

CENTRAL BANK OF NIGERIA



Guidance Notes on the Calculation of Capital Requirement for Operational Risk

**Basic Indicator Approach (BIA) and the Standardized
Approach (TSA)**



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OPERATIONAL RISK CAPITAL REQUIREMENT

1.0 INTRODUCTION

In calculating the capital requirements to cover operational risk, banks are required to assess the links among the various types of risk and identify their possible impact in terms of operational risk. Ensuring full compliance with the regulations would also play an important role in mitigating operational risk.

1.1 *Calculation Approaches*

This guidance notes make provision for two methods of calculating operational risk capital charge; the Basic Indicator Approach (BIA) and the Standardized Approach (TSA).

- Banks using the BIA are required to calculate their capital requirement by multiplying an indicator of a bank's volume of business, gross income, by a specified regulatory percentage. Banks using the BIA must hold capital for operational risk equal to the average over the previous three years of a fixed percentage of positive annual gross income.
- Banks using TSA are required to calculate their capital requirement by multiplying gross income by separate regulatory percentages for each of the eight business lines into which banks' activities are divided (corporate finance, trading and sales, retail banking, commercial banking, payment and settlement, agency services, asset management and retail brokerage)

TSA uses the gross income from the above business lines as a proxy for the scale of business operations and thus the likely scale of operational risk exposure within each of these business lines. The capital charge for each business line is then calculated by multiplying gross income by the factor assigned to that business line.



1.2 Adoption of Approaches

Banks and banking groups are expected to adopt the BIA at the commencement date of this regulation and may seek approval to move to TSA which requires more stringent operational risk management processes.

2.0 GOVERNANCE AND MANAGEMENT OF OPERATIONAL RISKS

2.1 Board and Management

The board of directors plays a key role in establishing an effective and efficient operational risk management and control system and to this end the board and senior management shall;

- a) establish the general framework of the system
- b) be responsible for its implementation,
- c) supervise its operation and
- d) verify its overall functionality and compliance with regulatory requirements.

2.3 Processes and Procedure

Specific attention shall be paid to the processes, functions and other aspects involved in the calculation of the capital requirement. Accordingly, banks' board and management shall have the specific responsibility for:

- a) Identifying and measuring infrequent, yet severe loss events,
- b) Identifying the various forms and manner in which operational risks may materialize,
- c) Assessing the operational risks associated with the introduction of new products, activities, processes and systems.
- d) Adopting contingency and business continuity plans that ensure their operational resilience and limit losses in the event of severe business disruptions.



2.4 Reversion of Approaches

Banks that have adopted TSA are not allowed to revert to the BIA without the approval of the CBN. However, if the CBN discovers that a bank using TSA no longer meets the qualifying criteria for the approach, it may require the bank to revert to the BIA until it meets the conditions specified by the supervisor before returning to TSA.

2.5 Sound Practices for Operational Risk Management

Regardless of the operational risk capital computation approach adopted, banks are required to comply with principles in "*Sound Practices for the Management and Supervision of Operational Risk*" (BCBS, February 2003).

3.0 BASIC INDICATOR APPROACH (BIA)

3.1 Calculation Method

- a) The capital requirement using the BIA shall be equal to 15% of the average of the last three years positive observations of the relevant indicator (i.e. gross income). The formula for the calculation is given below;

$$K_{BIA} = \Sigma [Gl_i \dots \eta] / \alpha$$

Where:

K_{BIA} = the capital charge under the Basic Indicator Approach

Gl = positive annual gross income for the previous three years

η = number of the previous three years for which gross income is positive

α = 15%,

- b) Gross income under this guideline includes the sum of a bank's

- Net interest income, and
- Net non-interest income;



All of which shall be gross of:

- Any provisions (example unpaid interest); and
- Any operating expenses, including fees paid to outsourcing service providers;

But shall exclude;

- Realized or unrealized profits/losses from the sale or impairment of securities in the banking book;
- Extraordinary or irregular items;
- Income derived from insurance recoveries.

- c) However, if, for any given observation, the value of the relevant indicator is negative or equal to zero, this figure shall not be taken into account in calculating the total capital requirement. **The requirement shall be calculated as the average for the positive observations only.**
- d) Where data on the relevant indicator is not available for certain observations during the applicable three-year period, the calculation of the requirement shall be based on the average of the available observations only.
- e) If the relevant indicator or its components are related to a period less than 12 months (e.g. in the case of newly formed banks, mergers and acquisitions), this value must be annualized linearly.
- f) Banks shall be required to reconcile the gross income used in capital computation and the gross income reported in returns made to CBN e.g. MBR 1000



4.0 THE STANDARDIZED APPROACH (TSA)

4.1 Approval Process

- Banks seeking the approval of CBN for the use of TSA must show that their boards are actively involved in the oversight of operational risk management system; the system is conceptually sound and implemented with integrity and must have sufficient resources to support the use of the approach. They would therefore be required to submit the following in support of their application:
 - a) Organization charts that specify the tasks and responsibilities of the operational risk management and control functions;
 - b) A board certification of compliance with qualifying criteria;
 - c) A document describing the self-assessment process and the related findings; and
 - d) The internal audit report on the adequacy of the operational risk management system.
- Banks authorized to use TSA shall send to the CBN annually, a formal certification of compliance with the qualifying criteria and the internal audit report on the adequacy of the operational risk management system.

4.2 Qualifying criteria for the Standardized Approach

In order to obtain authorization to use the Standardized Approach, banks shall have adequate internal control procedures and an effective operational risk management system (specified below) in addition to adequate corporate governance mechanisms.

4.2.1 Internal controls

a) The self-assessment process

- The self-assessment process shall consist of a formalized set of procedures and activities to;
 - a) assess the quality of the operational risk management system, as well as
 - b) its continuing compliance with regulatory requirements, and;



- c) appropriateness to operational needs and market developments.
- The procedures for conducting the self-assessment and the related findings shall be adequately documented and reported to senior management and board. The report shall place specific emphasis on any aspect of the operational risk management system that requires improvement, including changes in bank structure and operations, and on the assessment of compliance with the qualifying criteria.

b) *The internal audit function*

- The internal audit unit shall carry out periodic reviews of the operational risk management system and the self-assessment process at least once every year with a view to evaluating their effectiveness and compliance with the qualifying criteria.
- The unit shall forward its reports on the review of operational risk to the board of directors for necessary corrective actions.

4.2.2 *Operational risk management system*

The key features of the operational risk management system are:

a) *The mapping of activities into regulatory business lines¹*

- For the purpose of calculating the capital requirement, the bank shall map its activities into eight regulatory business lines, listed in the table below, in accordance with the following principles:
 - i) All activities shall be mapped into the business lines in a mutually exclusive and jointly exhaustive manner;
 - ii) Any activity that forms an integral or ancillary part of another shall be allocated in accordance with the mapping criteria for the main activity;
 - iii) An activity belonging to more than one business line shall be mapped to the dominant business line;

¹ Business lines shall be in line with the permissible activities prescribed in the CBN banking model.



- iv) Where an activity cannot be mapped on the basis of a dominant business line, it shall be mapped to the business line yielding the highest percentage. The same rule shall apply to any associated ancillary activity;
- v) A compound activity shall be divided into its significant components, which shall be mapped to the most appropriate business lines on the basis of their nature and characteristics;
- vi) Banks may use internal transfer pricing methods to allocate the relevant indicator to the various business lines;²
- vii) The mapping of activities into business lines shall be consistent with the categories adopted for credit and market risks.
- viii) The mapping criteria shall be reviewed and adjusted in line with current business activities and the bank's risk profiles.
- ix) The process of mapping activities into business lines shall be subject to internal review and documented.
- x) In mapping activities into business lines, banks shall take account of the table contained in Annex A.

b) *The operational risk data collection and storage system*

- Banks are required to establish an operational risk data collection and storage system, which at a minimum shall include material losses and any related recoveries, which are capable of ensuring the effectiveness of the risk management system.
- The system shall ensure on a continuing basis that the data are relevant, reliable and up to date. For this purpose, banks shall:
 - i) Develop information systems capable of ensuring the integrity, confidentiality and availability of the data over time;
 - ii) Carry out periodic reviews of the operational risk data collection and storage system.

² For example, the retail business line may carry out lending transactions making use of funds raised with activities typical of other business lines such as interbank funding, which is included in the trading and sales line. In this case, internal transfer prices can be used to reallocate the cost components from trading and sales to retail.



c) Assessment of exposure to operational risks

- At least once a year, banks shall conduct an assessment of their exposure to operational risks for the entire bank and significant operating segments.
- The results of the assessment shall form an integral part of the process of controlling the bank's operational risk profile and shall be reported to the board and management, and within the scope of their duties, to the managers of the operating segments involved.
- The results of the assessment shall be used for management purposes to mitigate operational risks.

d) The reporting system

Banks shall establish a reporting system which ensures that the board, management and all the functions involved have access to appropriate information on operational risk. At a minimum, the information shall include:

- i) Results of the assessment of operational risk exposure;
- ii) Material losses and related recoveries;
- iii) Description of actions taken to prevent and mitigate operational risks, with information on their effectiveness.

4.3 Calculation of the capital requirement using TSA

- Under the Standardized Approach, the capital requirement for operational risk shall be equal to the average of the last three years observations of the Standardized Approach amount.
- The Standardized Approach amount shall be calculated for each year as the sum of the relevant indicators (gross income as defined under BIA) for the business lines weighted on the basis of the percentages indicated below.



Business line	Percentage (β)
Corporate finance	18%
Trading and sales	18%
Retail banking	12%
Commercial banking	15%
Payment and settlement	18%
Agency services	15%
Asset management	12%
Retail brokerage	12%

- The total capital charge under TSA may be expressed as follows:

$$K_{TSA} = \left\{ \sum_{years \ 1-3} \max[\sum(GI_{1-8} * \beta_{1-8}), 0] \right\} / 3$$

Where:

K_{TSA} = Capital charge under TSA

GI_{1-8} = Annual gross income in a given year for the eight business lines in the table above.

β_{1-8} = The fixed percentages for the business lines indicated in the table above.

- Where the weighted relevant indicator of a business line is negative, it shall be included in calculating the Standardized Approach amount. Where the Standardized Approach amount for a given year is negative, then the result for that year shall be zero and shall be included in the calculation of the three-year average.
- Where data on the relevant indicator is not available for certain observations during the applicable three-year period, the calculation of the requirement shall be based on the average of the available observations only.³

³ Only values for the relevant indicator determined on the basis of the International Accounting Standards shall be used in calculating the capital requirement.



- If the relevant indicator or its components are related to a period less than 12 months (e.g. in the case of newly formed banks, mergers and acquisitions), this value must be annualized linearly.
- In the event that a bank or banking group migrates from the basic indicator approach to the standardized approach during the year, the capital requirement is calculated by using the new method from the first reporting date.

Annex B shows an example of using standardized approach for calculating capital requirement for operational risk.



Definition of Terms

Relevant indicator shall mean gross income

Business lines shall mean the lines of business into which a bank's activities shall be classified in accordance with the criteria set out in the Standardized Approach for computation of capital charge for operational risk.

Operational loss shall mean the adverse financial effects generated by operational events that have been recognized in the bank's accounts and that have or may have an impact on the bank's income statement.

Legal risk shall mean the risk of losses resulting from violations of law or regulations, from contractual or constructive liability or from other disputes.

Operational risk shall mean the risk of losses resulting from inadequate or failed internal processes, people and systems or from external events, including legal risk.

Operating segment shall mean any area of activity such as a business line, an organizational unit, a legal entity or a geographical area.

Standardized approach amount shall mean the algebraic sum of each of the eight business lines divided by 3 years. Where the weighted relevant indicator of a business line is negative, it shall be included in calculating the Standardized Approach amount. Where the Standardized Approach amount for a given year is negative, then the result for that year shall be zero and shall be included in the calculation of the three-year average



ANNEX A: STANDARDIZED APPROACH – MAPPING OF BUSINESS LINES TO BANK ACTIVITIES

Business lines	List of activities
Corporate finance	Mergers, acquisitions, placements (public tenders and offerings, private placements, bond issues). Investment banking activities involving equity and debt capital (IPOs, privatizations, syndications, secondary private placements, underwriting, etc.). Business appraisals. Securitizations on behalf of third parties. Corporate financial management. Capital increases (lead manager only). Advisory and research services (capital structure, industrial strategy, undertakings, re-organizations, etc.). Investment advice as a specific business.
Trading and sales	Dealing on own account. Treasury management and funding on own account (asset & liability management, etc.). Securitization on own account. Reception, transmission and execution of orders for corporate and professional clients. Advice, underwriting, placement of financial instruments (investment funds, securities and fund portfolio products, equities, bonds, derivatives, etc.) with corporate and professional clients.
Retail banking	Acceptance of deposits and lending. Guarantees and commitments. Consumer credit for retail customers. Leasing and factoring. Other transactions with retail counterparties not allocated to other business lines. Ancillary services such as collection and payment (issuing debit and credit cards, funds transfer and other payments on behalf of customers, exchanging foreign currency, etc.) and custodianship and administration of



	financial instruments.
Commercial banking	Acceptance of deposits and lending. Guarantees and commitments. Leasing and factoring. Export and trade credit. Other transactions with corporate counterparties not allocated to other business lines. Ancillary services such as collection and payment (issuing debit and credit cards, funds transfer and other payments on behalf of customers, foreign exchange, etc.) and custodianship and administration of financial instruments. Net income (for example, coupons and dividends) on non-trading books.
Payment and settlement	Payment, settlement and clearing services and systems (RTGS, NIBSS, SWIFT, MASTERCARD, VISA, CSCS etc.). Issuing and administering means of payment and funds transfer as a specific business. Correspondent banking.
Agency services	Depository bank. Custodianship and related services (cash/collateral management, deposits with third parties, etc.) as a specific business. Tax collection services. Treasury services for government entities. Trust services.
Asset management	Portfolio management and other forms of asset management (investment funds, pension funds, securities and fund portfolio products, hedge funds, etc.). This refers only to the production, and not the distribution, of asset management products, except for placement with professional clients by specialized companies.
Retail brokerage	Reception, transmission and execution of orders for retail customers. Advice, underwriting, placing of financial instruments and insurance products (bank insurance,



	investment funds, securities and fund portfolio products, equities, bonds, derivatives, etc.) with retail customers.
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ANNEX B: STANDARDIZED APPROACH – EXAMPLE OF THE CALCULATION OF THE CAPITAL REQUIREMENT

Business line	Step 1			Beta Factor	Step 2			
	Annual Gross Income by Business Lines				Calculation of the weighted relevant indicator by business			
	Yr 1	Yr 2	Yr 3		Yr 1	Yr 2	Yr 3	
Corporate finance	10	10	10	18%	1.80	1.80	1.80	
Trading & sales	20	-60	30	18%	3.60	-10.80	5.40	
Retail banking	20	20	30	12%	2.40	2.40	3.60	
Commercial banking	20	15	10	15%	3.00	2.25	1.50	
Payment and settlement	10	-40	10	18%	1.80	-7.20	1.80	
Agency services	20	15	0	15%	3.00	2.25	0.00	
Asset management	0	20	30	12%	0.00	2.40	3.60	
Retail brokerage	-10	10	20	12%	-1.20	1.20	2.40	
Step 3 Algebraic sum for the year 14.40 -5.70 20.10 Step 4 Calculation of the Standardized Approach amount								



	14.40	0.00	20.10
Step 5			
Standardized Approach capital requirement			
11.50			

1. Calculate the relevant indicator on an annual basis for each business line (the result may be either positive or negative).
2. Multiply the relevant indicator of each business line by the corresponding percentage (the result may be either positive or negative).
3. Sum the weighted relevant indicators of the eight business lines, offsetting the positive amounts against the negative amounts. If the total result for the year is negative, set it equal to zero.
4. Calculate the Standardized Approach amount for each of the three years (the result may be either positive or equal to zero).
5. Calculate the total capital requirement as the simple average of the Standardized Approach amounts for the three years.