BANK OF GHANA

Capital Requirements Directive

Prepared by the Bank of Ghana

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CAPITAL REQUIREMENTS DIRECTIVE

Abbreviations

AT1	Additional Tier 1 Capital
BOG	The Bank of Ghana
The BSDI Act	*Banks and Specialised Deposit-taking Institutions Act 2016* (Act 930)
CAR	Capital Adequacy Ratio
CCB2	Countercyclical Buffer
CCF	Credit conversion factor
CCR	Counterparty credit risk
CEM	Current exposure method
CET1	Common Equity Tier 1 Capital
CMP	Capital Management Plan
CRM	Credit risk mitigation
CRD	Capital Requirements Directive or 'the Directive'
D-SIBs	Domestic-Systemically Important Banks
CCB1	Capital Conservation Buffer
DTA / DTL	Deferred tax assets / Deferred tax liability
DvP / PvP	Delivery-versus-payment / Payment-versus-payment
ECA	Export credit agency
ECAI	External credit assessment institution (Rating Agency)
ICAAP	Internal Capital Adequacy Assessment Process
IFRS	International Financial Reporting Standards
LCR	Liquidity Coverage Ratio
MDB	Multilateral development bank
MRCC	Market Risk Capital Charge
MtM	Mark-to-market
MV	Market value
ORCC	Operational Risk Capital Charge
PFCE	Potential Future Credit Exposure
PSE	Public sector entity
RMF	Risk Management Framework
RW	Risk weight
RWA	Risk weighted assets
SFT	Securities financing transaction
SM	Standard method
SME	Small- and medium-sized entity
SPV	Special purpose vehicle
T2	Tier 2 Capital
TCR	Total Capital Ratio

INTRODUCTION

Authority

1. The Capital Requirements Directive (CRD or 'the Directive') is issued under Section 92(1) of the *Banks and Specialised Deposit-taking Institutions Act 2016* (Act 930) ('the BSDI Act') and Section 4(d) of the *Bank of Ghana Act 2002* (Act 612).

Scope of Application

2. This framework shall apply to banks licensed and operating under the BSDI Act. Section 29(1) of the BSDI Act mandates the Bank of Ghana (BOG) to prescribe a risk-based capital adequacy requirement, which will be measured as a percentage of the capital of the bank to the risks of its assets. The risk based capital adequacy ratio (CAR') shall be calculated on a standalone and a consolidated basis.

Effective date

3. The Directive shall be implemented from 1 July 2018. The effective date by which banks are to comply with the CRD shall be 1 January 2019.

Structure

4. The CRD consists of four parts:

   Part 1 – Definition of Regulatory Capital;

   Part 2 – Management and Measurement of Credit Risk with three sub-sections;

   Part 3 – Management and Measurement of Operational Risk; and

   Part 4 – Management and Measurement of Market Risk.

Introduction

5. The CRD sets the requirement by which banks will calculate the CAR under the BSDI Act. The requirements herein require banks to hold appropriate capital commensurate for unexpected losses that may arise from business through capital transactions, credit, operational and market risks.

6. The Board of a bank is responsible under the requirements of the CRD to determine both the:

   a. availability of eligible capital; and

   b. measurement of risks to capital in the Basel II framework,

   in line with minimum risk management standards for the risks herein.

7. The CRD recognises for capital adequacy purposes that sound risk measurement is best achieved where the Board of a bank has established a transparent and robust environment where business risks are well managed. For this reason, each section in the CRD identifies high level principles that a Board must demonstrate in its risk culture and its management of the bank.

8. BOG has power to increase the CAR for any bank not operating to minimum risk standards under Section 29(3) of the BSDI Act.

9. Any bank operating outside the minimum standards in regard to its risk based capital requirement, eligible regulatory capital, risk exposures or operating practices, must notify BOG and take immediate action to rectify and strengthen its business within a set time acceptable to BOG and/or be subjected to penalty under Section 33(1) of the BSDI Act.

Principles for Risk Management

10. Capital is the cornerstone of a bank's financial strength and its ability to absorb unexpected losses. A bank must protect its capital by establishing and operating to minimum risk management standards.

11. The Board of a bank is the author and driver of the bank's corporate culture including its risks management practices. A bank must demonstrate to BOG how its organisational behaviours and outcomes achieve minimum requirements to protect its capital.

12. The Board must establish a risk management strategy that defines the risk culture and governs a robust process to identify and manage all risks in the business (and the wider group where relevant) - generally referred to as a risk management framework. The term 'framework' is the comprehensive management approach to a specified business risk which achieves a minimum of the following:

    a. defines the business activity/appetite in quantitative and qualitative terms;

    b. explains the risk management methodology, all associated governance and functional responsibilities in respect of people, systems, policies and operational procedures; and

    c. dictates and ensures accountability for risks through organisational structures, monitoring and reporting of risks and activities.

13. The Board should define all material risks in the business, and manage the risks through risk management frameworks designed for those risks and the type of business. The CRD provides explicit direction on a selection of core risks to a bank which warrant their own management frameworks.

14. Risk management frameworks must be embedded in the business units and be used with good evidence of success in managing risk and enhancing their risk practices. Accepted best practice is generally a 'three lines of defence' model that ensures:

a. active and competent risk ownership by the business, including the risk management framework (first line);

b. effective oversight and challenge of the risk positions and of the framework by risk management (second line); and

c. an independent, tertiary line of review capable of strengthening lines 1 and 2, and of the overall functionality of the risk management framework (third line).

In respect of the ‘three lines of defence’ the risk management framework must state explicitly their independence and their reporting responsibilities to any of the Board, Executive(s) and/or Executive Management Committees. Individual leadership, competence and independence of all Senior Management are critical qualities the Board has a duty to establish and to demonstrate to BOG.

The function of BOG in its supervision, or similarly of any Government authority, is not part of the ‘three lines of defence’ model for any bank, nor is it accepted as a ‘fourth line of defence’.

PART 1 DEFINITION OF REGULATORY CAPITAL

15. This part provides the principles for capital management and the constituents of capital eligible in determining the risk based capital ratios.

16. This risk based capital requirement applies on a standalone licensed entity basis for banks, and a consolidated basis to all subsidiaries of the licensed entity as per Section 31 of the BSDI Act.

17. A bank must ensure any component of capital it considers eligible as regulatory capital satisfies, in both form and substance, all applicable requirements prescribed for the capital tier to which it is to be included. A bank must notify BOG before issuing a new capital instrument and receive written approval before relying on the instrument as part of regulatory capital.

18. A bank must submit to BOG all supporting documents including a self-assessment against the criteria for relevant tier of regulatory capital in this section.

19. Any variation in the terms and conditions of an instrument deemed eligible regulatory capital requires the written approval of BOG before any change takes place.

20. BOG may, in writing, require a bank to:

    a. exclude from its regulatory capital any component of capital that in the opinion of BOG does not represent a genuine contribution to the financial strength of the bank; or

    b. reallocate to a lower category of capital any component of capital that in the opinion of BOG does not fully satisfy the requirements for the category of capital to which it was originally allocated.

21. Unrealized gain or losses on financial instruments recognised through accumulated other comprehensive income will not contribute to eligible regulatory capital. For other prudential and/or reporting purposes a bank may measure its financial instruments at fair value (both banking book and trading book) provided:

    a. the requirements of International Financial Reporting Standards (IFRS) relating to the use of fair values are satisfied;

    b. its use of fair values and associated valuations are reasonable and reliable; and

    c. the bank has risk management systems and related risk management policies, procedures and controls covering use of fair values.

22. All regulatory adjustments to capital are required to be made to the standalone and consolidated regulatory capital of the bank or financial holding company as indicated. Any item deducted from total capital is not included in Total Assets when calculating a bank's total on-balance sheet risk-weighted assets.

23. In the context of group relationships, a related entity can include a parent company, a sister company, a subsidiary or any other affiliate. A holding company is a related entity irrespective of whether it forms part of the consolidated banking group.

Principles for Capital Management

24. The Board is the author and driver of the bank's corporate culture and must ensure, at all times, the bank has sufficient capital above the minimum risk based capital requirement as specified by BOG.

25. A Board must to establish a capital management framework and to provide oversight of capital for the bank consistent with the Board approved strategy and risk appetite generally.

26. A Capital Management Framework should cover all relevant activities and controls relating to:

    a. Board's strategy, appetite and regular oversight of regulatory capital as defined in the CRD;

    b. Functional roles and responsibilities for capital management in the organisation and business lines, risk ownership, delineation of duties, the capital management process and escalation;

    c. Integration and alignment of the Capital Management Plan (CMP) with the annual strategic and risk planning process and outcomes;

    d. Development and integration of the Internal Capital Adequacy Assessment Process (ICAAP) with the strategy and risk management plan /outcomes; and

    e. Consistent and reliable use of fair values in reporting – the principles and qualitative criteria, operational procedures and systems.

27. The Board must develop and approve annually a CMP that sets the appetite for capital and aligns current and future risk based capital with the budget and strategic plan. The CMP will pre-position steps the bank could take should capital ratios fall to trigger levels reflected in the Board's appetite.

28. The CMP will include three-year rolling projections of capital necessary to support the bank's strategic growth objectives. Banks should accordingly submit annually to BOG a 3-year rolling CMP which should be periodically updated as and when circumstances require it.

Definition and Composition of Capital

29. The definition and constituents of regulatory capital consists of 'tiers' as follows:

    a. Tier 1 Capital or 'going-concern capital' - capital that supports the bank's operations and can absorb losses as required:

        i. Common Equity Tier 1 ('CET1')

        ii. Additional Tier 1 ('AT1')

b. Tier 2 Capital or 'gone-concern capital' – capital to absorb losses or convert to equity if a bank is wound up.

30. Each tier of capital has qualifying criteria which a capital instrument issued by the bank must satisfy to be included as regulatory capital for that tier. The criteria are outlined in paragraph 33 for CET1, paragraph 42 for AT1 and paragraph 44 for Tier 2. The components of capital are characterised by the extent to which they can absorb losses.

31. Banks must submit to BOG copies of documentation associated with the issue of Additional Tier 1 and Tier 2 capital instruments supported by a self-assessment directly referencing how the terms and conditions satisfy the criteria herein.

Common Equity Tier 1 Capital

32. CET1 capital consists of the following elements:

a. Ordinary (common) shares issued by the bank that meet the criteria for classification as ordinary shares for regulatory purposes defined below;

b. Income Surplus (Retained Earnings);

c. Statutory Reserves;

d. Ordinary (common) shares issued by consolidated subsidiaries of the bank and held by third parties (i.e. minority interest) that meet the criteria for inclusion in CET1 capital; and

e. Regulatory adjustments to CET1.

33. The criteria for the eligibility of ordinary shares as regulatory capital are:

a. All ordinary shares should ideally be voting shares. However, in rare cases, where banks need to issue non-voting ordinary shares as part of CET1 capital, they must be identical to voting ordinary shares of the issuing bank in all respects except the absence of voting rights.

b. Represents the most subordinated claim in liquidation of the bank.

c. Entitled to a claim on the residual assets that is proportional with its share of issued capital, after all senior claims have been repaid in liquidation (i.e. has an unlimited and variable claim, not a fixed or capped claim).

d. Principal is perpetual and never repaid outside of liquidation (except discretionary repurchases or other means of effectively reducing capital in a discretionary manner that is allowable under relevant law as well as guidelines or directives if any issued by BOG).

e. The bank does nothing to create an expectation at issuance that the instrument will be bought back, redeemed or cancelled nor do the statutory or contractual terms provide any feature which might give rise to such an expectation.

f. Distributions are paid out of distributable items (income surplus included). The level of distributions is not in any way tied or linked to the amount paid in at issuance and is not subject to a contractual cap (except to the extent that a bank is unable to pay distributions that exceed the level of distributable items). A dividend on ordinary shares will be paid out of current year's profit only.

g. There are no circumstances under which the distributions are obligatory. Non-payment is therefore not an event of default.

h. Distributions are paid only after all legal and contractual obligations have been met and payments on more senior capital instruments have been made. This means that there are no preferential distributions, including in respect of other elements classified as the highest quality issued capital.

i. It is the issued capital that takes the first and proportionately greatest share of any losses as they occur. Within the highest quality capital, each instrument absorbs losses on a going concern basis proportionately and *pari passu* with all the others.

j. The paid-up amount is recognised as equity capital (i.e. not recognised as a liability) for determining balance sheet insolvency.

k. The paid-up amount is classified as equity under the relevant accounting standards.

l. It is directly issued and paid up and the bank cannot directly or indirectly have funded the purchase of the instrument. Banks should also not grant advances against its own shares as this would be construed as indirect funding of its own capital and would contravene Section 61 of the BSDI Act.

m. The paid-up amount is neither secured nor covered by a guarantee of the issuer or related entity (refer paragraph 23), or subject to any other arrangement that legally or economically enhances the seniority of the claim.

n. Paid up is only issued with the approval of the owners of the issuing bank, either given directly by the owners or, if permitted by applicable law, given by the Board of Directors or by other persons duly authorized by the owners.

o. Paid up is clearly and separately disclosed on the bank's balance sheet.

Income Surplus

34. This refers to profit and loss accounts at the end of the previous financial year. Banks may reckon the profits in the current financial year only after appropriate audit, verification or review procedures prescribed by BOG have been undertaken by a third party. Dividends should be deducted from CET1 in accordance with applicable accounting standards.

Minority Interest / Non-controlling Interest

35. Minority interests in consolidated groups may only be recognised as eligible regulatory capital for a given tier of regulatory capital where:

a. the subsidiary that issues instruments with minority interests is a bank or a regulated other financial institution; and

b. the instruments satisfy the criteria for the tier of regulatory capital to which it is to be included (i.e. CET1, AT1 or Tier 2).

36. Generally, the contribution to regulatory capital from minority interests includes all minority interests except for the surplus capital attributable to minority shareholders that is above minimum requirements for the subsidiary.

37. Any CET1, Additional Tier 1 or Tier 2 capital instrument issued by a consolidated subsidiary of a bank to minority shareholders may be included as that same tier of capital only if the instruments would, if issued by the bank, meet all the criteria for classification as that tier of capital.

38. The amount of capital recognised as AT1 or Tier 2 capital will exclude amounts recognised in any higher tier of capital (i.e. CET1 if AT1 instrument, and/or both of CET1 and AT1 if Tier 2 instrument).

39. The contribution of minority interest in a subsidiary that satisfies paragraph 35 is determined separately for each given tier of capital that has instruments issued to minority interests (i.e. CET1, Tier 1/AT1 or Tier 2/ Total Capital) as:

a. Total minority interest less the surplus capital (in each of CET1, AT1 or Tier 2) attributable to minority shareholders.

b. Surplus capital is the available capital for that tier (in each of CET1, Tier 1 or Total Capital) less the lower of:

i. the minimum capital requirement of the subsidiary plus the capital conservation buffer (CCB1) as a per cent of RWAs for each capital tier outlined in paragraph 76 (i.e. CET1 plus CCB1 is 9% of RWAs); and

ii. the portion of the consolidated minimum capital requirements (for either CET1, Tier 1 or Total Capital) plus CCB1 that applies to the subsidiary.

40. The amount of the surplus capital (for either CET1, Tier 1 or Total Capital) attributable to the minority shareholders is the surplus capital as a proportion of the minority shareholders' holding in that tier of capital.

Additional Tier 1 Capital

41. Additional Tier 1 capital (AT1) consists of the sum of the following elements:

a. Instruments issued by the bank that meets the criteria for inclusion in AT1 (and are not included in CET1);

b. Instruments issued by consolidated subsidiaries of the bank and held by third parties that meet the criteria for inclusion in AT1 and are not included in CET1; and

c. Regulatory adjustments applied in the calculation of AT1.

42. The criteria for eligibility and inclusion as AT1 in regulatory capital are:

a. Issued and paid-up

b. Subordinated to depositors, general creditors and subordinated debt of the bank

c. Is neither secured nor covered by a guarantee of the issuer or related entity or other arrangement that legally or economically enhances the seniority of the claim vis-à-vis bank creditors

d. Is perpetual, i.e. there is no maturity date and there are no other incentives to redeem

e. May be callable at the initiative of the issuer only after a minimum of five years:

i. To exercise a call option a bank must receive prior supervisory approval; and

ii. A bank must not do anything which creates an expectation that the call will be exercised; and

iii. A bank must not exercise a call unless:

1. The called instrument is replaced with capital of the same or better quality under conditions sustainable for the income capacity of the bank; or

2. The bank demonstrates its capital position is well above the minimum capital requirements after the call option is exercised.

f. Any repayment of principal (e.g. through repurchase or redemption) must be with prior supervisory approval and banks should not assume or create market expectations that supervisory approval will be given.

g. Dividend/coupon discretion:

i. the bank must have full discretion to cancel distributions/payments at any time;

ii. cancellation of discretionary payments must not be an event of default;

iii. the bank must have full access to cancelled payments to meet obligations as they fall due; and

iv. cancellation of distributions/payments must not impose restrictions on the bank except in relation to distributions to ordinary shareholders.

h. Dividends/coupons must be paid out of distributable items.

i. The instrument cannot have a credit sensitive dividend feature, that is a dividend/coupon that is reset periodically based in whole or in part on the banking organisation's credit standing.

j. Instruments classified as liabilities for accounting purposes must have principal loss absorption through either (i) conversion to ordinary shares at an objective pre-specified trigger point or (ii) a write-down mechanism which allocates losses to the instrument at a pre-specified trigger point. The write-down will have the following effects:

i. Reduce the claim of the instrument in liquidation;

ii. Reduce the amount re-paid when a call is exercised; and

iii. Partially or fully reduce coupon/dividend payments on the instrument.

k. Neither the bank nor a related party over which the bank exercises control or significant influence can have purchased the instrument, nor can the bank directly or indirectly have funded the purchase of the instrument.

l. The instrument cannot have any features that hinder recapitalization, such as provisions that require the issuer to compensate investors if a new instrument is issued at a lower price during a specified time frame.

m. If the instrument is not issued out of an operating entity or the holding company in the consolidated group (e.g. a special purpose vehicle (SPV)), proceeds must be immediately available without limitation to an operating entity or the holding company in the consolidated group in a form which meets or exceeds all the other criteria for inclusion in Additional Tier 1 capital.

Tier 2 capital

43. Tier 2 capital consists of the sum of the following elements:

a. Instruments issued by the bank that meet the criteria for inclusion in Tier 2 capital (and are not included in Tier 1 capital);

b. Instruments issued by consolidated subsidiaries of the bank and held by third parties that meet the criteria for inclusion in Tier 2 capital and are not included in Tier 1 capital;

c. Accumulated other comprehensive income and other reserves separately disclosed as per IFRS may include only 50% of the revaluation reserve for plant, property and equipment; and

d. Regulatory adjustments applied in the calculation of Tier 2 Capital.

44. Tier 2 provides loss absorption to capital on a gone-concern basis. The criteria for eligibility and inclusion as tier 2 regulatory capital are:

a. Issued and paid-up

b. Subordinated to depositors and general creditors of the bank

c. Neither secured nor covered by a guarantee of the issuer or related entity or other arrangement that legally or economically enhances the seniority of the claim vis-à-vis depositors and general bank creditors

d. Maturity:

i. minimum original maturity of at least five years

ii. recognition in regulatory capital in the remaining five years before maturity will be amortized on a straight-line basis; and

iii. there are no other incentives to redeem.

e. May be callable at the initiative of the issuer only after a minimum of five years:

i. To exercise a call option a bank must receive prior supervisory approval;

ii. A bank must not do anything that creates an expectation that the call will be exercised; and

iii. A bank must not exercise a call unless:

1. The called instrument is replaced with capital of the same or better quality under conditions sustainable for the income capacity of the bank; or

2. The bank demonstrates its capital position is well above the minimum capital requirements after the call option is exercised.

f. The investor must have no rights to accelerate the repayment of future scheduled payments (coupon or principal), except in receivership, liquidation and other resolution procedures sanctioned by BOG.

g. The instrument cannot have a credit sensitive dividend feature, that is a dividend/coupon that is reset periodically based in whole or in part on the banking organisation's credit standing.

h. Neither the bank nor a related party over which the bank exercises control or significant influence can purchase the instrument, nor can the bank directly or indirectly have funded the purchase of the instrument

i. If the instrument is not issued out of an operating entity or the holding company in the consolidated group (e.g. a special purpose vehicle (SPV)), proceeds must be immediately available without limitation to an operating entity or the holding company in the consolidated group in a form which meets or exceeds all the other criteria for inclusion in Tier 2 Capital.

Regulatory Adjustments

45. The following items shall be deducted from CET1 unless another tier of regulatory capital is specified.

46. In the case of investments, the deduction is a corresponding deduction in that it applies to the same tier of capital which the investment would qualify if it was capital issued by the bank itself. If a series of investments includes more than one tier of capital (e.g. CET1 and AT1, and/or T2), the deduction applies to each tier of capital in proportion to the total investment holdings of the bank. Should a bank not have sufficient capital at the level the deduction is to apply, the shortfall is deducted from the next higher tier of capital (e.g. if deduction exceeds amount at AT1, the shortfall is then deducted from CET1).

I. Asset impairment

47. A bank must deduct any identified impairment of an asset where the impairment has not already been recognised in profit and loss.

II. Goodwill and other intangible assets

48. A bank must deduct the following net of any associated deferred tax liability which would be extinguished if the relevant assets become impaired or derecognised under IFRS.

a. Goodwill and any other intangible assets arising from an acquisition, net of adjustments to profit or loss reflecting any changes arising from 'impairment' of goodwill. Negative goodwill shall not be added back to CET1.

b. Other intangible assets net of adjustments to profit or loss reflecting amortization and impairment. Intangible assets are as defined in IFRS and include capitalized expenses, capitalized transaction costs and mortgage servicing rights.

III. Equity holdings and other capital support provided to banking, financial and insurance entities (collectively 'other financial institutions')

49. A bank must deduct from capital direct, indirect and synthetic equity exposures, guarantees and other forms of capital support and investments in AT1 and T2 instruments in other financial institutions. This includes:

a. ordinary shares, guarantees and other forms of capital support held in the banking book;

b. net long positions in equity held in the trading book;

c. underwriting positions only held for more than five working days;

d. Investments in non-consolidated financial institutions irrespective of the size of the shareholding; and

e. Intra-group transactions that do not represent a genuine contribution to financial strength of the bank (paragraphs 52 to 56).

50. A financial institution includes affiliates of a bank. An affiliate is a company that controls, or is controlled by, or is under common control with, the bank. Control of a company is as defined in the BSDI Act.

51. BOG may exclude for a time investments made in the context of resolving or providing financial assistance to reorganize a distressed institution.

IV. Intra-group transactions for capital or funding purposes

52. Intra-group transactions (i.e. to/from subsidiaries, parent companies or related entities through the parent) must be disclosed to BOG as specified in submissions of financial data and may be deducted if they do not represent a genuine contribution to financial strength of the bank.

53. The factors BOG may consider in assessing whether a component of capital resulting from an intra-group transaction does not represent a genuine contribution to financial strength include, but are not limited to, whether a component of capital;

a. Is clearly supplied from debt raised by other group members;

b. Results from intra-group transactions with no economic substance;

c. Is contributed by a member of the group using funding sourced, directly or indirectly, from the bank itself; or

d. Is controlled by a group member and the funding of which contains cross-default clauses that would be triggered due to the bank failing to meet any servicing obligations.

54. If a facility, including a guarantee, represents a form of capital support to a related entity such that it is considered part of the related entity's equity, the facility should be deducted from the bank's CET1.

55. Investments in non-financial institutions or commercial entities are deducted from CET1.

V. Investments in own shares (Treasury Shares)

56. A bank's investments in its own ordinary shares, whether held directly or indirectly, will be deducted from CET1 (unless already derecognised under the IFRS).

57. Similarly, if a bank holds other forms of its own capital (e.g. AT1 or T2), they must be deducted at that same tier of capital.

58. Any own stock which the bank could be contractually obliged to purchase should be deducted from CET1, and this would apply whether the exposure was held in the banking book or the trading book.

59. If the bank holds index/mutual fund securities that include a bank's own shares, they are to be deducted from CET1. However, gross long positions in own shares resulting from holdings of index securities may be netted against short positions in own shares resulting from short positions in the same underlying index.

VI. Deferred Tax Assets (DTAs)

60. Deferred tax assets (DTAs) that rely on the future profitability of the bank are deducted from CET1.

61. DTA may be netted with associated deferred tax liabilities (DTLs) only if the DTAs and DTLs relate to taxes levied by the same taxation authority and offsetting is permitted by the relevant taxation authority. For the avoidance of doubt, net DTLs cannot contribute to an increase in CET1.

62. DTLs used to offset DTAs must exclude amounts that have been netted against the deduction of goodwill, intangibles and defined benefit pension assets.

63. DTAs relating to temporary differences such as credit losses are not to be netted with other DTAs and are deducted directly from CET1.

64. All other such assets, e.g. those relating to operating losses, such as the carry forward of unused tax losses, or unused tax credits, are to be deducted in full net of deferred tax liabilities and net of valuation allowance. DTAs arising from any other source will be required to be deducted from CET1.

65. An over-installment of tax, or current year tax losses carried back to prior years may give rise to a claim or receivable from the government or local tax authority. Such amounts are generally classified as current tax assets for accounting purposes. The recovery of such a claim or receivable would not rely on the future profitability of the license and would be assigned the relevant sovereign risk weighting.

VII. Pledged Assets

66. A capital deduction of 100% of the outstanding balance of pledged assets from CET1 will apply with the exception of repurchase agreements (repos).

VIII. Cash flow Hedge Reserve

67. The amount of the cash flow hedge reserve that relates to the hedging of items that are not fair valued on the balance sheet (including projected cash flows) shall be derecognised in the calculation of CET1. That is, positive amounts shall be deducted and negative amounts shall be added back. It removes the element that gives rise to artificial volatility in common equity, as in this case the reserve only reflects one half of the transaction.

IX. Gain on sale related to securitization transactions

68. Increases in equity capital resulting from securitization transactions (e.g. capitalized future margin income resulting in a gain on sale) should be deducted from CET1.

X. Defined benefit pension fund assets and liabilities

69. Defined benefit pension fund liabilities, as included on the balance sheet, must be fully recognised in the calculation of CET1. That is, there is no increase to CET1 from derecognising these liabilities.

70. For each defined benefit pension fund that is an asset on the balance sheet, it should be deducted from CET1 net of any associated DTL which would be extinguished if the asset

should become impaired or derecognised under the relevant accounting standards. Assets in the fund to which the bank has unrestricted and unfettered access can, with supervisory approval, offset the deduction. Such offsetting assets should be given the risk weight they would receive if they were owned directly by the bank.

Composition of Regulatory Capital

71. A bank is required to maintain a risk based capital ratio of at least 10%.

72. The regulatory capital ratios applied to each tier of regulatory capital as follows:

$$\text{CET1 ratio} = \frac{\text{CET1 Capital}}{\text{Credit Risk RWA+Market Risk RWA+Operational Risk RWA}}$$

$$\text{Tier 1 capital ratio} = \frac{\text{Eligible Tier 1 Capital}}{\text{Credit Risk RWA+Market Risk RWA+Operational Risk RWA}}$$

$$\text{Total capital ratio} = \frac{\text{Eligible Total Capital}}{\text{Credit Risk RWA+Market Risk RWA+Operational Risk RWA}}$$

73. The components of regulatory capital will be divided into different components as described below:

a. CET1 must be at least 6.5% of RWAs i.e. for credit risk + market risk + operational risk on an ongoing basis.

b. Tier 1 capital must be at least 8.0% of RWAs on an ongoing basis. Thus, within the minimum Tier 1 capital, Additional Tier 1 capital can be admitted maximum at 1.5% of RWAs.

c. Total Capital (Tier 1 Capital plus Tier 2 Capital) must be at least 10.0% of RWAs on an ongoing basis. Thus, within the minimum CAR of 10.0%, Tier 2 capital can be admitted maximum up to 2%.

d. If a bank has complied with the minimum CET1 and Tier 1 capital ratios, then the excess Additional Tier 1 capital can be admitted for compliance with the minimum CAR of 10.0% of RWAs.

74. In addition to the minimum CET1:

a. banks are required to maintain additional CET1 as a capital conservation buffer (CCB1) as at paragraphs 80 to 83;

b. banks may be required to hold a countercyclical buffer (CCB2) as at paragraphs 84 to 86; and

c. any bank BOG deems to be Domestic Systemically Important Banks (DSIBs) may be required to hold additional capital buffers as at paragraphs 87 to 88.

75. The full complement of capital ratio requirements across the components of capital are summarized in the Table:

	Regulatory Capital	RWAs (%)
1	Minimum CET1	6.5
2	Capital Conservation Buffer (CCB1) - CET1 only	3.0
3	CET1 Ratio plus CCB1 (1+2)	9.5
4	Maximum AT1	1.5
5	Minimum Tier 1 Capital Ratio (1+4)	8.0
6	Maximum T2	2.0
7	Minimum Capital Adequacy Ratio (CAR) (5+6)	10.0
8	Minimum CAR plus CCB1 (7+2)	13.0
9	Countercyclical Buffer (CCB2)	0
10	DSIB Buffer	0
11	Minimum CAR plus CCB1 plus CCB2 plus DSIB (2+7+9+10)	13.0

Internal Thresholds above the Minimum Ratios

76. The Board's appetite for capital must include thresholds as internal targets ratios above the minimum capital requirement. The Board appetite for capital will be set out in any significant document relating to capital management planning or policies in the bank, and in the business lines.

77. The purpose of the thresholds above the minimum requirement is to assist in the management of the bank. A suitable buffer allows Board and management time to assess the cause(s) and to act appropriately to restore the CAR.

78. A bank must act to correct any single breach of its minimum CAR as required by the bank's capital management plan.

Capital Conservation Buffer

79. A bank is required to hold a capital conservation buffer (CCB1) to ensure capital is accumulated in good times to absorb losses in times of stress. The CCB1 formalizes internal management triggers at levels of capital to avoid breaches of minimum capital requirements.

80. If a bank's risk based capital ratio is, or risks falling, below the CCB1 a bank must enact plausible options it has identified in its capital management plan that will restore capital to the required level within specified timeframes. The bank is restricted from further capital reductions by making payments on its capital. Among others, dividend payments, share buybacks and discretionary bonus payments are not permitted until the required levels of capital are restored.

81. The CCB1 (3.0%) is above the risk based capital requirement (10%) and banks are required to manage their capital to meet the total capital requirement (13%).

82. Any bank below the total capital requirement by 1 January 2019 must sustain a prudent policy to retain sufficient earnings to meet the CCB1. A basic transition framework in the table below sets a concessional use of earnings to service capital if CET1 ratio is deficient. Such a framework if proposed by a bank may be acceptable to BOG depending on the strength of the bank's strategy, risk management framework and capital management plan.

Minimum capital conservation standards	
CET1 Ratio	Minimum Capital Conservation to Earnings (CCR%)
>6.5% - 7.25%	100%
>7.25% - 8.00%	80%
>8.00% - 8.750%	60%
>8.750 – 9.50%	40%
>9.5%	0%

Countercyclical Buffer

83. A countercyclical buffer (CCB2) is a cyclical requirement for banks to build up a buffer of capital in good times.

84. CCB2 recognises that losses incurred in the banking sector may be higher in a downturn that follows a period of excess credit growth. As the focus is on excess aggregate credit growth banks only deploy the buffer at certain times in the credit cycle.

85. BOG will review and consider the local macroprudential settings for a CCB2. The CCB2 is zero until other elements stated in the CRD are embedded in the industry.

Systemically Important Banks

86. BOG may deem a bank to be systemically important to Ghana's economy by pre-determined characteristics. Such a bank is a Domestic-Systemically Important Bank (D-SIB). DSIBs may be required to hold additional capital as CET1 to mitigate the risk to the economy.

87. The characteristics BOG may consider important are: a bank's the size, complexity, interconnectedness, its network of branches in Ghana or across jurisdictions, and the absence of readily available substitutes for what a bank provides such as the financial infrastructure. The list is not exhaustive and BOG will periodically review the indicators in line with macroprudential measures.

Leverage Ratio

88. The leverage ratio is a non-risk-based leverage ratio that complements the risk-based capital requirements. It provides transparency on changes in, and the potential build-up of leverage in individual bank's on- and off-balance sheet and the banking sector.

89. On a wider industry basis, the leverage ratio will monitor asset growth relative to capital, and assist as a macroprudential measure to ensure financial stability.

90. The leverage ratio is based on a Tier 1 definition of capital and should be a minimum of 6% for all banks. The ratio is defined as:

$$Leverage\ Ratio = \frac{Tier\ 1\ Capital}{Total\ Assets\ (on\ balance\ sheet) + \ Off balance\ sheet}$$

APPENDIX TO PART 1 DEFINTION OF CAPITAL

For regulatory capital purposes, minority interest in banking subsidiaries that is issued to third parties is shown in the example following of Bank P having controlling ownership of Bank S with minority interest.

With respect to subsidiary Bank S, Bank P owns 70% of ordinary shares, 80% of additional Tier 1 capital and 25% of the Tier 2 capital of Bank S.

Bank P Balance Sheet		**Bank S Balance Sheet**	
Assets		**Assets**	
Loan to Customers	100	Loan to Customers	150
Investment in CET1 of Bank S	7		
Investment in AT1 of Bank S	4		
Investment in the T2 of Bank S	2		
Total	**113**	**Total**	**150**
Liabilities and Equity		**Liabilities and Equity**	
Depositors	70	Depositors	127
Tier 2	10	Tier 2	8
Additional T1	7	Additional T1	5
Common Equity	26	Common Equity	10
Total	**113**	**Total**	**150**

Therefore, ownership of Bank S is:

Capital Issued by Bank S			
Amount issued to Parent (Bank P)		**Amount issued to third parties (Minority Interest)**	**Total**
Common Equity	7	3	10
Additional Tier 1	4	1	5
Tier 1	**11**	**4**	**15**
Tier 2	2	6	8
Total Capital	**13**	**10**	**23**

The consolidated balance sheet of the banking group is:

Consolidated Balance Sheet	
Assets	
Loan to customers	250
Liabilities and Equity	
Depositors	197
Tier 2 capital issued by subsidiary to third party (i.e. minority interest)	6
Tier 2 capital issued by Parent	10
AT1 capital issued by subsidiary to third party (i.e. minority interest)	1
AT1 capital issued to Parent	7
CET1 issued by subsidiary to third party (i.e. minority interest)	3
CET1 issued by Parent	26
Total Capital	**250**

For illustrative purposes, Bank S is assumed to have RWAs of 100 against the assets valuing 150. In this example, the minimum capital requirements of Bank S and the subsidiary's contribution to the

consolidated requirements are the same since Bank S does not have any loans to Bank P. This means that it is subject to the following minimum (plus capital conservation buffer) requirements and has the following surplus capital.

Minimum and surplus capital of Bank S			
Minimum plus capital conservation buffer		**Capital Available**	**Surplus**
CET1 (4.5+2.5=7.0)	7 (=7.0% of 100)	10	3 (=10-7.0)
Tier 1	8.5 (=8.5% of 100)	15 (=10+5)	6.5 (=10+5-8.5)
Total Capital	10.5 (=10.5% of 100)	23 (=10+5+8)	12.5 (=10+5+8-10.5)

The following table illustrates how to calculate the amount of capital issued by the Bank S is to be included in consolidated capital, following the calculation procedure set out above.

Bank S: amount of capital issued to third parties included in consolidated capital					
	Total amount issued (a)	**Amount issued to third parties (b)**	**Surplus (c)**	**Surplus attributable to third parties (i.e. amount excluded from consolidated capital) (d) =(c) * (b)/(a)**	**Amount included in consolidated capital (e) = (b) – (d)**
CET1	10	3	3	0.90	2.10
Tier 1	15	4	6.5	1.73	2.27
Total Capital	23	10	12.5	5.43	4.57

The following table summarizes the components of capital for the consolidated group based on the amounts calculated in the table above. AT1 is calculated as the difference between CET1 and Tier 1, while Tier 2 is the difference between total capital and Tier 1.

	Total amount issued by Parent (all of which is to be included in consolidated capital)	**Amount issued by subsidiaries to third parties to be included in consolidated capital**	**Total amount issued by Parent and subsidiary to be included in consolidated capital**
CET1	26	2.10	28.10
AT1	7	0.17 (=2.27-2.10)	7.17
Tier 1	**33**	**2.27**	**35.27**
Tier 2	10	2.30 (=4.57-2.27)	12.30
Total Capital	**43**	**4.57**	**47.57**

PART 2 MANAGEMENT AND MEASUREMENT OF CREDIT RISK

91. Banks will manage and measure credit risk by the Standardised Approach (SA) and the measurement of credit risks consists in three parts:

    Part 2A – on-balance sheet exposures;

    Part 2B – off-balance sheet exposures; and

    Part 2C – credit risk mitigation.

Principles for Credit Risk Management

92. The Board, as the author and driver of the bank's corporate culture, is responsible to show how its organisational behaviours and outcomes in credit risk management demonstrate its commitment to the minimum standards.

93. A Board must establish a systematic Credit Risk Management Framework (CRMF) throughout a bank which produces sound and reliable measurements of the credit risk for risk based capital.

94. The CRMF should cover the whole credit management approach and at a minimum include:

    a. Board's appetite, strategy and oversight of credit risk;

    b. all policies for credit necessary for organisation functionality and resources, risk ownership, delineation of duties, and escalation, the process of credit risk assessment and management;

    c. operational procedures for credit management life cycle from credit origination through to repayment or recovery;

    d. reporting of credit to management and to the Board covering individual and portfolio managed facilities, troubled assets and credit policy settings, including exceptions and underwriting standards; and

    e. any other material services to credit such as information technology and HR support.

95. A sound assessment of credit risk relies on an exchange of reliable and accurate information concerning a potential borrower(s) and a bank. The *Credit Reporting Act 2007 (Act 726)* and the *Borrowers and Lenders Act 2008 (Act 773)* are important mechanisms in the industry to improve access and the circulation of information on borrowers. Banks are expected to comply with existing requirements, but also to advocate for and act to improve information available for credit management purposes.

96. The risk weights designated herein work on the basis that a bank has obtained, verified and retains records of all relevant documentation supporting a credit

assessment and the decision to fund a credit exposure. A bank must make available this information to BOG as part of the supervisory process, and where:

a. a bank cannot demonstrate that procedures have been followed as above, BOG may increase the risk weight with a risk add-on of 20% to the risk weight as prescribed.

b. a bank has misclassified an exposure, BOG may increase the risk weight of the exposure in line with the characteristics identifiable.

At all times, BOG can increase the bank's risk based capital requirement if it is warranted by the higher risk profile of the bank.

Part 2A ON-BALANCE SHEET EXPOSURES

97. This section specifies the rules for calculating the risk-weighted amounts of a bank's on-balance sheet exposures using the SA. If an exposure does not meet the categories, BOG can prescribe a risk weight as appropriate.

98. The risk-weighted amount of a credit exposure shall be determined by multiplying the total outstanding exposure net of specific provisions and interest in suspense by its relevant risk weight specified in this section.

99. A credit exposure secured by a qualifying collateral, guarantee or credit derivatives may be reduced for capital purposes (i.e. risk weighted asset) provided the risk mitigation techniques in Part 2C Credit Risk Mitigation (CRM) are satisfied.

100. A risk weight add-on of 20% will apply to a credit exposure to a counterparty that has a currency mismatch, except the Government of Ghana, BOG, central government public sector entities or banks. A currency mismatch arises where the loan is denominated in a foreign currency that is not the currency of the borrower's primary income. The risk weight add-on is additional to the risk weight for the counterparty.

Recognised External Credit Assessment Institutions

101. Only External Credit Assessments Institutions (ECAIs) approved by BOG may be used to allocate risk weights to claims on foreign counterparties based on an external rating grade. Export Credit Agencies (ECAs) country risk scores will not apply to claims on foreign counterparties.

102. BOG may approve an ECAI provided it satisfies the criteria of objectivity, independence, international access and transparency, disclosure, resources and credibility outlined in the Basel framework.

103. BOG recognises ECAIs issued by ratings agencies: Standard and Poor's (S&P), Moody's Investors Service (Moody's) or Fitch Ratings (Fitch). The equivalence of all long and short-term ratings for the rating agencies are mapped to external rating grades (ERG) in the table below.

Table - ERG for ECAIs

ERG	S&P	Moody's	Fitch
1	A-1 / AAA to AA-	P-1 / Aaa to Aa3	F-1 / AAA to AA-
2	A-2 / A+ to A-	P-2 / A1 to A3	F-2 / A+ to A-
3	A-3 / BBB+ to BBB-	P-3 / Baa1 to Baa3	F-3 / BBB+ to BBB-
4	Below A-3 / BB+ to BB-	Below P-3 / Ba1 to Ba3	Below F-3 / BB+ to BB-
5	N/A / B+ to B-	N/A / B1 to B3	N/A / B+ to B-
6	N/A / below B-	N/A / below B3	N/A / below B-

104. If there are two assessments by ECAIs chosen by a bank which map into different risk weights, the higher risk weight will apply.

105. If there are three or more assessments with different risk weights, the assessments corresponding to the two lowest risk weights should be referred to and the higher of those two risk weights will apply.

Risk-weights on Counterparties by Type

Government of Ghana and the Bank of Ghana

106. Claims on the Government of Ghana and BOG denominated and funded in the domestic currency will be 0% risk weighted.

107. Claims on the Government of Ghana and BOG in foreign currency will be 20% risk weighted.

Sovereigns and Central Banks

108. Claims on a sovereign (or central bank) where a bank or its parent is incorporated, and denominated in the local currency, shall be assigned a preferential risk weight as determined by the relevant supervisory authority, and subject to the prior written approval of BOG.

109. Claims on other sovereigns and central banks if not in their local currency shall be assigned risk weights in the table below.

ERG	1	2	3	4	5	6	Unrated
RW	0%	20%	50%	100%	100%	150%	100%

110. Claims on the Bank for International Settlements, the International Monetary Fund, the European Central Bank, European Community and the African Union may receive a 0% risk weight.

Multilateral Development Banks (MDBs)

111. Claims on MDBs are based on their external credit assessments, similar to banks at paragraph 124 except for preferential treatment of short-term claims.

112. A risk weight of 0% shall apply to claims on highly rated MDBs that satisfy all the following criteria:

a. very high quality long-term issuer ratings, i.e. a majority of an MDB's external assessments must be AAA;

b. shareholder structure is comprised of a significant proportion of sovereigns with long-term issuer credit assessments of AA- or better, or the majority of the MDB's fund-raising are in the form of paid-in equity/capital and there is little or no leverage;

c. strong shareholder support demonstrated by the amount of paid-in capital contributed by the shareholders; the amount of further capital the MDBs have the right to call, if required, to repay their liabilities; and continued capital contributions and new pledges from sovereign shareholders;

d. adequate level of capital and liquidity (a case-by-case approach is necessary to assess whether each MDB's capital and liquidity are adequate); and,

e. strict statutory lending requirements and conservative financial policies, which would include among other conditions a structured approval process, internal creditworthiness and risk concentration limits (per country, sector, and individual exposure and credit category), large exposures approval by the board or a committee of the board, fixed repayment schedules, effective monitoring of use of proceeds, status review process, and rigorous assessment of risk and provisioning to loan loss reserve.

113. Highly rated MDBs eligible for 0% risk weight are:

a. World Bank Group comprising the International Bank for Reconstructions and Development (IBRD) and the International Finance Corporation (IFC);
b. Asian Development Bank (ADB),
c. African Development Bank (AfDB);
d. European Bank for Reconstruction and Development (EBRD);
e. Inter-American Development Bank (IADB);
f. European Investment Bank (EIB);
g. European Investment Fund (EIF);
h. Nordic Investment Bank (NIB);
i. Caribbean Development Bank (CDB);
j. Islamic Development Bank (IDB); and
k. Council of Europe Development Bank (CEDB).

Public Sector Entities (PSEs)

114. For credit risk assessment generally, claims to all public-sector entities (PSEs) must be assessed as if they are commercial enterprises and the operational requirements for the use of credit risk mitigation techniques in Part 2C (e.g. guarantees) must be satisfied to recognise a lower credit risk charge for the counterparty.

115. Claims on central government public sector entities (PSEs), such as the Metropolitan, Municipal and District Assemblies, Government Ministries, Departments and Agencies (MDAs), in the domestic currency shall be risk weighted at:

a. 0% if guaranteed by the Government of Ghana and have specific revenue raising powers;

b. 20% if not guaranteed by the Government of Ghana, but have specific revenue raising powers; or

c. A risk weight in the table below (similar to banks) if not guaranteed by the Government of Ghana, and have no specific revenue raising powers.

ERG	**1**	**2**	**3**	**4**	**5**	**6**	**Unrated**
RW	20%	50%	50%	100%	100%	150%	100%

Non-central government public sector entities (PSEs)

116. Claims on non-central government PSEs in the domestic currency guaranteed by the Government of Ghana in accordance with Part 2C may be risk weighted at 0%.

117. Claims on non-central government PSEs (institutions) that are non-profit making shall be risk weighted at 50%.

118. Claims on non-central government PSEs (enterprises) that are profit making shall be risk weighted at 100%.

119. Claims on non-central government PSEs in foreign currency shall attract a risk add-on of 20%.

Foreign PSEs

120. Claims on foreign PSEs in its local currency that are guaranteed by their sovereign shall be risk weighted equivalent to a claim on the sovereign, provided the guarantee satisfies the requirements in Part 2C.

121. Claims on foreign PSEs in its local currency shall be risk weighted at ECAI for the sovereign.

122. Claims on foreign PSEs not in its local currency shall be risk weighted at ECAI for the sovereign with a risk add-on of 20%.

Banks

123. Claims on banks shall be risk weighted on the external credit assessments specified in the Table, with unrated banks assigned a risk weight of 50%.

124. Claims on banks in the domestic currency where the original maturity is 3 months or less will be risk weighted as in the table below.

Table – Risk weights for claims on banks

ERG	**1**	**2**	**3**	**4**	**5**	**6**	**Unrated**
RW	20%	50%	50%	100%	100%	150%	50%
RW if original maturity 3 months or less	20%	20%	20%	50%	50%	150%	20%

Other Financial Sector and Regulated Institutions

125. Claims on specialised deposit-taking institutions regulated by BOG except microfinance institutions, shall be risk weighted at 70%.

126. Claims on microfinance, other institutions regulated by BOG, insurance companies regulated by the National Insurance Commission (NIC), institutions regulated by the National Pension Regulatory Authority (NPRA) and securities firms regulated by the Securities and Exchange Commission (SEC) shall be risk weighted at 100%.

127. Claims on other financial sector regulated institutions not in the domestic currency shall attract a risk add-on of 20%.

Retail Lending

128. Claims on retail exposures shall be risk weighted at 75% if the claims satisfy all the criteria below, and are not past due loans:

a. Orientation – a claim on salaried employees of the Central Government, BOG, PSEs, banks or highly rated MDBs (i.e. risk weight 0%);

b. Product – Personal loans to salaried employees appropriately verified where the employer (defined in 129a) undertakes to administer payments on the loan directly to the bank on behalf of the employee;

c. Granularity ─ diversified loan portfolio such that no single loan exceeds 0.2% of retail portfolio; and

d. Low value - maximum aggregated exposures to a single borrower, including any joint facilities the borrower may have, is no more than GHc500,000.

129. In addition to paragraph 129, a qualifying retail exposure must be subject to a credit risk assessment within the bank's underwriting standards acceptable to BOG, and all relevant information about the exposure must be verified from reputable sources as per paragraph 96.

130. Any claims on the retail portfolio in foreign currency will attract a risk add-on of 20%.

Residential - Mortgage Loans

131. Claims fully secured by mortgages on residential property that is, or will be, owned and occupied by the borrower, or that is rented, is a qualifying residential mortgage loan risk weighted at 35% if it meets all requirements below:

a. Loan-to-value ratio (LVR), defined as the total loan exposure divided by the property market value net of realizable costs, is equal to or less than 80%.

b. The loan amount in domestic currency shall be fully secured by a mortgage on the residential property that is fully developed.

c. The mortgage must be enforceable in all jurisdictions which are relevant at the time of execution of the credit agreement and must be properly filed and registered.

d. The residential property must be occupied by the borrower or rented by the borrower to a third party.

e. The bank must be satisfied that the risk of the borrower is not dependent on the performance of the underlying property serving as collateral but rather on the capacity of the borrower to repay the debt from other sources.

f. The property is valued at origination by a Qualified Certified Valuator and thereafter revalued every three years or more often if there is evidence of impairment.

g. The property must be adequately insured by a licensed insurance company.

132. Claims secured by mortgage that do not satisfy requirements of paragraph 132 are non-qualifying mortgage loans and shall be risk weighted at 100%.

133. All residential mortgage loan with a currency mismatch will attract a risk add-on of 20%.

134. As part of the supervisory review process, BOG will periodically evaluate the quality of residential mortgage portfolio held by individual banks, regarding their default experience, and the development of the property market in Ghana to determine whether the quality of the portfolio across the industry should warrant a higher risk weight than that assigned.

Commercial Real Estate

135. Claims secured by a registered mortgage on commercial real estate that satisfy qualifying conditions in paragraph 132 but for commercial mortgages, shall have a risk weight of 100%.

136. Non-qualifying claims on commercial real estate and facilities extended for financing the buying and selling of residential properties with a profit motive or for the development property for sale shall be risk weighted at 150%.

137. Claims on commercial real estate in foreign currency will attract a risk add-on of 20%.

Corporates

138. Claims on corporates shall be risk weighted at 100%, and if in foreign currency, a risk add-on of 20% applies.

Small and Medium Enterprises

139. Claims on Small and Medium Enterprises (SMEs) including business orientated exposures to individuals or group of persons are risk weighted at 100%, and if in foreign currency the risk add-on of 20% shall apply.

Past Due Claims

140. A facility is past due when the scheduled repayment or instalment is outstanding for more than 90 days.

141. Higher risk weights specified herein apply to past due facilities in the domestic currency. A risk add-on for claims in foreign currency will continue to apply if the facility becomes past due.

Past Due Claims on Unsecured Facilities

142. Any unsecured facility that is past due for more than 90 days, net of specific provisions (by BOG Guide for Reporting Institutions), will be risk weighted at:

a. 150% if classified as loss without full provision for the outstanding loan;

b. 150% if classified as substandard and specific provisions are no less than 25% of the outstanding loan;

c. 100% if classified as doubtful and specific provisions are no less than 50% of the outstanding amount of the loan; or

d. 0% if classified as loss and full provisions for the outstanding loan and any administrative costs.

143. Eligible collaterals securing past due facilities will not be considered and claims shall be risk weighted as past due claims on unsecured facilities.

Past Due Claims on Mortgage Loans

144. A residential mortgage loan that is past due for more than 90 days will be risk weighted as follows:

a. 100% for qualifying mortgage (original risk weight 35%) if classified as substandard or doubtful; or

b. 150% for a non-qualifying mortgage (original risk weight 100%) if classified as substandard or doubtful; or

c. 0% if full provision is made on the outstanding loan and any legal or administrative costs for realizing the security.

145. A commercial mortgage loan that is past due for more than 90 days will be risk weighted as:

a. 150% on claims on qualifying mortgages for commercial real estate (original risk weight 100%) if classified as substandard or doubtful; or

b. 200% on claims on non-qualifying mortgages for commercial real estate (risk weight at origination 150%) if classified as substandard or doubtful; or

c. 0% if full provision is made on the outstanding loan and any legal or administrative costs for realizing the security.

Higher Risk Categories

146. Claims on higher risk categories will be risk weighted at 150% on claims on sovereigns and all other PSEs, banks and securities firms not domiciled in Ghana and rated below investment grade (or ERG 6 as per paragraph 104).

Other On-Balance Sheet Assets

147. Exposures in cash and other cash items in the process of collection shall be risk weighted at 0% and 20% respectively.

148. All other on balance sheet assets will be risk weighted at 100%, such as investments in premises, plant and equipment, all other fixed assets and claims on all fixed assets under operating leases.

PART 2B OFF-BALANCE SHEET EXPOSURES

149. This section outlines the requirements for the calculation of risk weighted assets on off-balance sheet credit exposures under the SA.

150. The credit exposure to off-balance sheet items is comprised of market and non-market transactions.

151. The risk weighted amount of an off-balance sheet transaction is calculated by:

a. converting the notional amount of the transaction using a credit conversion factor (CCF) into an on-balance sheet *credit equivalent amounts (CEA)*; and

b. multiplying the CEA by the risk weight applicable to the counterparty or type of exposure.

152. Where the transaction is secured by eligible financial collateral, guarantee or credit derivative, the credit risk mitigation techniques outlined in Part 2C may result in a lower exposure for capital purposes.

153. A risk weight add-on of 20% will apply to an off-balance sheet credit exposure to a counterparty that has a currency mismatch, except the Government of Ghana, BOG, central government public sector entities or banks.

Non-market off-balance sheet transactions

154. Non-market related off-balance sheet transactions are classified as commitments, direct credit substitutes, lending of securities or assets sales with recourse.

155. Off-balance sheet items receive the CCF as specified in the table below.

Nature of transaction	CCF (%)
1. Direct credit substitutes	100
2. Performance-related contingencies	50
3. Trade-related contingencies	20
4. Lending of securities or posting of securities as collateral	100
5. Assets sold with recourse	100
6. Forward asset purchases	100
7. Partly paid shares and securities	100
8. Placements of forward deposits	100
9. Note issuance and underwriting facilities	50
10. Other commitments (a) Commitments with certain drawdown (b) Commitments (e.g. undrawn formal standby facilities and credit lines) with an original maturity of: (i) one year or less; or (ii) more than one year (c) Commitments that can be unconditionally cancelled at any time without notice (e.g. undrawn overdraft and credit card facilities provided any outstanding unused balance is subject to review at least annually) or effectively provide for automatic cancellation due to deterioration in a borrower's creditworthiness.	 100 20 50 0
11. Irrevocable standby commitments	0

Commitments

156. The type of commitment depends on its terms and maturity as per paragraph 156 and the appropriate CCF may be determined by the following circumstances:

a. A commitment with certain drawdown is distinguished from a commitment that may or may not be drawn by the counterparty. Appendix to Part 2 provides examples of this.

b. The maturity of a commitment is the date the customer accepts the facility in writing (i.e. its original maturity) until the final date when the facility must be drawn down in full. The original maturity applies regardless of terms: whether the commitment is revocable or irrevocable, conditional or unconditional, and whether the facility contains a *'material adverse change'* clause.

c. The maturity of a renegotiated commitment is the date of renegotiation until the end of the period as renegotiated and the renegotiation is based on:

   i. A full credit assessment of the customer.

   ii. The lender's right, without notice, to withdraw the commitment.

d. A commitment to provide a loan (or purchase an asset) which has a maturity of over one year but must be drawn down within and up to one year –

maturity is up to one year provided any undrawn portion of the facility is automatically cancelled at the end of the drawdown period.

e. A commitment to provide a loan (or purchase an asset) to be drawn down in several tranches, some up to one year and some over one year – maturity for whole commitment shall be considered as having a maturity of over one year.

f. Where a commitment has a facility limit that varies during its term, the exposure is the maximum amount that can be drawn under the commitment for the remaining period.

g. The original maturity of a forward commitment is the date the commitment is entered into until the final date by which the facility must be drawn in full.

157. Rolling and undated (i.e. open-ended) commitments (e.g. overdrafts or unused credit card lines) shall be included in *other commitments* and appropriately classified by maturity.

158. An undertaking to provide an off-balance sheet commitment may be associated with more than one CCF. For example, an irrevocable commitment with original maturity of 15 months (i.e. CCF is 50%) to issue a 6-month documentary letter of credit (i.e. CCF is 20%). In such a case the lower CCF applies from either of the:

a. commitment, based on its original maturity and whether it can be cancelled at any time unconditionally, or

b. type of on-balance sheet exposure that arises when the commitment is drawn.

For the example above the applicable CCF is the lower of the two options: the documentary letter of credit with 20% CCF.

Direct Credit Substitutes

159. Direct credit substitutes may comprise general guarantees of indebtedness and including standby letters of credit serving as financial guarantees for loans and securities, and/or acceptances or endorsements with the character of acceptances.

Sale and Repurchase Agreement

160. A sale and repurchase agreement (repo) is an arrangement where a bank sells an instrument and commits to repurchase the asset for an agreed price on demand, or after a stated time, or in the event of a contingency. A repo or a reverse repo may be treated as collateralized transactions. The repo is an irrevocable commitment and an off-balance sheet exposure.

161. A bank that purchases a repo (i.e. reverse repo) shall report the transaction as a collateralized loan for the duration of the agreement. The reverse repo carries a credit risk and it is an off-balance sheet exposure.

162. Where a bank, acting as an agent, arranges a repurchase/reverse repurchase or securities lending/borrowing transaction between a customer and a third party and

provides a guarantee to the customer that the third party will perform on its obligations, the risk to the bank is the same as if the bank had entered into the transaction as the principal. In such circumstances, the bank is required to calculate regulatory capital as if it was the principal.

163. Sale and repurchase agreements and asset sales with recourse, where the credit risk remains with the bank will receive a CCF of 100%. Asset sales with recourse are to be risk weighted for the asset and not by the type of counterparty with whom the transaction has been entered. Loans or other assets sold under a sale and repurchase agreement (or repo) are reported on balance sheet.

Performance-Related Contingent liabilities

164. Performance-related contingent liabilities involve a payment to a third party if the principal fails to perform a non-financial commitment as required, such as:

a. Performance bonds, warranties and indemnities;

b. Bid or tender bonds;

c. Advance payment guarantees;

d. Customs and excise bonds; and

e. Standby letters of credit for particular contracts and non-financial transactions.

165. Note-issuance Facilities (NIFs) and Revolving Underwriting Facilities (RUFs) are arrangements where a borrower may drawdown funds up to a prescribed limit over a predefined period by making repeated note issues to the market, and where the issues prove unable to be placed in the market, the unplaced amount is to be taken up or funds made available by the bank committed as the underwriter of the facility.

166. Trade-related contingent liabilities are obligations secured against an underlying shipment of goods for both the issuing and confirming bank such as:

a. Short-term self-liquidating trade letters of credit arising from the movement of goods where the credit agreement allows the bank to retain title to the shipment;

b. Shipping guarantees issued by a bank;

c. Acceptances on trade bills; and

d. Other trade-related contingent items.

Market Off-balance Sheet Transactions

167. Risk weighted assets are calculated for counterparty credit risk (CCR) on market off-balance sheet transactions in the banking book. CCR is the risk a counterparty could default before the final settlement of the transaction's cash flows.

168. The SA covers CCR only in respect of Securities Financing Transactions (SFTs) and Over-the-Counter (OTC) derivatives.

169. Securities, commodities, and foreign exchange transactions are to be processed through a delivery-versus-payment (DvP) or payment-versus-payment (PvP) mechanism to avoid counterparty credit risk from unsettled transactions. Banks must have policies and systems to track and monitor unsettled transactions as appropriate for its business.

170. Netting is permitted for market off-balance sheet transactions where exposures to a counterparty satisfy requirements of Part 2C for Credit Risk Mitigation and BOG has approved their use.

171. Market off-balance sheet exposures must have the following characteristics:

a. Transactions generate a current exposure or market value.

b. Transactions have an associated random future market value based on market variables.

c. Transactions generate an exchange of payments or an exchange of a financial instrument (including commodities) against payment.

d. There is an identified counterparty to transaction who may be assigned probability of default.

172. Typical market off-balance sheet transactions include the following:

a. *Interest rate contracts:* single currency interest rate swaps, basis swaps, forward rate agreements, interest rate futures, interest rate options purchased, and any other instruments of a similar nature.

b. *Foreign exchange contracts or gold:* cross currency swaps (including cross currency interest rate swaps), forward foreign exchange contracts, currency futures, currency options purchased, hedge contracts and any other instruments of a similar nature.

c. *Equity contracts:* swaps, forwards, purchased options and similar derivative contracts based on individual equities or equity indices.

d. *Precious metal contracts (not gold)*: swaps, forwards, purchased options and similar derivative contracts based on precious metals such as silver, platinum and palladium;

e. *Other commodity contracts (not precious metals):* swaps, forwards, purchased options and similar derivative contracts based on energy contracts, agricultural contracts, base metals (such as aluminium, copper and zinc) and any other non-precious metal commodity contracts.

f. *Other market related contracts:* any other contracts with market values giving risk to CCR.

173. Foreign exchange rate contracts with an original maturity of 14 calendar days or less are excluded for CCR.

174. Only the current exposure method is used to convert the notional amounts to a CEA.

Current Exposure Method

175. The *current exposure method* is the replacement cost for all contracts with a positive value and the add-on for the potential future increase in credit exposure to maturity (Add-on). Individually the components are calculated as:

a. *Replacement Cost* (RC): mark-to-market all contracts with positive value.

b. *Add-on*: Notional principal of the contract multiplied by a CCF for the type and maturity of the contract

Table - **CCFs Current Exposure Method**

Residual Maturity in years	Type of Contract				
	Interest Rate (%)	Forex/Gold (%)	Equity (%)	Precious Metals (%)	Commodity / Other (%)
< /= 1	0	1.0	6.0	7.0	10.0
> 1 up to 5	0.5	5.0	8.0	7.0	12.0
Over 5	1.5	7.5	10.0	8.0	15.0

176. The following rules shall be observed in applying the current exposure method:

a. If a contract has multiple exchanges of principal, CCF is multiplied by the number of remaining payments in the contract.

b. A contract where payments are settled at specified dates – and the terms are reset so the market value is zero – has a residual maturity equal to the next reset date. If it is an interest rate contract with residual maturities greater than one year, the add-on factor is subject to a floor of 0.5%.

c. Forwards, swaps, purchased options and similar derivative contracts not covered by any of the columns (Table paragraph 176) are to be treated as "other commodities".

d. No potential exposure shall be calculated for single currency floating-to-floating interest rate swaps. The CEA of such a contract is evaluated only on current exposure, i.e. replacement cost without an add-on.

e. The notional principal may be enhanced by the structure of the transaction. In such a case the effective notional principal is to be used to determine potential future exposure. For example, a stated notional amount of GH¢1 million with payments indexed to some rate, such as two times BOG rate would have an effective notional amount of GH¢2 million.

Netting of Transactions

177. A bank may net market-related transactions to a counterparty where there is a legally enforceable bilateral netting agreement and the minimum operational requirements in Part 2C for credit risk mitigation techniques are satisfied.

178. A bank seeking to use netting arrangements must obtain specific approvals from BOG in respect of:

a. the legal certainty pertaining to the netting arrangement (e.g. agreement conforms with international best practice and complies with laws of Ghana), especially in terms of:

i. specific legal obligations created by the agreement

ii. an event of default or similarly adverse event for the counterparty;

iii. restrictions on walkaway clauses;

b. the complete suite of instruments approved for use and the relevant expertise of persons managing the transactions;

c. expertise and financial standing of the counterparty;

d. the governance, systems and valuation methods for use of fair values and adherence to IFRS;

e. the accurate measurement of counterparty credit exposures both individually and on a portfolio basis; and

f. overall quality of management of counterparty credit exposures and the strength of risk management frameworks.

PART 2C CREDIT RISK MITIGATION (CRM)

Operational Requirements

179. This section sets out the general approach to credit risk mitigation and the techniques banks may apply when calculating credit risk weighted assets on all exposures including off-balance sheet.

180. Credit risk mitigation permits a bank to reduce its credit exposure to a counterparty for capital purposes because the risk is legally and effectively reduced by certain techniques used.

181. In principle, the CRM techniques recognised herein are:

a. Collateralized transactions;

b. Guarantees;

c. Credit derivatives; and

d. Netting agreements.

182. The acceptability of CRM techniques rest on their effectiveness in reducing risk to counterparty. The use of a CRM technique, while reducing credit risk, may increase other risks such as legal, operational, liquidity, strategic and/or market risks. For this reason, banks must ensure policies set the necessary operational conditions for any technique they employ is robust to achieve this objective.

183. Banks should consider the principles and inform BOG about present range of use of credit risk mitigation techniques and the types of products. Banks should also provide feedback on the basis for which the banking sector could be expected to move towards fair values, OTC derivatives and the uniformity and legal certainty in contracts used for bilateral netting or master netting agreements.

184. BOG will review the range of credit risk mitigation approaches in use by individual banks in the industry, and assess their suitability and whether individual banks satisfy the requirements herein. Operational requirements will naturally vary with the type of technique and other factors relevant to its use.

185. A CRM technique must be distinct and separable to the credit exposure. It is not permitted to double count the benefits of a reduction in the risk exposure. A consideration is if a CRM technique was critical in the decision to approve a credit exposure. In such case the risk mitigant is already part of the risk weight of the counterparty and no further reduction from this CRM will be recognised.

186. Specific operational requirements are provided in the relevant sections. Where these risks are not adequately controlled, BOG may impose additional capital charge or take other supervisory actions under Pillar 2.

187. In the case where a bank has multiple CRM techniques covering a single exposure (e.g. a bank has both collateral and guarantee partially covering an exposure), the bank is required to apportion the exposure according to each type of CRM technique (e.g. portion covered by collateral, portion covered by guarantee) and the risk-weighted assets of each portion must be calculated separately.

Collateralized Transactions

188. Collateral must be pledged for at least the life of the exposure, marked to market and revalued with a minimum frequency of six months.

189. A collateralized transaction is where the bank hedges a credit exposure or potential credit exposure by eligible collateral of the counterparty or by a third party on behalf of the counterparty.

190. A capital requirement applies to each side of the collateralized transaction. For example, repos and reverse repos are both subject to capital requirements.

191. Banks must apply the simple approach to on-balance sheet assets and off-balance sheet exposures on the banking book that are secured by eligible collateral.

192. For trading book transactions, only the comprehensive approach is used for OTC derivatives and repo-style transactions.

193. Only eligible collateral may be used to reduce counterparty credit risk. The simple approach allows eligible financial collateral such as:

a. Cash on deposit with the bank incurring the counterparty exposure;

b. Debt securities issued by the Government of Ghana, or BOG;

c. Securities guaranteed by Government of Ghana, and/or enacted by law with a definite revenue stream for a given time, which BOG deems to be tradeable;

d. Debt securities rated by a recognised ECAI:

i. at least BB- when issued by sovereigns or PSEs treated as sovereigns by the national supervisor; or

ii. at least BBB- when issued by other entities (including banks and securities firms); or

iii. at least A-3/P-3 for short-term debt instruments.

e. Equities (including convertible bonds) listed on the Ghana Stock Exchange.

194. In addition, (to paragraph 194) the comprehensive approach permits eligible collateral as:

a. Equities (including convertible bonds) not included in a main index but are listed on a recognised exchange; and

b. Units of listed funds that may include equities in paragraph 195a.

195. A third party to a collateralized transaction must be acceptable to BOG, or a core market participant defined as one of the following:

a. Sovereigns, central banks and PSEs;

b. Banks; or

c. Other financial institutions regulated by BOG, insurance companies regulated by NIC, pension funds regulated by NPRA, or securities firms regulated by the SEC.

196. There must be a formal written contractual agreement between the bank as lender and the party lodging the collateral which establishes the bank's direct, explicit, irrevocable and unconditional recourse to the collateral. In the case of cash collateral, this may include a contractual right of set-off on credit balances, but a common law right of set-off is insufficient on its own to satisfy this condition.

197. The legal mechanism by which collateral is pledged or transferred must allow the bank the right to liquidate or take legal possession of the collateral in a timely manner. The bank must take all steps necessary to satisfy the legal requirements applicable to the bank's interest in the collateral. This would include clear and robust procedures for the timely liquidation of collateral to ensure that any legal conditions

required for declaring the default of the counterparty and liquidating the collateral are observed and that the collateral can be liquidated promptly.

198. In the event of default, any requirement on the lender to serve notice on the party lodging the collateral must not unnecessarily impede the lender's recourse to the collateral.

199. Collateral in the form of securities issued by the counterparty to the credit exposure (or by any person or entity related or associated with the counterparty) is considered to have a material positive correlation with the credit quality of the original counterparty and is therefore not eligible collateral.

200. Collateral must be held by an independent custodian, except when cash, or an equally independent third party, or by the bank. Where the collateral is held by an independent custodian or an independent third party, the bank must take reasonable steps to ensure that the custodian or third party segregates the collateral from its own assets.

Simple Approach

201. The simple approach substitutes the risk weight of the collateral to a floor of 20% in place of the risk weight of the counterparty unless paragraph 203 applies.

202. Eligible collateral that meet any one of conditions below may receive a lower risk weight of either: -

0% risk weight, if:

a. The exposure and collateral are denominated in the same currency, and the collateral is cash on deposit with the bank incurring the counterparty exposure;

b. the exposure and the collateral are denominated in the same currency, the collateral is security issued by sovereign/PSE securities eligible for a 0% risk weight, and its market value has been discounted by 20%;

c. Repo-style transactions that fulfil the criteria outlined at paragraph 215 and the counterparty is a core market participant at paragraph 196; or

d. OTC derivative transactions subject to daily mark-to-market, collateralized by cash and where there is no currency mismatch;

OR 10% risk weight if:

a. the collateral is backed by a sovereign who is not a core market participant, the collateral is in the sovereign's domestic currency and its market value is discounted by 20%;

b. Repo-style transactions that fulfil the criteria outlined at paragraph 215 and the counterparty is a non-core market participant; or

c. OTC derivative transactions collateralized by sovereign or PSE securities qualifying for a 0% risk weight in the SA.

203. Collateral must be pledged for at least the life of the exposure, marked to market and revalued with a minimum frequency of six (6) months.

Comprehensive Approach

204. The comprehensive approach on a collateralized transaction is the RWAs on the net exposure adjusted for possible price fluctuations on both sides of the transaction. The net exposure after risk mitigation cannot be negative.

205. Each side of collateralized transaction is volatility adjusted using standard haircuts in paragraph 210 and the formulae at paragraph 207. When applied the haircuts (or rather factors) have the opposite effects on their components such that the volatility adjusted value:

- Increases for counterparty exposure; and
- Decreases for the collateral.

An exception arises if both sides are cash.

206. The comprehensive approach determines the adjusted exposure as:

$$E^* = max\{0, [E_0 \times (1+H_e) - C_0 \times (1 - H_c - H_{fx})]\}$$

Where:

E^* = Adjusted Exposure (after CRM).

E_0 = Exposure

C_0 = Collateral

H_e = Haircut to the Exposure

H_c = Haircut to the Collateral.

H_{fx} = Haircut for currency mismatch between the collateral and exposure.

Thereafter the adjusted exposure is assigned the risk weight of the counterparty.

207. For OTC derivatives, $E \times (1+H_e)$ is replaced by the CEA of the OTC derivative calculated using the current exposure (mark-to-market) method, i.e. replacement cost and potential future exposure.

208. Where the collateral is a basket of assets, the haircut on the basket shall be:

$$H = \sum_i a_i H_i \qquad (i = 1, 2, 3, \ldots\ldots, n)$$

Where:

a_i = proportion of the asset in the basket (as measured by value)

H_i = haircut applicable to that asset.

n = number of assets in the basket

For example: assets A_1 and A_2 represent 40% and 60%, with haircuts 5% and 8%, respectively; i.e.

Asset	Haircut	Weight
A_1	5%	40%
A_2	8%	60%

The haircut (H) for the basket will be calculated as follows:

H = (0.4 * 0.05) + (0.6 * 0.08)

= 0.020 + 0.048

= 0.068 (i.e. 6.8%)

209. The standard exposure and collateral haircuts (H), expressed as percentages, are in the Table below. These standard haircuts assume daily mark-to-market, daily remargining and a 10-business day holding period.

Table - Standard supervisory haircuts (assumptions paragraph 212)

ERG	Residual Maturity	Sovereigns (%)	Other (%)
1 T/Bills, Notes & Bonds	=/< 1 year	0.5	1
	> 1 year, =/< 5 years	2	4
	> 5 years	4	8
2,3 Unrated bank securities	=/< 1 year	1	2
	> 1 year, =/< 5 years	3	6
	> 5 years	6	12
4	All	15	
Main index equities (e.g. convertible bonds) and Gold		15	
Other equities (e.g. convertible bonds) on a recognised exchange		25	
Units in listed trusts		Highest haircut that applies to any security the trust can invest in	
Cash – same currency		0	
Cash – different currency		8	

210. If the exposure and collateral are in different currencies, an 8% haircut applies for currency mismatch in the formula. The haircut is based on a 10-business day holding period and daily mark-to-market. If the holding period is different the haircut must be adjusted for the difference as per paragraph 214.

Adjustments to Standard Haircuts for different holding periods and non-daily mark-to-market or remargining

211. The minimum conditions and holding periods for securities financing transactions (SFT), other capital-market-driven transactions (i.e. OTC derivative transactions) and secured lending are detailed in the table below.

Table - Minimum holding periods by product

Transaction type	Minimum holding period	Condition
Repo-style transactions	5 business days	Daily remargining
Other capital market transactions	10 business days	Daily remargining
Secured lending	20 business days	Daily revaluation

212. When the remargining or revaluation is not performed daily as per the table in paragraph 212, the standard supervisory haircuts must be scaled for the difference of business days between the remargining or revaluation days using the formula below.

$$H = H_M \sqrt{\frac{N_R + (T_M - 1)}{T_M}}$$

Where:

H = Adjusted haircut.

H_M = Haircut under the minimum conditions, (i.e. the standard supervisory haircuts).

T_M = Minimum holding period by type of transaction by paragraph 212.

N_R = Actual business days between remargining for capital market transactions *or* revaluation for secured exposures.

213. Where an adjustment is made for volatility in the minimum holding period (T_M) to obtain a new holding period (T_N days) which is different from the T_M provided in paragraph 212, the haircut under the minimum holding period (H_M) shall be calculated as:

$$H_M = H_N \sqrt{\frac{T_M}{T_N}}$$

Where:

H_N = Haircut based on the holding period T_N

T_N = Holding period used by the bank for deriving H_N

214. For securities financing transactions, where the counterparty is a core market participant in paragraph 196, a bank may apply a haircut of zero, where the following conditions are satisfied:

a. both the exposure and the collateral are cash, a sovereign security or PSE security, qualifying for a zero per cent risk-weight by the SA;

b. both the exposure and the collateral are denominated in the same currency;

c. either the transaction is overnight, or both the exposure and the collateral are marked-to-market daily and are subject to daily remargining;

d. following a counterparty's failure to remargin, the time between the last mark-to-market before the failure to remargin and the liquidation of the collateral is no more than four business days;

e. the transaction is settled across an established settlement system for that type of transaction;

f. the documentation for the transaction is standard market documentation;

g. the documentation for the transaction specifies that if the counterparty fails to satisfy an obligation to deliver cash or securities or to deliver a margin call or otherwise defaults, the transaction is immediately terminable; and

h. upon any default event, regardless of whether the counterparty is insolvent or bankrupt, the bank has an unequivocal, legally enforceable right to immediately seize and liquidate the collateral.

Maturity Mismatch and Measurement of Maturity

215. A maturity mismatch exists where the *residual maturity* of the collateral is less than the maturity of the underlying exposure. The collateral is not eligible if it has a residual maturity less than maturity of the exposure.

216. The effective maturity of the underlying exposure is the longest possible remaining time before the counterparty is scheduled to fulfil its obligation, including any grace period that may apply.

217. The effective maturity of the collateral is its shortest possible maturity considering any embedded options that may reduce the term of the collateral. This includes any clause in the documentation indicating the transaction that may reduce its term of lodgement either by the provider of the collateral or the bank taking the collateral.

Guarantees

218. Credit exposures secured by a qualifying guarantee may receive a lower risk weighting for an eligible guarantor. The guarantee and the guarantor must satisfy the requirements of this section to be eligible for a lower risk weight.

219. A guarantee that does not fully cover the exposure is permitted as risk mitigant even though it is not well secured by Section 62(9) of the BSDI Act. The guarantee must cover the life of the exposure.

220. A guarantee or counter-guarantee must:

a. represent a direct claim on guarantor with the extent of the cover clearly defined and incontrovertible.

b. be irrevocable such that there must be no clause in the contract that would allow the guarantor to cancel unilaterally the cover of the guarantee or that would increase the effective cost of cover due to deteriorating credit quality in the guaranteed exposure.

c. be unconditional; there should be no clause in the guarantee outside the direct control of the bank that could prevent the guarantor from being obliged

to pay out in a timely manner in the event that the original counterparty fails to make the due payment(s).

221. Credit insurance may be an acceptable form of guarantee. Credit insurance providers must be acceptable to BOG and in good standing with the relevant supervisory authority (e.g. NIC, SEC, NPRA, etc).

222. The acceptability of the guarantor or credit insurer will be subject to a minimum criterion where applicable:

a. a credit insurer must be regulated by the relevant supervisory authority.

b. Legal certainty requiring the willingness and ability to pay and the form of assurance in relation to scheduled cashflows to the bank from the guarantor or credit insurer.

c. Guarantor or credit insurer is deemed to have credible business model, has managed its business profitability over time, and has a record of due diligence as to what it will insure and how it assesses a claim; and

d. Guarantor or credit insurer has a verifiable history and quantity of claims demonstrating its ability to pay.

223. Guarantees given by the following entities may be recognised to the extent they satisfy the conditions in paragraphs 221 to 223:

a. sovereign entities, PSEs and banks with a lower risk weight than the counterparty; or

b. other entities with ERG 2 or better. This would include credit protection provided by parent and affiliate companies when they have a lower risk weight than the obligor.

224. Claims guaranteed or counter guaranteed by the sovereign (or central bank) denominated and funded in local currency shall receive a preferential risk weight of 0% provided they meet the following requirements:

a. The sovereign counter-guarantee covers all credit risk elements of the claim;

b. Both the original guarantee and the counter-guarantee meet all operational requirements for guarantees, except that the counter guarantee need not be direct and explicit to the original claim; and

c. The bank is able to satisfy BOG the cover is robust and that no historical evidence suggests that the coverage of the counter-guarantee is less than effectively equivalent to that of a direct sovereign guarantee.

225. Letters of comfort do not qualify as eligible guarantors for CRM purposes. The guarantee is an explicitly documented obligation assumed by the guarantor.

226. A guarantee may be recognised if the following conditions are satisfied:

a. On the qualifying default/non-payment of the counterparty, the bank has capacity to pursue in a timely manner the guarantor for any monies outstanding under the documentation governing the transaction. The guarantor may make one lump sum payment of all monies under such documentation to the bank, or the guarantor may assume the future payment obligations of the counterparty covered by the guarantee. The bank must have the right to receive any such payments from the guarantor without first having to take legal actions to pursue the counterparty for payment.

b. The guarantee covers all types of payments the underlying obligor is expected to make under the documentation governing the transaction, for example notional amount, margin payments etc. Where a guarantee covers payment of principal only, interests and other uncovered payments should be treated as an unsecured.

227. Materiality thresholds on payments below which no payment is made in the event of loss are equivalent to retained first loss positions and must be deducted in full from CET1.

Proportional Cover

228. Where the credit protection value held is less than the amount of the exposure, and the secured and unsecured portions are of equal seniority, (i.e. the bank and the credit protection provider share losses on a pro-rata basis), the protected portion of the exposure shall receive the treatment applicable to eligible guarantees and the remainder is regarded as unsecured.

Tranched Cover

229. Where the bank transfers a portion of the risk of an exposure in one or more tranches to a protection seller(s) and retains some level of risk of the loan and the risk transferred and the risk retained are of different seniority, banks may obtain credit protection for either the senior tranches (e.g. second loss portion) or the junior tranche (e.g. first loss portion).

Currency Mismatch

230. A currency mismatch exists where the guarantee is denominated in a currency different to the currency of the exposure. The volatility adjusted exposure is that which is deemed to be guaranteed after applying the haircut for the currency mismatch as follows:

$$G_A = G \times (1 - H_{FX})$$

Where:

G_A is guaranteed value of the exposure

G is nominal value of the guaranteed exposure with the currency mismatch

H_{FX} is the standard haircut for currency mismatch that is 8% if daily mark-to-market in paragraph 211. Haircuts must be adjusted depending on the actual frequency of revaluation of the currency mismatch as per the formulas in paragraphs 212 to 214.

Maturity Mismatch and Measurement of Maturity

231. The guarantee is not eligible if there is a maturity mismatch with the exposure. A maturity mismatch exists where the *residual maturity* of the guarantee is less than the maturity of the underlying exposure covered by the guarantee.

232. The effective maturity of the underlying exposure is the longest possible remaining time before the counterparty is scheduled to fulfil its obligation, including any grace period that may apply.

233. The effective maturity of the guarantee is its shortest possible maturity considering any clauses that may reduce the effective maturity of the guarantee and those that give the bank, at origination of the guarantee a discretion and positive incentive for the bank to call the transaction before contractual maturity.

Credit Derivatives

234. Banks should consider the principles herein and notify BOG of their current use of credit derivatives and what further evolution in the banking sector may be expected for products of this type. Similarly, a bank contemplating the use of credit derivatives as a credit risk mitigation technique should notify BOG and supply all relevant supporting documentation.

235. A bank that intends to sell credit protection must obtain BOG's written approval to transact this business and regarding the appropriate regulatory capital treatment for the transaction.

236. It is a prerequisite condition that a bank is functioning in a well-defined and appropriate risk culture, as determined by BOG, as well as satisfying the specific operational requirements for use of derivatives.

237. Only total return swaps, credit default swaps and credit-linked notes that provide credit protection equivalent to guarantees may be eligible for recognition. Other types of credit derivatives must be approved by BOG.

238. The International Swap Dealers Association (ISDA) Master Agreement is the generally accepted contract for OTC derivative transactions. Banks are expected to undertake appropriate due diligence on necessary forms of documentation and the applicability of the laws which enable the terms and conditions in Ghana.

239. Credit protection purchased from the following entities will be recognised:

    a. sovereign entities, PSEs and banks with a lower risk weight than the counterparty; or

b. other entities with ERG of 2 or better. This would include credit protection provided by parent, and affiliate companies when they have a lower risk weight than the obligor.

240. The bank must ensure for CRM purposes there is sufficient credit risk transfer under each credit derivative. At a minimum sufficient credit risk transfer requires the credit events specified to cover:

a. the failure to pay the amounts due under terms of the underlying obligation that are in effect at the time of such failure (with a grace period that is closely in line with the grace period in the underlying obligation);

b. bankruptcy, insolvency or inability of the obligor to pay its debts, or its failure or admission in writing of its inability generally to pay its debts as they become due, and analogous events; and

c. any restructuring of the underlying obligation involving forgiveness or postponement of principal, interest or fees that results in a credit loss event (i.e. charge-off, specific provision or other similar debit to the profit and loss account).

241. When the restructuring of the underlying exposure is not covered by the terms of the credit derivative contract, but the other requirements are met as per paragraph 241(a) and (b), partial recognition of the credit derivative will be allowed. If the amount of the credit derivative is less than or equal to the amount of the underlying obligation, 60% of the amount of the hedge can be recognised as covered. If the amount of the credit derivative is larger than that of the underlying obligation, then the amount of eligible hedge is capped at 60% of the amount of the underlying obligation.

242. An asset mismatch exists where the credit derivative purchased covers obligations different to the underlying exposure which the bank has purchased the credit derivative to protect.

243. An asset mismatch may only be permitted if:

a. the reference obligation (or the deliverable obligation) and the obligation specified in the credit derivative contract to determine whether a credit event has occurred ranks *pari passu* with, or is junior to, the underlying obligation; and

b. the underlying obligation and the reference obligation (or the deliverable obligation) and the obligation specified in the credit derivative contract to determine whether a credit event has occurred share the same obligor (i.e. the same legal entity) and legally enforceable cross-default or cross-acceleration clauses are in place.

244. A bank that has sold credit protection using a credit derivative must, for capital purposes, assume 100% of the credit risk that is purchased irrespective of the range of specified credit events.

Materiality thresholds

245. A credit derivative contract may specify thresholds below which credit protection is not provided even if a credit event occurs. To be recognised for CRM purposes, a credit derivative contract must not contain significant materiality thresholds that limit the credit protection.

246. When determining the credit protection purchased, any material threshold in the credit derivative contract, that is a 'first loss position' to the bank, is deducted from CET1 capital. The deduction is capped at the value of capital the bank would have to hold against the full value of the underlying exposure.

247. When determining the amount of credit protection sold, a bank must assume any materiality thresholds in the credit derivative contact do not reduce the acquired credit risk.

248. The credit derivative contract must explicitly state how settlement will occur in a credit event and set the value of the credit protection purchased or sold as either equal to the par value of the deliverable obligation (if settled in cash or physically) or as a fixed amount or percentage of the notional principal of the contract amount.

Measurement of Maturity

249. The effective maturity of the underlying exposure is the longest possible remaining time before the counterparty is scheduled to fulfil its obligation, including any grace period that may apply.

250. The effective maturity of the credit derivative is its shortest possible maturity considering any embedded options that may reduce the term of credit protection. The bank must consider terms of the arrangement that give the credit provider the capacity to reduce the effective maturity of the credit derivative and those that give the bank at origination of the credit derivative a discretion and positive incentive for the bank to reduce its effective maturity.

251. Where a credit derivative is not prevented from terminating prior to expiration of any grace period required for default on the underlying exposure to occur as a result of failure to pay, the effective maturity of the credit derivative must be reduced by the amount of the grace period.

252. The following operational requirements for a credit derivative must be satisfied:

a. A credit derivative must represent a direct claim on the protection provider with the extent of the cover being clearly defined and incontrovertible, and:

i. It must be irrevocable; there must be no clause in the contract that would allow the protection provider to cancel unilaterally the credit cover, or to increase the effective cost of cover if credit quality deteriorates in the underlying exposure.

ii. It must also be unconditional; there should be no clause in the protection contract outside the direct control of the bank that could prevent the protection provider from being obliged to pay out in a timely manner if the original counterparty fails to make the payment(s) due.

b. Cash settlement of credit derivatives must be supported by a robust valuation process to reliably estimate losses for the reference obligation specified in the contract and the timing of the post-credit valuation must be also be clearly specified in the contract.

c. Where the protection purchaser has an existing credit exposure that is the deliverable obligation under the credit derivative contract, the terms of the underlying exposure must allow for its transfer to the protection seller. If the protection purchaser's right and ability to transfer the underlying obligation to the protection seller is required for settlement, the terms of the underlying obligation must provide that any required consent to such transfer may not be unreasonably withheld.

d. The identity of the parties responsible for determining whether a credit event has occurred must be clearly defined. This determination must not be the sole responsibility of the protection seller. The protection buyer must have the right and ability to inform the protection provider of the occurrence of a credit event.

Proportional Cover

253. Where the credit protection value held is less than the amount of the exposure, and the secured and unsecured portions are of equal seniority (i.e. the bank and the credit protection provider share losses on a pro-rata basis), the protected portion of the exposure shall receive the treatment applicable to credit derivatives, with the remainder treated as unsecured.

Tranched cover

254. Where the bank transfers a portion of the risk of an exposure in one or more tranches to a protection seller or sellers and retains some level of risk of the loan and the risk transferred and the risk retained are of different seniority, banks may obtain credit protection for either the senior tranches (e.g. second loss portion) or the junior tranche (e.g. first loss portion).

Credit-default and total-rate-of-return swaps

255. Where credit protection is purchased using a credit-default swap referenced to a single reference entity or a total-rate-of-return swap, that portion of the underlying exposure protected by the credit derivative (or the value of credit protection purchased as paragraph 249) is assigned the risk weight of the protection seller.

Cash funded credit linked notes

256. Where credit protection is purchased using a credit linked note that is funded by cash, the note issued by the bank will be treated for capital adequacy purposes as cash-collateralized transaction and subject to requirements for cash collateral.

First-to-default credit derivatives

257. A bank may purchase credit protection for a basket of reference names and credit protection is defined and limited by credit default events. A first to default credit derivative contract will pay out on losses after the first credit event as specified but thereafter the contract terminates.

258. A protection purchaser may recognise capital relief for the reference entity with the lowest risk weighted amount. The portion of the underlying exposure protected by the credit derivative (or the value of credit protection purchased as paragraph 249) is assigned the risk weight of the protection seller.

Second-to-default credit derivatives

259. A second-to-default credit derivative contract will pay out on losses after the second credit event as specified but thereafter the contract terminates. The credit protection will only be recognised if first-to-default credit protection is held or after the first-to-default credit event has occurred for one reference entity in the basket.

260. A protection purchaser may recognise capital relief for the reference entity with the lowest risk weighted amount. The portion of the underlying exposure protected by the credit derivative (or the value of credit protection purchased as paragraph 249) is assigned the risk weight of the protection seller.

Maturity Mismatch and Adjustments

261. Credit derivatives are not eligible if there is a maturity mismatch with the exposure. A maturity mismatch exists where the *residual maturity* of the credit derivative is less than the maturity of the underlying exposure covered by the credit derivative.

262. Where a single protection provider provides multiple credit protection with different maturities, the bank must divide the exposure into separate covered portions for risk weighting purposes.

Currency mismatch

263. A currency mismatch is only acceptable while the value of the credit derivative is well-secured as per Section 62(9) of the BSDI Act. Where the credit protection arrangement (i.e. credit derivative) is denominated in a currency different from that in which the exposure is denominated (i.e. there is a currency mismatch), the amount of the exposure deemed to be protected, i.e. the volatility adjusted value of the credit protection (G_A) shall be calculated by the application of a haircut H_{FX} as follows:

$$G_A = G * (1 - H_{FX})$$

By comprehensive formulae at paragraph 207, G_A is substituted for C in the expression for E_1 above and H_{FX} set at zero.

Where:

G = nominal amount of the credit protection

H_{FX} = haircut appropriate for the currency mismatch that is 8% if daily mark-to-market (refer paragraph 211). Haircuts must be adjusted depending on the actual frequency of revaluation of the currency mismatch as per the formulas in paragraphs 212 to 214.

Credit Derivatives used to acquire credit risk exposure

264. A bank that intends to sell credit protection must obtain BOG's written approval to transact this business and regarding the appropriate regulatory capital treatment for the transaction. The only eligible products for banks to consider strategies for sale include credit-default swaps, total-rate-of-return swaps and cash-fund credit-linked notes. First- or second-to-default credit derivatives will not be permitted.

Credit-default Swaps

265. Where credit protection is sold via a credit-default swap referenced to a single reference entity, the bank acquires an exposure to the credit risk of that entity. The risk weight that must be applied to the exposure is the risk weight that would otherwise apply to the reference entity. The amount of the exposure is the maximum possible amount payable under the terms of the credit derivative contract if a credit event were to occur.

Total-rate-of-return swaps

266. Credit protection sold via a total-rate-of-return swap must be included in the trading book.

Cash-funded credit-linked notes

267. Where credit protection is sold via a cash-funded credit-linked note, the bank acquires an exposure to both the protection buyer and the entity where the cash collateral is held, with the amount of the exposure being the face value of the note. Where the credit-linked note is structured such that the protection seller receives some percentage of the note's face value if the credit derivative is triggered, the amount of exposure to the reference entity is the difference between the face value and this percentage amount. To account for this exposure, the higher of the risk weights applicable to the protection buyer and the entity where the cash collateral is held must be applied to the exposure.

Netting

268. A bank may net or offset the following types of transactions subject to the requirements herein:

a. On balance sheet loans and deposits where:

i. the value of assets and liabilities of the counterparty subject to the netting agreement can be determined at any time; and

ii. deposits meet the criteria for eligible financial collateral;

b. OTC derivative transactions (across the banking and trading books) with a single counterparty;

c. SFT involve transactions where securities are used to borrow cash (or other higher investment grade securities) or vice versa, such as reverse repurchase transactions, securities lending and sell/buy-back transactions.

Payments netting connected to operational costs of daily settlements is not recognised since gross obligations of the counterparty are not affected.

269. A bank may only net transactions covered by a netting agreement with a counterparty that complies with requirements in this section.

270. Netting will only be acceptable to BOG if the contracts conform to international standards reflected in BOG's Repurchase Master Agreement, the International Global Repurchase Master Agreement (GRMA) or the International Swap Dealers Association (ISDA) Master Agreement. The GRMA should be the standard for repurchase transactions ('repos') conducted with BOG. Banks are expected to undertake appropriate due diligence on the forms of documentation and the applicability of the laws which enable the terms and conditions in Ghana.

271. A bank may only net positions across the banking book and trading book if the transactions to be netted:

a. are marked to market daily, where applicable; and

b. any instruments to be used as collateral are eligible financial collateral in the banking book.

Bilateral netting

272. Bilateral netting relates to multiple transactions between same counterparties and allows weighting the net claims for the full range of forwards, swaps, options and similar derivative contracts, rather than the gross claims. Any pre-existing netting agreements, including a master netting agreement, must meet the requirements of this section.

273. A netting arrangement may not be effective in reducing counterparty risk in all circumstances, and especially if a failed counterparty subject to liquidation can

unilaterally vary transactions. Accordingly, the following conditions must be satisfied for capital adequacy purposes:

a. Banks may net transactions subject to novation whereby any obligation between a bank and its counterparty to deliver a given currency on a given value date is automatically amalgamated with all other obligations for the same currency and value date and legally substitutes one single amount for previous gross obligations.

b. Banks may also net transactions subject to any legally valid form of netting not covered in (a), including other forms of novation.

c. In both cases (a) and (b) BOG must be satisfied that the bank has:

i. A netting contract or agreement with the counterparty which creates a single legal obligation, covering all included transactions, such that the bank would have either a claim to receive or obligation to pay only the net sum of the positive and negative mark-to-market values of included individual transactions in the event a counterparty fails to perform due to any of the following: default, bankruptcy, liquidation or similar circumstances;

ii. Written and reasoned legal opinions that, in the event of a legal challenge, the relevant courts and administrative authorities would find the bank's exposure to be such a net amount under any of the laws applicable to the counterparties wherever they are incorporated, the individual transactions or the contract that effects the netting arrangement; and

iii. Procedures are in place to ensure that the legal characteristics of netting arrangement are kept under review and current with respect to the evolution in the relevant laws.

d. The contract does not contain a walkaway clause that permits a non-defaulting company to make only limited payments, or no payment at all, to the estate of a defaulter, even if the defaulter is a net creditor.

Operational Requirements

274. In general, a bank must have a risk management framework for netting with the requisite capacity in-house to manage any and all transactions, to one or many counterparties, in potentially many netting arrangements. This would include:

a. Well-founded legally enforceable netting arrangements for loans and deposits (in each relevant jurisdiction) regardless of whether the counterparty is insolvent or bankrupt,

b. Risk management framework includes all necessary policy, accountabilities, systems and controls; and

c. Monitoring and reporting on netting arrangements and all relevant exposures.

Calculation of Regulatory Capital

Netting for On-balance sheet transactions

275. A bank netting on-balance sheet exposures shall use the simple approach for banking book transactions and the comprehensive approach for trading book transactions to calculate its net on-balance sheet exposure for capital adequacy purposes. The loans are treated as exposure and liabilities (i.e. deposits) as collateral. The haircuts will be zero except when a currency mismatch exists. The bank must also apply a 10-business day holding period when daily mark-to-market is conducted and satisfy tests of maturity.

Netting OTC derivatives - Current Exposure Method

276. The current exposure method for a bilateral netting contract incorporates all transactions to the counterparty. The CEA for market-related off-balance sheet transactions covered by bilateral netting agreement is:

$$CEA = NRC + A_{NET}$$

NRC is the net mark-to-market replacement cost of all individual contracts. That is, the sum of all positive and negative mark-to-market values. Positive values may be offset against negative mark-to-market values, but the net position after summation cannot be negative (i.e. it must be positive or zero); and

A_{Net} is the add-on for the potential future credit exposure arising from the notional principal of all underlying contracts and adjusts for the effects of the netting agreement shown as:

$$A_{NET} = 0.4 \times A_{GROSS} + 0.6 \times NGR \times A_{GROSS}$$

And where:

NGR is net to gross ratio for all transactions to a counterparty in a single netting agreement shown as

$$NGR = \frac{NRC}{GRC}$$

Where:

NRC is already defined above;

GRC is gross replacement cost being the sum of all positive mark-to-market transactions covered by a netting agreement without offsetting for contracts with negative mark-to-market values.

and;

$A_{GROSS} = \sum_i (A_i \times P_i)$ such that

A_i is add-ons for all individual transactions; and

P_i is the notional principal for each transaction subject to legally enforceable netting agreements with the same counterparty.

277. NGR may be calculated using one of the following approaches:

a. counterparty-by-counterparty approach – a unique NGR is applied to each counterparty in calculating the CEA of transactions with that counterparty; or

b. aggregate approach – a single NGR is calculated and applied to all counterparties in calculating the CEA for transactions with each of those counterparties.

278. A bank must consistently use either the counterparty-by-counterparty approach or the aggregate approach to calculate the NGR and must inform BOG of which approach it intends to use.

Netting Securities Financing Transactions (SFT)

279. A bank that uses the comprehensive approach to eligible collateral (paragraph 207) must apply the comprehensive formula for the purposes of calculating the adjusted exposure (E*) amount after netting for SFTs.

280. A bank may only use the standard haircuts as per paragraph 210 and apply the procedure below for the effect of the master netting agreements:

$$E^* = max\left\{0, \left[\sum E - \sum C + \sum (E_s \times H_S) + \sum \left(E_{fx} \times H_{fx}\right)\right]\right\}$$

Where:

E^* = Value of exposure after risk mitigation

E = Current value of exposure

C = Value of the collateral received

E_S = Absolute value of the net position in an instrument

H_S = Haircut appropriate to E_S

E_{fx} = Absolute value of the net position in a currency that is not the settlement currency.

H_{fx} = Haircut for currency mismatch

APPENDIX TO PART 2 – CREDIT RISK

Table 2A - Risk Weight (RW) Categories

	Assets Type	Ref	ERG	RW (%)
A	**Cash & Balances**			
1	Cash in cedi	149		0
2	Foreign currency notes & coins	149		0
3	Cash items in the process of collection (e.g. cheques)	149		20
B	**Claims on sovereigns**			
1	Claims on Government of Ghana in domestic currency	107		0
2	Claims on securities issued by the Government of Ghana, Treasury Bills and Treasury Notes in domestic currency.	107		0
3	Claims on the Government of Ghana in foreign currency.	108		20
4	Claims on other sovereigns in their local currency (*if authority has not determined a preferential RW).* Claims on other sovereigns not in their local currency	109 110	1 2 3 4,5 6 Unrated	0 20 50 100 150 100
5	Claims on the African Union & European Community	111		0

	Assets Type	Ref	ERG	RW (%)
C	**Claims on Central Banks**			
1	Claims on BOG in domestic currency.	107		0
2	Claims on securities issued by BOG in the domestic currency.	107		0
3	Claims on BOG in foreign currency.	108		20
4	Claims on other central banks not in their local currency	108	1 2,3 4,5 6 Unrated	20 50 100 150 100
5	Claims on BIS, IMF and ECB.	111		0
D	**Claims on Multilateral Development Banks (MDBs)**			
1	Claims on highly rated MDBs	113		0
2	Claims on other MDBs	112	1 2,3 4,5 6 Unrated	20 50 100 150 100
E	**Claims on Banks**			
1	Claims on banks	124	1 2, 3 4,5 6 Unrated	20 50 100 150 50
2	Claims on banks with an original maturity of 3 months or less in the domestic currency	125	1,2,3 4,5 6	20 50 150

			Unrated	20
I	**Claims on Other Financial Institutions**			
	Claims on SDIs regulated by BOG but not microfinance institutions	126		70
	Claims on microfinance institutions, other institutions regulated by BOG, insurance companies regulated by NIC pension funds by NPRA, & securities firms by SEC.	127		100
	Risk add-on for currency mismatch applies	128		+20

	Assets Type	Ref	ERG	RW (%)
F	**Claims on Central Government Public Sector Entities (PSEs)**			
	Claims on domestic PSEs with revenue raising powers	116b		20
	Claims on domestic PSEs without revenue raising powers.	116c	1 2,3 4,5 6 Unrated	20 50 100 150 100
G	**Claims on Non-Central government Public Sector Entities (PSEs)**			
	Claims on PSEs that are non-profit making institutions.	118		50
	Claims on domestic PSEs that are profit making enterprises.	119		100
	Risk add-on for currency mismatch applies	120		+20
H	**Claims on Foreign PSEs**			
	Claims on foreign PSEs in their local currency and guaranteed by the sovereign.	121	RW that applies to the sovereign	
	Claims on foreign PSEs in their local currency	122	ECAI for sovereign	
	Claims on foreign PSEs not in their local currency	123	ECAI for sovereign +20%	

	Assets Type	Ref	RW (%)
J	**Claims on Non-Retail Lending**		
	Claims on corporates	139	100
	Claim on SMEs	140	100
	Risk add-on for currency mismatch applies	139-40	+20
L	**Claims Retail**		
	Claims on qualifying retail exposures to salaried employees with an undertaking from their employer as designated (see reference).	129	75
	Risk add-on for currency mismatch applies	131	+20
M	**Claims secured by residential property**		
	Qualifying residential mortgage loan fully secured with LVR 80% or less and other conditions.	132	35
	A non-qualifying residential mortgage loan	133	100
	Risk add-on for currency mismatch applies	134	+20

	Assets Type	Ref	RW (%)
N	**Claims Secured by Commercial Real Estate**		
	Claims secured by commercial real estate meeting conditions similar to qualifying residential mortgage loans	136	100
	Claims secured by non-qualifying commercial real estate loans, or facilities for buying and selling residential properties for profit or for	137	150

	development of property for sale.		
	Risk add-on for currency mismatch applies	138	+20
O	**Past Due Claims**		
	Unsecured loans for any claim past due for 90 days or more, which are classified as below with provisions specified: i. Loss without full provisions ii. Substandard iii. Doubtful iv. Loss with full provisions	143	 150 150 100 0
	Loans fully secured by residential mortgage past due for 90 days or more which are classified as below with provisions specified in paragraph 140: v. Substandard vi. Doubtful vii. Loss with full provisions	145	 100 50 0
	Other claims on higher risk categories past due for 90 days or more as below i. No provision made ii. Claims on sovereigns, PSEs, banks & securities firms not local to Ghana rated below B- iii. Claims on qualifying mortgages for commercial real estate iv. Claims on non-qualifying mortgages for commercial real estate	146	 150 150 150 200
	Risk add-on for currency mismatch applies	142	+20
P	**Other Assets**		
	Premises, real estate, furniture, fixtures, equipment, vehicles and other fixed assets including capital works in progress.	149	100
	Any other assets not elsewhere specified.	149	100

Table 2B - Credit Conversion Factors (CCFs) for Off-balance Sheet Exposures

S/N	Instrument	CCF (%)
A.	**Commitments**	
	Undrawn commitment which is unconditionally cancellable any time by the bank without prior notice, or which effectively provide automatic cancellation due to deterioration in a borrower's credit worthiness.	0
	Undrawn commitment with original maturity of up to 1 year.	20
	Undrawn commitment with original maturity of over 1 year.	50
	Commitment with Certain Draw-down Any credit facility approved but not yet utilized by the borrower.	100
	Risk add-on for currency mismatch applies	+20
B.	**Direct Credit Substitutes**	
	General guarantees of indebtedness including: i. Acceptances and endorsements (including per aval endorsements). ii. Guarantees and Indemnities. iii. Commercial letters of credit (including standby letters of credit serving as financial guarantees for loans and securities)	100
	Risk add-on for currency mismatch applies	+20
C.	**Performance-Related Contingent Items**	
	Performance-related contingent liabilities	50
	Note-issuance Facilities (NIFs) and Revolving Underwriting Facilities (RUFs)	50
	Trade-related contingent liabilities	20
	Risk add-on for currency mismatch applies	+20

D.	**Sale and Repurchase Agreements (Repos)**	
	Loans or other assets sold under a sale and repurchase agreement.	100
	Sale and repurchase agreements and asset sales with recourse	
	Lending of banks' securities or the posting of securities as collateral	
	Risk add-on for currency mismatch applies	+20
E.	**Market Related Off-balance Sheet Transactions**	
	Forward Asset Purchase	100
	Placements of Forward Deposits	
	Partly-paid Shares and Securities	
	Risk add-on for currency mismatch applies	+20
F.	**Market Related Off-balance Sheet Transactions**	
	Risk add-on for currency mismatch applies	+20

Determination of maturity of a commitment	CCF
Commitments for off-balance sheet transactions A distinction is made between a commitment to provide an off-balance sheet facility that may or may not be drawn by the customer, and a commitment to provide an off-balance sheet instrument with certain drawdown. For example: A 15-month commitment to provide a contingent facility secured with the underlying shipment, **which may or may not** be drawn down shall be given a CCF of the lower of 50% and 20%.	20
Similarly, a 12-month commitment to provide a direct credit substitute facility **where draw-down is uncertain**, it shall receive a CCF of the lower of 50% and 100%.	50
However, a commitment to provide a trade-related contingent item, where it is **certain** that the facility would be utilized at some future date, including multiple draw-downs shall receive a CCF of the lower of 100% and 20%.	20
And, a commitment to issue a guarantee (a direct credit substitute) at a given future date with **a sure** utilization of the facility will be assigned a CCF of the lower of 100% and 100%.	100

ANNEX 2D – Examples of Public Sector Entities (PSEs)

PSE (Institutions)

Social Security and National Insurance Trust
Volta River Authority
Ghana Cocoa Board (Cocobod)
Council for Scientific and Industrial Research

PSE (Enterprises)

Tema Oil Refinery (TOR)
Ghana Water Company
Electricity Company of Ghana (ECG)
Ghana Ports and Harbours Authority
Produce Buying Company (PBC)

PART 3 MANAGEMENT AND MEASUREMENT OF OPERATIONAL RISK

281. This part sets out the methodology for determining the operational risk charge a bank must hold in its regulatory capital for the risk of operational loss.

282. Operational risk is the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. This definition includes legal risk, but excludes strategic and reputational risk.

283. Legal risk includes, but is not limited to, exposure to fines, penalties, or punitive damages resulting from supervisory actions, as well as private settlements. Annex to Part 3 Table 3C provides examples of operational risk events.

Principles for Operational Risk Management

284. The Board, as the author and driver of the bank's corporate culture in operational risk, is responsible to demonstrate how its organisational behaviours and outcomes reflect its commitment to minimum standards for sound operational risk management.

285. For this purpose, a Board must establish a systematic Operational Risk Management Framework (ORMF) that drives a culture and methodology for assessing, managing and measuring operational risk exposures and events in its lines of business.

286. The ORMF should cover the whole of business operations and support structures and at a minimum include:

a. Board's strategy and appetite for managing operational risks and, if a separate risk area, information technology risk;

b. all operational risk policies necessary for organisation functionality and resources in business lines, risk ownership, delineation of duties, and escalation;

c. the methodology and formal review process for operational risk assessment and management, including guidelines for managing boundary issues affecting other risk areas;

d. operational procedures for identifying and classifying types of operational risk events covering losses and/or near misses, and ensuring the loss database has appropriate causal analysis and feedback mechanisms in place to enhance risk controls and practices;

e. reporting of operational risk profile to management and to the Board, which would include, as appropriate, updates on risk registers such as the operational risk event register; and

f. a strategy for managing the risks of, and quality of outcomes for, all identified material outsourced contracts and providers of operational support to the bank, including information technology and HR support.

Measurement of Operational Risk

Standardised Approach

287. Banks are required to apply the Standardised Approach (SA) to calculate operational risk capital charge.

288. In the event a bank is not satisfying the minimum standards for operational risk management, BOG may increase the risk based capital requirement for the individual bank under the BSDI Act.

289. Banks are required to divide their activities into eight business lines, namely corporate finance, trading & sales, retail banking, commercial banking, payment & settlement, agency services, asset management, and retail brokerage.

290. Annex to Part 3 Tables 3A and 3B provide definitions of the business lines, and an example of the type of approach a bank must develop and employ to map its gross income to the eight business lines.

291. The SA applies the gross income from each business line as the indicator or proxy for the scale of business operations and thus the likely scale of operational risk exposure within a business line.

292. Banks are required to book income earned or derived from its activities separately, by the respective business lines, such that the total gross income relating to each of the eight business lines can be clearly identified.

Principles for Mapping Business Lines

293. Mapping of activities into the business lines must be consistent and documented. It should be objective, verifiable and repeatable to ensure the overall operational risk capital can be consistently mapped over time, and governed by the following principles:

a. All activities of the bank must be mapped into the eight business lines, in a mutually exclusive manner, (i.e. activities must be defined and the definition consistently applied in a way as to avoid overlapping of the business lines) and jointly exhaustive manner (i.e. every activity must be mapped into one of the business lines).

b. Any banking or non-banking activity which cannot be readily mapped into the business line framework, but which represents an ancillary function to an activity included in the framework, must be allocated to the business line it supports. If more than one business line is supported through the ancillary activity, an objective mapping criterion must be used and documented.

c. Where an activity can equally be mapped into more than one (1) business lines, it shall be mapped into the business line with the highest beta, and that same business line shall apply to any associated ancillary activity.

d. Banks may use internal pricing methods to allocate gross income between business lines provided that total gross income for the bank still equals the sum of gross income for the eight business lines.

e. The mapping of activities into business lines for operational risk capital purposes must be consistent with the definitions of business lines used for regulatory capital calculations in other risk categories, i.e. credit and market risk. Any deviations from this principle must be clearly motivated and documented.

f. The mapping process used must be clear and documented. Definitions of business lines must be clear and detailed enough to allow third parties to replicate the business line mapping. Documentation must, among other things, clearly indicate any exceptions to the rule or overrides and the reasons.

g. Processes must be in place to define the mapping of any new activities or products.

h. Senior management shall be responsible for the mapping policy (which is subject to the approval by the Board of directors).

i. Mapping process must be subject to independent review regularly from the internal audit function, and/or by an external reviewer.

Calculation of Capital Requirement

294. The capital charge for operational risk shall be calculated as follows:

a. The capital charge for each business line is calculated by multiplying gross income by a factor (denoted beta) assigned to that business line. Beta serves as a proxy for the industry-wide relationship between the operational risk loss experience for a given business line and the aggregate level of gross income for that business line.

b. Gross income is that attributed to the business line, not the whole institution, i.e. for commercial banking the indicator is the gross income generated in the commercial banking business line.

c. Beta (β) is a fixed percentage relating the level of required capital to the level of the gross income for each of the eight business lines.

d. The capital charge for the operational risk K_{OP}, for a business line *j*, for each year shall be calculated as:

$$K_{OPj} = AGI_j * \beta_j$$

Where,

AGI_j = Annual gross income for business line *j*.

β_j = The β for a business line *j*.

295. The β for the respective business lines are as follows:

Business Line	Beta	Beta Factors
Corporate finance	β_1	18%
Trading and sales	β_2	18%

Retail banking	β_3	12%
Commercial banking	β_4	15%
Payment and settlement	β_5	18%
Agency services	β_6	15%
Assets management	β_7	12%
Retail brokerage	β_8	12%

296. The operational risk capital charge for all the business lines, for a given year (Kn_{OP}) is calculated as the simple summation of the regulatory capital charge for each of the business lines for that year.

297. In any given year, negative capital charges (resulting from negative gross income) in any business line may offset positive capital charges in other business lines without limit. However, where the aggregate capital charge across all business lines within a given year is negative, then Kn_{OP} for that year will be zero. Also, where the aggregate capital charge across all business lines within a given year is negative or zero, that year will be excluded from the numerator and the denominator in paragraph 300.

298. Hence the operational risk capital charge for all the business lines, for any given year (Kn_{OP}) will be the maximum of zero and the sum of the capital charge for each of the business lines for that year, i.e.

$$Kn_{OP} = \max\left[\left(\sum_{j=1}^{8} GI_j * \beta_j\right), 0\right] \qquad \text{(for } j = 1 \text{ to } 8\text{)}$$

299. The total capital charge for operational risk (Kt_{OP}) using the SA may be expressed as:

$$Kt_{OP} = \frac{\sum_{n=1}^{3} Kn_{OP}}{3}$$

(for n = 1 to 3, or as applicable per paragraph 298)

300. Newly incorporated banks using the SA having fewer than 3 years of audited gross income data shall calculate the operational risk capital charge using available audited gross income data for each business line and the number of years (n) in paragraph 300 adjusted accordingly. An institution in its first year of operation shall annualize the Gross Income for each business line as at each reporting date for that year and the number of years (n) should be set to 1.

Material Changes in the Business

301. When a bank makes a material acquisition, the operational risk capital calculation should be adjusted to reflect those activities. Since the gross income calculation is based on a 3-year average, the most recent year of gross income for the acquired business should be based on actual audited gross income amounts reported by the acquired business. Management accounts may be used for the previous 2 years when actual amounts are not available.

302. For banks using the SA, the gross income from the most recent year for the acquired business must be mapped into the eight Basel business lines. Once an institution has obtained the percentage allocation of the gross income from the acquired entity across the eight Basel business lines for the most recent year, it may apply this allocation to the previous two years of gross income. Thus, the mapping exercise for the acquired business need only be performed for the most recent year. The mapping results can be applied to the total gross income of the acquired business for the previous 2 years to determine the percentage assigned to the eight Basel business lines.

303. When an institution makes a divestiture, the gross income calculation may be adjusted, with supervisory approval, to reflect this divestiture.

Definitions

304. Definitions that apply to this part and examples of activities for business lines is set out in Annex to Part 3 Table 3A.

a. **Legal (including regulatory) risk** is the risk arising from an institution's non-conformance with laws, rules, regulations, prescribed practices, or ethical standards within the jurisdiction in which the institution operates.

b. **Corporate Finance** is all activities relating to assisting clients to raise funds in the capital markets and advising on mergers and acquisitions, which may include but not limited to financing and investment decisions, underwriting debt instruments, subscribing investors to a security issuance, coordinating with bidders, or negotiating with a merger target.

The activities are classified into four (4) broad categories namely:

- Public Finance (i.e. Government / Municipal Finance);
- Corporate Finance (i.e. activities relating to investment, i.e. resource allocation and financing decisions);
- Merchant Banking (i.e. fee-based business, where the bank originates commercial loans and then sells them to investors rather than hold the loans as portfolio investments to maturity, i.e. the bank assumes market risk but no long-term credit risk); and
- Advisory Services (i.e. a fee-based business where the bank advises clients on mergers and acquisitions, underwriting, privatisations, securitisation, research, debt (government, high yield), equity, syndications, IPO, secondary private placements, etc.).

c. **Trading and Sales** is any activity that relates to the trading books of a bank. That is separate accounts managed by banks that buy (or underwrite) Government securities and other securities for resale to other banks and to the public at a profit, rather than hold them as investment portfolio. Trading assets are segregated from the investment portfolio and recorded separately when acquired until they are disposed of or sold.

The activities fall into four (4) broad categories namely:

- Sales (as stated above),
- Market making (i.e. where banks quote both a buy (bid) and a sell (offer/ask) price in a financial instrument or commodity, with the view to make a profit on the turn (i.e. bid/offer spread).
- Proprietary positions (i.e. bulk purchase of stocks, bonds, options, commodities or other items with the bank's own funds at discount and selling in pieces over a period), and
- Treasury (buying (i.e. borrowing funds) for sale (i.e. lending) with the aim of making profit from the margin).

d. **Retail Banking** refers to banking transactions directly with consumers, rather than corporations, SMEs or other banks. Retail banking may include financial services such as instalment loans, residential mortgages, equity credit loans, deposit services, and individual retirement accounts.

The activities are classified into three (3) broad categories namely:

- Retail Banking (i.e. Personal Banking),
- Private Banking (i.e. personalised financial and banking services offered to a bank's rich or high net worth individuals (HNWIs), and
- Card services for retail clients

e. **Commercial Banking** refers to activities of the bank that mostly involve transactions from corporations or large businesses and SMEs as opposed to individual members of the public (or retail banking). These include deposits, lending, guarantees, card services, funds transfer and other payments on behalf of customers, foreign exchange services, and net income from non-trading books e.g. investment in government bills and bonds, interbank placements and similar assets in the banking book.

f. **Payment and Settlement** is a fees/commission based business involving the transfer of funds or financial asset in exchange for a form of good, service or financial asset or by order (of a counterparty) and the accounting processes that record the respective debit and credit positions of the two parties involved in a transfer of funds. They include payment services, settlement and clearing services and systems (e.g. Real Time Gross Settlement System, Ghana Inter-Bank Payment and Settlement System (GhIPSS), Central Securities Depository, VISA, MASTERCARD, SWIFT, E-Money Issuers, remittance service providers etc.)

g. **Agency Services** refers to services undertaken for or on behalf of corporate and government entities.

The activities are classified into three (3) broad categories namely:

- Custody or safekeeping of funds (e.g. pension fund custody services) and other valuables,

- Corporate Agency (i.e. banking services performed on an agency basis for corporations and government entities, which may include check clearing, dividend and interest payment, stock registration and redemption, and tax collection for government agencies, for a fee income), and

- Corporate Trust (i.e. the business activity of banks where investors lending to a company appoint the bank, known as a "corporate trustee", to be the responsible party for monitoring the company's compliance with the terms of borrowing thus acting in the interest of the public who have purchased bonds issued by the company).

h. **Asset Management** refers to the bank's activities which relate to:

- The management of a client's investments, where the bank invests on behalf of its clients and gives them access to a wide range of traditional and alternative product offerings that would not be ordinarily available to the average investor.

- A product which offers an all-inclusive account, which combines checking service, credit card, debit card, margin loan, automatic sweep of cash balance into a money market fund, as well as brokerage service, also referred to as an "asset management account" or a "central asset account".

- Bank's subsidiaries that undertake management of pension funds, investment funds, securities and hedge funds and other portfolio products shall classify such activities under Asset Management for purposes of consolidated reporting.

The activities are classified into two (2) broad categories namely:

- Discretionary Funds Management (i.e. where the bank has the authority to buy and sell without obtaining prior approval of the client on each occasion) and

- Non-Discretionary Funds Management.

i. **Retail Brokerage** refers to all brokerage activities which cater for the average investor or the retail sector of investors rather than institutional investors.

j. **Gross Income** is the net interest income plus all provisions made for interest payments (i.e. all unpaid interests relating to the years under consideration shall be added back) plus gross non-interest income (i.e. net non-interest income gross of operating expenses, including fees paid to outsourcing service providers). All extraordinary or irregular items (including profit or loss from the sale of assets in the banking books) shall be excluded from both income and expenses.

APPENDIX TO PART 3 - OPERATIONAL RISK

Table 3A - Mapping of Business Lines

	Level 1	Beta	Level 2	Activity Groups
1	Corporate Finance	18%	Corporate Finance	Mergers and acquisitions, underwriting, privatisations, securitization, research, debt (government, high yield), equity, syndications, IPO, secondary private placements.
			Government/Municipal Finance	
			Merchant Banking	
			Advisory Services	
2	Trading & Sales	18%	Sales	Fixed income trades, equity, foreign exchanges, commodities, credit, funding, own position securities, lending and repos, brokerage, debt, prime brokerage.
			Market Making	
			Proprietary Positions	
			Treasury	
3	Retail Banking	12%	Personal (or Retail) Banking	Retail lending and deposits, banking services, trust and estates.
			Private Ban king	Private lending and deposits, banking services, trust and estates, investment advice.
			Card Services	Merchant/commercial/corporate cards, private labels and retail.
4	Commercial Banking	15%	Commercial Banking	Project finance, real estate, export finance, trade finance, factoring, leasing, lending, guarantees, bills of exchange, investment in government bills and bonds, interbank placements and similar assets in the banking book.
5	Payment and Settlement	18%	External Clients	Payments and collections, funds transfer, clearing and settlement (for wholesale counterparties).
6	Agency Services	15%	Custody	Escrow, depository receipts, securities lending (customers) corporate actions.
			Corporate Agency	Issuer and paying agents.
			Corporate Trust	Acting in a fiduciary capacity for third parties.
7	Assets Management	12%	Discretionary Funds Management	Pooled, segregated, retail, institutional, closed, open, private equity.
			Non-Discretionary Funds Management	Pooled, segregated, retail, institutional, closed, open.
8	Retail Brokerage	12%	Retail Brokerage	Execution and full service.

Annex 3B - Gross Income Mapping

Example: Mapping gross income to eight business lines:

Gross income for retail banking consists of:

- Net interest income on loans and advances to retail customers (individual loans), plus
- Net Fees (and commission) related to traditional retail activities plus
- Net income from swaps and derivatives held to hedge the retail banking book, and
- Income on purchased retail receivables.
- Other Income (including Dividend Income)

To calculate net interest income for retail banking:

A bank takes:

- The gross interest earned on its loans and advances to retail customers less
- The weighted average cost of funding of the loans (from whatever source ─ retail or other deposits).

Similarly, gross income for commercial banking consists of:

- Net interest income on loans and advances to corporates, and SMEs, interbank and sovereign customers and
- Income on purchased corporate receivables,
- Fees related to traditional commercial banking activities including commitments, guarantees, bills of exchange,
- Net income (e.g. from coupons and dividends) on securities held in the banking book, i.e. investment in government bills and bonds, interbank placements, etc held to collect contractual cash flows and similar investments in the banking book, and
- Profits/losses on swaps and derivatives held to hedge the commercial banking book.

To calculate *net interest income* for commercial banking:

- Interest earned on loans and advances to corporate, interbank and sovereign customers less:
- Weighted average cost of funding for these loans (from whatever source).

For trading and sales, gross income consists of:

- The profits/losses on instruments held for trading purposes (i.e. in the mark-to-market book), net of funding cost,
- Fees from wholesale broking.

For the other five business lines, gross income consists primarily of the:

- Net fees/commissions earned in each of these businesses.

Payment and settlement may include:

- Fees to cover provision of payment/settlement facilities for wholesale counterparties.

Annex 3C - Detailed Loss Event Type Classification

Event-Type Category (Level 1)	Definition	Categories (Level 2)	Activity Examples (Level 3)
Internal Fraud	Losses due to acts of a type intended to defraud, misappropriate property or circumvent regulations, the law or company policy, excluding diversity/discrimination events, which involves at least one internal party	Unauthorized Activity	Transactions not reported (intentional) Transaction type unauthorized (w/monetary loss) Mismarking of position (intentional)
		Theft and Fraud	Fraud / credit fraud / worthless deposits Theft / extortion / embezzlement / robbery Misappropriation of assets Malicious destruction of assets Forgery Check kiting Smuggling Account take-over / impersonation / etc. Tax non-compliance / evasion (wilful) Bribes / kickbacks Insider trading (not on firm's account)
External Fraud	Losses due to acts of a type intended to defraud, misappropriate property or circumvent the law, by a third party	Theft and Fraud	Theft/Robbery Forgery Check kiting
		Systems Security	Hacking damage Theft of information (w/monetary loss)
Employment Practices and Workplace Safety	Losses arising from acts inconsistent with employment, health or safety laws or agreements, from payment of personal injury claims, or from diversity / discrimination events	Employee Relations	Compensation, benefit, termination issues Organized labour activity
		Safe Environment	General liability (slip and fall, etc.) Employee health & safety rules events Workers compensation
		Diversity and Discrimination	All discrimination types
Clients, Products and Business Practices	Losses arising from an unintentional or negligent failure to meet a professional obligation to specific clients (including fiduciary and	Suitability, Disclosure, and Fiduciary	Fiduciary breaches / guideline violations Suitability / disclosure issues (KYC, etc.) Retail customer disclosure violations Breach of privacy

Event-Type Category (Level 1)	Definition	Categories (Level 2)	Activity Examples (Level 3)
	suitability requirements), or from the nature or design of a product.		Aggressive sales Account churning Misuse of confidential information Lender liability
		Improper Business or Market Practices	Antitrust Improper trade / market practices Market manipulation Insider trading (on firm's account) Unlicensed activity Money laundering
		Product Flaws	Product defects (unauthorized, etc.) Model errors
		Selection, Sponsorship, and Exposure	Failure to investigate client per guidelines Exceeding client exposure limits
		Advisory Activity	Disputes over performance of advisory activities
Damage to Physical Assets	Losses arising from loss or damage to physical assets from natural disaster or other events.	Disasters and Other Events	Natural disaster losses Human losses from external sources (terrorism, vandalism)
Business Disruption and System Failures	Losses arising from disruption of business or system failures	Systems	Hardware Software Telecommunications Utility outage / disruptions
Execution, Delivery, and Process Management	Losses from failed transaction processing or process management, from relations with trade counterparties and vendors	Transaction Capture, Execution, and Maintenance	Miscommunication Data entry, maintenance or loading error Missed deadline or responsibility Model / system mis-operation Accounting error / entity attribution error Other task mis-performance Delivery failure Collateral management failure Reference Data Maintenance

Event-Type Category (Level 1)	Definition	Categories (Level 2)	Activity Examples (Level 3)
		Monitoring and Reporting	Failed mandatory reporting obligation Inaccurate external report (loss incurred)
		Customer Intake and Documentation	Client permissions / disclaimers missing Legal documents missing / incomplete
		Customer/Client Account Management	Unapproved access given to accounts Incorrect client records (loss incurred) Negligent loss or damage of client assets
		Trade Counterparties	Non-client counterparty misperformance Miscellaneous non-client counterparty disputes
		Vendors and Suppliers	Outsourcing Vendor disputes

PART 4 MANAGEMENT AND MEASUREMENT OF MARKET RISK

305. Participants in the banking system will continue to promote and develop trading activities for the banking industry, and therefore the market risk framework sets the necessary components for calculating market risk capital requirements in such an environment.

306. Market risk is the exposure to losses arising from movements in market prices in respect of on and/or off-balance sheet positions.

307. Market risk positions subject to capital charge include risks pertaining to:

a. interest rate related instruments and equities in the trading book; and

b. foreign exchange risk and commodity risk throughout the bank.

308. Capital charges for interest rate and equity instruments apply to all positions in the trading book.

309. Capital charges for foreign exchange risk and commodity risk apply to all foreign currency and commodity positions.

310. Banks shall apply the Standardised Method (SM) to measure market risk for risk based capital requirements.

Principles for Market Risk Management

311. The Board of a bank is the author and driver of the bank's corporate culture including its risk management practices and outcomes in market risk.

312. The Board must state in its annual Strategic Plan the scope and objectives of its market risk business. It is a prerequisite condition for any bank seeking to conduct activities exposed to market risk to establish a market risk framework (MRF) appropriate for the scale and risks of business it plans to undertake. The MRF must produce sound and reliable measurements of market risk for risk based capital.

313. A bank must submit its MRF, as described below including the market risk strategy and trading policy, for review and approval by BOG. Banks should also comply with the Risk Management Guidelines on market risk issued by BOG.

314. A MRF should cover all relevant market risk activities and controls relating to:

a. Board's strategy and appetite for market risk as defined by the CRD;

b. all market risk policies for business organisation, its functionality and resources, risk ownership, delineation of duties, the risk management and financial control process and escalation;

c. the principles and qualitative criteria, operational procedures and systems for consistent and reliable use of fair values;

d. the principles, qualitative criteria and procedures for designating securities in the trading book or the banking book;

e. the reporting of market risk activities to Management and to the Board; and

f. any other material services to support market risk business such as information technology and HR support.

Qualifying Criteria for Market Risk Business

315. Banks should have a prudential valuation framework to value all trading book positions and specifically less liquid positions. At a minimum, the framework should include:

a. Systems and controls

b. Valuation methodologies

c. Independent price verification

d. Valuation adjustments

316. Adequate systems and controls are necessary for valuation estimates that are prudent and reliable. Systems must be integrated with other risk management systems in the bank (e.g. credit analytics). Such systems must include:

a. Documented policies and procedures for valuation, including clearly defined functional roles, sources of market information and review of their appropriateness, frequency of independent valuation, timing of closing prices, procedures for adjusting valuations, end of the month and ad-hoc verification procedures; and

b. Clear and independent (i.e. independent of front office) reporting lines for the department accountable for the valuation process, which should be ultimately a Board executive director.

317. Valuation methodologies may be either marking to market or marking to model.

318. Marking-to-market is at least the daily valuation of positions at readily available close-out prices that are sourced independently. Examples of readily available close-out prices include exchange prices, screen prices, or quotes from several independent reputable brokers. Banks must mark-to-market as much as possible. The more prudent side of bid/offer must be used unless the institution is a significant market maker in a particular position type and it can close out at mid-market.

319. Marking to model may be acceptable if marking-to-market is not possible and where the outcomes can be demonstrated to be prudent. Marking-to-model is defined as any valuation which has to be benchmarked, extrapolated or otherwise calculated from market input(s). When marking to model, an extra degree of conservatism is appropriate. BOG will consider the following in assessing whether a mark-to-model valuation is prudent:

a. Senior management should be aware of the elements of the trading book which are subject to mark to model and should understand the materiality of the uncertainty this creates in the reporting of the risk/performance of the business.

b. Market inputs should be sourced, to the extent possible, in line with market prices. The appropriateness of the market inputs for the particular position being valued should be reviewed regularly.

c. Where available, generally accepted valuation methodologies for particular products should be used to the extent possible.

d. Where the model is developed by the bank itself, it should be based on appropriate assumptions, which have been assessed and challenged by suitably qualified parties independent of the development process. The model should be developed or approved independently of the front office and independently tested. This includes validating the mathematics, the assumptions and the software implementation.

e. There should be formal change control procedures in place and a secure copy of the model should be held and periodically used to check valuations.

f. Risk management should be aware of weaknesses in the models used and how best to reflect those in the valuation output.

g. The model should be subject to periodic review to determine the accuracy of its performance (e.g. assessing continued appropriateness of the assumptions, analysis of P&L versus risk factors, comparison of actual close out values to model outputs).

h. Valuation adjustments should be made as appropriate, for example, to cover the uncertainty of the model valuation.

320. Independent price verification is distinct from daily mark-to-market. It is the process by which market prices or model inputs are regularly verified for accuracy. While daily marking-to-market may be performed by dealers, verification of market prices or model inputs should be performed by a unit independent of the dealing room, at least monthly (or, depending on the nature of the market/trading activity, more frequently). It need not be performed as frequently as daily mark-to-market, since the objective, i.e. independent, marking of positions, should reveal any error or bias in pricing, which should result in the elimination of inaccurate daily marks.

321. Independent price verification entails a higher standard of accuracy in that the market prices or model inputs are used to determine profit and loss figures, whereas daily marks are used primarily for management reporting in between reporting dates.

322. For independent price verification, where pricing sources are more subjective, e.g. only one available broker quote, prudent measures such as valuation adjustments may be appropriate.

323. Banks must establish and maintain procedures for the valuation adjustments which should be deducted from CET1. The following valuation adjustments shall be formally

considered where relevant: unearned credit spreads, close-out costs, operational risks, early termination, investing and funding costs, future administrative costs and, if appropriate, model risk.

324. In addition, banks shall consider the need for establishing an appropriate adjustment of less liquid positions. The appropriateness of the adjustments shall be subjected to an ongoing review. Reduced liquidity could arise from structural and/or market events. In addition, closed out prices for concentrated positions and/ or stale positions are more likely to be adverse. Banks shall, at a minimum, consider several factors when determining whether valuation adjustment is necessary for less liquid items. These factors include the amount of time it would take to hedge out the risks within the position, the average volatility of bid/ offer spreads, the availability of market quotes (number and identity of market makers), and the average and volatility of trading volumes.

Classification of financial instruments

325. Banks must classify financial instruments into either the trading book or banking book.

326. Banks must have a trading book policy statement with clearly defined policies and procedures for determining which exposures to include in, and to exclude from, the trading book for purposes of calculating the required regulatory capital. The list below provides a minimum list of key points that must be addressed by these policies and procedures for overall management of the trading book. Board and senior management of banks should ensure compliance with the policies and procedures set forth below.

a. A bank shall use fair value positions, based on marked-to-market or marked-to-model methodology, to calculate its market risk capital charge.

b. Activities banks consider as trading and what constitute part of the trading book for regulatory capital purposes;

c. The extent to which an exposure can be marked-to-market daily by reference to an active, liquid two-way market;

d. For exposures that are marked-to-model, the extent to which the bank can:

   i. identify the material risks of the exposure;

   ii. hedge the material risks of the exposure and the extent to which hedging instruments would have an active, liquid two-way market;

   iii. derive reliable estimates for the key assumptions and parameters used in the model.

e. The extent to which the bank can and is required to generate valuations for exposure that can be validated externally in a consistent manner;

f. The extent to which legal restrictions or other operational requirements would impede bank’s ability to affect an immediate liquidation of the exposure;

g. The extent to which the bank is required to, and can actively risk manage the exposure within its trading operations; and

h. The extent to which the bank may transfer risk or exposures between the banking and the trading books and criteria for such transfers.

327. These criteria should address the risk management capabilities and practices of the banks. In addition, compliance with these policies and procedures must be fully documented and subject to periodic internal audit. This policy statement and material changes to it would be subject to BOG's review.

Definition of Trading Book

328. A trading book consists of positions in financial instruments and commodities held either with trading intent or to hedge other elements of the trading book. To be eligible for trading book capital treatment, financial instruments must either be free of any restrictive covenants on their tradability or able to be hedged completely. In addition, positions should be frequently and accurately valued, and the portfolio should be actively managed.

329. Positions held with trading intent are those held intentionally for short-term resale, and/or with the intent of benefiting from actual or expected short-term price movements, or to lock in arbitrage profits, and/or hedging instruments in the trading book. These positions may include for example, proprietary positions, positions arising from client servicing and market making.

330. Eligibility criteria for positions to receive trading book capital treatment shall include the following:

a. Clearly documented overall trading strategy for positions/portfolios contained within the trading book as approved by senior management (which would include expected holding horizon etc.).

b. Clearly defined policies and procedures for active management of the positions, which must include requirements for:

i. management of positions by a trading desk;

ii. setting and monitoring of position limits to ensure their appropriateness;

iii. dealers to be given the autonomy to enter into/manage the position within agreed limits and per the agreed strategy;

iv. marking-to-market of positions at least daily and when marking-to-model, relevant parameters (for example volatility inputs, market risk factors, etc.) to be assessed on regular basis;

v. reporting of positions to senior management as an integral part of the bank's risk management process; and

vi. actively monitoring of positions with references to market information sources (assessment should be made of the market liquidity or the ability to

hedge positions or the portfolio risk profiles). This would include assessing the quality and availability of market inputs to the valuation process, level of market turnover, size of positions traded in the market, etc.

c. Clearly defined policies and procedures to monitor the positions against the bank's trading strategy including the monitoring of turnover and sale position in the bank's trading book.

331. All other exposures that are not defined as trading book positions should be classified as exposures in the banking book. This will include both on and off-balance sheet positions.

Boundary Restrictions

332. A bank must not reclassify an instrument between the trading book and the banking book after initial designation without the approval of BOG. It is the responsibility of bank's compliance officers, risk managers and/or internal auditors to ensure that proper procedures are in place, and items are properly classified into either the trading or banking books. In this regard, banks shall comply with the following:

a. Switching instruments between the banking book and the trading book for regulatory arbitrage is strictly prohibited.

b. Switching should be rare and will only be allowed by BOG in extraordinary circumstances such as a change in accounting standards, closure of trading desk, termination of business activity to a particular instrument, etc.

c. Without exception, a capital benefit as a result of the switching between books is not permitted. Banks must determine their total capital charge (across the banking and trading books) before and immediately after switching. If the capital charge is reduced as a result of the switch, the difference as measured at the time of the switch will be imposed on the bank as a disclosed Pillar I capital charge.

d. Market events, change in the liquidity of a financial instrument or change in trading intend alone are NOT to be accepted as valid reasons for the re-designation of an instrument to a different book

e. Any re-designation between the banking book and the trading book must be approved by senior management, thoroughly documented, determined by internal review to comply with the bank's policies; subject to prior approval by BOG based on supporting documentation provided by the bank; and publicly disclosed. Any such re-designation is irrevocable.

f. Banks must adopt relevant policies that must be updated at least once a year. The updated policies should include all extraordinary events, the process for senior management and regulatory approvals of such switching between books, publicly disclosed re-designations of the trading book requirement.

Definition of Trading Desk

333. A trading desk is a group of traders or trading accounts that implements a well-defined business strategy and operates within a clear risk management framework.

334. Banks are required to define their trading desk which would be subject to regulatory approval (BOG). Key attributes of a trading desk are:

a. A clear reporting line to senior management and a clear formal compensation policy linked to its pre-established objectives.

b. A well-defined and documented business strategy, including annual budget and regular management information reports (including revenue, costs and RWAs).

c. A clear risk management structure which must include clearly defined trading limits based on the business strategy of the desk and must produce at least on weekly basis, appropriate risk management reports (including P&L reports).

335. A bank is required to prepare, evaluate and made available to BOG, the following in respect of its trading desk;

a. Inventory ageing reports

b. Daily limit reports including exposures, limit breaches and follow-up action

c. Reports on intraday limits and respective utilization and breaches for banks with active intraday trading

d. Reports on the assessment of market liquidity

Counterparty Credit Risk in the Trading Book

336. A counterparty credit risk (CCR) charge applies to OTC derivatives, repo-style and other transactions in the trading book. This charge is calculated separately from the capital charge for general market risk and specific risk.

337. The treatment of CCR exposures in the banking book under the SA will apply to trading book exposures.

338. All trading book instruments for repo-style transactions may be used as eligible collateral. Instruments not within the banking book definition of eligible collateral will received a haircut equivalent to non-main index equities listed on recognised exchanges as per paragraph 210. Consequently, for instruments that count as eligible collateral in the trading book, but not in the banking book, the haircuts must be calculated for each individual security.

339. The treatment of collateralized OTC derivative transactions in the banking book will apply to the trading book. The CCR capital charge for single name credit derivative transactions in the trading book apply the add-on factors for potential future credit exposure in the table with the following conditions:

a. Factors do not vary for residual maturity.

b. *"Qualifying"* is the same qualifying category as defined for specific risk.

c. The protection seller of a credit default swap shall only be subject to the add-on factor where it is subject to closeout upon the insolvency of the protection buyer

while the underlying counterparty is still solvent. Add-on should then be capped by unpaid premiums.

d. Where the credit derivative is a first to default transaction, the add-on will be determined by the lowest credit quality underlying in the basket, i.e. if there are any non-qualifying items in the basket, the non-qualifying reference obligation add-on should be used. For second and subsequent-to-default transactions, underlying assets should continue to be allocated to quality of the credit, i.e. the second lowest credit quality will determine the add-on for a second to default transaction etc.

	Protection Buyer	Protection Seller
Total Return Swap		
"Qualifying" reference obligation	5%	5%
"Non-qualifying" reference obligation	10%	10%
Credit Default Swap		
"Qualifying" reference obligation	5%	5% **
"Non-qualifying" reference obligation	10%	10% **

Measurement of Market Risk

A. Interest Rate Instruments

340. Interest rate risk is the exposure to adverse movements in interest rates.

341. The instruments covered include all fixed and floating rated securities and instruments that behave like them, including non-convertible preference shares. Convertible bonds are treated as debt instruments if they trade like debt securities, or treated as equity if they trade like equities.

342. The SM applies a "building-block" approach to separately calculate the specific and general market risk arising from debt positions.

343. The interest rate risk capital charge is the aggregate of:

a. Specific 'issuer' risk for each instrument (short and long); and

b. General market risk of the portfolio - long and short positions in different securities or instruments may be offset.

The use of offsetting varies for general market risk charges and specific risk charges.

Specific Risk

344. Specific risk capital charge provides for an adverse movement in the price of a security due to issuer specific factors.

345. Absolute exposure is multiplied by the risk factors in the table below reflecting characteristics of the obligor and the residual maturity of the instrument.

346. Offsetting is only permitted in specific risk charges for matched positions in identical issue (including positions in derivatives). Different issues by the same issuer cannot offset as prices may vary in the short run due to various factors like coupon rates, liquidity, call features etc.

Table: Specific Risk Charges for Issuer Risk

Issuer Category	**ERG (para 105) / Rating**	**Risk Factor (%)**	**Res Term to Maturity**
Government / BOG securities *(Local currency)* Government / BOG Securities *(Foreign currencies)*		0.00 0.25	
Foreign Government Securities	1 / AAA to AA-	0.00	
	2,3/ A+ to BBB-	0.25 1.00 1.60	≤ 6 months 6 ≤ 24 months >24 months
	4,5 / BB+ to B-	8.00	
	6 / Below B	12.00	
	Unrated	8.00	
Qualifying * PSE with Full Gov't Guarantee *(Domestic Currency)*. PSE with Full Gov't Guarantee *(Foreign currency).*		0.00 0.25	
PSEs without Gov't Guarantee, MDBs, Corporates	1 / AAA to AA- 2,3 / A+ to BBB-	0.25 1.00 1.60	≤ 6 months 6 ≤ 24 months >24 months
Other	4,5 / BB+ to B-	8.00	
	6 / Below B	12.00	
	Unrated	8.00	

347. *Governments* includes all forms of government paper including, but not limited to:

a. Bonds;

b. Treasury bills,

c. Other short-term instruments,

d. Debt securities issued by, fully guaranteed by, or fully collateralized by securities issued by the Government of Ghana or BOG.

348. *Foreign sovereign securities* in the currency of the sovereign are linked to external credit rating of the sovereign.

349. *Qualifying securities* includes debt securities issued by quasi-sovereigns or PSEs (e.g. regional governments, Municipal, Metropolitan and District Assemblies (MMDAs), and MDBs, plus other securities (corporate) that are:

a. rated investment grade by at least two ECAIs recognised by BOG; or

b. rated investment-grade by one ECAI and not less than investment-grade by any other ECAI both recognised by BOG; or

c. subject to the approval of BOG, an unrated security deemed to be comparable investment quality by the reporting bank, and the issuer has the securities listed on a recognised stock exchange; or

d. an unrated security but deemed to be of comparable investment quality by BOG.

350. BOG may include within the qualifying category debt securities issued by securities firms deemed to be equivalent to investment grade quality and subject to supervisory and regulatory arrangements comparable to those under this framework.

351. *Other* includes all securities issued by parties other than approved governments and multi-national development banks, that is, debt securities that qualify as neither government nor qualifying securities e.g. private sector issuers.

352. *Unrated securities* may be included in the qualifying category when they are subject to supervisory approval, deemed to be of comparable investment quality by the reporting bank and the issuer has securities listed on a recognised stock exchange.

353. *Non-qualifying securities* receives the same specific risk charge as a non-investment grade corporate borrower under the Standardised approach for credit risk.

Specific Risk Charges – Credit Derivatives

354. Specific risk charges apply to interest rate positions hedged by credit derivatives subject to the matching of the instruments and their price behaviours. In any of the circumstances of paragraphs 356 to 358, unless otherwise specified, the higher of the specific risk capital charges is applied and the specific risk capital charge for the other position is zero. If the positions are not as described in paragraphs 356 to 358, a specific risk capital charge will be assessed against both sides of the position.

355. A full offset is recognised when the values of two legs (i.e. long and short) always move in the opposite direction and broadly to the same extent. That is:

a. The two legs consist of completely identical instruments, or

b. A long cash position is hedged by a total rate of return swap (vice versa) and there is an exact match between the reference obligation and the underlying exposure (i.e. the cash position).

In such cases, neither side of the position attracts a specific risk capital charge.

356. An 80% offset of specific risk capital charge applies to the credit derivative contract against the underlying instrument where the values of the two positions (being long and short positions) always move in the opposite directions but not broadly to the same extent. To be eligible for offsetting by 80%, the following conditions must be satisfied:

a. A long cash position is effectively hedged by a credit default swap or credit linked note (or vice versa) and there is an exact match between:

   i. the reference asset and the underlying instrument (i.e. the cash position);

   ii. the maturities of both the reference asset and the underlying instrument; and

   iii. the currencies of the two offsetting positions;

b. The key features of the credit derivative contracts (e.g. credit event definitions, settlement mechanism) do not cause the price movement of these derivative instruments to materially deviate from the price movement of the position in cash position; and

c. The credit default swap or the credit linked notes transfers credit risk effectively taking account of any restrictive payment provisions (including fixed pay outs and materiality threshold).

If the above conditions are satisfied, and the transaction effectively transfers risk, an 80% specific risk offset applies to the position with higher specific risk while the specific risk charge for the other potion is zero.

357. A partial offset will be recognised if the values of the two legs (similar but not identical) usually move in opposite directions. This would apply in any of the following situations:

a. The position is described as in paragraph 356b, but there is an asset mismatch between the reference obligation and the underlying asset and paragraph 244 is satisfied.

b. The position is described as in paragraph 356a or 357, but there is a currency or maturity mismatch between the credit protection and the underlying asset.

c. The position is described in paragraph 357, but there is an asset mismatch between the cash position and the credit derivative. However, the underlying asset is included in the (deliverable) obligations in the credit derivative contract.

Where the above conditions are satisfied, the specific risk charge for the side of the transaction with the higher charge (higher specific risk) remains the same but the specific risk charge for the other side of the transaction is zero.

General Market Risk

358. General market risk is the risk of loss from adverse movements in market interest rates (i.e. not issuer specific). General market risk allows offsetting of long and short positions of different positions.

359. General market risk must be calculated by one of two methods: maturity method and a duration method.

360. When a bank selects a method, it must be consistently applied to all exposures and it is not permitted to be switched unless by written approval from BOG. The general market risk charge of 10% applies to the sum of:

a. net short or long positions in the whole trading book;

b. a small proportion of matched positions in each time band (vertical disallowance);

c. a larger proportion of matched positions across different time-bands (the horizontal disallowance); and

d. a net charge for positions in options, where applicable.

361. Any currency where business is material requires a capital charge using a maturity ladder and aggregated without offsets.

362. If business in a currency is not material, a single maturity ladder is used to slot the net currency positions by maturity and the total position is the capital charge.

Maturity Ladder Method

363. Long and short positions in debt securities and other sources of interest rate exposures including derivative instruments are slotted into the maturity ladder comprising thirteen time bands (or fifteen time bands for low coupon instruments).

364. Fixed rate instruments should be allocated by residual maturity and floating rate instruments by term to next re-pricing date.

365. Opposite positions of the same amount in the same issues (but not different issues by the same issuer), in terms of same coupon, currency, maturity and issuer, whether actual or notional, can be omitted from the interest rate maturity framework. Closely matched swaps, forwards, futures and FRA's could also be omitted from the interest rate maturity framework provided they meet the following conditions:

a. Less than one month hence: same day;

b. Between one month and one year hence: within seven days

c. Over one year hence: within thirty days.

Example - calculation of General Market Risk

366. Positions are assigned to time-bands and weighted by factors in the table below to reflect the price sensitivity of the positions to changes in interest rates. Zero-coupon bonds and deep discount bonds (i.e. bonds with coupon less than 3%) should be slotted by the time-bands set out in the second column.

Maturity method: time-bands and weights

Coupon 3% or more	**Coupon less than 3%**	**Risk weight**	**Assumed changes in yield**
1 month or less	1 month or less	0.00%	1.00

1 to 3 months	1 to 3 months	0.20%	1.00
3 to 6 months	3 to 6 months	0.40%	1.00
6 to 12 months	6 to 12 months	0.70%	1.00
1 to 2 years	1.0 to 1.9 years	1.25%	0.90
2 to 3 years	1.9 to 2.8 years	1.75%	0.80
3 to 4 years	2.8 to 3.6 years	2.25%	0.75
4 to 5 years	3.6 to 4.3 years	2.75%	0.75
5 to 7 years	4.3 to 5.7 years	3.25%	0.70
7 to 10 years	5.7 to 7.3 years	3.75%	0.65
10 to 15 years	7.3 to 9.3 years	4.50%	0.60
15 to 20 years	9.3 to 10.6 years	5.25%	0.60
Over 20 years	10.6 to 12 years	6.00%	0.60
	12.0 to 20 years	8.00%	0.60
	Over 20 years	12.50%	

Step 2:

367. Offset the weighted long and short positions in each time band to determine a short or long position in each band. Since each band would include different instruments and maturities, a 10% capital charge to reflect basis risk and gap risk will be levied on the smaller of the offsetting positions (matched position), whether it is long or short.

For example:

Total Long Position = GH¢100million

Total Short Position = GH¢90 million

Thus, matched position of GH¢90 million

Vertical allowance = GH¢9 million = 10% of GH¢90 million.

Step 3:

368. The above calculation generates two sets of weighted positions, the net long or short positions in each time-band (GH¢10 million long in above example) and the vertical disallowances, which have no sign.

369. Banks will be allowed to conduct two rounds of "horizontal offsetting" first between the net positions in each of three zones, intra-zone (zero to one year, one year to four years and four years and over), and subsequently between the net positions in the three different zones (inter-zone).

370. Offsetting is subject to a scale of disallowance charge as a fraction of the matched positions and set out in the table below. This factor called horizontal disallowance is introduced to cover imperfect correlation of price across yield curve effect.

Horizontal disallowances

Zones	Time-band	Within zone	Between adjacent zones	Between zones 1 and 3
Zone 1	month 1-3 months 3-6 months 6-12 months	40%	40%	100%
Zone 2	1-2 years 2-3 years 3-4 years 4-5 years	30%	40%	
Zone 3	5-7 years 7-10 years 10-15 years 15-20 years Over 20 years	30%		

See Appendix to Part 4, Table 4A: Maturity Ladder Approach

Duration Method

371. Duration method calculates the price sensitivity of each position as follows.

a. Calculate the price sensitivity of an instrument for a change in interest rates between 0.6 and 1.0 percentage points per its maturity in the table below.

b. Slot the resulting sensitivity measures into a duration-based ladder with fifteen time-bands set out in the table below:

c. Subject long and short positions in each time band to a 5% vertical disallowance designed to capture basis risk

d. Carry forward the net positions in each time-band for horizontal offsetting subject to the disallowances set out in the table at paragraph 371:

Duration: time-bands and assumed changes in yield

Zone	Assumed change in yield
Zone 1	
1 month or less	1.00
1 month to 3 months	1.00
3 months to 6 months	1.00
6 months to 12 months	1.00
Zone 2	
to 1.9 years	0.90
1.9 to 2.8 years	0.80
2.8 to 3.6 years	0.75
Zone 3	
3.6 to 4.3 years	0.75
4.3 to 5.7 years	0.70

5.7 to 7.3 years	0.65
7.3 to 9.3 years	0.60
9.3 to 10.6 years	0.60
10.6 to 12 years	0.60
12 to 20 years	0.60
Over 20 years	0.60

e. In the case of residual currencies (i.e. where business is insignificant), the gross positions in each time band will be subject to either the risk weightings set out under the maturity method, if positions are reported using the maturity method or assumed change in yield set out in the duration method, if positions are reported using duration method, with no further offsets.

See Appendix to Part 4, Table 4B: Duration Based Method

Interest Rate Derivatives

372. Capital charges apply to all interest rate derivative and off-balance-sheet instruments in the trading book that are price sensitive to interest rates:

a. FRAs;

b. other forward contracts;

c. bonds, futures, interest rate and cross-currency swaps and foreign exchange positions.

373. Derivative positions should be treated as an exposure to the underlying instrument and apply specific and general market risk charges. The market value is based on the principal amount of the underlying instrument, or of the notional underlying instrument, resulting from a prudent valuation in the trading book.

Futures and Forward contracts.

374. Futures and forward contracts including FRAs are treated as a combination of a long and short position in a notional government security. The maturity of a future or FRA will be a period until delivery or exercise of the contract, plus where applicable, the life of the underlying instrument.

Swaps

375. Swaps are in effect treated as two notional positions in government securities with relevant maturities. For instance, an interest rate swap under which a bank is receiving floating rate interest and paying fixed interest rate will be treated as a long position in a floating rate instrument of maturity equivalent to the period until the next interest fixing life of the swap.

376. For swaps that pay or receive a fixed or floating interest rate against some other reference price, e.g. stock index, the maturity category should reflect the interest rate component, with the equity component being included in the equity framework. The separate legs of

cross currency swaps are to be reported in the relevant maturity ladders for the currencies concerned.

Capital charge for derivatives under Standard Method

Available offsetting of matched positions

377. Banks may exclude matched interest rate instruments where they are identical in every characteristic (i.e. same issuer, coupon, currency and maturity).

378. A matched position in a future or forward and its corresponding underlying may also be fully offset and thus excluded from the calculation.

379. When the future or the forward comprises a range of deliverable instruments offsetting of positions in the future or its underlying is only permissible where there is a readily identifiable underlying security and the price of the future or forward contract should in such cases move in alignment.

380. No offsetting will be allowed between positions of different currencies; the separate legs of cross currency swaps or forward foreign exchange are to be treated as notional positions in the relevant instruments and included in the appropriate calculation for each currency.

381. Opposite positions in the same category of instruments can in certain circumstances be regarded as matched and allowed to offset fully. To qualify for this treatment, the positions must relate to the same underlying instruments, be of the same nominal value and denominated in the same currency. In addition:

a. *For futures:* offsetting positions in the notional or underlying instruments to which the futures contract relates must be identical products and mature within seven days of each other;

b. *For swaps and FRAs:* the reference rate must be identical and the coupon closely matched (i.e. within 15 basis points) and

c. *For swaps, FRAs and forwards:* the next interest fixing date or, the fixed coupon positions or forwards, the residual maturity must correspond within the following limits:

i. Less than one month hence: same day;

ii. Between one month and one year hence: within seven days

iii. Over one year hence: within thirty days.

382. Banks with large swap books may use alternative formulae for these swaps to calculate the positions to be included in the maturity or duration ladder.

a. Convert the payments under the swap into present values. Each payment should then be discounted using zero coupon yields, and a single net figure for the

present value of the cash flows in time bands using procedures that apply to zero coupon bonds as per the framework.

b. Calculate the sensitivity of the net present value (NPV) implied by the change in yield used in the maturity or duration method and allocate these sensitivities into time bands set out under the two methods.

383. Other methods which produce similar results could also be employed by banks provided:

a. BOG is satisfied with the accuracy of the system being used;

b. The positions calculated fully reflect the sensitivity of the cash flows to interest rate changes and time bands

c. The positions are denominated in the same currency.

Specific Risk – Interest Rate Derivatives

384. Interest rate and currency swaps, FRAs, forward foreign exchange contracts and interest rate futures will not be subject to a specific risk charge. However, in the case of futures contracts where the underlying is debt security, or an index representing a basket of debt securities, a specific risk charge will apply per the credit risk of the issuer.

General Market Risk

385. General market risk is calculated on positions in all derivative products in the same manner as cash positions, subject only to an exemption for fully or very closely matched positions in identical instruments. The various categories of instruments should be slotted into the maturity ladder and treated per the rules explained earlier.

Summary of treatment of interest rate derivatives

Instrument	**Specific risk charge**	**General market risk charge**
Exchange-traded future		
Government debt security	Yes	Yes, as two positions
Corporate debt security	Yes	Yes, as two positions
- Index on interest rate (LIBOR)	No	Yes, as two positions
OTC forward		
Government debt security	Yes	Yes, as two positions
Corporate debt security	Yes	Yes, as two positions
Index on interest rates	No	Yes, as two positions
FRAs, Swaps	No	Yes, as two positions
- Forward foreign exchange	No	Yes – one position per currency

Example (Maturity Method)

386. A bank has a trading portfolio (GH¢) of:

100 million (m-t-m) treasury bills, residual maturity < 1 month

200 million (m-t-m) purchased corporate bonds, residual maturity 8 year, coupon ≥ 3%, + 100 million (m-t-m) purchased bonds, residual maturity 10 year.

400 million (m-t-m), outright short position (sold) in m-t-m 400 million zero coupon government bonds, residual maturity 3.6 years

200 million zero coupon bonds, residual maturity 4.4 years

300 million notional amount, Interest rate swap (IRS), residual maturity-5.8 year receiving 10-year fixed interest, paying 12 month floating (12 months - interest fixing date)

100 million short position in 5-year bond index futures, residual maturity 2 months

200 million 1.5 year (residual) forward contract to receive 15-year high yield bonds with a coupon≥ 3%

Working

100 million long in the first bucket

200 million as a long position in the maturity bucket 7-10-year bucket per the row for coupons ≥ 3% and 100 million in the same bucket

400 million short in the 2.8-3.6 year bucket according to the row for coupons < 3%

200 million short in 4.3-5.7 bucket per row for coupons < 3%

300 million long position in the bucket 5-7 year bucket per the row for coupons ≥ 3% and as a short position of 300 million in the 6-12 months bucket

100 million short position with a maturity of 5 years and residual maturity of 2 months (Coupon < 3%)

200 million long, maturity 16.5-year bucket per the row for coupon ≥ 3%.

See Appendix to Part 4, Table 4C: Maturity Ladder Method (for the example above)

B. Foreign Exchange Risk

387. Foreign exchange risk covers the holding of, or taking positions in, foreign currencies and/or gold.

388. A bank will identify its positions for each currency position and the mix of long and short positions across currencies. The capital charge is 10% of the foreign exchange net open position and 10% of the net position in gold.

389. Net open position is the aggregate of:

a. Net spot position (i.e. all asset items less all liability items, including accrued interest in each currency);

b. Net forward position (i.e. all amounts to be received less all amounts to be paid under forward foreign exchange transactions, including currency futures and the principal on currency swaps not included in the spot position);

c. Guarantees (and other off-balance sheet commitments) that are certain to be called and likely to be irrecoverable;

d. Net future income/expenses not yet accrued, and due within one year, but already fully hedged (at the discretion of the reporting bank); and

e. Any item representing a profit or loss in foreign currencies.

390. Composite currencies are separately reported but, for measuring banks' open positions, may be either treated as a currency or split into their component parts provided this is consistent.

391. Exposures to gold, in spot or forward contracts, are aggregated and converted at current spot rates using the standard unit of measurement (e.g. dollars per ounce) and then slotted into the maturity ladder.

392. Accrued Interest (i.e. earned but not yet received) must be included and similarly accrued expenses. Unearned but expected future interest and anticipated expenses may be excluded unless the amounts are certain and banks have taken the opportunity to hedge them. Future income and expenses may be included if the approach is consistent over time and is not done selectively in a way that reduces the position.

393. Forward currency and gold positions are valued at spot rate. The use of forward rates is not permitted. BOG may permit banks with foreign parents that apply NPV on a group basis are expected to use the NPV of each position, discounted using current interest rates and current spot rates, for measuring their forward currency and gold positions.

Structural Positions

394. A bank may hedge its CAR using short or long positions. Any position taken to hedge partially or totally against the adverse effect of the exchange rate on its CAR may be excluded from the calculation of net open currency positions, subject to each of the following:

a. A position is of a structural nature i.e. non-dealing;

b. BOG is satisfied that the "structural" position excluded does no more than protect the bank's CAR;

c. Any exclusion of the position needs to be applied consistently, with the treatment of the hedge remaining the same for the life of the assets or other items.

395. If foreign exchange positions relate to items that are deducted from capital, such as investments in non-consolidated subsidiaries, no capital charge is required to apply.

Calculation of foreign exchange risk and gold

396. Banks will apply the shorthand method to measure foreign exchange risk.

397. The net position in each foreign currency and in gold is converted at spot rates in the domestic currency. The overall net position is the aggregation of:

a. the greater of either sum of net short positions or sum of net long positions; and

b. net position (short or long) in gold regardless of sign.

Example: Shorthand measure of Foreign Exchange Risk

398. The capital charge is 10% of the higher of either the net long currency positions or the net short currency positions

YEN	EUR€	GB£	CA$	US$	GOLD
+50	+100	+150	-20	-180	-35
+300		-200		35	

Capital charge is 10% of the higher of either the net long currency positions or the net short currency positions (i.e. 300) and of the net position in gold (35) = 335 x10% = 33.5.

See Appendix to Part 4, Table 4D: Foreign Exchange Risk

C. Equity Position Risk

399. Equity position risk covers the holding of, or taking positions in, equities in the trading book.

400. Equity position risk applies to long and short positions in all instruments that exhibit market behaviour like equities but not to non-convertible preference shares (which are covered under the interest rate risk requirement described earlier).

401. Long and short positions to the same issuer may be reported on a net basis. The instruments covered are ordinary shares (whether voting or non-voting), convertible securities for which prices move like equities and commitments to buy or sell equity securities.

402. Equity derivatives, or similar, are as described under interest rates. In this light, equity derivatives and off-balance sheet positions such as futures and swaps on individual equity or stock indices are also included.

403. Two risks are covered by capital charges for traded equity positions:

a. Specific risk from a movement in prices for an equity or derivative linked to it (credit-related risk); and

b. General market risk for price movements not related to any specific equity.

Specific Risk

404. Specific risk is charged against the gross position being the sum of all long and all short equity positions. A specific risk charge of 10% is applied to the gross position.

405. Offsetting is permitted for the same equity issuer.

General Market Risk

406. General market risk is the overall net position in an equity market being the difference between all long equity positions and all short equity positions in an equity market. A general risk charge of 10% is applied to the overall net position.

Example

Equities	Long	Short
ADB Ordinary Shares	220	
Tullow		120
Ashanti Gold		70
Cocobod	50	
CAL	100	
	370	**190**

Working

For this portfolio, the gross position is GH¢560 million and the net position, GH¢180 million. The total capital charge, is GH¢74 million; GH¢56 million against specific risk and GH¢18 million against general market risk.

Equity Derivatives

407. Equity derivatives and off-balance-sheet positions which are affected by changes in equity prices should be included in the measurement system. This includes futures and swaps on both individual equities and on stock indices. The derivatives are to be converted into positions in the relevant underlying. The treatment of equity derivatives is summarized in the table below:

Treatment of equity derivatives

Instruments	Specific risk	General Market risk
Exchange-traded or OTC-Future		
Individual equity	Yes	Yes, as underlying
- Index	2%	Yes, as underlying

408. Equity derivatives positions are converted into notional equity positions to apply the specific risk and general market risk capital charges:

a. Futures and forward contracts on individual equities are reported at current prices.

b. Futures on a stock index is the marked-to-market value of the notional underlying equity portfolio.

c. An equity swap is treated as two notional positions.

409. Matched positions in each identical equity or stock index in each market may be fully offset, resulting in a single net short or long position. Specific risk and general market risk charges apply to the matched positions.

Market Equity Index

410. In addition to general market risk, a 2% execution risk capital charge will apply to the net long or short position in an index contract comprising a diversified portfolio of equities as BOG may determine.

See Appendix to Part 4, Table 4E: Equity Position Risk

D. Commodity Position Risk

411. Commodity risk covers holdings of, or taking positions in, commodities, including precious metals (except gold). A commodity is a physical product which is or can be traded on a secondary market (e.g. agriculture products, minerals, oil, and precious metals).

412. Market prices of commodities are complex and more volatile than currencies and interest rates, and the markets may be less liquid. Hence changes in supply and demand can have a more dramatic effect on price and volatility.

413. When trading spot or underlying asset the directional risk from a change in the spot price is the most important risk. However, banks using portfolio strategies involving forward and derivative contracts are exposed to a variety of additional risks, which may well be larger than the risk of a change in spot prices. These include:

a. Basis risk (the risk that the relationship between the prices of similar commodities) alters through time.

b. Interest rate risk (the risk of a change in the cost of carry for forward positions).

c. Forward gap risk (the risk that the forward price may change for reasons other than a change in interest rates)

414. In addition, banks may face CCR on OTC derivatives. The funding of commodities positions may expose a bank to interest rate or foreign exchange movements and if so the relevant positions should be included in the measures of interest rate and foreign exchange risk.

415. Commodity position risk by the Standardised Approach is measured using the simplified approach or the maturity ladder approach. When a bank selects a method, it must be consistently applied to all exposures and it is not permitted to be switched unless by written approval from BOG.

416. The simplified approach is the sum of:

a. 15% of net long or short position in each commodity (expressed in the domestic currency as per the standard unit of measurement); and

b. 3% of gross long or short position in each commodity.

Example

Purchase or Sale		**Maturity**	**Value (GH¢)**	**Value (GH¢)**
Purchase	Long	4 months	800	800
Sale	Short	5 months	1,000	(1,000)
Purchase	Long	2.5 years	600	600
Sale	Short	7 years	600	(600)
Net Position				**(200)**
Gross Position			**3,000**	

Working

Capital Charge = 15% * (200) + Capital Charge = 3% * 3,000 =

Total Charge will be -30 + 90 = GH¢60

See Appendix to Part 4, Table 4F: Commodity Position Risk – Simplified Approach

417. Commodity position risk by the maturity ladder approach is the net position in each commodity converted at spot rates in Ghana cedi. Commodity position risk captures forward gap and interest rate risk within a time-band and matched long and short positions in each time-band will carry a capital charge.

418. The maturity ladder approach is similar to that used for interest rate related instruments in paragraphs 367 to 371. A separate maturity ladder will be used for each commodity. Positions in the commodity in the standard unit of measurement are entered in a maturity ladder and physical stocks are allocated to the first time-band.

a. For each time-band, the sum of short and long positions which are matched are converted at the spot price, and multiplied by the appropriate spread rate for that band in the table below.

Time-bands and Spread Rates

Time-band	**Spread Rate**
0-1 month	1.5%
1-3 months	1.5%
3-6 months	1.5%
6-12 months	1.5%
1-2 years	1.5%
2-3 years	1.5%
Over 3 years	1.5%

b. carry unmatched positions remaining to another time band where they can be matched, and matching them till all matching positions are exhausted, calculating;

i. a carry charge equal to the carried position multiplied by the carry rate of 0.6% and the number of time-bands by which the position is carried;

ii. a spread charge equal to the sum of long and short positions; and

iii. matched position multiplied by the spread rate of 1.5% ;

c. calculate the outright charge on the remaining positions (which will either be long position or short position) equal to the sum of remaining position (in absolute terms) multiplied by the outright charge of 15%;

d. sum the capital charge on account of spread rate, carry rate and the outright charge as determined above.

419. Example: Assume that a bank has four forward purchase and sales of aluminium with the following maturities and Ghana cedi values.

Purchase or Sale	Maturity	Value (GH¢)
Purchase	4 months	800
Sale	5 months	1,000
Purchase	2.5 years	600
Sale	7 years	600

Working

a. All positions in the same commodity are converted at current spot rates in Ghana cedi (without double counting for foreign exchange exposure).

Time Band	Position (GH¢)	Capital Calculation	Capital Charge
0-1 month			
1-3 months			
3-6 months	Long 800 Short 1,000	800 matched position * 1.5% =	12
6-12 months			
1-2 years			
2-3 years	Long 600	200 short carried forward three (3) time bands from 3-6 months: 200 * 3 * 0.6% = 200 matched position * 1.5%	 3.6 3
Over 3 years	Short 600	400 long carried forward one time band from 2-3 years: 400 * 1 * 0.6% = 400 matched position * 1.5% = Net position of 200: 200 * 15% =	 2.4 6 30

b. The total capital charge will be 12 + 3.6 + 3 + 2.4 + 6 + 30 = GH¢57

See Appendix to Part 4, Table 4G: Commodity Position Risk – Maturity Ladder approach

420. Definitions

Basis risk: a change in the relationship between the prices of two similar, but not identical, instruments. For example, basis risk exists on similar instruments of the same maturity.

Convertible Bond: A bond giving the investor the option to convert the bond into equity at a fixed conversion price or as per a pre-determined pricing formula.

Duration: the sensitivity of a bond's price (as a percentage of initial price) to a change in yield or the weighted average time to maturity using the relative present value of the cash flows as weights.

Financial instrument: A financial instrument is any contract that gives rise to both a financial asset of one entity and a financial liability or equity instrument of another entity. Financial instruments include primary financial instruments (or cash instruments) and derivative financial instruments.

Financial asset: Any asset that is cash, the right to receive cash or another financial asset; or the contractual right to exchange financial assets on potentially favourable terms, or an equity instrument.

Financial liability: A contractual obligation to deliver cash or another financial asset or to exchange financial liabilities under conditions that are potentially unfavourable.

General market risk: the risk of a loss arising from adverse changes in market prices, for example, a change in interest rates or official policy.

Interest rate risk: the risk that changes in market interest rates might adversely affect an institution's financial condition.

Investment-grade: securities which are rated at or above Baa by Moody's Investors Services or BBB by Standard & Poor's Corporation.

Market risk: the risk of losses in on- and off-balance-sheet positions arising from movements in market prices, including interest rates, exchange rates and equity values.

Mark-to-market: the process of revaluing a portfolio based on prevailing market prices

Matched weighted position: the smaller of the sum of the risk weighted long positions or the sum of the risk weighted short positions within a time band or a zone or between zones.

Off-balance-sheet Activities: banks' business that does not generally involve booking assets or liabilities. Examples include trading in swaps, options, futures and foreign exchange forwards, and the granting of standby commitments and letters of credit.

Regulatory capital: this arises when a position attracts a different regulatory capital requirement depending on its classification.

Specific risk: the risk that the price of a given instrument will move out of line with similar instruments, due principally to factors related to its issuer.

Trading book: proprietary positions in financial instruments intentionally held for short-term resale and/or taken with the intention of benefiting from price movements. (Amendment to the capital accord, Basel Committee on Banking Supervision, 1996)

Long position: a position which gives or may give the institution a right or imposes or may impose an obligation on it to receive a payment or an asset. Bought call options and sold put options shall be covered by the definition of a long position.

Short position: a position which gives or may give the institution a right or imposes or may impose an obligation on it to make a payment or deliver an asset. Sold call options and bought put options shall be covered by the definition of a short position.

Net position: the excess of the long over the short position in identical securities and derivatives.

Appendix to Part 4 – Market Risk. Table 4A: Maturity Ladder Approach (Interest Rate Risk - Debt Instruments)

	zone 1 (in months)				zone 2 (in years)			zone 3 (in years)								Total
coupon >= 3%	<= 1	1-3	3-6	6-12	1-2	2-3	3-4	4-5	5-7	7-10	10-15	15-20	>20			
coupon < 3%	<= 1	1-3	3-6	6-12	1-1.9	1.9-2.8	2.8-3.6	3.6-4.3	4.3-5.7	5.7-7.3	7.3-9.3	9.3-10.6	10.6-12	12-20	>20	
Positions																
1. Long	100	200	300	400	100	200	300	100	200	300	100	200	300			
2. Short	-50	-100	-400	-300	-200	-300	-400	-100	-200	-100	-200	-100	-300			
3. Weighted factors (%)	0.00	0.20	0.40	0.70	1.25	1.75	2.25	2.75	3.25	3.75	4.50	5.25	6.00	8.00	12.50	
Weighted position																
4. Long	0.00	0.40	1.20	2.80	1.25	3.50	6.75	2.75	6.50	11.25	4.50	10.50	18.00			
5. Short	0.00	-0.20	-1.60	-2.10	-2.50	-5.25	-9.00	-2.75	-6.50	-3.75	-9.00	-5.25	-18.00			
6. Matched	0.00	0.20	1.20	2.10	1.25	3.50	6.75	2.75	6.50	3.75	4.50	5.25	18.00			
7. Vertical disallowance	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	
8. Capital requirement (6x7)		0.02	0.12	0.21	0.13	0.35	0.68	0.28	0.65	0.38	0.45	0.53	1.80			5.58
9. Remaining position (4-5)		0.20	-0.40	0.70	-1.25	-1.75	-2.25			7.50	-4.50	5.25				
10. Net total weighted long zone			0.90			0.00						12.75				
11. Net total weighted short zone			-0.40			-5.25						-4.50				
12. Matched position			0.40			0.00						4.50				
13. Disallowance factor			40%			30%						30%				
14. Capital requirement (12x13)			0.16			0.00						1.35				1.51
15. Remaining position (10-11)			0.50			-5.25						8.25				
16. Matched between Z1 and Z2					0.50											
17. Disallowance factor					40%											
18. Capital requirement (16x17)					0.20											0.20
19. Remaining position Z1 and Z2						-4.75										
20. Matched between Z2 and Z3								4.75								
21. Disallowance factor								40%								
22. Capital requirement (20x21)								1.90								1.90
23. Remaining position												3.50				
24. Matched between Z2 and Z3								0.00								
25. Disallowance factor								100%								
26. Capital requirement								0.00								
27. Remaining position Z1 and Z3								3.50								3.50
28. Total																12.69

Appendix to Part 4, Table 4B: Duration Based Method (Interest Rate Risk - Debt Instruments)

	zone 1 (in months)				zone 2 (in years)			zone 3 (in years)								Total
Duration bands	<= 1	1-3	3-6	6-12	1-1.9	1.9-2.8	2.8-3.6	3.6-4.3	4.3-5.7	5.7-7.3	7.3-9.3	9.3-10.6	10.6-12	12-20	>20	
Positions																
1. Long	100	200	300	400	100	200	300	100	200	300	100	200	300			
2. Short	-50	-100	-200	-300	-200	-300	-400	-100	-200	-100	-200	-100	-300			
3. Assumed interest rate change	1.00	1.00	1.00	1.00	0.90	0.80	0.75	0.75	0.70	0.65	0.60	0.60	0.60	0.60	0.60	
Modified duration (in years)	0.00	0.20	0.40	0.70	1.40	2.20	3.00	3.65	4.65	5.80	7.50	9.75	11.00			
Weighted position																
4. Long	0.00	0.40	1.20	2.80	1.26	3.52	6.75	2.74	6.51	11.31	4.50	11.70	19.80			
5. Short	0.00	-0.20	-0.80	-2.10	-2.52	-5.28	-9.00	-2.74	-6.51	-3.77	-9.00	-5.85	-19.80			
6. Matched	0.00	0.20	0.80	2.10	1.26	3.52	6.75	2.74	6.51	3.77	4.50	5.85	19.80			
7. Vertical disallow ance	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
8. Capital requirement (6x7)		0.01	0.04	0.11	0.06	0.18	0.34	0.14	0.33	0.19	0.23	0.29	0.99			2.89
9. Remaining position (4-5)		0.20	0.40	0.70	-1.26	-1.76	-2.25			7.54	-4.50	5.85				
10. Net total w eighted long zone			1.30			0.00						13.39				
11. Net total w eighted short zone			0.00			-5.27						-4.50				
12. Matched position			0.00			0.00						4.50				
13. Disallow ance factor			40%			30%						30%				
14. Capital requirement (12x13)			0.00			0.00						1.35				1.35
15. Remaining position (10-11)			1.30			-5.27						8.89				
16. Matched betw een Z1 and Z2					1.30											
17. Disallow ance factor					40%											
18. Capital requirement (16x17)					0.52											0.52
19. Remaining position Z1 and Z2						-3.97										
20. Matched betw een Z2 and Z3								3.97								
21. Disallow ance factor								40%								
22. Capital requirement (20x21)								1.59								1.59
23. Remaining position												4.92				
24. Matched betw een Z2 and Z3								0.00								
25. Disallow ance factor								150%								
26. Capital requirement								0.00								
27. Remaining position Z1 and Z3								4.92								4.92
28. Total																11.27

Appendix to Part 4, Table 4C: Maturity Ladder Method (Interest Rate Derivatives - Example)

	zone 1 (in months)				zone 2 (in years)			zone 3 (in years)								Total
coupon >= 3%	<= 1	1-3	3-6	6-12	1-2	2-3	3-4	4-5	5-7	7-10	10-15	15-20	>20			
coupon < 3%	<= 1	1-3	3-6	6-12	1-1.9	1.9-2.8	2.8-3.6	3.6-4.3	4.3-5.7	5.7-7.3	7.3-9.3	9.3-10.6	10.6-12	12-20	>20	
Positions																
1. Long	100	200	300	400	100	200	300	100	300	300	100	200	300			
2. Short	-50	-100	-400	-300	-200	-300	-400	-100	-200	-100	-200	-100	-300			
3. Weighted factors (%)	0.00	0.20	0.40	0.70	1.25	1.75	2.25	2.75	3.25	3.75	4.50	5.25	6.00	8.00	12.50	
Weighted position																
4. Long	0.00	0.40	1.20	2.80	1.25	3.50	6.75	2.75	9.75	11.25	4.50	10.50	18.00			
5. Short	0.00	-0.20	-1.60	-2.10	-2.50	-5.25	-9.00	-2.75	-6.50	-3.75	-9.00	-5.25	-18.00			
6. Matched	0.00	0.20	1.20	2.10	1.25	3.50	6.75	2.75	6.50	3.75	4.50	5.25	18.00			
7. Vertical disallow ance	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	
8. Capital requirement (6x7)		0.02	0.12	0.21	0.13	0.35	0.68	0.28	0.65	0.38	0.45	0.53	1.80			5.58
9. Remaining position (4-5)		0.20	-0.40	0.70	-1.25	-1.75	-2.25		3.25	7.50	-4.50	5.25				
10. Net total w eighted long zone			0.90			0.00						16.00				
11. Net total w eighted short zone			-0.40			-5.25						-4.50				
12. Matched position			0.40			0.00						4.50				
13. Disallow ance factor			40%			30%						30%				
14. Capital requirement (12x13)			0.16			0.00						1.35				1.51
15. Remaining position (10-11)			0.50			-5.25						11.50				
16. Matched betw een Z1 and Z2					0.50											
17. Disallow ance factor					40%											
18. Capital requirement (16x17)					0.20											0.20
19. Remaining position Z1 and Z2						-4.75										
20. Matched betw een Z2 and Z3								4.75								
21. Disallow ance factor								40%								
22. Capital requirement (20x21)								1.90								1.90
23. Remaining position												6.75				
24. Matched betw een Z2 and Z3								0.00								
25. Disallow ance factor								100%								
26. Capital requirement								0.00								
27. Remaining position Z1 and Z3								6.75								6.75
28. Total																15.94

Appendix to Part 4, Table 4D: Foreign Exchange Risk

Item No.	Position Component	USD		GBP		EUR		Other		Gold	
		Amount	Nature of Position	Amount	Nature of Position	Amount	Nature of Position	Amount	Nature of Position	Amount (GH¢)	Nature of Position
1	Net Assets										
2	Liabilities on contingent Credits										
3	Net Trading Position (under contracts outstanding)										
4	Any Other Item representing a Profit/Loss in Foreign Currency										
5	Net Future Income/ Expense										
6	Net Open Position (NOP) (1+2+3+4+5)	-		-		-		-			
7	Cedi equivalent (in GH¢) of NOP, in currency	-		-		-		-		-	
8	Exchange Rates		NA		NA		NA	1.00	NA		

1a	Net Long Position	-
2b	Net Short Position	-
3c	Gold-Absolute Value of Open Position	-
4d	Greater of Absolute Value of Net Long and Net Short Position	-
5e	Total Foreign Exchange Exposure (Rows 3c+ 4d)	-
6f	Total Capital Charge for FX Risk (10%)	-

Appendix to Part 4, Table 4E: Equity Position Risk

(GH¢000s)						
	A	**B**	**C**	**D**	**E**	**F**
Equity Instruments	**Gross Long**	**Gross Short**	**Gross Equity Position (Col A + B)**	**Net Open Position (Col A - B)**	**10% Gross Position (10% of C)**	**10% Net Position (10% of D)**
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
Total Equity Instruments			**0**	**0**	**0**	**0**
Capital Required Against Specific Risk (Total Column E)						0
Capital Required Against General Risks (Total Column F)						**0**
Total Capital Requirement Against Equity Position (Total of Rows: 1 + 2)						**0**
Equity Position Risk Equivalent Assets (Total Capital Requirement * Reciprocal of CAR						**0**

Appendix to Part 4, Table 4F: Commodity Position Risk – Simplified Approach

(GH¢000s)	A	B	C	D	E	F
Commodity Instruments	**Gross Long**	**Gross Short**	**Gross Open Position (Col A + B)**	**Net Open Position (Col A - B)**	**15% of Net Open Position (15% of D)**	**3% of Gross, Open Position (3% of C)**
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
Total Commodity Instruments	**0**	**0**	**0**	**0**	**0**	**0**
Capital Required Against Directional Risks (Total Column E)						
Capital Required Against Basis, Interest Rate & Forward Gap Risks (Total Column F)						
Total Capital Requirement Against Commodity Position Risk (Total of Rows: 1 + 2)						
Commodity Position Risk Equivalent Assets (Total Capital Requirement * CAR Reciprocal)						

Appendix to Part 4, Table 4G: Commodity Position Risk – Maturity Ladder approach

(GH¢000's)									
	A	B							F
Time Band	Gross Long	Gross Short	Carry Forward Unmatched Position	Time Bands Carry Forward	Matched Position	Matched Position * 1.5%	Carry Forward Unmatched positions * No. of Time Bands Jump * 0.6%	Outright Charge on Remaining Position * 15%	Capital Charge
0-1 Month									
1-3 Months									
3-6 Months									
6-12 Months									
1-2 Years									
2-3 Years									
Over 3 Years									
Total Capital Requirement Against Commodities Risk									
Commodities Risk Equivalent Assets (Total Capital Requirement * Reciprocal of CAR									