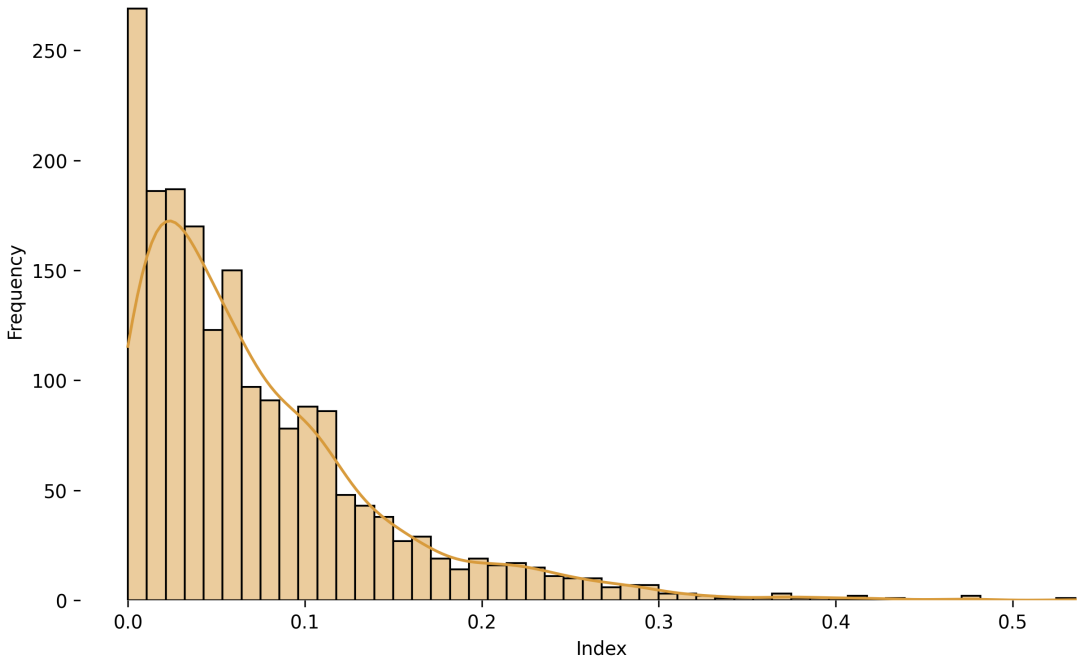
In 98.3% of the analyzed reports, the word "vulnerability" is mentioned at least once. However, it is observed that financial stability reports primarily focus on risks. On average, words with the root "vulnerab" appear 28 times, whereas words with the root "risk" appear 200 times (Figure 14).

To determine the relative importance of vulnerabilities compared to risks in the analysis of financial stability reports, we constructed an index of the relative importance of vulnerability to risk. This index is defined as the number of times words with the root "vulnerab" appear divided by the total number of words with the roots "vulnerab" or "risk" in each report (Equation 1). The index takes values between 0 and 1, where a value of 0.5 indicates that the report is balanced

in its focus on risks and vulnerabilities. Therefore, values of this index from 0 to 0.5 mean the report allocates higher relative importance to risks, and from 0.5 to 1 to vulnerabilities:

$$Index_i = \frac{\text{count of words with “vulnerab” in report } i}{\text{total count of words with “vulnerab” or “risk” in report } i} \tag{1}$$

Figure 15: Relative importance of vulnerability compared to risk



Source: Author's calculation.

On average, the index takes a value of 0.11 with a median of 0.09. Overall, the results show that the majority of the analyzed reports present a low level of relative importance of vulnerability. However, there is also a small proportion of reports with high levels of vulnerability importance (Figure 15). **South Korea** is the country with the highest relative vulnerability index among the analyzed reports from 2021, reaching a value of 0.54. It is followed by **Canada, Singapore, Botswana, and Norway** with relative indices of .39, 0.35, 0.34, and 0.3, respectively. On the other end of the spectrum, **within the countries that have at least one mention of the word vulnerability, Hungary, Ukraine, Iceland, Costa Rica, and Brazil have the lowest vulnerability index.**

The way vulnerabilities are analyzed and identified varies among different countries. Among

the countries that use at least one word with the root "vulnerab", most of them utilize the term throughout the report when describing various risks and consider them as a limiting factor for managing the identified risks. We can include in this category those reports that include a vulnerability within a specific section, constituting a focused analysis that is not reproduced over time.

In the remaining reports, vulnerabilities are explicitly incorporated in some way, being the subject of analysis in and of themselves. In general, we can identify the following approaches to analyzing vulnerabilities:

1. **Chapter or subchapter:** Some reports have a dedicated chapter or subchapter specifically aimed at identifying and analyzing vulnerabilities. In these sections, vulnerabilities are mentioned, and a description and evaluation of them are provided. The analysis is often accompanied by graphs. In some reports, the identified vulnerabilities refer exclusively to the banking system and/or different sectors of the financial system.

2. **List or table:** In some reports, identified vulnerabilities are listed or presented in tables. Vulnerabilities may be associated with risks or listed separately from the risks. For example, in Norway, a distinction is made between structural vulnerabilities, which persist, and cyclical vulnerabilities, which change over time (Bank, 2021). In the Financial Stability Report of Malta, in addition to the classification as cyclical or structural, vulnerabilities are classified based on whether they originate from within the financial system or from external sources (CBM, 2021). In many of these cases, an evaluation is conducted using a heatmap (often with a 3-color scale—yellow, orange, and red—reflecting whether the vulnerability is moderate, medium, or high) and showing the evolution of the identified vulnerability compared to the previous report.

3. **Vulnerability Index:** For instance, in Luxembourg, a vulnerability index for the banking sector is constructed by aggregating a set of balance sheet variables, income statement variables of banks, the profitability of the European stock index, and the competitive structure (approximated by the number of banks). These variables are transformed and aggregated. Finally, an econometric model is used to predict the future evolution of vulnerabilities (de Luxembourg, 2021).

These three types of analysis can appear combined within the same report, as countries that list or present vulnerabilities in a table tend to also have chapters or subchapters where they

conduct a more extensive analysis.

7 Structure and coverage

In this section, we focus on the structure and coverage of FSRs about 2021. First, we analyze the structure of these reports by examining their sectional divisions. To this end, for countries that have two publicly available reports about 2021, we select a representative report[16]. As a result, a total of 116 reports were analyzed in this section, covering a total of 131 countries[17].

In this part of the analysis, we seek to identify both commonalities and divergences in how different countries choose to structure their reports. Subsequently, we turn our attention to the coverage of these reports, focusing not on their structural compartments but on the sectors, markets, and institutions that are discussed. This second approach allows us to go beyond mere organization and delve deeper into the substantive content of the reports.

7.1 Sections

The structure of FSRs varies significantly across countries, yet a common framework is often discernible. As a foundation for our analysis, we draw upon the three-tier structural categories proposed by Ponce and Tubio (2010). Additionally, we incorporate elements found in the 2021 FSRs that were not considered in their original analysis.

According to Ponce and Tubio (2010), FSRs commonly adopt one of three types of structures. The simplest, termed the "minimal" structure, generally includes an introduction, a section focused on the international environment, indicators related to the macroeconomy and the real sector, financial markets, and an analysis of the financial system. A more comprehensive, "basic" structure builds upon this by adding sections or analyses concerning the situations of households and firms, as well as the financial infrastructure. Finally, they identify a third, "amplified" category, in which the FSR also covers aspects such as the development of the financial system, analyses of the non-financial sector, payment systems, and special topics.

An introductory section is present in 84% of FSRs and may appear under various headings

[16]The primary criteria for this selection was coverage, meaning that biannual reports with greater coverage of the year 2021 were preferred.

[17]The number of countries covered differs from the total stated in Section 6 because the reports in this new analysis were manually examined. Therefore, a report for Cambodia could be included even when the coded analysis did not allow it.

such as "Introduction," "Executive Summary," or "Overview." As mentioned earlier, this section often includes the definition of financial stability and outlines the objectives of the report.

The International Environment section offers a comprehensive review of the prevailing global economic and financial landscape. It examines key economic indicators, financial market trends, and monetary policies across major economies. Some countries focus particularly on the regional environment. This section also identifies international vulnerabilities and emerging risks that could influence domestic financial stability. A total of 81% of FSRs include a section dedicated to the International Environment.

FSRs frequently (88%) feature sections dedicated to real sector and financial market indicators, among other domestic aspects. These sections may be combined or presented separately. Real sector indicators typically offer insights into macroeconomic variables such as GDP growth, unemployment rates, inflation, balance of payments, among others. Financial market indicators, on the other hand, focus on domestic equity, bond, and foreign exchange markets, as well as asset prices. These indicators collectively provide a snapshot of the economic landscape. Risks and vulnerabilities stemming from developments in the real sector may also be addressed in these sections.

Almost every report includes a section dedicated to the financial system (91%). In the most narrow of these analyses, the section is confined to the banking system. The structure of this section can vary, either focusing on specific institutions within the financial sector or identifying risks and vulnerabilities prevalent in the financial landscape. In the context of risks considered, the analyses often encompass credit, liquidity, market, and solvency risks.

In the initial publications of FSRs, stress tests were not incorporated as a routine part of the analysis (Cihák, 2006). Even though the use of this tool has gained relevance today, with 81% of FSRs presenting at least one stress test exercise as part of their regular content, there is wide diversity in terms of the methodologies used, the institutions covered, the scenario designs, the sources of shocks, the variables that are stressed, and other differences.

Publishing stress tests increases transparency and market discipline. The inclusion in FSRs of the type of stress tests performed, the key assumptions of the stress testing, the design of the scenario (including details on its estimation, plausibility, and time horizon), the risks covered, the institutions included, and a description of how these results are used in policy decisions are all considered key elements of transparency principles related to the dimension of financial stability assessment and stress testing, according to the 2020 Transparency Code. Stress test results may

be included either within the Financial System section or in a separate section.

A section focusing on households and firms is less frequent, appearing in only 54% of the reports. When included, these sections generally concentrate on credit risk and analyze aspects such as the evolution of household income, credit directed toward these sectors, and default rates. A chapter on financial infrastructure is present in 29% of the reports analyzed, while a section dedicated to payment systems appears in 34% of the reports.

In 68% of the reports, there is a section or box dedicated to special topics. This section serves as a platform for deeper, focused analyses on specific issues that are either emerging or considered especially relevant to financial stability at the time of the report. These sections can include detailed analyses of newly emerging risks, case studies, and discussions of broader themes such as the impact of technological innovations, environmental risks, and cybersecurity. Additionally, they may cover recent or proposed changes in financial regulations and their implications for financial stability.

Building upon the structural classification proposed by Tubio and Ponce, our in-depth analysis of FSRs uncovers additional thematic elements that merit consideration. Thirty-five percent of the reports feature a section devoted to macroprudential policies or financial stability-oriented policies. Furthermore, 42% of the analyzed reports incorporate a segment explicitly discussing developments in the real estate sector, a focus that potentially reflects lessons drawn from the 2008 financial crisis.

The least included section (20%) is one that approaches an analysis of vulnerabilities.

Table 2 summarizes our main findings in terms of the structure and content of the FSRs.

In our review, we also found several instances where FSRs, such as those published by the Austrian Central Bank (Oesterreichische Nationalbank, 2021), the Central Bank of Denmark (Danmarks Nationalbank, 2021), and the Central Bank of Estonia (Eesti Pank, 2021), adopt a more flexible structure. These reports are designed to be dynamic and adaptive, reflecting changes in factors affecting financial stability over time.

In the case of Austria's FSR, the first section generally focuses on recent developments and offers analyses of both domestic and international events that impact financial stability. The content within this section is dynamic, adapting as various factors affecting Austria's financial stability evolve. Results from stress tests are typically presented in a separate box, and the section also features studies that provide insights into specific topics related to financial stability.

Table 2: Proportion of Sections in FSRs about 2021

Sections	Proportion of FSR (%)
Introduction	84
International Environment	81
Real Sector/Financial Markets	88
Households and Firms	54
Real Estate Sector	42
Financial Markets	65
Financial System	91
Non Financial Sector	57
Payment System	34
Financial Infrastructure	29
Stress test	81
Macroprudential Policy	35
Vulnerabilities	20
Special Topics	68

Source: Author's calculation.

For Denmark, the report opens with a section offering a summary and assessment of financial stability. This part briefly outlines various aspects of financial markets, such as credit—covering both the housing and corporate sectors—liquidity and funding issues concerning banks, and topics related to insurance and pension funds. Additionally, the section touches on earnings and capital. Subsequent chapters focus on the primary risks identified in each report, with the titles of these bi-annual FSRs directly corresponding to the topics explored in the chapters that follow.

Lastly, in Estonia's case, the first chapter is dedicated to an assessment of risks to financial stability. The chapters that follow cover special topics, the nature of which varies in each publication.

The FSR published by the Federal Reserve in the United States adopts a distinct structure as well (Federal Reserve, 2021). Their framework for monitoring financial stability primarily focuses on identifying vulnerabilities across four categories: asset valuations, borrowing by businesses and households, leverage in the financial sector, and funding risk. In addition to these categories, the report includes a final section dedicated to assessing near-term risks to financial stability.

7.2 Coverage

Rather than solely examining the structural elements that organize FSRs, we can alternatively focus on their coverage in terms of the sectors, markets, and institutions that are included in their

analyses. Such an approach enables us to understand the content of the analysis irrespective of how each report is formally structured. Our main findings using this criteria are presented in Table 3.

Table 3: Sectors and institutions covered in FSRs about 2021

Sectors/institutions	Proportion of FSR (%)
Banks	100
Financial Sector	97
Financial Markets	92
Household	91
Insurance companies	91
Firms	88
Public Sector	87
Real Sector	80
Non Banking Financial Institutions (NBFI)	80
Payment System	64
Investment Funds	57
Pension Funds	57
Non resident	39
Microfinance	28
Credit Unions	18
Trusts	16
Savings and Loan Association (SLA)	10

Source: Author's calculation.

For this purpose, we categorize the analysis within FSRs into three sectors: the Real Sector, the Financial Sector, and the Public Sector. An FSR is said to analyze the Real Sector if it allocates content to evaluating risks or vulnerabilities emanating from the domestic economy, or if the report conducts an analysis of indicators related to domestic macroeconomic performance. We found that 80% of the reports include an analysis related to the Real Sector.

The Financial Sector, as highlighted in our structural analysis of FSRs, is covered across almost all reports (97%). This sector can cover a wide range of topics, from financial market indicators to analyses of specific financial institutions.

Lastly, our study revealed that 87% of FSRs make references to the Public Sector. This segment of analysis can vary significantly, ranging from assessments of the government's fiscal position—including debt levels and budget deficits—to evaluations of the broader impact of public policy on financial markets and stability. It's important to note that this relatively high proportion of FSRs discussing the Public Sector may be influenced by the exceptional circumstances of 2021. Given that our sample is from this post-pandemic year, many reports include

discussions of public measures taken during the COVID-19 pandemic, which could inflate the prevalence of Public Sector topics in the reports considered in our dataset.

While a section specifically devoted to households or firms appeared in 54% of the FSRs, the prevalence of these topics increases substantially when broadening the scope to any analysis on these sectors within the reports. When we extend our focus beyond dedicated sections and consider whether the FSRs contain any form of analysis related to households or firms, the proportions rise significantly. In our dataset, 88% of the reports included some form of analysis on the corporate sector, and 91% examined households.

Within the framework of financial system analysis, the banking sector is universally addressed, featuring in 100% of the FSRs examined. Following closely behind banking and financial sectors, the insurance sector is the next most frequently analyzed non-banking financial institution, included in 91% of the reports. Other non-banking financial institutions (NBFIs) are also covered in FSRs (80%), depending on their significance within the financial system of each jurisdiction. From an institutional perspective, asset management entities such as investment funds, mutual funds, and pension funds appear in **74%** of the reports.

Finally, the proportion of reports that include discussion related to the payment system increases substantially when we move beyond dedicated sections to consider any related analysis. While 34% of reports include a specific section on the payment system, that proportion jumps to 64% when considering reports that include any form of analysis related to this critical infrastructure.

8 Transparency and Communication: What's Next?

As outlined in Section 5, a primary aim of the FSR is to inform the public, stakeholders, and policymakers about the prevailing state of the financial system. The report also serves as a basis for decision-making among policymakers. However, challenges such as the report's lengthy nature, the use of technical jargon, and sometimes a lack of forward-looking analysis, can impede the attainment of these objectives.

There is increasing recognition of the pivotal role that effective communication plays in maintaining financial stability (Stankova (2018)). Despite this, there remains a significant need to enhance the ability to communicate complex technical issues to a wider audience. Over time, countries have adopted evolving methods to convey information about financial stability. In the

subsequent paragraph, we summarize the various platforms and tools identified in our analysis for this purpose.

As discussed in Section 3, the FSR is not the only vehicle for disseminating financial stability information. Several central banks also utilize their **websites** to elucidate the FSR's objectives and underlying concepts. These websites may additionally offer supplementary materials such as Financial Stability Indicators (e.g., Banking Structure, Financial Soundness Indicators), research papers, and articles. Specific surveys, like the Financial Household Survey or real estate market reports, might also be included. Countries such as Albania and Argentina provide further details on macroprudential policies, financial regulations, and any associated institutional frameworks. For instance, the Central Bank of Armenia has a designated section on its website covering financial stability that includes the crisis management legal framework.

Alongside the publication of the FSR, some central banks release a **statement** that offers a succinct evaluation of risks and vulnerabilities or provides a general assessment of financial stability. This statement may either be integrated within the FSR, as is the case in Albania, or presented separately. Occasional speeches related to financial stability can also be found, for example, in Australia. Press releases may follow the FSR's publication or coincide with macroprudential committee meetings or decisions, and these are generally made accessible to the public via the website. In England, a video recording of the press conference accompanying the report's release is also available online, along with a transcript.

To enhance transparency, some central banks, like Germany, make both the **charts and tables** from the report and the **data** used to create them publicly available. This practice not only improves transparency but also allows for the replication of the presented results.

In terms of communication methods, some central banks employ various approaches to simplify complex information. For example, the Central Bank of Brazil uses **infographics** to convey information in a clear and straightforward manner. Similarly, the Central Bank of Mexico accompanies its FSR with a presentation that serves as a more concise and less technical summary of the report's content.

The way financial stability information is communicated is evolving, influenced by technological advances and a growing understanding of the need to make complex information accessible to a wider audience. The FSR remains a vital instrument for conveying financial stability assessments, but it is not the only method. Central banks are increasingly using digital platforms, especially their websites, to provide additional information and context. This approach not only

expands the range of communication but also caters to diverse segments of the audience who may prefer different formats and levels of detail. These can vary from official statements and technical reports to more accessible forms of communication like infographics or video summaries.

9 Concluding Remarks

In this study, we conduct a comprehensive review of FSRs to identify key characteristics and global trends. This analysis aims to provide a deeper understanding of how these reports function across various jurisdictions, as well as the evolving methods used to communicate information about financial stability. For this purpose, we focus on a comprehensive sample of countries or jurisdictions, with a total of 201 observations.

To gain better insights into the features of countries that publish FSRs, our focus is on those with at least one FSR available online in 2021. Since the first publicly available FSR was issued by the Bank of England, the pace of publication has varied. There remains a significant proportion of countries that have not made their FSRs publicly available.

When examining the historical evolution of FSR publishing, we find that some countries paused their FSR publications during financial crises or economic downturns. While publishing reports may be relatively straightforward during stable economic periods, it becomes more challenging during turbulent times. During the COVID-19 pandemic, we also observed that some reports experienced delays, suggesting a shift in publication timing rather than a reduction in reporting frequency.

We analyze the characteristics of countries that publish FSRs, taking into account variations in publication rates across continents and various socio-economic and financial factors. Our analysis reveals that the frequency of FSR publication is closely linked to a country's level of economic development, the maturity of its financial system, and the stability of its government. High-income and larger countries, especially those in Europe and the Americas, are more likely to publish FSRs. Additionally, these reports are more prevalent in countries with well-developed banking and stock market systems, higher levels of financial inclusion, and favorable sovereign debt ratings.

Next, we turn our attention to specific features and trends in reporting practices. Our findings indicate that 95.7% of publicly available FSRs are issued by either Central Banks or Regional Central Banks. This empirical evidence supports the theoretical discussions that emphasize the

central role that these institutions play in maintaining financial stability. A limited number of reports emerge from other financial bodies or supervisory agencies. The frequency and length of these reports show considerable variation, implying that regional factors influence reporting practices.

FSR communication suffers from a lack of a singular, universally accepted definition of financial stability. In 53.5% of the analyzed countries, a definition of financial stability is provided in the FSR itself or on the corresponding webpage. Common elements in the definitions highlight the significance of a well-functioning financial system, resilience to shocks, efficient resource allocation, public confidence, and risk mitigation, among other factors. Regarding the objectives of FSRs, they broadly aim to identify and assess risks, provide policy guidance, enhance transparency, evaluate system resilience, assess regulatory efficacy, and facilitate decision-making.

Our analysis reveals an imbalance in the treatment of risks and vulnerabilities. Despite the presence of the term "vulnerability" in 98.3% of the reports analyzed in 2021, only a scant five countries offer an explicit definition. Definitions, where available, generally concur that vulnerabilities amplify the impact of risks and can increase the probability of shocks. Moreover, our index of relative importance substantiates that the majority of reports place a moderate to low emphasis on vulnerabilities compared to risks, although a small proportion—most notably Austria, Canada, Norway, and South Africa—show a higher level of attention to vulnerabilities. The methodologies used to assess vulnerabilities are varied, ranging from dedicated chapters and tables to constructed vulnerability indices.

The structure of FSRs varies widely among countries, but they often conform to one of three foundational frameworks identified by Ponce and Tubio (2010): minimal, basic, and amplified. Each structure comprises different combinations of elements such as an introduction, international environment, real sector and financial market indicators, financial system analysis, and more specialized sections on stress tests, households and firms, financial infrastructure, payment systems, and special topics. The inclusion of stress tests and transparency metrics has become increasingly prevalent. Interestingly, our analysis identified the widespread inclusion of real estate sector and macroprudential policies, which were not part of the original taxonomy. While most reports offer a consistent structure, some central banks opt for a more dynamic and flexible approach, adapting to changing factors affecting financial stability. In terms of coverage, almost all reports focus on the real sector, financial sector, and public sector, with a substantial number of them also delving into analyses of households, firms, and different types of financial institutions.

FSRs serve as a cornerstone for disseminating critical information on the state and vulnerabilities of the financial system. However, the effectiveness of this communication is sometimes hindered by the complexity and length of the report. Recognizing the importance of clear, accessible communication in maintaining financial stability, central banks worldwide are employing innovative tools and platforms to reach a wider audience. Whether it's the use of digital platforms to provide additional context, the provision of infographics and video summaries to break down complex information, or making data available for public scrutiny, the approach is increasingly multi-faceted. While the FSR remains an indispensable tool for policymakers and experts, the diversification of communication methods ensures that the message reaches, and is understood by, a broader swath of the public and specialized audiences alike. As technological advances continue to shape how we consume information, central banks must remain agile, continually evolving their communication strategies to meet the expectations and needs of an ever-diverse audience.

While the insights in this paper might evolve with the publication of new reports and changes in practices, it offers a timely snapshot and benchmark of the current landscape of public FSRs. Further research into central banks' key areas of focus, their historical development, the integration of climate-related risks in FSRs, and the design principles behind financial stability stress tests can deepen our understanding of the methods and trends shaping financial stability assessments.

A Annex: Additional Tables

Table 4: Percentage of coverage of complementary data for countries that have and have not published their FSRs in 2021

Variable	Total Coverage	Publish	Not Publish
Moody credit rating	54.2	71.0	22.9
S&P credit rating	60.2	76.3	30.0
Fitch credit rating	61.7	73.3	40.0
Invest grade	60.2	76.3	30.0
Central government debt, total (% of GDP) 2021	26.9	34.4	12.9
Domestic credit to private sector (% of GDP) 2020	78.1	87.0	61.4
Expense (% of GDP) 2021	59.2	68.7	41.4
Market capitalization domestic companies (% of GDP) 2019	37.3	48.1	17.1
Population 2021	98.5	97.7	100.0
Stocks traded, total value (% of GDP) 2020	36.3	47.3	15.7
Percent people with bank accounts 2021	59.7	71.8	37.1
Financial Development Indicators 2021	89.6	93.1	82.9

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