

- (n) shall be duly documented;
 - (o) shall be subject to regular monitoring and review, and relevant testing, to ensure that they remain relevant and current.
- (6) As a minimum-
- (a) the board of directors and senior management of a bank-
 - (i) shall possess sufficiently detailed knowledge of all the major business lines of the bank to ensure that the policies, processes, procedures, controls and risk monitoring systems envisaged in subregulations (4) and (5) are appropriate and effective;
 - (ii) shall have sufficient expertise to understand the various instruments, markets and activities in which the bank conducts business, including capital market activities such as securitisation and the related off-balance sheet-activities, and the associated risks;
 - (iii) shall ensure that the bank has in place management information systems-
 - (A) that facilitate the proactive management of risk;
 - (B) that enable the senior management of the bank to duly manage and appropriately mitigate the bank's relevant risk exposures, including the various risk exposures arising from any securitisation or resecuritisation structure;
 - (C) able to provide regular, accurate and timely information regarding matters such as the bank's aggregate risk profile, as well as the main assumptions used for risk aggregation;
 - (D) adaptable and responsive to changes in the bank's underlying risk assumptions;
 - (E) sufficiently flexible to generate relevant forward-looking scenario analyses that capture the board and senior management's interpretation of evolving market conditions and stressed conditions;
 - (F) capable of capturing and bringing to the attention of senior management and the board of directors any breach in a specified internal, regulatory or other statutory limit;
 - (G) that make provision for any relevant initial and ongoing validation;
 - (iv) shall ensure that the monitoring and the reporting of individual and aggregate exposure(s) to related persons are subject to an independent credit review process;
 - (v) shall remain informed about the aforesaid risks and changes thereto as financial markets, risk management practices and the bank's activities evolve;

- (vi) shall ensure that accountability and lines of authority are clearly delineated;
 - (vii) shall ensure adequate segregation of duties to promote sound governance and effective risk management in the bank, and avoid conflict of interests;
 - (viii) shall ensure that, before embarking on new activities, investing in new instruments or introducing products new to the bank-
 - (A) the potential changes in the bank's exposure to risk arising from the aforesaid new instruments, products or activities have been duly identified, considered and reviewed; and
 - (B) the bank's infrastructure, policies, processes, procedures and internal controls necessary to manage the related risks are duly updated and in place;
 - (ix) shall duly consider the possible difficulty related to the valuation of new products, and how the products might perform in a stressed economic environment;
 - (b) the senior management of a bank-
 - (i) shall ensure that the risks to which the bank is exposed are appropriately managed;
 - (ii) shall set capital targets commensurate with the bank's risk profile and control environment;
 - (iii) shall implement robust and effective risk management and internal control processes;
 - (iv) shall develop and maintain-
 - (A) an appropriate strategy that ensures that the bank maintains adequate capital based on the nature, complexity and risk inherent in the bank's on-balance sheet and off-balance sheet activities, including the bank's activities relating to risk mitigation;
 - (B) an internal capital adequacy assessment process that responds to changes in the business cycle within which the bank conducts business;
 - (v) shall, with respect to new or complex products or activities, understand the underlying assumptions regarding business models, valuation and risk management practices, and shall duly evaluate the bank's potential risk exposure should the aforesaid assumptions fail;
 - (vi) shall, on a periodic basis, conduct relevant stress tests, particularly in respect of the bank's main risk exposures, in order to identify events or changes in market conditions that may have an adverse impact on the bank.
- (7) When a bank wishes to adopt the IRB approach for the measurement of the bank's

exposure to credit risk as envisaged in regulation 23(10), the board of directors or a designated committee thereof, that is, a subcommittee of the board of directors, and the relevant senior management of the bank, shall approve all material aspects of the bank's rating and risk estimation processes, provided that-

- (a) the board of directors and any board-appointed committee-
 - (i) shall possess-
 - (A) a general understanding of the bank's risk rating system;
 - (B) a detailed comprehension of the relevant risk-management reports submitted to the board or board-appointed committee;
 - (ii) shall ensure that the bank establishes and maintains an independent credit risk control unit, which credit risk control unit-
 - (A) shall be responsible for-
 - (i) the design or selection, implementation and performance of the bank's internal rating systems;
 - (ii) the testing and monitoring of internal risk grades;
 - (iii) the production and analysis of summary reports from the bank's rating system, which reports shall include-
 - (aa) historical data in respect of exposures that defaulted, sorted according to the rating of the exposure at the time of default and one year prior to default;
 - (bb) migration analyses in respect of risk grades;
 - (cc) trends in respect of key rating criteria;
 - (iv) the implementation of procedures to verify that rating definitions are consistently applied across all relevant departments and geographical areas;
 - (v) the review and documentation of any changes to the rating process, criteria or rating parameters, including the reasons for such changes;
 - (vi) the review of the rating criteria in order to ensure that the criteria remain predictive of risk.
 - (B) shall be functionally independent from the personnel and management functions or business units or lines responsible for the origination of credit exposures;

- (C) shall be headed by a person who reports directly to the chief executive officer and the bank's board of directors, provided that, subject to the prior written approval of and such conditions as may be specified in writing by the Registrar, when a bank has appointed an independent Chief Risk Officer (CRO), as part of the bank's governance structure, who reports directly to the chief executive officer of the bank and the bank's board of directors, the head of the credit risk control unit may report directly to the said CRO;
 - (D) shall bring to the attention of the senior management and the board of directors of the bank matters such as credit risk concentrations or any violations of specified risk or appetite limits;
 - (E) shall actively participate in the development, selection, implementation and validation of the bank's rating models.
- (iii) shall ensure that the bank's rating systems and processes are subject to regular review, but no less frequently than once a year, by the internal audit department or an equally independent function, which independent review-
- (A) shall include-
 - (i) the operations of the credit function;
 - (ii) the estimates of all relevant risk components such as PD ratios, LGD ratios and EAD amounts;
 - (iii) the bank's compliance with all relevant minimum requirements;
 - (B) shall be duly documented.
- (b) the relevant senior management of the bank-
- (i) shall possess-
 - (A) a detailed understanding of the rating system's design and operation;
 - (B) a detailed comprehension of the risk reports generated by the risk system, including information relating to-
 - (i) the relevant internal ratings;
 - (ii) the bank's risk profile based on risk grades;
 - (iii) risk migration across risk grades;
 - (iv) the relevant risk estimates of the relevant parameters per risk grade;

- (v) a comparison between realised and expected PD ratios, LGD ratios and EAD amounts,

provided that the frequency of reporting may vary based on the significance and type of information and the level of the recipient.

- (ii) shall provide notice to the board of directors or a committee appointed by the board of material changes or exceptions from the established policies;
- (iii) shall approve material differences between established procedure and actual practice;
- (iv) shall, on an ongoing basis, ensure that the rating system operates in an effective manner;
- (v) shall meet regularly with the relevant staff in the credit risk control unit in order to discuss-
 - (A) the performance of the rating process;
 - (B) areas that may need improvement;
 - (C) the status of previously identified deficiencies.

(8) As a minimum, a bank that wishes to adopt the internal model method for the measurement of the bank's exposure to counterparty credit risk-

- (a) shall obtain the prior written approval of the Registrar and shall in addition to the relevant requirements specified in these Regulations comply with such conditions as may be specified in writing by the Registrar;
- (b) shall have in place an independent risk control unit, which risk control unit-
 - (i) shall be responsible for the design and implementation of the bank's risk management system;
 - (ii) shall produce and analyse regular reports on the output of the bank's risk measurement model, including an evaluation of the relationship between measures of risk exposure and counterparty limits;
 - (iii) shall be independent from all relevant line business units;
 - (iv) shall report directly to the senior management of the bank;
 - (v) shall conduct regular backtesting, that is, an ex-post comparison of the risk measure generated by the bank's EPE model against the bank's actual exposure to counterparty credit risk;

- (vi) shall conduct the initial and ongoing validation of the internal model;
 - (vii) shall control the integrity relating to input data;
 - (viii) shall validate prices supplied by business units;
 - (ix) shall be adequately staffed;
 - (x) shall be closely integrated into the day-to-day credit risk management process of the bank, that is, the work of the unit shall form an integral part of the process of planning, monitoring and controlling the bank's credit and overall risk profile.
- (c) shall-
- (i) ensure the active involvement and oversight of the bank's board of directors and senior management in the bank's risk control processes;
 - (ii) regard risk control as an essential aspect of the bank's business;
 - (iii) devote adequate resources to the bank's risk control unit;
 - (iv) ensure that reports prepared by the independent risk control unit are reviewed by a level of senior management with sufficient authority to enforce both reductions of individual exposures to a particular counterparty and reductions in the bank's overall counterparty risk exposure;
 - (v) ensure that the senior management of the bank is aware of the limitations and assumptions made in respect of the said internal model and the impact that such limitations and assumptions may have on the output of the model;
 - (vi) ensure that transactions are assigned to the appropriate netting set within the bank's model for the calculation or estimation of expected positive exposure relating to a particular counterparty;
 - (vii) in the case of-
 - (A) exposures with a rising risk profile after one year, regularly compare the bank's estimate of EPE over one year with the EPE over the life of the said exposure;
 - (B) exposures with a maturity of less than one year, regularly compare the replacement cost or current exposure and the realised exposure profile;
 - (viii) store sufficient data relating to the bank's counterparty exposure in order to conduct robust stress-testing and backtesting;

- (ix) ensure that the bank has in place robust internal policies and procedures to verify that in respect of each exposure in respect of which-
 - (A) the bank wishes to apply netting, prior to including the relevant transaction in a netting set, the transaction is covered by a legally enforceable netting contract that complies with the relevant requirements specified in these Regulations;
 - (B) the bank wishes to make use of collateral to mitigate the bank's exposure to counterparty credit risk, prior to recognising the effect of the said collateral in the calculation of the bank's exposure to counterparty credit risk, the collateral complies with the relevant requirements specified in these Regulations.
- (d) shall have in place a robust model for the estimation of expected positive exposure, that is, a robust EPE model, which model-
 - (i) shall be closely integrated into the risk management processes of the reporting bank and the output of which model shall be an integral part of the process of planning, monitoring and controlling the bank's exposure to counterparty credit risk;
 - (ii) shall be used in conjunction with exposure limits in a manner that is consistent over time and that is well understood by the senior management and relevant line functions of the reporting bank;
 - (iii) shall for purposes of measuring counterparty exposure forecast over a sufficiently long time horizon interest rates, foreign exchange rates, equity prices, commodities, and other market risk factors, the performance of which forecasting model relating to market risk factors shall be validated over a sufficiently long time horizon;
 - (iv) shall capture and include transaction-specific information in order-
 - (A) to aggregate counterparty exposures at the level of a particular netting set;
 - (B) to duly capture the effect of margining, that is, the model shall take into account the current amount of margining and margining that will be exchanged between relevant counterparties in the future;
 - (v) shall in the case of exposures with a long-term maturity duly capture the potential rising risk profile of the said exposure;

- (vi) shall duly account for-
 - (A) the nature of margin agreements, that is, unilateral or bilateral agreements;
 - (B) the frequency of margin calls;
 - (C) the margin period of risk;
 - (D) the minimum threshold of unmargined exposure the bank is willing to accept;
 - (E) the minimum transfer amount.
- (vii) shall either model the mark-to-market change in the value of collateral posted or ensure the bank's continued compliance with the relevant requirements relating to collateral, specified in regulations 23(7)(b) and 23(12)(b);
- (viii) shall comply with the relevant further operational requirements specified in subregulation (12) below.
- (e) shall have in place a robust process in respect of model validation, which model validation process-
 - (i) shall include an appropriate testing of the pricing models used to calculate counterparty exposure for a given scenario of future shocks to market risk factors, which pricing models-
 - (A) may be different from the pricing models used to calculate VaR over a short horizon;
 - (B) shall in the case of options duly account for the nonlinearity of option value with respect to market risk factors;
 - (ii) shall include appropriate backtesting in respect of representative counterparty portfolios and netting sets-
 - (A) which backtesting shall be conducted at regular intervals;
 - (B) which backtesting shall include a sufficient number of actual and hypothetical representative counterparty portfolios and netting sets;
 - (C) which representative portfolios and netting sets shall be selected based on their sensitivity to the material risk factors and correlations to which the bank is exposed;

- (D) during which process of backtesting-
 - (i) starting at a particular historical date, the bank shall use its internal model to forecast each portfolio's probability distribution of exposure at various time horizons;
 - (ii) using historical data on movements in market risk factors, the bank shall compute the exposures that would have occurred in respect of each portfolio at each time horizon assuming no change in the composition of the relevant portfolio;
 - (iii) the bank shall compare the realised exposures with the model's forecast distribution at the various relevant time horizons;
 - (iv) the bank shall repeat the process in respect of several historical dates that cover a wide range of market conditions such as rising rates, falling rates, quiet markets and volatile markets;
 - (v) the bank shall obtain and duly document the explanations for significant differences between the realised exposures and the model's forecast distribution.
- (f) shall have in place a routine and rigorous process or programme of stress-testing-
 - (i) the results of which stress-testing-
 - (A) shall periodically be reviewed by the senior management of the bank;
 - (B) shall be used in the bank's internal assessment of capital adequacy;
 - (C) shall be compared against the bank's measure of expected positive exposure and the related impact on the bank's capital adequacy;
 - (D) shall be duly reflected in the bank's policies and counterparty limits set by management and the bank's board of directors;
 - (ii) which stress-testing process or programme-
 - (A) shall include the identification of possible events or future changes in economic conditions that may have an unfavourable effect on the bank's credit exposures, and an assessment of the bank's ability to withstand such changes, which events or economic conditions may include-
 - (i) economic or industry downturns;
 - (ii) market-place events; or
 - (iii) decreased liquidity conditions.

- (B) shall include the stress testing of the bank's counterparty exposures, including a process of jointly stressing relevant market and credit risk factors;
- (iii) during which process of stress-testing the bank shall consider-
 - (A) concentration risk, including concentration risk in respect of a single counterparty or a group of related counterparties;
 - (B) any risk of correlation between market risk and credit risk, including situations in which a large movement in market prices, for example, may result in a particular counterparty exposure becoming a large exposure or cause a material deterioration in the credit quality of the said counterparty, or both;
 - (C) the risk that liquidating a counterparty position may have a material impact on the market;
 - (D) the impact on the bank's own positions of movements in market prices, which impact shall be integrated into the bank's assessment of counterparty risk.

Provided that when the bank's stress-tests reveal particular vulnerability to a particular set of circumstances, the bank shall take appropriate and prompt action in order to manage and control the relevant risks, which action may include hedging against a particular outcome, reducing the size of the bank's exposures or increasing the amount of capital and reserve funds.

- (g) shall have in place a routine for ensuring the bank's continued compliance with a documented set of internal policies, controls and procedures concerning the operation of the bank's risk measurement system;
- (h) shall duly document the bank's risk measurement system, for example, by maintaining an updated risk management manual that describes the basic principles of the risk management system and provides an explanation of the empirical techniques used to measure the bank's exposure to counterparty risk;
- (i) shall conduct an appropriate independent review of the bank's risk measurement system, for example, as part of the bank's internal auditing process, which review-
 - (i) shall include the activities of the relevant business units, the independent risk control unit and the bank's overall risk management process;
 - (ii) shall be conducted at regular intervals but not less frequently than once a year;

- (iii) as a minimum, shall include-
 - (A) the adequacy of documentation relating to the bank's risk management policies, system and processes;
 - (B) the organisation of the risk control unit;
 - (C) the integration of risk measures into the bank's ongoing risk management processes;
 - (D) the approval process relating to all relevant risk pricing models and valuation systems;
 - (E) the validation of any significant changes made in respect of the bank's risk measurement process;
 - (F) the scope of credit risk and market risk factors captured by the risk measurement model;
 - (G) the integrity of the management information system;
 - (H) the accuracy and completeness of relevant credit and market variables and data;
 - (I) the verification of the consistency, timeliness and reliability of data sources used to operate the internal model, including the independence of the said data sources;
 - (J) the accuracy and appropriateness of volatility and correlation assumptions;
 - (K) the accuracy of valuation and risk transformation calculations;
 - (L) the verification of the model's accuracy through frequent backtesting.
- (j) shall comply with the relevant operational requirements specified in subregulations (9) to (12) below.

(9) *Counterparty credit risk: operational requirements relating to the use test*

As a minimum, a bank that wishes to adopt the internal model method for the measurement of the bank's exposure to counterparty credit risk-

- (a) shall demonstrate to the satisfaction of the Registrar that the distribution of exposures generated by the bank's internal model and used by the bank to calculate its effective expected positive exposure is closely integrated into the day-to-day counterparty credit risk management process of the bank, that is-
 - (i) the output of the internal model shall play an essential role in the credit approval, counterparty credit risk management, internal capital allocations and governance processes of the bank;
 - (ii) the internal model used by the bank to generate the distribution of exposures shall form part of a counterparty risk management framework that includes the identification, measurement, management, approval and internal reporting of counterparty risk, which framework shall include the aggregation of credit exposures to the same counterparty and the allocation of economic capital;
 - (iii) peak exposure from the distribution is used by the bank, for example, to determine counterparty credit limits;
 - (iv) expected positive exposure is used by the bank, for example, for internal allocation of capital.
- (b) shall have a credible track record in the use of an internal model that generate a distribution of exposures to counterparty credit risk, that is, the bank shall demonstrate to the satisfaction of the Registrar that for at least one year prior to the bank's application for approval to use the internal model method the bank has implemented a model-
 - (i) that calculates the distributions of exposures upon which the bank's EPE calculation is based;
 - (ii) that broadly meets the minimum requirements specified in subregulation (8) above.
- (c) shall have in place an independent risk control unit that complies with the relevant requirements specified in subregulation (8)(b) above;
- (d) shall demonstrate to the satisfaction of the Registrar-
 - (i) that in addition to EPE which is a measure of future exposure, the bank measures and manages current exposure, gross and net of collateral held;
 - (ii) that the bank is able to measure counterparty exposure out to the life of all relevant contracts in a netting set and not just to a one year horizon, that is, the bank, for example, has procedures in place to identify and control the risks relating to counterparties in respect of which exposure rises beyond the one-year horizon;
 - (iii) that the bank is able to monitor and control the bank's exposure to

counterparty credit risk;

- (iv) that any forecasted increase in exposure beyond a one-year horizon constitutes an input into the bank's internal economic capital model.
- (e) shall implement a time profile of forecasting horizons that duly reflects the time structure of future cash flows and the maturity of the contracts that expose the bank to counterparty credit risk, provided that-
 - (i) although the bank may not be required to estimate or report expected exposure on a daily basis, the bank shall have the system capability to estimate expected exposure or EE daily when necessary;
 - (ii) based on materiality and the composition of the bank's exposure, the bank, for example, may compute EE on a daily basis for the first ten days, once a week out to one month, once a month out to eighteen months or once a quarter out to five years and beyond five years.

(10) Counterparty credit risk: operational requirements relating to stress testing

As a minimum, a bank that wishes to adopt the internal model method for the measurement of the bank's exposure to counterparty credit risk shall have in place a robust stress-testing process, which stress-testing process, amongst other things, shall comply with the minimum requirements specified in subregulation (8)(f) above.

(11) Counterparty credit risk: operational requirements relating to the identification of wrong-way risk

As a minimum, a bank that wishes to adopt the internal model method for the measurement of the bank's exposure to counterparty credit risk shall have in place policies, processes and procedures to identify, monitor and control cases of material-

- (a) general wrong-way risk, that is, when the probability of default of a counterparty is positively correlated with general market risk factors; and
- (b) specific wrong-way risk, that is, when future exposure relating to a specific counterparty is expected to be high when the counterparty's probability of default is high, which situation may arise when a company, for example, write put options in respect of its own stock,

which policies, processes and procedures shall be adequate to monitor and control the relevant risk from the inception of the transaction and during the life of the said contract.

(12) Counterparty credit risk: further operational requirements relating to internal controls and the integrity of the bank's modelling process

As a minimum, a bank that wishes to adopt the internal model method for the measurement of the bank's exposure to counterparty credit risk-

- (a) shall have in place a robust internal model that calculates, amongst other things, expected positive exposure or EPE-
 - (i) which model shall reflect transaction terms and specifications in a timely, complete and conservative manner-
 - (A) which terms may include-
 - (i) the notional amounts of contracts;
 - (ii) the maturity of transactions, contracts or agreements;
 - (iii) any relevant reference asset;
 - (iv) any collateral threshold amount;
 - (v) any relevant margining arrangement or agreement;
 - (vi) any relevant netting arrangement or agreement;
 - (B) which terms and specifications shall reside in a secure database that is subject to formal and periodic audit;
 - (C) the transmission of which transaction terms and specifications to the bank's internal model shall be subject to internal audit.
 - (ii) which model, amongst other things, shall contain and apply current market data in order to calculate current exposures, which data-
 - (A) shall cover a full range of economic conditions, such as a full business cycle;
 - (B) shall be acquired independently from all relevant lines of business or business units;
 - (C) shall be captured in a timely and complete manner;
 - (D) shall be maintained in a secure database subject to formal and periodic audit;
 - (E) shall be subject to a robust data integrity process in order to ensure that the data does not contain erroneous and/or anomalous observations;

Provided that-

- (i) when the bank uses historical data in order to estimate volatility and correlations, the bank shall use no less than three years of historical data, which data shall be updated quarterly or more frequently when warranted by market conditions;
 - (ii) to the extent that the bank's internal model relies on proxy market data, for example, in the case of new products where three years of historical data may not be available, the bank shall have in place internal policies that identify suitable proxy market data and the bank shall demonstrate empirically to the satisfaction of the Registrar that the said proxy market data provides a conservative estimation of the underlying risk under adverse market conditions;
 - (iii) when the bank's internal model includes the effect of collateral on changes in the market value of a netting set, the bank shall have available adequate historical data to model the volatility in the value of the said collateral.
- (iii) which EPE model and any modifications made to the model shall be subject to a robust internal model validation process, which model validation process-
 - (A) shall be duly articulated in the bank's policies and procedures;
 - (B) shall specify the type of testing required in order to ensure model integrity;
 - (C) shall identify conditions under which assumptions made may be violated, resulting in an understatement of EPE;
 - (D) shall include a review of the comprehensiveness of the bank's EPE model, including whether or not the EPE model sufficiently covers all products that may have a material impact on the bank's exposure to counterparty risk;
 - (E) shall comply with the additional requirements specified in subregulation (8)(e).
- (b) shall have in place a robust process for the recognition of any netting arrangement or agreement, which netting arrangement or agreement-
 - (i) shall be subject to signoff by legal staff of the bank in order to verify the legal enforceability of the relevant netting arrangement or agreement;
 - (ii) shall be captured into the relevant database by an independent unit.

- (c) shall have in place a formal reconciliation process between the bank's internal model and its source data systems in order to verify on an ongoing basis that transaction terms and specifications are duly reflected in the bank's calculation of EPE.

(13) As a minimum, and without derogating from the relevant requirements specified in regulations 3 and 14 of these Regulations, a bank that invests or trades in instruments, contracts or positions that are measured at fair value shall implement robust governance structures and control processes as part of its risk-management framework for the prudent valuation of the said instruments, contracts or positions, which structures, control processes and risk-management framework shall include the key elements specified below.

(a) *Structures, processes, systems and controls*

A bank shall establish and maintain adequate structures, processes, systems and controls in respect of instruments, contracts or positions measured at fair value, which structures, processes, systems and controls-

- (i) shall explicitly cover the role of the board of directors and the senior management of the bank;
- (ii) shall ensure that the board 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) shall ensure the robust production, assignment and verification of all relevant valuations;
- (iv) shall be sufficiently robust-
 - (A) to 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 bank shall duly consider-
 - (i) the frequency and availability of the relevant prices or quotes;
 - (ii) whether or not the relevant prices represent actual regularly occurring transactions on an arm's length basis;
 - (iii) the breadth of the distribution of the data and whether it is generally available to all relevant participants in the market;
 - (iv) the timeliness of the information relative to the frequency of valuations;
 - (v) the number of independent sources that produce the relevant quotes or prices;

- (vi) whether or not the relevant quotes or prices are supported by actual transactions;
 - (vii) the maturity of the market; and
 - (viii) the similarity between the instrument, contract or position sold in a transaction and the instrument, contract or position held by the bank;
- (B) to 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;
- (C) to ultimately ensure that the bank's valuation estimates are prudent and reliable;
- (v) shall 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) shall ensure that the bank's control processes for the measurement and reporting of valuations are consistently applied-
- (A) across the bank;
 - (B) across similar instruments or risks; and
 - (C) across all relevant business lines;
- (vii) shall be duly integrated with other risk management structures, policies, procedures, processes and systems, such as credit analysis, within the bank;
- (viii) shall be based on duly documented policies and procedures for the process of valuation, which documented policies and procedures, among other things-
- (A) shall ensure that all relevant approvals of valuation methodologies are duly documented;
 - (B) shall duly specify the range of acceptable practices for the initial pricing, marking-to-market or model, valuation adjustments and periodic independent revaluation;
 - (C) shall include duly defined responsibilities of the various areas involved in the determination of valuations;

- (D) shall include the sources of market information to be used and the review of their appropriateness;
- (E) shall include appropriate guidelines for the use of unobservable inputs, reflecting the bank's assumptions of what market participants may use when pricing the relevant position;
- (F) shall include the frequency of independent valuation;
- (G) shall include the timing of closing prices;
- (H) shall include all relevant matters related to verification.
- (ix) shall ensure that the performance of the bank's relevant models is subject to robust testing and review, particularly under stressed conditions, in order to ensure that the board of directors and senior management of the bank understand any potential limitations of the models;
- (x) shall ensure that the bank has in place-
 - (A) adequate capacity to determine or establish and verify all relevant valuations, particularly during periods of stress;
 - (B) a board-approved external reporting or disclosure policy-
 - (i) that complies with the relevant requirements specified in regulation 43;
 - (ii) that ensures that the bank provides timely, relevant and reliable information;
 - (iii) that ensures that the bank provides meaningful information relating to-
 - (aa) the bank's respective modelling techniques and the instruments to which they apply;
 - (bb) the sensitivity of fair values to modelling inputs and assumptions;
 - (cc) the impact of stress scenarios on valuations;
 - (iv) that promotes transparency;
 - (v) that is subject to regular review to ensure that the information disclosed continues to be relevant and current;

(xi) shall be subject to clear and independent reporting lines, that is, independent from the front office, which reporting line ultimately shall be to an executive director of the bank;

(xii) shall be subject to internal audit.

(b) Valuation methodologies

(i) Marking to market

Based on readily available close out prices, which close out prices shall be sourced independently, a bank shall 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-

- (A) unless the bank is a significant market maker in a particular instrument or position, and the bank is in a position to close positions out at mid-market prices, the bank shall use the more prudent side of bid/offer prices;
- (B) when estimating fair value the bank shall maximise the use of relevant observable inputs and minimise the use of unobservable inputs;
- (C) when observable inputs or transactions are deemed by the bank not to be relevant, such as in a forced liquidation or distressed sale situation, or transactions may not be observable, such as when markets are inactive, the bank shall duly consider any observable data in accordance with its board-approved policies, in order to determine the extent to which such inputs should be regarded as determinative.

(ii) Marking to model

Only when a bank is unable to mark to market positions accounted for at fair value, the bank may use a mark-to-model approach, that is, valuations that are benchmarked, extrapolated or otherwise calculated from a market input, provided that-

- (A) the senior management of the bank shall be aware of the elements of the trading book or other instruments, contracts or positions that are accounted for at fair value and that are subject to mark-to-model valuations, and shall understand the uncertainty that may exist in the reporting of the risk or performance of the bank;

(B) the bank-

- (i) shall demonstrate to the satisfaction of the Registrar that its mark-to-model approach is prudent;
- (ii) shall source market input as frequently as possible;
- (iii) shall use generally accepted valuation methodologies relating to particular products as frequently as possible;
- (iv) shall have in place formal change control procedures and a secure copy of the model, which copy of the model shall be maintained and periodically used to check all relevant valuations;

(C) when the model was developed internally by the bank, the model-

- (i) shall be based on appropriate assumptions, which assumptions shall be assessed by duly qualified persons who shall be independent from the development process;
- (ii) shall be approved independently from the front office;
- (iii) shall be independently tested.

(D) the model shall 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.

(iii) *Independent price verification*

By way of independent price verification, a bank shall 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-

(A) shall be performed by a unit independent from the dealing room;

(B) shall be used-

- (i) to identify any errors or biases in pricing;
- (ii) to eliminate any inaccurate adjustments to valuations.

(c) *Valuation adjustment*

Due to, for example, the uncertainty associated with liquidity in markets, instruments or products accounted for at fair value, that may result in a bank being unable to sell or hedge the said instruments, products or positions in a desired short period of time, as part of a bank's risk management framework and mark-to-market or mark-to-model procedure, a bank shall establish and maintain procedures for considering relevant valuation adjustments, provided that-

- (i) as a minimum, the bank shall duly consider-
 - (A) valuation adjustments to instruments, products or positions that may be subject to reduced liquidity;
 - (B) relevant close-out prices for concentrated positions and/or stale positions;
 - (C) all relevant factors when determining the appropriateness of valuation adjustments or reserves for less liquid positions, including, for example-
 - (i) the time required to hedge out the position or risks associated with the position;
 - (ii) the average volatility of bid/offer spreads;
 - (iii) the availability of independent market quotes;
 - (iv) the number and identity of market makers;
 - (v) the average and volatility of trading volumes, including trading volumes during periods of market stress;
 - (vi) market concentrations;
 - (vii) the aging of positions;
 - (viii) the extent to which valuation relies on marking-to-model, and the impact of model risk;
- (ii) for complex products, including securitization or resecuritisation exposures and n-th-to-default credit derivative instruments, the bank shall explicitly and continuously assess the need for any relevant valuation adjustment to reflect at least two forms of model risk, namely
 - (A) the model risk associated with using a possibly incorrect valuation methodology; and
 - (B) the risk associated with using unobservable and possibly incorrect calibration parameters in the bank's valuation model.

(14) A bank that wishes-

- (a) to adopt the internal model market-based approach for the measurement of the bank's exposure arising from equity instruments held in the bank's banking book-
- (i) shall have in place board approved policies, procedures and controls in order to ensure the integrity of the model and the modelling process used to measure the bank's exposure to risk, which board approved policies, procedures and controls shall be adequate-

(A) to ensure a complete integration of the internal model into the bank's overall management information systems, particularly in respect of the ongoing management of the bank's banking book equity portfolio, including a complete integration in order-

- (i) to determine investment hurdle rates;
- (ii) to evaluate alternative investments;
- (iii) to measure and assess the performance of the bank's equity portfolio, including the risk-adjusted performance;
- (iv) to allocate economic capital to equity positions;
- (v) to evaluate the bank's capital adequacy,

provided that the bank shall by way of, for example, investment committee minutes, demonstrate to the satisfaction of the Registrar that output from the internal model plays an essential role in the bank's investment management process.

- (B) to ensure that the bank's internal model has good predictive power and will not produce materially incorrect capital requirements;
- (C) to establish a rigorous statistical process, including out-of-time and out-of-sample performance tests, in order to validate the bank's selection of explanatory variables;
- (D) to ensure that all elements of the internal modelling process, including systems, procedures and control functions, are subject to adequate periodic independent review, which independent review, as a minimum-
 - (i) shall assess the approval process relating to any revision of the model;
 - (ii) shall validate any proxies and mapping techniques used by the bank;

- (iii) shall assess the accuracy, completeness and appropriateness of model input and output;
 - (iv) shall ensure that the model remains relevant based on the bank's equity portfolio and external conditions;
 - (v) shall be adequate to detect and limit potential model weaknesses;
 - (vi) shall be based on well established model review standards;
 - (vii) may be conducted as part of the bank's internal or external audit programmes by an independent risk control unit or an external third party;
- (E) to monitor investment limits and risk exposures;
- (F) to ensure that the unit(s) responsible for the design and application of the model is functionally independent from the unit(s) responsible for the management of individual investments;
- (G) to ensure that the persons responsible for any aspect of the modelling process are adequately qualified;
- (ii) shall have in place a robust system in order to validate the accuracy and the consistency of the bank's internal model and the modelling process, including the input and the output of the model, which robust system and validation process-
 - (A) shall be adequate-
 - (i) to assess the performance of the bank's internal model and modelling processes in a consistent and meaningful manner;
 - (ii) by way of backtesting, to regularly compare actual realised and unrealised gains and losses with modelled estimates;
 - (iii) to demonstrate that the bank's actual returns are within the expected range for the portfolio and individual holdings;
 - (iv) to backtest volatility estimates and the appropriateness of proxies used in the model;
 - (B) shall make use of external data sources, which external data sources-
 - (i) shall be appropriate for the bank's equity portfolio;
 - (ii) shall be updated on a regular basis;
 - (iii) shall cover a relevant observation period;
 - (C) shall be based on-

- (i) sufficiently long data histories, which data histories-
 - (aa) shall include a range of economic conditions;
 - (bb) shall preferably include one or more complete business cycles;
 - (ii) appropriate databases of actual returns and modelled estimates;
 - (iii) methods and data that are consistent through time.
- (iii) shall duly document all material elements of the bank's internal model and modelling process, which documentation-
- (A) shall include matters relating to the design and the operational details of the internal model;
 - (B) shall provide a detailed outline of the theory, assumptions and/or mathematical and empirical basis of the parameters, variables, and data source(s) used;
 - (C) shall clearly indicate the circumstances under which the model does not work effectively;
 - (D) shall include the methods and data used in any comparison between actual realised and unrealised gains and losses, and modelled estimates;
 - (E) shall clearly indicate the use of explicit and assumptions relating to implicit correlations, which correlations shall be supported by empirical analysis;
 - (F) shall be updated on a regular basis, but not less frequently than once a year;
 - (G) shall comprehensively deal with any changes in respect of the internal model, the estimation method, data, data sources and periods covered;
 - (H) shall be adequate to demonstrate the bank's compliance with the prescribed minimum quantitative and qualitative requirements envisaged in regulation 23(11)(b)(vii);

- (I) shall duly address matters relating to-
 - (i) the application of the model to different segments of the portfolio;
 - (ii) estimation methodologies;
 - (iii) the responsibilities of persons involved in the modelling process;
 - (iv) the model approval and model review processes;
 - (v) the rationale for the bank's choice of a particular methodology;
 - (vi) the history of major changes in the model over time;
 - (vii) any changes made to the modelling process subsequent to supervisory review;
 - (viii) proxies, mapping techniques or processes used by the bank during the modelling process, including all relevant and material factors relating to-
 - (aa) business lines;
 - (bb) balance sheet characteristics;
 - (cc) geographic location;
 - (dd) company age;
 - (ee) industry sector and subsector;
 - (ff) operating characteristics;
- (iv) shall in all cases in which the bank maps individual positions to proxies, market indices or risk factors-
 - (A) ensure that the said mapping is plausible, intuitive, appropriate and conceptually sound;
 - (B) perform rigorous analysis in order to demonstrate to the satisfaction of the Registrar that the said proxies and mappings are relevant based on historical economic and market conditions and the bank's underlying portfolio;
 - (C) demonstrate that the said proxies are robust estimates of the potential risk of the bank's underlying exposure.

- (v) shall have in place a rigorous and comprehensive stress-testing programme in respect of the bank's internal model and estimation procedures, which stress-testing process-
 - (A) shall include hypothetical or historical scenarios in order to reflect worst-case losses in respect of the bank's equity positions;
 - (B) shall provide comprehensive information relating to the effect of tail events beyond the level of confidence specified in respect of the internal model approach.
- (b) to adopt the internal models approach for the measurement of the bank's exposure to market risk arising, *inter alia*, from positions held in the bank's trading book-
 - (i) shall have in place an independent risk control unit, which risk control unit-
 - (A) shall be responsible for the design and implementation of the bank's risk management system;
 - (B) shall produce and analyse daily reports on the output of the bank's risk measurement model, including an evaluation of the relationship between measures of risk exposure and trading limits;
 - (C) shall be functionally independent from all relevant business trading units;
 - (D) shall report directly to the senior management of the bank;
 - (E) shall conduct regular backtesting, that is, an ex-post comparison of the risk measure generated by the bank's model against actual daily changes in portfolio value over longer periods of time, as well as hypothetical changes based on static positions;
 - (F) shall conduct the initial and ongoing validation of the internal model, which validation process shall be conducted in accordance with the relevant requirements specified in subparagraph (ix) below;
 - (G) shall control the integrity relating to input data;
 - (H) shall validate prices supplied by business units;
 - (I) shall be adequately staffed;
 - (ii) shall ensure the active involvement and oversight of the bank's board of directors and senior management in the bank's risk control processes;
 - (iii) shall regard risk control as an essential aspect of the bank's business;

- (iv) shall devote adequate resources to the bank's risk control unit and risk control processes;
- (v) shall ensure that the daily reports prepared by the independent risk control unit are reviewed by a level of senior management with sufficient authority to enforce both reductions of positions taken by individual traders and reductions in the bank's overall risk exposure;
- (vi) shall ensure that the senior management of the bank is aware of the limitations and assumptions made in respect of the said internal model and the impact that such limitations and assumptions may have on the output of the model;
- (vii) shall have in place a robust risk measurement model, which model-
 - (A) shall be closely integrated into the day-to-day risk management processes of the reporting bank and the output of which model shall form an integral part of the process of planning, monitoring and controlling the bank's exposure to market risk;
 - (B) shall be used in conjunction with internal trading and exposure limits in a manner that is consistent over time and that is well understood by traders and the senior management and relevant line functions of the reporting bank;
- (viii) shall have in place a routine and rigorous process or programme of stress testing, the results of which stress testing-
 - (A) shall be duly documented;
 - (B) shall periodically be reviewed by the senior management of the bank;
 - (C) shall be used in the bank's internal assessment of capital adequacy;
 - (D) shall be duly reflected in the bank's policies and limits set by management and the bank's board of directors,

Provided that when the bank's stress tests reveal particular vulnerability to a particular set of circumstances, the bank shall take appropriate and prompt action in order to manage and control the relevant risks, which action may include hedging against a particular outcome, reducing the size of the bank's exposures or increasing the amount of capital and reserve funds.

- (ix) shall have in place robust processes in order to ensure adequate validation of the bank's relevant models by suitably qualified persons independent from the development process, which validation-
 - (A) shall ensure that all relevant and material risks are duly captured;
 - (B) as a minimum, shall be conducted-
 - (i) when the model is initially developed;
 - (ii) when any significant changes are made to the model;
 - (iii) on a periodic basis but especially when significant structural changes in the market or in the composition of the bank's portfolio took place, which changes might result in the model no longer being adequate;
 - (C) shall in appropriate cases ensure compliance with the relevant requirements relating to specific risk, specified in regulation 28(8);
 - (D) shall not be limited to backtesting;
 - (E) as a minimum, shall include-
 - (i) tests to demonstrate that any assumptions made within the internal model are appropriate and do not underestimate risk, including relevant tests relating to-
 - (aa) the assumption of a normal distribution;
 - (bb) the use of the square root of time to scale from a one day holding period to a ten day holding period;
 - (cc) the use of extrapolation or interpolation techniques;
 - (dd) the bank's pricing models;
 - (ii) tests during which hypothetical changes in portfolio value is used when end-of-day positions remain unchanged, which tests therefore shall exclude fees, commissions, bid-ask spreads, net interest income and intra-day trading;
 - (iii) tests conducted for periods longer than what is otherwise required in the bank's process of backtesting, which longer time period may improve the power of the backtesting process, provided that a longer time period may not be desirable when the bank's VaR model or market conditions have changed to an extent that makes historical data irrelevant or less relevant;

- (iv) tests based on confidence intervals other than the 99 per cent interval required in respect of quantitative standards specified in regulation 28(8)(e);
 - (v) the use of hypothetical portfolios in order to ensure that the bank's model is able to account for particular structural features that may arise such as-
 - (aa) when data histories for a particular instrument do not meet the quantitative standards specified in regulation 28(8) and the bank has to map positions to proxies, in which case the bank shall ensure that the proxies produce conservative results under relevant market scenarios;
 - (bb) ensuring that material basis risks are duly captured, which may include mismatches between long and short positions by maturity or by issuer;
 - (cc) ensuring that the model captures concentration risk that may arise from an undiversified portfolio.
- (x) shall have in place a routine for ensuring the bank's continued compliance with a documented set of internal policies, controls and procedures concerning the operation of the bank's risk measurement system;
- (xi) shall duly document the bank's risk measurement system, for example, by maintaining an updated risk management manual that describes the basic principles of the risk management system and provides an explanation of the empirical techniques used to measure the bank's exposure to market risk;
- (xii) shall conduct an appropriate independent review of the bank's risk measurement system, for example, as part of the bank's internal auditing process, which review-
 - (A) shall include the activities of the relevant business trading units, the independent risk control unit and the bank's overall risk management process;
 - (B) shall be conducted at regular intervals but not less frequently than once a year;

(C) as a minimum, shall include-

- (i) the adequacy of documentation relating to the bank's risk management policies, system and processes;
- (ii) the organisation of the risk control unit;
- (iii) the integration of market risk measures into daily risk management;
- (iv) the approval process relating to all relevant risk pricing models and valuation systems used by front and back-office personnel;
- (v) the validation of any significant changes made in respect of the bank's risk measurement process;
- (vi) the scope of market risk and market risk factors captured by the risk measurement model;
- (vii) the integrity of the bank's management information system;
- (viii) the accuracy and completeness of relevant market variables and position data;
- (ix) the verification of the consistency, timeliness and reliability of data sources used to operate the internal model, including the independence of the said data sources;
- (x) the accuracy and appropriateness of volatility and correlation assumptions;
- (xi) the accuracy of valuation and risk transformation calculations;
- (xii) the verification of the model's accuracy through frequent backtesting.

- (c) to adopt an internal approach and incremental risk capital (IRC) model for the measurement of the bank's exposure to incremental default and migration risks arising from instruments or positions subject to specific interest rate risk, other than securitisation or resecuritisation exposures and n-th-to-default credit derivative instruments, held in the bank's trading book, shall have in place a robust validation process, which validation process-
 - (i) shall apply the validation principles specified in regulations 39(8), 39(14)(a) and 39(14)(b) when designing, testing and maintaining the bank's IRC models, including-
 - (A) the evaluation of conceptual soundness;
 - (B) ongoing monitoring that includes process verification and benchmarking; and
 - (C) outcomes analysis;
 - (ii) shall ensure that-
 - (A) liquidity horizons reflect actual practice and experience during periods of both systematic and idiosyncratic stresses;
 - (B) the bank's IRC model for measuring default and migration risks over the liquidity horizon takes into account objective data over the relevant horizon and includes a comparison of risk estimates for a rebalanced portfolio with that of a portfolio with fixed positions;
 - (C) correlation assumptions are supported by analysis of objective data in a conceptually sound framework.

When a bank uses a multi-period model to compute incremental risk, the bank shall evaluate the implied annual correlations to ensure they are reasonable and in line with observed annual correlations.
 - (D) the bank's modelling approach for correlations is appropriate for the bank's portfolio, including the choice and weights of systematic risk factors;
 - (iii) shall include relevant stress tests, sensitivity analyses and scenario analyses, to assess its qualitative and quantitative reasonableness, particularly with regard to the model's treatment of concentrations;
 - (iv) shall be an ongoing process that makes provision for the Registrar and the bank to jointly determine the exact set of validation procedures to be employed, that is, tests, for example, shall not be limited to the range of events experienced historically.

Provided that the bank shall duly document its modelling approach in order to ensure that the correlation and other modelling assumptions, for example, are available and transparent.

(15) As a minimum, a bank that wishes to adopt the advanced measurement approach for the calculation of the bank's capital requirement relating to operational risk-

- (a) shall have in place an independent operational risk management function, which operational risk management function shall be responsible for-
 - (i) the development of-
 - (A) policies and procedures relating to operational risk management and control, including policies to address areas of non-compliance, which policies ultimately shall be approved by the bank's board of directors;
 - (B) strategies to identify, measure, monitor and control or mitigate the bank's exposure to operational risk.
 - (ii) the design and implementation of-
 - (A) a methodology for the measurement of the bank's exposure to operational risk;
 - (B) the bank's operational risk management framework;
 - (C) a risk-reporting system relating to operational risk;
- (b) shall have in place an internal operational risk measurement system-
 - (i) which operational risk measurement system-
 - (A) shall be closely integrated into the day-to-day risk management processes of the bank;
 - (B) shall be subject to regular validation and independent review, which validation and independent review shall 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;
 - (ii) the output of which system shall form an integral part of the process to monitor and control the bank's exposure to operational risk, including internal capital allocation and risk analysis;

- (c) shall have in place techniques-
 - (i) to allocate capital to major business units, which allocation shall be based on operational risk;
 - (ii) to create incentives to improve the management of operational risk throughout the bank;
 - (d) shall on a regular basis report its exposure to operational risk, including material losses suffered in respect of operational risk, to the management of the bank's business units, the senior management of the bank and the bank's board of directors;
 - (e) shall have in place adequate measures to take appropriate action, including in cases of non-compliance with internal policies, controls and procedures;
 - (f) shall duly document the bank's operational risk management system;
 - (g) shall have in place a process to ensure compliance with the bank's documented set of internal policies, controls and procedures concerning the operational risk management system;
 - (h) shall have in place a robust operational risk management process, which operational risk management process shall be subject to regular review by the bank's internal and/or external auditors, which review shall include the activities of-
 - (i) the relevant business units;
 - (ii) the independent operational risk management function.
- (16) Based on and without derogating from the requirements specified in subregulations (1) to (15) above, a bank's policies, processes and procedures relating to governance, effective risk management, adequate capital and internal controls shall contain the key features specified below.

(a) *Board and senior management oversight*

Since a sound governance and risk management process provides the basis for ensuring, among other things, that a bank continuously maintains adequate capital and liquidity, the board of directors of a bank-

- (i) shall set the bank's tolerance for risk, that is, the board of directors shall, among other things, duly define and approve the bank's risk appetite;

- (ii) shall ensure that effective governance is in place in respect of the bank's compensation or remuneration policies, processes, practices and procedures, and in particular the board of directors-
 - (A) shall actively oversee the design and operation of the bank's compensation or remuneration policies, processes, practices and procedures;
 - (B) shall duly monitor and review the bank's policies, processes, practices and procedures in order to ensure that the said policies, processes, practices and procedures operate as intended;
 - (C) shall ensure that staff engaged in financial and risk control-
 - (i) are independent;
 - (ii) have appropriate authority; and
 - (iii) are compensated in a manner that is independent of the relevant business areas they oversee, and commensurate with the key function that they fulfil;
- (iii) shall ensure that the bank's compensation or remuneration policies, processes, practices and procedures are duly aligned with the board approved tolerance for risk or risk appetite, and in particular the board of directors shall ensure that-
 - (A) compensation in the bank is duly adjusted for all relevant and material types of risk;
 - (B) all compensation outcomes are symmetric with the relevant and related risk outcome;
 - (C) all relevant compensation payout schedules are duly sensitive to the relevant and related time horizon of risk;
 - (D) the relevant mix or composition of cash payment, equity or other form of compensation is consistent with the relevant and related risk exposure;
 - (E) the aforesaid policies, processes, practices, procedures and compensation outcomes duly consider the risk and reward related to all relevant transactions concluded by executive directors or executive officers;
 - (F) the aforesaid policies, processes, practices and procedures support and promote the bank's other policies, processes, practices and procedures related to sound corporate governance and effective risk management;

- (G) the aforesaid policies, processes, practices and procedures protect and promote the long-term safety and soundness of the bank;
 - (H) the aforesaid policies, processes, practices and procedures include adequate controls and are subject to appropriate audit;
 - (I) the bank's policies, processes, practices and procedures comply with such further requirements as may be specified in writing by the Registrar;
- (iv) shall ensure that, based on, among other things, the bank's capital needs, the bank's anticipated capital expenditure and the bank's desired level of capital, the annually approved variable component of compensation does not unduly limit or restrict the ability of the bank to appropriately strengthen the capital base;
- (v) shall ensure that the senior management of the bank-
- (A) establishes a risk framework in order to assess and appropriately manage the various risk exposures of the bank;
 - (B) develops a system to relate the bank's risk exposures to the bank's capital and reserve funds, that is, every bank shall have in place a robust internal capital adequacy assessment process (ICAAP), as part of the bank's overall risk management framework and processes, which ICAAP-
 - (i) shall in addition to the relevant requirements specified in this sub-item (B), continuously comply with the requirements specified in paragraph (b) below;
 - (ii) shall ensure that the bank maintains qualifying capital and reserve funds adequate to continuously support the nature and extent of the bank's relevant risk exposures;
 - (iii) shall incorporate sufficiently robust stress-testing to complement and validate the bank's quantitative and qualitative measures related to its risk management framework, policies, processes or practices, and shall provide the board of directors and senior management with sufficiently robust information to better understand the bank's various exposures to risk and the potential interrelatedness of the said risks under stressed conditions, including the potential interrelatedness between liquidity risk and capital adequacy;
 - (iv) shall incorporate measures to ensure that the bank builds and maintains sufficient capital buffers during benign periods to ensure that the bank will be able to subsequently withstand severe and prolonged market downturns;

- (v) shall be sufficiently robust-
 - (aa) to examine future capital resources and capital requirements under adverse scenarios;
 - (bb) to ensure that the bank maintains an appropriate amount of capital for concentration risk;
 - (cc) to continuously analyse the bank's issued capital instruments and their potential performance during periods of stress, including their ability to absorb losses and support the bank's ongoing business operations;
 - (dd) to accommodate changes in the bank's strategy or risk appetite, and volatility in market conditions over time;
- (vi) shall incorporate such further requirements as may be specified in writing by the Registrar;
- (C) establishes a method to monitor the bank's compliance with internal policies;
- (D) effectively communicates all relevant policies and procedures throughout the bank;
- (E) duly defines the bank's stress testing objectives and scenarios-
 - (i) the results of which stress tests shall be duly considered during the bank's strategic decision making process and when the board of directors specifies the bank's risk tolerance or appetite levels;
 - (ii) which stress testing shall in relevant cases duly consider-
 - (aa) the potential risks and exposures associated with pipeline and warehoused exposures that may emerge when the bank is unable to access the securitisation market due to either bank specific or market stresses;
 - (bb) reputational risk scenarios;
 - (cc) scenarios in respect of which the bank, for example, assesses the size and the soundness of securitisation vehicles relative to the bank's own financial, liquidity and capital positions, including an assessment of all relevant covenants and triggers;

- (F) duly discusses and understands the results of the bank's stress tests and scenario analysis;
- (vi) shall adopt and support strong internal controls;
- (vii) shall ensure that the bank has in place appropriate written policies and procedures;
- (viii) shall ensure that the bank has in place an appropriate strategic plan, which strategic plan, as a minimum, shall duly outline-
 - (A) the bank's capital needs;
 - (B) the bank's anticipated capital expenditure;
 - (C) the bank's desired level of capital.
- (ix) shall ensure that the bank has in place an appropriate policy relating to public disclosure, which policy, as a minimum, shall ensure the bank's continued compliance with the requirements specified in regulation 43.

(b) *Sound capital assessment*

Without derogating from the relevant requirements specified in paragraph (a) above, as a minimum, a bank shall have in place a sound capital assessment process, which capital assessment process-

- (i) shall include board approved policies and procedures designed to ensure that the bank identifies, measures, and reports all material risk exposures;
- (ii) shall include all material risk exposures incurred by the bank, including the risks specifically referred to in subregulation (3);

Although a bank may not be able to accurately measure all risk exposures, the bank shall develop and implement an appropriate framework and process to estimate the key elements of the bank's material risk exposures.

- (iii) shall relate the bank's capital and reserve funds to the level of risk incurred by the bank;
- (iv) based on the bank's strategic focus and business plan, shall clearly state the bank's objectives in respect of capital adequacy and risk exposure;
- (v) shall incorporate rigorous, forward-looking stress testing that identifies possible events or changes in market conditions that could adversely impact the bank, the results of which stress testing shall be considered when the bank evaluates the adequacy of its capital buffer;

- (vi) shall promote the integrity of the bank's overall risk-management process by way of internal controls and appropriate internal and external reviews and audit.

(c) *Monitoring and reporting*

- (i) As a minimum, a bank shall establish and maintain an adequate system-
 - (A) to monitor, communicate and report the bank's exposures to risk in a timely manner and at an appropriate level;
 - (B) to assess the impact of the bank's changing risk profile on the bank's capital position.
- (ii) The board of directors of a bank or a board-appointed committee shall receive regular reports, which reports shall be sufficiently detailed to allow the said board of directors or board-appointed committee-
 - (A) to evaluate and understand the level and trend of material risk exposures and the impact of the risk exposures on the bank's capital adequacy;
 - (B) to determine whether the bank maintains sufficient capital against the various risk exposures and complies with the bank's established objectives relating to capital adequacy;
 - (C) to make timely adjustments to the bank's strategic plan.
- (iii) The senior management of a bank shall receive regular reports, which reports shall be sufficiently detailed to allow the senior management of the bank-
 - (A) to consider the matters specified in subparagraph (ii) above;
 - (B) to evaluate and understand the sensitivity and reasonableness of key assumptions used in the capital measurement system;
 - (C) to assess the bank's future capital requirements based on the bank's reported risk profile.

(d) *Internal control review*

- (i) A bank shall establish and maintain an appropriate internal control structure in order to monitor the bank's continued compliance with internal policies and procedures.

(ii) As a minimum, a bank shall conduct periodic reviews of its risk management processes, which periodic reviews-

(A) shall be adequate to ensure-

- (i) the integrity, accuracy, and reasonableness of the processes;
- (ii) the appropriateness of the bank's capital assessment process based on the nature, scope and complexity of the bank's activities;
- (iii) the timely identification of any concentration risk;
- (iv) the accuracy and completeness of any data inputs into the bank's capital assessment process;
- (v) the reasonableness and validity of any scenarios used in the capital assessment process;
- (vi) that the bank conducts appropriate stress testing;

(B) shall ensure the appropriate involvement of internal and external audit.

(17) On an ongoing basis, the overall effectiveness of the processes relating to corporate governance, internal controls, risk management, capital management and capital adequacy shall be monitored, amongst other things, by the bank's board of directors.

(18) The board of directors of a bank or a committee appointed by the board for such purpose-

- (a) shall at least once a year assess and document whether the processes relating to corporate governance, internal controls, risk management, capital management and capital adequacy implemented by the bank successfully achieve the objectives specified by the board;
- (b) shall at the request of the Registrar provide the Registrar with a copy of the report compiled by the board of directors or committee in respect of the adequacy of the processes relating to corporate governance, risk management, capital management and capital adequacy.

(19) In addition to the reports referred to in regulations 40(4) and 46, the external auditors of a bank shall annually review the process followed by the board of directors in assessing the corporate governance arrangements, including the management of risk and capital, and the assessment of capital adequacy, and report to the Registrar whether any matters have come to their attention to suggest that they do not concur with the findings reported by the board of directors, provided that when the auditors do not concur with the findings of the board of directors, they shall provide reasons therefor.

(20) The provisions of subregulations (1) to (19), insofar as they are relevant, shall *mutatis mutandis* apply to any controlling company.

40. Guidelines relating to conduct of directors

(1) Every director of a bank or controlling company shall acquire a basic knowledge and understanding of the conduct of the business of a bank and of the laws and customs that govern the activities of such institutions. Although not every member of the board of directors of a bank or controlling company is required to be fully conversant with all aspects of the conduct of the business of a bank, the competence of every director of a bank shall be commensurable with the nature and scale of the business conducted by that bank and, in the case of a director of a controlling company, as a minimum, shall be commensurable with the nature and scale of the business conducted by the banks in the group.

(2) All directors and executive officers of a bank or controlling company shall perform their functions with diligence and care and with such a degree of competence as can reasonably be expected from persons holding similar appointment and carrying out similar functions as are carried out by the relevant director or executive officer, provided that none of the provisions or requirements contained or specified in these Regulations, including this regulation 40, shall be construed as derogating from any other relevant provision or requirement relating to directors and executive officers that may be contained or specified in any other relevant law or code of conduct.

(3) In view of the fact that the primary source of funds administered and utilised by a bank in the conduct of its business is deposits loaned to it by the general public, it shall be the duty of every director and executive officer of a bank to ensure that risks that are of necessity taken by such a bank in the conduct of its business are prudently managed.

(4) The-

(a) directors of a bank shall annually report to the Registrar whether or not:

(i) the bank's internal controls-

(A) provide reasonable assurance as to the integrity and reliability of the bank's financial statements; and

(B) safeguard, verify and maintain accountability of the bank's assets;

(ii) the internal controls are based on established policies and procedures and are implemented by trained, skilled personnel, whose duties are duly segregated;

(iii) adherence to the implemented internal controls is continuously monitored by the bank;

(iv) all bank employees are required to maintain high ethical standards, thereby ensuring that the bank's business practices are conducted in a manner that is above reproach;

- (v) the bank implemented and continuously maintained compensation policies, processes and practices that, as a minimum, comply with the requirements specified in regulation 39(16)(a);
 - (vi) anything came to their attention to indicate that any material malfunction, as defined and documented by the board of directors, which definition shall be submitted to the Registrar, in the functioning of the aforementioned controls, procedures and systems has occurred during the period under review.
- (b) directors of a bank shall annually report to the Registrar that there is no reason to believe that the bank will not be a going concern in the year ahead, and should there be reason to believe so, such reason shall be disclosed and explained.
- (c) directors of a bank shall submit the reports on the internal controls and going-concern aspect of the bank within 120 days after the financial year-end of the bank.
- (d) external auditors of a bank shall annually report to the Registrar whether or not they concur with the reports mentioned in paragraphs (a) and (b) above, provided that when the external auditors do not concur with such reports, they shall provide reasons therefor.
- (5) The provisions of subregulation (4) shall *mutatis mutandis* apply to any controlling company.
- (6) For the purposes of this regulation, "director" includes an alternate director.
- 41. Composition of the board of directors of a bank or controlling company**
- (1) The chairperson of the board of directors of a bank shall not be an employee of-
- (a) the bank;
 - (b) any of the subsidiaries of the bank;
 - (c) the controlling company of the bank; or
 - (d) any subsidiary of the controlling company.
- (2) The chairperson of the board of directors of a bank shall not be a member of the audit committee of-
- (a) the bank; or
 - (b) the controlling company of the bank.

- (3) The chairperson of the board of directors of a controlling company shall not be an employee of-
 - (a) the controlling company; or
 - (b) any bank in respect of which that company is registered as a controlling company.
- (4) The chairperson of the board of directors of a controlling company shall not be a member of the audit committee of-
 - (a) the controlling company; or
 - (b) any bank in respect of which that company is registered as a controlling company.
- (5) Except when the Registrar, in view of special circumstances pertaining to a particular bank, grants consent to a deviation from the provisions of this regulation in respect of that particular bank, at least two of the members of the board of directors of a bank shall be persons who are employees of that bank.

42. Statement relating to attributes of serving or prospective directors or executive officers

- (1) A duly completed statement and declaration in the form of a form BA 020, as prescribed in regulation 53, shall be submitted to the Registrar by the chairperson of the board, or the chairperson's duly appointed representative, or, in the case of a new bank, by the auditor, in respect of-
 - (a) every person who for the first time accepts an appointment as a director or an executive officer of a bank or a controlling company at least 30 days prior to the appointment becoming effective; and
 - (b) every person who previously served as a director or executive officer of a bank or controlling company but subsequently resigned as such and is being reappointed as a director or executive officer of a bank or controlling company after a period of more than twelve months since the date of resignation at least 30 days prior to the appointment becoming effective; and
 - (c) any serving director or executive officer of a bank or controlling company, at the request of the Registrar, in terms of section 1(1A)(c) of the Act.
- (2) For the purposes of this regulation, "related party" means any person (whether natural or juristic) over the business of which the director or executive officer can exercise a significant influence and which business undertakes business with the relevant bank or controlling company to an extent that could materially influence the asset base, profitability or risk profile of the said bank or controlling company.

BA 020

When insufficient space is provided, please attach a separate sheet.

**STATEMENT BY INDIVIDUALS WHO ARE HOLDING, OR ARE PROPOSING TO HOLD,
THE OFFICE OF A DIRECTOR OR EXECUTIVE OFFICER OF A BANK OR CONTROLLING
COMPANY**

(Confidential and not available for inspection by the public)

1. Name of institution in connection with which this questionnaire is being completed ("the institution"):

.....

2. Your surname:

.....

3. Your full forename(s):

.....

4. Former surname(s) and or forename(s) by which you may have been known:

.....

5. Please state in which capacity you are completing this questionnaire, that is, as a current or prospective director, an executive officer or combination of these.

.....

6. Please state your full title, and describe the particular duties and responsibilities attaching to the position(s) that you hold or will hold. If you are completing this form in the capacity of director, indicate whether, in your position as director, you have or will have executive responsibility for the management of the institution's business. In addition, please provide a copy of your *curriculum vitae*, unless it has already been provided:

.....

.....

7. Residential address:

.....

8. Any previous residential address(es) during the past 10 years:

.....

9. Date and place of your birth (including town or city):

.....

10. Your nationality and how it was acquired (birth, naturalisation or marriage):

.....

11. Name(s) and address(es) of your bankers during the past 10 years:

.....

12. Your professional qualifications and year in which they were obtained:

.....

13. Your occupation and employment now and during the past 10 years, including the name of your employer in each case, the nature of the business, the position held and relevant dates:

.....

14. Of which bodies corporate (other than the institution) are you a director or an executive officer and since when?

.....

15. Do you have any direct or indirect interest representing 15 per cent or more of the issued capital of any body corporate (other than the institution) that is now registered, or that has applied for authorisation, under the Act? If so, give particulars:

.....

16. Of which bodies corporate other than the institution and those listed in reply to question 13 above have you been a director or an executive officer at any time during the past 10 years? Give relevant dates:

.....

17. Do any of the bodies corporate listed in reply to questions 12, 13, 14 and 15 above maintain a business relationship with the institution? If so, give particulars:

.....

18. Do you hold or have you ever held or applied for a licence or equivalent authorisation to conduct any business activity in the Republic of South Africa ("the Republic") or elsewhere? If so, give particulars. If any such application was refused or withdrawn after it was made or if any authorisation was revoked, give particulars:

.....

19. Does any institution with which you are, or have been, associated as a director or executive officer hold, or has it ever held or applied for, a licence or equivalent authorisation to conduct any business activity? If so, give particulars. If any such application was refused, or was withdrawn after it was made or if an authorisation was revoked, give particulars:
-

20. Have you at any time been convicted of any offence, excluding -

- (i) any offence committed when you were under 18 years, unless the same offence was committed within the last 10 years;
- (ii) any road traffic offence; or
- (iii) any political offence?

If so, give particulars of the court by which you were convicted, the offence, the penalty imposed and the date of conviction:

.....

21. Have you, in the Republic or elsewhere, been censured, disciplined, warned as to future conduct, or made the subject of a court order at the instigation of any regulatory authority or any professional body to which you belong or belonged, or have you ever held a practising certificate subject to conditions? If so, give particulars:
-

22. Have you, or has any body corporate, partnership or unincorporated institution with which you are, or have been, associated as a director or executive officer, been the subject of an investigation, in the Republic or elsewhere, by or at the instigation of a government department or agency, professional association or other regulatory body? If so, give particulars:
-

23. Have you, in the Republic or elsewhere, been dismissed from any office or employment, or been subject to disciplinary proceedings by your employer or been barred from entry to any profession or occupation? If so, give particulars:
-

24. Have you failed to satisfy any debt adjudged due and payable by you, as a judgement-debtor under an order of a court in the Republic or elsewhere, or made any compromise arrangement with your creditors within the past 10 years? If so, give particulars:
-

- 25.** Have you ever been declared insolvent (either provisionally or finally) by a court in the Republic or elsewhere, or has a bankruptcy petition ever been served on you? If so, give particulars:

.....

- 26.** Have you, in connection with the formation or management of any body corporate, partnership or unincorporated institution, been adjudged by a court in the Republic or elsewhere civilly liable for any fraud, misfeasance or other misconduct by you towards such a body or company or towards any members thereof? If so, give particulars:

.....

- 27.** Has any body corporate, partnership or unincorporated institution with which you were associated as a director or executive officer, in the Republic or elsewhere, been wound up, made subject to an administration order, otherwise made any compromise or arrangement with its creditors or ceased trading, either while you were associated therewith or within one year after you ceased to be associated therewith, or has anything analogous to any of these events occurred under the laws of any other jurisdiction? If so, give particulars:

.....

- 28.** Have you been concerned with the management or conduct of the affairs of any institution that, by reason of any matter relating to a time when you were so concerned, has been censured, warned as to future conduct, disciplined or made the subject of a court order at the instigation of any regulatory authority in the Republic or elsewhere? If so, give particulars:

.....

- 29.** In carrying out your duties will you be acting on the directions or instructions of any other individual or institution? If so, give particulars:

.....

- 30.** Do you, or does any related party of whom you are aware, undertake business with this institution? If so, give particulars:

.....

- 31.** How many shares in the institution are registered in your name or the name of a related party? If applicable, give name(s) in which such shares are registered and the class of shares:

.....

- 32.** In how many shares in the institution (not being registered in your name or that of a related party) are related parties beneficially interested?

.....

- 33.** Do you, or does any related party, hold any shares in the institution as trustee or nominee? If so, give particulars:

.....

- 34.** Are any of the shares in the institution mentioned in reply to questions 30, 31 and 32 above equitably or legally charged or pledged to any party? If so, give particulars:

.....

- 35.** In respect of which proportion of the voting power at any general meeting of the institution (or of another body corporate of which it is a subsidiary) are you or any related party entitled to exercise control?

.....

- 36.** If the exercise of the voting power at any general meeting of the institution, or of another body corporate of which it is a subsidiary, is or may be controlled by one or more of your associates or any related party, give the proportion of the voting power so controlled in each case and the identity of each associate:

.....

- 37.** Are you currently, or do you, other than in a professional capacity, expect to be, engaged in any litigation in the Republic or elsewhere? If so, give particulars:

.....

- 38.** Do you have a basic knowledge and understanding of the risks to which banks are exposed? (Refer to Chapter III, regulation 39 of the Regulations relating to Banks, in this regard.)

.....

- 39.** Do you, at all times while acting in your capacity as a director or executive officer of the institution, undertake-

- (i) to act in good faith towards the bank/banks in the group;
- (ii) to avoid conflict between your other interests and the interests of the bank/banks in the group; and
- (iii) to place the interest of the bank/banks in the group and the depositors above all other interests?

.....

- 40.** Have you acquainted yourself with, and do you understand, the extent of the rights and powers, as well as your responsibilities and duties as a director of the institution, as contained in the applicable law? (To be completed only by directors or prospective directors.)

.....
.....

Please attach to the form BA020 a matrix that clearly sets out the details specified below:

- (i) The number of other directorships or memberships held by the proposed appointee.
- (ii) The name of the other entity(ies) in respect of which the proposed appointee already serves as a director or member.
- (iii) The particular duties and responsibilities attached to each of the aforesaid positions held.
- (iv) The number of meetings each of the aforesaid entities holds or is expected to hold per annum, that the proposed appointee is required to attend.
- (v) The expected average number of hours that is required for the proposed appointee to duly prepare for each of the aforesaid meetings.

DECLARATION

I,, hereby declare the following:
 This statement consists of pages, each signed by me. The content of this declaration is true to the best of my knowledge and belief. I am aware that should it be submitted as evidence and I know that something appears therein that I know to be false or believe not to be true, I may be liable to prosecution.

I undertake that, as long as I continue to be a director or executive officer of the institution, I will notify the Registrar of any material changes to, or affecting the completeness or accuracy of, the information supplied by me in items 1 to 40 as soon as possible, but in no event later than 21 days from the day that the changes come to my attention.

Taking into account the commitments set out in question 40, I confirm that I have sufficient time available to duly discharge my duties and responsibilities as a director of this institution.*

I know and understand the content of this declaration. I have*/do not have* objections to taking the prescribed oath*/affirmation*.

I consider the prescribed oath*/affirmation* to be binding*/not binding* on my conscience.

..... SIGNATURE OF DEPONENT

I certify that the above statement was taken by me and that the deponent has acknowledged that he/she knows and understands the content of this statement. This statement was sworn to/affirmed before me and the deponent's signature was placed thereon in my presence at on this day of(yyyy-mm).

.....
 COMMISSIONER OF OATHS

FULL NAMES:

EX OFFICIO:

AREA:

ADDRESS:

* Delete whichever is not applicable

Note: Each page of the form BA020, and each additional page attached thereto, shall be initialled by the relevant signatories, that is, the relevant applicant, commissioner of oaths, and the chairperson of the board of directors or external auditor.

DECLARATION BY CHAIRPERSON OF INSTITUTION*

I, the undersigned,, being chairperson of the board of directors of, confirm that I have carefully studied all information supplied in this statement and, after discussion with the deponent and all other members of the board, and after having taken into account any other information at my disposal or that has come to my attention, am of the opinion that the deponent is fit and proper to take up office in this institution, with effect from In the case of the appointment of a director, I confirm that there has been compliance with the appropriate conditions of the articles of association of the company. Similarly, in the case of the appointment of an executive officer, I confirm that there has been compliance with company policy.

DECLARATION BY AUDITOR IN CASE OF NEW BANK*

I, the undersigned,, being the auditor of, confirm that I have carefully studied all information supplied in this statement and, after discussion with the deponent and all other members of the board, and after having taken into account any other information at my disposal confirm that nothing has come to my attention that causes me to believe that the deponent is not fit and proper to take up office in this institution, with effect from In the case of the appointment of a director, I confirm that there has been compliance with the appropriate conditions of the articles of association of the company. Similarly, in the case of the appointment of an executive officer, I confirm that there has been compliance with company policy.

NAME

SIGNED

DATE

* *Delete whichever is not applicable*

Note: Each page of the form BA020, and each additional page attached thereto, shall be initialled by the relevant signatories, that is, the relevant applicant, commissioner of oaths, and the chairperson of the board of directors or external auditor.