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Key Performance Indicator Reporting (KPI) Toolkit for Insurance Supervisors

HANDBOOK FOR SUB-SAHARAN AFRICAN INSURANCE SUPERVISORS

PILLAR I:
PRUDENTIAL

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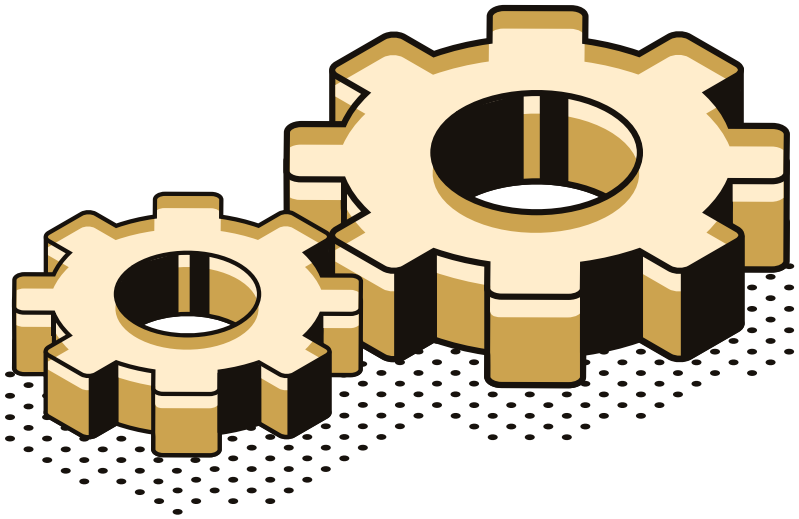

List of acronyms

A2ii	Access to Insurance Initiative
AC	Available capital
AL	Actuarial liabilities
AURR	Additional unexpired risk reserve
CARAMELS	Capital adequacy, asset quality, reinsurance, actuarial liabilities, management soundness, earnings and business volumes, liquidity, subsidiaries and related parties
CIMA	Conférence interafricaine des marchés d'assurance
CP	Current period
FC	Financial condition
FSC	Financial Services Commission
FSCA	Financial Sector Conduct Authority
GCI	Gross claims incurred
GEP	Gross earned premiums
GWP	Gross written premiums
IAIS	International Association of Insurance Supervisors
IBNR	Incurred but not reported
ICP	Insurance Core Principles
IFRS	International Financial Reporting Standards
IMF	International Monetary Fund
IRA	Insurance Regulatory Authority
IT	Information technology
KPIs	Key performance indicators
NCI	Net claims incurred
NEP	Net earned premiums
NIC	National Insurance Commission
NWP	Net written premiums
ORSA	Own Risk and Solvency Assessment
PP	Previous period
RBM	Reserve Bank of Malawi
RC	Required capital
SARB	South African Reserve Bank
SSA	Sub-Saharan Africa
TP	Technical provisions

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The prudential KPI practical guide was developed by Janice Angove (consulting actuary)*/ based on the experiences of the steering group member jurisdictions. The project was led by Hui Lin Chiew with the support of Carolyn Barsulai from the A2ii, in close collaboration with Nichola Beyers, Karien Scribante and Christine Hougaard from Cenfri.

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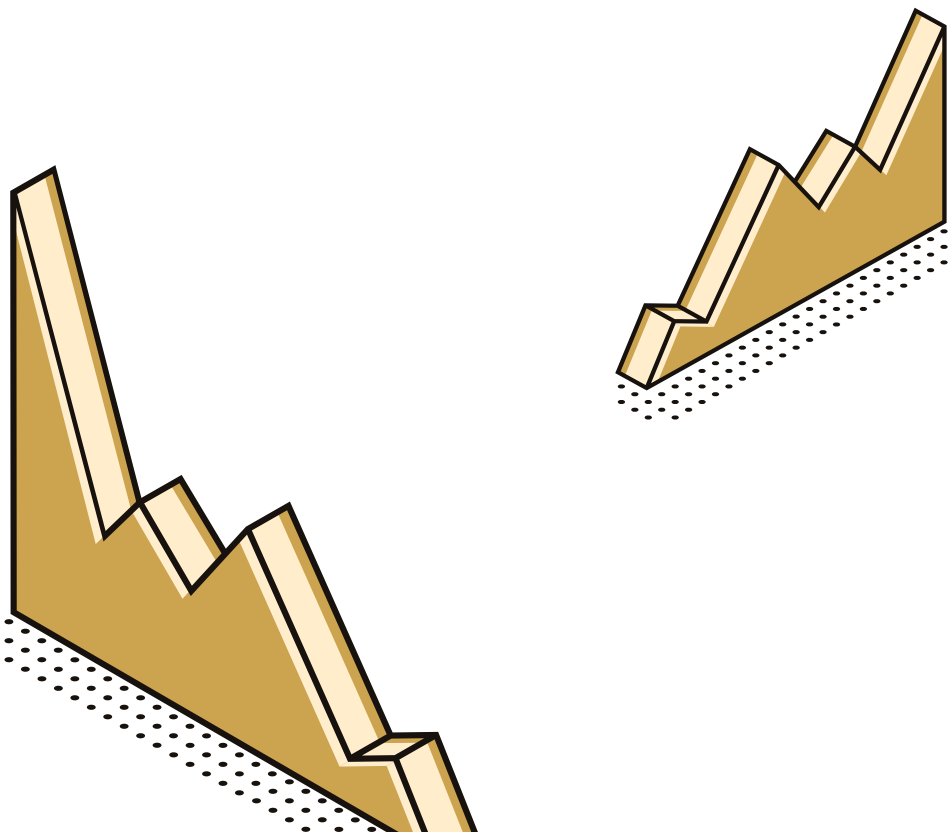
*/ *The project team would like to take this opportunity to honour our colleague Janice Angove, who passed away on 8 January 2022. Janice's contribution to the project was immeasurable.*



INTRODUCTION

This handbook is one part of a Supervisory KPI Toolkit comprising three components and spanning four 'pillars' of supervisory mandates or objectives, namely prudential, market conduct, insurance market development (including inclusive insurance) and insurance for sustainable development (Figure 1). Together, these manuals and other tools will support supervisors as they consider what relevant metrics to monitor for their context and mandates.

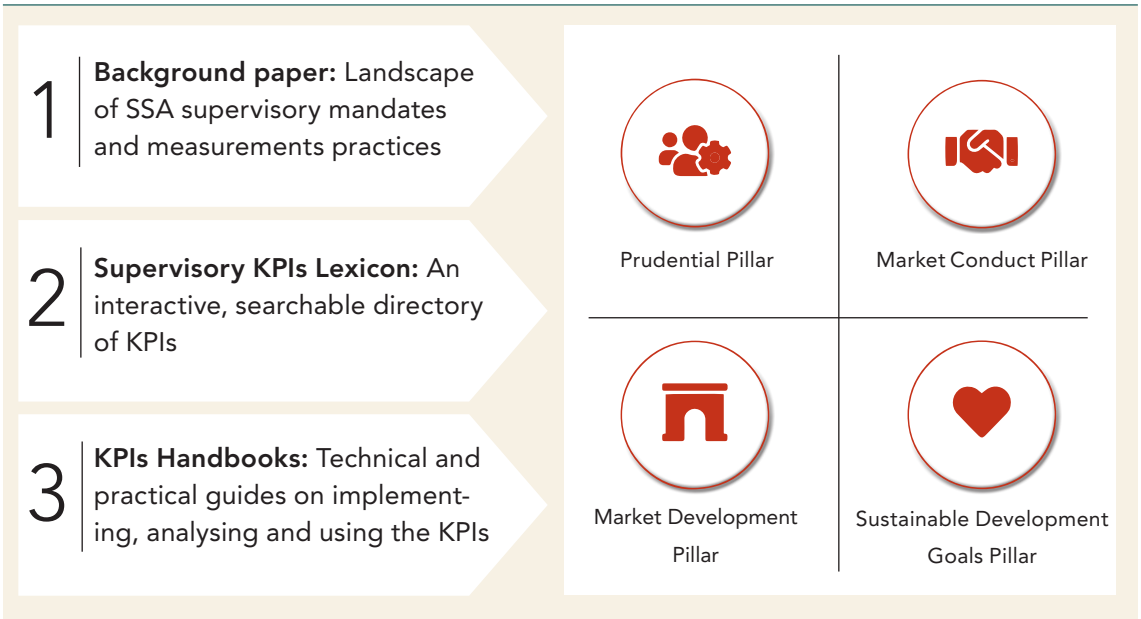


Figure 1: The Supervisory KPI Toolkit[1]

Each handbook is tailored to the established global and regional practice for the particular pillar. For the prudential pillar, this handbook focuses on prioritising and applying the KPIs in a risk-based manner in the context of SSA. The CARAMELS framework, technical guidance on the prudential indicators, as well as global supervisory practices are already widely harmonised and well-documented (see reference materials). The market conduct KPI handbook is anchored on Insurance Core Principle (ICP) 19 but, in comparison to prudential, goes in-depth into basic conduct concepts and each KPI as this information is, at the time of writing, not widely available or globally harmonised among supervisors. Finally, the last two pillars are the most nascent. The handbooks are dedicated more to fundamental thinking and concepts: helping supervisors pull together a suitable conceptual framework for assessing market development and sustainable development based on their local context and priorities, and providing practical guidance on implementing new data frameworks.

1 For all materials, see: https://a2ii.org/en/supervisory-kpis-lexicon

Why assess KPIs on the solvency and performance of insurers?

Regular monitoring of the financial soundness, performance and risk of insurers through the collection of data and analysis of key performance indicators (KPIs) is important for ensuring the development of a fair, safe and stable insurance market where consumers are protected. As such, ongoing monitoring is key to the supervisor in achieving its objectives, in ensuring that insurers meet their obligations to policyholders, in maintaining the confidence in the insurance market and in encouraging efficiency and competition in the market.

The off-site analysis process analysing key ratios and simple qualitative statements can assist the supervisor to identify the areas of strength, risks and potential difficulties of individual insurers, trends in the experience of insurers, as well as challenges facing the market as a whole. Off-site analysis and key indicators can also be used to assess its compliance with relevant legislation and supervisory requirements. Furthermore, the off-site analysis process acts as an early warning system enabling supervisors to identify problems at an early stage and to take action before the situation deteriorates further (See Insurance Core Principle 9[2]).

Effective use of KPIs that link to the risk and financial performance of insurers can support the implementation of risk-based supervision in the identification of the key emerging risks to individual insurers and the market as a whole, and the assessment of the quality of risk management and control for insurers.

How to use this work

This handbook for the assessment of prudential risks for insurance business is a reference and a working tool for day-to-day off-site analysis by supervisors in SSA jurisdictions. It provides a framework for assessing the financial position and the risks posed by the insurance business and for determining appropriate corrective actions. It covers both key quantitative ratios, ratios giving more in-depth insights as well as additional qualitative information that supervisors need towards this end.

It is designed to be suitable for new or junior supervisors who need a broad introduction to using indicators in prudential supervision, while also serving as a refresher for senior and mid-management supervisors. It is also suitable for supervisors who are currently planning or implementing enhancements to their prudential data reporting and analytical systems.

The remainder of the guide covers the following sections:

- Section 1: Framework for assessing the prudential risk of insurers
- Section 2: Approach to gathering data
- Section 3: Selection and analysis of KPIs

2 See the IAIS ICP Online Tool here: https://www.iaisweb.org/page/supervisory-material/icp-on-line-tool

- Section 4: KPIs, benchmarks and assessment checklist
- Section 5: Compilation of findings and intervention
- Section 6: Implementation considerations for SSA

Other reference materials

There is a large amount of reference material available on the technical application of ratios and key indicators in assessing the solvency, financial performance and prudential risk of insurance business. The following documents (full links provided in Bibliography) are helpful and can be used together with the information in this guide:

Document	Remarks
Developing Insurance Markets: Use of Financial Health and Stability Indicators in Insurance Supervision (Hafeman, 2020)	For comprehensive technical explanations and analytical notes for each KPI For findings on global insurance supervisory usage of KPIs covering advanced and emerging jurisdictions
Using Key Performance Indicators (KPIs) in Inclusive Insurance Supervision (A2ii, 2019) Performance Indicators for Microinsurance: A handbook for Microinsurance Practitioners, Second Edition (Garand and Wipf, 2010)	For usage of KPIs in inclusive insurance
IAIS Insurance Core Principles and Common Framework for the Supervision of Internationally Active Insurance Groups: ICP 9 Supervisory Review and Reporting (IAIS, 2019) IAIS Application Paper on Information Gathering and Analysis (IAIS, 2010)	For IAIS standards and guidance on supervisory review and reporting and use of data and KPIs, including recommendations on key raw data to collect
IAIS Core Curriculum for Insurance Supervisors: Non-life financial ratio analysis (IAIS, 2018) IAIS Core Curriculum for Insurance Supervisors: Life financial ratio analysis (IAIS, 2018)	For IAIS technical notes on KPI analysis
IMF Working Paper: Insurance and Issues in Financial Soundness (IAIS, 2003)	IMF recommendations on core set of financial soundness indicators for insurance business

1. FRAMEWORK FOR ASSESSING PRUDENTIAL RISKS OF INSURERS

1.1. Conceptual framework for assessment of prudential risks

Overview

The assessment of prudential matters focuses on ensuring that the insurer has the financial resources to meet its obligations to policyholders and pay claims or benefits when they fall due. This involves the assessment of the solvency or financial soundness; effectiveness of governance, risk management and operations; financial performance and management and group relationships of the insurance business.

The **CARAMELS** framework is a common tool used in many jurisdictions in SSA to assess the risk and financial performance of insurers. The framework considers the level of solvency of the insurer as well as the financial performance and risks that drive the insurer's solvency position.

Insurers face a variety of risks that can impact the financial position of the business. These risks include market or asset risk, insurance or underwriting risk, credit risk, operational risk and group risk. There are also factors that may have a secondary impact on the solvency of the insurer. For example, poor management decisions may lead to weak underwriting processes and insurance losses that could impact on the solvency of the insurer.

Table 1 shows the framework for classifying the KPIs for the assessment of prudential risks and relates the **CARAMELS** assessment framework to the risks facing insurers. In this handbook, the **CARAMELS** framework is further grouped into 4 broad areas: Financial soundness (solvency), Governance, risk management and operations; Financial performance and management; and Group issues.

Broad area of assessment	Area of assessment	Short description	Links to risks
Financial soundness (solvency)	Capital adequacy	Sufficiency of capital given the risks undertaken by the insurer	All
	Asset quality	Asset quality and diversification, and suitability of assets for the liabilities of the insurer	Market risk Credit risk
	Reinsurance	Suitability of the level and type of reinsurance for the business written, including exposure to catastrophes	Insurance risk Credit risk
	Actuarial liabilities (separately for non-life and life business)	Sufficiency of technical provisions or actuarial liabilities	Insurance risk
Governance, risk management and operations	Management soundness	Fit and proper persons, sound corporate governance practices, effective risk management and controls, as well as suitable organisational structure and operational efficiency	Strategic risk Operational risk
Financial performance and management	Earnings and business volumes (separately for non-life and life business)	Sustainability and stability of profitability	Insurance risk
	Liquidity	Investment portfolio liquidity and profile of asset cashflows relative to liability cashflows	Liquidity risk
Group issues	Subsidiaries and related parties	Relationships between parent company and related parties, and transfer of funds between related parties	Group risk

Table 1: Framework for the assessment of prudential issues for insurers

Financial soundness

Risk to financial soundness refers to the risk that the insurer fails to comply with the solvency requirements set out in insurance regulations and the risk of a deteriorating financial position due to loss-making activities. This is of particular concern to the insurance supervisor, as insurers in a weak financial position are unlikely to be able to fully meet their obligations to policyholders. The assessment of the financial soundness of the insurer involves the assessment of the:

- adequacy of the capital of the insurer
- sufficiency and quality of assets
- effectiveness of the reinsurance programme
- sufficiency of the technical provisions

The **required capital or capital adequacy requirement** acts as a buffer in the event of adverse circumstances and protects the insurer against unexpected losses. The assessment of the solvency position or adequacy of the capital of an insurer involves investigating the sufficiency of the assets in relation to the technical provisions, or insurance liabilities, as well as the level of required capital set out in regulation (see Figure 2). Whether the insurer meets the regulatory solvency or capital adequacy requirements is investigated under "Capital Adequacy" in the CARAMELS framework.

Figure 2: Overview of the solvency position of an insurer

The sufficiency, suitability and **quality of the assets** held by an insurer are important for its maintenance of a financially sound position. The assets held by an insurer should be appropriate or well matched for the insurance liabilities. Assets and liabilities are considered well matched if assets respond to changes in the market in a similar way to liabilities. This can partly be achieved by matching the assets and liabilities by term. For instance, shorter-term investments may be appropriate for motor business which has short-term liabilities. On the other hand, long-term investments like long-term government bonds may be appropriate for annuity business which has long-term liabilities.

Asset quality and the diversification of investments are important to manage the insurer's exposure to investment risk. Investment risk, or market risk, is the risk of loss from adverse movement in the value of the insurer's assets. Investment risk can arise from adverse market movements (e.g. interest rates, foreign exchange rates, and equity and property prices), deterioration in credit quality or investment concentrations[3]. Investment risk can affect the capital value as well as the investment income earned from assets. Exposure to credit risk may also lead to a decline in the value of assets due to the failure of an investment counterparty to meet obligations (e.g. interest payments on corporate bonds). Assessment of asset quality is key to monitoring risks to the solvency of insurers as investment risk, asset-liability management risk and changes in the economic environment has been identified as one of the main causes of life insurer insolvency and near-insolvency.[4] Quality of assets, investment risk and credit risk relating to assets is assessed under Asset Quality in the CARAMELS framework.

Reinsurance is a key tool in managing the claims risk of insurance business. Reinsurance arrangements are used by insurers for security and liquidity purposes, and to increase an insurer's capacity to underwrite insurance business[5]. Insurance regulations usually allow insurers to take reinsurance arrangements into account in determining the technical provisions and required capital, and assessing the solvency position of the insurer. When assessing the suitability of the reinsurance arrangements for an insurer, it is important to consider the level of risk transfer (retention rate) and the type of reinsurance relative to the risk appetite and available capital of the insurer. Insufficient or inappropriate reinsurance for the risks that the insurer underwrites results in exposure to high losses and a possible threat to the financial position of the insurer. On the other hand, if an insurer overly depends on reinsurance for managing its risks, it may face difficulties if the reinsurance markets tighten, and reinsurance costs increase significantly. Management of reinsurance should consider the credit quality of reinsurers as failure of a reinsurer to cover its share of the losses could result in financial difficulty for an insurer. Management of reinsurance is related to Reinsurance in the **CARAMELS** framework.

The financial or solvency position of an insurer may be compromised by the understatement of technical provisions or **insurance liabilities**. In this case, the technical provisions will be lower than the expected future payments to policyholders. Inadequate technical provisions may be due to the use of an inappropriate methods and assumptions in determining the technical provisions or unexpected adverse claims experience. Monitoring insurance liabilities is key to insuring the ongoing solvency of the insurer as insufficient technical provisions have been identified as a key cause of insurer insolvency or near-insolvency for life and non-life insurers.[6]These risks are managed under management of insurance risk of the business and relate to the Actuarial Liabilities area of the **CARAMELS** framework.

3 APRA (2006). GPG-250

4 EIOPA, 2018

5 APRA (2006). GPG 245

6 EIOPA, 2018

Governance, risk management and operational issues

Good governance and risk management as well as efficient operations support sound financial performance and the effective management of risks of an insurer. An insurer should have effective governance structures[7] where:

- The board has sufficient independence from the operations of the insurer and parent companies.
- The board and senior management are fit and proper, have the necessary skills and experience and show integrity.
- The board and senior management discharge their duties effectively. The board oversees the business of the insurer effectively and senior management oversees operations and effectively implements the policies and procedures of the insurer.
- The board and senior management develop and implement a strategy supporting the success of the business.

This is an important area for the monitoring of risks to the solvency of the insurer as poor management and staff incompetence has been found to be a key cause of failure or near-failure for both life and non-life insurers[8].

The insurer should have an effective risk management framework enabling the insurer to identify, assess, manage, and report on risks. The risk management system should cover all the risks shown in Table 1. The insurer should determine the level of risk exposure it is prepared to accept and put effective risk mitigation strategies in place to manage risks (e.g. effective use of reinsurance can mitigate claims risks for an insurer).

An effective internal control system is important for managing operational and financial risks. The internal control system should ensure the availability and reliability of financial and non-financial information and compliance with the regulatory framework[9]. As for management and staff competence risks, failed systems of governance and overall control and inadequate or incorrect financial reports have been identified key contributors to the failure or near failure of non-life insurers.[10]

Effective management of operational risks and efficient operational processes are needed for the insurer to meet its obligations to policyholders. Operational risk is the risk of loss arising from inadequate or failed internal processes, or from personnel and systems, or from external events, including changes in the business environment. Management of operational risks includes the effective management of data and IT, outsourcing, project management and management of staff[11]. The confidentiality, integrity or availability of data and IT systems should be

7 See ICP 7

8 EIOPA (2018)

9 CEIOPS (2009) System of Governance

10 EIOPA (2018)

11 APRA (2006). GPG 230

ensured. The data and IT systems should be accessible, straightforward to use and reliable.[12] Providers of outsourced services need to have relevant expertise, outsourcing arrangements should be supported by clear agreements and the quality of services needs to be monitored regularly. Projects should be effectively planned and implemented with project progress monitored regularly. Staff should have the necessary skills and experience and there should be clear responsibilities and lines of reporting.

Governance, risk management and operational issues relate to the Management Soundness area of the **CARAMELS** framework.

Financial performance and management

Earnings contribute to the long-term viability of the insurer and the generation of funds to support business operations.[13] The insurer needs to earn sufficient profits to maintain a healthy level of solvency, pay dividends and support business plans. The financial position of an insurer is related to the performance of the business as loss-making business depletes available capital and results in a deteriorating solvency position over time. Assessing the financial performance of the insurer involves assessing the stability and sustainability of the earnings of the insurer.[14] This can be achieved by investigating the source of earnings[15] and how the business volumes, claims, expense and investment experience impacts on the profitability of the insurer. Business volumes need to be at a sustainable level to cover the expenses of the insurer. The growth in business volumes needs to be maintained at a reasonable level as high growth in business may result in pressure on the solvency position of the insurer, as capital is required to support the business initially. Exposure to insurance risk and adverse claims experience will impact on the profitability and possibly the ultimate viability of the business. Higher expenses than expected and investment losses also have a negative impact on financial performance. Poor financial experience may be a result of inadequate pricing, poor underwriting, claims and investment management and unexpected adverse claims experience (e.g. wildfires). Assessment of risks relating to claims is important in monitoring the solvency of the insurer as underwriting risk, poor understanding of the risk of claims and aggregations of risk has been identified one of the main risks for insolvency or near-insolvency for non-life insurers.[16]

Financial performance relates to the Earnings area of the **CARAMELS** framework.

A key aspect of financial management is the management of **liquidity** risk. Liquidity risk refers to the risk that the insurer is unable to realise investments and other assets to settle its financial obligations to policyholders and other creditors when they fall due[17]. In this case the insurer is still solvent, but unable to meet obligations due to liquidity constraints. It is important to assess the liquidity of assets of the insurer and to compare the cashflow profile of the assets and liabilities of the insurer. Liquidity risk is related to the Liquidity area of the **CARAMELS** framework.

12 APRA (2006). GPG 230

13 USAID (2006)

14 APRA (2006). GPG 230

15 IMF 2020

16 CEIOPS (2009) System of Governance

17 see footnote 16

Group issues

Poor management of **group services and relationships with group entities** can have a negative impact on the financial performance and financial position of the insurer. Group issues refer to risks relating to the group structure and relationships with related companies. This risk area encompasses weaknesses due to the lack of independence of decision-making in group structure, failure to conduct group transactions on an arm's-length basis or weak financial position of group companies. Group risk is related to the Subsidiaries and Related Parties area of the **CARAMELS** framework.

1.2. Process for the assessment of prudential risk

Assessment of the solvency and performance of insurers involves a four-step process (see Figure 3):

- gathering information from insurers and other sources,
- analysis of quantitative and qualitative information,
- forming a view of the solvency, performance, and the risks the insurer is exposed to, and
- taking appropriate action based on the findings of the assessment.

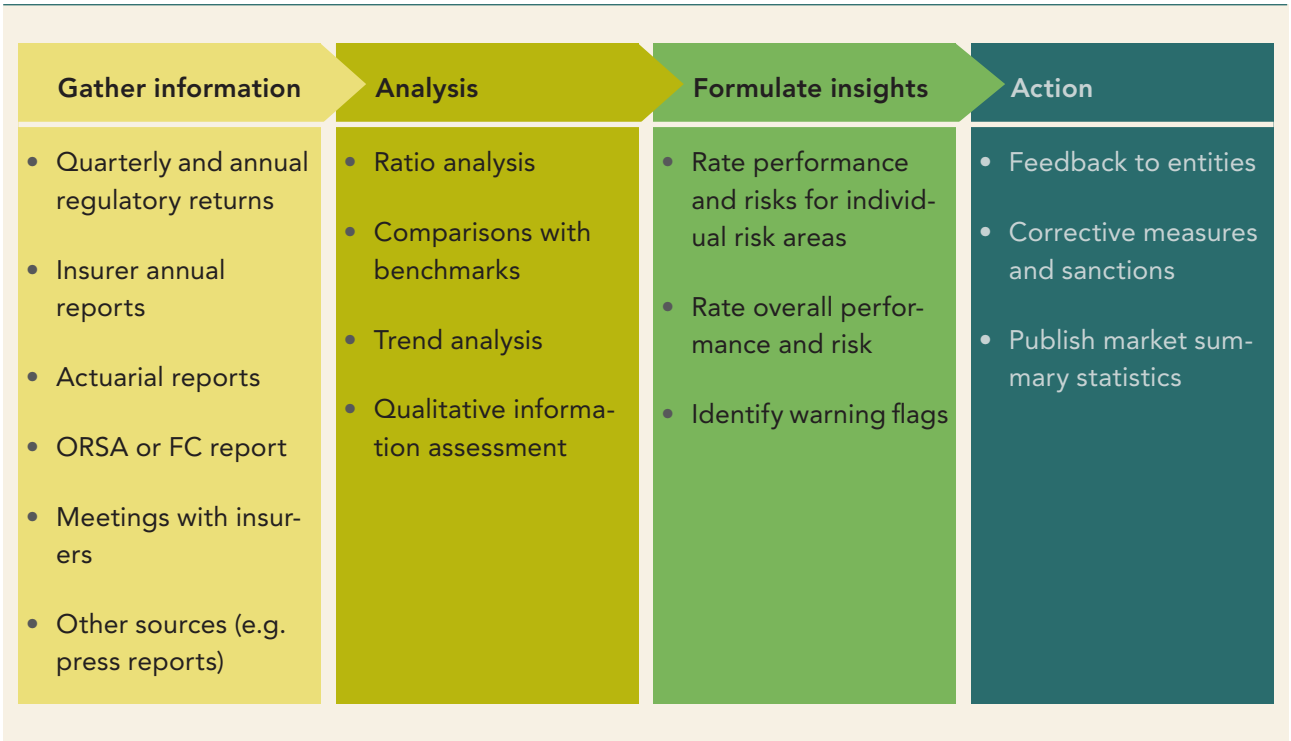


Figure 3: Process for using KPIs to analyse the risk and performance of insurers

2. APPROACH TO GATHERING DATA

2.1. Importance of good-quality data

The assessment of the financial performance and the risk of an insurer depends on the availability of good-quality data from insurers and other sources. Reliable and relevant data allows the insurance supervisor to have confidence in the assessment of the financial position and risk of the insurer and insights from the analysis. It also supports the identification of appropriate corrective measures for weaknesses in the business.

TIP

Characteristics of good-quality data[18]

- **Relevant and meaningful** so that the data provides useful information to assess the financial position and performance of the insurer.
- **Reliable, accurate and comprehensive**, and free from errors and missing values.
- **Granular**, providing information at a detailed level to assess the performance and risk of different classes of business or asset classes, where experience and risk are expected to differ by these classes. The supervisor will also need to gather information that is commercially sensitive to fully assess the insurer and will therefore need to ensure that the confidentiality of this information is protected.
- **Clearly defined and consistent** across different insurers, across time and different data sources. Consistency of data allows for comparison of experience across insurers in the market and for the analysis of trends in experience over time. If there are differences in the way certain financial indicators are measured this should be clearly explained.
- **Timely and up-to-date** so that data reflects the recent experience of the insurer allowing for early intervention in the event of deteriorating performance.
- **Readily available and easy to use and analyse**. It is good to rely on data that is used for internal monitoring and prepared for accounting purposes by the insurer. This will reduce the costs of preparing data for insurers. The presentation and format of the data that is submitted to the supervisor should support efficient analysis of the information.

18 Adapted from: https://quizlet.com/29315267/10-characteristics-of-data-quality-flash-cards/

2.2. Gathering and using data

Quantitative and qualitative data

The supervisor should gather both quantitative and qualitative information from insurers. Quantitative information can be used to calculate key ratios and assess the solvency, financial performance and growth of the business. Qualitative information can be used to assess whether the insurer has implemented key procedures for good governance, risk management and effective operations.

Quantitative information includes information on the assets, technical provisions, reinsurance and the required capital for the insurer as well as information on premiums, expenses and investment returns and changes in experience over time.

Qualitative information would cover information on the suitability of the board and management, implementation of governance framework, main risks and risk management of the insurer, and IT and operational issues.

Checking accuracy and reliability

Assurance of the accuracy and the reliability of the information can be provided by the auditor for annual information. Quarterly data is often unaudited to manage the time and costs for the provision the information; nevertheless senior management should be responsible for the accuracy of the information provided to the supervisor on a quarterly basis. The supervisor should build automatic checks into the data gathering and analysis process to check the reasonability of the information provided and query information that seems to be incorrect.

Standardised templates

Information is generally gathered from insurers using standardised templates containing quantitative and sometimes qualitative information. These templates support the consistency of information across insurers and across time by using clear definitions of the financial information that is required in each cell of the template. Clear definitions of the classes of business and types of assets are also important.

Automatic checks can be built into hidden areas of the standardised templates. The checks can cover whether all relevant information has been completed, whether values that should be the same are equal (e.g. total assets in different areas of disclosure) and for unreasonable values e.g. values that seem to be disclosed in millions instead of thousands. For instance, South Africa has automatic checks for its Quantitative Reporting Template (QRT) and checks have been embedded into the Excel-format reporting templates for Mauritius.

Frequency, timeliness and granularity

Quarterly data collection usually comprises of high-level information to give an overview of key changes to the business on a regular and timely basis. More detailed information is gathered on an annual basis giving better insights into the calculation of technical provisions, changes in the financial experience of the insurer and governance, risk management and operations of the insurer. Since the financial experience and the risks to which the business is exposed are likely to differ by class of business (e.g. motor vs liability insurance), information on the technical provisions and the financial experience of the insurer should be provided by class of business so that the experience of the individual classes of business can be compared across insurers and over time. Information from the current as well as the previous reporting period should be provided so that comparisons can be made, and improvements and deterioration in experience can be identified.

The annual and quarterly information needs to be provided relatively soon after the end of the quarter or the end of the year so that the information is still relevant and an accurate representation of the insurer's financial position. Often this period is 30 to 45 days for quarterly information and 3 to 4 months for annual information.

Optimising cost of data collection

The availability and cost of preparing, verifying and analysing from both the insurer's and the supervisor's perspective need to be considered when setting up the reporting requirements. Increasing the amount of data requested and the frequency of data collection can increase the cost of compliance for insurers. The Financial Services Commission (FSC) of Mauritius indicated that one of the concerns raised by insurers is the rising cost of compliance with the increase in the amount and frequency of data collected. The required data should be useful for assessing the risk, the financial position and performance of the insurer and used in the off-site analysis process. The supervisor may be able to use certain information for market conduct, market development as well as prudential assessment. This can ease the capacity requirements for preparation of the data by insurers. The supervisor should therefore consider information that may be used across different aspects of assessment of the insurer and ensure that the appropriate level of detail is requested so that information can be used across assessments.

Public disclosure

Gathering information has benefits for the wider market because the transparency of information is important for market discipline and effective functioning of the market. The insurance supervisor can facilitate this process by making certain information publicly available. Many supervisors in SSA publish aggregate information and market averages on the performance of the insurance industry as part of their annual report and other industry performance bulletins. High-level information on individual insurers is made available by some supervisors (e.g. FSC in Mauritius). Decisions taken by the regulator, sanctions imposed on particular insurers and when an insurer is placed under statutory management are also publicly disclosed by a number of supervisors. Making this information available to the public acts as a deterrent to non-compliance.

2.3. Sources of data

Financial and business information is available from other sources besides the information gathered in the standardised reporting to the supervisor. Sources of data include:

- Standardised reporting templates for quantitative financial information and qualitative information in the form of simple "yes/no" questions with brief explanations
- Other documents submitted to the supervisor e.g. Actuarial Report or investment policy
- Published annual report and audited financial statements
- Industry reports, press reports and financial analyst reports
- General financial and economic data
- Information from the licence applications, product approval applications and previous off-site analysis and on-site inspections
- Regular bilateral meetings with insurers for qualitative information
- Information from other supervisory authorities (e.g. banking supervisor)

Information from other sources can be used to supplement the information obtained from the supervisory returns.

It is important to understand the differences in the information provided in the regulatory returns and in other data sources when making comparisons and inferences. For example, the determination of the value of the assets and the value of the liabilities may be different under the accounting (e.g. International Financial Reporting Standards (IFRS) 9 and IFRS 17) and the regulatory basis.

The differences in the accounting basis and the regulatory basis are mainly due to the differences in the objectives of the financial reporting. The primary aim of accounting standards is to ensure that transparent and comparable information is available to investors and to determine the amount of profit that an insurer can recognise during the reporting period. Regulatory standards are aimed at ensuring that the insurer can meet its obligations to policyholders and to determine the provisions and required capital to meet this objective. Despite the differences, there are similarities in the objectives. Some jurisdictions across the world are in the process of aligning the regulatory reporting basis to the new financial reporting disclosure requirements set by the International Accounting Standards Board (IFRS 17).[19]

19 IMF 2020

2.4. Overcoming data challenges

There are similar challenges for insurance supervisors and insurers in the preparation and collection of data as described by the Steering Group (Figure 4).

Supervisor	Insurer
➲ Manual data collection processes result in resources being tied up in the collection and capturing of data rather than assessment of the insurer's risk and financial position	➲ Inadequate management information systems resulting in high costs of data preparation and possible unaccuracies of submitted data
➲ Insufficient resources and lack of skilled and experienced staff	➲ Inadequate resources to manage and extract data

Figure 4: Data preparation and collection challenges compared

The regulations supporting data collection, standardised data templates and the data submission process need to be carefully designed to support the efficiency of the process and manage costs from both the supervisor's and the insurer's perspective. The following strategies can be used to achieve the objective of collecting good quality data in a cost-effective way:

- Only collect data that will be used for the analysis of the risk and the financial position of the insurer. Supervisors can ensure that insurers keep the data needed for supervisory reporting by enforcing minimum requirements for the data and information systems. This approach is followed by Malawi. Supervisors can reduce the compliance burden for insurers by ensuring that the same data is not requested more than once. For example, if data on claims and premiums are used for the prudential as well as the market conduct assessment this information should only be collected once by the supervisor.

- Make use of existing accounting information and information that is already monitored by insurers for internal reporting.

- Use standardised data templates and digitise the data submission process. Many supervisors in SSA collect electronic data and have online systems for submission of data. For example, Mauritius uses the Online Data Capture System (ODCS) to for collection and collation of data from insurers and Malawi uses the Bank Supervision Application (BSA) for collection, verification and basic analysis of data from insurers. South Africa's standardised reporting templates can be found on their website.[20] Examples of reporting templates can be found under the A2ii Supervisory KPI Lexicon.[21]

20 https://www.resbank.co.za/en/home/what-we-do/Prudentialregulation/insurers-returns

21 https://a2ii.org/en/supervisory-kpis-lexicon

- Automate the checking of the accuracy of data and calculation of ratios for financial analysis where possible. Mauritius and South Africa have implemented automatic data checks into their standardised returns.

- Allow for flexibility in the required data to accommodate changes in the market over-time.

- Develop internal capacity within the supervisor for the collection and analysis of data. This should be supported by adequate resources within the supervisor. At FSC Mauritius the Statistics Unit is responsible for data collection and the Insurance Department focuses on assessment of the data.

- Educate the insurers on the data required in the standardised reporting templates and other reports. The supervisor can go a step further and involve the industry in the development of the reporting templates so that problem areas are identified and resolved before the implementation of the templates. Malawi and South Africa have taken this approach.

It is important to remember that the level of detail of information required by supervisors should be commensurate with the nature, scale and complexity of the risks that individual insurers and the industry are exposed to. The complexity of the business written in the market will influence the data that is gathered by the supervisor. For example, South Africa has a more complex insurance market where the use of derivative instruments is common therefore wider reporting requirements are used to accommodate the additional risks.

3. SELECTION AND ANALYSIS OF KPIS

3.1. Selection of KPIs

Characteristics of useful KPIs

KPIs are an important tool for insurance supervisors in identifying risk, poor performance and potential solvency issues. KPIs give high-level insights and a clear overview of the factors that are critical to the solvency of the insurer. They also allow the insurance supervisor to assess a large number of insurers in an efficient and consistent manner. For KPIs to be effective for the assessment of prudential issues, these KPIs should be[22]:

- **Relevant:** measure factors that are key to the financial position, performance and risk of the insurer
- **Accessible:** based on data that is readily available and can be produced and gathered in a cost-effective manner
- **Specific and measurable:** clearly defined in terms of the data required to calculate the ratio or the indictor
- **Simple:** only investigate indicators that are critical to the solvency and main risks of the insurer
- **Robust:** relevant to across insurers, markets and time
- **Useful:** allow the supervisor to rate the risk of the insurer and identify problem areas

Quantitative and qualitative indicators

The quantitative assessment of the solvency, performance and risk of an insurer is based on financial information on the assets, liabilities, required solvency, earnings and expenses of an insurer. Analysis of key ratios for each of the **CARAMELS** areas is used to assess the financial position and performance of the insurer using the analytical tools described in section 6.

Qualitative indicators are useful for providing context to the financial information and help with interpreting the ratios. The qualitative assessment of the business practices and risk of an insurer are based on high-level questions that can be included in the returns to the supervisor. The qualitative indicators are assessed using checklists of good business practice.

22 Das (2003)

Process for selecting KPIs for insurance business in SSA

A multi-faceted approach was taken in selecting the proposed KPIs in this handbook for the assessment of the financial position and the risk of insurers in SSA. The selected KPIs are based on the indicators used most frequently by insurance supervisors across the globe[23]. The full list of indicators is compiled for reference in the Supervisory KPIs Lexicon on the A2ii website[24]. These ratios have been found to be important in identifying potential insolvency and high-risk exposure for insurers[25] and have been prioritised using insights from off-site analysis frameworks from several supervisors in SSA and through input from the Steering Group.

The outcome of this process is four main categories for selecting KPIs to monitor, which altogether cover all the risk areas of the CARAMELS framework (Figure 5). Throughout the guide, indicator tables are colour-coded on this basis. "Quarterly" and "annual" indicators are the quantitative KPIs supervisors should collect on a regular and consistent basis. 'Qualitative indicators' include information that should be collected annually on management soundness and governance, as well as supplementary information for the quantitative KPIs. Qualitative indicators are likely to be less automatable than quarterly/annual ratios. Qualitative indicators may also take the supervisor longer to implement. "Additional indicators" are KPIs that may require more effort and be more challenging to monitor. Supervisors should still strive to monitor these on an annual basis, but may require more granular information or technical information that may not be available currently from insurers. The number of KPIs broken down by categories are set out in Tables 2 and 3.

			Non-life	Life
1	Quarterly	Key quantitative KPIs that should be monitored frequently by supervisors.	14	11
2	Annual	Annual quantitative KPIs that should be used for more in-depth analysis of the insurer as part of the off-site analysis process.	9	9
3	Qualitative information	Annual qualitative indicators for management soundness and supplementary information to quantitative KPIs	19	20
4	Additional – Time to prepare	Indicators that may take time to prepare as data for these indicators may not be readily available; can be implemented as part of regular annual reporting.	9	10
	Additional – Additional technical capacity	Indicators that may require additional technical capacity of insurers to prepare and for the supervisor to analyse.	2	6
	Additional – Additional business information	Indicators that may require additional business information from the insurer; can consider as supplementary rather then core KPIs.	7	0

Figure 5: No. of selected KPIs for non-life and life business by prioritisation and colour code

23 Hafeman, (2020), Kwon and Wolfrom (2018)

24 See: https://a2ii.org/en/supervisory-kpis-lexicon

25 IBTCI Consortium (2003)

3.2. How to approach analysis of KPIs

The analysis of the KPIs for prudential supervision considers the level and trends in the financial ratios, responses to qualitative questions and changes to responses as well as the experience of the industry as a whole. The data that is needed to calculate the ratios for the KPIs are shown in Appendix A.

For quantitative ratios, insurance supervisors should conduct **trend analysis** by looking for gradual trends or significant changes in the ratios over time. Trends in the ratios should be linked to an understanding of the underlying drivers of the ratios for an insurer. This is very important in identifying the risks and weaknesses in the business (e.g. increasing claims ratio due to poor claims fraud identification processes). Trend analysis makes use of comparisons of current ratios and qualitative indicators with ratios and indicators from previous reporting periods.

Ratios should be considered for the total business of the individual insurer, as well as experience for different classes or individual lines of business. Comparisons of total business ratios can be made by type of insurer (e.g. multi-line vs mono-line insurers). Ratios also depend on the composition of the business, particularly on the asset classes and business underwritten, ratios by class of business can be useful for this analysis. Ratios should also be analysed for the market as a whole as it is important to identify any systematic risk and common challenges for the insurers.

The level of the ratios can be used to identify risks and financial difficulties relating to the business of a particular insurer. Here, **benchmarking** can be helpful to assess the financial position and performance of the insurer. Supervisors can compare the indicators of the insurer to:

- international benchmarks or acceptable ranges of the indicators
- peers of the insurer in the market, or horizontal analysis (e.g. other insurers that only write personal lines insurance)
- benchmarks based on local conditions (e.g. interest rates for bank deposits)

For qualitative questions, insurers' responses can be compared to local regulatory requirements and standards for best practice internationally. Gaps in key areas for good governance, risk management and sound operations give an indication of high-risk exposure for the insurer which may lead to the deterioration in the financial position of the insurer.

Although KPI analysis relies on ratios and checklists for the assessment of the financial position and risk of the insurance business, these indicators are not a replacement for supervisory judgement. Individual KPIs for particular risk areas should not be considered in isolation, as poor governance and risk management can lead to weaknesses in the financial position of the insurer. Insights from all the KPIs considered together can give a fuller picture of the risk and financial position of the insurer.

Another reason supervisors should not take KPIs in isolation is that this may conceal subtler insights into the risks and performance of the insurer. Ratios may mask experience that has

opposite effects (e.g. investment income may mask underwriting losses if only the profit before tax is investigated).[26]

Given the limitations of using KPIs, it is important for the staff of supervisor to exercise discernment based on experience in assessing the risk posed by the insurance business. Further investigation through on-site inspections can also give insights into the factors driving negative experience and any mitigating actions taken by the insurer.

Insurance business is at varying stages of development in SSA and life insurance business, in particular, is relatively undeveloped. The benchmarks, checklists and warning indicators have been based on international experience. These benchmarks and checklists should be tailored to the particular jurisdiction over time and updated as information becomes available and insurance business in the individual jurisdictions develops.

EXAMPLE

IRA Kenya's approach to the development of locally relevant benchmarks for financial ratios for prudential risks

Steps in the process for determining benchmarks for financial ratios for insurance business (determined separately for life and non-life business):

1. Determine the list of financial ratios necessary for assessing the risk and financial position of insurers (e.g. expense ratio).
2. Separate the ratios into three categories, as follows:
   - Category 1: ratios where a high ratio is high risk and a low ratio is low risk (e.g. related-party exposure);
   - Category 2: ratios where a high ratio is low risk and a low ratio is high risk (e.g. solvency cover); and
   - Category 3: ratios where a high ratio and low ratios are high risk and medium ratios are low risk (claims ratio and retention ratio).
3. Determine the number of levels for the risk assessment (e.g. 4 levels covering low, emerging, moderate and high risk). 3 – 5 levels are recommended to balance the need for ease of use and complexity in the risk assessment process.
4. Gather the financial information necessary to calculate the ratios from insurers in the market. Several years of data (3 – 5 years) are likely to be required. Data from many insurers is required (at least 20 insurers after inaccurate data and outliers are removed).

26 IAIS (2018)

5. Check the data for accuracy and outliers. Inaccurate data and outliers need to be removed. An example of an outlier may be financial data from an insurer only providing health insurance business where the experience may be different compared to other multi-line insurers in the market. New insurers to the market may also be excluded as they are likely have different experience compared to established insurers.
6. Calculate the financial ratios for all the clean insurer data (free from inaccuracies and outliers).
7. Check for correlations between ratios to determine whether certain ratios are measuring similar circumstances and risks of insurers. This can be done using expert judgement or statistical correlation techniques.
8. Separate the calculated ratios into buckets equal to the number of levels for the risk assessment framework using an appropriate statistical technique. For example, the calculated ratios can be arranged from according to size and the k-means statistical technique can be used to find the position of partitions to create the buckets. These buckets will give the range of ratios that can be used as benchmarks for each risk assessment level. Special consideration is needed for the partitions for category 3 ratios, as the high risk ratios are both low and high ratios.
9. Check the ranges for the benchmarks produced the using the statistical techniques for reasonability (e.g. moderate risk bucket where the solvency cover is less than 100%). Adjust any benchmark ranges by hand, if necessary.
10. Repeat this process on a regular basis to ensure that benchmark remain relevant as the market changes over time. For example, this process could be repeated every 5 years.

Benchmark ratios for certain classes of business (e.g. motor business) may also be calculated using this process, if there is sufficient data.

Note that this process is only possible if the jurisdiction has a sufficient number of insurers that write similar business and are in a stable and sound financial position. If the majority of insurers in the market are in a weak financial position, then the data is unlikely to produce reasonable benchmarks.

If insurers in the market are not able to provide the data necessary to perform this exercise, the insurance supervisor can work with industry to ensure that insurers capture the necessary data and put processes in place to ensure that data is accurate. This should be the same data required for reporting purposes so it should not pose an additional burden on insurers.

Risk rating

In a risk-based analysis process, the supervisor will rate the risk of the insurer for each **individual CARAMELS category** by considering the level of the ratios and the gaps in the checklists for the current reporting period as well as the trend in the indicators over time. The risk rating should also be adjusted to allow for environmental factors (exposure to economic and market factors). The risk rating of the insurer depends on the level of the risk assessed using the KPIs as well as the direction of the risk (e.g. whether the risk is increasing over time). Figure 6 below shows a heat map for the level and the direction of the risk for assessing the risk for individual insurers.

An **overall risk rating** should also be assigned to the insurer by considering the risk rating for the individual **CARAMELS** categories and the relationships between these risks. For example, an increasing claims ratio leading to loss-making business may point to issues relating to inappropriate reinsurance programmes. A system for calculating the overall risk of an insurer can be developed by assigning weights to each of the individual **CARAMELS** categories.

In line with a risk-based approach to supervision, the focus and allocation of resources to the risk rating process can be tailored to the complexity of the insurance business being assessed. Multi-line insurers with a large market share may be subject to more scrutiny in the risk rating process than less complex mono-line insurers.

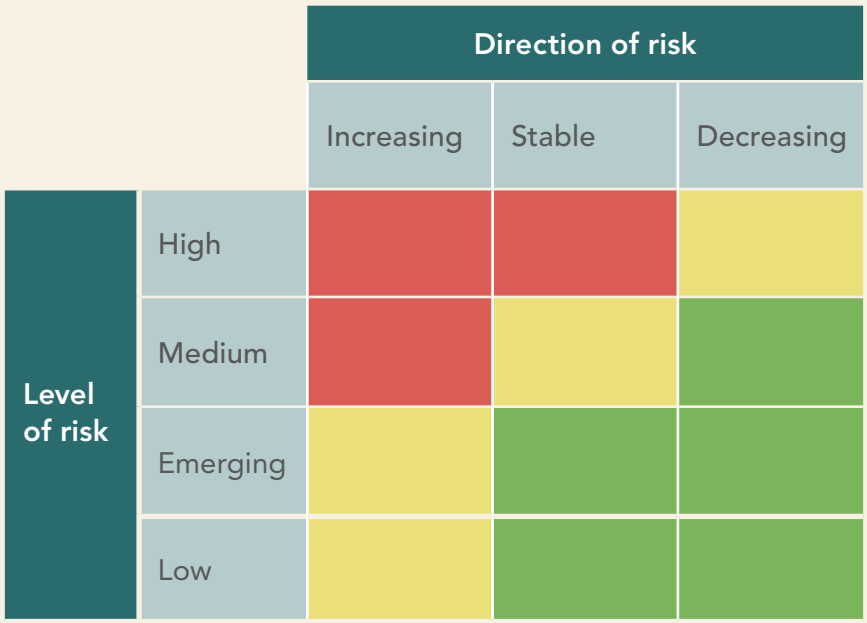


Figure 6: Heat map for the rating of the risk of an insurer

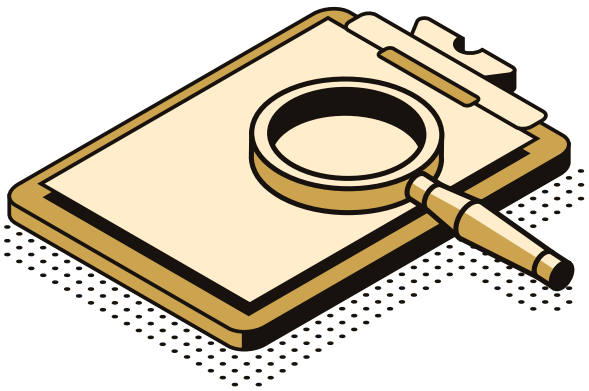
This risk rating process can be used to identify and assess[27] :

- Major risks to the business and the management of risks
- Weaknesses in the business (e.g. inappropriate reinsurance)
- Deteriorations in experience (e.g. increase in lapses and surrenders)
- Major changes in the business operations (e.g. investment mix)
- Previous problem areas that are not fully resolved
- Areas of non-compliance with the insurance regulatory framework

Linking to interventions and corrective measures

The level of intervention by the supervisor and the corrective measures that the insurer is required to implement will depend on the seriousness of the risk. The supervisor will also require the insurer to take action to restore itself to a compliant position where there are breaches of regulation and other regulatory requirements.[28]

The assessment of the prudential risk of the insurer should be written up in a report for use by the insurer and the supervisor. This report should cover the risk rating and the insights from the assessment the solvency and performance of the insurer as well as the remedial actions that the insurer is required to take. In addition to producing reports on the prudential risks for individual insurers, it is helpful for the supervisor to prepare reports on industry experience that are made publicly available to share benchmarks and best practices.



27 Simpson, SNY & Damoah, OBO (2008)

28 IAIS (2018)

4. KPIS, BENCHMARKS AND ASSESSMENT CHECKLIST TIP: USING BENCHMARKS

TIP

Using benchmarks

The benchmarks in this handbook are examples of generally expected reasonable experience. They are not likely to be appropriate for all classes and business and insurance markets. Benchmarks need to be adjusted by individual jurisdictions based on the types of products, business environment, risks facing insurers and regulations.

4.1. Financial soundness

The main objective for using KPIs to assess the financial soundness of the insurer is to investigate the capital adequacy, asset quality, reinsurance and technical provisions or actuarial liabilities.

Risk area	Main areas of investigation
Capital adequacy	• Sufficiency of capital relative to the risk exposure of the insurer • Change in the solvency of the insurer over time • Possible impact of stress events on the solvency the insurer (e.g. fall in the value of equities) • Quality of capital in terms of permanence and absence of mandatory fixed charges against earnings
Asset quality	• Asset quality (volatility of market values and unquoted investments) • Diversification across asset classes • Suitability of assets relative to liabilities (risk to the insurer of fall in the value of the assets relative to the liabilities) • Risk of default of investment counterparties • Insurer's exposure to currency risk
Reinsurance	• Dependence on reinsurance • Suitability of the type and level of reinsurance relative to the business written and risk profile of the insurer • Management of catastrophe risk • Default risk of reinsurers

Actuarial liabilities (Non-life)	• Sufficiency of technical provisions • Development of technical provisions over time • Suitability of data and method used to determine the liabilities
Actuarial liabilities (Life)	• Changes in the actuarial liabilities over time • Suitability of data, method and assumptions used to determine the liabilities • Sensitivity of the liabilities to changes in assumptions • Level of uncertainty in the amount of the actuarial liabilities

Table 2: **Main areas of investigation under financial soundness (C, A, R, A)**

The subsequent sections set out:

1. Quarterly KPIs and benchmarks for financial soundness and potential areas of concerns
2. Annual KPIs and benchmarks for financial soundness and potential areas of concerns
3. Additional ratios for non-life technical provisions
4. Qualitative indicators
5. Special considerations for microinsurance business

4.1.1 Quarterly KPIs and benchmarks

Quarterly

Risk Area	Ratio	Calculation	High Risk	Moderate Risk	Emerging Risk	Low Risk
Capital adequacy	**Solvency Cover**[29] Shows the solvency level. The insurer will be insolvent if the ratio is below 100 %.	Available Capital (AC[30]) / Required Capital (RC[31])		120% –135%	135% –150%	>150%
	Change in Capital Shows the improvement or deterioration in the solvency position. Large or consistent decline in capital may indicate future solvency challenges for the insurer.	AC (previous period) – AC (current period)[32] / AC (pp)	>25%	25%–15%	15%–5%	<5%
Asset quality	**Investment Distribution by Type** Shows the diversification of assets.	Asset Class Amount / Total Assets[34] [33]	Suitable proportions depend on the types of business written. Flag major changes in proportions invested in different asset classes and proportions that are not compliant with maximum investment limits in the regulations.			
	Secure Assets Shows the security of assets. A low proportion of secure assets may indicate that the insurer is exposed to high asset risk.	Secure Assets[35] / Total Assets	Non-life < 50%	50% – 60%	60% – 70%	> 70%
			Life < 35%	35% – 45%	45% – 55%	> 55%
			Microinsurance <70%	70% – 80%	80% – 90%	> 90%

29 The level of the benchmarks for the solvency cover depends on the level of security in the required capital. If there is a lower level of sufficiency, for example the prescribed capital target is set at a 90% sufficiency level for Botswana, then we would expect the benchmarks to be set at lower levels. If the there is a higher level of sufficiency, for example the solvency capital requirement is set at a 99.5% level of sufficiency for South Africa, then we would expect benchmarks to be set at higher levels.

30 AC: Admitted Assets less Technical Provisions and Other Liabilities

31 RC: Required Capital calculated according to the insurance regulations

32 Previous period (pp); Current period (cp)

33 All the asset ratios should be based on assets for non-linked business, where linked business is business where the amount of the policy benefits are not guaranteed, but determined solely by the reference to the value of particular assets or categories of assets that are specified in the policy and are held by the insurer for the purposes of the policy.

34 Total Assets of the insurer excludes intangible assets

35 Secure Assets: Cash and Deposits and Government Bonds

Reinsurance	**Risk Retention Ratio** Shows the reliance on reinsurance and exposure to reinsurance default. Low retention ratio indicates an over-dependence on reinsurance.	$\frac{\text{Net Written Premiums (NWP)}}{\text{Gross Written Premiums (GWP)}}$ [36]	Non-life < 50% or > 80%	50% – 60%	60% – 70%	70% – 80%
			Life < 65%	65% – 70%	70% – 80%	80% – 100%
			Microinsurance[32] < 50%	50% – 80%	80% – 100%	100%
Actuarial liabilities	**Technical provisions or actuarial liabilities** Shows the level of technical provisions.	$\frac{\text{Net Technical Provisions}^{38}\text{ (TP) (by class)}}{\text{Net (TP)}}$	Gives an indication of the type of business and risk undertaken by the insurer. Flag major changes in the proportions of different classes of business.			
	Change in technical provisions Shows fluctuations in technical provisions. Reasons for large changes in technical provisions should be investigated. A large change in technical provisions may indicate a change in business or claim settlement patterns.	$\frac{\text{Net TP (cp)-Net TP (pp)}}{\text{Net TP (pp)}}$	> 30%	30% – 20%	20% – 10%	> 10%

Table 3: Quarterly KPIs and benchmarks for financial soundness

36 Higher levels of reinsurance are required if the microinsurer writes agricultural insurance business

37 Non-life technical provisions: Sum of Premium Provisions (Unexpired Premium Provision), Claims Provisions (Outstanding Claims Provision plus IBNR) and Addition Unexpired Risk Provision net of reinsurance | Life technical provisions: Policyholder liabilities net of reinsurance for non-linked business

The analysis of the ratios for assessing the capital adequacy of an insurer can reveal the following areas of concern:

- Failure to meet required solvency targets.
- Significant changes in solvency position, decreases in the value of assets and/or increases in the technical provisions of the insurer. This may be due to a fall in investment markets or high claims outstanding due to a catastrophe event near the end of the reporting period.

The analysis of the ratios for assessing the quality of assets of an insurer can reveal the following areas of concern:

- Lack of diversity in classes of assets (e.g. 90 % investment in property).
- High levels of exposure to volatile and illiquid asset classes (e.g. equity and property) exposing the insurer to a high risk of a fall in asset values or liquidity constraints.
- Failure to comply with regulatory requirements for maximum investments by asset class.

The analysis of the ratios for assessing the reinsurance of an insurer can reveal the following areas of concern:

- Reinsurance cessions are higher than expected exposing the insurer to high risk if a reinsurer defaults.
- Reinsurance cessions are lower than expected exposing the insurer to the risk that volatile claims experience has a negative impact on the financial position of the insurer.
- Failure to comply with regulatory requirements for required reinsurance cessions.

The analysis of the ratios for assessing the technical provisions or actuarial liabilities of an insurer can reveal the following areas of concern:

- Large changes in technical provisions may indicate increasing exposure to risk (e.g. increasing mortality risks) or changes in the type of business being written (e.g. more long-tailed liability business compared to short-tailed motor business) or changes in the claims settlement pattern[38] (e.g. payment of claims taking an average of 60 days instead of 30 days).

38 Delays in claims settlement impairs customer experience and could also be a market conduct concern.

4.1.2 Annual KPIs and benchmarks

Annual

Risk Area	Ratio	Calculation	High Risk	Moderate Risk	Emerging Risk	Low Risk
Capital adequacy (Non-life)	**Net Risk Ratio** Amount of capital supporting the amount of business written. High business volumes relative to capital could put pressure on the solvency of the insurer.	$\frac{\text{NWP}}{\text{AC}}$	>300%	300% –200%	200% –100%	<100%
	Equity to Capital Ratio Exposure to a fall in equity values. High exposure to equities for non-linked business indicates high market risk for the insurer.	$\frac{\text{Equities}}{\text{AC}}$	>60%	40% – 60%	20% – 40%	<20%
	Property to Capital Ratio Exposure to fall in property values. High exposure to property for non-linked business indicates high market risk for the insurer.	$\frac{\text{Property}}{\text{AC}}$	>45%	30% – 45%	15% – 30%	<15%
	Foreign Currency Assets to Capital Ratio Exposure to a deterioration in the exchange rate. High exposure to currency for non-linked business indicates high exchange rate risk for the insurer.	$\frac{\text{Foreign Currency Assets}^{39}}{\text{AC}}$	>40%	25% – 40%	10% – 25%	<10%
	Technical Provisions to Capital Ratio Impact of change in Technical Provisions on financial soundness.	$\frac{\text{Technical Provisions}}{\text{AC}}$	>350%	250% – 350%	150% – 250%	<150%

39 Foreign currency assets is the net open position of foreign currency assets i.e. the value of the assets denominated in a foreign currency less the liabilities denominated in that currency. This value converted to local currency using the prevailing exchange rate

Capital adequacy (Life)	**Equity to Capital Ratio**[40] Exposure to a fall in equity values. High exposure to equities for non-linked business indicates high market risk for the insurer.	Equities / AC	>70%	50% – 70%	30% – 50%	<30%
	Property to Capital Ratio[41] Exposure to fall in property values. High exposure to property for non-linked business indicates high market risk for the insurer.	Property / AC	>60%	50% – 70%	30% – 50%	<30%
	Foreign Currency Assets to Capital Ratio[42] Exposure to a deterioration in the exchange rate. High exposure to currency for non-linked business indicates high exchange rate risk for the insurer.	Foreign Currency Assets[43] / AC	>40%	25% – 40%	10% – 25%	<10%
	Technical Provisions to Capital Ratio[44] Impact of change in Technical Provisions on financial soundness.	Technical Provisions / AC	>250%	200% – 250%	150% – 200%	<150%
Asset quality	**Unmarketable Assets** Proportion of assets where the market value may be overstated. A large proportion of unmarketable assets may indicate high market risk for the insurer.	Direct Property+Unlisted Equities+Receivables / Total Assets	>30%	20% – 30%	10% – 20%	<10%
	Counterparty Concentration Risk Exposure to credit risk by investment counterparty. A high proportion of investments in a single counterparty (especially with a low credit rating) may indicate high credit risk for the insurer.	Total Investment (by investment institution) / Total Assets Calculated for the top 5 exposures. Shows the credit rating for each of the top 5 exposures.	>20%	15% – 20%	10% – 15%	<10%

Time to prepare

40 Nonlinked business only

41 Foreign currency assets is the net open position of foreign currency assets i.e. the value of the assets denominated in a foreign currency less the liabilities denominated in that currency. This value converted to local currency using the prevailing exchange rate

42 ibid

43 ibid

44 ibid

Asset quality	**Bank Deposit Concentration Risk** Exposure to credit risk for bank deposits. A high proportion of investments in a single banking institution may indicate high credit risk for the insurer.	Bank Deposit (by banking institution) / Total Assets	>15%	10% – 15%	5% – 10%	<5%
Time to prepare	**Non-performing Assets** Proportion of assets with high default risk. A high ratio indicates high credit risk to the insurer.	Nonperforming Assets & Loans + Receivables over 90 days / Total Assets	>20%	15% – 20%	5% – 15%	<5%
Reinsurance	**Cost of Reinsurance** A high ratio may indicate that reinsurance is not value for money. A low ratio may indicate that reinsurance costs may increase in the future.	Premiums Ceded to Reinsurers / Claims Paid by Reinsurers + Reinsurance Commission	>130% <70%	120% – 130% 70% – 80%	110% – 120% 80% – 90%	90% – 110%
Additional technical capacity	**Maximum Event Retention** Reinsurance and capital need to be capable of covering a plausible severe risk scenario. A high ratio indicates that there may be pressure on the solvency of the insurer in the event of a catastrophe event.	Maximum Exposure Loss from to a Single Event[45] / AC	>25%	15% – 25%	5% – 15%	<5%
	Exposure to Single Reinsurer Reliance on individual reinsurers. A high ratio may indicate high credit risk for the insurance (especially if reinsurers have low credit ratings).	Premiums Ceded (by reinsurer) / GWP	>15%	10% – 15%	5% – 10%	<5%
	Credit Risk Exposure to Single Reinsurer Exposure to default risk for individual reinsurers. A high ratio may indicate high credit risk for the insurance (especially if reinsurers have low credit ratings).	Reinsurance Recoverables by Reinsurer / Total Reinsurance Recoverables Shows the credit rating for each of the top 5 exposures.	>30%	25% – 30%	20% – 25%	<20%

45 The Maximum Event is the largest loss to which an insurer will be exposed in extreme circumstances, due to a concentration of policies, after taking reinsurance into account.

Additional technical capacity

Actuarial liabilities (Non-life)	**Sufficiency of Provisions** Ratio of expected future claims based on claims to provisions to actual claims paid and the change in the claims provision. Consistent high ratios indicate consistent over-estimation of technical provisions. Consistent low ratios indicate consistent under-estimation of technical provisions.	$\frac{\text{Net Claims Provisions (pp)}}{\text{Net Claims Paid+Net Claims Provisions (for pp)}}$[46]	>130% <70%	120% – 130% 70% – 80%	110% – 120% 80% – 90%	90% – 110%
Actuarial liabilities (life)	**Sensitivity to Discount Rate** Change in actuarial liabilities due to increase and decrease in discount rate.	$\frac{\text{Actuarial Liabilities (AL) (discount rate stressed)}[47] - \text{AL}}{\text{AL}}$	Gives an indication of the risk of a change in interest rates to the insurer. Flag major changes.			
	Sensitivity to Mortality (other risk rates) Change in actuarial liabilities due to increase and decrease in mortality rates	$\frac{\text{Actuarial Liabilities (AL) (mortality stressed)} - \text{AL}}{\text{AL}}$	Gives an indication of the type of business and risk undertaken by the insurer. Flag major changes for different classes of business.			
	Sensitivity to Withdrawals Change in actuarial liabilities due to increase and decrease in withdrawal rates (lapses and surrenders)	$\frac{\text{Actuarial Liabilities (AL) (withdrawals stressed)} - \text{AL}}{\text{AL}}$	Gives an indication of the type of business and risk undertaken by the insurer. Flag major changes for different classes of business.			
	Sensitivity to Expenses Change in actuarial liabilities due to increase in expenses and expense inflation	$\frac{\text{Actuarial Liabilities (AL) (expenses)} - \text{AL}}{\text{AL}}$	Gives an indication of the expense risk of the insurer. Flag major changes.			

46 Net Claims Provisions (for pp) are the claims provisions from the previous period that remain unpaid in the current period

47 For all sensitivity ratios stressed means that the level assumption is changed up or down by a certain amount

Actuarial liabilities (life)	**Valuation Assumptions**	Discount rate; mortality (and other risk rates); withdrawal rates; expenses	Gives an indication of the type of business and risk undertaken by the insurer. Flag differences between peer insurers. Flag major changes in assumptions.
	Reasons for Changes in Technical Provisions	See "Analysis of Change in Surplus" under 4.3. Financial performance and management: Earnings	

Table 4: Annual KPIs and benchmarks for financial soundness

The capital adequacy KPIs, by comparing the values for equity and property, foreign currency assets and technical provisions to available capital can be used to assess the exposure of the insurer to changes in the value of these assets and technical provisions. These KPIs serve as a proxy for stress tests or impact on the available capital of stress events (e.g. decline in the value of equities). These KPIs are useful in jurisdictions where stress tests are not included as part of the solvency regime.

The analysis of the ratios for assessing the **capital adequacy** of an insurer can reveal the following areas of concern:

- High levels of premium volumes compared to the available capital of the insurer may lead to pressure on the solvency position.
- The equity and property ratios show how a fall in the value of volatile and illiquid assets may impact on the solvency position of the insurer.
- The foreign currency ratio shows how a fall in the exchange rate may impact on the solvency position of the insurer.
- The technical provisions ratio shows how the possible underestimation of technical provisions may have an impact on the solvency position of the insurer.

The analysis of the ratios for assessing the quality of assets of an insurer can reveal the following areas of concern:

- High levels of unmarketable assets may negatively impact the insurer's capacity to meet its obligations to its policyholders.
- High exposure to individual investment counterparties and banking institutions exposes the insurer to high credit risk, particularly if these institutions have a poor credit rating.
- Failure to comply with regulatory requirements for maximum exposure limits to individual counterparties and banking institutions.

The analysis of the ratios for assessing the suitability of reinsurance of an insurer can reveal the following areas of concern:

- Cost of reinsurance is high relative to the reinsured claims indicating suitability if the reinsurance programme should be investigated further.
- A high maximum event retention relative to available capital and insufficient catastrophe cover indicating that a catastrophe event may have a negative impact on the solvency of the insurer.
- High exposure to reinsurers with a poor credit rating and high outstanding amounts from reinsurers exposes the insurer to high credit risk.

The analysis of the ratios for assessing the actuarial liabilities of an insurer can reveal the following areas of concern:

- Technical provisions for non-life business are consistently underestimated (actual claims payments higher those the provisions set aside for claims).
- The assumptions used to determine the actuarial liabilities for life insurance business are not in line with the rest of the market.
- The insurer fails to comply with certain regulatory requirements relating to technical provisions and actuarial liabilities.

For both quarterly and annual analysis, the insurance supervisor should obtain deeper insight into these risks and weaknesses by investigating the reasons for the change in the solvency position, value of the assets, retention levels and level of the technical provisions of the insurer. It is also important to investigate the insurers response to deteriorating experience and what plans the insurer has to remedy the situation.

4.1.3 Additional ratios for non-life technical provisions

Additional business information

Ratio	Calculation	Risk Assessment
Claims Settlement Pattern	$\frac{\text{Net Claims Provisions}}{\text{Average Net Claims Paid (over 3 years)}}$	Gives an indication of the average time to pay claims. The ratio will be higher for long-tailed business (e.g. liability business).
Premium Provisions	$\frac{\text{Net Premium Provisions}}{\text{NWP}}$	Gives an indication of the timing of premium payment. This ratio would be higher if more annual premium rather than monthly premiums business is written. Flag major changes in this ratio for different classes of business.
Outstanding Claims Provisions	$\frac{\text{Net Outstanding Claims Provisions}}{\text{NWP}}$	40% – 60% Gives an indication of the type of business and risk undertaken by the insurer. Flag major changes in this ratio for difference classes of business.
Incurred But Not Reported (IBNR) Provisions Ratio	$\frac{\text{Net IBNR}}{\text{NWP}}$	5% – 50% Gives an indication of the type of business and risk undertaken by the insurer. Flag major changes in this ratio for difference classes of business.
AURR[48] Provisions Ratio	$\frac{\text{Net AURR Provisions}}{\text{NWP}}$	Gives an indication that the premiums are not adequate for some of the business Flag major increases in this ratio

Table 5: Additional ratios for non-life technical provisions

48 AURR: Additional Unexpired Risk Reserve, required when premiums are inadequate

These ratios give an indication of type of business that the insurer writes. Any changes in these ratios by class of business should be flagged by the supervisor.

4.1.4 Qualitative indicators[49]

Qualitative information

Risk Area	Indicator	Questions
Capital Adequacy	Off-balance sheet transactions	Has there been any direct or indirect borrowing of assets? Has any guarantee or suretyship been entered into, otherwise than by means of an insurance guarantee policy? Have any assets been encumbered or pledged? If "YES" to any of the above, please provide details. Do the liabilities include all contingent liabilities, guarantees and commitments? If "NO", please provide details.
	Sufficiency of capital	Does the insurer meet internal solvency targets? If "NO", please provide details. Does the insurer have sufficient capital to undertake planned business activities? If "NO", please provide details.
	Changes in capital	Did the issued share-capital change during the reporting period? If "YES", provide details. Did the insurer issue preference shares or other debt instruments during the reporting period? If "YES" provide details. Were preference shares, issued by the insurer, not redeemed on redemption date or will such preference shares be likely not to be redeemed during the following financial period where redemption must take place? Are any payments (interest and capital) on debt instruments, issued by the insurer, in arrears, or are any payments on a debt instrument likely to be in arrears during the following reporting period? Is there any reason to believe that the insurer will not be a going concern in the year ahead? If "YES" to any of the above, provide reasons. Have there been any developments after year-end which may have a material impact on the financial soundness of the insurer?
Asset Quality	Suitability of assets	Are the assets held by the insurer suitable to the nature of the liabilities of the insurer? Please describe the matching of the annuity book, if annuity business is written. How does the insurer satisfy itself that assets are suitable for the nature of the liabilities of the insurer? Have there been any breaches in the investment policy over the reporting period (including exceeding maximum investment limits set in regulations)? Have there been any serious risk events relating to the assets (e.g. fall in equities by 30%) of the insurer over the reporting period?

49 The qualitative indicators throughout this guide are based on the South African Qualitative Long Term Insurance Returns (2012). See: https://www.fsca.co.za/Regulatory%20Frameworks/Pages/Archives.aspx

Reinsurance	Catastrophe reinsurance	Provide the following details on the catastrophe cover purchased: Threshold number of risks or lives for catastrophe event Exclusions Number of reinstatements
	Reinsurance programme	Provide an overview of the reinsurance strategy with explanations and details on at least the following: · The insurer's key objective when placing reinsurance · Factors considered when determining the type of reinsurance purchased · Factors considered when determining the retention level (per risk and for accumulations) · Factors considered when determining the amount of catastrophe cover purchased · The maximum loss that the board would be willing to accept from any one loss event. Please state the criteria that were used to determine this amount · Method for selecting reinsurers Is the insurer satisfied that the insurer's reinsurances are adequately spread? If "NO", please provide details. Has there been any substantial change in the nature or level of cover arranged for any of the business? If "YES", please provide details. Have there been any serious risk events relating to the reinsurance (e.g. default of reinsurer) of the insurer over the reporting period? If "YES", please provide details.
Actuarial Liabilities	Bonus rates (Life)	Have any management actions been assumed relating with profits policies? If "YES, please provide details. Provide the declared bonus and the actual investment return (net of expenses) for with-profit policies. Was the bonus rate(s) last declared assumed for all future years in the determination of the actuarial liabilities and the required capital? If not, please elaborate.
	Data and method	These questions aim at assessing the accuracy of data, suitability of the methodology and monitoring of the technical provisions or actuarial liabilities by the insurer. Are there effective data controls and is the data for determining the technical provisions accurate and up-to-date (e.g. claims amounts, dates of claim and payment, premiums)? Is the data used for calculating technical provisions accessible, accurate and up-to-date? Do the technical provisions include amounts for all valid policies and claims? Are the technical provisions calculated using the prescribed method or an internationally accepted method recommended by an expert? Briefly describe the method used to determine the technical provisions. For all the questions above, provide an explanation if the response is "NO". Has there been any change to the method or assumptions used to determine the liabilities of the insurer since the previous valuation? Provide an explanation if the response is "YES". What are the qualifications and experience of the person responsible for determining the technical provisions?

Actuarial Liabilities	Monitoring actuarial liabilities (life)	Does the life insurer regulatory monitor the following: · actual mortality experience (or other claims experience) of the insurer with the mortality assumptions (or other claims assumptions) used in determining the policyholder liabilities · actual withdrawal experience with the withdrawal assumptions used in determining the liabilities. · actual expenses (including commission payments and other expenses incurred in management, marketing, administration and the collection of premiums) with the allowance for expenses used in determining the liabilities Provide an explanation if the response is "NO".
	Monitoring technical provisions (non-life)	Does the non-life insurer regularly monitor the sufficiency of technical provisions by comparing actual to expected claims paid? Does the non-life insurer investigate reasons for significant discrepancies? Provide an explanation if the response is "NO".

Table 6: Qualitative indicators for financial soundness

The analysis of the qualitative information for assessing the financial position of an insurer can reveal the following areas of concern:

- Off-balance sheet transactions (e.g. contingent liabilities or encumbered assets).
- Reinsurance strategy is inappropriate for the business written.
- Failure to obtain reinsurance for exposure to aggregations of risk (e.g. agricultural reinsurance).
- Retention levels do not reflect risk appetite or available capital.
- Weak data and inappropriate methodology for calculating the technical provisions. The methodology for calculating the technical provisions or non-standard or not internationally acceptable.
- Persons responsible for calculating the technical provisions do not have the appropriate skills and experience.
- Reasons for changes in technical provisions indicate increasing risk for the insurer (e.g. anti-selection).
- The insurer fails to comply with certain regulatory requirements relating to technical provisions.

Derivatives pose a high risk for investment risk but are not used in most SSA countries and are therefore not included in the KPIs. If insurers do make use of derivative investments in a particular jurisdiction, then the assessment of the risk posed by derivative investments should be included in the ongoing assessment of insurers.

The capital support from financial reinsurance needs to be understood as this introduces additional risk for the solvency position of the insurer. Financial reinsurance is not widely used across SSA. If insurers do make use of financial reinsurance in a particular jurisdiction, then the assessment of the risk posed by financial reinsurance arrangements should be included in the ongoing assessment of insurers.

4.1.5 Special considerations for microinsurance business

The following ratios should be used for microinsurance business: Solvency cover, change in capital, secure assets, risk retention, technical provisions (by class), change in technical provisions, bank deposit concentration.

Solvency cover, change in capital, secure assets, risk retention, bank deposit concentration will be assessed for a licensed microinsurer. Assessment of the quality of capital adequacy, quality of assets and reinsurance are not analysed separately for the microinsurance business unit of a conventional insurers. Rather, access to funding for the microinsurance business unit is assessed for a conventional insurer writing microinsurance business.

It is also expected that a microinsurer will have less experience in managing investments compared to conventional insurers. In addition, microinsurance business is usually one-year contracts and the liabilities are short-term. It is therefore important that the microinsurer holds secure (low-risk) and liquid investments. Investments that are appropriate for microinsurance business are cash, bank deposits, money market instruments and short-term government bonds.

Reinsurance is less important for microinsurance business than it is for conventional insurance business due to the small claim amounts. The insurer may include microinsurance business under its reinsurance programme for conventional insurance business. An insurer may make use of quota share reinsurance to diversify its risk and write more business and catastrophe or aggregate excess of loss reinsurance to protect itself against an accumulation of claims. An exception to note is that reinsurance is important for agricultural microinsurance, due to the likelihood of an aggregation of claims.

The microinsurance regulations often prescribe a standard method for determining the IBNR of percentage of the annual NWP. It is important for the insurer and the supervisor to monitor and ensure the prescribed method for determining technical provisions is appropriate for all classes of microinsurance business written. This assessment needs to be made for a licensed microinsurer as well as the microinsurance business of a conventional insurer.

4.2. Governance, risk management and operational issues[50]

The main objective for using KPIs to assess the management soundness of the insurer is to investigate the quality of governance and risk management of the insurer and to assess issues relating to operational matters (M in CARAMELS)[51]. The subsequent sections set out:

1. A checklist of indicators investigating governance
2. A checklist of indicators investigating risk management and internal controls
3. A checklist of areas for be investigated for operational issues
4. Potential areas of concern that the KPIs could reveal
5. Special considerations for microinsurance business

Qualitative information

Risk Area	Indicator
Independence	Number and role of board members
Suitability of persons	Does the board and senior management collectively represent sufficient collective expertise and experience? If "NO", provide reasons. Are the members of the board and senior management of sound character and good repute? If "NO", provide reasons. Is there a sufficient level of independence in the board? If "NO", provide reasons.
Governance	Has the board set up relevant committees and are the committees functioning effectively (list the minimum committees required in regulations here)? If "NO", provide reasons. Has the board established policies guiding the business practice of the insurer and does it give direction on significant issues facing the insurer? If "NO", provide reasons. Has the board established an effective remuneration policy? If "NO", provide reasons. Have robust reporting processes been established and is the information reported to the board and senior management adequate for decision-making? If "NO", provide reasons. Have there been any serious failures of governance processes (e.g. corruption). If "YES", provide details. Have there been any material changes in the system of governance since the date of the last return? If "YES", provide details.

50 Key questions and checklists are used for off-site analysis of issues relating to governance, risk management and operational issues. This simple analysis is intended to give the supervisor regular information on this risk area. A more in-depth analysis is needed to fully understand Management Soundness. This can be achieved during the licensing process of the insurer and through on-site inspections.

51 Weaknesses in governance, risk management and operations may also impact on market conduct issues

Strategy	Is there a clearly defined strategy approved by the board that is measured, monitored and reported on regularly? If "NO", provide reasons. What is the key distribution strategy of the insurer?[52] Calculate the following ratio[53]; $\frac{\text{GWP (by distribution channel)}}{\text{Total GWP}}$

Table 7: Indicator checklist for governance

The analysis of the indicators for assessing the **governance** of an insurer can reveal the following areas of concern:

- Improperly constituted board (lack of independence, lack of skills and experience and questionable integrity)
- Lack of accountability and management of conflicts of interest
- Failure of the board to meet regularly
- Failure to set up relevant board committees (e.g. audit and risk committee)
- Indications of lack of effective oversight (direction and monitoring) of the insurer
- Weakness in reporting to the board and other stakeholders
- High levels of remuneration relative to duties
- Weaknesses in setting business strategy or poor monitoring of the implementation or success of the strategy
- High exposure to external influences including environment and economic changes (e.g. credit life business linked to loans)
- Scandals relating to poor governance and management and corruption in the press or on social media
- Persistent breaches of compliance with legislation and regulations (e.g. persistent insolvency)

52 Information on the distribution strategy and premium income by distribution channel can also be used for the assessment of market conduct risk

53 It may take time to gather this data if not already available. Supervisors could consider collecting distribution-level data on a regular basis as it is a key indicator for market conduct supervisory analysis as well as market development.

4.2.2 Qualitative indicators – risk management and internal controls

Qualitative information

Risk Area	Indicator
Risk management system	Is the board responsible for the oversight of risk management? If "NO" provide reasons. Is there an adequate and effective integrated risk management plan that covers major risk areas and identified appropriate risk mitigation techniques? If "NO" provide reasons. Does the insurer identify, measure, monitor and report on its material risk exposures?
	Are adequate resources dedicated to risk management? Are there areas of poor risk management that may impact on the viability of the business? What are the major risks facing the insurer? Have there been any significant risk events in the reporting period? For all of the above, provide an explanation if the response is "NO".
	Briefly explain any material changes in the risk management system since the date of the last return.
Internal control	Is there an adequate and effective system of internal controls that is adequately documented and tested on a regular basis? Are such controls and systems based on established written policies and procedures and implemented by trained, skilled personnel, whose duties have been segregated appropriately (in all material aspects)? Are the insurer's internal controls and systems designed to provide reasonable assurance as to the integrity and reliability of the published financial statements? Does the insurer have an independent Internal Audit function or similar outsourced function? Does the Internal Audit function have an appropriate mandate to cover all material business areas? For all of the above, provide an explanation if the response is "NO".
	What are the main risks or weaknesses relating to internal controls? Were any significant problems experienced with regard to the internal controls or malfunctions of the system relating to information/accounting/administrative systems during the reporting period? If "NO" provide details.

Table 8: Indicator checklist for risk management and internal controls

The analysis of the indicators for assessing the risk management and control of an insurer can reveal the following areas of concern:

- Failure to draft and implement a risk management strategy/policy
- Failure to identify the main areas of risk and to implement appropriate mitigation strategies
- Weak risk management processes of the insurer
- High exposure to risks of the insurer and weak mitigation strategies for these risks

- Occurrence of any significant risk events
- Failure to establish an independent internal audit function with sufficient resources
- No or weak implementation of systems of internal controls and segregation of duties, reporting and accountability structures
- Mandate of the internal control system does not cover all significant parts of the business
- Weak financial controls and inaccurate financial records
- Malfunctions in internal controls (e.g. employee fraud)
- Errors or delays in reporting financial information to the supervisor

4.2.3 Qualitative indicators – operational issues

Qualitative information

Risk Area	Indicator
Operational matters	Does the insurer have a well-defined and documented organisational structure with clear roles and responsibilities? Does the insurer have an adequate business continuity plan and processes in place for implementing the plan? Has the business continuity plan been fully tested recently? For all of the above, provide an explanation if the response is "NO".
	Has there been an unreasonable increase in operating expenses[54]? If "YES" provide details. Calculate the following ratio:[55] $\frac{\text{GWP (by distribution channel)}}{\text{Total GWP}}$ Have there been any serious risk events relating to business operations in the reporting period? If "YES" provide details.
Data and IT	Does the insurer have adequate procedures for data management and IT systems? Are IT systems appropriate for the type and size of the business? For all of the above, provide an explanation if the response is "NO".
	Briefly explain any material changes in the data management and IT in the reporting period. Have there been any serious risk events relating to data and IT in the reporting period? If "YES" provide details.

54 Increase in operating expenses may also signal market conduct issues, especially if it is increasing alongside deterioration in customer value and customer experience. See the Market Conduct KPI Handbook.

55 The operating expense ratio can also be used to assess market conduct risk.

Outsourcing	Have any business activities been outsourced? If "YES", provide a detailed list and describe the nature of any outsourced activities or function. What are the governance processes pertaining to significant outsourced processes (such as underwriting) or infrastructure (such as IT)? Does the insurer have adequate procedures selecting and monitoring service providers? If "YES" provide reasons. Please provide a brief description of the measures in place to monitor and manage outsourced activities and functions. Briefly explain any material changes outsourced activities in the reporting period. Have there been any serious risk events relating to outsourcing in the reporting period? If "YES" provide details.

Table 9: Indicator checklist for operational issues

The analysis of the qualitative indicators for assessing the operational issues of an insurer can reveal the following areas of concern:

- Vacant positions for significant positions, lack of adequate staff resources and lack of clarity on roles and responsibilities for staff
- No or inadequate business continuity plan or ineffective implementation and testing of the processes in the business continuity plan
- Large increases in management expenses
- Significant disruptions in critical business functions (e.g. delays in renovating premises)
- Significant financial losses or reputational damage from business operation risks
- Weak processes for ensuring the suitability, efficiency and stability of the data management and IT system
- Data management and IT systems outdated or inappropriate for the business
- Significant changes to data management and IT systems
- Instances of loss or corruption of data, data breaches or cyber attacks
- Significant financial losses or damage to reputation from data and IT risks
- Significant activities (e.g. claims assessment and payment) are outsourced
- Weak processes for selecting service providers, setting up and monitoring outsourced activities
- Significant financial losses or damage to reputational damage from outsourcing risks

4.2.4 Special considerations for microinsurance business

The qualitative indicators for governance and risk management should be used to assess licensed microinsurers.

Governance and risk management should be analysed in-depth for a licensed microinsurer. Operational processes and management of the risks relating to microinsurance business should also be assessed for conventional insurers.

Microinsurance business is exposed to different risks compared to conventional insurance business. It is important for the microinsurer to identify and manage the risks relating to the business that it writes. There is likely to be less claims variability for individual claims due to the low values of the sum insured, but there may be exposure to accumulations of claims particularly for agriculture business. Business volumes for microinsurance may be volatile increasing significantly when a new partner signs up and decreasing significantly when a partner cancels the insurance distribution arrangement. Sufficiency of premiums is more uncertain because of the lack of data to price the risks and small premiums mean that there is less of a margin for higher expenses than expected. Efficiencies in business operations is important for microinsurance business to maintain premiums at a level that is affordable to low-income customers.

Insurers often use IT in new ways and enter into partnerships to sell and service microinsurance policies. This can lead to an increase in operational risks. The insurer may rely on a number of partners to distribute or service microinsurance policies. Many of these partners have limited experience with insurance business. These outsourcing arrangements may pose additional risks to the microinsurance business. The use of innovative technology to distribute products and service customers may pose new and increased IT system and data management risks for microinsurance business. In addition, policyholder or member data may be held by the distribution partner and it may be difficult for the insurer to access this data.

4.3. Financial performance and management

The main objective for using KPIs to assess the financial performance and management of the insurer is to investigate the following.

Risk Area	Main Areas of Investigation
Earnings	• Characteristics of the business • Business volumes and growth • The impact of claims, expense and investment experience on financial performance • The overall profitability of the business
Liquidity	• Whether assets have a similar cashflow profile to liabilities • Whether the insurer has sufficient liquid assets to meet short-term liabilities

Table 10: Main areas of investigation under financial performance and management (E, L)

The subsequent sections set out:

1. Quarterly KPIs and benchmarks for financial performance and management, and potential areas of concerns

2. Annual KPIs and benchmarks for financial performance and management, and potential areas of concerns

3. Additional ratios for non-life earnings

4. Special considerations for microinsurance business

4.3.1 Quarterly KPIs and benchmarks

Quarterly

Risk Area	Ratio	Calculation	High Risk	Moderate Risk	Emerging Risk	Low Risk
Non-life earnings	**Growth in GWP**[56] Growth in business over the period. High growth may put pressure on the solvency of the insurer. Declines in business volumes may impact on the viability of the business.	$\frac{\text{GWP (cp)-GWP (pp)}}{\text{GWP (pp)}}$	> 50% < 10%	40% – 50%	30% – 40%	10% – 30%
	Gross Claims Ratio[57] Claims (gross of reinsurance) relative to premiums (gross of reinsurance). A high gross claims ratio may indicate poor insurance risk management or insufficient premiums. A high gross claims ratio may impact on the financial viability of the insurer.	$\frac{\text{Gross Claims Incurred (GCI)}}{\text{Gross Earned Premiums (GEP)}}$	> 110% < 40%	90%–110%	70% – 90%	50% – 70%
	Net Claims Ratio Claims (net of reinsurance) relative to premiums (net of reinsurance). A high net claims ratio may impact on the financial viability of the insurer. The difference in the gross claims ratio and the net claims ratio gives an indication of the effectiveness of reinsurance.	$\frac{\text{Net Claims Incurred (NCI)}}{\text{Net Earned Premiums (NEP)}}$	> 80% < 40%	70% – 80%	60% – 70%	40% – 60%

56 Growth in premiums and the gross claims ratio can also be used to assess market conduct risk

57 The expense ratio, combined ratio and profitability can also be used to assess market conduct risk

Non-life earnings	**Expense Ratio**[58] Expenses relative to premiums. A high expense ratio may indicate poor expense management. A high expense ratio may impact on the financial viability of the insurer.	$\frac{\text{Expenses}^{60}}{\text{GWP}}$	> 45%	35% – 45%	25% – 35%	< 25%
	Combined Ratio[59] Profitability of the business before taking investment income into account. A ratio higher than 100% indicates that the business is loss making. A ratio consistently above 100% for a number of years indicates that the business may not be financially viable.	$\frac{\text{NCI} + \text{Expenses}}{\text{NEP}}$	> 105% < 60%	90%–105%	75% – 90%	75% – 60%
	Investment Income Ratio Investment income relative to premiums.	$\frac{\text{Investment Income}}{\text{NEP}}$	> 30%	20% – 30%	10% – 20%	0% – 10%
	Profitability Ratio[60] Profitability after taking investment and other income into account.	$\frac{\text{Net Profit before Tax}}{\text{NEP}}$	> 55% < 20%	45% – 55%	35% – 45%	25% – 35%
Earnings: Life	**Growth in Policies**[61] Growth in business over period. High growth may put pressure on the capital of the insurer. Declines in business volumes may impact on the viability of the business.	$\frac{\text{Number Policies (cp)} - \text{Number Policies (pp)}}{\text{Number Policies (pp)}}$	> 50% < 10%	40% – 50%	30% – 40%	10% – 30%

58 The expense ratio, combined ratio and profitability can also be used to assess market conduct risk

59 Expenses: Total expenses including commission, acquisition expenses and operating expenses

60 See footnote 59

61 Growth in the number of policies also be used to assess market conduct risk

Earnings: Life	**Expense Ratio** Expenses relative to premiums. A high expense ratio may indicate poor expense management and impact on the financial viability of the insurer.	$\frac{\text{Expenses}}{\text{GWP}}$	> 45%	35% – 45%	25% – 35%	< 25%
	Investment Income Ratio Investment income relative to assets invested.	$\frac{\text{Investment Income}^{62}}{0.5 \times (\text{Total Assets (cp)} + \text{Total Assets (pp)})}$	Investment returns should be compared to investment returns in the country in that year			
Liquidity	**Liquidity Ratio** Ratio of liquid assets to current liabilities. A low ratio indicates that the insurer may have challenges paying claims.	$\frac{\text{Liquid Assets}^{63}}{\text{Current Liabilities}^{64}}$	< 90%	90%–105%	105% – 120%	> 120%

Table 11: Quarterly KPIs and benchmarks for financial performance and management

62 Investment income: dividends and interest etc net of investment expenses and gross of tax

63 Liquid assets include cash, bank balances, money market instruments, short-term government bonds and listed equities

64 Current liabilities are liabilities that should be paid within 12 months

The analysis of the ratios for assessing the financial performance and management of an insurer can reveal the following areas of concern:

- Business volumes and growth in business are low, leading to concerns over the viability of the business.
- Significant loss of business (e.g. cancellation of partnership agreement with a bank).
- Unreasonably high growth in business volumes leading to concerns over inadequate premiums and weak underwriting and practices of accepting business.
- Increase in the claims ratios indicating poor claims experience (e.g. increase in claims fraud).
- High expense ratios resulting in financial losses and a deterioration of the solvency position of the insurer.
- Increase in the expense ratios indicating poor expense experience (e.g. high once-off costs due to the purchase of new IT system).
- Persistent loss-making business resulting in a deterioration in the financial position of the insurer.
- Low investment returns compared to market investment experience.
- Volatile investment returns over time.
- Poor investment experience resulting in financial losses and a deterioration of the solvency position of the insurer.
- Insufficient liquid assets to pay short-term obligations.

4.3.2 Annual KPIs and benchmarks

Annual

Risk Area	Ratio	Calculation	High Risk	Moderate Risk	Emerging Risk	Low Risk
Earnings: non-life	**Business Mix**[65]	GWP (by class of business) / Total GWP	Gives an indication of the type of business and risk undertaken by the insurer. Flag major changes in these proportions.			
Earnings: non-life	**New Business**[66] New business over the period. High new business premiums may put pressure on the capital of the insurer. Low new business may impact on the viability of the business.	GWP (new business) / Total GWP	>50% <15%	35% – 50%	25% – 35%	15% – 25%
Earnings: non-life	**Return on Equity**	Net Profit before Tax / AC	>25%	15% – 25%	10% – 15%	<10%
Earnings: life	**Business Mix**	GWP (by class of business) / Total GWP	Gives an indication of the type of business and risk undertaken by the insurer. Flag major changes in these proportions.			
Earnings: life	**Withdrawal Rate**[67] Gives an indication of the persistency of the business. High lapses and surrenders rates may impact business volumes and put pressure on capital of the insurer.	Number of Policies Lapsed, Cancelled and Surrendered / Total Number of Policies (beginning period)	>30%	20% – 30%	10% – 20%	<10%

Time to prepare

65 Business mix, new business ratio and the withdrawal rate can also be used to assess market conduct risk

66 Withdrawals refers to both surrenders and lapses combined

67 See footnote 66

	Earnings: life	**Return on Equity** Gives an indication of the return to shareholders relative to the available capital of the insurer.	$\frac{\text{Net Profit before Tax}}{\text{AC}}$[68]	>25%	15% – 25%	10% – 15%	<10%
Additional technical capacity	Earnings: life	**Analysis of Change in Surplus** Gives an indication of the unexpected surplus or losses from experience being different to that expected (e.g. mortality being different to that expected).	Analysis of sources of surplus • New business • Change in method and assumptions • Mortality (other risk experience) • Expense experience • Investment experience	Consistent surplus or losses from a particular source (e.g. mortality) over a number of periods should be investigated. Large unexpected surplus or losses from a particular source should be investigated.			
Time to prepare	Liquidity: life	**Sensitivity of AC to Change in Interest Rates** Gives an indication of how well the assets and liabilities are matched. Proxy for the duration of the assets and the liabilities.	$\frac{\text{AC (1\% increase in interest rates)}}{\text{AC}}$	A ratio 90% – 110% would indicate that assets and liabilities respond in a similar way to changes in interest rates.			

Table 12: Annual KPIs and benchmarks for financial performance and management

68 The benchmarks for these KPIs can be set relative to shareholder expected returns in the jurisdiction.

The analysis of the annual ratios for assessing the financial performance and management of an insurer can reveal the following areas of concern:

- Increases in the overall risk of the business where the proportion of premium volumes for riskier classes of business increases (e.g. liability business compared to motor business).
- Low new business volumes relative to the market which impacts on the sustainability of the business.
- High new business volumes relative to renewed business volumes which increases the level of acquisition costs for the insurer.
- High withdrawal rates which may lead to losses, particularly for lapses and surrenders early in the policy term.
- Low return on equity relative to the risk and other players in the market resulting in low returns to shareholders and possible difficulties in raising additional capital.
- Decrease in surplus due to changes in assumptions for determining the liabilities.
- Decrease in surplus due to poor mortality, experience and investment experience.
- Decrease in the available capital if interest rates are changed, indicating that the cash-flow profile for assets and liabilities is not well matched for life business.

The insurance supervisor should obtain deeper insight these risks and weaknesses by investigating the factors underlying the performance of the insurer; for example, the impact of anti-selection on claims experience. It is also important to investigate the insurers' response to deteriorating experience and what plans the insurer has to remedy the situation.

4.3.3 Additional ratios for non-life technical earnings

Additional business information

Ratio	Calculation	Risk Assessment
Operating Expense Ratio	$\frac{\text{Operating Expenses}}{\text{GWP}}$	Gives an indication of the operating expenses of the insurer. A high or increasing ratio may indicate that the business is not viable.
Commission Ratio[69]	$\frac{\text{Commission and fees to intermediaries}}{\text{GWP}}$	Gives an indication of the remuneration to intermediaries. This ratio should be reasonable compared to the services provided by intermediaries.

Table 13: Additional ratios for non-life technical earnings

69 Commission ratio can also be used to assess market conduct risk

These ratios give more information on the expenses of the insurer and give an indication whether high expenses are due to high commission and fees to distribution channels or to inefficiencies operations of the insurer.

4.3.4 Special considerations for microinsurance business

The following ratios should be used for microinsurance business: Growth in GWP, gross claims ratio, net claims ratio, expense ratio, combined ratio, profitability ratio, liquidity ratio, business mix, new business

Business volume indicators need to be monitored carefully for microinsurance business. Microinsurance business may be more sensitive to changes in business volumes than conventional insurance business because high business volumes are needed to generate sufficient profit from low premium business.

Low premiums for microinsurance business mean that there is less of a margin for error for claim and expense overruns. Claims and expense experience needs to be monitored for each microinsurance product initially to assess the viability of products. Monitoring can move to a class of business basis as the business grows.

Investment income is likely to be less important for microinsurance business compared to conventional insurance business. This is because microinsurers are expected to invest in low-risk, liquid assets and that there should be short time delays in paying claims. Issues relating to investment performance is also assessed under the assessment of the quality of assets.

4.4. Group issues

The main objective for using KPIs to assess group issues (S in CARAMELS) is to investigate investments and transactions with related parties. These indicators will be collected on an annual basis.

The subsequent sections set out:

1. Annual KPIs and benchmarks for group issues, and potential areas of concerns
2. Qualitative indicators
3. Special considerations for microinsurance business

4.4.1 Annual KPIs and benchmarks

Annual

Time to prepare

Ratio	Calculation	High Risk	Moderate Risk	Emerging Risk	Low Risk
Exposure to Related Parties Amounts invested in and receivable from related parties.Investments in related parties might not be liquid or available to meet policyholder obligations. Collection of related party receivables might be difficult to enforce because of the relationship. High ratios may lead to liquidity or solvency problems[70].	$\frac{\text{Investments in Related Parties} + \text{Related Party Receivables}}{\text{Total Assets}}$	>30%	20% – 30%	10% – 20%	<10%
Obligations to Related Parties Measure of the extent to which an insurer is trading with related parties and the claim that related parties have against the assets of the insurer. High ratios indicates that the insurer may have difficulties paying its debts[71].	$\frac{\text{Amounts Due to Related Parties}}{\text{Total Assets}}$	>20%	10% – 15%	5% – 10%	<5%
Related Party Revenue and Expenditure Revenue and expenditure involving related parties relative to total revenue and expenditure. Measure of the extent to which business activities relate to transactions with related parties. Transactions with related parties may be distorted by preferential or detrimental terms and conditions[72].	$\frac{\text{Revenue and Expenditure}}{\text{Total Income and Expenses}}$	>35%	20% – 35%	10% – 20%	<10%

Table 14: Annual KPIs and benchmarks for group issues

70 Hafeman (2020)

71 Based on IAIS Core Curriculum (2018) and IAIS Insurance Core Principles (2019)

72 See footnote 71

The analysis of the ratios for assessing group issues of an insurer can reveal the following areas of concern:

- High exposure to related parties, which may result in the insurer experiencing challenges in exercising the rights over the assets, particularly if the related party is in financial difficulties
- Large increase in exposure to related parties indicating related companies may be seeking support from the insurer
- High obligations to related parties which may indicate that these parties provide significant services to the insurer
- High revenue and expenditure to related parties and dependence on these entities may result in loss of revenue or increase in expenses and financial difficulties for the insurer if this relationship changes in the future

4.4.2 Qualitative indicators

Qualitative information

Risk Area	Indicator
Ownership	Provide a diagram of the entire group structure, showing percentages of shareholding and names of ultimate shareholders as at the end of the period under review.
Independence from parent	Has there been interference in the board and management decisions by the parent company? If "YES" provide details. Are agreements for shared services and related-party transactions at 'arms' length'? If "NO" provide details.

Table 15: Qualitative indicators for group issues

The analysis of the qualitative indicators for assessing group issues of an insurer can reveal the following areas of concern:

- Major changes in ownership since the previous year
- Parent company is not in a sound financial position
- Interference from owners and inappropriate control from connected persons (shareholders, parent undertakings)
- Agreements for shared services do not reflect reasonable fees for the services performed
- Transfers to/from related parties are not on a fair value basis

4.4.3 Special consideration for microinsurance business

Group issues should be assessed on a qualitative basis for microinsurance business.

Assessment of the group risk should be analysed in-depth for a licensed microinsurer. Micro-insurance business may be exposed to a higher level of group risk than conventional insurance business as the microinsurer may rely more on skills and services from related companies.

5. COMPILATION OF FINDINGS AND INTERVENTION

5.1. Compilation of findings

The assessment of the financial position and the risk of the insurer should be compiled in a report for the insurer and the senior staff of the supervisor. This report should cover risks and weaknesses of the insurer, based on the risk rating and using the KPIs in this guide. Areas of non-compliance with the regulatory framework should also be highlighted. Ratings should be well-justified and the report should give reasons for the rating allocated to the various risk areas.

The report should also cover recommendations and required remedial actions to address areas of weakness, as well as areas of emerging risk that are not serious yet but may deteriorate, under areas for continued monitoring by the supervisor.

5.2. Interventions[73]

Principles and processes

Interventions by the supervisor should be appropriate, objective, consistent across insurers, proportionate and timely. The required corrective measures should address the areas of concern and the intervention's severity should be appropriate relative to the seriousness of potential threats to the financial position of the insurer. Timeframes for corrective action should give the insurer sufficient time to address the weaknesses. It is important for the supervisor to follow up and monitor the insurer's progress with corrective action and highlight any improvements or deterioration in the situation of the insurer and assess the effectiveness of the interventions.

Levels of intervention

The supervisor should use a tiered approach to the level of remedial action required by the insurer based on the severity of the risk and concerns around threats to consumer protection. These levels are shown in Figure 7.

Administrative or procedural oversights will generally attract less severe interventions than deliberate deception, miscommunication of information to the supervisor and intentional disregard of the regulatory requirements.

The interventions and required remedial measures should escalate with the severity of the risk posed to the financial viability of the insurer. If the insurer fails to address issues, the supervisor may increase the risk rating of the insurer and impose more stringent measures.

73 Based on IAIS Core Curriculum (2018) and IAIS Insurance Core Principles (2019)

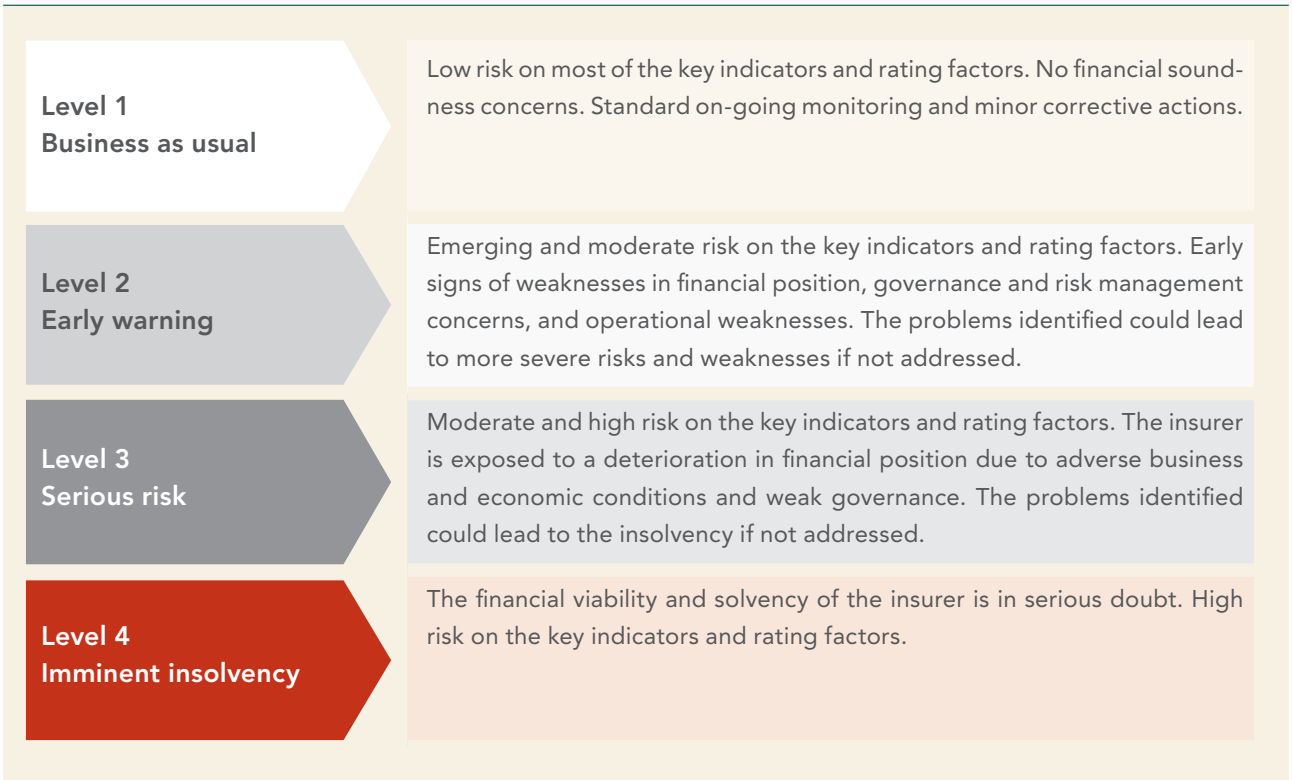


Figure 7: Levels of severity of risk posed to the insurer

Administrative or procedural oversights will generally attract less severe interventions than deliberate deception, miscommunication of information to the supervisor and intentional disregard of the regulatory requirements.

The interventions and required remedial measures should escalate with the severity of the risk posed to the financial viability of the insurer. If the insurer fails to address issues, the supervisor may increase the risk rating of the insurer and impose more stringent measures.

Types of interventions

There are a range of interventions available to supervisors. When deciding on the appropriate intervention for risks and weaknesses identified, it is important to ensure that the remedial action addresses the risk and ensures that consumers are protected. Table 16 below shows examples of remedial actions based on the areas of investigation for the risk analysis.

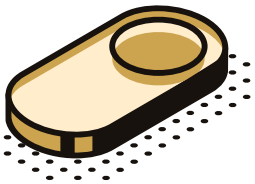
Risk area	Remedial actions
Financial soundness	• Require the insurer to submit a plan to improve the solvency position • Require more frequent reporting on the financial position and the implementation of the solvency improvement plan • Apply an additional solvency margin for the insurer (if the risk of the business is higher than the average insurer) • Direct the insurer to change their asset holdings and reduce investment in risky, illiquid and high-credit-risk assets • Engage an expert to assess the technical provisions and solvency position of the insurer • Direct the insurer to revise reinsurance arrangements • Require the insurer to increase their level of capital • Limit the amount of business written, relative to capital • Stop the sale of new products and new policies for severe solvency concerns • Restrict payment of dividends to shareholders • Restrict the disposal of assets • Place the insurer under statutory management • Suspend the license of the insurer for severe solvency concern • Fines and administrative penalties for non-compliance
Governance and risk management	• Direct the insurer to improve governance and risk management processes • Direct the insurer to replace directors, senior managers and the person responsible for risk management • Direct the insurer to replace the auditors and other experts • Direct the insurer to correct errors in reporting • Increase the level of monitoring by the supervisor • Place the insurer under statutory management, if weakness in this area impact on financial soundness • Fines and administrative penalties for non-compliance
Operations	• Direct the insurer to ensure that important positions are filled • Direct the insurer to address weaknesses in business processes • Engage an expert to audit the data management and IT systems • Direct the insurer to address weaknesses in service level agreements and the monitoring of service providers • Direct the insurer to change service provider if there is poor service from the provider • Fines and administrative penalties for non-compliance
Earnings and business volumes	• Investigate the causes of adverse experience (e.g. high claims ratio) • Direct the insurer to address the causes of adverse experience (e.g. claims fraud) • Direct the insurer to submit a plan to reduce overheads or other expenses • Direct the insurer to submit a detailed business plan

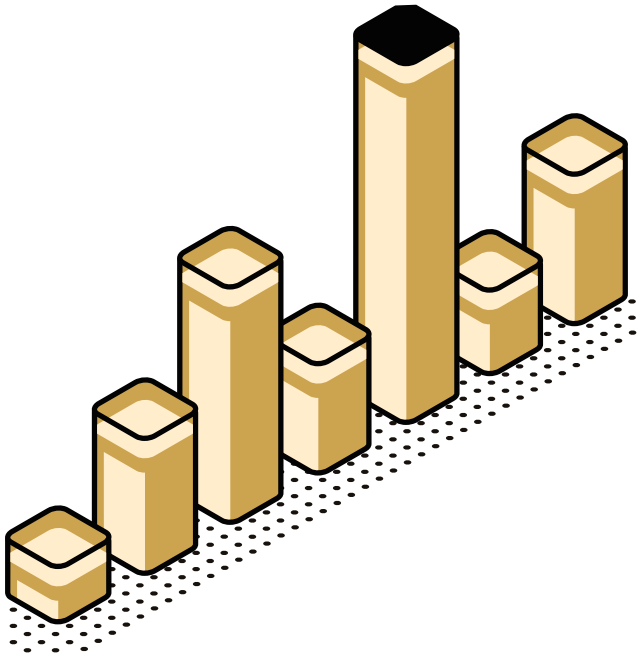
Group issues	• Discuss actions that will be taken by the supervisor of the parent company if the parent is in financial difficulty • Restrict transfers of assets to other group companies

Table 16: **Examples of remedial actions based on the areas of investigation**

5.2.1 Special considerations for microinsurance business

Any of the corrective actions above can be used for microinsurance business. Actions to address poor financial performance and weaknesses in earnings, as well as mechanisms for managing claims risk and anti-selection, may be different for microinsurance compared to conventional insurance business. For example, instead of relying on underwriting life insurance policies, microinsurance may rely on compulsory insurance, linking insurance to other products e.g. loans. Waiting periods, where claims are not paid for natural deaths that occur within the first three to six months of the policy can also be used to manage anti-selection. Interventions for anti-selection therefore need to be tailored to the product for microinsurance business.





6. IMPLEMENTATION CONSIDERATIONS FOR SSA

Systematic implementation of a project to gather and analyse the necessary information is key to success in the implementation of the KPI framework. A transitional process over a number of years where there are clear milestones and timeframes can support the successful implementation of the KPI framework.

Supervisors need to establish the following to ensure that they gather the necessary information for assessing the financial position and risks of the insurer:

- The extent of the statutory powers of the supervisor to require insurers to submit information. For example, does the supervisor have the power to gather any information from insurers relevant to assessing the financial position of the insurer? It is also important for the supervisor to have the power to impose sanctions if insurers fail to submit information or submit inaccurate or incomplete information.

- Ease of changing the current reporting template. For example, if reporting templates are defined in the regulations, changes to these regulations may be required to collect additional information on a regular basis.

- Collect data that insurers across the market use for internal monitoring and work with insurers to set up processes to gather additional information. Reporting templates can initially be completed by insurers on a best-effort basis using information that is readily available. Insurers can then provide additional information over time. This approach allows the supervisor to get a view of the landscape of data that is currently available and used by insurers. This also helps to identify the gaps and impediments in the availability of data.

- Establish a working group with the industry to evaluate the importance and usefulness of the KPIs, to draft the reporting templates and set up the transitional arrangements for submission of data. Consultation with insurers on major changes in reporting requirements is also important to ensure buy-in and better understanding of the data that is required for reporting. Collaboration with the industry can be enhanced through regular communication with the industry association as is the case in Mauritius.

- A clear implementation plan on the data that is required to be provided for each year of the transitional period. Insurers should be required to provide full information after the transitional period so that consistent and reliable data is received from insurers in the market.

- Supervisors need to protect the confidentiality of commercially sensitive information to overcome reluctance of insurers in providing this information.

Standardised templates and automation of processes create efficiency in the collection and analysis of data:

- Introduce standardised templates for quarterly and annual reporting. Qualitative questions can also be included in these templates.
- Introduce electronic submission of reporting templates from insurers.
- Develop automatic checks on the accuracy of the data and for the calculation of the ratios for the KPIs and trends over time.

Both the supervisor and the industry need to develop additional capacity in the preparation and analysis of additional data on the financial position and risk of the business:

- Make use of the recommended reading in this guide.
- Conduct training workshops for supervisory staff on the analysis of the KPIs, rating of the risk of the insurer and implementing of corrective measures.
- Conduct training workshops on the use of the reporting templates, the analysis process and supervisor expectations from insurers regarding reporting.

Making effective use of the information gathered and insights on the performance and risks of insurers is an essential part of the effective implementation of the KPI framework.

- Summarised data and insights gained about the industry should be shared with insurers and the wider public.
- Update benchmarks to be more relevant to local conditions as more data from the industry becomes available over time.
- Develop guidelines on best practice in certain areas to support the development (e.g. risk management) of the market.

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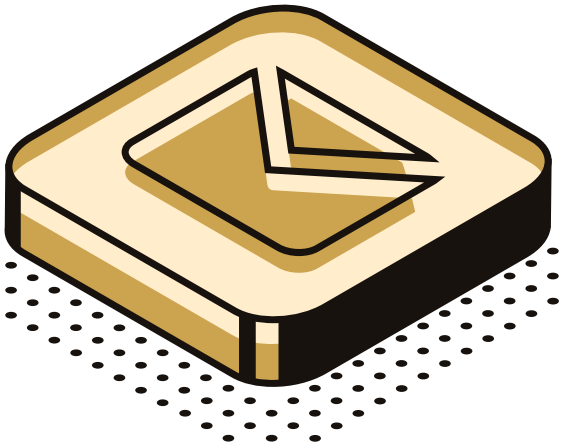


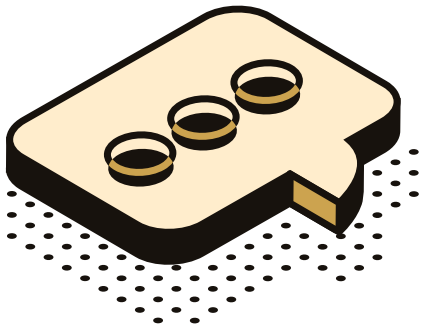
APPENDIX A: DATA NEEDED FOR CALCULATING KPIS

Risk area	Data needed
Capital Adequacy	• Admitted Assets (by asset class) • Technical provisions or insurance liabilities • Required capital as per the solvency rules
Quality of assets	Value of • Cash and bank deposits (by banking institution) • Government bonds • Direct property • Unlisted equities • Receivables (separate receivables over 90 days) • Non-performing assets and loans • Foreign currency assets • Top 5 counterparty exposures for assets with credit ratings
Reinsurance	• Maximum event retention • Premiums ceded (by reinsurer) • Top 5 reinsurer exposures for recoverables with credit ratings
Actuarial liabilities	• Net technical provisions or actuarial liabilities (by class of business) • Non-life: Technical provisions that remain unpaid from previous year • Non-life: Claims paid in current year relating to claims incurred in previous years • Life: Sensitivity of the actuarial liabilities to the discount rate, mortality etc, lapses and surrenders, expenses[78] • Life: Valuation assumptions[79]
Management soundness	• Gross written premium (by distribution channel)

74 Obtained from the actuarial report

75 Business mix, new business ratio and the withdrawal rate can also be used to assess market conduct risk

Earnings	• Gross written premiums (by class of business) • Non-life: Gross written premiums for new business (by class of business) • Net written premiums (by class of business) • Net earned premiums (by class of business) • Gross claims incurred (by class of business) • Net claims incurred (by class of business) • Total expenses • Operating expenses • Commission and fees • Investment income • Life: Number of policies (by class of business) (end of year) • Life: Number of lapses and surrenders (by class of business) • Analysis of surplus: impact of new business, change in method and assumptions, mortality experience, expense experience, investment experience[80]
Liquidity	• Money market instruments, short-term government bonds, listed equities • Current liabilities • Sensitivity of available capital to an increase and a decrease in interest rates
Subsidiaries and related parties	• Investments in related parties • Related party receivables • Amounts due to related parties • Revenue and expenditure for related parties



76 Business mix, new business ratio and the withdrawal rate can also be used to assess market conduct risk

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