# BANK OF GHANA

# Guidelines on Management and Measurement of Credit Concentration Risk

*for Banks, Savings and Loans, Finance Houses and Financial Holding Companies*

***(EXPOSURE DRAFT)***

December 2024

## EXPOSURE DRAFT

The Bank of Ghana (BOG) has issued the **Guidelines on Management and Measurement of Credit Concentration Risk** as an **Exposure Draft** to solicit comments and inputs from the banking industry and the general public, in line with the BOG's Procedures for Issuance of Directives, 2020.

In light of this, the Exposure Draft shall be made available on the BOG's website at www.bog.gov.gh for a period of not less than fourteen (14) days from the date of the publication of the Exposure Draft, for comments.

**All comments shall be sent to the Bank of Ghana via email at bsdletters@bog.gov.gh by 31st January 2025. The Bank of Ghana shall consider all material comments received and provide a written explanation for comments that were incorporated into the final directive or otherwise.**

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## Introduction

1. The capital requirement for credit risk envisaged by the Basel Committee on Banking Supervision's (BCBS) Capital Framework under Pillar I is based on the assumption that RFIs' credit portfolio consists of a very large number of exposures, each with a negligible individual value. i.e., infinitely granular portfolios. This results in potential underestimation of risk and capital requirements.

2. Concentration in credit portfolio is the most significant source of risk to the viability and solvency of RFIs as evidenced by several banking crises in the recent past which were attributed to concentration risks including those due to significant exposure to: a few large borrowers, connected borrowers, single asset class, and linkages between asset classes.

3. The BOG's Capital Requirement Directive, 2018 (CRD), on the other hand, does not fully address credit concentration risk in the context of Pillar I, which establishes the minimum capital requirements and as such this particular risk should be addressed under Pillar II of the Basel Framework.

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4. Under Pillar II of the Basel Capital Framework, the relevant RFIs are expected to:

   a) take appropriate steps to assess and mitigate all the material risk including those not explicitly or adequately covered under Pillar I such as credit concentration risk, and

   b) where there is unmitigated part of these risks, allocate adequate additional internal capital under Pillar II to cushion against the potential impact of crystallisation of such risks.

5. The BOG may impose additional capital requirement on RFIs under Pillar II for material risks that have not been fully mitigated, which could include credit concentration risk. Specifically, under Section 30 of Act 930, BOG may require an RFI to maintain additional capital that the BOG considers appropriate to address concentration of risks in the RFI or in the financial system.

6. RFIs are also expected to assess the materiality of other sources of concentration including those arising from concentration of funding

sources, market risk factors and those that might increase operational risks. If these other sources of concentration risk are identified to be material, then RFIs should ensure that:

a) they are appropriately assessed and, where applicable, considered under Pillar II including within their Internal Capital Adequacy Assessment Process (ICAAP) report submitted to BOG, and

b) appropriate measures are in place to effectively manage these risks.

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# Table of Contents


Introduction ........ iii

PART I – PRELIMINARY ........ 1

A. Title ........ 1

B. Application ........ 1

C. Definitions and Interpretation ........ 1

D. Objectives ........ 3

E. Proportionality ........ 4

F. Implementation Date and Transitional Arrangements ........ 4

PART II –OVERVIEW ........ 5

A. Overview of Credit Concentration Risk ........ 5

PART III – MANAGEMENT OF CREDIT CONCENTRATION RISK ........ 6

A. Governance of Credit Concentration Risk ........ 6

B. Identification of Credit Concentration Risk ........ 7

C. Measurement of Credit Concentration Risk ........ 8

D. Credit Concentration Risk Limit Structure ........ 9

E. Mitigation of Credit Concentration Risk ........ 10

F. Reporting of Credit Concentraton Risk ........ 10

G. Credit Concentration Risk within The ICAAP (ONLY APPLICABLE TO BANKS) 11

PART IV – SUPERVISORY REVIEW AND INTERVENTION ........ 14


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## PART I – PRELIMINARY

### A. Title

7. These Guidelines shall be cited as the Bank of Ghana Guidelines on Management and Measurement of Credit Concentration Risk, 2024.

### B. Application

8. These Guidelines are issued pursuant to section 92(1) of the Banks and Specialised Deposit-Taking Institutions Act, 2016 (Act 930) and shall apply to Banks, Savings and Loans Companies, Finance Houses and Financial Holding Companies (FHCs) licensed or registered under Act 930.

9. These Guidelines shall be read in conjunction with the Bank of Ghana Risk Management Directive, 2021, where applicable.

### C. Definitions and Interpretation

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10. In these Guidelines, unless the context otherwise requires, words used have the same meaning as that assigned to them in the applicable laws (e.g., Act 930) or as follows:

**"Act 930"** *means the Banks and Specialised Deposit-Taking Institutions Act, 2016 (Act 930).*

**"BOG"** *means Bank of Ghana.*

***"Business model"*** *refers to an entity's system of transforming inputs through its activities into outputs and outcomes that aims to fulfil the entity's strategic purposes and create value for the entity and hence generate cash flows over the short, medium, and long term.*

***"CRD"*** *means the BOG Capital Requirements Directive, 2018.*

***"Concentration risk"*** *denotes any exposure to individual client or group of connected clients or counterparties with the potential to produce losses large enough relative to a Regulated Financial Institution's capital, total assets, or overall risk level to threaten a Regulated Financial Institution's health or ability to maintain its core services or functions.*

***"Concentration due to Credit Risk Mitigation (CRM) activities"*** *refers to indirect credit exposures arising from a Regulated Financial Institution's*

*CRM activities e.g., exposure to a single collateral type or to credit protection provided by a single counterparty.*

***"Credit contagion"*** *refers to the increased dependence or correlation of risk of default by counterparties due to their shared business connections such as supply chain links or counterparty exposures.*

***"Geographical concentration"*** *refers to the potential for loss that arises when a portfolio has a significant exposure to a particular geographical area or region. The distribution of the exposures may be skewed either nationally (regional) or internationally (cross border).*

***"Gini coefficient"*** *refers to a measure of concentration of credit exposure across counterparties, industries or geographic regions. A Gini coefficient of zero (0) reflects equal exposure to all counterparties, industries, regions (no concentration) while a Gini coefficient of one (1) or 100% reflects maximum concentration to a single counterparty, industry or a geographic region.*

***"Herfindahl–Hirschman Index (HHI)"*** *refers to a measure of credit concentration risk, calculating the sum of squares of individual exposures as a percentage of total exposures. A well-diversified portfolios have an HHI close to zero and in an extreme case where there is only one credit, the HHI takes the value of 1. HHI can provide a ranking of portfolios in the order of their concentration risk.*

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***"Model-free (Heuristic) approaches"*** *include the use of Herfindahl-Hirschman Index (HHI), concentration ratios, Gini Coefficient etc. which are then translated into Pillar II capita add-ons.*

***"Model-based approach"*** *involve the use of multi-factor models (analytical methods or Monte Carlo Simulation) for estimation of Pillar II capital for Sectoral Concentration Risk and Granularity Adjustment (GA) for the Asymptotic Single Risk Factor (ASRF) Model to estimate Pillar II capital for Single Name Concentration Risk.*

***"Regulated Financial Institution (RFI)"*** *means a bank, savings and loans company, finance house or financial holding company (FHC) regulated under Act 930.*

***"Sectoral concentration"*** *refers to skewed distribution of exposures across industrial or economic sectors of the country. It arises from credit dependencies between enterprises, resulting from affiliation to a common sector and the prevailing economic conditions in that sector.*

***"Single-name concentration"*** *refers to the exposure to a single borrower, issuer, or counterparty that represents a significant percentage of an RFI's total assets, capital or credit risk.*

***"Stress test"*** *is a forward-looking risk management tool used to estimate the potential impact under adverse events or circumstances on a financial system, sector, RFI, portfolio, or product.*

***"Transition risk"*** *means the risks related to the process of adjustment towards a low-carbon economy*

***"Physical risk"*** *means economic costs and financial losses resulting from the increasing severity and frequency of:*

- *extreme climate change-related weather events (or extreme weather events) such as landslides, floods, droughts, wildfires, and storms (i.e., acute physical risks);*
- *longer-term gradual shifts of the climate such as changes in precipitation, extreme weather variability, increase in temperature, ocean acidification, and rising sea levels and average temperatures (i.e., chronic physical risks or chronic risks); and*

*indirect effects of climate change such as loss of ecosystem services (e.g., desertification, water shortage, degradation of soil quality or marine ecology).*

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## D. Objectives

11. These Guidelines seek to ensure that Regulated Financial Institutions (RFIs):

    a) Understand and mitigate against potential impacts of credit concentration risk on their solvency position and overall risk profile;

    b) Implement appropriate governance and risk management practices to effectively identify, measure, manage, monitor, report and control their credit concentration risks;

    c) Remain financially resilient under severe, yet plausible, credit shocks including those arising from default by large counterparties or counterparties operating in the same sector, geographical location or failure of credit risk mitigants.

## E. Proportionality

12. RFIs are expected to align their practices with the requirements of these Guidelines. However, in assessing the quality of RFIs' management of credit concentration risk, the BOG will take into account the principle of proportionality. In particular, the assessment will be aimed at ensuring that:

    a) RFIs' processes and tools for management of credit concentration risks are commensurate with the nature, risk profile, systemic importance and business model, as well as the scale and complexity of their activities; and

    b) the regulatory objectives of ensuring the safety and soundness of RFIs and promoting the stability of the financial system are effectively achieved.

## F. Implementation Date and Transitional Arrangements

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13. The effective implementation date of these guidelines shall be **1st January 2026.**

14. RFIs are therefore expected to align their governance arrangements, risk management frameworks, internal policies and processes with the provisions of these Guidelines by **31st December 2025**.

15. RFIs shall conduct impact assessments prior to the implementation date and submit the underlisted to the BOG by **30th September 2025**:

    a) results of the assessement including the impact on regulatory and internal capital requirements;
    b) Board approved framework for managing credit concentration risk; and
    c) methodology for estimation of pillar II capital including the approach to measurement and monitoring credit concentration risk, in the case of banks.

## PART II –OVERVIEW

### A. Overview of Credit Concentration Risk

16. Credit concentration risk arises due to direct exposures to obligors and may also occur through exposures to protection providers such as guarantors and issuers of collaterals for credit exposures. Such concentrations are not addressed under Pillar I of the Basel Capital Framework and specifically in the assessment of minimum regulatory capital requirement for credit risk[1].

17. All potential sources of credit concentration risk for RFIs in Ghana should be addressed by RFIs including those arising from single name concentration, sectoral concentration, geographical concentration, and concentration due to Credit Risk Mitigation (CRM) activities.

18. Credit concentration risk can also arise from credit contagion[2]. Assessing credit contagion risk in the context of RFIs' actual credit portfolios can however be very challenging as the required information on bilateral business links is usually not captured by RFIs within their credit management systems.

19. Going forward, RFIs should gather information on bilateral business links to enable them timely identify and effectlively manage credit concentration risk that could arise due to credit contagion within their portfolios.

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[1] The Pillar I Risk Weighted Asset (RWA) for credit risk does not capture risk due to single name or sectoral concentration.
[2] These links may lead to default contagion or in the probability of default (PD) of an obligor conditional on another obligor defaulting being higher than the unconditional PD for the same obligor.

## PART III – MANAGEMENT OF CREDIT CONCENTRATION RISK

### A. Governance of Credit Concentration Risk

20. The RFI's Board is expected to:
    a) establish a comprehensive documented framework to effectively identify, measure, manage, monitor, report and control all forms of concentration risks;

    b) ensure that the framework includes policies, processes, procedures, risk appetite (including internal limits) and management information systems which shall be reviewed annually and in the event of major changes in business strategy or operational environment;

    c) regularly review reports on the analysis of the RFI's concentration risk and its potential impact on earnings, solvency and liquidity as part of its oversight function;

    d) put in place processes for ensuring that senior management reports on the limitations and underlying assumptions of the framework; and

    e) review methodologies for the measurement of credit concentration risk when evaluating the adequacy of estimated Pillar II capital add-on for credit concentration risk, in the case of banks.

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21. Senior management is expected to:
    a) implement Board approved framework on management of concentration risk;

    b) develop methodologies for measurement of credit concentration risk when evaluating the adequacy of estimated Pillar II capital add-on for credit concentration risk in the case of banks; and

    c) conduct periodic stress tests of their credit concentration risk to identify and respond to potential changes in market conditions that could adversely impact the RFI's performance.[3] The results should

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[3] This is particularly important as concentration within an RFI's credit portfolio can increase vulnerability to adverse macro-economic and other shocks.

be reported to the Board.

## B. Identification of Credit Concentration Risk

22. RFIs are expected to develop frameworks for addressing credit concentration risk as part of their Risk Management Framework[4]. The framework should, among others, capture the concentration risk appetite, which should be informed by the RFI's risk-taking capacity.

23. The RFIs' framework for managing credit concentration risk should establish specific policies and processes that provide a comprehensive enterprise-wide view of significant sources of credit concentration including those arising from:

    a) Single counterparties and groups of connected counterparties, i.e., direct and indirect exposures[5];

    b) Counterparties in the same industry, economic sector or geographical location;

    c) Counterparties whose financial performance is dependent on the same activity, commodity, customer, supplier or product as well as off-balance sheet exposures including guarantees and other commitments; and

    d) Exposures to particular asset classes, products, collateral, investment instruments or currencies.

    e) Exposures to borrowers, asset classes, investment instruments, economic sectors, collaterals, geographical locations or industrial sectors that are most vulnerable to climate-related physical and transition risks[6].

24. The credit concentration risk framework should employ appropriate methodologies and tools for the identification of overall credit risk exposure with regard to a particular customer, product, industry or geographic location. These should adequately capture the nature of the inter-dependencies between exposures to facilitate their accurate

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[4] Defined in the BOG's Risk Management Directive, 2021

[5] This indirect exposures such as through exposure to collateral or to credit protection provided by a single counterparty

[6] See the BOG's Directive on Climate-Related Financial Risks in Ghana

classification into industrial sectors and geographical location.

25. The RFIs' exposure classification system should result in exposures being categorised into "sectors" in a way that maximizes the similarities within a group (intra-sector concentration) and minimizes the correlation across sectors (inter-sector correlations)[7].

26. RFIs should use stress testing as one of the tools for identifying credit concentration risk and interdependencies between exposures. This is to allow for identification of interdependencies between exposures which may become apparent only under stressed market conditions. The stress testing exercise for this purpose should be performed at different levels of granularity including at an enterprise-wide, business line and entity levels[8].

27. The RFIs' management information systems and processes should be adequate to support accurate and timely identification of credit concentration risks arising from different exposures.

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**C. Measurement of Credit Concentration Risk**

28. RFIs should establish a framework for the measurement of credit concentration risk which should facilitate quantification of the impact of credit concentration risk on financial soundness indicators (such as earnings, solvency, liquidity, asset quality) and assessment of ongoing compliance with regulatory requirements[9].

29. Single-name concentration risk should, where applicable, be assessed at the obligor level or connection level rather than at the exposure or facility level. This is to ensure that the level of single name concentration risk is not underestimated.

30. An RFI's measurement methodology for credit concentration risk should be robust, comprehensive and:

    a) take into account the size of its credit portfolio, complexity of its business, and its operating environment;

    b) include definition of industrial sectors to facilitate appropriate

[7] Sectoral classification of exposure should result in high asset correlation within a sector and low correlation between different sectors.
[8] See the BOG's Guidelines on Stress Testing for Banks in Ghana
[9] This include the minimum regulatory capital requirements and large exposure limits etc

classification and segmentation of exposures; and

c) capture individual risk factors and inter-dependencies between exposures.

31. The measurement framework should also take into consideration:

a) Exposure to counterparties which are heavily exposed to transition risk due to changes in Government policy[10], consumer/investor sentiments or technology.

b) Counterparties or collaterals located in geographical regions which are particularly prone to physical risk events such as floods, landslides, droughts etc; and

c) Severe climate change related events which could affect several sectors of the economy at the same time.

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32. The Internal Audit Function (IAF) should regularly review appropriateness of the RFI's approach to aggregation of connected counterparties, and classification of exposures to industrial/economic sectors and geographic locations.

**D. Credit Concentration Risk Limit Structure**

33. RFIs should have in place Board approved limit structure for credit concentration risk, documented and should reflect its risk appetite, risk profile and capital strength (risk tolerance).

34. The limit structure should capture all positions including on- and off-balance sheet exposures, and the limits should be set at a level to constrain risk taking[11]. Further, the limit structure should be appropriately granular and understood by, and regularly communicated to, all the relevant staff across the RFI.

35. The specific limits should, amongst others, be defined in relation to an RFI's capital, total assets or, where adequate measures exist, its overall risk level.

[10] for example, changes in Government policies, regulations or laws to promote transition to low carbon economy; impacting firms in economic sectors with a larger carbon footprint or those operating in carbon or energy-intensive sectors;

[11] RFIs should be guided by the BOG's Directive on Large Exposures.

36. The Internal Audit Function (IAF) should regularly review the robustness of the MIS used to aggregate, consolidate and manage credit exposures.

## E. Mitigation of Credit Concentration Risk

37. RFIs should adopt useful strategies for mitigating credit concentration risk such as reducing risk over a reasonable time horizon.

38. RFIs' mitigation measures against credit concentration risk may include:

a) implementation of high quality risk management processes and other internal controls;

b) enhancing the ability of the RFI to take effective and timely management action aimed at adjusting the level of credit concentration risk[12]; and

c) diversifying and expanding the credit portfolio to include exposures, obligors, industrial/economic sectors and geographical locations that are not likely to perform in a similar manner with those in the existing portfolio.

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## F. Reporting of Credit Concentraton Risk

39. RFIs should have robust MIS and processes to facilitate timely identification, aggregation and reporting of credit concentration risk to senior management and the Board on a regular basis.

40. RFIs should deploy appropriate MIS for measuring, monitoring and reporting credit concentration levels relative to approved limits as well as ensure timely identification and escalation of limit breaches.

41. Procedures for reviewing, monitoring and reporting of credit concentration risk should be efficient and comprehensive to facilitate well-informed decision making by senior management and the Board.

42. Credit concentration risk reports should include, among others:

a) relevant qualitative and quantitative information , where applicable,

[12] This may include ensuring that the level of exposure to credit concentration risk is is aligned with the board approved risk appetite and regulatory requirements.

both consolidated and on solo levels;

b) risk drivers of the RFI’s credit portfolio and details of risk mitigating actions taken;

c) limit structure and utilisation, and details of any limit breaches; and

d) details of any significiant credit risk issues and developments that could impact the RFI’s credit portfolio.

43. RFIs should have in place mechanism for ensuring regular review of MIS data and reports to ensure the adequacy of the quality, scope, and timeliness.

## G. Credit Concentration Risk within The ICAAP (ONLY APPLICABLE TO BANKS)

44. RFIs should, where applicable, consider credit concentration risk within their Internal Capital Adequacy Assessment Process (ICAAP) including assessment of the amount of Pillar II capital that the RFI requires for credit concentration risk[13].

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45. Banks should explicitly consider credit concentration risk in their internal assessment of capital adequacy under Pillar II, where material, and should take into consideration the limitations and assumptions of the measurement methodologies in determining the appropriate level of Pillar II capital add-on.

46. RFIs should, where applicable, develop and implement robust processes and methodologies for the assessment of capital requirements for credit concentration risk.

47. RFIs should, where applicable, be able to demonstrate to the BOG the:

a) appropriateness of their approach to mapping of the estimated credit concentration risk metrics, into the Pillar II capital requirements for credit concentration risk based on, amongst others: own historical credit loss experience, and/or relevant industry benchmarks; and

[13] The Pillar II capital should take into account the RFI’s exposure to credit concentration risk and the adequacy of the relevant risk management processes, and should be adequate to cover any unexpected losses.

b) adequacy of their estimated Pillar II capital given the level of credit concentration risk within its credit portfolios and their risk management capacity.

48. The metrics used by RFIs to assess their credit concentration risks may include: Herfindahl-Hirschman Index (HHI), Gini Coeffient, Concentration Ratios and other portfolio concentration indicators. Example of concentration ratio include top 5, 10, 20, 25, 50, 75 exposures to total of the 100 largest credit exposures or the overall credit portfolio.

49. RFIs may, where practical, consider using the outputs of their internal credit rating systems and credit models including own estimates of credit risk parameters such as through-the-cycle (TTC) Probabilities of Default (PDs), downturn (DT) Loss Given Defaults (LGDs), Exposure at Default (EAD) and correlation factors for the estimation of economic (Pillar II) capital for credit concentration risk based on multifactor economic capital models[14].

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50. Model-free (heuristic) approaches or model-based approaches should form the basis for the estimation of Pillar II capital for credit concentration risks, and for addressing the known limitations of the current Pillar I approach to estimation of credit Risk Weighted Assets (RWAs).

51. The choice between model-free (heuristic) and model-based approaches for estimation of Pillar II capital for credit concentration risk by RFIs should be informed by, amongst others:

a) individual RFI's quantitative modelling and overall risk management capabilities;

b) availability of accurate and reliable data for generation of credit risk parameters (PDs and LGDs);

c) the quality of RFI's internally generated PDs and LGDs based on, amongst others, the findings from independent validation and backtesting exercises; and

d) BOG's supervisory view on the quality of the RFI's risk measurement

[14] Credit risk parameters that have been generated for estimating Expected Credit Loss (ECL) under IFRS 9 would need to be appropriately "adjusted" to ensure compliance with the Basel requirement for credit risk parameters under Internal Rating Based Approach (IRBA).

methodologies and framework for management of model risk.

52. Where an RFI opts to use its internal estimates of credit risk parameters for Pillar II purpose, it should be able to fully demonstrate to BOG the appropriateness of such parameters. Specifically, it should be able to demonstrate that:

    a) such parameters have been subjected to rigorous internal validation, including back testing;

    b) the underlying credit rating systems continue to perform well in terms of their ability to differentiate risk across obligors and to predict the risk of default at portfolio and rating grade level;

    c) the underlying assumptions are appropriate given the RFI's credit portfolio and relevant historical experience; and

    d) the appropriate models and rating systems have been appropriately deployed within the RFI's internal system and the data feeding into such models and systems are accurate and updated on a regular basis.

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53. Where an RFI opts to apply approaches that do not require the use of internal credit risk parameters in the quantification of its Pillar II capital requirements for credit concentration risk, i.e., model-free or heuristics methods such as HHI and Gini Coefficient, then it shall be required to demonstrate to the BOG that the selected approaches are:

    a) appropriate given its size and portfolio structure, and captures the risk profile of its exposures;

    b) consistently applied across all the RFI's exposures and portfolios; and

    c) adequately conservative and does not result in underestimation of Pillar II capital requirement.

54. The BOG expects that the adequacy of the estimated Pillar II capital requirements for credit concentration risk from model-free or heuristic methods should be validated (challenged) using appropriate industry benchmarks that takes into account the characteristics of the RFI's own credit portfolio and the structure of the local economy.

**PART IV – SUPERVISORY REVIEW AND INTERVENTION**

55. As part of the Supervisory Review Process (SRP) and in line with the Risk-Based Approach to Supervision (RBS), the BOG will assess the level of RFIs'credit concentration risk and the quality of its management and the extent to which RFIs consider them in their internal assessment of capital adequacy under Pillar II.

56. The supervisory assessment will include, among others, the assessment of:

   a) Risk management framework and particularly whether the framework adequately captures credit concentration risk and is well-embedded in the day-to-day management of the RFI;

   b) Risk and business profile of the RFI including exposure to credit concentration risk;

   c) Business model and strategy including structure of the balance sheet and the credit portfolio; and

   d) Other quantitative, qualitative and organisational aspects of the RFI's credit concentration risk management.

   e) Policies, processes, personnel and control systems put in place to manage concentration risk.

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57. Appropriate supervisory action will, where necessary, be taken if the supervisory assessment of the RFI's credit concentration risk management processes and procedures identifies material deficiencies. These may include, among others, requiring the RFI to:

   a) reduce the level of credit concentration through, for example, diversification of exposures across sectors, asset classes or counterparties where the RFI has the necessary local expertise and experience so as to minimize potential credit losses;

   b) hold additional capital under Pillar II of the Basel framework to cover its credit concentration risk, where the BOG determines that an RFI's estimate of Pillar II capital is not adequate to cover its credit concentration risk;

   c) enhance the management of credit concencentration risk; and/or

d) take other management actions to mitigate against credit concentration risk or enhance the resilience of the RFI to external macroeconomic shocks including those likely to impact on specific sectors or geographical locations.

58. In assessing the adequacy of an RFI's own estimates of Pillar II capital for credit concentration risk, the BOG will consider:

a) Quality of RFI's credit portfolio;

b) Interdependencies (correlation) between the sectors and counterparties that the RFI is exposed to;

c) Quality of RFI's policies and processes for the management of credit concentration risk;

d) Quality of the data used by the RFI to quantify their credit concentration risk;

e) Where applicable, robustness of the quantitative model for estimation of Pillar II capital, and reasonableness of any underlying assumptions;

f) Adequacy of the Credit Risk Mitigation techniques used by the RFI; and

g) the robustness of approach to mapping of RFI's credit concentration metrics such as HHI or Gini coefficient to a Pillar II capital figure (add-on).

59. The BOG will also assess the RFI's stress testing framework and the results of stress tests to ascertain if it appropriately captures credit concentration risk and the extent to which the RFI's stress testing framework adheres to supervisory expectations outlined in the BOG's Guidelines on stress testing.

60. RFIs may be required to hold additional Pillar II capital in excess of the minimum level in cases where RFIs are not able to demonstrate to the BOG, the appropriateness and adequacy of their internal processes for the management of credit concentration risk.

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