BANK OF GHANA

Guidelines on Management and Measurement of Credit Concentration Risk

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

Prepared by the Bank of Ghana

September 2025

Preamble

I. The capital requirement for credit risk envisaged by the Basel Committee on Banking Supervision's (BCBS) Capital Framework (the "Basel Capital Framework") under Pillar I is based on the assumption that the credit portfolios of Regulated Financial Institutions (RFIs) consist 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.

II. Concentration in credit portfolio is one of the most significant sources 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, a single asset class, and linkages between asset classes.

III. The Bank of Ghana (BOG) has established minimum capital requirements, under Pillar I of the Basel Capital Framework, that do not fully address credit concentration risk. In light of this, credit concentration risk should be addressed under Pillar II of the Basel Capital Framework.

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

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

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

V. The BOG may impose additional capital requirements 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, the BOG may require an RFI to maintain additional capital that the BOG considers adequate to address the concentration of risks within the RFI or the financial system.

VI. 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. Where these other sources of concentration risks are identified as material, RFIs should ensure that:

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

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

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PART I – PRELIMINARY

A. Title

1. These Guidelines shall be cited as the Bank of Ghana Guidelines on the Management and Measurement of Credit Concentration Risk, 2025.

B. Application

2. 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.

3. These Guidelines shall be read in conjunction with the Bank of Ghana Risk Management Directive, 2021, and other relevant BOG directives.

C. Definitions and Interpretation

4. 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).*

"Board" *means the board of directors of an RFI.*

"BOG" *means Bank of Ghana.*

"Business Model" *means an entity's system of transforming inputs through its activities into outputs and outcomes that aim 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.*

"CRM" *means credit risk mitigation, which refers to techniques used by RFIs to reduce the credit risk associated with an exposure by using collateral, guarantees, or netting arrangements.*

"Concentration Risk" *means any exposure to an individual client or group of connected clients or counterparties with the potential to produce losses large enough to threaten an RFI's health or ability to maintain its core services or functions.*

“Concentration due to Credit Risk Mitigation (CRM) activities” *means indirect credit exposures arising from an RFI’s CRM activities, e.g., exposure to a single collateral type or to credit protection provided by a single counterparty.*

“Credit Contagion” *means 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” *means 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” *means 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 geographic region.*

“Herfindahl–Hirschman Index (HHI)” *means a measure of concentration, calculated as the sum of squares of individual exposures as a percentage of total exposures. A well-diversified portfolio has 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.*

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

“Model-based Approach” *involves the use of multi-factor models (analytical methods or Monte Carlo Simulation) for estimation of Pillar II capital add-ons for Sectoral Concentration Risk and Granularity Adjustment (GA) for the Asymptotic Single Risk Factor (ASRF) Model to estimate Pillar II capital add-ons 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.*

“Risk Appetite” *means the aggregate level and types of risk an RFI is willing to assume, decided in advance and within its risk capacity, to achieve its strategic objectives and plan.*

"Sectoral Concentration" *means a 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.*

"Senior Management" *means members of the Executive Management Committee (EXCO) of a Regulated Financial Institution and any other Key Management Personnel as may be determined by the Regulated Financial Institution.*

"Single-name Concentration" *means 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).*

D. Objectives

5. These Guidelines seek to ensure that RFIs:
   a) understand and mitigate the impact 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; and

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

E. Proportionality

6. RFIs should align their practices with the requirements of these Guidelines. However, in assessing the quality of RFIs' management of credit concentration risks, 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 their nature, risk profile, systemic importance and business model, as well as the scale and complexity of their activities; and

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

F. Implementation Date and Transitional Arrangements

7. These Guidelines shall be effective from **1st January 2027.**

8. RFIs should therefore align their governance arrangements, Risk Management frameworks, internal policies and processes with the provisions of these Guidelines by **31st December 2026**.

9. RFIs shall conduct impact assessments prior to the implementation date and submit the underlisted to the BOG by **31st July 2026**:

a) Results of the assessment, including the impact on regulatory and internal capital requirements;

b) Board-approved framework for managing credit concentration risk; and

c) In the case of banks, a methodology for the estimation of Pillar II capital, including the approach to measuring and monitoring credit concentration risk.

PART II –OVERVIEW

A. Overview of Credit Concentration Risk

10. 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 collateral for credit exposures. Such concentrations are not addressed under Pillar I of the Basel Capital Framework, specifically in the assessment of the minimum regulatory capital requirement for credit risk[1].

11. All potential sources of credit concentration risk for RFIs 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.

12. 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.

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

[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

14. The RFI's Board should:

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 (MIS), 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) establish processes to ensure that Senior Management reports on the limitations and underlying assumptions of the framework; and

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

15. Senior Management should:

a) implement the Board-approved framework on the management of concentration risks;

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

c) develop methodologies for measuring credit concentration risks when evaluating the adequacy of estimated Pillar II capital add-ons for credit concentration risks, in the case of banks.

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

B. Identification of Credit Concentration Risk

16. RFIs should 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.

17. 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[6];

    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;

    d) exposures to particular asset classes, products, collateral, investment instruments or currencies; and

    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[7].

18. The credit concentration risk framework should employ appropriate methodologies and tools for identifying overall credit risk exposure associated with a particular customer, product, industry or geographical location. These methodologies and tools should adequately capture the nature of the inter-dependencies between exposures to facilitate

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[4] Risk Management Framework as 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] RFIs may consider, where practicable, classifying their exposures based on internationally acceptable standards, which should be mapped to BOG's sectoral classification for regulatory reporting purposes.
[7] See the BOG's Directive on Climate-Related Financial Risks.

accurate classification into industrial sectors and geographical location.

19. The RFIs' exposure classification system should result in exposures being categorised into "sectors" in a way that maximises the similarities within a group (intra-sector concentration) and minimises the correlation across sectors (inter-sector correlations)[8].

20. RFIs should use stress testing as one of the tools for identifying credit concentration risk and interdependencies between exposures. This is to allow for the 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[9].

21. The RFIs' MIS and processes should be adequate to support accurate and timely identification and reporting of concentration risks arising from different exposures.

C. Measurement of Credit Concentration Risk

22. 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, and asset quality) and assessment of ongoing compliance with regulatory requirements[10].

23. Single-name concentration risk should 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.

24. 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

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

business, and its operating environment;

b) include a definition of industrial sectors to facilitate appropriate classification and segmentation of exposures; and

c) capture individual risk factors and interdependencies between exposures.

25. 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 [11] consumer and investor sentiments, as well as technology;

b) counterparties or collaterals located in geographical regions which are 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.

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

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

D. Credit Concentration Risk Limit Structure

28. RFIs should have in place a documented Board-approved limit structure for credit concentration risk, which should reflect its risk appetite, risk profile and capital strength.

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

29. 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[12]. Further, the limit structure should be appropriately granular and understood by, and regularly communicated to, all the relevant staff across the RFI.

30. 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.

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

E. Mitigation of Credit Concentration Risk

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

33. RFIs' mitigation measures against credit concentration risk should include:

    a) implementing effective Risk Management processes and 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[13]; and

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

F. Reporting of Credit Concentration Risk

34. 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.

35. RFIs should deploy appropriate MIS for measuring, monitoring and reporting credit concentration levels relative to approved limits as well as

[12] RFIs should be guided by the BOG's Directive on Large Exposures.
[13] This may include ensuring that the level of exposure to credit concentration risk is aligned with the board approved risk appetite and regulatory requirements.

ensure timely identification and escalation of limit breaches.

36. 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.

37. Credit concentration risk reports should include:

a) relevant qualitative and quantitative information, where applicable, both consolidated and on a solo basis;

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 significant credit risk issues and developments that could impact the RFI's credit portfolio.

38. RFIs should have in place a 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[14]

39. Banks should consider credit concentration risk within their ICAAP, including assessment of Pillar II capital that the bank requires for credit concentration risk[15].

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

41. Banks should develop and implement robust processes and methodologies for the assessment of capital requirements for credit concentration risk.

[14] This section is only applicable to banks.

[15] The Pillar II capital should take into account the bank's exposure to credit concentration risk and the adequacy of the relevant Risk Management processes and should be adequate to cover any unexpected losses.

42. Banks 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

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

43. Banks 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 Probabilities of Default (PDs), downturn Loss Given Defaults (LGDs), Exposure at Default (EAD) and correlation factors for the estimation of Pillar II capital for credit concentration risk based on multifactor economic capital models[16].

44. 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).

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

a) individual bank's quantitative modelling and overall Risk Management capabilities;

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

c) the quality of the bank's internally generated PDs and LGDs based on the findings from independent validation and back-testing exercises; and

d) BOG's supervisory view on the quality of the bank's risk measurement methodologies and framework for management of model risk.

[16] 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).

46. Where a bank opts to use its internal estimates of credit risk parameters for the purpose of quantifying Pillar II capital for credit concentration risk, the bank should be able to fully demonstrate to BOG the appropriateness of such parameters. Specifically, it should be able to demonstrate that:

a) the parameters have undergone 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 bank's credit portfolio and relevant historical experience; and

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

47. Where a bank opts to apply approaches that do not rely on internal credit risk parameters for quantifying its Pillar II capital requirements for credit concentration risk, i.e., model-free or heuristics methods such as HHI or 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 bank's exposures and portfolios; and

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

48. The BOG expects that, where model-free (heuristic) methods are used, the adequacy of the estimated Pillar II capital requirements for credit concentration risk should be validated using appropriate industry benchmarks that take into account the characteristics of the bank's own credit portfolio and the structure of the local economy.

PART IV – SUPERVISORY REVIEW AND INTERVENTION

49. 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, where applicable, the extent to which RFIs consider them in their internal assessment of capital adequacy under Pillar II.

50. The supervisory review will include the assessment of:

    a) Risk Management Framework, particularly whether the credit concentration risk is adequately captured;

    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 credit portfolio as well as profitability;

    d) Policies, processes, personnel and control systems for managing concentration risk; and

    e) Other quantitative, qualitative and organisational aspects of the RFI's credit concentration Risk Management.

51. Should the supervisory assessment of the RFI's credit concentration Risk Management processes and procedures identify any material deficiency, the BOG shall take appropriate supervisory action, such as 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 to minimise potential credit losses;

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

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

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

52. In assessing the adequacy of a bank's own estimates of Pillar II capital for credit concentration risk, the BOG will consider:

a) the quality of the bank's credit portfolio;

b) interdependencies (correlation) between the sectors and counterparties that the bank is exposed to;

c) quality of the bank's policies and processes for the management of credit concentration risk;

d) quality of the data used by the bank to quantify its credit concentration risk;

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

f) adequacy of the Credit Risk Mitigation techniques used by the bank; and

g) where applicable, the robustness of the approach to mapping of the bank's credit concentration metrics, such as HHI or Gini coefficient, to a Pillar II capital add-on.

53. Banks may be required to hold additional Pillar II capital in excess of the minimum level, where they are unable to demonstrate to the BOG the appropriateness of their internal processes for managing credit concentration risk.

54. 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.