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GOVERNMENT NOTICES • GOEWERMENTSKENNISGEWINGS

NATIONAL TREASURY**NO. R. 98****09 FEBRUARY 2018****FINANCIAL MARKETS ACT, 2012: REGULATIONS**

The Minister of Finance, Malusi KN Gigaba, has under sections 5(1), 8(1)(a), 28(1)(a), 48(1)(a), 48(1A), 49A, 53(2A), 55(1)(a), 56A and 107 of the Financial Markets Act, 2012 (Act No.19 of 2012), made the Regulations as set out in the Schedule.

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SCHEDULE

CHAPTER I

INTERPRETATION

1. Definitions

In this Regulation, “**the Act**” means the Financial Markets Act, 2012 (Act No. 19 of 2012), and any word or expression to which a meaning has been assigned in the Act, bears the meaning so assigned to it and, unless the context indicates otherwise-

“**affiliate**” means a company that controls, is controlled by, or is under common control with the clearing member or central counterparty;

“**asset class**” means the underlying asset, security or event from which an OTC derivative derives its value, such as an interest rate, foreign exchange, credit, equity or a commodity;

“**authorised OTC derivative provider**” means an OTC derivative provider authorised by the Authority under Regulation 2 and section 6(8) of the Act;

“**basis risk**” means the risk that the relationship between the prices of similar but not identical commodities alters over time;

“**client**” in relation to an OTC derivative provider, means any person, other than a counterparty, with whom an OTC derivative provider-

- (a) executes an OTC derivative transaction; or
- (b) enters into a relationship with the intention of executing OTC derivative transactions;

“**complex product**” means a bespoke OTC derivative which combines two or more product types or embeds one or more derivatives into another;

“**credit rating agency**” means a registered credit rating agency in terms of the Credit Rating Services Act, 2012 (Act No. 24 of 2012);

“**credit risk**” means the risk that a counterparty will be unable to meet fully its financial obligations when due or at any time in the future.

“**counterparty**” in relation to an OTC derivative provider, means -

- (a) another authorised OTC derivative provider;
 - (b) an authorised user;
 - (c) a bank;
 - (d) a person who is registered, licensed or authorised -
 - (i) to administer a collective investment scheme Collective Investment Schemes Control Act, 2002 (Act No. 45 of 2002);
 - (ii) to provide financial services in derivative instruments in terms of the Financial Advisory and Intermediary 2002 (Act No. 37 of 2002);
 - (iii) to conduct long-term insurance business of the Long-term Insurance Act, 1998 (Act No. 52 of 1998); and
 - (iv) to conduct short-term insurance business of the Short-term Insurance Act, 1998 (Act No. 53 of 1998);
 - (e) a person outside the Republic who-
 - (i) is authorised by a supervisory authority to perform a service or services similar to one or more of the services referred to in the definition of an OTC derivative provider or the services performed by an authorised user; or
 - (ii) is registered, licensed, recognised, approved or otherwise authorised to conduct the business of a bank or to render services of a business referred to in paragraph (d) by a supervisory authority with functions similar to those of the Authority referred to in the legislation listed in paragraph (d);
 - (f) a central bank or other national monetary authority of any country, state or territory;
 - (g) a private equity fund;
 - (h) any other person who elects, in writing, to be categorised as a counterparty and who is not-
 - (i) a natural person;
 - (ii) a pension fund organisation as defined in section 1(1) of the Pension Funds Act, 1956 (Act No. 1956)
 - (iii) a friendly society referred to in the Friendly Societies Act, 1956 (Act No. 25 of 1956);
 - (iv) a medical scheme or the board of trustees of such scheme as defined in section 1(1) of the Medical Schemes Act, 1998 (Act No.131 of 1998); and
 - (i) any other person declared by the Authority to be a counterparty;
- with whom an OTC derivative provider executes an OTC derivative transaction or enters into a relationship with the intention of executing OTC derivative transactions;

“**custodian**” means a person authorised by the Authority to hold assets, including securities, on behalf of another person and includes a nominee;

“**external central securities depository link**” means a set of contractual and operational arrangements whereby the external central securities depository becomes a participant in the central securities depository to facilitate the transfer of securities between the participants for settlement services;

“**financial reporting standards**” means such reporting standards as may be issued from time to time by the Financial Reporting Standards Council in terms of the relevant provisions of section 440 of the Companies Act, 1973, or section 29 read with section 203 of the Companies Act, 2008;

“**group**” means a group of companies as defined in the Companies Act;

“**indirect clearing**” means clearing services provided by a clearing member to an indirect clearing client, through a set of contractual arrangements between the central counterparty, the clearing member and the indirect clearing client;

“**indirect clearing client**” means a clearing client of a clearing member whose transaction is cleared through the central counterparty, using the clearing services of a clearing member;

“**operational risk**” means the risk of loss resulting from inadequate or failed internal processes, people or systems or from external events, including legal risk such as exposure to fines, penalties, or punitive damages resulting from supervisory actions and private settlements, but excludes strategic or reputational risk;

“**OTC derivative**” means an unlisted derivative instrument that is executed, whether confirmed or not confirmed, excluding –

- (a) foreign exchange spot contracts; and
- (b) physically-settled commodity derivatives;

and “**OTC derivative transaction**” has a corresponding meaning;

“**OTC derivative provider**” means a person who as a regular feature of its business and transacting as principal-

- (a) originates, issues or sells OTC derivatives; or
- (b) makes a market in OTC derivatives;

“**product type**” means a sub-category of an asset class;

“**related party**”, in relation to a person (the “first person”) means a person connected to the first person in a manner described in section 2(1)(a), (b) or (c) of the Companies Act;

“**reserves**” means appropriation of retained earnings for a designated purpose which is not available for dividends to the shareholder which is of a permanent nature and able to fully absorb losses in going concern situations;

“**unfunded credit-derivative instrument**” means a contract in terms of which the protection seller does not provide collateral to a protection buyer for the settlement of the protection seller’s potential future obligations;

“**valuation**” means the current market value or net present value of an OTC derivative transaction; and

“**value date**” means the day on which the payment, transfer instruction, or other obligation is due and the associated funds and securities are available.

CHAPTER II

REQUIREMENTS FOR THE REGULATION OF OTC DERIVATIVES

(Section 5(1)(a))

2. Requirement to be authorised

(1) A person may not-

- (a) act as an OTC derivative provider; or
- (b) advertise or hold itself out as an OTC derivative provider;

unless authorised by the Authority in terms of section 6(8) of the Act.

(2) An application for authorisation as an OTC derivative provider must be made in the manner, and contain the information, prescribed by the Authority.

3. Reporting obligations

(1) An authorised OTC derivative provider must report OTC derivative transactions to a licensed trade repository or a licensed external trade repository in the form and manner prescribed by the Authority under section 58 of the Act.

(2) Where OTC derivative transactions have been accepted for clearing, the relevant licensed central counterparty or licensed external central counterparty must, as soon as practicable, report all OTC derivative transactions that it has accepted to a licensed trade repository or licensed external trade repository in the form and manner prescribed by the Authorities under section 58 of the Act.

4. Clearing

(1) The Authority may, with the concurrence of the Prudential Authority-

- (a) determine eligibility criteria for OTC derivative transactions to be subject to mandatory clearing; and
- (b) conduct assessments into other categories of OTC derivative transactions upon which additional mandatory clearing requirements could be based.

(2) An authorised OTC derivative provider must ensure that an OTC derivative transaction determined by the Authority in terms of sub-regulation (1) as eligible for clearing, is cleared through a licensed central counterparty or a licensed external central counterparty in the manner prescribed by the Authority.

(3) In making a determination in terms of sub-regulation (1), the Authority must have regard to-

- (a) the suitability of the OTC derivative transaction for clearing, and other relevant considerations, such as the level of contractual and operational standardisation, volume and liquidity of the relevant OTC derivative transactions;
- (b) the effect on the efficiency, integrity and stability of the South African financial system;
- (c) the interconnectedness between counterparties to the relevant classes of OTC derivative transactions and the impact on the levels of counterparty credit risk;
- (d) the resources and suitability of the central counterparty available to clear the relevant OTC derivative transactions;
- (e) the impact on the competitiveness of the South African market of imposing a clearing requirement in relation to the relevant OTC derivative transactions; and
- (f) any other matters that the Authority considers relevant.

CHAPTER III

CATEGORY OF REGULATED PERSON

(Section 5(1)(b))

5. Category of regulated person

An authorised OTC derivative provider is a regulated person in terms of section 5(1)(b) of the Act.

CHAPTER IV

EXTERNAL CENTRAL SECURITIES DEPOSITORIES LINKS

(Section 5(1)(c), 35(4) and 107(1)(b))

6. Approval of an external central securities depository as a special category of participant

A licensed central securities depository may, for the purpose of establishing a central securities depository link to perform settlement services in terms of the depository rules, approve an external central securities depository that has been recognised in terms of section 6A of the Act, as a participant of the central securities depository as contemplated in section 35(4) of the Act.

7. Requirements for an external link

A central securities depository that has established a link with an external central securities depository as contemplated in Regulation 6, must-

- (a) have rules and procedures that mitigate the risk relating to a conflict of laws by clearly stating the Act and other applicable legislation promulgated in the Republic is applicable to the securities services provided under the Act;
- (b) have processes that identify, assess, monitor and manage all reasonable risks that could arise from the link, including legal, operational, and custody risks;
- (c) not offer any credit extensions to the external central securities depository;
- (d) assess and monitor the operational reliability of any link it intends to open with an external central securities depository;
- (e) ensure that it and the external central securities depository have adequate rules, processes and procedures in place for the management of reasonable custody, default and liquidity risks;

- (f) ensure that it has adequate systems in place to ensure effective communication with the external central securities depository so that the link does not pose significant operational risk to the external central securities depository;
- (g) ensure that it and the external central securities depository apply robust reconciliation procedures for ensuring the accuracy and integrity of their records or holdings;
- (h) ensure that it and the external central securities depository have adequate processes and procedures for the segregation of assets, and protection of assets in the event of their insolvency or default;
- (i) ensure that provisional transfer of securities is prohibited;
- (j) where it establishes links with multiple external central securities depositories, ensure that the risks generated in the link do not affect the soundness of the other links;
- (k) ensure that there is sufficient and regular exchange of information between itself and the external central securities depository to ensure it is able to perform effective periodic assessments of the operational risk associated with the link;
- (l) ensure that its risk management arrangements and processing capacity are sufficiently scalable and reliable to operate the link safely for both its current and projected peak volumes of activity over the link; and
- (m) obtain adequate information on the business continuity plans including disaster recovery plans as well as the plans for orderly wind-up or recovery of the external central securities depository.

CHAPTER V

ASSETS AND RESOURCES REQUIREMENTS FOR CERTAIN MARKET INFRASTRUCTURES

(Sections 8(1)(a), 28(1)(a), 48(1)(a), 55(1)(a))

- 8. Assets and resources requirements for exchanges, central securities depositories, clearing houses and trade repositories**
- (1) An applicant for an exchange, central securities depository, clearing house and trade repository licence and a licensed exchange, licensed central securities depository, licensed clearing house and licensed trade repository must-
- (a) maintain capital, together with retained earnings and reserves proportional to the risks relating to the functions or duties of the market infrastructure, in the Republic; and
 - (b) hold sufficient capital and liquid net assets funded by equity in the Republic -
 - (i) to cover potential general business losses to ensure that the market infrastructure is adequately protected against operational, legal, custody and investment risks so that it can continue performing its functions and duties as a going concern;
 - (ii) which should be determined by its general business risk profile and the length of time required to achieve an orderly winding-up or recovery, as appropriate, of the market infrastructure's critical operations and functions under a range of stress scenarios;
 - (iii) which reflects a strong cash, cash-equivalent, or securities position to allow the market infrastructure to meet its current and projected operating expenses under a range of scenarios, provided that cash equivalents and securities consist of high-quality and sufficiently liquid assets that can easily be converted into cash at little or no loss of value, even in adverse market conditions;
 - (iv) which, is at a minimum, equal to six months of operating expenses, provided that the market infrastructure considers whether resources are required beyond that amount, taking into account its general business risk profile; and
 - (v) which is permanently available for the market infrastructure to absorb operating expenses or losses on a going concern basis;
 - (c) safeguard its assets to minimise the risk of loss or delay in access to these assets by holding the assets at supervised and regulated financial institutions that have robust accounting practices, safekeeping procedures, and internal controls that fully protect these assets; and
 - (d) have a viable plan, approved by its controlling body and updated regularly for raising additional equity should the equity fall below the amount required to cover all its operating expenses.
- (2) (a) A licensed exchange, licensed central securities depository, licensed clearing house and licensed trade repository must furnish the Authority with a quarterly report, or within such period as may be prescribed by the Authority, detailing the calculation of the required liquid financial resources, calculated in terms of this Regulation and the measures taken to obtain additional funding, if necessary.
- (b) If, in the opinion of the Authority, such liquid financial resources are insufficient to cover the risks involved, the Authority may require the market infrastructure in question to obtain additional liquid assets funded by equity over a time period as determined by the Authority.

CHAPTER VI**CENTRAL COUNTERPARTIES**

(Sections 48(1)(a), 48(1A), 53(2A) and 107(1)(b))

For the purposes of this Chapter, unless the context indicates otherwise, references to “**central counterparty**” also mean an applicant for a central counterparty licence and licensed central counterparty;

9. Legal basis

(1) To establish the legal basis of its functions, a central counterparty must have rules, policies, procedures and contracts that-

- (a) are clear, understandable and consistent with relevant laws, including these Regulations;
- (b) are accurate, up to date and readily available to the Authority, other supervisory authorities, clearing members and where appropriate their clients;
- (c) provide certainty, with respect to the central counterparty's-
 - (i) interests in, and rights to use and dispose of, collateral;
 - (ii) authority to transfer ownership rights or property interests; and
 - (iii) rights to make and receive payments,despite the insolvency of its clearing members, clearing members' clients, or custodian; and
- (d) are binding on third parties and legally enforceable when the central counterparty is implementing its plans for recovery or orderly winding-up.

(2) In developing its rules, policies, procedures and contractual arrangements, a central counterparty must consider relevant regulatory principles, industry standards and market protocols and clearly indicate where such practices have been incorporated.

(3) If a central counterparty has a netting arrangement in place, it must be enforceable in terms of valid legal agreements.

(4) A central counterparty must, where applicable-

- (a) analyse any foreign legal requirements applicable to the rendering of its functions;
- (b) identify the extent to which those requirements are in conflict with the Act and other applicable South African legislation;
- (c) develop a policy describing how conflicting provisions will be resolved in full compliance with the Act and other applicable legislation; and
- (d) in cases of uncertainty, obtain a legal opinion confirming the enforceability of its policies, procedures and contracts.

10. Access and participation

(1) A central counterparty must allow for fair and open, and non-discriminatory access to its functions, including by direct and, where relevant, indirect clearing members and other market infrastructures, based on reasonable risk-related membership and participation requirements, which must-

- (a) be consistent with the requirements with which the clearing house rules must comply as contemplated under section 53(2)(b) of the Act;
- (b) be justified in terms of the safety and efficiency of the central counterparty and the markets it serves;
- (c) be tailored to and commensurate with the central counterparty's specific risks;
- (d) be publicly disclosed;
- (e) be commercially reasonable and designed to support interconnectivity with other market infrastructures and service providers; and
- (f) allow it to gather basic information about indirect clearing clients in order to identify, monitor and manage any material risks to the central counterparty arising from such participation arrangements.

(2) A central counterparty-

- (a) may impose additional requirements to ensure that its clearing members have the capacity to act for indirect clearing clients;
- (b) must publically disclose the prices and fees of each service provided separately, including discounts and rebates and the conditions to benefit from those reductions, as well as its policies on any available discounts;
- (c) must identify dependencies between clearing members and indirect clearing clients that might affect the central counterparty;
- (d) must identify indirect clearing clients-
 - (i) responsible for a significant proportion of transactions processed by the central counterparty; and

- (ii) whose transaction volumes or values are large relative to the capacity of the clearing member through which they access the central counterparty, in order to manage the risks arising from these transactions;
- (e) must establish concentration limits on exposures to indirect clearing clients, where appropriate;
- (f) must review risks arising from tiered participation arrangements on a monthly basis and must take mitigating action when appropriate; and
- (g) must, where a clearing member's default would leave the central counterparty with a potential credit exposure related to an indirect clearing client's positions, ensure it understands and manages the exposure it would face.

11. Governance

(1) A central counterparty must have robust governance arrangements that are clear and transparent, promote the safety and efficiency of the central counterparty, and support the stability of the broader financial system, other relevant public interest considerations, and the objectives of relevant stakeholders.

- (2) A central counterparty must ensure that the governance arrangements provide for-
- (a) the role, responsibilities, term and composition of the controlling body and any committees of the controlling body or other committees of relevance to the central counterparty;
 - (b) processes to identify, assess, manage and mitigate potential conflicts of interest of members of the controlling body, managers, employees or any related party of the controlling body;
 - (c) clear and direct lines of responsibility and accountability, particularly between management and the controlling body;
 - (d) sufficient authority, independence, resources and access to the controlling body for key functions such as risk management, internal control, and audit;
 - (e) an effective internal audit function, with sufficient resources and independence from management to provide, among other activities, a rigorous and independent assessment of the effectiveness of the central counterparty's risk-management and control processes;
 - (f) the role, responsibilities and structure of senior management;
 - (g) the shareholding structure;
 - (h) the internal governance policy;
 - (i) the design of risk management, compliance and internal controls that includes the central counterparty's risk-tolerance policy, assigns responsibilities and accountability for risk decisions, and addresses decision making in crises and emergencies;
 - (j) the procedures for the appointment, performance evaluation and removal of members of the controlling body and senior management;
 - (k) oversight of outsourcing arrangements;
 - (l) processes for ensuring performance accountability to stakeholders; and
 - (m) the adoption and use of models, such as for credit, collateral, margining, and liquidity risk-management system.

(3) A central counterparty must disclose that the governance arrangements to the Authority, shareholders and where appropriate, its clearing members, their clients and the public.

(4) A central counterparty must have a controlling body which must be sufficiently independent.

(5) The compensation of the independent and other non-executive members of the controlling body may not be linked to the business performance of the central counterparty.

(6) A central counterparty may not share human resources with other group entities unless it is in terms of an outsourcing arrangement.

(7) A central counterparty must have a risk, compliance and information technology function under the direction of a chief risk officer, a chief compliance officer and a chief information technology officer respectively, to ensure that the central counterparty operates with the necessary level of human resources to meet all of its obligations.

(8) A central counterparty must establish and maintain a permanent and effective risk management function under the direction of a chief risk officer.

- (9) The chief risk officer referred to in sub-regulation (8) must -
- (a) implement the risk management framework; and
 - (b) make appropriate recommendations to the risk committee or controlling body regarding the central counterparty's risk management functions.

(10) The compliance function must operate independently from the other functions of the central counterparty with the necessary authority, resources, expertise and access to all relevant information.

(11) The risk and information technology functions must report to the controlling body either directly or through the chair of the risk committee.

(12) A central counterparty must have an internal audit function, which must report directly to the controlling body.

12. Risk committee

(1) A central counterparty must establish a risk committee, which must -

- (a) include at least representatives of its clearing members, and independent members of the controlling body;
- (b) ensure its advice is independent of any direct influence by the management of the central counterparty;
- (c) ensure that none of the groups of representatives have majority representation in the risk committee; and
- (d) advise the controlling body on any arrangements that may impact the risk management of the central counterparty, such as a significant change in its risk model, the default procedures, the criteria for accepting clearing members, the clearing of new classes of instruments, or the outsourcing of functions.

(2) A central counterparty must-

- (a) clearly determine the mandate and the governance arrangements of the risk committee relating to its operational procedures, admission criteria and the election mechanism for risk committee members to ensure its independence; and
- (b) ensure that the risk committee-
 - (i) is chaired by an independent member of the controlling body;
 - (ii) reports directly to the controlling body; and
 - (iii) holds quarterly meetings.

(3) A central counterparty must, where possible, consult the risk committee on developments impacting the risk management of the central counterparty in a crisis.

(4) Where the chairperson of the risk committee determines that a member has an actual or potential conflict of interest on a particular matter, that member may not be allowed to vote on that matter.

(5) The risk committee may invite employees of the central counterparty and external independent experts to attend risk committee meetings in a non-voting capacity.

13. Risk management framework

13.1 General

(1) A central counterparty must ensure that an adequate, effective and on-going process of risk management is established and maintained, which-

- (a) is consistent with the nature, complexity and risk inherent in the central counterparty's on-balance sheet and off-balance sheet activities;
- (b) responds to changes in the central counterparty's environment and conditions; and
- (c) must include the maintenance of effective capital management by a central counterparty.

(2) In order to achieve the objective relating to the maintenance of effective risk management and capital management envisaged in sub-regulation (1), central counterparty must have in place a comprehensive and documented risk management framework approved by the controlling body to identify, measure, monitor, control, and appropriately communicate or report on all risks associated with its activities.

(3) The risk management framework must as a minimum, -

- (a) identify the range of risks that arise within the central counterparty and the risks it directly bears from or poses to its clearing members, its clearing members' clients and other entities;
- (b) be aligned with, and, where appropriate, provide specific guidance for the successful implementation of and the continued adherence to, the business strategy, goals and objectives, and the risk appetite or tolerance for risk, of the central counterparty;
- (c) provide for the employment of robust information and risk-control systems to provide the central counterparty with the capacity to obtain timely information necessary to apply risk- management policies and procedures;

- (d) provide incentives to clearing members and, where relevant, their clients to manage and contain the risks they pose to the central counterparty;
- (e) provide for appropriate plans for its recovery or orderly winding-up and contain, among other elements, a substantive summary of the key recovery or orderly wind-up strategies, the identification of the central counterparty's critical operations and functions, and a description of the measures needed to implement the key strategies;
- (f) provide for comprehensive internal control mechanisms to help the controlling body and senior management monitor and assess the adequacy and effectiveness of the central counterparty's risk-management framework and includes sound administrative and accounting procedures, a robust compliance function and an independent internal audit and validation or review function;
- (g) be adequate for the size and nature of the activities of the central counterparty, including the central counterparty's activities relating to risk mitigation, trading and exposure to counterparty credit risk, and periodically adjusted in the light of the changing risk profile or financial strength of the central counterparty, financial innovation or external market developments;
- (h) specify relevant limits and allocated capital relating to the central counterparty's various risk exposures;
- (i) be sufficiently robust to—
 - (i) identify and manage material interrelationships between the central counterparty's relevant risk exposures;
 - (ii) ensure the central counterparty's continued compliance with the relevant documented set of internal policies, controls and procedures;
 - (iii) ensure that the central counterparty captures the economic substance and not merely the legal form of the central counterparty's various exposures to risk;
 - (iv) ensure that the central counterparty conducts sufficiently robust and independent due diligence in respect of the central counterparty's respective investment in or exposure to instruments, products or markets, and that the central counterparty, for example, does not merely or solely rely on an external credit rating when investing in a particular product or instrument;
 - (v) ensure that the central counterparty regularly conducts appropriate stress-testing or scenario analysis;
 - (vi) ensure that the central counterparty maintains sufficient liquidity and capital adequacy buffers to remain solvent during prolonged periods of financial market stress and illiquidity;
 - (vii) clearly delineate accountability and all relevant lines of authority across the central counterparty's various business units, lines or activities, and ensure that a clear separation exists between all relevant business units, lines or activities, and any relevant risk or control function;
 - (viii) ensure that, prior to its initiation, all relevant risk management, control and business units or lines appropriately review and assess proposed new activities, investment in new instruments or the introduction of new products for clearing, to ensure that the central counterparty will be able to continuously manage and control the relevant activity, investment or product;
 - (ix) ensure that the central counterparty is able to appropriately aggregate or consolidate all relevant risks or exposure to risk;
 - (x) ensure on-going, accurate, appropriate and timely communication or reporting of the central counterparty's relevant risk exposures and any material deviation from approved policies, processes or procedures to the senior management and the controlling body;
 - (xi) ensure that the central counterparty's controlling body and senior management receive timely and appropriate information regarding the condition of the central counterparty's respective asset portfolios, including matters related to the relevant classification of credit exposure, the level of impairment or provisioning, and major problem assets;
 - (xii) enable the proactive management of all relevant risks;
 - (xiii) ensure that any breach of an internal limit is duly escalated and addressed;
 - (xiv) timeously detect potential criminal activities and prevent undue exposure to criminal activities; and
 - (xv) ensure proper oversight of any relevant outsourced function.

13.2 Business risk

The risk management framework must in the case of the central counterparty's exposure to business risk, enable the central counterparty to—

- (a) identify and assess the sources of business risk and their potential impact on operations and functions of the central counterparty, taking into account past loss events and financial projections;
- (b) assess and thoroughly understand its business risk and the potential effect that this risk could have on its cash flows, liquidity, and capital positions;
- (c) clearly understand its general business risk profile so that it is able to assess its ability either to—
 - (i) avoid, reduce, or transfer specific business risks; or
 - (ii) accept and manage those risks;
- (d) measure and monitor business risks on an on-going basis and develop appropriate information technology systems as part of its risk management framework;

- (e) minimise and mitigate the probability of business-related losses and their impact on its operations across a range of adverse business and market conditions, including the scenario that its viability as a going concern is questioned; and
- (f) address unforeseen and potentially uncovered liquidity shortfalls to avoid unwinding, revoking or delaying the same-day settlement of payment obligations and provide for a process to replenish any liquidity resources it may employ during a stress event.

13.3 Counterparty credit risk

The risk management framework must, in the case of the central counterparty's exposure to counterparty credit risk,-

- (a) take into account the market risk, liquidity risk, legal risk and operational risk normally associated with counterparty credit risk; and
- (b) ensure that the central counterparty-
 - (i) takes into account the creditworthiness of all relevant counterparties;
 - (ii) takes into account any relevant settlement and pre-settlement risk;
 - (iii) continuously monitors the utilisation of credit lines;
 - (iv) measures its current exposure gross and net of collateral in all relevant cases; and
 - (v) manages all relevant risk exposures at a counterparty and central counterparty-wide level.

13.4 Risk mitigation

(1) The risk management framework must, in the case of risk mitigation, include matters related to collateral and margin agreements with counterparties and be sufficiently robust to ensure that the central counterparty continuously-

- (a) devotes sufficient resources to the orderly operation of margin agreements with OTC derivative and securities financing counterparties, as measured by, among other things, the timeliness and accuracy of the central counterparty's outgoing calls; and
- (b) controls, monitors and reports-
 - (i) all relevant risk exposures related to margin agreements, such as the volatility and liquidity of the securities exchanged as collateral;
 - (ii) any potential concentration risk to particular counterparties or types of collateral;
 - (iii) the reuse of collateral, including the potential liquidity shortfalls resulting from the reuse of collateral received from counterparties; and
 - (iv) all relevant matters related to the surrendering of rights on collateral posted to counterparties.

(2) The risk management framework must be sufficiently robust to timeously identify material concentrations in any one of the risk exposures identified as contemplated in Regulation 13.1(2), including concentrations relating to or arising from-

- (a) an individual or single counterparty or person;
- (b) a group of related or connected counterparties or persons;
- (c) credit exposures in respect of counterparties or persons in the same industry, economic sector or geographic region;
- (d) credit exposures to counterparties or persons, the financial performance of which is dependent on the same activity or indirect credit exposures arising from the central counterparty's risk mitigation activities such as exposure to a single collateral type or a single credit protection provider;
- (e) interest-rate risk;
- (f) liquidity risk;
- (g) funding sources;
- (h) trading exposure or risk, including interest-rate risk and price risk;
- (i) equity positions;
- (j) off-balance-sheet exposures, including guarantees, liquidity lines or other commitments;
- (k) correlation between any of the aforesaid risks, counterparties, instruments, assets, liabilities or commitments.

13.5 Country and transfer risk

The risk management framework must, in the case of country risk and transfer risk, be sufficiently robust to-

- (a) identify and monitor exposures on an individual country basis in addition to an end-borrower or end-counterparty basis;
- (b) ensure that country exposures are accurately monitored and reported in the central counterparty's information systems, risk management systems and internal control systems;
- (c) continuously ensure adherence to the central counterparty's established country exposure limits, and any other relevant limit that may be specified by the central counterparty or the Authority;
- (d) monitor and evaluate developments in country risk and in transfer risk, and apply appropriate countermeasures; and
- (e) raise appropriate provision for loss against country risk and transfer risk in addition to any relevant required loan-specific provision or impairment.

13.6 Liquidity risk

The risk management framework must, in the case of liquidity risk, be sufficiently robust to ensure that the central counterparty-

- (a) conducts comprehensive cash flow forecasting;
- (b) specifies, implements and maintains appropriate limits in respect of its respective funding sources, including all relevant products, counterparties and markets;
- (c) conducts robust liquidity scenario stress testing, including stress tests in respect of such specific or sector specific scenarios as may be determined by the central counterparty;
- (d) develops and maintains robust and multifaceted contingency funding plans; and
- (e) maintains sufficient reserves of liquid assets to meet contingent liquidity needs.

13.7 Remuneration

The risk management framework must include sound remuneration processes, practices and procedures, and controlling body-approved remuneration policies, which must-

- (a) promote sound and effective risk management;
- (b) not create incentives to relax risk standards;
- (c) be duly documented and reviewed at least on an annual basis;
- (d) be designed to align the level and structure of remuneration with prudent risk management;
- (e) take into consideration prospective risks as well as existing risks and risk outcomes;
- (f) stipulate that pay out schedules must be sensitive to the time horizon of risks;
- (g) in the case of variable remuneration, take due account of possible mismatches of performance and risk periods;
- (h) provide that the level of remuneration must be adequate in terms of responsibility as well as in comparison to the level of remuneration in the business areas;
- (i) be subject to independent audit, on an annual basis, and submit the results of the audits to the Authority;
- (j) be linked to longer-term capital preservation, and the financial strength of the central counterparty, which, among others, means that-
 - (i) the variable remuneration payments must be appropriately deferred and payment may not be finalised over short periods whilst risks are realised over long periods; and
 - (ii) the mix of cash, equity and other forms of remuneration must be duly aligned with the central counterparty's exposure to risk;
- (k) incorporate and promote appropriate risk-adjusted performance measures, that is, remuneration must acknowledge all relevant risks so that remuneration is balanced between the profit earned and the degree of risk assumed in order to generate the profit;
- (l) not be unduly linked to short-term accounting profit generation;
- (m) ensure that staff engaged in the relevant financial and risk control areas have appropriate authority and are remunerated in a manner that is independent of the business areas they oversee, and commensurate with their function in the central counterparty;
- (n) promote adequate disclosure to stakeholders, that is, the central counterparty must disclose clear, comprehensive and timely information regarding the central counterparty's remuneration practices to-
 - (i) facilitate constructive engagement with all relevant stakeholders;
 - (ii) enable stakeholders to evaluate the quality of support for the central counterparty's strategy, objectives and risk appetite;
- (o) ensure appropriate controlling body and senior management oversight and involvement;
- (p) include adequate internal controls to produce any data or information which might be required on a consolidated basis;
- (q) be subject to regular monitoring and review, and relevant testing, to ensure that they remain relevant and current.

13.8 Controlling body and senior management

(1) A member of the controlling body and senior management of a central counterparty must-

- (a) possess sufficiently detailed knowledge of all the functions and major business lines of the central counterparty to ensure that the policies, processes, procedures, controls and risk monitoring systems envisaged in Regulations 13.1 (2) and (3) are appropriate and effective;
- (b) have sufficient expertise to understand the various instruments, markets and activities in which the central counterparty conducts business, including capital market activities such as the related off-balance sheet-activities, and the associated risks;
- (c) ensure that the monitoring and the reporting of individual and aggregate exposure(s) to related persons are subject to an independent credit review process;
- (d) remain informed about the risks and changes thereto as financial markets, risk management practices and the central counterparty's activities evolve;
- (e) ensure that accountability and lines of authority are clearly delineated;

- (f) ensure adequate segregation of duties to promote sound governance and effective risk management in the central counterparty, and avoid conflict of interest;
- (g) ensure that, before embarking on new activities, investing in new instruments or introducing products new to the central counterparty-
 - (i) the potential changes in the central counterparty's exposure to risk arising from the new instruments, products or activities have been duly identified, considered and reviewed; and
 - (ii) the central counterparty's infrastructure, policies, processes, procedures and internal controls necessary to manage the related risks are duly updated and in place;
- (h) consider the possible difficulty related to the valuation of new products, and how the products might perform in a stressed economic environment;
- (i) ensure that the risks to which the central counterparty is exposed are appropriately managed;
- (j) set capital targets commensurate with the central counterparty's risk profile and control environment;
- (k) implement robust and effective risk management and internal control processes;
- (l) develop and maintain an-
 - (i) appropriate strategy that ensures that the central counterparty maintains adequate capital based on the nature, complexity and risk inherent in its on-balance sheet and off-balance sheet activities, including its activities relating to risk mitigation;
 - (ii) internal capital adequacy assessment process that responds to changes in the business cycle within which the central counterparty conducts business;
- (m) with respect to new or complex products or activities, understand the underlying assumptions regarding business models, valuation and risk management practices, and evaluate the central counterparty's potential risk exposure should the assumptions fail; and
- (n) on a periodic basis, conduct relevant stress tests, particularly in respect of the central counterparty's main risk exposures, in order to identify events or changes in market conditions that may have an adverse impact on the central counterparty.
 - (2) A central counterparty must-
 - (a) implement a system of reporting to senior management to ensure that operational risk reports are provided to the relevant functions within the central counterparty; and
 - (b) have in place procedures for taking appropriate action according to the information within the reports to management.

13.9 Operational risk

- (1) The risk management framework must in the case the central counterparty's exposure to operational risk, enable the central counterparty to-
 - (a) identify, manage and monitor the plausible sources of operational risk;
 - (b) develop and maintain appropriate internal controls;
 - (c) set operational reliability objectives;
 - (d) develop a business continuity plan;
 - (e) assess the evolving nature of the operational risk it faces on an on-going basis so that it can analyse its potential vulnerabilities and implement appropriate defence mechanisms;
 - (f) assess the additional operational risks related to its interoperability arrangements to ensure the scalability and reliability of information technology systems and related resources;
 - (g) include formal change-management and project-management processes to mitigate operational risk arising from modifications to operations, policies, procedures, and controls; and
 - (h) include comprehensive and well-documented procedures in place to record, report, analyse, and resolve all operational incidents.
- (2) A central counterparty must have in place a well-documented assessment and management system for operational risk with clear responsibilities assigned for this system, which must-
 - (a) identify its exposures to operational risk and track relevant operational risk data, including material loss data;
 - (b) be subject to an annual review carried out by an independent party, including an internal party, with the necessary knowledge to carry out such review, the result of which must be made available to the Authority upon request;
 - (c) be closely integrated into the risk management processes of the central counterparty to ensure that its output is an integral part of the process of monitoring and controlling the central counterparty's operational risk profile.

13.10 Information technology

- (1) A central counterparty must implement and document information technology systems based on internationally recognised technical standards and industry best practices, that-

- (a) are reliable, secure and capable of processing the information necessary for the central counterparty to perform its activities and operations in a safe and efficient manner;
- (b) enable connectivity with its clearing members and clients as well as with its service providers;
- (c) provide for capacity planning and sufficient redundant capacity to allow the system to process all remaining transactions before the end of the day in circumstances where a major disruption occurs;
- (d) provide for on-going capacity stress tests to determine the ability of those systems to process transactions in an accurate, timely and efficient manner;
- (e) provide scalable capacity adequate to-
 - (i) handle increasing stress volumes;
 - (ii) maintain historical data as required;
- (f) facilitate the proactive management of risk;
- (g) enable the senior management of the central counterparty to duly manage and appropriately mitigate the central counterparty's relevant risk exposures;
- (h) are able to provide regular, accurate and timely information regarding matters such as the central counterparty's aggregate risk profile, as well as the main assumptions used for risk aggregation;
- (i) are adaptable and responsive to changes in the central counterparty's underlying risk assumptions;
- (j) are sufficiently flexible to generate relevant forward-looking scenario analyses that capture the controlling body and senior management's interpretation of evolving market conditions and stressed conditions;
- (k) are capable of capturing and bringing to the attention of senior management and the controlling body any breach in a specified internal, regulatory or other statutory limit; and
- (l) make provision for any relevant initial and on-going validation.

(2) A licensed central counterparty must provide for procedures for the introduction of new technology including clear reversion plans.

(3) A licensed central counterparty must maintain an information security framework that -

- (a) appropriately manages its information security risk;
- (b) prevents unauthorised disclosure of information;
- (c) ensures data accuracy and integrity and availability of the central counterparty's functions and services;
- (d) includes at least the following features-
 - (i) access controls to the system;
 - (ii) adequate safe guards against intrusions and data misuse;
 - (iii) specific devices to preserve data authenticity and integrity, including cryptographic techniques;
 - (iv) reliable networks and procedures for accurate and prompt data transmission without major disruptions; and
 - (v) audit trails.

(4) The information technology systems and the information security framework must be reviewed at least on an annual basis, and be subject to independent audit assessments, the results of the review must be reported to the controlling body and must be made available to the Authority within five working days after providing the report to the controlling body.

(5) A licensed central counterparty must immediately notify the Authority of any material systems failure, malfunction, delay or other disruptive incident, or any breach of data security, integrity or confidentiality, and provide a post-incident report that includes a root-cause analysis as soon as practicable.

(6) A licensed central counterparty must publish, at least, on its website, in their final form, all technology requirements regarding interfacing with or accessing the central counterparty-

- (a) at least three months immediately before operations begin; or
- (b) at least three months before implementing a material change to its technology requirements.

(7) After it has complied with sub-regulation (6), a licensed central counterparty must make testing facilities for interfacing with or accessing the central counterparty available,

- (a) for at least two months immediately before operations begin; or
- (b) for at least two months before implementing a material change to its technology requirements.

(8) A newly licensed central counterparty may not begin operations until it has complied with sub-regulations (6)(a) and (7)(a).

(9) Sub-regulations (6)(b) and (7)(b) do not apply if the change must be made immediately to address a failure,

malfunction or material delay of its systems or equipment and-

- (a) the central counterparty immediately notifies the Authority of its intention to make the change; and
- (b) the central counterparty confirms the notification in paragraph (a) in writing and publishes the changed technology requirements as soon as practicable.

(10) A central counterparty must after every significant disruption, undertake a "post-incident" review to identify the causes and any required improvement to the normal operations or business continuity arrangements, and report the outcome of the review to the Authority without delay.

14. Related parties, subsidiaries and associates

The Authority must be satisfied that any relationship between a central counterparty and a related party of that central counterparty will not prevent the effective exercise of the supervisory functions of the Authority.

15. Outsourcing

(1) Where a licensed central counterparty outsources operational functions, services or activities in accordance with section 68 of the Act, including to an associate or affiliate of the central counterparty, it remains fully responsible for discharging all of its obligations under the Act and these Regulations and must-

- (a) establish, implement, maintain and enforce written policies and procedures for the selection of service providers to which key services and systems may be outsourced and for the evaluation and approval of those outsourcing arrangements;
- (b) enter into a contract with the service provider that is appropriate for the materiality and nature of the outsourced activities and that provides for adequate termination procedures;
- (c) ensure that nothing contained in the service agreement with the provider, nor any obligations in terms thereof, will result in non-compliance by the central counterparty of these or any other Regulations and legislation;
- (d) ensure that the central counterparty has direct access to the relevant information of the outsourced functions;
- (e) ensure that the Authority has the same access to all data, information and systems maintained by the service provider on behalf of the central counterparty that it would have absent the outsourcing arrangements;
- (f) ensure that all persons conducting audits or independent reviews of the central counterparty under these Regulations have appropriate access to all data, information and systems maintained by the service provider on behalf of the central counterparty that such persons would have absent the outsourcing arrangements;
- (g) establish, implement, maintain and enforce written policies and procedures to regularly review the performance of the service provider under the outsourcing arrangements;
- (h) identify and provide a written report to the controlling body of any conflicts of interest that may arise between the central counterparty and the service provider to which key services and systems are outsourced,
- (i) establish, implement, maintain and enforce written policies and procedures as approved by the controlling body to mitigate and manage those conflicts of interest;
- (j) ensure that the relationship and obligations of the central counterparty towards its clearing members or, where relevant, towards their clients are not altered;
- (k) ensure that the conditions for licensing of the central counterparty do not effectively change;
- (l) ensure that outsourcing does not prevent the exercise of supervisory and oversight functions, including on-site access to acquire any relevant information needed to fulfil those mandates;
- (m) ensure that outsourcing does not result in depriving the central counterparty from the necessary systems and controls to manage the risks it faces;
- (n) ensure that the service provider implements equivalent business continuity requirements to those that the central counterparty must fulfil under these Regulations;
- (o) ensure the central counterparty retains the necessary expertise and resources to evaluate the quality of the services provided and the organisational and capital adequacy of the service provider;
- (p) ensure that the central counterparty retains the necessary expertise and resources to supervise the outsourced functions effectively and manage the risks associated with the outsourcing and supervises those functions and manages those risks on an on-going basis;
- (q) ensure that the service provider protects any confidential information relating to the central counterparty and its clearing members and their clients or, where that service provider is established in a country other than the Republic, ensures that the data protection standards of that country, or those set out in the agreement between the parties concerned, are comparable to the data protection standards in effect in the Republic; and
- (r) inform the Authority in writing of the extent of outsourcing and that the conditions mentioned in (a) to (q) will be adhered to.

(2) A licensed central counterparty may not outsource significant activities linked to risk management unless such outsourcing is approved by the Authority.

(3) A licensed central counterparty must submit a copy of the written outsourcing agreement which clearly reflects the rights and obligations of the central counterparty and the service provider to the Authority.

(4) A licensed central counterparty must make all information necessary available to the Authority, upon request, to enable the Authority to assess the compliance of the performance of the outsourced activities with these Regulations.

16. Compliance function

(1) A central counterparty must establish and maintain a permanent and effective compliance function under the direction of a chief compliance officer.

(2) The compliance function must operate independently from the other functions of the central counterparty with the necessary authority, resources, expertise and access to all relevant information.

(3) When establishing its compliance function, the central counterparty must take into account the nature, scale and complexity of its business, and the nature and range of the functions undertaken in the course of that business.

- (4) The compliance function must-
- (a) monitor and, on a regular basis, assess the adequacy and effectiveness of the measures put in place and the actions taken to address any deficiencies in the central counterparty's compliance with its obligations;
 - (b) administer the compliance policies and procedures established by senior management and the controlling body;
 - (c) advise and assist the persons responsible for carrying out the central counterparty's functions to comply with the central counterparty's obligations under the Act, these Regulations and other regulatory requirements, where applicable;
 - (d) report on a quarterly basis to the controlling body, and annually to the Authority on compliance by the central counterparty and its employees with the Act and these Regulations;
 - (e) establish procedures for the effective remediation of instances of non-compliance;
 - (f) ensure that the relevant persons involved in the compliance function are not involved in the performance of the services or activities they monitor and that any conflicts of interest of such persons are properly identified and eliminated.

17. Efficiency, disclosure and transparency

- (1) A central counterparty must-
- (a) be efficient and effective in meeting the requirements of its clearing members and the markets it serves, with regard to choice of a clearing and settlement arrangement, operating structure, scope of products cleared, settled, or recorded; and use of technology and procedures;
 - (b) have clearly defined goals and objectives that are measurable and achievable, such as in the areas of setting minimum service levels, risk-management expectations, and business priorities;
 - (c) have established mechanisms for the regular review of its efficiency and effectiveness;
 - (d) use, or at a minimum accommodate, relevant internationally accepted communication procedures and standards in order to facilitate efficient payment, clearing, settlement, and recording;
 - (e) have clear and comprehensive rules and procedures and must provide sufficient information to enable clearing members and their clients to have an accurate understanding of the risks, fees, and other material costs they incur by participating in the central counterparty;
 - (f) provide all necessary and appropriate documentation and training to facilitate clearing members' and their clients understanding of the central counterparty's rules and procedures and the risks they face from participating in the central counterparty;
 - (g) on a quarterly basis disclose to its clearing members and the Authority the price information used to calculate its end of day exposures to its clearing members;
 - (h) make publically available and free of charge-
 - (i) information as well as any material changes thereto regarding its governance arrangements, including-
 - (aa) its organisational structure as well as key objectives and strategies;
 - (bb) key elements of the remuneration policy;
 - (cc) key financial information including its most recent audited financial statements;
 - (ii) information regarding-
 - (aa) relevant business continuity information;
 - (bb) all relevant information on its design and operations as well as on the rights and obligations of clearing members and clients, necessary to enable them to identify clearly and understand fully the risks and costs associated with using the central counterparty's functions and services;
 - (cc) the central counterparty's current clearing functions, including detailed information on what it provides under each function;

- (dd) information on the central counterparty's risk management systems, techniques and performance, including information on financial resources, investment policy, price data sources and models used in margin calculations;
- (ee) the legislation governing-
 - (AA) the contracts concluded by the central counterparty with clearing members and, where practicable, clients;
 - (BB) the contracts that the central counterparty accepts for clearing;
 - (CC) any interoperability arrangements;
 - (DD) the use of collateral and default fund contributions, including the liquidation of positions and collateral and the extent to which collateral is protected against third party claims;
- (iii) information regarding eligible collateral and applicable haircuts;
- (iv) the operational and technical requirements relating to the communication protocols covering content and message formats it uses to interact with third parties;
- (v) the volumes of the cleared transactions for each class of instruments cleared by the central counterparty on an aggregate basis; and
- (vi) a list of all current clearing members, including admission, suspension and exit criteria for clearing membership.

(2) Subject to the approval of the Authority, where any of the information may put the business secrecy or the safety and soundness of the central counterparty at risk, a licensed central counterparty may disclose that information in a manner that prevents or reduces those risks or not disclose such information as agreed with the Authority.

(3) A licensed central counterparty must complete and publicly disclose responses to the Committee on Payments and Market Infrastructures and International Organisation of Securities Commissions *Disclosure framework for financial market infrastructures* every two years.

(4) A licensed central counterparty must have a communication plan which documents how the Authority, the controlling body, senior management, and relevant stakeholders will be adequately informed during a crisis.

(5) A licensed central counterparty must ensure that scenario analysis, risk analysis, reviews and results of monitoring and tests be reported to the Authority and the controlling body.

(6) Information to be disclosed to the public by the central counterparty must be accessible on its website.

18. Internal audit function

(1) A central counterparty must establish and maintain an internal audit function, which is separate and independent from its other functions and activities, to-

- (a) establish, implement and maintain an audit plan to examine and evaluate the adequacy and effectiveness of the central counterparty's systems, internal control mechanisms and governance arrangements;
- (b) issue recommendations based on the result of work carried out in accordance with paragraph (a) and verify compliance with those recommendations; and
- (c) report internal audit matters to the controlling body.

(2) The internal audit function of a central counterparty must-

- (a) have the necessary authority, resources, expertise and access to all relevant documents;
- (b) assess the effectiveness of the central counterparty risk management processes and control mechanisms in a manner that is proportionate to the risks faced by the different business lines; and
- (c) ensure that special audits may be performed on an event-driven basis at short notice.

(3) A central counterparty must annually-

- (a) review the audit plan referred to in sub-regulation (1)(a) and submit the report to the Authority; and
- (b) engage a qualified independent third person approved by the Authority to conduct an independent review and prepare a report in accordance with established audit standards to ensure that it is in compliance with Regulation 13. 9.

(4) A central counterparty must provide the report resulting from the review conducted under sub-regulation (3) to-

- (a) its controlling body or audit committee promptly upon the report's completion; and
- (b) the Authority not later than five business days after providing the report to its controlling body or audit committee.

19. Business continuity

(1) A central counterparty must establish, implement, maintain and enforce a business continuity policy and a disaster recovery plan, approved by the controlling body,-

- (a) to identify all critical business functions and related systems, and include the central counterparty's strategy, policy and objectives to ensure the continuity of these functions and systems;
- (b) that takes into account interdependencies within the central counterparty, including exchanges and trading venues cleared by the central counterparty, and securities settlement and payment systems used by the central counterparty;
- (c) that takes into account critical functions or services which have been outsourced to third-party providers;
- (d) that contains clearly defined and documented arrangements for use in the event of a business continuity or systemic event which are designed to ensure a minimum service level of critical functions;
- (e) that must identify and include recovery point objectives and recovery time objectives for critical functions and determine the most suitable recovery strategy for each of these functions, which arrangements must be designed to ensure that in extreme scenarios critical functions are completed on time and that agreed service levels are met;
- (f) that identifies the maximum acceptable down time of critical functions and systems, and stipulate that-
 - (i) the maximum recovery time for the central counterparty's critical functions to be included in the business continuity policy may not be longer than two hours; and
 - (ii) end of day procedures and payments must be completed on the required time and day in all circumstances;
- (g) to achieve prompt recovery of its operations following any disruptions;
- (h) to allow for the timely recovery of information, including data, in the event of a disruption; and
- (i) to cover the exercise of authority in the event of any systemic event.

(2) A licensed central counterparty must-

- (a) conduct a business impact analysis which identifies the business functions which are critical to ensure the continuity of the functions of the central counterparty;
- (b) use scenario based risk analysis which is designed to identify how various scenarios affect the risks to its critical business functions;
- (c) in assessing risks take into account dependencies on external providers, including utilities services and take action to manage these dependencies through appropriate contractual organisational arrangements; and
- (d) on an annual basis and following an incident or significant organisation changes, review its business impact analysis and scenario analysis.

(3) A licensed central counterparty's disaster recovery plan must include arrangements-

- (a) to ensure continuity of its critical functions based on disaster scenarios, which arrangements must address the availability of adequate human resources, the maximum downtime of critical functions, and failover and recovery to a secondary site;
- (b) to maintain a secondary processing site capable of ensuring continuity of all critical functions of the central counterparty, which secondary site must have a geographical risk profile which is distinct from that of the primary site;
- (c) to consider the need for additional processing sites if the diversity of the risk profiles of the primary and secondary sites do not provide sufficient confidence that the central counterparty's business continuity objectives will be met in all scenarios; and
- (d) for the maintenance and provision of immediate access to the secondary business site to allow staff to ensure continuity of the functions and services if the primary location of business is not available.

(4) A licensed central counterparty must-

- (a) test and monitor its business continuity policy and disaster recovery plan at regular intervals and after significant modifications or changes to the systems or related functions to ensure the business continuity policy achieves the stated objectives including the two hour maximum recovery time objective;
- (b) plan and document the tests which must-
 - (i) involve scenarios of large scale disasters and switch overs between primary and secondary sites; and
 - (ii) include involvement of clearing members, service providers and relevant institutions with which interdependencies have been identified in the business continuity policy.

(5) A licensed central counterparty must-

- (a) regularly review and update its business continuity policy to include all critical functions and the most suitable recovery strategy for them;
- (b) regularly review and update its disaster recovery plan to include all critical functions and the most suitable recovery strategy for them;
- (c) annually subject its business continuity and disaster recovery plan to an independent review and testing;
- (d) when updating its business continuity policy and disaster recovery plan take into consideration the outcome of the tests and recommendations of independent reviews and other reviews of supervisory authorities; and

(e) review its business continuity policy and disaster recovery plan after every significant disruption, to identify the causes and any required improvements to the central counterparty's operations, business continuity policy and disaster recovery plan.

(6) A licensed central counterparty must-

- (a) have a crisis management function to act in case of a systemic event, which must-
 - (i) be monitored and regularly reviewed by its controlling body; and
 - (ii) contain well-structured and clear procedures to manage internal and external crisis communications during a systemic event;
- (b) have a crisis management procedure which must be clear and documented in writing;
- (c) following a systemic event, undertake a review of its handling of the crisis, which review must, where relevant, incorporate contributions from clearing members and other external stakeholders; and
- (d) have a communication plan which documents the way in which the senior management, the controlling body, relevant external stakeholders and the Authority will be adequately informed during a crisis.

20. Custody, settlement and physical deliveries

(1) A licensed central counterparty must hold its own and the assets provided by clearing members at a custodian that has robust accounting practices, safekeeping procedures, and internal controls that fully protect these assets.

(2) A licensed central counterparty must-

- (a) have prompt access to its assets and the assets provided by clearing members, when required, and timely availability and access must be ensured even if these securities are held in another time zone or jurisdiction;
- (b) avoid the concentration of holding of assets and ensure that assets can be liquidated quickly without significant adverse price effects;
- (c) ensure that cash balances are invested or held in safekeeping in a manner that bears no or little principal risk;
- (d) ensure that its interest or ownership rights in the assets can be enforced;
- (e) evaluate and understand its exposures to its custodian, taking into account the full scope of its relationships with each custodian;
- (f) clearly state its obligations with respect to deliveries of cash and securities, including whether it has an obligation to make or receive delivery of cash or securities or whether it indemnifies participants for losses incurred in the delivery process;
- (g) provide clear and certain final settlement, at a minimum by the end of the value date and where necessary a central counterparty must provide final settlement intra-day or in real time; and
- (h) take reasonable steps to confirm the effectiveness of cross-border recognition and protection of cross-system settlement finality, especially when it is developing plans for recovery or orderly wind-up or providing supervisory authorities information relating to its resolvability.

(3) (a) A central counterparty must conduct its cash settlements in central bank money where practical.

(b) Where central bank money is not used, a central counterparty must minimise and strictly control the credit and liquidity risk arising from the use of commercial bank money.

(4) A central counterparty must-

- (a) ensure that its settlement banks are regulated and supervised in their jurisdictions and that they comply with requirements of creditworthiness, capitalisation, access to liquidity, and operational reliability;
- (b) monitor and manage the concentration of credit and liquidity exposures to its commercial settlement banks;
- (c) where it conducts money settlements on its own books, it must minimise and strictly control its credit and liquidity risks;
- (d) ensure that its legal agreements with any settlement banks clearly state-
 - (i) when transfers on the books of individual settlement banks are expected to occur;
 - (ii) that transfers are to be final when effected; and
 - (iii) that funds received must be transferable as soon as possible, at a minimum by the end of the day and ideally intraday, in order to enable the central counterparty and its clearing members to manage credit and liquidity risks.

(5) Where a central counterparty has an obligation to make or receive deliveries of physical instruments or commodities, it must have appropriate processes and procedures that-

- (a) clearly state its obligations with respect to the delivery of physical instruments or commodities;
- (b) identify, monitor and manage the risks associated with the storage and delivery of physical instruments or commodities;
- (c) eliminate principal risk through the use of delivery-versus-payment mechanisms to the extent possible;
- (d) set out the controls to manage the risks of storing and delivering physical assets such as the risk of theft, loss, counterfeiting or deterioration of assets;
- (e) ensure that its record of physical assets accurately reflects its holding of assets;

- (f) clearly state which asset classes it accepts for physical delivery;
- (g) set out the procedures surrounding the physical delivery of each asset class;
- (h) indemnify clearing members for losses incurred in the physical delivery process;
- (i) establish definitions for acceptable physical instruments or commodities in order to plan for and manage physical deliveries;
- (j) provide for appropriate alternative physical delivery locations or assets;
- (k) where applicable, provide for rules for warehouse operations that take into account the commodity's particular characteristics;
- (l) stipulate the timing of physical delivery;
- (m) provide for appropriate pre-employment checks and training for personnel who handle physical assets; and
- (n) provide for insurance coverage and random storage facility audits, to mitigate its storage and physical delivery risks.

(6) A licensed central counterparty must have rules that provide-

- (a) for the legal obligations for delivery;
- (b) clarity on whether the receiving clearing member must seek compensation from the central counterparty or the delivering clearing member in the event of a loss;
- (c) for its obligations with respect to the delivery of physical instruments or commodities; and
- (d) that the central counterparty holding margin may not release the margin of the matched clearing member until it confirms that both have fulfilled their respective obligations.

(7) A central counterparty licensed to provide functions in respect of commodities may match clearing members that have physical delivery obligations with those due to receive the commodities, thereby removing itself from direct involvement in the storage and physical delivery process.

(8) A licensed central counterparty must ensure that its clearing members have the necessary systems and resources to be able to fulfil their physical delivery obligation.

21. Qualifying Capital

For purposes of this Regulation-

“**capital**” means, in relation to a central counterparty, subscribed capital on the annual accounts and consolidated accounts of the central counterparty in so far as it has been paid up ordinary shares, plus the related share premium accounts, if applicable, which is of a permanent nature and able to fully absorb losses in going concern situations, and, in the event of insolvency or liquidation, it ranks after all other claims;

“**qualifying capital**” includes capital, retained earnings and reserves, but no amount relating to any profit or earnings of a central counterparty constitutes qualifying capital unless the controlling body of the central counterparty formally appropriated the amount by way of a resolution to constitute retained earnings of the central counterparty.¹

- (1) A central counterparty must deduct from its qualifying capital-
 - (a) the relevant amount, net of any associated deferred tax liability which would be extinguished if the relevant intangible asset becomes impaired or is derecognised in terms of the relevant requirements specified in International Financial Reporting Standards issued from time to time, related to goodwill, including any goodwill included in the valuation of significant investments in the qualifying capital of the central counterparty;
 - (b) the relevant amount related to intangible assets other than goodwill, net of any associated deferred tax liability which would be extinguished if the relevant intangible asset becomes impaired or is derecognised in terms of the relevant requirements specified in Financial Reporting Standards issued from time to time;
 - (c) the relevant amount related to deferred tax assets that rely on future profitability of the central counterparty to be realised, provided that-
 - (i) the central counterparty distinguishes between the component of deferred tax assets that relates to temporary differences and other deferred tax assets;
 - (ii) a deferred tax asset may be netted against an associated deferred tax liability only if the asset and liability relate to taxes levied by the same taxation authority and offsetting is explicitly permitted by that relevant taxation authority, provided that the deferred tax liabilities that may be netted against the relevant amount of deferred tax assets excludes any amount that has been netted against the deduction of goodwill, intangible assets other than goodwill

¹ The controlling body of the central counterparty must formally consider the amount and resolve that such profit or earnings constitutes retained earnings to be included in the capital base of the central counterparty, which profit or earnings is subsequently available to absorb losses on a going concern basis that may arise from risks pertaining to the particular nature of such central counterparty, and the profit or earnings is disclosed as such in the published financial statements of the central counterparty.

- and defined benefit pension assets; and
- (iii) any relevant amount related to current year tax losses that gives rise to a claim or receivable amount from the government or local tax authority, typically classified as a current tax assets, must be assigned the relevant sovereign risk weight;
- (d) any relevant positive amount related to a cash flow hedge reserve that relates to the hedging of items that are not fair valued on the balance sheet, including any relevant amount related to projected cash flows, provided that any relevant negative amount related to a cash flow hedge reserve must also be derecognised, that is, added back as qualifying capital;
- (e) any unrealised gain resulting from changes in the fair value of liabilities due to changes in the central counterparty's own credit risk, provided that-
 - (i) the central counterparty also derecognises from its qualifying capital any relevant amount related to any unrealised loss due to changes in the central counterparty's own credit risk;
 - (ii) with regard to any relevant derivative liability, the central counterparty derecognises all relevant accounting valuation adjustments arising from the central counterparty's own credit risk; and
 - (iii) the central counterparty in no case applies any netting or offsetting between valuation adjustments arising from the central counterparty own credit risk and those arising from its counterparties' credit risk;
- (f) any relevant amount related to a defined benefit pension fund constituting an asset on the balance sheet, net of any associated deferred tax liability which would be extinguished if the asset should become impaired or derecognised in terms of the relevant requirements specified in International Financial Reporting Standards, provided that-
 - (i) subject to the prior written approval of, and such conditions as may be determined by the Authority, assets in the fund to which the central counterparty has unrestricted and unfettered access may offset the relevant deduction;
 - (ii) offsetting assets as envisaged in subparagraph (i) must be assigned the risk weight that would have applied were the assets owned directly by the central counterparty; and
 - (iii) any amount related to a defined benefit pension fund liability, as included on the balance sheet, must be fully recognised in the calculation of the central counterparty's qualifying capital and may not be increased through the de-recognition of any defined benefit pension fund liability;
- (g) the relevant amount related to any reciprocal cross holding of shares qualifying as capital of any other central counterparty, bank, insurance company or other regulated financial institution that is subject to minimum capital requirements;
- (h) the relevant amount related to any direct or indirect investment in or direct or indirect funding provided for direct or indirect investment in the central counterparty or controlling entity's own qualifying capital;
- (i) any instrument or share that qualifies as capital of the central counterparty and for which the central counterparty has received no value; and
- (j) accumulated losses.

(2) (a) A central counterparty may not without the prior written approval of the Authority or otherwise than in accordance with conditions approved by the Authority in writing repay any of its common equity or reduce appropriated profits.

- (b) A written application by a central counterparty for the approval of the Authority to repay any of its capital or reduce any appropriated profits must include written confirmation by the controlling body of the central counterparty that-
 - (i) the relevant qualifying capital, after the repayment of the capital or the reduction of appropriated profits of the central counterparty concerned, must be at least 10% higher than the required qualifying capital specified in Regulation 22(2) without relying on any new capital issues to ensure continued compliance by the central counterparty with Regulation 22;
 - (ii) the repayment of capital or the reduction of appropriated profits is consistent with the central counterparty's strategic and operating plans;
 - (iii) the repayment of capital or the reduction of appropriated profits has duly been taken into account in the central counterparty's management processes for liquidity risk;
 - (iv) all shares acquired back by the central counterparty from the repayment of capital must immediately be cancelled.

22. General capital requirements

- (1) A central counterparty's capital must at all times be more than or equal to the greater of the following amounts:
 - (a) Permanent and available initial capital of at least R50 million and the appropriate buffer; or
 - (b) Capital, including retained earnings and reserves, proportionate to the risk stemming from the activities of the central counterparty; and
 - (c) Capital that is at all times sufficient to ensure an orderly winding-up or restructuring of the activities over an appropriate time span and an adequate protection of the central counterparty against credit, counterparty, market, operational, legal and business risks.

(2) Subject to the provisions in sub-regulation (4), a central counterparty must hold qualifying capital after deductions, which must be at all times more than or equal to the sum of the central counterparty's capital requirements for-

- (a) operational risk calculated in accordance with Regulation 25;
- (b) credit risk, counterparty credit risk and market risk calculated in accordance with Regulation 23; and
- (c) business risk calculated in accordance with Regulation 24.

(3) The Authority may impose any of the requirements set out in sub-regulation (4) when of the opinion that, a central counterparty's-

- (a) calculated aggregate risk exposure does not sufficiently reflect-
 - (i) the central counterparty's actual risk profile;
 - (ii) the factors external to the central counterparty, such as the effect of business cycles;
 - (iii) the risk relating to a particular type of exposure such as credit risk, counterparty credit risk, market risk, operational risk, legal and business risk or in respect of an orderly winding-up or restructuring; and
 - (iv) the concentration risk;
- (b) qualifying capital is likely to be overstated due to, for example, reserves that are subject to material volatility as a result of short-term fair value gains or adjustment;
- (c) policies, processes and procedures relating to its risk assessment are inadequate;
- (d) policies, processes and procedures relating to compensation or remuneration are inadequate;² or
- (e) internal control systems are inadequate.

(4) The Authority may require a central counterparty, in accordance with sub-regulation (3), to-

- (a) maintain additional capital, calculated in such a manner and subject to such conditions as may be determined by the Authority;
- (b) deduct from its qualifying capital such amount calculated in such a manner and subject to such conditions as may be determined by the Authority;
- (c) strengthen the central counterparty's risk management policies, processes or procedures;
- (d) align the central counterparty's compensation or remuneration policies, processes or procedures with the central counterparty's relevant exposure to risk; or
- (e) strengthen the central counterparty's internal control systems.

(5) A central counterparty must-

- (a) have procedures in place to identify all sources of risks that may impact its operations; and
- (b) consider the likelihood of potential adverse effects on its revenues or expenses and its level of qualifying capital.

(6) (a) If the amount of qualifying capital held by a central counterparty is lower than 110% of the amount calculated according to sub-regulation (2) or lower than 110% of R50 million (notification threshold), the central counterparty must immediately notify the Authority and keep the Authority updated on at least a weekly basis, until the amount of qualifying capital held by the central counterparty returns above the notification threshold.

- (b) The notification must be made in writing and must contain-
 - (i) the reasons for the central counterparty's qualifying capital being below the notification threshold and a description of the short-term perspective of the central counterparty's financial situation;
 - (ii) a comprehensive description of the measures that the central counterparty intends to adopt to ensure its on-going compliance with the capital requirements and must include among other things, the central counterparty's-
 - (aa) controlling body-approved risk appetite or tolerance for risk;
 - (bb) controlling body-approved business strategy;
 - (cc) risk profile and control environment;
 - (dd) future capital needs;
 - (ee) controlling body approved target level of capital;
 - (ff) stress-testing results; and
 - (gg) any additional buffer of qualifying capital above the notification threshold as the controlling body and the senior management of the central counterparty may determine.

(7) In addition to any other provision contained in these Regulations, when a licensed central counterparty's qualifying capital is significantly reduced or depleted, including as a result of unexpected severe financial distress or economic downturn, the Authority may, after consultation with the relevant central counterparty, in writing impose constraints on the central counterparty, such as capital distribution constraints, until the central counterparty's qualifying capital is restored above the notification threshold specified in sub-regulation (6)(a) plus the target level of capital specified in sub-regulation (6)(b)(ii)(ee).

² For example, when the central counterparty's compensation or remuneration policies, processes and procedures, particularly in respect of bonus or other discretionary payments, do not duly incorporate all relevant material types of risk, or when bonus or other discretionary payments are finalised over short periods without adequate regard for related material risk exposure carried by the central counterparty over a longer period.

(8) A central counterparty must have in place as a minimum a sound capital assessment process, which capital assessment process must include-

- (a) controlling body approved policies and procedures designed to ensure that the central counterparty identifies, measures, and reports all material risk exposures;
- (b) all material risk exposures incurred by the central counterparty.

(9) Although a licensed central counterparty may not be able to accurately measure all risk exposures, the central counterparty must develop and implement an appropriate framework and process to estimate the key elements of the central counterparty's material risk exposures which must-

- (a) relate the central counterparty's capital to the level of risk incurred by the central counterparty;
- (b) be based on the central counterparty's strategic focus and business plan and clearly state its objectives in respect of capital adequacy and risk exposure;
- (c) incorporate rigorous, forward-looking stress testing that identifies possible events or changes in market conditions that could adversely impact the central counterparty, the results of which stress testing must be considered when the central counterparty evaluates the adequacy of its target level of capital as specified in sub-regulation (6)(b)(ii)(ee); and
- (d) promote the integrity of the central counterparty's overall risk-management process by way of internal controls and appropriate internal and external reviews and audit.

23. Specific capital requirements for credit risk, counterparty credit risk and market risk which are not covered by specific financial resources as referred to in Regulations 31, 33, 35 and 36.

(1) A central counterparty must calculate its capital requirements referred to in Regulation 22(2) as the sum of 8% of its risk-weighted exposure amounts for credit risk and its risk-weighted exposure amounts for counterparty credit risk and its capital requirements for market risk.

(2) A central counterparty must use the methods of calculation as specified in -

- (a) Regulation 30 for the calculation of capital requirements for market risk which is not covered by specific financial resources as referred to in Regulations 31, 33, 35 and 36;
- (b) Regulation 26 for the calculation of the risk-weighted exposure amounts for credit risk which is not covered by specific financial resources as referred to in Regulations 31, 33, 35 and 36;
- (c) Regulations 27, 28 and 29 for the calculation of the risk-weighted exposure amounts for counterparty credit risk which is not covered by specific financial resources as referred to in Regulations 31, 33, 35 and 36.

24. Specific capital requirements for business risk and for winding-up or restructuring

(1) A licensed central counterparty must submit to the Authority for approval its estimate of the capital necessary to cover losses resulting from business risk based on reasonably foreseeable adverse scenarios relevant to its business model.

(2) The capital requirement for business risk must be-

- (a) equal to the approved estimate; and
- (b) at a minimum, equal to six months of operating expenses, provided that the central counterparty considers whether resources are required beyond that amount, taking into account its general business risk profile.

(3) (a) For the purposes of complying with this Regulation, operational expenses must be calculated in accordance with International Financial Reporting Standards or in accordance with generally accepted accounting principles of a country determined by the Authority to be equivalent to International Financial Reporting Standards.

(b) A central counterparty must use the most recent audited information from its annual financial statements.

(4) To calculate the capital required to ensure an orderly winding-up or restructuring of its activities, a central counterparty must divide its annual gross operational expenses by 12 in order to determine its monthly gross operational expenses, and multiply the resulting number by its time span for winding-up or restructuring its activities determined in accordance with sub-regulation (5).

(5) In order to determine the time span for winding-up or restructuring its activities referred to in sub-regulation (4), a central counterparty must submit to the Authority for approval, its estimate of the appropriate time span for winding-up or restructuring its activities, which estimated time span must-

- (a) be sufficient to ensure, including in stressed market conditions, an orderly winding-up or restructuring of its activities, reorganising its operations, liquidating its clearing portfolio over an appropriate time period of at least six months under a range of stress scenarios or transferring its clearing activities to another central counterparty;

- (b) take into account the liquidity, size, maturity structure and potential cross-border obstacles of the positions of the central counterparty and the type of products cleared.

25. Capital calculation requirements for operational risk

(1) A licensed central counterparty must calculate its capital requirements for operational risk using either the Basic Indicator Approach or Advanced Measurement Approach as approved by the Authority.

(2) If a licensed central counterparty adopted the Advanced Measurement Approach for the measurement of its exposure to operational risk, it may not revert to the Basic Indicator Approach without the prior written approval of the Authority.

25.1 Basic Indicator Approach

(1) The capital requirement for operational risk under the Basic Indicator Approach must be 15% of a relevant indicator, in accordance with the parameters set out in this Regulation, which relevant indicator must be the average over three years of the sum of the net interest income and net non-interest income.

(2) The three-year average must be calculated on the basis of the last three 12-monthly observations at the end of the financial year and in the event that audited figures are not available, business estimates may be used with the prior written approval and subject to such conditions as may be determined by the Authority.

(3) If for any given observation, the sum of net interest income and net non-interest income is negative or equal to zero, this figure may not be taken into account in the calculation of the three-year average.

(4) The relevant indicator must be calculated as the sum of positive figures divided by the number of positive figures.

(5) Based on the accounting categories for the profit and loss account of a central counterparty, the relevant indicator must be expressed as the sum of the elements listed in sub-regulation (6), which elements must be included in the sum with its positive or negative sign.

(6) The elements, which must be adjusted to reflect the qualifications in sub-regulations (7) to (11) below, are-

- (a) interest receivable and similar income;
- (b) interest payable and similar charges;
- (c) income from shares and other variable or fixed-yield securities;
- (d) commissions or fees receivable;
- (e) commissions or fees payable;
- (f) net profit or net loss on financial operations; and
- (g) other operating income.

(7) Expenditure on the outsourcing of services rendered by third parties may reduce the relevant indicator if the expenditure is incurred from an undertaking subject to supervision under, or equivalent to, these Regulations.

(8) The indicator must be calculated before the deduction of any-

- (a) realised profits or losses arising from the sale of securities held in the central counterparty's own book, including any relevant amounts relating to securities classified as "held to maturity" or "available for sale";
- (b) provisions and operating expenses, which operating expenses must include fees paid for outsourcing services rendered by third parties which are not the holding company or subsidiary of the central counterparty or a subsidiary of a holding company which is also the holding company of the central counterparty;
- (c) extraordinary or irregular item; or
- (d) income derived from insurance.

(9) The following elements may not be used in the calculation of the relevant indicator-

- (a) realised profits or losses from the sale of non-trading book items;
- (b) income from extraordinary or irregular items;
- (c) income derived from insurance.

(10) In the event that revaluation of trading items form part of the profit and loss statement, revaluation may be included.

(11) A newly established licensed central counterparty that does not have the required gross income data to calculate the required gross income amounts may with the prior written approval of, and subject to such conditions as may be determined by the Authority, use gross income projections for all or part of the three-year period.

25.2 Advanced Measurement Approach

(1) A licensed central counterparty must apply to the Authority for approval to use the Advanced Measurement Approach.

(2) A licensed central counterparty may use the Advanced Measurement Approach based on its own operational risk measurement systems, provided that the Authority expressly approves the use of the models concerned for calculating the own funds requirement.

(3) A licensed central counterparty must at all times adhere to such conditions as may be determined by the Authority, which conditions may include a period of initial monitoring by the Authority before the central counterparty is allowed to adopt the Advanced Measurement Approach for the calculation of its capital requirement in respect of operational risk.

(4) To be eligible for an Advanced Measurement Approach, a central counterparty must satisfy the Authority that it meets the qualifying criteria below, in addition to the general risk management standards set out in these Regulations.

(5) If an Advanced Measurement Approach is intended to be used by the central counterparty, or by the subsidiaries of a parent financial holding company of the central counterparty, the application must-

- (a) include a description of the methodology used for allocating operational risk capital between the different entities of the group;
- (b) indicate whether and how diversification effects are intended to be factored in the risk measurement system.

(6) A central counterparty using the Advanced Measurement Approach for the calculation of its capital requirements for operational risk must hold capital which is at all times more than or equal to a minimum amount determined by the Authority by using the basic indicator approach calculation.

25.2.1 Additional qualitative criteria for the Advanced Measurement Approach

A licensed central counterparty that wishes to adopt the Advanced Measurement Approach for the calculation of its capital requirement in respect of operational risk must demonstrate to the satisfaction of the Authority that,-

- (a) the central counterparty's controlling body and senior management are actively involved in the oversight of its operational risk management framework;
- (b) the central counterparty's operational risk management system is conceptually sound and implemented with integrity;
- (c) the central counterparty has sufficient resources for the use of the approach in its major business lines, and in the central counterparty's control and audit units;
- (d) the central counterparty's internal measurement system is able to reasonably estimate unexpected losses based on the combined use of-
 - (i) internal loss data;
 - (ii) relevant external loss data;
 - (iii) scenario analysis; and
 - (iv) the central counterparty's internal control factors and the business environment in which the central counterparty operates;
- (e) the central counterparty's internal measurement system is capable of supporting the allocation of economic capital for operational risk across business lines in such a manner that incentives are created to improve the risk management capabilities in each relevant business line;
- (f) the central counterparty complies with the qualitative and quantitative standards specified in Regulation 25.2.2 and 25.2.3;
- (g) the central counterparty has in place a credible, transparent, well-documented and verifiable approach for weighting the fundamental elements as specified in paragraph (d) in its overall operational risk measurement system, and in all cases the central counterparty's approach for weighting these four fundamental elements must be internally consistent and avoid double counting of qualitative assessments or risk mitigants already recognised in other elements.

25.2.2 Qualitative standards

A licensed central counterparty that wishes to adopt the Advanced Measurement Approach for the calculation of the central counterparty's capital requirement relating to operational risk must-

- (a) have in place an independent operational risk management function, responsible for-
 - (i) the development of-

- (aa) policies and procedures relating to operational risk management and control, including policies to address areas of non-compliance, which policies must be approved by the central counterparty's controlling body;
- (bb) strategies to identify, measure, monitor and control or mitigate the central counterparty's exposure to operational risk.
- (ii) the design and implementation of-
 - (aa) a methodology for the measurement of the central counterparty's exposure to operational risk;
 - (bb) the central counterparty's operational risk management framework;
 - (cc) a risk-reporting system relating to operational risk;
- (b) have in place an internal operational risk measurement system-
 - (i) which must be closely integrated into the day-to-day risk management processes of the central counterparty;
 - (ii) which must be subject to regular validation and independent review, which validation and independent review must include verification that the internal validation processes are operating in a satisfactory manner and that data flows and processes associated with the risk measurement system are transparent and accessible;
 - (iii) the output of which must form an integral part of the process to monitor and control the central counterparty's exposure to operational risk, including internal capital allocation and risk analysis;
- (c) have in place techniques to-
 - (i) allocate capital to major business units, which allocation is based on operational risk;
 - (ii) create incentives to improve the management of operational risk throughout the central counterparty;
- (d) on a regular basis report its exposure to operational risk, including material losses suffered in respect of operational risk, to the management of the central counterparty's business units, the senior management of the central counterparty and the central counterparty's controlling body;
- (e) have in place adequate measures to take appropriate action, including in cases of non-compliance with internal policies, controls and procedures;
- (f) document the central counterparty's operational risk management system;
- (g) have in place a process to ensure compliance with the central counterparty's documented set of internal policies, controls and procedures concerning the operational risk management system;
- (h) have in place a robust operational risk management process which must be subject to regular review by the central counterparty's internal and external auditors which review must include the activities of-
 - (i) the relevant business units; and
 - (ii) the independent operational risk management function.

25.2.3 Quantitative standards

A licensed central counterparty that wishes to adopt the Advanced Measurement Approach for the calculation of the central counterparty's capital requirement relating to operational risk must have in place-

- (a) a duly documented and robust approach for the measurement of the central counterparty's exposure to operational risk, which approach, among others, must ensure that the central counterparty has in place rigorous procedures for the development of a robust operational risk model;
- (b) a robust operational risk measurement system, which-
 - (i) must be consistent with the scope of operational risk, as defined in regulation 1;
 - (ii) must be consistent with the loss event types specified in Table 25(B);
 - (iii) must duly capture potentially severe 'tail' loss events;
 - (iv) must be subject to independent validation;
 - (v) must be sufficiently granular to capture the major drivers of operational risk, which drivers may affect the shape of the tail of the central counterparty's estimates of loss;
 - (vi) may not double count the effects of correlation or risk mitigation;
 - (vii) must comply with the minimum requirements relating to-
 - (aa) internal data specified in Regulation 25.2.4;
 - (bb) relevant external data specified in Regulation 25.2.5;
 - (cc) scenario analysis specified in Regulation 25.2.6;
 - (dd) internal control systems and the factors reflecting the business environment in which the central counterparty conducts business, specified in Regulation 25.2.7;

25.2.4 Internal data

- (1) A licensed central counterparty must duly capture internal loss data-
 - (a) in order for the central counterparty, amongst other things, to validate or compare its risk estimates with the central counterparty's actual experience of loss;
 - (b) which must clearly be linked to the central counterparty's business activities, technological processes and risk management procedures;

- (2) A licensed central counterparty's internal processes relating to the collection of loss data must-
- (a) be adequate to map the central counterparty's historical internal loss data into the relevant level 1 categories specified in Table 25(B), which relate to loss event types;
 - (b) be duly documented, which documentation, among other things, must-
 - (i) include objective criteria for the allocation of losses to the relevant business lines specified in Table 25(A), and the specified loss event types;
 - (ii) specify the relevant criteria to be applied when assigning loss data arising from an event in a centralised function, such as an information technology department, or an activity that spans more than one business line, as well as from related events over time;
 - (c) be sufficiently robust to-
 - (i) ensure that the central counterparty's internal loss data is comprehensive in the sense that the central counterparty's internal process captures all material activities and exposures from all appropriate sub-systems and geographic locations;
 - (ii) capture adequate information in respect of-
 - (aa) the gross loss amounts;
 - (bb) the date of the loss event;
 - (cc) any recovery of gross loss amounts;
 - (dd) descriptive information relating to the drivers or causes of the loss event;
 - (d) include an appropriate *de minimis* gross loss threshold amount for the collection of internal loss data; provided that in order to ensure broadly consistent data collection between central counterparties that adopted the advanced measurement approach for the calculation of their respective capital requirements relating to operational risk, the Authority may from time to time specify a minimum gross loss threshold amount;
 - (e) treat operational risk losses that are related to credit risk and that have historically been included in the central counterparty's credit risk databases, such as collateral management failures, as credit risk for the purposes of calculating the central counterparty's relevant minimum required amount of capital and reserve funds, that is, such losses may not be subject to the operational risk capital requirement specified;
 - (f) flag material operational risk-related credit risk losses separately within the central counterparty's internal operational risk database;
 - (g) treat operational risk losses that are related to market risk as operational risk for the purposes of calculating the central counterparty's relevant minimum required amount of capital and reserve funds, that is, such losses must be subject to the relevant operational risk capital requirement specified.
- (3) A central counterparty must have in place duly documented procedures in order to assess the on-going relevance of historical data, which must specify the situations in which judgment, scaling or other adjustments to internal loss data may be used, including the extent to which such judgment may be used and the officials who are authorised to make such decisions.

- (4) When a central counterparty's capital requirement in respect of operational risk is based on internal loss data, the capital requirement must be based on-
- (a) a minimum observation period of five years of data; or
 - (b) when the central counterparty first adopts the advanced measurement approach, a minimum observation period of three years of data, subject to such conditions as may be specified in writing by the Authority,
- irrespective whether the internal loss data is used to calculate or validate the central counterparty's measure of loss.

25.2.5 External data

- (1) A central counterparty must have in place policies and procedures, approved by its controlling body, in order to determine-
- (a) the circumstances under which external data such as public data or pooled industry data or both must be used in addition to internal data;
 - (b) the methodologies that must be used in order to incorporate the relevant external data, such as scaling or qualitative adjustments,

provided that the central counterparty's operational risk measurement system incorporates relevant external data when there is reason to believe that the central counterparty is exposed to infrequent, yet potentially severe, losses.

- (2) The external data referred to in sub-regulation (1) must include information in respect of-
- (a) the actual loss amounts;
 - (b) the scale of business operations where the loss event occurred;
 - (c) the causes of and circumstances surrounding the loss event; and
 - (d) any other information that would assist the central counterparty in assessing the relevance of the loss event or data or both.

(3) A central counterparty's policies and procedures relating to the use of external data must be subject to regular independent review and appropriate internal audit coverage.

25.2.6 Scenario analysis

A licensed central counterparty must-

- (a) use scenario analysis in conjunction with external data in order to evaluate-
 - (i) the central counterparty's exposure to high-severity events;
 - (ii) the impact of deviations from the correlation assumptions embedded in the central counterparty's operational risk measurement framework;
 - (iii) potential losses which may arise from multiple simultaneous operational risk loss events;
- (b) have adequately skilled staff to-
 - (i) conduct the scenario analysis;
 - (ii) derive reasoned assessments of plausible severe losses;
- (c) over time, in order to ensure the reasonableness of its risk measures and assessments, validate and re-assess the assessments of plausible severe losses generated through scenario analysis through comparison to actual loss experience.

25.2.7 Business environment and internal control factors

(1) A licensed central counterparty's operational risk assessment methodology must be sufficiently robust to capture key business environment and internal control factors that may have an impact on the central counterparty's operational risk profile, which factors must-

- (a) be a meaningful driver of risk based on the experience and involving the expert judgment of the affected business areas; and
- (b) as far as possible, be translatable into quantitative measures that lend themselves to verification.

(2) A central counterparty's estimates in respect of operational risk must be sufficiently sensitive to changes in the factors referred to in sub-regulation (1).

(3) The relative weightings of the various factors referred to sub-regulation (1) must be appropriate, that is, the central counterparty's risk framework must be able to capture potential increases in risk due to greater complexity of activities or increased business volume, or changes in risk due to improvements in risk controls.

(4) A licensed central counterparty's operational risk framework and each instance of its application must be-

- (a) duly documented and subject to independent review;
- (b) validated through comparison to actual internal loss experience and relevant external data.

25.2.8 Capital requirement for the Advanced Measurement Approach

The capital requirement of a licensed central counterparty that adopted the Advanced Measurement Approach for the measurement of the central counterparty's exposure to operational risk must be-

- (a) equal to the sum of the central counterparty's expected loss amounts and unexpected loss amounts, unless the central counterparty can demonstrate to the satisfaction of the Authority that the central counterparty duly measures and accounts for expected losses;
- (b) equal to the aggregate amount of the central counterparty's risk measures for the different operational risk estimates, provided that, subject to the prior written approval of, and such conditions as may be specified in writing by the Authority, the central counterparty may use internally determined correlations in respect of operational risk losses across individual operational risk estimates, provided that-
 - (i) the central counterparty's systems must-
 - (aa) take into account uncertainty in respect of correlation estimates;
 - (bb) be subject to sufficiently robust stress testing.
 - (ii) the central counterparty must validate its correlation assumptions by making use of appropriate quantitative and qualitative techniques;
- (c) the amount after the central counterparty has taken into account the effect of eligible risk mitigation, that is, in order to take into account the effect of risk mitigation in respect of operational risk, the central counterparty must comply with the relevant requirements relating to risk mitigation specified in Regulation 25.2.9.

25.2.9 Eligible risk mitigation for the Advanced Measurement Approach

A licensed central counterparty that adopted the Advanced Measurement Approach for the calculation of the central counterparty's capital requirement relating to operational risk may recognise the risk mitigating impact of insurance, provided

that-

- (a) the insurance provider-
 - (i) has a minimum credit rating of A, or the equivalent thereof, in respect of its ability to pay claims; and
 - (ii) is independent from the central counterparty, that is, a third party entity or institution; or
- (b) when a central counterparty obtains insurance through captives or affiliates, the central counterparty must transfer its risk exposure to an independent third-party entity or institution, for example, through re-insurance, provided that the entity or institution that provides the re-insurance complies with the eligibility criteria specified in this Regulation; and
- (c) the insurance policy-
 - (i) has an initial term of no less than one year; or
 - (ii) when an insurance policy has a residual term of less than one year, the central counterparty makes provision for appropriate haircuts that reflect the declining residual term of the policy, which haircut must be equal to 100% in respect of policies with a residual term of 90 days or less;
 - (iii) has a minimum notice period for cancellation of 90 days;
 - (iv) does not contain any exclusions or limitations triggered by supervisory actions or, in the case of a failed central counterparty, that preclude the central counterparty, curator or liquidator from recovering for damages suffered or expenses incurred by the central counterparty, except when an event occurs after the initiation of liquidation or other insolvency proceedings in respect of the central counterparty, provided that the insurance policy may exclude any fine, penalty or punitive damages resulting from supervisory actions.
- (d) the central counterparty's calculations relating to risk mitigation-
 - (i) reflect the central counterparty's insurance coverage;
 - (ii) are consistent with the actual likelihood and impact of loss used in the central counterparty's overall determination of its operational risk capital;
- (e) the central counterparty's framework for the recognition of insurance is documented;
- (f) the central counterparty adequately discloses its use of insurance for operational risk mitigation purposes;
- (g) by way of appropriate discounts or haircuts, the central counterparty's methodology for the recognition of insurance captures-
 - (i) the insurance policy's cancellation terms and residual term;
 - (ii) any uncertainty of payment;
 - (iii) any mismatches in protection; and
- (h) the central counterparty's recognition of operational risk mitigation through insurance is limited to 20% of the central counterparty's total capital requirement in respect of operational risk, calculated in terms of the Advanced Measurement Approach.

26. Capital calculation requirements for credit risk

A licensed central counterparty must use the Standardised Approach for the measurement of its exposure to credit risk.

26.1 Use of credit ratings

(1) A licensed central counterparty must in a consistent manner, in accordance with the relevant requirements in these Regulations, and in terms of its internal risk management process, apply the ratings or assessments issued by a credit rating agency of the central counterparty's choice, to calculate its risk exposure in terms of the provisions contained in these Regulations.

(2) A licensed central counterparty may not-

- (a) "cherry pick" ratings or assessments issued by different credit rating agencies;
- (b) arbitrarily change the use of a credit rating agency; or
- (c) apply ratings or assessments for purposes of these Regulations differently from its internal risk management process.

Multiple assessments

(3) In the event that a licensed central counterparty has an option between-

- (a) two assessments issued by credit rating agencies, which assessments relate to different risk weighting categories, it must apply the higher of the two risk weights; or
- (b) three or more assessments issued by credit rating agencies, which assessments relate to different risk weighting categories, it must apply the higher of the lowest two risk weights.

Unsolicited ratings

(4) A licensed central counterparty may not without the prior written consent of the Authority, and other than in accordance with any conditions determined by the Authority, make use of unsolicited ratings issued by a credit rating agency.

(5) A licensed central counterparty must assess all relevant credit exposures, regardless of whether the exposures are

rated or unrated, to determine whether the risk weights applied to the exposures in terms this Regulation are appropriate, based on the respective exposures' inherent risk, provided that, when it determines that the inherent risk of an exposure, particularly if the exposure is unrated, is significantly higher than that implied by the risk weight to which it is assigned, the central counterparty must consider the higher degree of credit risk in the evaluation of its overall capital adequacy.

26.2 Exposure to counterparties

- (1) For the measurement of its exposure to credit risk, a licensed central counterparty must-
- (a) in the case of exposures to sovereigns, central banks, public-sector entities, banks, and corporates, risk weight its exposures, net of any relevant credit impairment, in accordance with the relevant provisions of Table 26(A) in Schedule A;
 - (b) in the case of off-balance sheet exposure other than derivative instruments subject to the counterparty risk requirements in Regulations 27 to 29, convert the off-balance sheet exposure to a credit equivalent amount by multiplying the exposure with a 100% credit-conversion factors;
 - (c) in the case of all derivative instruments subject to counterparty risk, measure the exposure amount in accordance with the relevant requirements specified in Regulations 27 to 29; and
 - (d) in the case of all other exposures, risk weight the exposure in accordance with the relevant requirements specified in Table 26(B) in Schedule A.
- (2) A licensed central counterparty may not have any exposure to-
- (a) an individual person or small to medium business;
 - (b) lending secured by a residential mortgage;
 - (c) lending secured by a commercial mortgage;
 - (d) covered bonds;
 - (e) securitisation;
 - (f) venture capital; or
 - (g) private equity.

26.3 Reduction of credit exposure

- (1) A licensed central counterparty may reduce its credit risk exposure to the extent that it achieves an effective and verifiable transfer of risk, if it
- (a) obtains eligible collateral, guarantees or credit derivative instruments.
 - (b) enters into a netting agreement with a clearing member that maintains both debit and credit balances with the central counterparty.
- (2) No transaction in respect of which the central counterparty obtained credit protection may be assigned a risk weight higher than the risk weight that applies to a similar transaction in respect of which no credit protection was obtained.
- (3) A central counterparty may, if its clearing member maintains both debit and credit balances with the central counterparty and if it enters into a netting agreement in respect of the relevant debit and credit with the counterparty, regard the exposure, in the calculation of the its risk exposure, as a collateralised exposure in accordance with the provisions of sub-regulation (6) provided that the central counterparty-
- (a) has a well-founded legal basis for concluding that the netting or offsetting agreement is enforceable in each relevant jurisdiction, regardless whether the counterparty is insolvent or in liquidation;
 - (b) is at any time be able to determine the assets and liabilities with the specific counterparty to the netting agreement;
 - (c) monitors and controls any potential roll-off risk in respect of the debit and credit balances; and
 - (d) monitors and controls the relevant exposures on a net basis.

26.4 Exposure secured by a pledge or cession *in securitatem debiti* of eligible collateral

- (1) A licensed central counterparty may, if its exposure or potential exposure to credit risk is secured by a pledge or cession *in securitatem debiti* of eligible collateral as specified in Regulation 26.6(1), recognise the effect of such collateral using the Comprehensive Approach; provided that it complies with the requirements specified in this Regulation.
- (2) A reduction in the risk exposure of a central counterparty is allowed to the extent that-
- (a) such collateral was not already taken into account in the calculation of the central counterparty's risk exposure³;
 - (b) the central counterparty complies with the relevant requirements relating to disclosure, prescribed in Regulation 17;
 - (c) the central counterparty is able to establish title to the collateral in order to liquidate it; and

³ For example, no reduction in the risk exposure of the central counterparty shall be allowed in respect of an exposure for which an issue specific rating was issued, which rating already reflects the effect of the risk mitigation.

(d) such collateral can be realised by the central counterparty under normal market conditions, that is, the value at which the collateral can be realised in the market does not materially differ from its book value, provided that a central counterparty must maintain an appropriate margin of collateral in excess of the amount in respect of which a reduction in the risk exposure is allowed in order to provide for fluctuations in the market value of the relevant collateral.

- (3) When the collateral is held by a custodian, the central counterparty must -
- (a) ensure that the custodian ensures adequate segregation of the collateral instruments and the custodian's own assets;
 - (b) in cases of uncertainty, obtain legal certainty by way of legal opinions confirming the enforceability of the collateral arrangements in all relevant jurisdictions, and that the central counterparty's rights are legally well founded; and
 - (c) update legal opinions at appropriate intervals in order to ensure continued enforceability.

(4) The collateral arrangements must be duly documented with a clear and robust procedure in place for the timely liquidation of collateral.

(5) A central counterparty's procedures must be sufficiently robust to ensure that any legal conditions required for declaring the default of the clearing member and liquidating the collateral are observed.

(6) In order for collateral to provide effective protection, the credit quality of the obligor and the value of the collateral may not have a material positive correlation.

(7) A maturity mismatch occurs when the residual maturity of the credit protection obtained in the form of eligible collateral or in terms of a netting agreement, is less than the residual maturity of the underlying credit exposure and must be treated in accordance with the relevant provisions specified in Regulation 26.7(18).

(8) The rating issued in respect of the collateral instrument may not relate only to the principal amount.

26.5 Eligible collateral for risk mitigation purposes

(1) For risk mitigation purposes, the instruments specified below are regarded as eligible collateral, provided that, irrespective of its credit rating, a securitisation or re-securitisation instrument may in no case constitute an eligible instrument for risk mitigation purposes in terms of these Regulations-

- (a) Cash, including certificates of deposit or comparable instruments pledged or ceded *in securitatem debiti* to the central counterparty; provided that-
 - (i) when cash on deposit, certificates of deposit or comparable instruments are held as collateral at a third-party institution in a non-custodial arrangement, the central counterparty must assign the risk weight related to the third party institution to the exposure amount protected by the collateral;
 - (ii) the cash or instruments are pledged to the central counterparty;
 - (iii) the pledge is unconditional and irrevocable; and
 - (iv) the central counterparty has applied the relevant haircut specified below in respect of currency risk.
- (b) Highly liquid securities as indicated in Regulation 31.1(2) which have been-
 - (i) assigned a rating of BB- or better by a credit rating agency when issued by sovereigns;
 - (ii) assigned a rating of BBB- or better by a credit rating agency when issued by other institutions, including banks; or
 - (iii) issued by counterparties qualifying for a 0% risk weight as specified in Table 26(B) in Schedule A.
- (c) Any other instruments as determined by the Authority in writing.

(2) In respect of the Comprehensive Approach for the recognition of risk mitigation, when a central counterparty obtained collateral of which the value is less than the amount of the central counterparty's exposure to credit risk, it must recognise the credit protection on a proportional basis, that is, the protected portion of the exposure must be risk weighted in accordance with the relevant provisions of this Regulation and the remainder of the credit exposure must be regarded as unsecured.

26.6 Calculation of exposure

- (1) A licensed central counterparty that obtained eligible collateral must-
- (a) calculate an adjusted exposure in accordance with the relevant formulae set out in sub-regulation (2);
 - (b) in the calculation of the central counterparty's adjusted exposure-
 - (i) make use of the haircut percentage specified in Table 26(C) in Schedule A in order to adjust both the amount of the exposure and the value of the collateral; or
 - (ii) in the case of transactions subject to further commitment, that is, repurchase or resale agreements-
 - (aa) apply a haircut of 0%, provided that the central counterparty complies with the minimum conditions relating to a haircut of 0% specified in sub-regulation (9);
 - (bb) recognise the effects of bilateral master netting agreements, provided that the central counterparty complies

with the minimum conditions relating to bilateral master netting agreements specified in sub-regulation (10);
and

(c) calculate its risk weighted exposure by multiplying the adjusted exposure with the risk weight of the relevant counterparty.

(2) In the case of a collateralised transaction, other than a derivative instrument subject to the current exposure method, a central counterparty must calculate its adjusted exposure through the application of the formula specified below, which formula is designed to recognise the effect of the collateral and any volatility in the amount relating to the exposure or collateral. The formula is expressed as:

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

where:

- E*** = the amount of the exposure after the effect of the collateral is taken into consideration, that is, the adjusted exposure
E = the current value of the exposure before the effect of the collateral is taken into consideration
H_e = the relevant haircut that relates to the exposure
C = the current value of the collateral obtained by the central counterparty
H_c = the haircut that relates to the collateral
H_{fx} = the haircut that relates to any currency mismatch between the collateral and the exposure-
- (i) The haircut that relates to currency risk shall be 8%, based on a 10 business day holding period and daily mark-to-market.
 - (ii) Standard haircuts in terms of the comprehensive approach shall be subject to Table 26 (C) in Schedule A.

(3) In the case of a derivative instrument subject to the current exposure method, a central counterparty must calculate its adjusted exposure in accordance with the relevant formula and requirements specified in Regulation 29 .

(4) A central counterparty that wants to recognise the effects of bilateral master netting agreements, must calculate its adjusted exposure through the application of the formula specified below, provided that the central counterparty complies with the minimum requirements relating to bilateral netting agreements specified in sub-regulation (10). The formula is expressed as:

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

where:

- E*** = the adjusted exposure after the effect of risk mitigation is taken into consideration
E = the relevant current value of the exposure
C = the value of the relevant collateral
E_s = the absolute value of the net position in a given instrument
H_s = the relevant haircut that relates to E_s, that is, the net long or short position of each instrument included in the netting agreement shall be multiplied with the appropriate haircut
E_{fx} = the absolute value of the net position in a currency that differs from the settlement currency
H_{fx} = the haircut in respect of the currency mismatch-
- (i) the haircut that relates to currency risk must be 8%, based on a 10 business day holding period and daily mark-to-market.
 - (ii) standard haircuts in terms of the comprehensive approach shall be subject to Table 26(C) in Schedule A.

(5) A central counterparty that obtained collateral that consists of a basket of instruments, must calculate the haircut in respect of the basket of instruments in accordance with the formula specified below, which formula is designed to weight the collateral in the basket:

$$H = \sum_i \alpha_i H_i$$

where:

- α_i** = the relevant weight of the asset, measured in terms of the relevant currency units, in the basket
H_i = the haircut applicable to the relevant asset

(6) The framework for collateral haircuts applied in these Regulations in respect of the comprehensive approach as summarised in Tables 26(C) to (F) in Schedule A distinguishes between-

- (a) repo-style transactions, that is, transactions such as repurchase or resale agreements, and securities lending or borrowing transactions; and
- (b) other capital-market-driven transactions, that is, transactions such as derivatives instruments and margin lending.

(7) In case of transactions subject to daily re-margining and mark-to-market valuation, when the central counterparty calculates its exposure or EAD amount subject to margin agreements, the central counterparty must apply a floor margin period of risk of five business days for netting sets consisting only of repo-style transactions, and a floor margin period of risk of 10 business days for all other netting sets, provided that-

- (a) in respect of all netting sets where the number of trades exceeds 5 000 at any point during a quarter, the central counterparty applies a floor margin period of risk of 20 business days for the following quarter;
- (b) in respect of netting sets containing one or more trades involving illiquid collateral, the central counterparty applies a floor margin period of risk of 20 business days; provided that for purposes of this Regulation,-
 - (i) "illiquid collateral" must be determined in the context of stressed market conditions and must be characterised by the absence of continuously active markets where a counterparty would, within two or fewer days, obtain multiple price quotations that would not move the market or represent a price reflecting a market discount in the case of collateral; and
 - (ii) situations where trades shall be deemed illiquid include, but are not limited to, trades that are not marked daily and trades that are subject to specific accounting treatment for valuation purposes, such as repo-style transactions referencing securities of which the fair value is determined by models with inputs that are not observed in the market.
- (c) in all cases where the central counterparty considers that trades or securities held as collateral are concentrated in a particular counterparty or clearing member, and if that counterparty or clearing member suddenly exited the market, the central counterparty would be able to replace its trades;.
- (d) if the central counterparty experienced more than two margin call disputes on a particular netting set during the preceding two quarters, and the disputes lasted longer than the applicable margin period of risk, before consideration of this provision, the central counterparty in respect of the following two quarters applies a margin period of risk at least double the floor specified in these Regulations for that netting set.
- (e) in the case of re-margining with a periodicity of N-days, the central counterparty applies a margin period of risk of at least the specified floor plus the N days minus one day, that is:

$$\text{Margin Period of Risk} = F + N - 1.$$

where:

- F** = the floor number of days specified before
- N** = the said periodicity of N-days for re-margining;

(8) in the case of the frequency of re-margining or revaluation is longer than the minimum period specified in Table 26(D) in Schedule A, the relevant percentage in respect of the relevant specified minimum haircut must be scaled up depending on the actual number of business days between re-margining or revaluation, using the square root of time formula specified below:

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

where:

- H** = the relevant haircut
- H_M** = the relevant haircut in respect of the minimum holding period
- T_M** = the relevant minimum holding period for the type of transaction
- N_R** = the actual number of business days between re-margining for capital market transactions or revaluation in respect of secured transactions

(a) When a central counterparty calculates the volatility on a T_N day holding period which is different from the specified minimum holding period T_M, the central counterparty must calculate the relevant haircut H_M using the square root of time formula specified below:

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

where:

H_M	=	the adjusted haircut
T_N	=	holding period used by the central counterparty for deriving H _N
H_N	=	haircut based on the holding period T _N .
T_M	=	specified minimum holding period

- (b) Similarly, when the frequency of re-margining or revaluation is longer than the minimum period specified in Table 26(C) in Schedule A, the relevant percentage in respect of the minimum haircut must be scaled up depending on the actual number of business days between re-margining or revaluation, using the relevant square root of time formula. For example, based on the relevant specified square root of time formula, a central counterparty that uses the standard haircuts specified in Table 26(C) in Schedule A, must use the relevant 10 business day haircut percentages specified in the Table as a basis in scaling the haircut percentages up or down depending on the type of transaction and the frequency of re-margining or revaluation, as specified below (see Tables 26(E) and (F) in Schedule A):

$$H = H_{10} \sqrt{\frac{N_R + (T_M - 1)}{10}}$$

Where:

H	=	adjusted haircut
H₁₀	=	the 10 business day standard haircut in respect of the instrument, specified in Table 26(C) in Schedule A
N_R	=	the actual number of business days between re-margining for capital market transactions or revaluation for secured transactions
T_M	=	the minimum holding period for the type of transaction.

- (9) In the case of any repo-style transaction, a central counterparty may apply a haircut of 0%, provided that-
- both the exposure and the collateral consist of cash or a sovereign security or public-sector security qualifying for a 0% risk weight in terms of the standardised approach;
 - both the exposure and the collateral are denominated in the same currency;
 - the transaction is overnight or both the exposure and the collateral are marked to market, at a minimum, on a daily basis and subject to daily re-margining;
 - following the failure of the counterparty to re-margin, the time that is required from the last mark-to-market adjustment, before the failure to re-margin occurred, and the liquidation of the collateral, is no more than four business days;
 - the transaction is settled across a settlement system authorised for the type of transaction;
 - the documentation in respect of the agreement is standard market documentation for the transactions;
 - the transaction is governed by documentation that specifies that when the counterparty fails to satisfy an obligation to deliver cash or securities or to deliver margin, or otherwise defaults, the transaction shall be immediately terminable;
 - upon any default event, regardless whether the counterparty is insolvent or liquidated, the central counterparty has the unfettered, legally enforceable right to immediately seize and liquidate the collateral for the central counterparty's benefit;
 - the agreement is concluded with-
 - a sovereign;
 - a central bank;
 - a public-sector entity;
 - a bank;
 - other regulated financial institutions, including an insurance company, eligible for a risk weight of 20% in terms of the standardised approach;
 - a regulated collective investment scheme or money market fund determined by the Authority, provided that the collective investment scheme or money market fund must be subject to capital or leverage requirements;
 - a regulated pension fund determined by the Authority;
 - a clearing house determined by the Authority; and
 - another person as may be determined by the Authority, subject to such conditions as may be determined by the Authority.

(10) A central counterparty that concludes a repo-style agreement or transaction with a counterparty, which agreement or transaction is included in a bilateral master netting agreement, may recognise the effects of the bilateral master netting agreement, provided that the netting agreement must-

- be legally enforceable in each relevant jurisdiction upon the occurrence of an event of default, regardless whether the

- counterparty is insolvent or in liquidation and in cases of legal uncertainty, the central counterparty must obtain a legal opinion to the effect that its right to apply netting of gross claims is legally well founded and would be enforceable in the liquidation, default or insolvency of the counterparty or the central counterparty;
- (b) provide the non-defaulting party upon an event of default, including in the event of insolvency or liquidation of the counterparty, the right to terminate and close-out, in a timely manner, all transactions included in the agreement;
- (c) make provision for-
- (i) the netting of gains and losses relating to all transactions included in the agreement, including the value of any collateral, which transactions were terminated and closed out, resulting in a single net amount which shall be owed by the one party to the other; and
 - (ii) the prompt liquidation or close-out netting of collateral upon an event of default.
- (11) (a) When a central counterparty obtains protection against loss relating to an exposure or potential exposure to credit risk in the form of an eligible guarantee, the risk weight applicable to the guaranteed transaction or guaranteed exposure may be reduced to the risk weight applicable to the guarantor in accordance with these Regulations.
- (b) The unprotected portion of the exposure must retain the risk weight relating to the relevant counterparty.
- (c) The lower risk weight of the guarantor must apply on the outstanding amount of the exposure protected by the guarantee, provided that the requirements in sub-regulation (11) are met. (d)

Minimum general requirements

- (i) A reduction in the risk weight of a central counterparty's exposure to the risk weight applicable to the relevant guarantor is allowed only to the extent that such guarantee -
 - (aa) was not already taken into account in the calculation of the central counterparty's risk exposure. As such, no reduction in the risk exposure of the central counterparty will be allowed in respect of an exposure for which an issue specific rating was issued, which rating already reflects the effect of the guarantee;
 - (bb) may be realised by the central counterparty under normal market conditions;

Minimum specific requirements

- (ii) The guarantee must be an explicitly documented obligation assumed by the guarantor.
- (iii) The guarantee must be legally enforceable in all relevant jurisdictions and the central counterparty's rights in terms of the guarantee must be legally well founded; provided that legal opinions must be updated at appropriate intervals in order to ensure continued enforceability of the central counterparty's rights in terms of the guarantee;
- (iv) The guarantee must constitute a direct claim on the guarantor, provided that-
 - (aa) when a qualifying default or non-payment by the obligor occurs, the central counterparty pursues the guarantor for amounts outstanding under the loan, rather than having to continue to pursue the obligor;
 - (bb) when the guarantee provides only for the payment of principal amounts, any interest amount and other unprotected payments are regarded as unsecured amounts;
 - (cc) payment by the guarantor in terms of the guarantee may grant the guarantor the right to pursue the obligor for amounts outstanding under the loan.
- (v) The guarantee must be linked to specific exposures, so that the extent of the cover is duly defined and incontrovertible.
- (vi) Other than the central counterparty's non-payment of money due in respect of the guarantee, there may be no clause in the contract that would allow the guarantor unilaterally to cancel the guarantee or increase the effective cost of the protection as a result of deterioration in the credit quality of the protected exposure.
- (vii) There may be no clause in the guarantee outside the direct control of the central counterparty that could prevent the guarantor from being obliged to pay out, in a timely manner, in the event of the original obligor failing to make the payment(s) due.
- (viii) While guarantees reduce credit risk, they simultaneously increase other risks to which a central counterparty is exposed, such as legal and operational risks, therefore a central counterparty must employ robust procedures and processes, relating to guarantees, to control the risks, which must, as a minimum, include the fundamental elements specified below:
 - (aa) An articulated strategy for guarantees must form an intrinsic part of a central counterparty's general credit strategy and overall liquidity strategy;
 - (bb) A central counterparty must-
 - (AA) continue to assess a guaranteed exposure on the basis of the borrower's creditworthiness;
 - (BB) obtain and analyse sufficient financial information to determine the obligor's risk profile and its risk-management and operational capabilities;
 - (CC) ensure that its policies and procedures are supported by management systems capable of tracking the location and status of guarantees;

- (DD) regularly review its policies and procedures in order to ensure that the policies and procedures remain appropriate and effective;
- (EE) have in place a duly defined policy with respect to the amount of concentration risk that it is prepared to accept;
- (FF) take guaranteed positions into account when assessing the potential concentrations in its credit portfolio;
- (GG) in order to mitigate its concentration risk, monitor general trends affecting relevant guarantors;
- (HH) when it obtains guarantees that differ in maturity from the underlying credit exposure, monitor and control its roll-off risks, that is, the fact that the central counterparty will be exposed to the full amount of the credit exposure when the guarantee expires. The central counterparty may be unable to obtain further guarantees or to maintain its capital adequacy when the guarantee expires.

(12) (a) For risk mitigation purposes, credit protection obtained from guarantors that are assigned a risk weight lower than the protected exposure will be recognised as eligible guarantees, including guarantees obtained from-

- (i) sovereigns;
- (ii) central banks; or
- (iii) guarantees as approved by the Authority.

Materiality thresholds

(b) For purposes of these Regulations, a materiality threshold below which no payment will be made in the event of a loss to the central counterparty or that reduces the amount of payment by the guarantor must be risk weighted at 1250%; or an imputed percentage that will effectively result in an amount equivalent to a deduction against capital .

Proportional cover

(c) When a central counterparty obtains a guarantee for less than the amount of the central counterparty's exposure to credit risk, it must recognise the credit protection on a proportional basis, that is, the protected portion of the exposure shall be risk weighted in accordance with the relevant provisions of this regulation and the remainder of the credit exposure must be regarded as unsecured.

(d) *Currency mismatches*

- (i) (aa) When a central counterparty obtains credit protection that is denominated in a currency that differs from the currency in which the exposure is denominated, the amount of the exposure deemed to be protected must be reduced by the application of the formula specified below, which formula is designed to recognise the effect of the currency mismatch. The formula is expressed as:

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

where:

G = the relevant nominal amount of the credit protection obtained

H_{FX} = the haircut relating to the currency mismatch between the credit protection and the underlying obligation.

(bb) The haircut shall be based on a 10 business day holding period and daily mark-to-market.

- (ii) When a central counterparty applies the standard haircuts, a haircut equal to 8% shall apply.
- (iii) A central counterparty must use the relevant square root of time formula specified in sub-regulation (8)(b) to scale up a haircut percentage when the holding period or frequency of mark-to-market adjustment is longer than the minimum period specified in Table 26(C) in Schedule A.

(13) For the protected portion of a credit exposure, a central counterparty that is a protection buyer must substitute the risk weight relating to the eligible protection provider for the risk weight of the reference asset, reference entity or underlying asset.

- (a) The lower risk weight relating to the eligible protection provider shall apply to the outstanding amount of the transaction or exposure protected by the credit-derivative instrument, provided that all the relevant conditions specified in sub-regulation (17) are met.
- (b) The unprotected portion of the exposure shall retain the risk weight relating to the relevant underlying exposure.
- (c) When a central counterparty hedges the credit risk relating to an exposure, the central counterparty may only recognise the credit protection to the extent that the central counterparty transferred the relevant credit risk to an eligible third party protection provider.

- (d) A central counterparty may not buy protection in the absence of an underlying exposure.
- (i) A materiality threshold contained in a credit-derivative instrument that requires a given amount of loss to occur to the protection buyer before the protection seller is obliged to make payment to the protection buyer or reduces the amount of payment to the protection buyer must be risk weighted at 1250%.
 - (ii) The capital requirement in respect of such bought protection is limited to the capital requirement relating to the underlying asset or reference asset when no protection is recognised.

(14) For risk-mitigation, credit protection obtained from protection providers that are assigned a risk weight lower than the protected exposure must be recognised as eligible protection providers, including protection obtained from-

- (a) sovereigns;
- (b) central banks;
- (c) public-sector entities;
- (d) banks; and
- (e) other externally rated entities that are assigned a risk weight lower than the protected exposure.

(15) A central counterparty must report all relevant foreign-currency positions created by credit-derivative instruments when the central counterparty calculates its aggregate effective net open foreign-currency position to the Authority.

(16) When a central counterparty obtains credit protection for less than the amount of the central counterparty's exposure to credit risk, it must recognise the credit protection on a proportional basis, that is, the protected portion of the exposure must be risk weighted in accordance with these Regulations and the remainder of the credit exposure must be regarded as unsecured.

- (17) A central counterparty that engages in a credit-derivative instrument as a protection buyer-
- (a) that was not already taken into consideration in the calculation of the central counterparty's required amount of capital; and the instrument can be realised by the central counterparty under normal market conditions, that is, the value at which the protection can be realised may not differ materially from its book value; and the central counterparty recognises the risk-mitigation effect of protection obtained in the form of a credit-derivative instrument in the calculation of its credit exposure; must comply with the following requirements in respect of protection from such credit-derivative instrument:
 - (i) The credit protection must constitute a direct claim on the protection seller.
 - (ii) The credit protection must be linked to specific credit exposures, so that the extent of the cover is duly defined and incontrovertible.
 - (iii) Other than a protection buyer's non-payment of money due in respect of the credit protection contract, there may be no clause in the contract that would allow the protection seller unilaterally to cancel the credit protection or increase the effective cost of the protection as a result of deterioration in the credit quality of the protected exposure.
 - (iv) There may be no clause in the contract other than clauses relating to procedural requirements that could prevent the protection seller from being obliged to make payment in a timely manner should a credit event occur in respect of an underlying asset, reference entity or reference asset.
 - (v) The credit protection must be legally enforceable in all relevant jurisdictions, and in cases of uncertainty, a central counterparty must obtain legal opinion confirming the enforceability of the credit protection in all relevant jurisdictions and that the central counterparty's rights are legally well founded, which legal opinions must be updated at appropriate intervals in order to ensure continuing enforceability.
 - (vi) The protection seller may not have any formal recourse to the protection buyer in respect of losses incurred by the protection seller.
 - (vii) In the case of a funded single-name credit-derivative instrument, the protection buyer may not be obliged to repay any funds received from the protection seller in terms of the credit-derivative instrument, except at the maturity date of the contract, provided that no credit event has occurred during the period of bought protection or as a result of a defined credit event, and then in accordance with the terms of payment defined in the contract.
 - (viii) In order to obtain full recognition of the protection obtained, the base currency of a credit-derivative instrument must be the same currency as the currency in which the credit exposure that is protected is denominated.
 - (aa) When a credit-derivative instrument is denominated in a currency that differs from the currency in which the credit exposure is denominated, that is, when there is a currency mismatch, the bought protection may be less than expected owing to fluctuations in the exchange rates.
 - (bb) When a central counterparty obtains credit protection that is denominated in a currency that differs from the currency in which the exposure is denominated, the amount of the exposure deemed to be protected shall be reduced by the application of the formula specified below, which formula is designed to recognise the effect of the currency mismatch. The formula is expressed as:

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

where:

G_A = is the relevant adjusted value of the protection

G = is the relevant nominal amount of the credit protection obtained

H_{FX} = is the haircut relating to the currency mismatch between the credit protection and the underlying obligation.

(AA) The haircut shall be based on a ten business day holding period and daily mark-to-market.

(BB) When a central counterparty applies the standard haircuts, a haircut equal to 8% shall apply.

(CC) A central counterparty must use the relevant square root of time formula specified in sub-regulation (8)(b) above to scale up a haircut percentage when the holding period or frequency of mark-to-market adjustment is longer than the minimum period specified sub-regulation(8)(b)

(ix) While credit derivative instruments reduce credit risk, they simultaneously increase other risks to which a central counterparty is exposed, such as legal and operational risks, therefore, a central counterparty must employ robust procedures and processes to control the risks, which as a minimum, must include the following fundamental elements:

(aa) A duly articulated strategy for credit-derivative instruments must form an intrinsic part of a central counterparty's general credit strategy and overall liquidity strategy.

(bb) A central counterparty must-

(AA) continue to assess an exposure that is hedged by a credit-derivative instrument on the basis of the borrower's creditworthiness;

(BB) obtain and analyse sufficient financial information to determine the obligor's risk profile and its risk management and operational capabilities;

(CC) ensure that its policies and procedures are supported by management systems capable of tracking the location and status of its credit-derivative instruments;

(DD) have in place a duly defined policy with respect to the amount of concentration risk that it is prepared to accept;

(EE) take into account purchased credit protection when assessing the potential concentrations in its credit portfolio;

(FF) monitor general trends affecting its credit-protection sellers, in order to mitigate its concentration risk;

(GG) when it obtains credit protection that differs in maturity from the underlying credit exposure, monitor and control its roll-off risks, that is, the fact that the central counterparty will be exposed to the full amount of the credit exposure when the credit protection expires.

(x) The risk management systems of the central counterparty must be adequate to-

(aa) capture the credit risk relating to a underlying asset acquired through a credit-derivative instrument and any counterparty risk arising from an unfunded OTC credit-derivative instrument within the normal credit approval and credit monitoring processes;

(bb) assess the probability of default correlation between the underlying asset and the protection provider;

(cc) provide valuation procedures, including assessment and monitoring of the liquidity of the credit-derivative instrument and the reference asset or underlying asset;

(dd) assess the impact on liquidity risk when the central counterparty has transferred a significant amount of credit risk through the use of funded credit-derivative instruments with a shorter maturity than the underlying credit exposure;

(ee) assess the impact on capital adequacy when the central counterparty has transferred a significant amount of credit risk through the use of unfunded credit-derivative instruments and when a replacement contract may not be available when the credit protection expires;

(ff) assess the change in the risk profile of the remaining credit exposures in terms of both the quality and the spread of the portfolio, when the central counterparty makes extensive use of credit-derivative instruments to transfer risk;

(gg) assess the basis risk between the reference asset exposure and the underlying asset exposure when these exposures are not the same;

(hh) monitor the legal and reputational risk associated with credit derivative instruments;

(ii) monitor the credit risk on an on-going basis.

- (xi) The credit events relating to non-sovereign debt, specified by the contracting parties must include-
- (aa) liquidation or insolvency.
 - (bb) any application for protection from creditors.
 - (cc) payment default, that is, failure to pay the principal amount or related interest amounts due.
 - (dd) any restructuring of the underlying obligation that results in a credit loss event such as a credit impairment or other similar debit being raised, including-
 - (AA) a reduction in the rate or amount of interest payable or the amount of scheduled interest accruals;
 - (BB) a reduction in the amount of principal, fees or premium payable at maturity or at the scheduled redemption dates;
 - (CC) a change in the ranking in the priority of payment of any obligation, causing the subordination of such obligation;
 - (DD) a postponement or other deferral of a date or dates for either the payment or accrual of interest or the payment of the principal amount or premium.
- (xii) The credit events relating to sovereign debt, specified by the contracting parties must include-
- (aa) any moratorium on the repayment of the principal amount or related interest amounts due;
 - (bb) repudiation;
 - (cc) payment default, that is, failure to pay the principal or related interest amounts due;
 - (dd) any restructuring of the underlying obligation that results in a credit loss event such as a credit impairment or other similar debit being raised, including-
 - (AA) a reduction in the rate or amount of interest payable or the amount of scheduled interest accruals;
 - (BB) a reduction in the amount of principal, fees or premium payable at maturity or at the scheduled redemption dates;
 - (CC) a change in the ranking in the priority of payment of any obligation, causing the subordination of such obligation;
 - (DD) a postponement or other deferral of a date or dates for either the payment or accrual of interest or the payment of the principal amount or premium.
- (xiii) When the credit-derivative instrument does not include the restructuring of the underlying obligation as a credit event, it shall be deemed that the central counterparty obtained protection equal to a maximum of 60% of the amount covered in terms of the credit-derivative instrument.
- (xiv) Contracts allowing for cash settlement will be recognised for risk-mitigation purposes, provided that a robust valuation process is in place in order to estimate loss reliably.
- (xv) There must be a duly specified period for obtaining post credit-event valuations of the reference asset or underlying obligation, not more than 30 days.
- (xvi) The grace period specified in the credit-derivative instrument may not be longer than the relevant grace period provided for failure to pay in terms of the underlying obligation.
- (xvii) The protection buyer must have the right and ability to transfer the underlying obligation or reference asset to the protection seller, if such underlying obligation or reference asset is required for settlement.
- (xviii) The delivery of the underlying obligation or reference asset may not contravene any term or condition relating to the underlying asset or reference asset, and consent must be obtained when necessary.
- (xix) The identity of the person responsible for determining whether a credit event has occurred, and the sources to be used, must be defined.
- (xx) The determination of a credit event may not be the sole responsibility of the protection seller.
- (xxi) The protection buyer must have the right and ability to inform the protection seller of the occurrence of a credit event.
- (xxii) When the reference asset and the underlying asset being hedged differ, the protection buyer may suffer a loss on the underlying credit exposure that will not be fully compensated by an equivalent claim against the protection seller.

- (xxiii) When there is an asset mismatch between the underlying exposure and the reference asset, the protection buyer will be allowed to reduce the credit exposure, provided that-
- (aa) the reference asset and the underlying exposure relate to the same obligor, that is, the same legal entity;
 - (bb) the reference asset ranks *pari passu* with or more junior than the underlying asset in the event of liquidation;
 - (cc) legally effective cross-default clauses, for example, cross-default or cross-acceleration clauses apply; and
 - (dd) the terms and conditions of the credit-derivative instrument do not contravene the terms and conditions of the underlying asset or reference asset.

- (18) (a) A maturity mismatch occurs when the residual maturity of the credit protection obtained in the form of eligible collateral, guarantees or credit-derivative instruments, or in terms of a netting agreement, is less than the residual maturity of the underlying credit exposure.
- (b) A central counterparty must conservatively define the maturity of the underlying exposure and the maturity of the credit protection, taking into consideration the following:
- (i) The effective maturity of the underlying exposure must be the longest possible remaining time before the obligor is scheduled to fulfil its obligation.
 - (ii) Embedded options that may reduce the term of the credit protection shall be taken into account when the effective maturity of the credit protection is determined so that the shortest possible effective maturity is used.
- (c) In the case of maturity mismatched credit protection in respect of which the original maturity of the relevant credit protection is less than one year, such credit protection may not be recognised for credit-risk mitigation purposes in terms of these Regulations unless the credit protection has a matching maturity with the underlying credit exposure(s), that is, credit protection with an original maturity of less than one year may be recognised only when-
- (i) the maturity of the protection and the maturity of the exposure is matched; or
 - (ii) the residual maturity of the protection is longer than the residual maturity of the exposure,
- provided that in the calculation of its minimum required amount of capital a central counterparty may in no case recognise credit protection obtained when the residual maturity of such credit protection is less than or equal to three months.
- (d) When a central counterparty obtained eligible protection relating to netting and collateral, guarantees or credit derivatives instruments, the central counterparty must recognise the effect of mismatches between the maturity of the central counterparty's underlying exposure and the protection obtained through the application of the formula specified below:

$$P_a = P \times \{(t - 0.25)/(T - 0.25)\}$$

where:

- P_a = relevant value of the credit protection obtained, adjusted for the maturity mismatch
- P = relevant amount of credit protection obtained, adjusted for any haircuts
- t = min (T, residual maturity of the credit protection arrangement), expressed in years
- T = min (5, residual maturity of the exposure), expressed in years

(19) If a central counterparty obtains protection that differs in maturity from the underlying credit exposure, because the central counterparty may be unable to obtain further protection or to maintain its capital adequacy when the protection expires, the central counterparty must monitor and control its roll-off risks, that is, the fact that the central counterparty will be exposed to the full amount of the credit exposure when the protection expires.

- (20) (a) When a central counterparty obtains-
- (i) multiple risk mitigation instruments in order to protect a single exposure, that is, the central counterparty has obtained, for example, collateral, guarantees and credit-derivative instruments partially protecting an exposure; or
 - (ii) protection with differing maturities,
- the central counterparty must subdivide the exposure into portions covered by the relevant types of risk mitigation instruments.
- (b) A central counterparty must separately calculate its risk-weighted exposure relating to each relevant portion envisaged in paragraph (a).

27. Capital calculation requirements for counterparty credit risk

For the purposes of this Regulation

“**current exposure**” means the loss that a central counterparty would face immediately if a clearing member or counterparty were to default;

“**potential future exposure**” means any potential credit exposure that a central counterparty could face at a future point in time;

“**qualifying central counterparty**” means a central counterparty that-

- (a) is licensed to perform functions as a central counterparty, which license may include a license granted by way of a specific exemption;

- (b) is permitted by the relevant Authorities to perform central counterparty functions with or in respect of specified products and counterparties;
- (c) is prudentially supervised, and which the Authority and the South African Reserve Bank have publicly confirmed is continuously subject to Regulations, standards and rules that are consistent with the relevant *Principles for Financial Market Infrastructures*⁴, developed by the Committee on Payment and Settlement Systems (“CPSS”) and the International Organization of Securities Commissions (“IOSCO”), and issued from time to time; and
- (c) in respect of an external central counterparty, is based in an equivalent jurisdiction in which it is prudentially supervised by an authority that publicly confirms that all relevant central counterparties performing functions in that jurisdiction are continuously subject to Regulations, standards and rules that are consistent with the relevant CPSS-IOSCO *Principles for Financial Market Infrastructures*, issued from time to time;

“**trade exposure**” in relation to counterparty credit risk includes the current exposure and the potential exposure of a clearing member or client to a central counterparty arising from

- (i) Transactions in OTC derivative instrument;
- (ii) Transactions in exchange-traded derivatives;
- (iii) Securities financing transactions; or
- (iv) Initial margin,

Provided that the current exposure of a clearing member included any variation margin due to the clearing member but not yet received

“**securities financing transaction**” in relation to a central counterparty’s exposure to counterparty credit risk includes-

- (i) repo-style transactions, that is, transactions such as repurchase or resale agreements, and securities lending or borrowing transactions; and
- (ii) other capital-market-driven transactions, that is, transactions such as derivatives instruments and margin lending.

27.1 Governance

- (1) A licensed central counterparty-
 - (a) must effectively measure, monitor and manage its credit exposures to its clearing members and those arising from its clearing processes;
 - (b) must identify sources of credit risk⁵, routinely measure and monitor credit exposures, and use appropriate risk management tools to control these risks, and to assist in this process, a central counterparty must ensure it has the capacity to calculate exposures to its clearing members on a timely basis as required, and to receive and review timely and accurate information on its clearing members’ credit standing;
 - (c) must frequently and regularly measure and monitor its credit risks throughout the day using timely information
 - (d) must ensure that it has access to adequate information to allow it to measure and monitor its current and potential future exposures, including to individual clearing members;⁶
 - (e) must, in order to estimate the potential future exposures that could result from clearing member defaults, identify risk factors and monitor potential market developments and conditions that could affect the size and likelihood of its losses in the close out of a defaulting clearing members’ positions;
 - (f) must regularly monitor the existence of large exposures to its clearing members and, where appropriate, their clearing clients;
 - (g) must ensure that its systems are capable of calculating exposures to its clearing members intraday and at short notice;
 - (h) must have the capacity to monitor any changes in the creditworthiness of its clearing members through the systematic review of timely information on financial standing, business activities and profile, and potential interdependencies;
 - (i) must use the capacity referred to in paragraph (h) to conduct periodic reviews of its clearing members’ credit standing, and to conduct ad hoc reviews where the central counterparty has reason to believe that a clearing member’s credit standing may deteriorate;

⁴ The Committee on Payment and Settlement Systems (CPSS) was renamed as the Committee on Payments and Market Infrastructures, or CPMI in September 2014. CPSS-IOSCO, *Principles for Financial Market Infrastructures* (April, 2012). Available: <http://www.bis.org/cpmi/publ/d101a.pdf>

⁵ The default of a clearing member (and its affiliates) has the potential to cause severe disruption to a central counterparty, its other clearing members and the financial markets more broadly. Therefore a central counterparty should establish a robust framework to manage its credit exposures to its clearing members and the credit risks arising from its clearing processes. Credit exposures may arise in the form of current exposures, potential future exposures, or both. The type and level of credit exposure faced by a central counterparty will vary based on its design and the credit risk of the counterparties concerned.

⁶ Current exposure is relatively straightforward to measure and monitor when relevant market prices are readily available. Potential future exposure is typically more challenging to measure and monitor and usually requires modelling and estimation of possible future market price developments and other variables and conditions, as well as specifying an appropriate time horizon for the close out of defaulted positions.

- (j) must mitigate its credit risk to the extent possible;⁷
 - (k) must have the authority and operational capacity to make intraday margin calls, both scheduled and unscheduled, from clearing members;
 - (l) must place limits on credit exposures, even where these are collateralised, and limits on concentrations of positions or additional collateral requirements may also be warranted;
 - (m) may use a sequence of prefunded financial resources, referred to as a 'waterfall', to manage its losses caused by clearing member defaults, which waterfall may include-
 - (i) a defaulter's initial margin;
 - (ii) the defaulter's contribution to a prefunded default arrangement;
 - (iii) a specified portion of the central counterparty's own funds; and
 - (iv) other clearing members' contributions to a prefunded default arrangement;
 - (n) must hold a combination of margin and pooled prefunded resources to control credit risks;
 - (o) must maintain additional pooled prefunded financial resources to cover a portion of the tail risk;
 - (p) must have the authority to impose activity restrictions or additional credit risk controls on a clearing member in respect of transactions with that clearing member where the central counterparty determines that the clearing member's credit standing may be in doubt;
 - (q) must cover its current and potential future exposures to each clearing member with a high degree of confidence using margin and other prefunded financial resources on collateral and on margin;
 - (r) must document its supporting rationale for, and have appropriate governance arrangements relating to, the amount of total financial resources it maintains;
 - (s) must establish initial margin requirements that are commensurate with the risks of each product and portfolio, which initial margin must be designed to meet an established single-tailed confidence level of at least 99% of the estimated distribution of future exposure, provided that for a central counterparty that-
 - (i) calculates margin at the portfolio level this requirement applies to each portfolio's distribution of future exposure; and
 - (ii) calculates margin at more granular levels, such as at the sub-portfolio level or product level; the requirement must be met for the corresponding distribution of future exposure;
 - (t) must maintain additional financial resources sufficient to cover a wide range of potential stress scenarios involving extreme but plausible market conditions;
 - (u) that is involved in activities with a more complex risk profile, such as clearing securities that are characterised by discrete jump-to-default price changes or that are highly correlated with potential clearing member defaults; and
 - (v) must maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that must include, the default of the second and third largest clearing members and their affiliates, that would potentially cause the largest aggregate credit exposure for the central counterparty in extreme but plausible market conditions.
- (2) A licensed central counterparty must-
- (a) through rigorous stress testing, determine the amount and regularly test the sufficiency of its total financial resources available in the event of a default or multiple defaults in extreme but plausible market conditions;
 - (b) perform daily stress tests, using standard and predetermined parameters and assumptions;
 - (c) on at least a monthly basis, perform a comprehensive and thorough analysis of stress-testing scenarios, models and underlying parameters and assumptions used to ensure they are appropriate for determining the central counterparty's required level of default protection in light of current and evolving market conditions;
 - (d) perform the analysis of stress testing referred to in paragraph (c) more frequently when the products cleared or markets served display high volatility, become less liquid, or when the size or concentration of positions held by a central counterparty's clearing members increases significantly;
 - (e) at least annually perform a full validation of its risk management model⁸;
 - (f) conduct reverse stress tests, as appropriate,-

⁷ For example, to control the build-up of current exposures, a central counterparty should require that open positions be marked-to-market and that each clearing member pay funds, typically in the form of variation margin, to cover any loss in its positions' net value at least daily; such a requirement limits the accumulation of current exposures and therefore mitigates potential future exposures

⁸ Initial margin is used to cover a central counterparty's potential future exposures, as well as current exposures not covered by variation margin, to each clearing member with a high degree of confidence. However, a central counterparty generally remains exposed to residual risk (or tail risk) if a clearing member defaults and market conditions concurrently change more than is anticipated in the margin calculations. In such scenarios, a central counterparty's losses may exceed the defaulting clearing member's posted margin. Although it is not feasible to cover all such tail risks, given the unknown scope of potential losses due to price changes.

⁹ Stress scenarios, models and underlying parameters and assumptions should be examined based on historical data of prices of cleared products and clearing members' positions and potential developments of these factors under extreme but plausible market conditions in the markets that the central counterparty serves.

- (i) to test how severe stress conditions would be covered by its total financial resources;
- (ii) aimed at identifying the extreme scenarios and market conditions in which its total financial resources would not provide sufficient coverage of tail risk
- (g) test the adequacy of its initial margin requirements and model, through back testing and sensitivity analysis, respectively;
- (h) in conducting stress testing, consider the effect of a wide range of relevant stress scenarios in terms of both defaulters' positions and possible price changes in liquidation periods, which scenarios should include-
 - (i) relevant peak historic price volatilities;
 - (ii) shifts in other market factors such as price determinants and yield curves;
 - (iii) multiple defaults over various time horizons;
 - (iv) simultaneous pressures in funding and asset markets; and
 - (v) a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions;
- (i) in constructing stress scenarios, not consider extreme but plausible conditions as a fixed set of conditions, but rather conditions that evolve;
- (j) ensure that its stress tests incorporates, on a timely basis, emerging risks and changes in market assumptions, for example, departures from usual patterns of co-movements in prices among the products a central counterparty clears;
- (k) when proposing to clear new products, consider movements in prices of any relevant related products;
- (l) where projected stress-test losses are frequent and consistently widely dispersed across clearing members, have clear processes in place to augment pooled financial resources.

(3) In the event that projected stress-test losses exceed available financial resources, a central counterparty must ensure that additional financial resources are obtained on a timely basis;¹¹ ensure that its rules and procedures support timely action to increase financial resources in these circumstances. clearly articulate the circumstances in which it will call for additional margin or non-pooled financial resources from clearing members, and both the form, that is, cash or eligible non-cash collateral and the time frame in which calls must be satisfied; periodically engage with clearing members to ensure that they understand their potential obligations and have taken appropriate steps to ensure that they would be able to meet them. A central counterparty must have clear procedures to report the results of its stress tests to its controlling body and to use these results to evaluate the adequacy of and adjust its total financial resources establish explicit rules and procedures that address fully any credit losses it may face as a result of any individual or combined default among its clearing members with respect to any of their obligations to the central counterparty, which rules and procedures must address how potentially uncovered credit losses would be allocated, including the repayment of any funds a central counterparty may borrow from liquidity providers. Subject to the provisions specified below for the measurement of a central counterparty's exposure amount or exposure-at-default, risk-weighted exposure and related required amount of capital in respect of instruments, contracts or transactions that expose the central counterparty to counterparty credit risk, the central counterparty must use the current exposure method¹² specified in Regulation 29.

- (6) In calculating a central counterparty's exposure to counterparty credit risk, the exposure amount relating to a particular counterparty must be equal to the sum of the relevant exposure amounts or exposures-at-default calculated in respect of each relevant netting set relating to that counterparty, provided that-
- (a) for purposes of calculating the relevant amount of required capital for default risk in terms of the relevant requirements specified in these Regulations, the relevant outstanding exposure amount must be net of any incurred CVA losses;
 - (b) unless specifically otherwise provided for in this Regulation, the relevant outstanding exposure amount for a given OTC derivative counterparty shall be the higher of-
 - (i) zero; or
 - (ii) the difference between the sum of all relevant exposure amounts or exposure-at-default across all relevant netting

¹⁰ Reverse stress tests require a central counterparty to model hypothetical positions and extreme market conditions that may go beyond what are considered extreme but plausible market conditions in order to help understand margin calculations and the sufficiency of financial resources given the underlying assumptions modelled. Modelling very extreme market conditions can help a central counterparty determine the limits of its current model and resources. However, it requires the central counterparty to exercise judgement when modelling different markets and products. A central counterparty should develop hypothetical very extreme scenarios and market conditions tailored to the specific risks of the markets and of the products it serves. Reverse stress testing should be considered a helpful management tool but need not, necessarily, drive the central counterparty's determination of the appropriate level of financial resources.

¹¹ The nature of the additional financial resources called may depend on the distribution of projected stress-test losses. If projected stress-test losses exceed available financial resources for only a single, or few clearing members, then it may be appropriate to call for additional margin or other non-pooled financial resources from those clearing members.

¹² The current exposure method must be available only for the measurement of the reporting central counterparty's exposure to counterparty credit risk arising from OTC derivative instruments, that is, exposure to credit risk arising from securities financing transactions shall be calculated, amongst other things, in accordance with the relevant requirements specified in Regulations 29 the central counterparty's exposure to counterparty credit risk, when the central counterparty purchases credit derivative protection against an own book exposure or against an exposure to counterparty credit risk, the central counterparty shall in respect of the hedged exposure calculate its required amount of capital in accordance with the relevant requirements relating to credit derivative instruments.

sets with the counterparty and the CVA for that counterparty which has already been recognised by the central counterparty as an incurred write-down or incurred CVA loss, which CVA loss shall be calculated.

- (c) the reduction of exposure or exposure-at-default by incurred CVA losses shall not apply in the calculation of the relevant amount of required capital for CVA risk.

(7) A central counterparty must, in addition to any capital requirements for default risk related to counterparty credit risk, determine the relevant amount of required capital to cover risk related to mark-to-market losses on the central counterparty's expected exposure to counterparty risk, which losses shall for purposes of these Regulations be referred to as CVA risk or CVA losses in respect of OTC derivatives, provided that-

- (a) the relevant additional required amount of capital for CVA risk in accordance with the relevant requirements and formula specified in Regulation 28;
- (b) the additional required amount of capital for CVA risk shall be a standalone market risk requirement, calculated on the set of CVAs envisaged in paragraph (f) for all relevant collateralised and uncollateralised OTC derivative counterparties, together with eligible CVA hedges, provided that, unless expressly otherwise provided in these Regulations, within the standalone required amount of capital for CVA risk, the central counterparty may not apply any offset against any other instrument on the central counterparty's balance sheet;
- (c) only hedges used by the central counterparty to mitigate its exposure to CVA risk, and managed as such, shall be eligible for inclusion in the calculation of the central counterparty's relevant required amount of capital for CVA risk;
- (d) the only hedges eligible for inclusion in the calculation of the central counterparty's required amount of capital for CVA risk shall be single-name credit default swaps, single-name contingent credit default swaps, other equivalent hedging instruments referencing the counterparty directly, and index credit default swaps, that is, counterparty risk hedges other than the instruments specified above shall be excluded from the calculation of the central counterparty's relevant required amount of capital for CVA risk;
- (e) no tranching or nth-to-default credit default swaps shall constitute an eligible CVA hedge;
- (f) any eligible hedge included in the relevant required amount of capital for CVA risk shall be removed from the central counterparty's relevant calculation of required capital for market risk;
- (g) the central counterparty must exclude from the additional required amount of capital for CVA risk-
- (i) transactions with a central counterparty; and
 - (ii) securities financing transactions, provided that when securities financing transactions exposures are deemed by the Authority to be material, the Authority may in writing instruct a central counterparty to include in its relevant calculations CVA loss exposures arising from securities financing transactions.

27.2 Exposure to central counterparties, counterparties, clearing members and matters related to delivery-versus-payment transactions and non-delivery-versus-payment or free-delivery- transactions

(1) A licensed central counterparty must calculate its exposure to another central counterparty arising from any relevant OTC derivative, exchange traded derivative instrument or securities financing transaction, and the central counterparty's related required amount of capital, in accordance with the relevant requirements specified in these Regulations, including-

- (a) any relevant exposures arising from the settlement of cash transactions in respect of equities, fixed income, foreign exchange spot contract or spot commodities must be calculated in accordance with the relevant requirements specified below related to delivery versus payment transactions, and non- delivery versus payment or free delivery transactions.
- (b) any delivery-versus-payment transaction, that is, any transaction settled through a delivery-versus-payment system,-
- (i) which system makes provision for the simultaneous exchanges of securities for cash, including payment versus payment;
 - (ii) which transaction exposes the central counterparty to a risk of loss equal to the difference between the transaction valued at the agreed settlement price and the transaction valued at current market price, that is, the positive current exposure amount;
 - (iii) which transaction may include the settlement of commodities; foreign exchange; securities; and settlement through a licensed exchange, licensed central securities depository, licensed clearing house or licensed central counterparty, and which transactions are subject to daily mark-to-market, payment of daily variation margins and involve a mismatched trade;
- (c) any non-delivery-versus-payment or free-delivery transaction, that is, any transaction in respect of which cash is paid out without receipt of the contracted receivable, which receivable may include a security, foreign currency, gold or a commodity, or conversely, any transaction in respect of which deliverables were delivered without receipt of the contracted cash payment, which transaction exposes the central counterparty to a risk of loss equal to the full amount of the cash amount paid or deliverables delivered, calculate its required amount of capital in accordance with the relevant requirements specified in these Regulations.

- (2) Sub-regulation (1) does not apply to-

- (a) to any repurchase agreement, resale agreement, securities lending transaction or securities borrowing transaction that has failed to settle,
- (b) to any forward contract or one-way cash payment due in respect of an OTC derivative,

which agreement, contract or transaction must be subject to the relevant requirements specified in these Regulations.

(3) In the case of a system wide failure of a settlement or clearing system, or a central counterparty, the Authority may, subject to such conditions as may be determined by the Authority, exempt a central counterparty from the requirements specified in sub-regulation (4).

- (4) A central counterparty must-
- (a) in the case of any delivery-versus-payment transaction in respect of which payment has not taken place in the period of five business days after the contracted settlement date, calculate its required amount of capital by multiplying the relevant positive current exposure amount with the relevant percentage specified in the Table below.

Number of working days after the contracted settlement date	Risk multiplier
From 5 to 15	8%
From 16 to 30	50%
From 31 to 45	75%
46 or more	100%

- (b) in the case of any non-delivery-versus-payment or free-delivery transaction, after the first contractual date relating to payment or delivery when the relevant second leg has not been received at the end of the relevant business day, treat the relevant payment made as a loan exposure, that is, a central counterparty that adopted the standardised approach must calculate its risk-weighted exposure and related required amount of capital in accordance with the relevant requirements specified in this Regulation, provided that when the relevant exposure amount is not material, the central counterparty may choose to apply a risk weight of 100% to the exposure amount; and when five business days have lapsed following the second contractual payment or delivery date and the second leg has not effectively taken place, the central counterparty that made the first payment leg must deduct from its capital the full amount of value transferred plus any relevant replacement cost until the second payment or delivery leg is effectively made.

(5) A central counterparty must ensure that it continuously maintains sufficient capital for all relevant exposures related to counterparty credit risk, including in respect of any relevant exposure to a qualifying central counterparty, that is, the central counterparty must, consider whether it needs to maintain capital in excess of the minimum required capital specified in terms of the provisions of this Regulation when the central counterparty's relevant transactions with a qualifying central counterparty give rise to more risky exposures than what is envisaged in these Regulations or when the central counterparty is uncertain whether or not the relevant counterparty may indeed be regarded as a qualifying central counterparty.

(6) A central counterparty must on a regular basis monitor and report to its senior management and the appropriate committee of the central counterparty's controlling body.

(7) When a central counterparty interoperates with a qualifying central counterparty, it must, in respect of all relevant OTC derivatives, exchange traded derivative instruments and securities financing transactions, apply a risk weight of 2% to the central counterparty's relevant trade exposure to the qualifying central counterparty, provided that-

- (a) the central counterparty must calculate the relevant exposure amount for such trade exposure in accordance with the relevant requirements related to the current exposure method specified in the Regulations, provided that the relevant netting set does not contain illiquid collateral or exotic trades and provided there are no disputed trades;
- (b) when settlement is legally enforceable on a net basis in an event of default and regardless of whether the counterparty is insolvent or bankrupt, the central counterparty may calculate the relevant total replacement cost of all contracts relevant to the trade exposure on a net replacement cost basis, provided that the relevant close-out netting sets must comply with all the relevant requirements specified in these Regulations;
- (c) when a central counterparty is unable to demonstrate to the satisfaction of the Authority that all relevant netting agreements meet the requirements in these Regulations, it must regard each relevant single transaction as a netting set of its own for purposes of calculating its relevant trade exposure amount.

(8) Subject to the prior written approval of and such conditions as may be determined by the Authority, when a central counterparty no longer meets the relevant requirements related to a qualifying central counterparty, the central counterparty must immediately notify the Authorities and may continue to treat all relevant transactions with that counterparty in accordance with the relevant requirements specified in these Regulations for a maximum period of up to three months following the date on which that central counterparty no longer meets the requirements, where after the central counterparty must calculate its relevant exposure and the related required amount of capital in accordance with the relevant requirements specified in these Regulation.

27.3 Exposures to qualifying central counterparties

(1) Any asset or collateral posted or provided must, from the perspective of the central counterparty posting or providing such collateral, be assigned the relevant risk weight that otherwise applies to such asset or collateral in terms of the relevant requirements specified in these Regulations, regardless of the fact that such asset has been posted or provided as collateral, provided that-

- (a) when an asset or collateral of a clearing member or client is posted with or provided to a qualifying central counterparty, and the asset or collateral is not held in an insolvency remote manner, the central counterparty posting or providing such asset or collateral must also recognise the related credit risk, based upon the asset or collateral being exposed to risk of loss that is based on the creditworthiness of the entity or person holding such asset or collateral, provided that-
- (i) when the entity or person holding such asset or collateral is the qualifying central counterparty, a risk weight of 2% applies to collateral included in the definition of trade exposure;
- (ii) the relevant risk weight of the qualifying central counterparty applies to assets or collateral posted or provided for any purpose other than the situation provided for in subparagraph (i);
- (b) collateral posted or provided by the central counterparty, including cash, securities, other pledged assets, and excess initial or variation margin, which is often being referred to as over-collateralisation, that is held by a custodian, and is insolvency remote from the relevant qualifying central counterparty, may not be subject to a capital requirement for counterparty credit risk exposure to such insolvency remote custodian, and for purposes of this Regulation,

27.4 Exposures to non-qualifying central counterparties

A central counterparty must apply in respect of its trade exposure to a non-qualifying central counterparty, based on the relevant type or category of counterparty credit exposure, the relevant requirements in these Regulations for the standardised approach for the measurement of its exposure to credit risk.

28. Calculation requirements of the minimum required capital for CVA risk

In terms of the minimum required capital for CVA risk, calculated in terms of the standardised approach, a central counterparty must calculate the relevant additional required amount of capital on a portfolio basis in accordance with the formula specified below:

$$K = 2.33 * \sqrt{h} * \sqrt{(A - B)^2 + C}$$

where:

$$A = \sum_i 0.5 * w_i * (M_i * EAD_i^{total} - M_i^{hedge} B_i)$$

$$B = \sum_{ind} w_{ind} * M_{ind} * B_{ind}$$

$$C = \sum_i 0.75 * w_i^2 * (M_i * EAD_i^{total} - M_i^{hedge} B_i)^2$$

$$H = \text{one-year risk horizon, in units of a year, } h = 1.$$

$$w_i = \text{the weight applicable to counterparty 'i', provided that -}$$

(i) based on its external rating, counterparty 'i' shall be mapped to one of the seven weights specified in Table 30(A) set out in Schedule A;

(ii) subject to the prior written approval of and such conditions as may be imposed by the Authority, when a counterparty does not have an external rating, the central counterparty must map the relevant internal rating of the counterparty to one of the relevant external ratings specified above. Where a central counterparty does not have a rating and is considered to be unrated, the BBB rating should be used.

$$EAD_i^{total} = \text{the exposure at default of counterparty 'i', aggregated across all relevant netting sets, including the effect of any relevant collateral in accordance with the relevant requirements specified in these Regulations, provided that in the case of-}$$

- (i) the central counterparty's exposure to counterparty risk, the central counterparty must apply the following discounting factor to the exposure:

$$(1 - \exp(-0.05 * M_i)) / (0.05 * M_i);$$

B_i = is the notional amount of purchased single name credit default swaps hedges, which notional amounts shall be aggregated in the case of more than one position referencing counterparty 'i', and used to hedge the central counterparty's exposure to CVA risk, provided that the central counterparty must apply the following discounting factor to the relevant notional amount:

$$(1 - \exp(-0.05 * M_i^{\text{hedge}})) / (0.05 * M_i^{\text{hedge}})$$

B_{ind} = the full notional amount of one or more index credit default swaps of purchased protection, used to hedge the central counterparty's exposure to CVA risk, provided that the central counterparty must apply the following discounting factor to the relevant notional amount:

$$(1 - \exp(-0.05 * M_{\text{ind}})) / (0.05 * M_{\text{ind}})$$

W_{ind} = the relevant weight applicable to index hedges, provided that the central counterparty must map indices to one of the seven weights (w_i) specified in Table 30A, based on the average spread of index 'ind'

M_i = the effective maturity of the relevant transactions with counterparty 'i', provided that-

- (i) M_i shall be the notional weighted average maturity as envisaged in (ii) below provided that M_i shall for purposes of this calculation not be capped at 5 years;
- (ii) in the case of derivative instruments subject to master netting agreements, the central counterparty must use the notional amount of each transaction to calculate the weighted average maturity of the transactions, which weighted average maturity shall be used in respect of the explicit maturity adjustment, provided that the effective maturity of the relevant exposure shall be equal to the higher of one year; or the remaining effective maturity of the exposure, provided that the calculated maturity shall be limited to five years.

M_i^{hedge} = the maturity of the hedge instrument with notional B_i, provided that in the case of several positions the central counterparty must aggregate the relevant quantities M_i^{hedge} * B_i

M_{ind} = the maturity of the index hedge 'ind', provided that in the case of more than one index hedge position, it must be the relevant notional weighted average maturity;

provided that, subject to the prior written approval of, and such conditions as may be determined by the Authority, when a counterparty is also a constituent of an index on which a credit default swap is used to hedge the central counterparty's exposure to counterparty credit risk, the notional amount attributable to that relevant single name, as per its reference entity weight, may be subtracted from the relevant index credit default swap notional amount and treated as a single name hedge (B_i) of the individual counterparty with maturity based on the maturity of the index.

29. Calculation of a central counterparty's credit exposure in terms of the current exposure method

29.1 Matters relating to the exposure amount or exposure at default

A central counterparty that adopts the current exposure method for the measurement of its exposure to counterparty credit risk-

- (a) must, in respect of each relevant transaction, contract or netting set, calculate the relevant replacement cost or net replacement cost of the transaction, contract or netting set;
- (b) must, in respect of each relevant netting set, multiply the relevant notional principle amount with the relevant credit conversion factors specified in Table 27(B) in Schedule A in order to calculate the relevant required add-on amount, which

must be calculated independent from and irrespective of the relevant replacement cost or value calculated in terms of paragraph (a);

- (c) may recognise eligible collateral obtained in respect of its exposure to counterparty credit risk in accordance with the relevant requirements in Regulation 26;
- (d) must, in the case of any single name credit derivative instrument held in its book, calculate the its exposure amount or exposure-at-default through the application of the relevant potential future exposure add-on factors specified in Table 27(C) in Schedule A;
- (e) must, in the case of any qualifying credit derivative instrument held in respect of an exposure, calculate the central counterparty's required amount of capital in accordance with the relevant requirements in Regulation 26;
- (f) may, in respect of any OTC derivative transaction subject to novation or a legally enforceable bilateral netting agreement, recognise the effect of the novation or netting agreement, provided that the central counterparty at all times complies with the relevant requirements specified in Regulation 29.2;
- (g) must calculate its adjusted exposure amount or exposure-at-default through the application of the formula specified below, which formula is designed to recognise the effect of collateral and any volatility in the amount relating to the collateral, and, when relevant, the effect of any legally enforceable bilateral netting agreement. The formula is expressed as:

$$E^* = (RC + \text{Add-on}) - C_A$$

where:

RC = the relevant current replacement cost, or
when the central counterparty has in place a legally enforceable netting agreement that complies with Regulation 29.2 below, the current net replacement cost of the relevant netting set, that is, when the central counterparty has in place a legally enforceable netting agreement the central counterparty may net off positive market values against negative market values in order to calculate a single net current exposure for all transactions covered by the netting agreement, subject to a minimum value of zero

Add-on = the estimated amount relating to the potential future exposure, or
when the central counterparty has in place a legally enforceable netting agreement that complies with Regulation 29.2 below, the adjusted add-on amount, that is, the add-on amount may be reduced through the application of the formula specified below, which formula is designed to recognise reductions in the volatility of current exposures resulting from netting agreements

$$A_{\text{net}} = 0.4(A_{\text{gross}}) + 0.6(\text{NGR} \times A_{\text{gross}})$$

where:

A_{net} = the adjusted add-on for all contracts subject to the bilateral netting contract

A_{gross} = the sum of the gross add-ons for the contracts covered by the netting agreement. **A_{gross}** is equal to the sum of individual add-on amounts, calculated by multiplying the relevant notional principal amount with the relevant specified add-on factor, of all transactions subject to the bilateral netting contract

NGR = the ratio of the net current exposure of the contracts included in the bilateral netting agreement to the gross current exposure of the said contracts

C_A = the volatility adjusted collateral amount calculated in accordance with the relevant requirements of the comprehensive approach in Regulation 26 or zero in the absence of eligible collateral, provided that the central counterparty must apply the relevant haircut for currency risk, that is, H_{ix} , when a mismatch exists between the collateral currency and the settlement currency. Even when more than two currencies are involved in the exposure, collateral and settlement currency, the central counterparty must, based on the frequency of mark-to-market, apply a single haircut assuming a 10-business day holding period, scaled up as necessary.

29.2 Matters relating to bilateral netting

A central counterparty, that adopts the current exposure method for the measurement of its exposure to counterparty credit risk, may, in the case of OTC transactions-

- (a) net transactions subject to novation, so that any obligation between the central counterparty 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, legally substituting one single amount for the previous gross obligations;
- (b) net transactions subject to any legally valid form of bilateral netting not included in paragraph (a), including any other form of novation, provided that-
 - (i) the central counterparty has in place a netting contract or agreement with the counterparty which contract or agreement creates a single legal obligation, covering all included transactions, such that the central counterparty 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 the transactions in the event of counterparty failure to perform in accordance with the contractual agreement, irrespective whether or not the failure relates to default, insolvency, liquidation or similar circumstances;
 - (ii) the central counterparty has in place written and reasoned legal opinions confirming that in the event of a legal challenge the relevant courts and administrative authorities would find the central counterparty's exposure to be the net amount in terms of the law-
 - (aa) of the jurisdiction in which the counterparty is incorporated or chartered;
 - (bb) that governs the individual transactions; and
 - (cc) that governs any contract or agreement necessary to effect the said novation or netting;
 - (iii) where the Authority is not satisfied with the legal enforceability of the agreement, neither counterparty may apply netting in respect of the relevant transactions or contracts;
 - (iv) the central counterparty has in place robust procedures to continuously monitor the legal characteristics of the netting agreement for possible changes in relevant law that may affect the legal enforceability of the agreement;
 - (v) since the gross obligations are not in any way affected, no payment netting agreement, which agreement is designed to reduce the operational costs of daily settlements, may be taken into consideration in the calculation of the reporting central counterparty's exposure amount, exposure-at-default or required capital;
 - (vi) no contract containing walk-away clauses, that is, any provision that permits a non-defaulting counterparty to make only limited payments or no payment at all to the estate of a defaulter, even when the defaulter is a net creditor, shall be eligible for netting in terms of these Regulations;
 - (vii) the exposure amount or exposure-at-default is the sum of the net mark-to-market replacement cost, if positive, plus the add-on amount, calculated in accordance with the relevant requirements specified above.

29.3 Legal and operational criteria

(1) A central counterparty, that wishes to include in a netting set relating to a particular counterparty and the central counterparty exposures that arise from securities financing transactions or both securities financing transactions and OTC derivative contracts, must have in place a legally sound written bilateral netting agreement with that counterparty.

(2) The agreement must create a single legal obligation covering all relevant close-out netting provisions so that, the central counterparty has either a claim to receive or an obligation to pay only the net sum of the relevant positive and negative close-out amounts and mark-to-market values in the event of any failure of the counterparty to perform in accordance with the transactions, contracts or agreements, irrespective whether or not the failure relates to default, insolvency proceeding or similar circumstances, provided that-

- (a) the central counterparty has in place written and reasoned legal opinions that conclude, with a high degree of certainty, that in the event of legal challenge the relevant courts or administrative authorities would find the central counterparty's exposure in terms of the cross-product netting agreement to be the cross-product net amount under the laws of all relevant jurisdictions, and-
 - (i) which legal opinions must-
 - (aa) address the validity and enforceability of the cross-product netting agreement under its terms and the impact of the cross-product netting agreement on the material provisions of any included bilateral master agreement;
 - (bb) be based on the legal framework of the relevant jurisdictions or communities;
 - (ii) which laws of all relevant jurisdictions include-
 - (aa) the law of the jurisdiction in which the counterparty is incorporated;
 - (bb) the law that governs the relevant individual transactions;
 - (cc) the law that governs any contract or agreement necessary to effect the netting; and
- (b) the central counterparty must-
 - (i) have in place robust internal procedures to verify, prior to including a transaction in a netting set, that the transaction is covered by legal opinions that comply with the criteria in paragraph (a);
 - (ii) regularly update all relevant legal opinions in order to ensure continued enforceability of the cross-product netting agreement in light of any possible changes in relevant law;

- (iii) ensure that the cross-product netting agreement does not contain any walk-away clause, that is, a provision that permits a non-defaulting counterparty to make only limited payments or no payment at all to the estate of the person that defaulted, even when the defaulting person is a net creditor;
- (iv) ensure that each relevant bilateral master agreement and transaction included in a cross-product netting agreement continuously complies with any relevant legal requirement in these Regulations that may have an impact on the legal recognition or enforceability of the bilateral agreement, contract or transaction;
- (v) maintain records of all relevant and required documentation;
- (vi) aggregate the relevant credit risk amounts relating to each relevant counterparty in order to obtain the single legal exposure amount across products and transactions covered by the cross-product netting agreement, which aggregated amount, among other things, must form part of the central counterparty's risk management processes relating to credit risk, credit limits and economic capital; and
- (vii) demonstrate to the satisfaction of the Authority that the central counterparty effectively integrates the risk-mitigating effects of cross-product netting into its risk management and other information technology systems.

(3) This Regulation does not make the close-out netting provision or the obligation thereunder enforceable and valid, if it would have been otherwise unenforceable or invalid in whole or in part in terms of the relevant law on grounds of fraud or other reasons affecting the validity and enforceability thereof.

(4) The operation of the close-out netting provisions in these Regulations or the obligations thereunder are not dependant on the compliance with any requirement to report data relating to the obligations to a trade repository or any regulator.

30. Specific capital calculation requirements for market risk

- (1) A central counterparty-
- (a) must, at all times hedge out all open market risk¹³ due to trading with its clearing members, and if any market risk remains, it must be covered by matching or moving the trades to another clearing member;
 - (b) may only report¹⁴ in terms of this Regulation, capital requirements for market risk, which are not already covered by specific financial resources, that is, risk that originates directly from clearing activities;
 - (c) must measure and report its exposure to market risk or position risk arising from its activities in respect of-
 - (i) the current market value of any interest rate related instrument held by the reporting central counterparty;
 - (ii) any foreign exchange instrument held by the reporting central counterparty;
 - (d) based on the formula specified below, must calculate the central counterparty's required capital adequacy ratio to convert the central counterparty's required amount of capital calculated in accordance with the relevant requirements specified in these Regulations to the required risk-weighted exposure amount.

$$RWE = K \times 12.5$$

where:

- RWE** = the required risk-weighted exposure amount
- K** = the required amount of capital calculated in accordance with the relevant requirements specified in these Regulations.

- (e) may not have direct exposures to equity unless approved by the Authority; and
- (f) may not have direct exposures to commodities for its own book.

(2) A central counterparty must use the standardised approach specified in Regulation 30.2 for the measurement of a central counterparty's exposure to market risk (position risk), which standardised approach is based on a building-block method.

30.1 Aggregate required amount of capital relating to market risk

(1) A central counterparty's aggregate required amount of capital relating to market risk must be equal to the sum of the amounts calculated in accordance with the relevant requirements specified in respect of the standardised approach.

¹³ Market risk may also arise from other investment or hedging activities and capital should be held according to such method as specified in these Regulations. Capital requirements for market risk are calculated using position risk adjustment factors applied to market values of the positions held by the central counterparty.

¹⁴ The reporting returns stipulating the required market risk exposures will be published by the Authority. The content of the relevant returns to be completed for market risk purposes is confidential and not available for inspection by the public.

- (2) A central counterparty must-
- (a) in the calculation of its exposure to market risk and the related required amount of capital, from the date on which the relevant transaction was entered into, include all relevant on-balance sheet and off-balance sheet transactions, including any forward sale or purchase transaction;
 - (b) manage its exposure to market risk arising from all relevant positions held in such a manner that the central counterparty continuously complies, that is, at the close of each business day, with the relevant prescribed minimum required amount of capital relating to market risk, if such a capital amount exceeds the specific financial resources;
 - (c) have in place robust risk management policies, procedures, processes and systems to ensure that the central counterparty's intraday exposures to market risk are within the approved internal limits set by the central counterparty;
 - (d) have in place a written controlling body approved policy and procedures, which policy and procedures must-
 - (i) specify the central counterparty's appetite for open positions, including the nature and extent to which the central counterparty will guarantee returns on its liabilities;
 - (ii) set out the time-line allowable to have un-hedged trades between clients (i.e. market risk) before such a trade is closed out;
 - (iii) detail the central counterparty's risk management capabilities and practices;
 - (iv) be sufficiently robust to ensure the central counterparty's continued compliance with these Regulations, including compliance with-
 - (aa) the minimum required capital; and
 - (bb) all the relevant requirements specified in the controlling body-approved policy, which compliance must be documented and be subject to periodic independent review;
 - (v) be reviewed by the central counterparty on a regular basis but not less frequently than once a year;
 - (vi) specify-
 - (aa) its exposures to be marked-to-market on a daily basis by reference to an active liquid two-way market;
 - (bb) the extent to which the central counterparty is able to and required to obtain or derive valuations for exposures, which valuation may be externally validated in a consistent manner, especially in the event of client default;
 - (cc) the extent to which legal restrictions or other operational requirements may impede the central counterparty's ability to effect an immediate liquidation of relevant exposure;
 - (dd) the extent to which the central counterparty is able to actively manage all relevant open exposures within its operations;
 - (ee) in the case of exposures that are marked-to-model, specify the extent to which the central counterparty is able to-
 - (AA) identify the material risks relating to the relevant exposures;
 - (BB) hedge the material risks arising from the exposures and the extent to which any hedging instrument would have an active, liquid two-way market;
 - (CC) derive reliable estimates for the key assumptions and parameters used in the central counterparty's model;
 - (e) based on the relevant requirements relating to securities in foreign exchange held, calculate and maintain capital in respect of such securities or positions held;
 - (f) implement a robust risk management framework as contemplated in Regulation 13, for the prudent valuation of positions held by the central counterparty;
 - (g) whenever relevant or required for reporting or calculation purposes, unless expressly stated otherwise in these Regulations, convert all relevant gross or net foreign exchange positions at the prevailing spot exchange rate.

30.2 The Standardised Approach

General and specific risk

(1) The position risk on a traded debt instrument or equity, or debt or equity derivative instrument, must be divided into the following two components in order to calculate the capital required against it:

- (a) Specific-risk component - this is the risk of a price change in the instrument concerned due to factors related to its issuer or, in the case of a derivative instrument, the issuer of the underlying instrument.
- (b) General risk component - this is the risk of a price change in the instrument due (in the case of a traded debt instrument or debt derivative instrument) to a change in the level of interest rates or (in the case of an equity or equity derivative instrument) to a broad equity-market movement unrelated to any specific attributes of individual securities.

(2) A central counterparty must on a daily basis and in accordance with the relevant requirements specified, separately calculate its exposure to-

- (a) specific risk and general market risk arising from all relevant debt and equity positions held;
- (b) foreign exchange risk arising from all relevant foreign currency held by the central counterparty;
- (c) risks arising from all relevant positions in options.

- (3) A central counterparty, when calculating net positions for market risk purposes,—
- (a) must at all times run a “matched-book”, that is any position taken on with one counterparty must always be offset by an opposite position taken on with a second counterparty;
- (b) may not take on any market risk for its own account in its normal course of clearing business;¹⁵
- (c) must on a daily basis convert all net positions, irrespective of their signs, into its reporting currency at the prevailing spot exchange rate before their aggregation.
- (4) When calculating underlying notionals, a central counterparty must apply the following principles:
- (a)
- (i) Interest-rate futures, forward-rate agreements and forward commitments to buy or sell debt instruments must be treated as combinations of long and short positions.¹⁶ Thus a long interest-rate futures position must be treated as a combination of a borrowing maturing on the delivery date of the futures contract and a holding of an asset with maturity date equal to that of the instrument or notional position underlying the futures contract in question.
- (ii) As in subparagraph (i), a sold forward-rate agreement will be treated as a long position with a maturity date equal to the settlement date plus the contract period, and a short position with maturity equal to the settlement date. Both the borrowing and the asset holding must be included in the first category set out in Table 30(A), in Schedule A, in order to calculate the capital required against specific risk for interest-rate futures and forward-rate agreements.
- (iii) A forward commitment to buy a debt instrument will be treated as a combination of a borrowing maturing on the delivery date and a long (spot) position in the debt instrument itself. The borrowing must be included in the first category set out in Table 30(A) for purposes of specific risk, and the debt instrument under whichever column is appropriate for it in the same table.
- (b)
- (i) Options on interest rates, debt instruments, equities, equity indices, financial futures, swaps and foreign currencies will be treated as if they were positions equal in value to the amount of the underlying instrument to which the option refers, multiplied by its delta for the purposes of these Regulations.
- (ii) The positions referred to in subparagraph (i) may be netted off against any offsetting positions in the identical underlying securities or derivative instruments. The delta used must be that of the exchange concerned, calculated by the Authorities, or where that is not available or for OTC-options that calculated by the institution itself, subject to the Authority being satisfied that the model used by the institution is reasonable. Provided that the Authority may—
- (aa) prescribe that institutions calculate their deltas using a methodology determined by the Authority. Other risks, apart from the delta risk, associated with options must be safeguarded against.
- (bb) allow the requirement on a bought exchange-traded or OTC option to be the same as that for the instrument underlying it, subject to the constraint that the resulting requirement does not exceed the market value of the option. The requirement against a written OTC option must be set in relation to the instrument underlying it.
- (iii) Warrants relating to debt instruments and equities must be treated in the same way as options.
- (c) Swaps must be treated for interest-rate risk purposes on the same basis as on-balance-sheet instruments. Thus, an interest-rate swap under which an institution receives floating-rate interest and pays fixed-rate interest must be treated as equivalent to a long position in a floating-rate instrument of maturity equivalent to the period until the next interest fixing and a short position in a fixed-rate instrument with the same maturity as the swap itself.
- (d) *Treatment of the protection buyer*
- (i) For the party who transfers credit risk (the ‘protection buyer’), the positions are determined as the mirror image of the protection seller, with the exception of a credit linked note (which entails no short position in the issuer). If at a given moment there is a call option in combination with a step-up, such moment is treated as the maturity of the protection. Positions are determined as follows:
- (aa) A total return swap creates a long position in the general market risk of the reference obligation and a short position in the general market risk of a government bond with a maturity equivalent to the period until the next interest fixing and which is assigned a 0% risk weight, as specified in Table 26(A) in Schedule A. It also creates a long position in the specific risk of the reference obligation.
- (bb) A credit default swap does not create a position for general market risk. For the purposes of specific risk, the institution must record a synthetic long position in an obligation of the reference entity, in which case a long position in the derivative instrument is recorded. If premium or interest payments are due under the product,

¹⁵ The excess of an institution’s long (short) positions over its short (long) positions in the same equity, debt and convertible issues and identical financial futures, options, warrants and covered warrants shall be its net position in each of those different instruments

¹⁶ ‘Long position’ means a position in which an institution has fixed the interest rate it will receive at some time in the future, and ‘short position’ means a position in which it has fixed the interest rate it will pay at some time in the future.

- these cash flows must be represented as notional positions in government bonds.
- (cc) A single name credit linked note creates a long position in the general market risk of the note itself, as an interest rate product. For the purpose of specific risk, a synthetic long position is created in an obligation of the reference entity. An additional long position is created in the issuer of the note.
- (e) A central counterparty that marks-to-market and manages the interest-rate risk on the derivative instruments covered in Regulation 30.2(4)(a) to c) on a discounted-cash-flow (basis, may use sensitivity models to calculate the positions referred to in those points and may use them for any bond which is amortised over its residual life rather than via one final repayment of principal. Both the model and its use by the institution must be approved by the Authority. These models should generate positions which have the same sensitivity to interest-rate changes as the underlying cash flows. This sensitivity must be assessed with reference to independent movements in sample rates across the yield curve, with at least one sensitivity point in each of the maturity bands set out in Table 30(B) in Schedule A. The positions must be included in the calculation of capital requirements.
- (f) A central counterparty may, with the approval of the Authority, treat as offsetting any positions in derivative instruments covered in Regulation 30.2(4)(a) to (c) which meet the following conditions-
- (i) the positions are of the same value and denominated in the same currency;
 - (ii) the reference rate (for floating-rate positions) or coupon (for fixed-rate positions) is closely matched; and
 - (iii) the next interest-fixing date or, for fixed coupon positions, residual maturity corresponds with the following limits:
 - (aa) less than one month hence: same day;
 - (bb) between one month and one year hence: within seven days; and
 - (cc) over one year hence: within 30 days.
- (5) A central counterparty must, when dealing with matters relating to debt securities and other interest rate related instruments, apply the following principles:
- (a) Based on these requirements, in respect of any relevant position in a debt security or interest rate instrument held by the central counterparty, including-
- (i) any fixed-rate debt security or floating-rate debt security, or similar instrument;
 - (ii) any non-convertible preference share; and
 - (iii) any convertible debt instrument or preference share trading in a manner similar to a debt security,
- net positions must be classified according to the currency in which they are denominated and the central counterparty must calculate the capital requirement for general and specific risk in each individual currency separately.
- (b) A central counterparty, for matters relating to specific risk, -
- (i) may, in the calculation of the its risk position offset matching positions in respect of identical instruments, including any relevant position arising from a derivative instrument, that is, even when the issuer of instruments is the same, the central counterparty may not offset positions arising from different issues since, for example, differences in coupon rates, liquidity or call features may cause prices to diverge in the short-term;
 - (ii) must, in respect of any relevant net short or long position relating to a government, qualifying, specified non-qualifying or other exposure, calculate its capital requirement relating to specific risk in accordance with the relevant requirements specified in Table 30(A) in Schedule A;
 - (iii) must, in respect of any relevant position hedged by a credit-derivative instrument, calculate its specific risk capital requirement in accordance with the relevant requirements specified below:

When-

 - (aa) the values of the relevant long leg and short leg always move in opposite directions, and materially to the same extent, that is, when-
 - (AA) the two legs consist of identical instruments, or
 - (BB) a long cash position is hedged by a total return swap, or *vice versa*, and an exact match exists between the reference obligation and the underlying exposure, that is, the cash position, irrespective whether or not the maturity of the said swap contract differs from the maturity of the relevant underlying exposure,

the reporting central counterparty may offset the two sides of the position, that is, the reporting central counterparty is relieved from any specific risk capital requirement in respect of the hedged position.
 - (bb) the values of the relevant long leg and short leg always move in opposite directions, but not to the same extent, that is, when a long cash position is hedged by a credit default swap or credit linked note, or *vice versa*, and in all cases an exact match exists in respect of the reference obligation, the maturity of the reference obligation and the credit derivative instrument, and the currency to the underlying exposure, the reporting central counterparty may apply an 80% specific risk offset in respect of the side of the transaction with the higher capital requirement, and a specific risk requirement of zero in respect of the other leg, provided

that-

- (AA) the key features of the credit derivative instrument, such as the credit event definitions and settlement mechanism, may not cause the price movement of the credit derivative instrument materially to deviate from the price movement of the cash position; and
 - (BB) based on matters such as restrictive pay-out provisions, such as fixed pay-outs and materiality thresholds, the transaction shall materially transfer risk;
- (cc) the values of the relevant long leg and short leg usually move in the opposite direction, that is-
- (AA) a long cash position is hedged by a total return swap, or *vice versa*, as envisaged in paragraph (b)(iii)(aa)(BB) above, but an asset mismatch exists between the reference obligation and the underlying exposure, and the requirements relating to an asset mismatch specified in Regulation 26.6(17)(a)(xxiii) above are met;
 - (BB) the relevant two legs relate to identical instruments as envisaged in paragraph (b)(iii)(aa)(AA) above but a currency or maturity mismatch exists between the credit protection and the underlying asset;
 - (CC) the relevant positions meet the relevant requirements specified in paragraph (b)(iii)(bb) above except that a currency or maturity mismatch exists between the credit protection and the underlying asset;
 - (DD) the relevant positions meet the relevant requirements specified in paragraph (b)(iii)(bb) above but an asset mismatch exists between the cash position and the credit derivative instrument, and the underlying asset is included in the deliverable obligations in terms of the credit derivative instrument documentation;

the reporting central counterparty must calculate and maintain a capital requirement only in respect of the side of the transaction with the highest capital requirement, that is, instead of adding the specific risk capital requirements for each side of the relevant transaction in respect of the credit protection and the underlying asset the reporting central counterparty must calculate and maintain a capital requirement only in respect of the side of the transaction that requires the highest capital requirement;

- (dd) the relevant hedged position relates to a position other than the positions envisaged in paragraph (b)(iii)(aa) to (cc), the reporting central counterparty must calculate and maintain a capital requirement in respect of both sides of the relevant transaction.
- (c) A central counterparty, for matters relating to general risk, -
- (i) may, in order to calculate its general risk requirement, apply either the maturity method prescribed in paragraph (d) or duration method prescribed in paragraph (e);
 - (ii) must apply a separate maturity ladder in respect of each relevant currency, provided that subject to the approval of and such conditions as may be determined by the Authority, the reporting central counterparty may apply a single maturity ladder in respect of currencies in which its business is insignificant, in which case the reporting central counterparty must, within each relevant time band-
 - (aa) assign the relevant net long or short position in respect of each relevant currency;
 - (bb) in order to calculate the central counterparty's relevant gross position, irrespective whether or not a net position is long or short, aggregate the relevant net long positions and relevant net short positions;
 - (iii) must, in respect of each relevant currency, separately calculate the central counterparty's relevant required amount of capital;
 - (iv) must, unless specifically otherwise provided for, base its calculation of the required amount of capital on the absolute amount of all relevant calculated positions, that is, the reporting central counterparty may not apply offsetting between calculated positions or requirements of opposite sign, provided that in respect of any debt instrument with a high yield to redemption the Authority may disallow offsetting of the relevant position against other relevant positions even when provision is otherwise made in terms of these Regulations for the central counterparty to offset the positions;
 - (v) must, in the case of a credit-default swap, include any relevant periodic premium or interest payment due as a notional position in a government bond with the relevant fixed or floating rate;
 - (vi) must, in the case of a total return swap contract, include the relevant interest rate legs of the contract as a notional short or long position, as the case may be;
 - (vii) must in accordance with the relevant requirements specified in sub-paragraph (d) or (e) calculate and maintain a capital requirement in respect of general risk equal to the sum of the specified requirements relating to-
 - (aa) the relevant net short or long position in respect of the central counterparty's entire book;
 - (bb) the relevant portion in respect of the specified offsetting positions within each relevant time-band;
 - (cc) the relevant portion in respect of the specified offsetting positions across different time-bands;
 - (dd) the relevant net requirement in respect of specified positions in options.
- (d) A central counterparty that adopted the maturity method for the measurement of its exposure to general risk, must-
- (i) assign to the relevant maturity band specified in the maturity ladder specified in Table 30(B) in Schedule A, the relevant actual or notional amount relating to each relevant long or short position in a debt security or other instrument of interest rate exposure held by the reporting central counterparty, including any relevant derivative instrument;

- provided that the central counterparty may omit from the interest rate maturity framework opposite positions of the same amount and in respect of the same issue, but not in respect of different issues by the same issuer;
- (ii) based on the relevant weights specified in Table 30(B), which weights reflect the price sensitivity of all relevant positions to assumed changes in interest rates, weight all relevant positions assigned by the central counterparty to the relevant maturity band;
 - (iii) in order to determine a single short or long position in respect of each specified maturity band, offset the weighted long positions and weighted short positions within the maturity band;
 - (iv) in respect of the lower aggregate amount of the relevant long or short positions in a particular maturity band calculate a 10% capital requirement in order to reflect basis risk and gap risk, since each relevant maturity band will include different instruments and different maturities. For example, when the sum of the weighted long positions in a particular time band is equal to R50 million and the sum of the weighted short positions in the time band is equal to R90 million, the deemed amount in respect of vertical disallowance for the particular time band shall be equal to 10% of R90 million (that is, R9.0 million);
 - (v) offset the relevant net positions within each of the relevant three time zones specified in Table 30(B), and subsequently offset the relevant calculated net positions between the three different time zones specified in Table 30(B), provided that the offsetting of net positions must be subject to a scale of disallowances, which disallowance factors are specified in Table 30(C) in Schedule A and are expressed as a fraction of the relevant calculated matched and unmatched positions, that is, the reporting central counterparty must offset the weighted long positions and weighted short positions within each of the three specified time zones and subsequently offset the residual net position in each relevant time zone against opposite positions in the other time zones, provided that the offsetting of positions within and between the relevant time zones must be subject to the disallowance factors specified in Table 30(C), which disallowance factors must constitute a separate component of the reporting central counterparty's required amount of capital;
 - (vi) maintain a capital requirement equal to 100% of any residual position not subject to any form of offsetting as envisaged in paragraph (d)(iii) to (v), provided that subject to such conditions as may be determined by the Authority, the Authority may for purposes of calculating a central counterparty's exposure to general risk disallow the reporting central counterparty to offset certain positions relating to high yield instruments against any other debt instruments;
 - (vii) in the case of residual currencies as envisaged in paragraph (c)(ii) apply the risk weights specified in Table 30(B) in respect of the gross positions calculated in respect of each relevant time band, with no further offsets;
 - (viii) maintain an aggregate capital requirement in respect of the maturity method equal to the sum of the relevant amounts specified in Table 30(B)
- (e) A central counterparty, that wishes to adopt the duration method for the measurement of its exposure to general risk¹⁷, must-
- (i) obtain the prior written approval of the Authority, and at all times, in addition to the relevant requirements specified in these Regulations, comply with such requirements as may be determined by the Authority;
 - (ii) based on-
 - (aa) the maturity of each relevant instrument;
 - (bb) the relevant requirements specified in Table 30(D) in Schedule A; and
 - (cc) the relevant requirements specified in this paragraph,
 separately measure the price sensitivity of each relevant instrument in terms of a change in interest rates of between 0.6 and 1.0 percentage points;
 - (iii) assign to the relevant time band specified in the duration-based ladder specified in Table 30(D) the calculated sensitivity measure of the relevant instrument or position;
 - (iv) in a manner similar to the method specified in paragraph (d)(iv), in order to capture basis risk in respect of the relevant long positions and short position within each relevant time band, calculate and maintain a 5% capital requirement, which capital requirement must constitute the vertical disallowance component;
 - (v) subsequently carry forward the relevant net position in each relevant time band and offset the net positions within and between the relevant time zones in accordance with and subject to the relevant requirements and horizontal disallowance factors specified in subparagraph (d)(v) and in Table 30(D);
 - (vi) maintain a capital requirement equal to 100% of any residual position not subject to any form of offsetting as envisaged in subparagraphs (e)(iv) and (v), provided that subject to such conditions as may be determined by the Authority, the Authority may for purposes of calculating a central counterparty's exposure to general risk disallow the reporting central counterparty to offset certain positions relating to high yield instruments against any other debt instruments;
 - (vii) in the case of residual currencies as envisaged in subparagraph (c)(ii), apply the assumed change in yield specified

¹⁷ The method provides a more accurate measure of the central counterparty's exposure to general risk than the maturity method due to the separate measurement of the price sensitivity of each relevant position.

in Table 30(D) in respect of the gross positions calculated in respect of each relevant time band, with no further offsets.

- (f) A central counterparty must, for matters relating to interest rate derivative instruments, -
- (i) include in its calculation of market risk exposure all interest rate derivative instruments and off-balance sheet instruments that respond to changes in interest rates, which instruments are held by the central counterparty, including any forward rate agreement, any other forward contract, any bond future, any interest rate or cross-currency swap contract or any forward foreign exchange position;
 - (ii) convert all relevant transactions in derivative instruments into positions in the relevant underlying instrument and calculate the relevant specific risk and general risk requirements in accordance with the relevant requirements specified in these Regulations, provided that the reporting central counterparty-
 - (aa) calculates all relevant capital requirements relating to derivative instruments in accordance with the relevant requirements specified in paragraph (e), that is in the case of any future or forward contract, including any forward rate agreement, the central counterparty must treat the contract as a combination of a long position and a short position in a notional government security, and the maturity of the future or forward rate agreement must be the period until delivery or exercise of the contract plus the life of the underlying instrument when relevant¹⁸;
 - (bb) in the case of a swap contract that pays or receives a fixed or floating interest rate against some other reference price, such as a stock index, includes the interest rate component in the relevant re-pricing maturity category, with the equity component being included in the equity framework in accordance with the relevant requirements specified in paragraph (g);
 - (cc) in the case of a cross-currency swap contract, reports the relevant separate legs of the contract in the relevant maturity ladders relating to the currencies concerned;
 - (dd) may, if it has a large swap book, use alternative formulae in order to calculate the swap positions to be included in the relevant maturity or duration ladder specified in Regulation 30 above and with prior written approval of, and subject to such conditions as may be determined by the Authority, provided that-
 - (AA) all relevant positions must be denominated in the same currency;
 - (BB) the calculated positions must fully reflect the sensitivity of the cash flows to interest rate changes; and
 - (CC) the reporting central counterparty must capture all relevant calculated positions in the appropriate time bands.
 - (ee) in the case of any interest rate or currency swap, forward-rate agreements, forward foreign exchange contract, interest rate future or future on an interest rate index such as JIBAR, no specific risk requirement shall apply.
- (g) A central counterparty must follow the principles below for matters relating to equity instruments and equity position risk:
- (i) Based on the relevant requirements specified in this sub-regulation, in respect of any relevant long or short equity position held by the central counterparty-
 - (aa) including-
 - (AA) any instrument that exhibits market behaviour similar to equities;
 - (BB) any ordinary shares, irrespective whether or not the shares have voting rights attached to them;
 - (CC) any commitment to buy or sell equity securities;
 - (DD) any convertible instrument that trades in a manner similar to an equity instrument;
 - (bb) excluding non-convertible preference shares, which preference shares are subject to the requirements specified in Regulation 30.2(5),

the reporting central counterparty must separately calculate the relevant minimum required amount of capital relating to specific risk and general risk, but unless specifically otherwise provided in this Regulation, the central counterparty may report long positions and short positions in respect of the same issue on a net basis.
 - (ii) In respect of a central counterparty's gross equity positions, the sum of all relevant long equity positions and all relevant short equity positions, held in its book, a central counterparty must on a market by market basis (in respect of each relevant national market or currency in which the central counterparty holds equities) calculate and maintain a minimum required amount of capital relating to specific risk, which must,-
 - (aa) in the case of a less liquid equity portfolio that complies with such requirements or criteria as may be determined by the Authority be equal to 12% of the gross equity position;
 - (bb) in all other cases, be equal to 8% of the gross equity position.
 - (iii) In respect of a central counterparty's net position in a specific equity market or equity index (the difference between the sum of all relevant long equity positions and the sum of all relevant short equity positions in a particular national equity market or equity index) held in its book, a central counterparty must calculate and maintain a minimum required amount of capital relating to general risk equal to 8% of the net equity position.

¹⁸ For example, a long position in a June three month interest rate future, which contract is concluded in April, shall be reported as a long position in a government security with a maturity of five months and a short position in a government security with a maturity of two months.

- (iv) A central counterparty must include all equity derivative instruments and off-balance sheet positions that are affected by changes in equity prices, including any future or swap contract on individual equities or stock indices, and the central counterparty must-
- (aa) measure and report any equity position arising from an option contract in accordance with the relevant requirements in this sub-regulation;
 - (bb) convert all relevant derivative positions into notional equity positions in the relevant underlying instruments;
 - (cc) report any future or forward contract relating to an individual equity at the current market price;
 - (dd) treat any equity swap contract as two notional positions;
 - (ee) "carve out" any equity option or stock index option with its associated underlying and incorporate the relevant position in the measure of general market risk¹⁹.
- (h) A central counterparty must follow the principles set out below for matters relating to foreign exchange risk:
- (i) Based on the relevant requirements specified in this sub-regulation, a central counterparty must in the calculation of its minimum required amount of capital relating to foreign exchange risk, separately calculate-
 - (aa) its exposure in respect of each relevant single foreign currency;
 - (bb) the risks inherent in its mix of all relevant long and short positions in different foreign currencies.
 - (ii) In respect of each relevant foreign currency, a central counterparty must calculate its net open foreign-currency position as the sum of-
 - (aa) its net spot position, that is, all relevant asset items less all relevant liability items, including any relevant amount of accrued interest;
 - (bb) its net forward position, that is, all relevant amounts to be received less all relevant amounts to be paid in respect of any forward foreign exchange transaction or futures transaction, including any currency future and the principal amount relating to a currency swap not included in the spot position;
 - (cc) any relevant guarantee or similar instrument that is certain to be called, and is likely to be irrecoverable;
 - (dd) any net future income or expense not yet accrued but already fully hedged;
 - (ee) any other relevant item representing a profit or loss in foreign currency;
 - (ff) the net delta equivalent value relating to all relevant foreign currency;
 - (iii) In respect of item (h)(ii)(aa) to (h)(ii)(ff) above, the central counterparty-
 - (aa) must separately report all relevant positions in composite currencies, and in order to measure its open foreign-currency position, it may either treat the currencies as a currency in its own right or split the currencies into their component parts;
 - (bb) may treat as a single currency any currency pair that is subject to a legally enforceable inter-governmental agreement in terms of which the respective currencies are linked;
 - (cc) must include as a position any accrued interest, that is, interest earned but not yet received, or accrued expenses;
 - (dd) may exclude from its calculation any unearned but expected future interest and anticipated expenses unless the amounts are certain and the central counterparty has entered into a hedge in respect of the interest or expense item, provided that when the central counterparty includes in its calculation any future income or expense as envisaged in this subparagraph, it must consistently include the amounts in all relevant calculations and not selectively include only expected future flows that reduce its foreign-currency position;
 - (ee) in respect of any relevant forward currency position, must value the position based on current spot market exchange rates instead of forward exchange rates, provided that when the central counterparty reports in its management accounts the net present values of the forward positions, it must use the net present value in respect of each relevant forward, which positions must be discounted using current interest rates and valued based on current spot rates in order to measure the central counterparty's forward currency;
 - (ff) may exclude from its relevant calculation of minimum required capital relating to foreign exchange risk items such as investments in non-consolidated subsidiaries, which investments constitute deductions against the central counterparty's capital.
 - (iv) In order to measure a central counterparty's exposure to foreign exchange risk arising from a portfolio of foreign currency positions, the central counterparty may apply the shorthand method specified in subparagraph (v);
 - (v) In terms of the shorthand method all relevant currencies is treated in an equal manner; and when the reporting central counterparty adopts the shorthand method,–

¹⁹ For example, the central counterparty must treat an equity swap contract in terms of which the central counterparty receives an amount based on the change in value of one particular equity or stock index and pays a different index as a long position in the former and a short position in the latter. When one of the legs involves receiving/paying a fixed or floating interest rate, the central counterparty must report the relevant exposure in accordance with the relevant requirements for interest rate related instruments specified above.

- (aa) it must convert into Rand, at the relevant spot rates, the relevant nominal amount or net present value, as the case may be, of the net position calculated in respect of each relevant foreign currency;
- (bb) its overall net foreign-currency position shall be deemed to be equal to the greater of the sum of its net short positions or the sum of the its net long positions;
- (cc) its required amount of capital must be equal to 8% of the overall net open foreign-currency position calculated in accordance with the requirements specified in item (bb) above;

31. Liquidity risk

31.1 Specific requirements for liquidity risk

(1) As contemplated in Regulation 39, a central counterparty must invest its financial resources only in cash or highly liquid securities.

- (2) The fundamental characteristics of highly liquid securities, as a minimum, mean-
- (a) low credit and market risk, that is, for example-
 - (i) assets or instruments that are less risky tend to have higher liquidity;
 - (ii) a high credit standing of an issuer and a low degree of subordination increases an asset or instrument's liquidity;
 - (iii) low duration, low volatility, low inflation risk and denomination in a convertible currency with low foreign exchange risk enhances an asset or instrument's liquidity;
 - (b) ease and certainty of valuation, that is, for example:
 - (i) an asset or instrument's liquidity increases if market participants are more likely to agree on its valuation;
 - (ii) the pricing formula of the asset or instrument does not contain strong assumptions;
 - (iii) the inputs into the pricing formula are publicly available;
 - (c) low correlation with risky assets, for example, the asset or instrument is not subject to wrong way risk (highly correlated risk);
 - (d) the asset or instrument is listed on a licensed exchange or external exchange.

- (3) The market related characteristics, as a minimum, mean-
- (a) the existence of an active and sizeable market, which may be evidenced by factors such as a large number of market participants, high trading volume and historical evidence of market breadth, that is, price impact per unit of liquidity, and market depth, that is, units of the assets that can be traded for a given price impact;
 - (b) the presence of committed market makers, which may be evidenced by factors such as available quotes for buying or selling of the asset or instrument;
 - (c) low market concentration, that is, a diverse group of buyers and sellers exist that increases the reliability of the asset or instrument's liquidity;
 - (d) evidence of historic flight to quality, that is, historically, the market has shown tendencies to move into types of assets or instruments during systemic crises.

(4) All highly liquid securities held by the central counterparty must be unencumbered, and for purposes of these Regulations, unencumbered means not pledged, either explicitly or implicitly, to secure, collateralise or credit-enhance any transaction, or not otherwise subject to any further commitment, provided that assets or instruments received in reverse repo, resale or securities financing transactions that-

- (a) are held at the central counterparty;
 - (b) have not been re-hypothecated; and
 - (c) are legally and contractually available for the central counterparty's use,
- may be included in the central counterparty's portfolio of highly liquid securities.

(5) A central counterparty may hedge the price risk associated with ownership of the relevant assets or instruments, and still include the assets in the pool of highly liquid securities, provided that if the central counterparty chooses to hedge the associated risks, it must take into account the potential cash outflow that would arise if the hedge was to be closed out early or in the event of the asset being sold.

- (6) Highly liquid securities may not be-
- (a) co-mingled with or used as hedges on trading positions;
 - (b) designated as collateral; or
 - (c) designated as credit enhancements in structured transactions or be designated to cover operational costs.

(7) A central counterparty must maintain sufficient liquid resources in each relevant currency, and must therefore maintain liquid resources consistent with the distribution of the central counterparty's liquidity needs by currency, that is, the central counterparty must -

- (a) ensure that it is able to generate the required liquidity in the currency and jurisdiction in which the relevant requirement may arise to cater for daily and intraday needs;
- (b) monitor and report to its senior management its holding of highly liquid securities by currency to ensure that all relevant currency mismatches are duly managed;
- (c) take into account the risk that its ability to swap currencies and access the relevant foreign exchange markets may erode rapidly under stressed conditions, and that sudden, adverse exchange rate movements may sharply widen existing mismatched positions and alter the effectiveness of any foreign exchange hedges that the central counterparty may have in place.

(8) A central counterparty must actively monitor and control its liquidity risk exposures and funding needs at the level of each material individual legal entity and the group as a whole, taking into account any relevant legal, regulatory or operational limitations that may affect the transferability of liquidity.

(9) A central counterparty must have in place sufficiently robust policies, processes and procedures to periodically monetise a portion of its highly liquid securities through repo or outright sale to the market in order to-

- (a) test-
 - (i) its access to the market;
 - (ii) the effectiveness of its processes for monetisation; and
 - (iii) the usability of the assets, and
- (b) minimise the risk of negative signalling during a period of stress.

(10) No instruments acquired in terms of a securities lending transaction shall qualify as highly liquid securities.

(11) In order to allow a central counterparty time to adjust its portfolio of highly liquid securities, when an asset or instrument subsequently is deemed to not meet the characteristics of highly liquid securities, the central counterparty may retain the asset or instrument in its portfolio of highly liquid securities for a period of no more than 30 calendar days following the date that the asset or instrument became so disqualified.

(12) A central counterparty may use, to mitigate and manage liquidity risk stemming from -

- (a) a clearing member default, either individually or in combination, exposure limits, collateral requirements and prefunded default resources;
- (b) a service provider or a linked market infrastructure, individually or in combination, concentration or exposure limits, and collateral requirements.

(13) A central counterparty must manage its liquid resources to avoid excessive intraday or overnight exposure to one entity.

(14) An asset acquired by a central counterparty in terms of a resale agreement and which asset is a highly liquid security as contemplated in sub-regulation (2) and Regulation 39, shall qualify as a highly liquid security of the central counterparty, provided that the asset has not been disposed of under a further repurchase agreement and has not been encumbered or lodged as security by the central counterparty.

(15) A central counterparty must value highly liquid securities held at the close of business on any day based on daily market yields published.

31.2 Liquidity risk controls

A central counterparty must-

- (a) in determining its liquidity needs, consider the other roles a clearing member may play within the central counterparty, such as a settlement bank, custodian or liquidity provider;
- (b) reduce the liquidity demands of its clearing members by providing its clearing members with sufficient information or control systems to help them manage their liquidity needs and risks;
- (c) have effective operational and analytical procedures to identify, measure, and monitor its settlement and funding flows on an on-going and timely basis, including its use of intraday liquidity;
- (d) have in place policies, processes and procedures to-
 - (i) capture any relevant liquidity transfer restrictions;
 - (ii) monitor the rules and regulations in the jurisdictions in which it operates or in which it holds highly liquid securities, and to assess the liquidity implications for the group as a whole;

- (e) where it has access to central bank accounts, payment services, or securities services, use these services, where practical, to enhance its management of liquidity risk;
- (f) determine the amount and regularly test the sufficiency of its liquid resources through rigorous stress testing;
- (g) have clear procedures to report the results of its stress tests to appropriate decision makers at the central counterparty and to use these results to evaluate the adequacy of, and adjust where necessary, its liquidity risk management framework;
- (h) establish explicit rules and procedures that-
 - (i) enable the central counterparty to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations on time following any individual or combined default among its clearing members;
 - (ii) address unforeseen and potentially uncovered liquidity shortfalls;
 - (iii) disallow unwinding, revoking, or delaying the same-day settlement of payment obligations;
 - (iv) indicate the central counterparty's process to replenish any liquidity resources it may employ during a stress event, so that it can continue to operate in a safe and sound manner;
 - (v) address fully any credit losses it may face as a result of any individual or combined default among its clearing members with respect to any of their obligations to the central counterparty;
 - (vi) address how potentially uncovered credit losses would be allocated, including their payment of any funds a central counterparty may borrow from liquidity providers;
- (i) document its supporting rationale for, and must have appropriate governance arrangements relating to, the amount and form of total liquid resources it maintains;
- (j) ensure that-
 - (i) it at all times has access to adequate liquidity to perform its functions, services and activities;
 - (ii) it obtains the necessary credit lines or similar arrangements to cover its liquidity needs in case the liquidity resources at its disposal are not immediately available;
 - (iii) a clearing member, parent holding company or subsidiary of that clearing member together does not provide more than 25% of the credit lines required by the central counterparty; and
 - (iv) it continuously measures its potential liquidity needs, taking into account the liquidity risk generated by the default of at least the two clearing members to which it has the largest exposures.

31.3 Assessment of liquidity risk

- (1) A central counterparty must-
 - (a) establish a liquidity risk management framework which must include effective operational and analytical procedure to, identify, measure and monitor its settlement and funding flows on an on-going and timely basis, including its use of intraday liquidity; and
 - (b) regularly assess the design and operation of the liquidity management framework, including considering the results of the stress tests.
- (2) A central counterparty's liquidity risk management framework must-
 - (a) ensure with a high level of confidence that the central counterparty is able to effect payment and settlement obligations in all relevant currencies as they fall due, including where appropriate intraday;
 - (b) include the assessment of its potential future liquidity needs under a wide range of potential stress scenarios, which must include the default of clearing members from the date of a default until the end of a liquidation period and the liquidity risk generated by its investment policy and procedures in extreme but plausible market conditions;
 - (c) include a liquidity plan which is documented and retained and approved by the controlling body after consulting the risk committee;
 - (d) include the central counterparty's procedures for-
 - (i) managing and monitoring, at least on a daily basis, its liquidity needs across a range of market scenarios;
 - (ii) maintaining sufficient liquid financial resources to cover its liquidity needs and distinguish among the use of the different types of liquid financial resources;
 - (iii) the daily assessment and valuation of the liquid assets available to the central counterparty and its liquidity needs;
 - (iv) identifying sources of liquidity risk;
 - (v) assessing timescales over which the central counterparty's liquid financial resources should be available;
 - (vi) considering potential liquidity needs stemming from clearing members ability to swap cash for non-cash collateral;
 - (vii) the processes in the event of liquidity shortfalls;
 - (viii) the replenishment of any liquid financial resources it may employ during a stress event;
 - (e) address the liquidity needs stemming from the central counterparty's relationships with any entity towards which the central counterparty has a liquidity exposure including:
 - (i) clearing members;
 - (ii) settlement banks;
 - (iii) payment systems;

- (iv) securities settlement systems;
- (v) nostro agents;
- (vi) custodians;
- (vii) liquidity providers;
- (viii) interoperable central counterparties; and
- (ix) service providers.

(3) A central counterparty must assess the liquidity risk it faces including where the central counterparty or its clearing members cannot settle their payment obligations when due as part of the clearing or settlement process, taking also into account the investment activity of the central counterparty.

(4) A central counterparty must take into account any interdependencies across the entities listed in sub-regulation (2)(e) and multiple relationships that an entity listed in sub-regulation (2)(e) may have with a central counterparty in its liquidity risk management framework.

(5) A central counterparty must establish a daily report on the needs and resources under sub-regulations (2)(d)(i) to (iii) and a quarterly report on its liquidity plan, which must be documented and retained in accordance with Regulation 42.

31.4 Access to liquidity

A central counterparty-

- (a) must maintain sufficient liquid resources in each relevant currency, and must therefore maintain liquid resources consistent with the distribution of the central counterparty's liquidity needs by currency, as stated in Regulation 31.1;
- (b) must have regard to the currencies in which its liabilities are denominated and must take into account the potential effect of stressed conditions on its ability to access foreign exchange markets in a manner consistent with the securities settlement cycles of foreign exchange and securities settlement systems;
- (c) may not assume the availability of emergency central bank credit as a part of its liquidity plan;
- (d) must obtain a high degree of confidence, through rigorous due diligence, that each provider of its qualifying liquid resources, whether a clearing member of the central counterparty or an external party, has sufficient information to understand and to manage its associated liquidity risks, and that it has the capacity to perform as required under its commitment; provided that where relevant to assess a liquidity provider's performance reliability with respect to a particular currency, a liquidity provider's potential access to credit from the central bank of issue may be taken into account;
- (e) must ensure that committed lines of credit that are provided against collateral provided by clearing members are not double counted as liquid resources;
- (f) must take action to monitor and control the concentration of liquidity risk exposures to individual liquidity providers;
- (g) must obtain a high degree of confidence through rigorous due diligence that its liquidity providers have enough capacity to perform according to the liquidity arrangements;
- (h) must periodically test its procedures to access pre-arranged funding arrangements, including methods such as drawing down test amounts of the commercial lines of credit, to check the speed of access to the resources and reliability of procedures;
- (i) must have detailed procedures within its liquidity plan for using its liquid resources to fulfil its payment obligations during a liquidity shortfall, which must-
 - (i) clearly state when certain resources must be used;
 - (ii) describe how to-
 - (aa) access cash deposits or overnight investments of cash deposits;
 - (bb) execute same-day market transactions, or
 - (cc) draw on pre-arranged liquidity lines;
 - (iii) be regularly tested; and
- (j) must establish an adequate plan for the renewal of funding arrangements in advance of their expiration.

31.5 Concentration risk

A central counterparty must-

- (a) maintain a sufficiently diversified portfolio of liquid resources and avoid undue concentration with respect to any relevant asset type, issue and issuer type, and currency, consistent with the distribution of cash outflows by currency;
- (b) closely monitor and control the concentration of its liquidity risk exposure, including its exposures to single counterparties and to entities in the same group;
- (c) in its liquidity risk management framework include the application of exposure and concentration limits; and
- (d) define processes and procedures for breaches of concentration limits.

31.6 Liquidity risk stress testing

(1) A central counterparty must regularly perform robust liquidity stress tests or scenario analyses and obtain the prior written approval of its controlling body or controlling body approved committee in respect of any going-concern behavioural or other relevant assumption and reasoning applied in respect of the stress mismatch, which stress tests or scenario analyses must be based on the central counterparty's relevant strategic and business plans in order to-

- (a) ensure that the central counterparty-
 - (i) identifies the potential sources of liquidity strain;
 - (ii) considers the amount of liquidity it may need to satisfy contingent obligations;
 - (iii) considers and understands the potential impact of any plausible severe and prolonged liquidity disruption;
- (b) identify and quantify the central counterparty's exposure to possible future liquidity stresses;
- (c) analyse possible impacts on the central counterparty's cash flows, liquidity positions, profitability, and solvency.

(2) A central counterparty must ensure that the results of the stress tests or scenario analyses-

- (a) are comprehensively discussed and understood by the central counterparty's senior management;
- (b) form the basis for taking remedial or mitigating action to-
 - (i) limit the central counterparty's liquidity exposure;
 - (ii) timely build up a liquidity cushion;
 - (iii) timely adjust the central counterparty's liquidity profile according to the central counterparty's risk tolerance approved by the central counterparty's controlling body; and
- (c) are appropriately linked to and play a key role in shaping the central counterparty's contingency funding plan, which, among other things, must outline policies for managing a range of stress events and clearly set out strategies for addressing liquidity shortfalls in a systemic event.

(3) A central counterparty must have in place sufficiently robust early warning indicators to identify the emergence of increased risk or vulnerabilities in its liquidity position or funding needs.

(4) As a minimum, in order to identify potential sources of funding that are of such significance that the withdrawal thereof may cause liquidity problems, a central counterparty must separately monitor the significant counterparties, significant instruments or products, and significant currencies, provided that in the case of secured and unsecured funding from counterparties, the central counterparty must aggregate the respective amounts related to all relevant types of liabilities to a particular counterparty or group of connected, associated or affiliated counterparties, and all other relevant direct borrowings.

(5) A central counterparty must-

- (a) obtain the prior written approval of its controlling body or controlling body approved committee in respect of any assumption made relating to the realisable value of assets under a forced sale scenario;
- (b) on request, submit to the Authority all relevant controlling body approved assumptions and reasoning applied in respect of the realisable value of assets under a forced sale scenario;
- (c) ensure appropriate diversification in both the tenor and source of its funding;
- (d) ensure that its policies, processes, systems and procedures relating to liquidity risk management are sufficiently robust to effectively manage the central counterparty's-
 - (i) on-going liquidity needs, including any relevant intraday liquidity requirements; and
 - (ii) collateral positions.

32. Segregation and portability

(1) The clearing house rules for a central counterparty must, in addition to the matters set out in section 53(2) provide-

- (a) for arrangements for the segregation and portability of funds and securities held as collateral that effectively protect a clearing member's clients' positions and related collateral from the default or insolvency of that clearing member;
- (b) for a clearing member to employ an account structure that enables it to readily identify positions of a clearing member's clients and to segregate related collateral;
- (c) for clearing members to maintain client positions and collateral in individual client accounts or in omnibus client accounts;
- (d) that clearing members offer their clients, at least, the choice between omnibus client segregation and individual client segregation and inform them of the costs and level of protection referred to in sub-regulation (3)(e) associated with each option; and that when a client chooses individual client segregation, any margin in excess of the client's requirement must be posted to the central counterparty and distinguished from the margin of other clients or clearing members and may not be exposed to losses connected to positions recorded in another account;
- (e) for the central counterparty to structure its portability arrangements in a way that makes it highly likely that the positions and collateral of a defaulting clearing member's clients will be transferred to one or more other clearing members;
- (f) that a clearing member discloses to its clients whether client collateral is protected on an individual or omnibus basis;

(g) that a clearing member discloses to its clients any constraints, such as legal or operational constraints, that may impair its ability to segregate or port the clients' positions and related collateral.

(2) Any rules made in terms of sub-regulation (1)(a) and (1)(d) must have due regard for, and not be in conflict with, any applicable depository rules.

- (3) A central counterparty must-
- (a) keep separate records and accounts that will enable it, at any time and without delay, to distinguish in accounts with the central counterparty the assets and positions held for the account of one clearing member from the assets and positions held for the account of any other clearing member and from its own assets;
 - (b) offer to keep separate records and accounts enabling each clearing member to distinguish in accounts with the central counterparty the assets and positions of that clearing member from those held for the accounts of its clients ('*omnibus client segregation*');
 - (c) offer to keep separate records and accounts enabling each clearing member to distinguish in accounts with the central counterparty the assets and positions held for the account of a client from those held for the account of other clients ('*individual client segregation*'); and
 - (d) upon request, offer clearing members the possibility to open more accounts in their own name or for the account of their clients;
 - (e) publicly disclose the levels of protection and the costs associated with the different levels of segregation that they provide and must perform those functions on reasonable commercial terms, which disclosure must include details of the different levels of segregation including a description of the main legal implications of the respective levels of segregation offered including information on the applicable insolvency law.
- (4) The requirement to distinguish assets and positions with the central counterparty in accounts is satisfied where-
- (a) the assets and positions are recorded in separate accounts;
 - (b) the netting of positions recorded on different accounts is prevented; and
 - (c) the assets covering the positions recorded in an account are not exposed to losses connected to positions recorded in another account.

33. Margin requirements

33.1 Exposure management

A central counterparty must-

- (a) measure and assess its liquidity and credit exposures to each clearing member and, where relevant, to another central counterparty with which it has concluded an interoperability arrangement, on a near to real-time basis;
- (b) have access in a timely manner and on a non-discriminatory basis to the relevant pricing sources to effectively measure its exposures.

33.2 Margin system

- (1) A central counterparty must have a margin system that-
- (a) establishes margin levels commensurate with the risks and particular attributes of each product, portfolio, and market it serves;
 - (b) has a reliable source of timely price data;
 - (c) has procedures and sound valuation models for addressing circumstances in which pricing data are not readily available or reliable;
 - (d) adopts initial margin models and parameters that-
 - (i) are risk-based and generate margin requirements sufficient to cover its potential future exposure to clearing members in the interval between the last margin collection and the close out of positions following a clearing member default;
 - (ii) will establish single-tailed confidence levels of at least 99% with respect to the estimated distribution of future exposure, provided that where a central counterparty calculates margin at-
 - (aa) the portfolio level, the requirement will apply to each portfolio's distribution of future exposure; or
 - (bb) sub-portfolio or by product level, the requirement will apply for corresponding distributions of future exposure.
- (2) The margin model must-
- (a) use a conservative estimate of the time horizons for the effective hedging or close out of the particular types of products cleared by the central counterparty, also in stressed market conditions;
 - (b) use an appropriate method for measuring credit exposure that accounts for relevant product risk factors and portfolio effects across products; and
 - (c) to the extent practicable and prudent, limit the need for destabilising, procyclical changes.

- (3) A central counterparty-
- (a) must mark clearing members' positions to market and collect variation margin at least daily to limit the build-up of current exposures;
 - (b) must have the authority and operational capacity to make intraday margin calls and payments, both scheduled and unscheduled, to clearing members;
 - (c) in calculating margin requirements, may allow offsets or reductions in required margin across products that it clears or between products that it and another central counterparty clear, if the risk of one product is significantly and reliably correlated with the risk of the other product;
 - (d) must analyse and monitor its model performance and overall margin coverage by conducting rigorous daily back-testing and at least monthly, and more frequent where appropriate, sensitivity analysis;
 - (e) must conduct an assessment of the theoretical and empirical properties of its margin model for all products it clears at least annually;
 - (f) must take into account a wide range of parameters and assumptions that reflect possible market conditions, including the most volatile periods that have been experienced by the markets it serves and extreme changes in the correlations between prices when conducting the sensitivity analysis of the model's coverage;
 - (g) must at least annually review and validate its margin system by a qualified independent person, and report its finding to the Authority;
 - (h) must impose, call and collect margins to limit its credit exposures from its clearing members and, where relevant, from central counterparties with which it has interoperability arrangements; where such margins must be sufficient to cover-
 - (i) potential exposures that the central counterparty estimates will occur until the liquidation of the relevant positions; and
 - (ii) losses that result from at least 99% of the exposures movements over an appropriate time horizon;
 - (i) must ensure that it fully collateralises its exposures with all its clearing members, and, where relevant, with central counterparties with which it has interoperability arrangements, at least on a daily basis;
 - (j) must regularly monitor and, if necessary, revise the level of its margins to reflect current market conditions taking into account any potentially procyclical effects of such revisions;
 - (k) must adopt models and parameters in setting its margin requirements that capture the risk characteristics of the products cleared and take into account the interval between margin collections, market liquidity and the possibility of changes over the duration of the transaction;
 - (l) must call and collect margins on an intraday basis, at least when predefined thresholds are exceeded;
 - (m) must call and collect margins that are adequate to cover the risk stemming from the positions registered in each account; and
 - (n) must have appropriate safeguards and harmonised overall risk-management systems, where two or more central counterparties are authorised to offer cross-margining.

33.3 Percentage

(1) A central counterparty must calculate initial margins to cover the exposures arising from market movements for each financial instrument that is margined on a product basis, over the time period defined in Regulation 33.4 and assuming a time horizon for the liquidation of the position as defined in Regulation 33.5.

- (2) A central counterparty must adhere to the following confidence intervals for the calculation of initial margins -
- (a) for OTC derivatives, 99.5%; and
 - (b) for securities other than OTC derivatives, 99%.

(3) For the determination of the adequate confidence interval for each class of securities it clears, a central counterparty must in addition consider at least the following factors-

- (a) the complexities and level of pricing uncertainties of the class of securities which may limit the validation of the calculation of initial and variation margin;
- (b) the risk characteristics of the class of securities, which can include, but are not limited to, volatility, duration, liquidity, non-linear price characteristics, jump to default risk and wrong way risk;
- (c) the degree to which other risk controls do not adequately limit credit exposures; and
- (d) the inherent leverage of the class of securities, including whether the class of securities-
 - (i) is significantly volatile;
 - (ii) is highly concentrated among a few market players; or
 - (iii) may be difficult to close out.

(4) Where a central counterparty clears OTC derivatives that have the same risk characteristics as derivative instruments executed on licensed exchanges or an equivalent trading venue jurisdiction on the basis of an assessment of the risk factors listed

in sub-regulation (3), the central counterparty may use an alternative confidence interval from the one specified in sub-regulation (2)(a) of at least 99% for these contracts, if the risks of OTC derivatives it clears are appropriately mitigated using such confidence interval and the conditions in sub-regulation (3) are adhered to.

(5) A central counterparty must inform the Authority and its clearing members of the criteria considered to determine the percentage applied to the calculation of the margins for each class of securities.

33.4 Time horizon for the calculation of historical volatility

A central counterparty-

- (a) must assure that according to its model methodology and its validation process established in accordance with these Regulations, initial margins cover-
 - (i) the confidence interval defined in Regulation 33.3;
 - (ii) the liquidation period defined in Regulation 33.5; and
 - (iii) the exposures resulting from historical volatility calculated based on data covering at least the latest 12 months;
- (b) must ensure that the data used for calculating historical volatility capture a full range of market conditions, including periods of stress;
- (c) may use any other time horizon for the calculation of historical volatility, provided that the use of such time horizon results in margin requirements at least as high as those obtained with the time period defined in paragraph (a);
- (d) must base its margin parameters for securities without a historical observation period on conservative assumptions; and
- (e) must promptly adapt the calculation of the required margins based on the analysis of the price history of the new securities.

33.5 Time horizons for the liquidation period

(1) A central counterparty must define the time horizons for the liquidation period taking into account-

- (a) the characteristics of the financial instrument cleared;
- (b) the market where it is traded; and
- (c) the period for the calculation and collection of the margins.

(2) The liquidation periods must be at least-

- (a) five business days for OTC derivatives; and
- (b) two business days for securities other than OTC derivatives.

(3) A central counterparty must evaluate and calculate, for the determination of the adequate liquidation period -

- (a) the longest possible period that may elapse from the last collection of margins up to the declaration of default by the central counterparty or activation of the default management process by the central counterparty;
- (b) the estimated period required to design and execute the strategy for the management of the default of a clearing member according to the particularities of each class of financial instrument, including -
 - (i) its level of liquidity;
 - (ii) the size and concentration of the positions; and
 - (iii) the markets that the central counterparty will use to close-out or hedge completely a clearing member position;
- (c) where relevant, the period required to cover the counterparty risk to which the central counterparty is exposed.

(4) A central counterparty must consider, in evaluating the periods defined in sub-regulation (3), the factors indicated in Regulation 33.3 and the time period for the calculation of the historical volatility as determined in Regulation 33.4.

(5) Where a central counterparty clears OTC derivatives that have the same risk characteristics as derivative instruments executed on a licensed exchange or an equivalent trading venue jurisdiction, it may use a time horizon for the liquidation period different from the one specified in sub-regulation (1), provided that it can demonstrate to the Authority that the time horizon-

- (a) is more appropriate than the time horizon specified in sub-regulation (1) in view of the specific features of the relevant OTC derivatives; and
- (b) is at least equal to two business days.

33.6 Portfolio margining

A central counterparty-

- (a) must document its approach on portfolio margining;
- (b) may allow offsets or reductions in the required margin across the securities that it clears, if the price risk of one security or a portfolio of securities is significantly and reliably correlated, or based on equivalent statistical parameter of dependence, with the price risk of other securities;

- (c) must ensure that the correlation or an equivalent statistical parameter of dependence, between two or more securities cleared, is reliable over the look-back period calculated in accordance with Regulation 33.5 and demonstrates resilience during stressed historical or hypothetical scenarios;
- (d) must demonstrate the existence of an economic rationale for the price relation;
- (e) must ensure that all securities to which portfolio margining is applied are covered by the same default fund, unless the central counterparty can demonstrate in advance to the Authority and to its clearing members how potential losses would be allocated among different default funds and set out the necessary provisions in its rules;
- (f) must ensure that where portfolio margining covers multiple instruments, the amount of margin reductions are not greater than 80% of the difference between the sum of the margins for each product calculated on an individual basis and the margin calculated based on a combined estimation of the exposure for the combined portfolio; provided that where the central counterparty is not exposed to any potential risk from the margin reduction, it may apply a reduction of up to 100% of this difference; and
- (g) must ensure that the margin reductions related to portfolio margining are subject to a sound stress test programme in accordance with these Regulations.

33.7 Procyclicality

- (1) A central counterparty must ensure that its policy for selecting and revising the confidence interval, the liquidation period and the look-back period-
- (a) deliver margin requirements that limit procyclicality to the extent that the soundness and financial security of the central counterparty is not negatively affected;
 - (b) avoid, when possible, disruptive changes in margin requirements; and
 - (c) establish transparent procedures for adjusting margin requirements in response to changing market conditions.
- (2) A central counterparty must-
- (a) apply a margin buffer at least equal to 25% of the calculated margins which it allows to be temporarily exhausted in periods where calculated margin requirements are rising significantly; or
 - (b) assign at least 25% weight to stressed observations in the look-back period calculated in accordance with Regulations 33.4; or
 - (c) ensure that its margin requirements are not lower than those that would be calculated using volatility estimated over a 10 year historical look-back period.
- (3) When a central counterparty revises the parameters of the margin model in order to better reflect current market conditions, it must take into account any potential procyclical effects of such revision.

34. Default procedures

- (1) A central counterparty must have default procedures that are publically available and that-
- (a) enable it to continue to meet its obligations in the event of a clearing member default;
 - (b) address the replenishment of resources following a default;
 - (c) clearly state the scope of duties and term of service expected from seconded personnel;
 - (d) provide that the central counterparty may elect to auction positions or portfolios to the market, and clearly state the scope for such action, and any clearing member obligations with regard to such auctions; and
 - (e) facilitate the prompt close-out or transfer of a defaulting clearing member's proprietary and client positions.
- (2) A central counterparty must-
- (a) test and review its default procedures, including any close-out procedures -
 - (i) annually; or
 - (ii) following material changes to the rules and procedures to ensure that they are practical and effective; and
 - (b) involve its clearing members and other relevant stakeholders in the testing and review.
- (3) A central counterparty must-
- (a) have the ability to apply the proceeds of liquidation, along with other funds and assets of the defaulting clearing member, to meet the defaulting clearing member's obligations;
 - (b) have the information, resources, and measures to close out positions promptly; and in circumstances where prompt close-out is not practicable, it must have the measures to hedge positions as an interim risk-management technique;
 - (c) take prompt action to contain losses and liquidity pressures resulting from defaults;
 - (d) ensure that the closing-out of any clearing member's positions does not disrupt its operations or expose the non-defaulting clearing members to losses that they cannot anticipate or control;

- (e) immediately inform the Authority before the default procedure is declared or triggered if it considers that the clearing member will not be able to meet its future obligations; and
- (f) verify that its default procedures are enforceable and it must take all reasonable steps to ensure that it has the legal powers to liquidate the proprietary positions of the defaulting clearing member and to transfer or liquidate the clients' positions of the defaulting clearing member.

(4) Where assets and positions are recorded in the records and accounts of a central counterparty as being held for the account of a defaulting clearing member's clients in accordance with Regulation 32(3)(b), the central counterparty must-

- (a) contractually commit itself to trigger the procedures for the transfer of the assets and positions held by the defaulting clearing member for the account of its clients to another clearing member designated by all of those clients, on their request and without the consent of the defaulting clearing member;
- (b) ensure that other clearing members are obliged to accept those assets and positions only where it has previously entered into a contractual relationship with the clients by which it has committed itself to do so; and
- (c) if the transfer to that other clearing member has not taken place for any reason within a predefined transfer period specified in its operating rules, take all steps permitted by its rules to actively manage its risks in relation to those positions, including liquidating the assets and positions held by the defaulting clearing member for the account of its clients.

(5) Where assets and positions are recorded in the records and accounts of a central counterparty as being held for the account of a defaulting clearing member's client in accordance with Regulation 32(3)(c) the central counterparty must-

- (a) contractually commit itself to trigger the procedures for the transfer of the assets and positions held by the defaulting clearing member for the account of the client to another clearing member designated by the client, on the client's request and without the consent of the defaulting clearing member;
- (b) ensure that that other clearing member is obliged to accept these assets and positions only where it has previously entered into a contractual relationship with the client by which it has committed itself to do so;
- (c) if the transfer to that other clearing member has not taken place for any reason within a predefined transfer period specified in its operating rules, take all steps permitted by its rules to actively manage its risks in relation to those positions, including liquidating the assets and positions held by the defaulting clearing member for the account of the client.

(6) A central counterparty must ensure that clients' collateral distinguished in accordance with Regulations 32(3)(b) and (c) is used exclusively to cover the positions held for their account and any balance owed by the central counterparty after the completion of the clearing member's default management process by the central counterparty must be readily returned to those clients when they are known to the central counterparty or, if they are not, to the clearing member for the account of its clients.

35. Default fund

A central counterparty must-

- (a) maintain a prefunded default fund to cover losses that exceed the losses to be covered by margin requirements laid down in Regulation 33, which default fund must at least enable the central counterparty to withstand, under extreme but plausible market conditions-
 - (i) the default of the clearing member to which it has the largest exposures; or
 - (ii) in the case where the central counterparty is involved in activities with a more complex risk profile, then the default of the second and third largest clearing members, if the sum of their exposures is larger than that of the clearing member in subparagraph (i); and
- (b) develop scenarios of extreme but plausible market conditions, which scenarios-
 - (i) must include the most volatile periods that have been experienced by the markets for which the central counterparty performs its functions and a range of potential future scenarios;
 - (ii) must take into account sudden sales of financial resources and rapid reductions in market liquidity;
 - (iii) must establish a minimum amount below which the size of the default fund is not to fall under any circumstances;
 - (iv) must establish the minimum size of contributions to the default fund and the criteria to calculate the contributions of the single clearing members; and
 - (v) may establish more than one default fund for the different classes of instrument that it clears.

36. Other financial resources

- (1) A central counterparty must maintain sufficient prefunded available financial resources-
 - (a) to cover potential losses that exceed the losses to be covered by margin requirements under Regulation 33 and the default fund under Regulation 35;
 - (b) which must include dedicated resources of the central counterparty;
 - (c) which must be freely available to the central counterparty; and
 - (d) which may not be used to meet the capital required under Regulation 21.

(2) The default fund referred to in Regulation 35 and the other financial resources referred to in sub-regulation (1) must at all times enable the central counterparty to withstand the default of the clearing member to which it has the largest exposure or, in the case where it is involved in activities with a more complex risk profile, the default of the second and third largest clearing members under extreme but plausible market conditions.

(3) A central counterparty-

- (a) may require non-defaulting clearing members to provide additional funds in the event of a default of another clearing member; and
- (b) must ensure that clearing members have limited uncovered exposure toward the central counterparty.

(4) To determine the minimum size of the default fund and the amount of other financial resources necessary to satisfy the requirements of sub-regulations (1) and (2), taking into account group dependencies, a central counterparty must implement an internal policy framework for defining the types of extreme but plausible market conditions that could expose it to greatest risk.

(5) The framework must-

- (a) be fully documented, retained and include a statement describing how the central counterparty defines extreme but plausible market conditions;
- (b) be discussed by the risk committee and approved by the controlling body of the central counterparty;
- (c) reflect the risk profile of the central counterparty, taking account of cross-border and cross-currency exposures where relevant;
- (d) identify all the market risks to which a central counterparty would be exposed following the default of one or more clearing member, including unfavourable movements in the market prices of cleared instruments, reduced market liquidity for these instruments, and declines in the liquidation value of collateral;
- (e) reflect additional risks to the central counterparty arising from the simultaneous failure of entities in the group of the defaulting clearing member;
- (f) individually identify all the markets to which a central counterparty is exposed in a clearing member default scenario, and for each identified market the central counterparty must specify extreme but plausible conditions based, at least on-
 - (i) a range of historical scenarios, including periods of extreme market movements observed over the past 30 years, or as long as reliable data have been available, that would have exposed the central counterparty to greatest financial risk, and if a central counterparty decides that recurrence of a historical instance of large price movements is not plausible, it must justify its omission from the framework to the Authority; and
 - (ii) a range of potential future scenarios, founded on consistent assumptions regarding market volatility and price correlation across markets and securities, drawing on both quantitative and qualitative assessments of potential market conditions;
- (g) consider, quantitatively and qualitatively, the extent to which extreme price movements could occur in multiple identified markets simultaneously; and
- (h) recognise that historical price correlations may breakdown in extreme but plausible market conditions.

(6) A central counterparty must at least annually, and more frequently when market developments or material changes to the set of contracts cleared by the central counterparty may dictate an adjustment to the scenarios, in consultation with the risk committee,-

- (a) review the framework to test its robustness and its ability to reflect market movements, and the review must be discussed by the risk committee and reported to the controlling body;
- (b) ensure that the review takes into account all relevant market developments and the scale and concentration of clearing member exposures;
- (c) review the set of historical and hypothetical scenarios used by a central counterparty to identify extreme but plausible market conditions; and
- (d) report material changes to the framework to the controlling body and the Authority.

(7) If a central counterparty maintains prearranged funding arrangements, the central counterparty must-

- (a) identify, measure and monitor its liquidity risk from the liquidity providers of those arrangements;
- (b) obtain a high degree of confidence through rigorous due diligence that each liquidity provider, whether or not it is a clearing member of the central counterparty, has the capacity to perform as required under the liquidity arrangement and is subject to commensurate regulation, supervision or oversight of its liquidity risk management requirements.

37. Default waterfall

(1) A central counterparty must ensure that-

- (a) it uses the margins posted by a defaulting clearing member prior to other financial resources in covering losses;
- (b) where the margins posted by the defaulting clearing member are not sufficient to cover the losses incurred by the central counterparty, it uses the default fund contribution of the defaulting member to cover those losses;
- (c) it uses dedicated own resources before using the default fund contributions of non-defaulting clearing members;
- (d) it does not use the margins posted by non-defaulting clearing members to cover the losses resulting from the default of another clearing member; and
- (e) it uses contributions to the default fund of the non-defaulting clearing members and any other financial resources referred to in Regulation 36 only after having exhausted the contributions of the defaulting clearing member.

(2) A central counterparty-

- (a) must keep, and indicate separately in its balance sheet, an additional amount of dedicated own resources for the purpose set out in sub-regulation (1)(c), which amount must be at least equal to 25% of the minimum capital, including retained earnings and reserves, held in accordance with Regulation 21;
- (b) must review the amount referred to in paragraph (a) on a yearly basis;
- (c) must, where it has established more than one default fund for the different classes of securities it clears, -
 - (i) allocate the total dedicated own resources calculated under paragraph (a) to each of the default funds in proportion to the size of each default fund, and
 - (ii) account separately in its balance sheet the resources so allocated and used for defaults arising in the different market segments to which the default funds refer to;
- (d) may not use resources other than capital, including retained earnings and reserves, as referred to in Regulation 21 to comply with the requirement under paragraph (a).

(3) A central counterparty must immediately inform the Authority if the amount of dedicated own resources held falls below the amount required by sub-regulation (2)(a), together with the reasons for the breach and a comprehensive description in writing of the measures and the timetable for the replenishment of such amount.

(4) Where a subsequent default of one or more clearing members occurs before the central counterparty has reinstated the dedicated own resources, only the residual amount of the allocated dedicated own resources must be used for the purpose of Regulation 36(1)(a).

(5) A central counterparty must reinstate the dedicated own resource at least within one month from the notification under sub-regulation (3) and if not set out a plan to the Authority how to rectify.

38. Collateral requirements

(1) When determining collateral, a licensed central counterparty must-

- (a) accept highly liquid collateral with minimal credit, liquidity and market risk to cover its initial and on-going exposure to its clearing members;
- (b) be confident of the collateral's value in the event of liquidation and of its capacity to use that collateral quickly, especially in stressed market conditions;
- (c) avoid concentrated holdings of certain assets where this would significantly impair the ability to liquidate such assets quickly without significant adverse price effects;
- (d) take into account the liquidity risk following the default of a market participant and the concentration risk on certain assets that may result in establishing the acceptable collateral and the relevant haircuts;
- (e) apply adequate haircuts to asset values that reflect the potential for their value to decline over the interval between their last revaluation and the time by which they can reasonably be assumed to be liquidate;
- (f) where it accepts cross-border collateral-
 - (i) have appropriate legal and operational safeguards to ensure that it can use the cross-border collateral in a timely manner;
 - (ii) consider foreign-exchange risk where collateral is denominated in a currency different from that in which the exposure arises, and set haircuts to address the additional risk to a high level of confidence;
 - (iii) identify and address any significant liquidity effects;
 - (iv) mitigate the risks associated with its use and ensure that the collateral can be used in a timely manner;
 - (v) have the capacity to address potential operational challenges of operating across borders, such as differences in time zones or operating hours.

(2) A licensed central counterparty must employ robust procedures and processes to control all material risks, which must include-

- (a) a robust risk-management process relating to collateral management;

- (b) a duly articulated strategy for the use of collateral which must form an intrinsic part of a central counterparty's general risk management strategy and overall liquidity strategy;
- (c) continuous assessment of the collateralised exposure on the basis of the counterparty's creditworthiness;
- (d) the ability to obtain and analyse sufficient financial information to determine the counterparty's risk profile and its risk-management and operational capabilities;
- (e) the marking to market of collateral and revaluing its collateral at regular intervals but at a minimum daily;
- (f) clearly established and maintained policies and procedures in respect of collateral management, which must be subject to regular review in order to ensure that the policies and procedures remain appropriate and effective and which policies and procedures must include:
 - (i) the terms of collateral agreements, types of collateral and enforcement of collateral terms (for example, waivers of posting deadlines);
 - (ii) the management of legal risks;
 - (iii) the administration of agreements; and
 - (iv) the prompt resolution of disputes, such as valuation of collateral or positions, acceptability of collateral, fulfilment of legal obligations and the interpretation of contract terms;
- (g) policies and procedures which are supported by collateral management systems capable of tracking the location and status of posted collateral; and
- (h) a duly defined policy with respect to the amount of concentration risk that the central counterparty is prepared to accept, that is, a policy in respect of the taking as collateral of large quantities of instruments issued by the same obligor which must provide that the central counterparty will take into account collateral and purchased credit protection when it assesses the potential concentrations in its credit portfolio.

(3) A central counterparty may accept the following instruments as collateral-

- (a) Sovereign bonds of the following countries: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Italy, Japan, Luxembourg, the Netherlands, Norway, South Africa, Spain, Sweden; United Kingdom and the United States of America;
- (b) Land Bank bills;
- (c) Separate Trading of Registered Interest and Principal of Securities (STRIPS);
- (d) Debentures issued by the South African Reserve Bank;
- (e) Treasury bills;
- (f) Cash of the following currencies: Rand, dollars, sterling and euros; and
- (g) any other instruments approved by the Authority.

(4) A central counterparty must establish and implement a collateral management system that-

- (a) is well-designed and operationally flexible;
- (b) accommodates changes in the on-going monitoring and management of collateral;
- (c) allows for the timely calculation and execution of margin calls, the management of margin call disputes, and the accurate daily reporting of levels of initial and variation margin;
- (d) tracks the extent of reuse of securities held as collateral;
- (e) has functionality to accommodate the timely deposit, withdrawal, substitution, and liquidation of collateral.

(5) A central counterparty must establish and implement transparent and predictable policies and procedures to assess and continuously monitor the liquidity of assets accepted as collateral and take remedial action where appropriate.

(6) A central counterparty must review its eligible asset policies and procedures at least annually; such a review must also be carried out whenever a material change occurs that affects the central counterparty's risk exposure.

38.1 Haircuts

(1) A central counterparty that accepts collateral with credit, liquidity, and market risks above minimum levels must demonstrate that it sets and enforces appropriately conservative haircuts and concentration limits.

(2) A central counterparty must ensure that the haircuts-

- (a) reflect the potential for asset values and liquidity to decline over the interval between their last revaluation and the time by which a central counterparty can reasonably assume that the assets can be liquidated;
- (b) incorporate assumptions about collateral value during stressed market conditions and reflect regular stress testing that takes into account extreme price moves, as well as changes in market liquidity for the asset; and
- (c) are calibrated to include periods of stressed market conditions, to the extent practicable and prudent in order to reduce the need for procyclical adjustments.

- (3) A central counterparty must-
- (a) establish and implement policies and procedures to determine prudent haircuts to apply to collateral value;
 - (b) demonstrate to the Authority that haircuts are calculated in a conservative manner to limit as far as possible procyclical effects;
 - (c) for each collateral asset, determine the haircut taking in consideration the relevant criteria, including-
 - (i) the type of asset and level of credit risk associated with the financial instrument based upon internal assessment by the central counterparty;
 - (ii) the maturity of the asset;
 - (iii) the historical and hypothetical future price volatility of the asset in stressed market conditions;
 - (iv) the liquidity of the underlying market, including bid or ask spreads;
 - (v) the foreign exchange risk, if any;
 - (vi) wrong-way risk; and
 - (vii) the need for the collateral to be liquidated in stressed market conditions and the time required to liquidate it;
 - (d) monitor on a regular basis the adequacy of the haircuts;
 - (e) review the haircut policies and procedures at least annually and whenever a material change occurs that affects the central counterparty risk exposure;
 - (f) ensure that haircut policies and procedures are independently validated at least annually.

38.2 Concentration limits

(1) A central counterparty must establish and implement policies and procedures to ensure that the collateral remains sufficiently diversified to allow its liquidation within a defined holding period without a significant market impact.

(2) The policies and the procedures must determine the risk mitigation measures to be applied when the concentration limits specified in sub-regulation (3) are exceeded.

- (3) A central counterparty must determine concentration limits at the level of-
- (a) individual issuers;
 - (b) type of issuer;
 - (c) type of asset;
 - (d) each clearing member; and
 - (e) all clearing members.

- (4) Concentration limits must be determined in a conservative manner taking into account all relevant criteria, including:
- (a) securities issued by issuers of the same type in terms of economic sector, activity, geographic region;
 - (b) the level of credit risk of the securities or of the issuer based upon an internal assessment by the central counterparty, which assessment must employ a defined and objective methodology that must not fully rely on external opinions;
 - (c) the liquidity and the price volatility of the securities.

(5) When determining the concentration limit for a central counterparty's exposure to an individual issuer, a central counterparty must aggregate and treat as a single risk its exposure to all securities issued by the issuer or by a group entity, explicitly guaranteed by the issuer or by a group entity, and to securities issued by undertakings whose exclusive purpose is to own means of production that are essential for the issuer's business.

- (6) A central counterparty must-
- (a) monitor the adequacy of its concentration limit policies and procedures on a regular basis;
 - (b) review its concentration limit policy and procedure at least annually and whenever a material change occurs that affects the risk exposure of the central counterparty;
 - (c) inform the Authority and the clearing members of the applicable concentration limits and of any amendment to these limits; and
 - (d) if it materially breaches a concentration limit set out in its policies and procedures, inform the Authority immediately and rectify the breach as soon as possible.

38.3 Re-use of collateral collected as initial margin

A licensed central counterparty-

- (a) may only once re-hypothecate the collateral collected as initial margin with the consent of the client;
- (b) must have rules regarding the use of collateral, which rules must clearly specify when the central counterparty may re-use the collateral, segregation of the collateral and the process of returning the collateral; and

- (c) in general may not rely on the re-use of collateral as an instrument for increasing or maintaining its profitability however it may invest any cash collateral received from participants on their behalf.

38.4 Valuing collateral

- (1) A licensed central counterparty must establish and implement policies and procedures to-
- (a) mark-to-market its collateral on a near to real time basis; and
- (b) monitor on a near to real time basis the credit quality, market liquidity and price volatility of each asset accepted as collateral.
- (2) A central counterparty must review the adequacy of its valuation policies and procedures-
- (a) on a regular basis, and at least annually; or
- (b) whenever a material change occurs that affects the central counterparty's risk exposure.

39. Investment strategy and safeguarding of assets

- (1) A licensed central counterparty's investment strategy must be-
- (a) consistent with its overall risk-management strategy;
- (b) disclosed to its clearing members; and
- (c) disclosed to the Authority.
- (2) A central counterparty must invest its financial resources only in cash or in highly liquid securities with minimal market and credit risk.
- (3) The amount of capital, including retained earnings and reserves of a central counterparty which are not invested in accordance with sub-regulation (2), may not be taken into account for the purposes of Regulation 21 or Regulation 37(1)(c).
- (4) A central counterparty may not acquire or invest in commercial paper of securitisation schemes, strategic long-term investments in any venture without prior written approval of the Authority.
- (5) Where the Authority has granted approval, the investments referred to in sub-regulation (4) may be deducted from qualifying capital, and or minority interest relating thereto in accordance with the method contemplated in Regulation 21(2).
- (6) Securities posted as margins or as default fund contributions must be deposited-
- (a) with (third party) custodians that will ensure the full protection of those securities; or
- (b) through other highly secure arrangements with regulated financial institutions.
- (7) Cash deposits posted as margin or as default fund contributions must be held through-
- (a) highly secure arrangements with regulated financial institutions;
- (b) the use of the standing deposit facilities of central banks; and
- (c) other comparable means provided for by central banks.
- (8) Where a central counterparty deposits assets referred to in sub-regulations (4) and (5) with a third party, it must ensure that the assets belonging to the clearing members are identifiable separately from the assets belonging to the central counterparty and from assets belonging to that third party by means of differently titled accounts on the books of the third party or any other equivalent measures that achieve the same level of protection.
- (9) A central counterparty must have prompt access to the securities when required.
- (10) A central counterparty must take into account its overall credit risk exposures to individual (debtors) *obligors* in making its investment decisions and must ensure that its overall risk exposure to any individual (debtors) *obligor* remains within acceptable concentration limits.
- (11) As a minimum, and without derogating from the relevant requirements specified in terms of International Financial Reporting Standards, a central counterparty that invests or trades in instruments, contracts or positions that are measured at fair value must implement robust governance structures and control processes as part of its risk-management framework for the prudent valuation of the instruments, contracts or positions, which structures, control processes and risk-management framework must include the key elements specified below-
- (a) the structures, processes, systems and controls in respect of instruments, contracts or positions measured at fair value, must-
- (i) explicitly provide for the role of the controlling body and the senior management of the central counterparty;

- (ii) ensure that the controlling body receives regular reports from senior management regarding matters related to the valuation oversight and valuation model performance that were brought to the attention of the senior management for resolution, and all significant changes to valuation policies;
- (iii) ensure the robust production, assignment and verification of all relevant valuations;
- (iv) be sufficiently robust to-
 - (aa) ensure and promote the quality, integrity and reliability of all relevant input that affects the valuation of instruments, contracts or positions, in respect of which input the central counterparty must consider-
 - (AA) the frequency and availability of the relevant prices or quotes;
 - (BB) whether or not the relevant prices represent actual regularly occurring transactions on an arm's length basis;
 - (CC) the breadth of the distribution of the data and whether it is generally available to all relevant participants in the market;
 - (DD) the timeliness of the information relative to the frequency of valuations;
 - (EE) the number of independent sources that produce the relevant quotes or prices;
 - (FF) whether or not the relevant quotes or prices are supported by actual transactions;
 - (GG) the maturity of the market; and
 - (HH) the similarity between the instrument, contract or position sold in a transaction and the instrument, contract or position held by the central counterparty;
 - (bb) appropriately consider and apply all relevant international standards or guidance that may affect the valuation of instruments, contracts or positions, including all relevant financial or accounting standards or statements;
 - (cc) ultimately ensure that the central counterparty's valuation estimates are prudent and reliable;
- (v) ensure that all relevant new product approval processes include all internal stakeholders relevant to risk measurement, risk control, and the assignment and verification of valuations;
- (vi) ensure that the central counterparty's control processes for the measurement and reporting of valuations are consistently applied across-
 - (aa) the central counterparty;
 - (bb) similar instruments or risks; and
 - (cc) all relevant business lines;
- (vii) be integrated with other risk management structures, policies, procedures, processes and systems, such as credit analysis, within the central counterparty;
- (viii) be based on documented policies and procedures for the process of valuation, which documented policies and procedures, among other things, must-
 - (aa) ensure that all relevant approvals of valuation methodologies are duly documented;
 - (bb) specify the range of acceptable practices for the initial pricing, marking-to-market or model, valuation adjustments and periodic independent revaluation;
 - (cc) include defined responsibilities of the various areas involved in the determination of valuations;
 - (dd) include the sources of market information to be used and the review of their appropriateness;
 - (ee) include appropriate guidelines for the use of unobservable inputs, reflecting the central counterparty's assumptions of what market participants may use when pricing the relevant position;
 - (ff) include the frequency of independent valuation;
 - (gg) include the timing of closing prices;
 - (hh) include all relevant matters related to verification.
- (ix) ensure that the performance of the central counterparty's relevant models is subject to robust testing and review, particularly under stressed conditions, in order to ensure that the controlling body and senior management of the central counterparty understand any potential limitations of the models;
- (x) ensure that the central counterparty has in place-
 - (aa) adequate capacity to determine or establish and verify all relevant valuations, particularly during periods of stress;
 - (bb) a controlling body-approved external reporting or disclosure policy that-
 - (AA) ensures that the central counterparty provides timely, relevant, reliable and meaningful information relating to its respective modelling techniques and the instruments to which they apply, sensitivity of fair values to modelling inputs and assumptions, and impact of stress scenarios on valuations;
 - (BB) promotes transparency;
 - (CC) is subject to regular review to ensure that the information disclosed continues to be relevant and current;
- (xi) be subject to clear and independent reporting lines, that is, independent from the front office, which reporting line ultimately must be to an executive member of the controlling body of the central counterparty;
- (xii) be subject to internal audit.

- (b) Based on readily available close out prices, which close out prices must be sourced independently, a central counterparty must mark-to-market all positions accounted for at fair value as often as possible, but not less frequently than at the close of business of every day or when the closing price of a particular position or market is published, provided that-
- (i) the central counterparty must use the more prudent side of bid/offer prices;
 - (ii) when estimating fair value the central counterparty must maximise the use of relevant observable inputs and minimise the use of unobservable inputs;
 - (iii) when observable inputs or transactions are deemed by the central counterparty not to be relevant, such as in a forced liquidation or distressed sale situation, or transactions not being observable, such as when markets are inactive, the central counterparty must duly consider any observable data in accordance with its controlling body-approved policies, in order to determine the extent to which such inputs should be regarded as determinative.
- (c) Only when a central counterparty is unable to mark-to-market positions accounted for at fair value, may it use a mark-to-model approach, that is, valuations that are benchmarked, extrapolated or otherwise calculated from a market input, provided that-
- (i) the senior management of the central counterparty must be aware of the instruments, contracts or positions that are accounted for at fair value and that are subject to mark-to-model valuations, and must understand the uncertainty that may exist in the reporting of the risk or performance of the central counterparty;
 - (ii) the central counterparty must-
 - (aa) demonstrate to the satisfaction of the Authority that its mark-to-model approach is prudent;
 - (bb) source market input as frequently as possible;
 - (cc) use generally accepted valuation methodologies relating to particular products as frequently as possible;
 - (dd) have in place formal change control procedures and a secure copy of the model, which copy of the model must be maintained and periodically used to check all relevant valuations;
 - (iii) when the model is developed internally by the central counterparty, the model must be-
 - (aa) based on appropriate assumptions, which assumptions must be assessed by appropriately qualified persons who must be independent from the development process;
 - (bb) approved independently from the front office; and
 - (cc) independently tested;
 - (iv) the model must be subject to periodic review to determine the accuracy of its performance, including an analysis of profit and loss against the risk factors and a comparison of actual close out values to model outputs.
- (d) By way of independent price verification, a central counterparty must regularly, but not less frequently than once a month, verify market prices and model inputs for accuracy, which independent price verification in respect of market prices or model inputs must be-
- (i) performed by a unit independent from the investment function;
 - (ii) used to-
 - (aa) identify any errors or biases in pricing;
 - (bb) eliminate any inaccurate adjustments to valuations.
- (e) Due to the uncertainty associated with liquidity in markets, instruments or products accounted for at fair value, that may result in a central counterparty being unable to sell or hedge the instruments, products or positions in a desired short period of time, as part of a central counterparty's risk management framework and mark-to-market or mark-to-model procedure, a central counterparty must establish and maintain procedures for considering relevant valuation adjustments, provided that, as a minimum, the central counterparty must consider-
- (i) valuation adjustments to instruments, products or positions that may be subject to reduced liquidity;
 - (ii) relevant close-out prices for concentrated positions and/or stale positions;
 - (iii) the relevant factors when determining the appropriateness of valuation adjustments or reserves for less liquid positions, including, for example the-
 - (aa) time required to hedge out the position or risks associated with the position;
 - (bb) average volatility of bid or offer spreads;
 - (cc) availability of independent market quotes;
 - (dd) number and identity of market makers;
 - (ee) average and volatility of trading volumes, including trading volumes during periods of market stress;
 - (ff) market concentrations;
 - (gg) aging of positions; and
 - (hh) extent to which valuation relies on marking-to-model, and the impact of model risk.

40. Review of models, stress testing and back testing

A licensed central counterparty must-

- (a) regularly review the models and parameters adopted to calculate its margin requirements, default fund contributions, collateral requirements and other risk control mechanisms;

- (b) subject the models to rigorous and frequent stress tests to assess their resilience in extreme but plausible market conditions and perform back tests to assess the reliability of the methodology adopted;
- (c) regularly test the key aspects of its default procedures and take all reasonable steps to ensure that all clearing members understand them and have appropriate arrangements in place to respond to a default event;
- (d) publicly disclose key information on its risk management framework and assumptions adopted to perform the stress tests referred to in paragraph (b); and.
- (e) in conducting stress testing, consider a wide range of relevant scenarios, which must-
 - (i) include-
 - (aa) relevant peak historic price volatilities;
 - (bb) shifts in other market factors such as price determinants and yield curves;
 - (cc) multiple defaults over various time horizons, simultaneous pressures in funding and asset markets; and
 - (dd) a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions;
 - (ii) take into account the design and operation of the central counterparty;
 - (iii) include all entities that might pose material liquidity risks to the central counterparty; and
 - (iv) where appropriate, cover a multiday period.

40.1 Model Validation

(1) (a) A licensed central counterparty must annually conduct a comprehensive validation of its models, methodologies and liquidity risk management framework used to quantify, aggregate, and manage its risks.

(b) Any material revisions or adjustments to its models, methodologies and liquidity risk framework must be subject to appropriate governance, including seeking advice from the risk committee, and validated by a qualified and independent party prior to application.

(2) (a) A central counterparty's validation process must be documented and specify the policies used to test the central counterparty's margin, default fund and other financial resources methodologies and framework for calculation.

(b) Any material revisions or adjustments to the policies referred to in paragraph (a) must be subject to appropriate governance, including seeking advice from the risk committee, and validated by a qualified and independent party prior to application

- (3) A comprehensive validation must include-
- (a) an evaluation of the conceptual soundness of the models, methodologies and frameworks, including developmental supporting evidence;
 - (b) a review of the on-going monitoring procedures, including verification of processes and benchmarking;
 - (c) a review of the parameters and assumptions made in the development of its models, methodologies and the framework;
 - (d) a review of the adequacy and appropriateness of the models, methodologies and framework adopted in respect of the type of contracts they apply to;
 - (e) a review of the appropriateness of its stress testing scenarios in accordance with these Regulations; and
 - (f) an analysis of the outcomes of testing results.

(4) A central counterparty must establish the criteria against which it assesses whether its models, methodologies and liquidity risk management framework can be successfully validated, which must include successful testing results.

- (5) A central counterparty must, where pricing data is not readily available or reliable-
- (a) address such pricing limitations and adopt conservative assumptions based on observed correlated or related markets and current behaviours of the market; and
 - (b) ensure that the systems and valuation models used for this purpose are subject to appropriate governance, including seeking advice from the risk committee, and validation and testing.

- (6) A central counterparty must-
- (a) have its valuation models validated under a variety of market scenarios by a qualified and independent party to ensure that its models accurately produces appropriate prices, and where appropriate, it must adjust its calculation of initial margins to reflect any identified model risk; and
 - (b) regularly conduct an assessment of the theoretical and empirical properties of its margin model for all the securities that it clears.

40.2 Testing programmes

A central counterparty must have policies and procedures in place that-

- (a) detail the stress and back testing programmes it undertakes to assess the appropriateness, accuracy, reliability and resilience of the models and methodologies used to calculate its risk control mechanisms including margin, default fund contributions, and other financial resources in a wide range of market conditions;
- (b) detail the stress testing programme it undertakes to assess the appropriateness, accuracy, reliability and resilience of the liquidity risk management framework;
- (c) contain methodologies for the inclusion of the selection and development of appropriate testing, including portfolio and market data selection, the regularity of the tests, the specific risk characteristics of the securities cleared, the analysis of testing results and exceptions and the relevant corrective measures needed.

40.3 Back testing

A central counterparty must-

- (a) assess its margin coverage by performing an ex-post comparison of observed outcomes with expected outcomes derived from the use of margin models;
- (b) ensure that such back testing analysis be performed each day in order to evaluate whether there are any testing exceptions to margin coverage;
- (c) ensure that the margin coverage referred to in paragraph (a) be evaluated on current positions for securities, clearing members and take into account possible effects from portfolio margining and, where appropriate, interoperable central counterparties;
- (d) consider the appropriate historical time horizons for its back testing programme to ensure that the observation window used is sufficient enough to mitigate any detrimental effect on the statistical significance;
- (e) consider in its back testing programme, at least, clear statistical tests, and performance criteria to be defined by central counterparties for the assessment of back testing results;
- (f) periodically report its back testing results and analysis in a form that does not breach confidentiality to the risk committee in order to seek its advice in the review of its margin model;
- (g) ensure that-
 - (i) the back testing results and analysis are made available to all clearing members and, where known to the central counterparty, clients;
 - (ii) for all other clients back testing results and analysis are made available by the relevant clearing members on request;
 - (iii) the information is available in aggregated form and does not breach confidentiality; and
 - (iv) clearing members and clients only have access to detailed back testing results and analysis for their own portfolios;
- (h) define the procedures to detail the actions it could take given the results of back testing analysis.

40.4 Sensitivity testing and analysis

A central counterparty must-

- (a) conduct sensitivity tests and analysis to assess the coverage of its margin model under various market conditions using historical data from realised stressed market conditions and hypothetical data for unrealised stressed market conditions;
- (b) use a wide range of parameters and assumptions to capture a variety of historical and hypothetical conditions, including the most-volatile periods that have been experienced by the markets it serves and extreme changes in the correlations between prices of contracts cleared by the central counterparty, in order to understand how the level of margin coverage might be affected by highly stressed market conditions and changes in important model parameters;
- (c) ensure that the sensitivity analysis be performed on a number of actual and representative clearing member portfolios;
- (d) ensure that the representative portfolios be chosen based on their sensitivity to the material risk factors and correlations to which the central counterparty is exposed;
- (e) ensure that the sensitivity testing and analysis are designed to test the key parameters and assumptions of the initial margin model at a number of confidence intervals to determine the sensitivity of the system to errors in the calibration of such parameters and assumptions;
- (f) ensure that appropriate consideration is given to the term structure of the risk factors, and the assumed correlation between risk factors;
- (g) evaluate the potential losses in clearing member positions;
- (h) where applicable, consider parameters reflective of the simultaneous default of clearing members that issue securities cleared by the central counterparty or the underlying of derivative instruments cleared by the central counterparty;
- (i) where applicable, consider the effects of a client's default that issues securities cleared by the central counterparty or the underlying of derivative instruments cleared by the central counterparty;
- (j) periodically report its sensitivity testing results and analysis in a form that does not breach confidentiality to the risk committee in order to seek its advice in the review of its margin model;
- (k) define the procedures to detail the actions it could take given the results of sensitivity testing analysis.

40.5 Stress testing

(1) A central counterparty's stress tests must apply stressed parameters, assumptions, and scenarios to the models used for the estimation of risk exposures to make sure its financial resources are sufficient to cover those exposures under extreme but plausible market conditions.

(2) A central counterparty's stress testing programme must-

- (a) require the central counterparty to conduct a range of stress tests on a regular basis that considers the central counterparty's product mix and all elements of its models and methodologies and its liquidity risk management framework;
- (b) prescribe that stress tests are performed, using defined stress testing scenarios, on both past and hypothetical extreme but plausible market conditions in accordance with these Regulations, provided that past conditions to be used must be reviewed and adjusted, where appropriate.

(3) A central counterparty must-

- (a) consider other forms of appropriate stress testing scenarios including, the technical or financial failure of its settlement banks, nostro agents, custodians, liquidity providers, or interoperable central counterparties;
- (b) have the capacity to adapt its stress tests quickly to incorporate new or emerging risks;
- (c) consider the potential losses arising from the default of a client, where known, which clears through multiple clearing members;
- (d) periodically report its stress testing results and analysis in a form that does not breach confidentiality to the risk committee in order to seek its advice in the review of its models, its methodologies and its liquidity risk management framework;
- (e) ensure that stress testing results and analysis are made available to all clearing members and, where known to the central counterparty, clients;
- (f) ensure that for all other clients, stress testing results and analysis must be made available by the relevant clearing members on request;
- (g) ensure that the information referred to in paragraph (e) is available in aggregated form and does not breach confidentiality;
- (h) ensure that clearing members and clients only have access to detailed stress testing results and analysis for their own portfolios;
- (i) define the procedures to detail the actions it could take given the results of stress testing analysis.

40.5.1 Stress testing - Risk factors to test

(1) A central counterparty must identify, and have an appropriate method for measuring, relevant risk factors specific to the contracts it clears that could affect its losses.

(2) A central counterparty's stress tests must take into account risk factors specified for the following type of securities, where applicable-

- (a) factors for interest rate related contracts are:
 - (i) risk factors corresponding to interest rates in each currency in which the central counterparty clears securities;
 - (ii) the yield curve modelling must be divided into various maturity segments in order to capture variation in the volatility of rates along the yield curve;
 - (iii) the number of related risk factors must depend on the complexity of the interest rate contracts cleared by the central counterparty;
 - (iv) basis risk, arising from less than perfectly correlated movements between government and other fixed-income interest rates, must be captured separately;
- (b) *exchange rate related contracts*: risk factors corresponding to each foreign currency in which the central counterparty clears securities and to the exchange rate between the currency in which margin calls are made and the currency in which the central counterparty clears securities;
- (c) *equity related contracts*: risk factors corresponding to the volatility of individual equity issues for each of the markets cleared by the central counterparty and to the volatility of various sectors of the overall equity market. The sophistication and nature of the modelling technique for a given market must correspond to the central counterparty's exposure to the overall market as well as its concentration in individual equity issues in that market;
- (d) *commodity contracts*: risk factors that take into account the different categories and sub-categories of commodity contracts and related derivative instruments cleared by the central counterparty, including, where appropriate, variations in the convenience yield between derivatives positions and cash positions in the commodity;
- (e) *credit related contracts*: risk factors that consider jump to default risk, including the cumulative risk arising from multiple defaults, basis risk and recovery rate volatility.

(3) A central counterparty must also, at least, give appropriate consideration to the following in its stress tests-

- (a) correlations, including those between identified risk factors and similar contracts cleared by the central counterparty;
- (b) factors corresponding to the implied and historical volatility of the contract being cleared;

- (c) specific characteristics of any new contracts to be cleared by the central counterparty;
- (d) concentration risk, including to a clearing member, and group entities of clearing members;
- (e) interdependencies and multiple relationships;
- (f) relevant risks including foreign exchange risk;
- (g) set exposure limits;
- (h) wrong-way risk.

40.5.2 Stress testing - total financial resources

- (1) A central counterparty's stress-testing programme must-
- (a) ensure that its combination of margin, default fund contributions and other financial resources are sufficient to cover the default of at least the two clearing members to which it has the largest exposures under extreme but plausible market conditions;
 - (b) examine potential losses resulting from the default of entities in the same group as the two clearing members to which it has the largest exposures under extreme but plausible market conditions;
 - (c) ensure that its margins and default fund are sufficient to cover at least the default of the clearing member to which it has the largest exposures or of the second and third largest clearing members, if the sum of their exposures is larger in accordance with Regulation 31.
- (2) A central counterparty must-
- (a) conduct a thorough analysis of the potential losses it could suffer and must evaluate the potential losses in clearing member positions, including the risk that liquidating such positions could have an impact on the market and the central counterparty's level of margin coverage;
 - (b) where applicable, consider in its stress tests, the effects of the default of a clearing member that issues securities cleared by the central counterparty or the underlying of derivative instruments cleared by the central counterparty;
 - (c) where applicable, consider the effects of a client's default that issues securities cleared by the central counterparty or the underlying of derivative instruments cleared by the central counterparty;
- (3) A central counterparty's stress tests must consider the liquidation period as outlined in Regulation 33.5.

40.5.3 Stress testing – liquid financial resources

- (1) A central counterparty's stress-testing programme of its liquid financial resources must ensure that the liquid financial resources are sufficient in accordance with the requirements set out in Regulation 40.
- (2) A central counterparty must have-
- (a) clear and transparent rules and procedures to address insufficient liquid financial resources highlighted by its stress tests to ensure settlement of payments obligations;
 - (b) clear procedures for using the results and analysis of its stress tests to evaluate and adjust the adequacy of its liquidity risk management framework and liquidity providers.
- (3) (a) The stress testing scenarios used in the stress testing of liquid financial resources must consider the design and operation of the central counterparty, and include all entities that might pose material liquidity risk to it.
- (b) The stress tests must consider any strong linkages or similar exposures between its clearing members, including other entities that are part of the same group, and assess the probability of multiple defaults and the contagion effect among its clearing members that such defaults may cause.

40.6. Maintaining sufficient coverage

A central counterparty must-

- (a) establish and maintain procedures to recognise changes in market conditions, including increases in volatility or reductions in the liquidity of the securities it clears, so as to promptly adapt calculation of its margin requirement to appropriately account for new market conditions;
- (b) conduct tests on its haircuts in order to ensure that collateral can be liquidated at least at its hair-cut value in observed and extreme but plausible market conditions;
- (c) if it collects margin at a portfolio, as opposed to product level, continuously review and test offsets among products;
- (d) base the offsets referred to in paragraph (c) on prudent and economically meaningful methodology that reflects the degree of price dependence between the products; and
- (e) in particular test how correlations perform during periods of actual and hypothetical severe market conditions.

40.7 Review of models using test results

- (1) A central counterparty must-
- (a) have clear procedures to determine the amount of additional margin it may need to collect, including on an intraday basis, and to recalibrate its margin model where back testing indicates that the model did not perform as expected with the result that it does not identify the appropriate amount of initial margin necessary to achieve the intended level of confidence;
 - (b) where it has determined that it is necessary to call additional margin, do so by the next margin call;
 - (c) evaluate the source of testing exceptions highlighted by its back tests;
 - (d) depending on the source of exceptions, determine whether a fundamental change to the margin model, or to the models that input into it, is required and whether the recalibration of current parameters is necessary;
 - (e) evaluate the sources of testing exceptions highlighted by its stress tests;
 - (f) determine whether a fundamental change to its models, their methodologies or its liquidity risk management framework is required or if the recalibration of current parameters or assumptions is necessary, on the basis of the sources of exceptions;
 - (g) where the results of the tests show an insufficient coverage of margin, default fund or other financial resources, increase overall coverage of its financial resources to an acceptable level by the next margin call;
 - (h) where the results of the tests show insufficient liquid financial resources, increase its liquid financial resources to an acceptable level as soon as is practicable; and
 - (i) in reviewing its models, their methodologies and the liquidity risk management framework, monitor the frequency of reoccurring testing exceptions to identify and resolve issues appropriately and without undue delay.

40.8 Reverse stress tests

A central counterparty must-

- (a) conduct reverse stress tests which are designed to identify under which market conditions the combination of its margin, default fund and other financial resources may provide insufficient coverage of credit exposures and for which its liquid financial resources may be insufficient;
- (b) when conducting reverse stress tests, model extreme market conditions that go beyond what are considered plausible market conditions, in order to help determine the limits of its models, its liquidity risk management framework, its financial resources and its liquid financial resources;
- (c) develop reverse stress tests tailored to the specific risks of the markets and of the contracts that it performs clearing functions for;
- (d) use the conditions identified and the results and analysis of its reverse stress tests to help in identifying extreme but plausible scenarios in accordance with Regulation 39; and
- (e) periodically report its reverse stress testing results and analysis in a form that does not breach confidentiality to the risk committee in order to seek their advice in its review.

40.9 Testing default procedures

A central counterparty must-

- (a) test and review its default procedures to ensure they are both practical and effective;
- (b) perform simulation exercises as part of the testing of its default procedures;
- (c) following testing of its default procedures, identify any uncertainties and appropriately adapt its procedures to mitigate such uncertainty;
- (d) through conducting simulation exercises, verify that all clearing members, where appropriate, clients and other relevant parties including, interoperable central counterparties and any related service providers, are informed and know the procedures involved in a default scenario.

40.10 Frequency

- (1) A central counterparty must analyse and monitor-
- (a) its model performance and financial resources coverage in the event of defaults by-
 - (i) back testing margin coverage at least daily; and
 - (ii) conducting at least daily stress testing using standard and predetermined parameters and assumptions;
 - (b) its liquidity risk management framework by conducting monthly stress tests of its liquid financial resources.
- (2) A central counterparty must-
- (a) conduct a detailed thorough analysis of testing results at least on a monthly basis in order to ensure its stress testing scenarios, models and liquidity risk management framework, underlying parameters and assumptions are correct;
 - (b) ensure that the analysis referred to in paragraph (a) is conducted more frequently in stressed market conditions, including when the securities cleared or markets served in general display high volatility, become less liquid, or when the size or concentrations of positions held by its clearing members increase significantly or when it is anticipated that a central counterparty will encounter stressed market conditions;
 - (c) ensure that a sensitivity analysis be conducted at least monthly, using the results of sensitivity tests;

- (d) ensure that the sensitivity analysis referred to in paragraph (c) be conducted more frequently when markets are unusually volatile or less liquid or when the size or concentrations of positions held by its clearing members increase significantly;
- (e) test offsets among securities and how correlations perform during periods of actual and hypothetical severe market conditions at least annually;
- (f) test its haircuts at least monthly;
- (g) reverse stress tests at least quarterly;
- (h) test and review its default procedures at least quarterly and perform simulation exercises at least annually, in accordance with Regulation 40.9;
- (i) perform simulation exercises following any material change to its default procedures.

40.11 Time horizons used when performing tests

(1) The time horizons used for stress tests must be defined in accordance with Regulation 40.5 and must include forward-looking extreme but plausible market conditions.

(2) The historical time horizons used for back tests must include data from at minimum the most recent year or as long as a central counterparty has been clearing the relevant financial instrument if that is less than a year.

40.12 Information to be publicly disclosed

A central counterparty must publicly disclose-

- (a) the general principles underlying its models and their methodologies, the nature of tests performed, with a high level summary of the test results and any corrective actions undertaken;
- (b) key aspects of its default procedures, including-
 - (i) the circumstances in which action may be taken;
 - (ii) who may take those actions;
 - (iii) the scope of the actions which may be taken, including the treatment of both proprietary and client positions, funds and assets;
 - (iv) the mechanisms to address a central counterparty's obligations to non-defaulting clearing members;
 - (v) the mechanisms to help address the defaulting clearing member's obligations to its clients.

41. Interoperability arrangements

(1) A central counterparty may enter into an interoperability arrangement with another central counterparty where the requirements set out in these Regulations, are fulfilled.

(2) When establishing an interoperability arrangement with another central counterparty for the purpose of providing services to a particular exchange, a central counterparty must have non-discriminatory access, to-

- (a) the data that it needs for the performance of its functions from that particular exchange, to the extent that the central counterparty complies with the operational and technical requirements established by the exchange, and
- (b) the relevant settlement system.

(3) Entering into an interoperability arrangement or accessing a data feed or a settlement system referred to in sub-regulations (1) and (2) must be rejected or restricted, directly or indirectly, only in order to control any risk arising from that arrangement or access.

41.1 Risk management for interoperability arrangements

- (1) A central counterparty that enter into an interoperability arrangement must-
 - (a) put in place adequate policies, procedures and systems to effectively identify, monitor and manage the risks arising from the arrangement so that the central counterparty can meet its obligations in a timely manner;
 - (b) agree on its respective rights and obligations, including the applicable law governing their relationships;
 - (c) identify, monitor and effectively manage credit and liquidity risks so that a default of a clearing member of one central counterparty does not affect an interoperable central counterparty; and
 - (d) identify, monitor and address potential interdependences and correlations that arise from an interoperability arrangement that may affect credit and liquidity risks relating to clearing member concentrations, and pooled financial resources.

(2) For the purposes of sub-regulation (1)(b), a central counterparty must use the same rules concerning the moment of entry of transfer orders into its respective systems and the moment of irrevocability, where relevant.

(3) For the purposes of sub-regulation (1)(c), the terms of the arrangement must outline the process for managing the consequences of the default where one of the central counterparties with which an interoperability arrangement has been concluded is in default.

(4) For the purposes of sub-regulation (1)(d), a central counterparty must have controls over the re-use of clearing members' collateral as contemplated under Regulation 38.3 and under the arrangement, if permitted by the Authority or its supervisory authorities, which arrangement must outline how those risks have been addressed taking into account sufficient coverage and need to limit contagion.

(5) Where the risk-management models used by the central counterparty to cover its exposure to its clearing members or their reciprocal exposures are different, the central counterparties must-

- (a) identify those differences, and assess risks that may arise therefrom and take measures, including securing additional financial resources, that limit the impact of the difference on the interoperability arrangement as well as its potential consequences in terms of contagion risks; and
- (b) ensure that these differences do not affect each central counterparty's ability to manage the consequences of the default of a clearing member.

(6) Any associated costs that arise from sub-regulations (1) and (5) must be borne by the central counterparty requesting interoperability or access, unless otherwise agreed between the parties.

41.2 Provision of margins among central counterparties

(1) A central counterparty must distinguish in accounts the assets and positions held for the account of central counterparties with whom it has entered into an interoperability arrangement.

(2) If a central counterparty, which enters into an interoperability arrangement with another central counterparty, only provides initial margins to that central counterparty under a security financial collateral arrangement, the receiving central counterparty must have no right of use over the margins provided by the other central counterparty.

(3) Collateral received in the form of securities must be deposited with (third party) custodians.

(4) The assets referred to in sub-regulations (1) and (2) must be available to the receiving central counterparty only in case of default of the central counterparty which has provided the collateral in the context of an interoperability arrangement.

(5) In case of default of the central counterparty which has received the collateral in the context of an interoperability arrangement, the collateral referred to in sub-regulations (1) and (2) must be readily returned to the providing central counterparty.

41.3 Approval of interoperability arrangements

(1) An interoperability arrangement is subject to the prior approval of the Authority and the South African Reserve Bank, and in the case of an external central counterparty the supervisory authority of the central counterparties involved, where the central counterparty meets all the requirements as set out in this Regulation.

(2) Subject to Regulation 41.4, the Authority may grant approval of the interoperability arrangement only-

- (a) where the central counterparties-
 - (i) have been licensed for a period of at least three years; and
 - (ii) meet all the applicable requirements as set out in these Regulations; and
- (b) the technical conditions for clearing transactions under the terms of the arrangement allow for a smooth and orderly functioning of financial markets and the arrangement does not undermine the effectiveness of supervision.

41.4 Consideration by the Authority

(1) In assessing whether the interoperability arrangement is clearly defined, transparent, valid and enforceable in all relevant jurisdictions, the Authority must take into account-

- (a) whether the interoperability arrangement-
 - (i) clearly identifies, in a form that is binding, the rights and obligations of the central counterparties under the interoperability arrangement;
 - (ii) is compatible with the risk mitigation processes of the central counterparty;
 - (iii) establishes a process for regular review of the documentation, which ensures that the documentation remains appropriate and defines the responsibilities of the central counterparties in that process;
 - (iv) establishes a process to consult the risk committee and the clearing members where the establishment of, or any change to, the interoperability arrangement is likely to have a material impact on the risks to which the central

- counterparty is exposed, and to inform the clearing members where the establishment of, or any change to, the interoperability arrangement may have an impact on their operations;
- (v) clearly indicates the process and the persons responsible for monitoring and ensuring the functioning of the interoperability arrangement;
 - (vi) clearly indicates the dispute resolution mechanism for disputes arising from the interoperability arrangement;
 - (vii) clearly defines the conditions and procedure for the termination of the interoperability arrangement; and
- (b) whether the central counterparty has-
- (i) assessed whether the netting arrangements between the interoperating central counterparties are valid and enforceable;
 - (ii) assessed whether its rules and procedures concerning the moment of entry of transfer orders into its systems and the moment of irrevocability have been defined in accordance with Regulation 41.1(2);
 - (iii) assessed the potential for cross-border legal issues to arise as a result of its participation in the interoperability arrangement, in particular with regard to its default procedures and the enforceability of collateral arrangements;
 - (iv) assessed whether its procedures for the management of the default of the interoperable central counterparty are valid and enforceable;
 - (v) conducted adequate due diligence to ensure there is a high degree of certainty regarding the enforceability of its default rules against the interoperable central counterparties and regarding the viability of its interoperability procedures.

(2) The Authority must assess whether the interoperability arrangement ensures fair and open access and that denial or restrictions on entering into an interoperability arrangement are based only on risk grounds, and for this purpose the Authority must take into account whether the interoperability arrangement does not-

- (a) contain any provision that restricts or creates obstacles for the establishment or future extension of the interoperability arrangement to other central counterparties, other than on duly justified risk grounds;
- (b) unduly restrict the termination of the interoperability arrangement where one of the interoperating central counterparties considers it necessary to terminate it on duly justified risk grounds. In such circumstances, the central counterparty deciding to terminate the interoperability arrangement needs to provide adequate justification to the Authority of its reasons to terminate the arrangement.

(3) The Authority must assess whether a central counterparty, before entering into an interoperability arrangement and on an on-going basis, has put in place a general framework to identify, monitor and manage the potential risks arising from the interoperability arrangement, and for this purpose take into account the following:

- (a) whether the central counterparty has general policies, procedures and systems, which provide that-
 - (i) the interoperability arrangement does not impact on the compliance by the central counterparties participating in the arrangement with the requirements to which they are subject under these Regulations or equivalent foreign country regulations;
 - (ii) the central counterparty has comprehensive information on the operations of the interoperating central counterparties, including the potential reliance on third parties as critical service providers, enabling the central counterparty to perform effective periodic assessments of the risks associated with the interoperability arrangement;
 - (iii) the central counterparty identifies, monitors, assesses and mitigates any new or increased risk, interdependencies or spill-over effects that may arise from the interoperability arrangement;
 - (iv) there is a process for agreeing between the interoperable central counterparties any changes to the interoperability arrangement and for resolving disputes;
 - (v) there is a process for-
 - (aa) informing the interoperable central counterparties of any change to the rules of the central counterparty; and
 - (bb) agreeing between the interoperable central counterparties any proposed changes to the rules of one central counterparty that directly impact the interoperability arrangement;
 - (vi) where interoperability arrangements involve more than two central counterparties, the central counterparty identifies, monitors, assess and mitigate the risks arising from the collective arrangements and the rights and obligations of the different interoperable central counterparties;
 - (vii) there is a process for the regular review of the central counterparty's risk management framework for identifying, monitoring, assessing and mitigating risks arising from the interoperability arrangement, including interdependencies or spill-over effects;
 - (viii) there is a process for the interoperable central counterparties to assess the need for harmonisation of their respective risk management frameworks and that such processes should be approved by the controlling body of the central counterparties;

- (ix) the central counterparty's operational arrangements, processing capacity and risk management arrangements are sufficiently scalable and reliable for both the current and projected peak volumes of activity processed through the interoperable link and the number of central counterparties involved in the interoperability arrangement;
 - (x) the communication arrangements between the interoperable central counterparties ensure timely, reliable and secure communication;
 - (xi) the central counterparty's default management procedures are designed to ensure that the default of one clearing member of one central counterparty does not affect the operations of the interoperable central counterparties or expose them to additional risks;
 - (xii) the central counterparty has assessed the need for specific default management procedures in view of the interoperability arrangement; and
 - (xiii) the procedure for the termination of the interoperability arrangement by any of the interoperable central counterparties is clear and transparent and will result in implementation in an orderly manner that does not unduly expose the interoperable central counterparties to additional risks;
- (b) whether the central counterparty has prudential requirements to ensure that-
- (i) financial risks, including custody risks, arising from the interoperability arrangement are identified, monitored, assessed and mitigated with the same rigour as the central counterparty's exposures arising from its clearing members;
 - (ii) the central counterparty has adequate processes, procedures and risk models, including methodologies for stress testing, to adequately forecast its financial exposures and liquidity needs arising from the interoperability arrangement and to ensure that it is adequately covered for current and potential future credit and liquidity exposures arising from the interoperable central counterparties;
 - (iii) the central counterparty has assessed the required inter-central counterparty resources necessary to cover credit and liquidity risk arising from the interoperability arrangement, including in extreme but plausible market conditions;
 - (iv) the central counterparty has identified any risks arising from the interval between inter-central counterparty margin calls and the availability of the relevant collateral;
 - (v) the resources exchanged between interoperable central counterparties do not include contributions to the respective default funds or other financial resources as defined in Regulation 36;
- (c) whether the central counterparty has assessed the potential effects of an interoperable central counterparty's default, including:
- (i) the central counterparty's potential exposures arising from uncovered credit losses if an interoperable central counterparty's default waterfall has been exhausted;
 - (ii) the degree to which the portability of positions and a dedicated default fund of the interoperable central counterparty would contribute to the lowering of the inter-central counterparty's exposures;
 - (iii) ensuring that risks introduced by the interoperability arrangement are disclosed to the clearing members;
 - (iv) where more than two central counterparties participate in an interoperability agreement, the additional complexity of such contagion risks; and
 - (v) the likely liquidity needs resulting from the interoperability arrangement such as in the case of an inter-central counterparty margin call not being met.
- (d) whether the central counterparty has a process for regularly assessing differences between the risk-management models and membership controls of the interoperating central counterparties and the risks that may arise from the use of such different models or controls, including assessment of the results of stress tests and the testing of default procedures, and has arrangements in place for mitigating those risks;
- (e) the risk profile and membership criteria of each central counterparty, and whether the central counterparty-
- (i) has assessed the risk profile of each interoperating central counterparty, including its membership policies, to ascertain that they do not result in a weakening of the central counterparty's overall risk management framework, in the context of the interoperability arrangement;
 - (ii) has policies, procedures and systems to constantly monitor, assess and mitigate any risk arising from interdependencies, including from entities or groups of entities acting as clearing members or providers of essential services to one or more interoperable central counterparties;
 - (iii) has reviewed the concentration limits established by each central counterparty to ensure they remain appropriate in light of the interoperability arrangement;
- (f) exposure management, which must provide that the central counterparty-
- (i) has identified how it will cover exposures originating from the interoperability arrangement, including:
 - (aa) how it will calculate margin pursuant to Regulation 33;
 - (bb) how it will meet exposures following the default of an interoperable central counterparty without reducing the central counterparty's ability to fulfil its obligations to its own clearing members;
 - (cc) the assumptions for the determination and exchange of inter-central counterparty's margins. This should include a detailed explanation to the Authority of the differences, if any, between the risk management

parameters applied to the inter-central counterparty exposures as opposed to the ones applied to the clearing members.

- (ii) has put in place risk management tools, such as margin or default fund policies, to address any weakening of the central counterparty's overall risk management framework due to the interoperability arrangement;
 - (iii) has put in place arrangements that are transparent to its clearing members, to meet exposures arising from the interoperability arrangement, including in extreme but plausible market conditions.
- (4) The Authority must-
- (a) assess that an interoperable central counterparty deposits collateral in a way that it is protected from the default of any interoperable central counterparty;
 - (b) at least take into account that the interoperating central counterparty has undertaken appropriate due diligence to ensure that the collateral:
 - (i) is deposited in a insolvency remote manner, thus it will not be affected by the default of any other interoperable central counterparty;
 - (ii) will be available in a timely manner when needed.

42. Record keeping

A central counterparty must-

- (a) maintain for a period of at least five years following the termination of a contract, all the records on the functions and activity provided so as to enable the Authority to monitor the central counterparty's compliance with these requirements;
- (b) maintain, for a period of at least five years following the termination of a contract, all information on all contracts it has processed that will enable the identification of the original terms of a transaction before clearing by that central counterparty; and
- (c) make the records and information referred to in paragraphs (a) and (b) and all information on the positions of cleared contracts, irrespective of the exchange or trading venue where the transactions were executed, available upon request to the Authority.

42.1 General requirements

(1) The records must be retained in a durable medium so that information could be provided within the time specified in sub-regulations (2) and (3) to the Authority and other supervisory authorities and in such a form and manner that the following conditions are met-

- (a) it is possible to reconstitute each key stage of the processing by the central counterparty;
- (b) it is possible to record, trace and retrieve the original content of a record before any corrections or other amendments;
- (c) appropriate measures are in place to prevent unauthorised alteration of records;
- (d) appropriate measures are in place to ensure the security and confidentiality of the data recorded;
- (e) a mechanism for identifying and correcting errors is incorporated in the record keeping system;
- (f) appropriate precautionary measures to enable the timely recovery of the records in the case of a system failure are included in the record keeping system.

(2) Where records or information are less than six months old, they must be provided to the authorities listed in sub-regulation (1) as soon as possible and at the latest by the end of the following business day following a request from the supervisory authority.

(3) Where records or information are older than six months, it must be provided to the authorities listed in sub-regulation (1) as soon as possible and within five business days following a request from the supervisory authority.

(4) Where a central counterparty maintains records outside the Republic, it must ensure that the Authority is able to access the records to the same extent and within the same periods as if they were maintained within the Republic.

(5) A central counterparty must name the relevant persons who can, within the delay established in sub-regulations (2) and (3) for the provision of the relevant records, explain the content of its records to the supervisory authorities.

(6) All records required to be kept by a central counterparty under this Regulation must be open to inspection by the Authority.

(7) A central counterparty must provide the Authority with a direct data feed to transaction records and or position records when requested.

42.2 Transaction records

(1) A central counterparty must-

- (a) maintain records of all transactions in all contracts it clears; and
- (b) ensure that its records include all information necessary to conduct a comprehensive and accurate reconstruction of the clearing process for each contract;
- (c) ensure that each record on each transaction is uniquely identifiable and searchable at least by all fields concerning the central counterparty, interoperable central counterparty, clearing member, client, if known to the central counterparty, and financial instrument.

(2) In relation to every transaction received for clearing, a central counterparty must, immediately upon receiving the relevant information, make and keep updated a record of the following details:

- (a) the price, rate or spread and quantity;
- (b) the clearing capacity, which identifies whether the transaction was a buy or sale from the perspective of the central counterparty recording;
- (c) the instrument identification;
- (d) the identification of the clearing member;
- (e) the identification of the exchange or trading venue where the contract was concluded;
- (f) the date and time of interposition of the central counterparty;
- (g) the date and time of termination of the contract;
- (h) the terms and modality of settlement;
- (i) the date and time of settlement or of buy-in of the transaction and to the extent they are applicable, of the following details:
 - (i) the day and the time at which the contract was concluded;
 - (ii) the original terms and parties of the contract;
 - (iii) the identification of the interoperable central counterparty clearing one leg of the transaction, where applicable;
 - (iv) the identity of the client, including any indirect client, where known to the central counterparty, and in case of a give-up, the identification of the party that transferred the contract.

42.3 Position records

(1) A central counterparty must-

- (a) maintain records of positions held by each clearing member;
- (b) ensure that separate records are held for each account kept;
- (c) ensure that its records include all information necessary to conduct a comprehensive and accurate reconstruction of the transactions that established the position and that each record is identifiable and searchable at least by all fields concerning the central counterparty, interoperable central counterparty, clearing member, client, if known to the central counterparty, and financial instrument.

(2) At the end of each business day, a central counterparty must make a record in relation to each position the following details, to the extent they are linked to the position in question-

- (a) the identification of the clearing member and the client, if known to the central counterparty, and of any interoperable central counterparty maintaining such position, where applicable;
- (b) the sign-off of the position;
- (c) the daily calculation of the value of the position with records of the prices at which the contracts are valued, and of any other relevant information.

(3) A central counterparty must make, and keep updated, a record of the amounts of margins, default fund contributions and other financial resources called by the central counterparty and the corresponding amount actually posted by the clearing member at the end of day and changes to that amount that may occur intraday, with respect to each single clearing member and client account if known to the central counterparty.

42.4 Business records

A central counterparty must maintain adequate and orderly records of activities related to its business and internal organisation, which records must include-

- (a) the organisational charts for the controlling body and relevant committees, clearing unit, risk management unit, and all other relevant units or divisions;
- (b) the identities of the shareholders or members, whether direct or indirect, natural or legal persons, that have qualifying holdings and the amounts of those holdings;
- (c) the minutes of meetings of the controlling body and, if applicable, of meetings of sub-committees and of senior management committees;

- (d) the minutes of meetings of the risk committee;
- (e) the minutes of consultation groups with clearing members and clients, if any;
- (f) internal and external audit reports, risk management reports, compliance reports, and reports by consultant companies, including management responses;
- (g) the business continuity policy and disaster recovery plan;
- (h) the liquidity plan and the daily liquidity reports;
- (i) records reflecting all assets and liabilities and capital accounts;
- (j) complaints received, with information on the complainant's name, address, and account number; the date the complaint was received; the name of all persons identified in the complaint; a description of the nature of the complaint; the disposition of the complaint, and the date the complaint was resolved;
- (k) records of any interruption of functions and services or dysfunction, including a detailed report on the timing, effects and remedial actions;
- (l) records of the results of the back and stress tests performed;
- (m) written communications with the Authority and other supervisory authorities;
- (n) legal opinions received;
- (o) where applicable, documentation regarding interoperability arrangements with other central counterparties; and
- (p) the relevant documents describing the development of new business initiatives;

42.5 Records of data reported to a trade repository

A central counterparty must identify and retain all information and data required to be reported to a trade repository along with a record of the date and time the transaction is reported and where applicable, ensure that the Authority is able to access the records to the same extent and within the same periods as if they were maintained within the Republic.

CHAPTER VII

TRANSITIONAL ARRANGEMENTS AND COMMENCEMENT

43. Transitional arrangements

(1) A person conducting the business of an OTC derivative provider must, within 6 months from the commencement date of Regulation 2, lodge with the Authority an application for authorisation as an OTC derivative provider in the manner prescribed by the Authority.

(2) A licensed exchange, licensed central securities depository, licensed clearing house and licensed trade repository must comply with Regulation 8 within 12 months from the commencement date of these Regulations.

(3) A licensed central counterparty, or a licensed clearing house approved by the Authority, the South African Reserve Bank and the Prudential Authority to perform the functions of a central counterparty, must comply with the requirements set out in Chapter VI of these Regulations within 18 months from the commencement date of these Regulations.

44. Commencement and short title

These Regulations are called the Financial Markets Act Regulations and come in effect on the date of publication.

SCHEDULE A**LIST OF ABBREVIATIONS AND ACRONYMS**

CCP	Central Counterparty
CPSS	Committee on Payment and Settlement Systems
CPMI	Committee on Payments and Market Infrastructures
CVA	Credit Valuation Adjustment
EAD	Exposure at Default
IFRS	International Financial Reporting Standards
IOSCO	International Organization of Securities Commissions
JIBAR	Johannesburg Interbank Agreed Rate
OTC	Over-the-Counter
STRIPS	Separate Trading of Registered Interest and Principle of Securities

OPERATIONAL RISK (as set out in Regulation 25)**Table 25 (A)**

Business line	List of activities
Trading and sales	<ul style="list-style-type: none"> • Dealing on own account • Money broking • Reception and transmission of orders in relation to one or more securities • Execution of orders on behalf of clients • Placing of securities without a firm commitment basis • Operation of exchanges and trading venues
Payment and settlement	<ul style="list-style-type: none"> • Money transmission services, • Issuing and administering means of payment
Agency services	<ul style="list-style-type: none"> • Safekeeping and administration of securities for the account of clients, including custodianship and related services such as cash/collateral management
Asset management	<ul style="list-style-type: none"> • Portfolio management • Managing of Collective investment schemes • Other forms of asset management

Table 25 (B)

Event-Type Category	Definition
Internal fraud	<ul style="list-style-type: none"> 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
External fraud	<ul style="list-style-type: none"> Losses due to acts of a type intended to defraud, misappropriate property or circumvent the law, by a third party
Employment Practices and Workplace Safety	<ul style="list-style-type: none"> Losses arising from acts inconsistent with employment, health or safety laws or agreements, from payment of personal injury claims, or from diversity/ discrimination events
Clients, Products & Business Practices	<ul style="list-style-type: none"> Losses arising from an unintentional or negligent failure to meet a professional obligation to specific clients (including fiduciary and suitability requirements), or from the nature or design of a product
Damage to Physical Assets	<ul style="list-style-type: none"> Losses arising from loss or damage to physical assets from natural disaster or other events
Business disruption and system failures	<ul style="list-style-type: none"> Losses arising from disruption of business or system failures
Execution, Delivery & Process Management	<ul style="list-style-type: none"> Losses from failed transaction processing or process management, from relations with trade counterparties and vendors

CREDIT RISK (Capital calculations for credit risk as set out in Regulation 26)

Table 26 (A)

Claim in respect of	Credit assessment issued by credit rating agencies ¹					
	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to B-	Below B-	Unrated
Sovereigns (including the Central Bank of that particular country)	0%	20%	50%	100%	150%	100%
Public-sector entities	20%	50%	50%	100%	150%	50%
Banks²	20%	50%	50%	100%	150%	50%
Banks: short-term claims³	20%	20%	20%	50%	150%	20%
Corporate entities^{4,5}	AAA to AA- 20%	A+ to A- 50%	BBB+ to BB- 100%	Below BB- 150%	Unrated 100%	

- The notations used in this table relate to the ratings used by a particular credit rating agency. The use of the rating scale of a particular credit rating agency does not mean that any preference is given to a particular credit rating agency. The assessments/ rating scales of other credit rating agencies may have been used instead.
- With the exception of short-term self-liquidating letters of credit, no claim on an unrated bank shall be assigned a risk weighting lower than the risk weighting assigned to a claim on the central government of the country in which the bank is incorporated.
- Claims with an original maturity of three months or less, excluding a claim which is renewed or rolled, resulting in an effective maturity of more than three months.
- Including entities conducting insurance business.
- No claim in respect of an unrated corporate exposure shall be assigned a risk weight lower than the risk weight assigned to a claim on the central government of the country in which the corporate entity is incorporated.

Table 26 (B)

Risk weight	Transactions with the following counterparties, including assets
0%	<p><u>Transactions with the following counterparties</u></p> <p>Central government of the Republic of South Africa (RSA), provided that the relevant exposure is repayable and funded in Rand</p> <p>Reserve Bank, provided that the relevant exposure is repayable and funded in Rand</p> <p>Corporation for Public Deposits, provided that the relevant exposure is repayable and funded in Rand</p> <p>Bank for International Settlements (BIS)</p> <p>International Monetary Fund (IMF)</p> <p>European Central Bank (ECB)</p> <p>World Bank Group, including the International Bank for Reconstruction and Development (IBRD) and the International Finance Corporation (IFC)</p> <p>Asian Development Bank (ADB)</p> <p>African Development Bank (AfDB)</p> <p>European Bank for Reconstruction and Development (EBRD)</p> <p>Inter-American Development Bank (IADB)</p> <p>European Investment Bank (EIB)</p> <p>European Investment Fund (EIF)</p> <p>Nordic Investment Bank (NIB)</p> <p>Caribbean Development Bank (CDB)</p> <p>Islamic Development Bank (IDB)</p> <p>Council of Europe Development Bank (CEDB)</p> <p>Intragroup central counterparty balances¹</p> <p>Intragroup balances with other regulated financial entities with capital requirements similar to these Regulations¹</p> <p><u>Assets</u></p> <p>Cash and cash equivalents</p>

1. Provided that-

- (a) the relevant entity is managed as an integrated part of the group;
- (b) capital resources are freely transferable between the relevant entity and the relevant parent central counterparty or controlling company.

20%	<p><u>Transactions with the following counterparties, including assets</u></p> <p><u>Transactions with the following counterparties</u></p> <p>RSA public-sector bodies, excluding exposures to the central government, SA Reserve Bank and the Corporation for Public Deposits when the said exposure is repayable and funded in Rand</p> <p>Banks in the RSA, provided that the claim on the bank has an original maturity of three months or less and is denominated and funded in Rand, excluding any claim on a RSA bank that is renewed or rolled resulting in an effective maturity of more than three months</p> <p><u>Assets</u></p> <p>Cash items in process of collection</p>
100%	<p><u>Transactions with the following counterparties or assets</u></p> <p>All other counterparties or assets not covered elsewhere in these Regulations</p>

Table 26 (C): Standard haircut¹

Issue rating in respect of debt securities	Residual maturity	Sovereigns ²	Other issuers
AAA to AA-/	≤ 1 year	0.5	1
	> 1 year; ≤ 5 years	2	4
	> 5 years	4	8
A+ to BBB-/	≤ 1 year	1	2
	> 1 year; ≤ 5 years	3	6
	> 5 years	6	12

BB+ to BB-	All	15	
Securities issued by the Central Government of the RSA or the South African Reserve Bank	≤ 1 year	1	
	> 1 year; ≤ 5 years	3	
	> 5 years	6	
Cash in the same currency		0	

1. Based on daily mark-to-market adjustments, daily re-margining and a ten business day holding period, expressed as a percentage.
2. Including institutions that qualify for a risk weight of zero %.

Table 26 (D)

Transaction type	Minimum holding period	Condition
Repo-style transaction	Five business days	Daily re-margining
Other capital market transactions	Ten business days	Daily re-margining
Secured lending	Twenty business days	Daily revaluation

Table 26 (E): Volatility adjusted haircuts

Issue rating in respect of debt securities	Residual Maturity	Volatility adjustments for debt securities issued by Sovereigns		Volatility adjustments for debt securities issued by other institutions	
		20-day liquidation period (%)	5-day liquidation period (%)	20-day liquidation period (%)	5-day liquidation period (%)
AAA to AA-/A-1	≤ 1 year	0.707	0.354	1.414	0.707
	> 1 year; ≤ 5 years	2.828	1.414	5.657	2.828
	> 5 years	5.657	2.828	11.314	5.657
A+ to BBB-/ A-2/ A-3/ P-3 and unrated bank securities qualifying as eligible collateral in terms of the simple approach	≤ 1 year	1.414	0.707	2.828	1.414
	> 1 year; ≤ 5 years	4.243	2.121	8.485	4.243
	> 5 years	8.485	4.243	16.971	8.485
BB+ to BB-	All	21.213	10.607		
Securities issued by the Central Government of the RSA or the South African Reserve Bank	≤ 1 year	1.414	0.707	2.828	1.414
	> 1 year; ≤ 5 years	4.243	2.121	8.485	4.243
	> 5 years	8.485	4.243	16.971	8.485

Table 26 (F): Volatility adjusted haircuts for currency mismatches

20-day liquidation period (%)	5-day liquidation period (%)
11.314	5.657

COUNTERPARTY CREDIT RISK (as set out in Regulation 27)

Table 27 (A)

Rating ¹	Weight w _i
AAA	0.7%
AA	0.7%
A	0.8%
BBB	1.0%
BB	2.0%
B	3.0%
CCC	10.0%

1. The notations used in this table relate to the ratings used by a particular credit rating agency. The use of the rating scale of a particular credit rating agency does not mean that any preference is given to a particular credit rating agency. The assessments/ rating scales of other credit rating agencies may have been used instead.

Table 27 (B): Credit conversion factor

Remaining maturity	Interest rates	FX and gold	Equities	Precious metals except gold	Other commodities
≤ 1 year	0,0%	1,0%	6,0%	7,0%	10,0%
> 1 year; ≤ 5 years	0,5%	5,0%	8,0%	7,0%	12,0%
> 5 years	1,5%	7,5%	10,0%	8,0%	15,0%

Table 27 (C): Potential future exposure add-on factor¹

Description	Protection buyer	Protection seller
Total-return swap		
Qualifying ² reference obligation	5%	5%
Non-qualifying reference obligation	10%	10%
Credit-default swap		
Qualifying ² reference obligation	5%	5% ³
Non-qualifying reference obligation	10%	10% ³

1. Add-on factors are not affected by differences in residual maturity.
2. Qualifying shall for purposes of this Regulation bear the same meaning as the “qualifying” category for the treatment of specific risk relating to instruments in terms of the standardised measurement method in Regulation 30
3. The protection seller of a credit-default swap shall be subject to the add-on factor only when it is subject to closeout upon the insolvency of the protection buyer while the underlying is still solvent, in which case the add-on shall be limited to the amount of any unpaid premium.

MARKET RISK

Table 30 (A)

Position in respect of-	Description of position and specific risk capital requirement						
Government ^{1, 2}	External credit assessment					Unrated	
	AAA to AA-	A+ to BBB-			BB+ to B-		Below B-
		Residual term to maturity of-					
		≤ 6 months	> 6 months; ≤ 24 months	> 24 months			
	0%	0.25%	1%	1.60%	8%	12%	8%
Government of the RSA or South African Reserve Bank ^{2, 3}	0%						
Qualifying ⁴	Residual term to maturity of-						
	≤ 6 months		> 6 months; ≤ 24 months		> 24 months		
	0.25%		1%		1.60%		

1. Includes forms of government that qualify for a risk weight of zero % in terms of the provisions of the Regulations 30.1
2. Includes instruments such as bonds and treasury bills and other short-term instruments.
3. Provided that the relevant instrument is denominated, and funded by the central counterparty, in Rand.
4. Includes-
 - (a) securities issued by public sector entities and multilateral development banks;
 - (b) any instrument rated investment grade, that is, a rating of BBB- or an equivalent rating, or a better rating, which rating shall be issued in respect of the relevant instrument by no less than two eligible credit rating agencies;
 - (c) any instrument rated investment grade, that is, a rating of BBB- or an equivalent rating, by one eligible credit rating agency, and not less than investment grade by another eligible credit rating agency;
 - (d) any unrated instrument issued by any institution rated investment grade, that is, a rating of BBB- or an equivalent rating, or a better rating, provided that the institution must be subject to comparable supervisory and regulatory arrangements than banks in the RSA, including, in particular, risk-based capital requirements and regulation and supervision on a consolidated basis, and the central counterparty has no reason to suspect that the said unrated instrument is of a lesser quality than investment grade;
 - (e) subject to such conditions as may be determined by the Authority, any other unrated or other instrument determined by the Authority.

Table 30 (B): Maturity method: time bands and weights^{1,2}

Time zone	Coupon equal to or more than 3%	Coupon less than 3% ³	Risk weight (%)	Assumed change in yield
	Maturity band			
1	0 ≤ 1 month	0 ≤ 1 month	0.00	1.00
	> 1 ≤ 3 months	> 1 ≤ 3 months	0.20	1.00
	> 3 ≤ 6 months	> 3 ≤ 6 months	0.40	1.00
	> 6 ≤ 12 months	> 6 ≤ 12 months	0.70	1.00
2	> 1 ≤ 2 years	> 1.0 ≤ 1.9 years	1.25	0.90
	> 2 ≤ 3 years	> 1.9 ≤ 2.8 years	1.75	0.80
	> 3 ≤ 4 years	> 2.8 ≤ 3.6 years	2.25	0.75
3	> 4 ≤ 5 years	> 3.6 ≤ 4.3 years	2.75	0.75
	> 5 ≤ 7 years	> 4.3 ≤ 5.7 years	3.25	0.70
	> 7 ≤ 10 years	> 5.7 ≤ 7.3 years	3.75	0.65
	> 10 ≤ 15 years	> 7.3 ≤ 9.3 years	4.50	0.60
	> 15 ≤ 20 years	> 9.3 ≤ 10.6 years	5.25	0.60
	> 20 years	> 10.6 ≤ 12.0 years	6.00	0.60
		> 12.0 ≤ 20.0 years	8.00	0.60
	> 20 years	12.50	0.60	

1. Based on the residual term to maturity the central counterparty must assign to the relevant time band the relevant position arising from any fixed rate instrument.
2. Based on the residual term to the next repricing date the central counterparty must assign to the relevant time band the relevant position arising from any floating-rate instrument.
3. Including any zero-coupon bond or deep-discount bond.

Table 30 (C): Horizontal disallowances

Time zone ¹	Disallowance factor within the relevant time zone	Disallowance factor between adjacent time zone	Disallowance factor between time zones 1 and 3
1	40%		
		40%	
2	30%		100%
		40%	
3	30%		

1. Based on the maturity bands specified in table 3 above.

Table 30 (D): Duration method: time bands and assumed changes in yield

Time zone	Duration	Assumed change in yield
1	0 ≤ 1 month	1,00
	> 1 ≤ 3 months	1,00
	> 3 ≤ 6 months	1,00
	> 6 ≤ 12 months	1,00
2	> 1,0 ≤ 1,9 years	0,90
	> 1,9 ≤ 2,8 years	0,80
	> 2,8 ≤ 3,6 years	0,75
3	> 3,6 ≤ 4,3 years	0,75
	> 4,3 ≤ 5,7 years	0,70
	> 5,7 ≤ 7,3 years	0,65
	> 7,3 ≤ 9,3 years	0,60
	> 9,3 ≤ 10,6 years	0,60
	> 10,6 ≤ 12,0 years	0,60
	> 12,0 ≤ 20,0 years	0,60
	> 20 years	0,60