where:

VU is the variation in the price of the relevant underlying instrument of the option, which VU value-

(i) shall in the case of an interest rate option in respect of which the underlying instrument is a bond be calculated by multiplying the market value of the said underlying instrument with the relevant risk weight specified in table 4 in paragraph (b), provided that the bank shall do a similar calculation when the underlying is an interest rate, in which case the bank's calculation shall be based on the relevant assumed change in the yield specified in table 4 in paragraph (b);

(ii) shall in the case of an option in respect of an equity or equity index be calculated by multiplying the market value of the relevant underlying instrument with 8 per cent;

(iii) shall in the case of an option in respect of foreign exchange or gold be calculated by multiplying the market value of the relevant underlying instrument with 8 per cent;

(iv) shall in the case of an option in respect of a commodity be calculated by multiplying the market value of the said underlying instrument with 15 per cent.

(iv) Matters relating to the scenario approach

A bank that obtained the approval of the Registrar to adopt the scenario approach, which approach makes use of simulation techniques in order to calculate changes in the value of an options portfolio based on simultaneous changes in the relevant underlying rates or prices and the volatility of those rates or prices-

(A) shall separately calculate the bank's relevant capital requirements in respect of specific risk by multiplying the relevant delta-equivalent amount of each relevant option position with the relevant specific risk weights specified in paragraphs (b) and (c) above;

(B) shall in order to calculate the bank's relevant required amount of capital and reserve funds in respect of general risk arising from all relevant option positions develop a scenario grid, that is, a matrix that contains a specified combination of underlying price and volatility changes, provided that-

(i) based on the relevant requirements specified in the delta-plus approach, in subparagraph (iii)(B)(i) above, the bank-

(aa) shall duly define the relevant underlying positions, provided that, subject to the prior written approval of and such conditions as may be specified in writing by the Registrar, a bank that conducts significant business in options may in respect of its interest rate options base the relevant required calculations on a minimum of six sets of time bands, provided that in no case shall the bank combine more than three of the relevant specified time bands;

(bb) shall develop a separate matrix for each relevant individual underlying;

(ii) in order to calculate the bank's relevant required amount of capital and reserve funds, the bank shall revalue the relevant option portfolio by making use of the said matrices for simultaneous changes in the option's underlying rate or price and the volatility of that rate or price;

(iii) the bank shall evaluate the relevant options and the related hedging positions over the ranges specified in this sub-item (iii),

(aa) which ranges are specified above and below the current value of the relevant underlying;

(bb) which range shall in the case of interest rates be consistent with the assumed changes in yield specified in table 4 in paragraph (b), provided that a bank that obtained the approval of the Registrar to combine time bands in respect of interest rate options shall in respect of each relevant combined time band apply the highest of the assumed changes in yield applicable to the relevant group to which the time band belongs.

For example, when the bank combines time bands 3 to 4 years, 4 to 5 years and 5 to 7 years the highest assumed change in yield of the said three bands shall be equal to 0.75.

(cc) which range shall in the case of equities be equal to ± 8 per cent;

(dd) which range shall in the case of foreign exchange and gold be equal to ± 8 per cent;

(ee) which range shall in the case of commodities be equal to ± 15 per cent,

Provided that for each relevant risk category, in order to divide the relevant total range into equally spaced intervals, the bank shall use the number of observations specified in writing by the Registrar, which number of observations shall in no case be less than seven observations or price points and shall include the relevant current observation.

(iv) in respect of the second dimension of each relevant matrix the bank shall apply a single change in the volatility of the underlying rate or price equal to +25 per cent and -25 per cent, provided that the Registrar may require a bank-

(aa) to apply a different change in volatility; and/or

(bb) to calculate intermediate points on the relevant grid;

(v) in respect of each relevant underlying the bank's capital requirement shall be equal to the largest loss contained in the relevant matrix, that is, after calculating the relevant amounts in respect of each relevant matrix each relevant cell in the matrix shall reflect the relevant net profit or loss of the option and the underlying hedge instrument, and the bank's capital requirement shall be equal to the largest loss contained in the relevant matrix;

(C) shall in addition to the risks specified in this paragraph (f) duly monitor all other relevant risks arising from option positions, such as rho, that is, the rate of change in the value of an option with respect to the interest rate, and theta, that is, the rate of change in the value of the option with respect to time;

(D) may in the calculation of the bank's minimum required amount of capital and reserve funds in respect of interest rate risk include rho.

(g) The reporting bank's total capital requirement in terms of the standardised approach for the measurement of the bank's exposure to market risk shall be equal to the sum of the respective capital requirements calculated in accordance with the relevant requirements and instruments specified in this subregulation (7).

(8) *Method 2: Internal models approach*

(a) A bank that wishes 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 obtain the prior written approval of the Registrar;

(ii) shall at all times comply with the relevant conditions and requirements specified in this subregulation (8);

(iii) shall at all times comply with such additional conditions or requirements as may be specified in writing by the Registrar,

Provided that the Registrar-

(A) may specify a period of initial monitoring and testing of the bank's internal models before the models are used by the bank to calculate the bank's relevant required amount of capital and reserve funds;

(B) shall not grant approval for a bank to apply the internal models approach for the measurement of the bank's exposure to market risk unless-

(i) the Registrar is satisfied that the bank's risk management system is conceptually sound and implemented with integrity;

(ii) the bank has demonstrated to the satisfaction of the Registrar that the bank has a sufficient number of sufficiently skilled staff-

(aa) in the use of sophisticated models in the bank's trading area;

(bb) in risk control;

(cc) in audit; and

(dd) in all relevant back-office areas;

(iii) the bank has demonstrated to the satisfaction of the Registrar that its models have a proven track record of reasonable accuracy in the measurement of the bank's relevant risk exposures;

(iv) the bank has demonstrated to the satisfaction of the Registrar that the bank regularly conducts relevant stress tests in accordance with the relevant requirements specified in paragraph (f) below.

(b) A bank that obtained the approval of the Registrar to adopt the internal models approach for the measurement of the bank's exposure to market risk shall, based on the relevant requirements relating to the standardised approach specified in subregulation (7), separately calculate a capital requirement in respect of the bank's exposure to specific risk arising from specific issuers of debt securities or equities unless the bank complies with the requirements relating to specific risk specified in paragraph (h) below, in which case the bank may use its internal models in order to calculate the bank's exposure to specific risk and the related required amount of capital and reserve funds.

(c) Qualitative requirements

A bank that wishes to adopt the internal models approach for the measurement of the bank's exposure to market risk in respect of relevant positions held in the bank's trading book and/or banking book-

(i) shall have in place models and risk management systems that are conceptually sound and implemented with integrity;

(ii) as a minimum, shall continuously comply with the qualitative requirements specified in regulation 39(14)(b).

(d) Matters relating to the specification of relevant market risk factors

In order to sufficiently capture the risks inherent in a bank's portfolio of on-balance-sheet and off-balance-sheet trading positions, as part of the bank's internal market risk measurement system, the bank shall specify an appropriate set of market risk factors, that is, market rates and prices that affect the value of the bank's trading positions, provided that-

(i) any factor deemed relevant by the bank for pricing purposes shall be included as a risk factor in the bank's value-at-risk model.

When a risk factor is incorporated in the bank's pricing model but not in its value-at-risk model, the bank shall duly motivate, to the satisfaction of the Registrar, the omission of the said risk factor from the bank's value-at-risk model;

(ii) the bank's value-at-risk model shall duly capture-

(A) nonlinearities associated with options and other relevant products, such as mortgage-backed securities, tranched exposures or n-th-to-default credit derivative instruments;

(B) correlation risk and basis risk, for example, between credit default swaps and bonds;

(iii) the bank shall demonstrate to the satisfaction of the Registrar that any proxy used by the bank in its value-at-risk model has a good track record in respect of the actual position held by the bank, such as an equity index used for a position in an individual instrument;

(iv) in the case of interest rates-

(A) based on the nature of the bank's trading strategies, the bank shall specify an appropriate set of risk factors that correspond to the relevant interest rates in each relevant currency in which the bank holds interest-rate-sensitive on-balance-sheet or off-balance-sheet positions, that is, a bank with a portfolio of various types of security across many points of the yield curve and that engages in complex arbitrage strategies, for example, requires a greater number of risk factors to accurately capture the bank's exposure to interest rate risk;

(B) the bank's risk measurement system, amongst other things-

(i) shall model the yield curve, for example, by estimating forward rates of zero coupon yields;

(ii) shall incorporate separate risk factors to capture spread risk, for example, between bonds and swaps.

A bank may use a variety of approaches to capture the spread risk arising from less than perfectly correlated movements between government and other fixed-income interest rates.

For example, the bank may model a completely separate yield curve for non-government fixed-income instruments, such as swaps or municipal securities, or estimate the spread over government rates at various points along the yield curve.

(C) in order to capture variation in the volatility of rates along a yield curve, the bank shall divide the yield curve into appropriate maturity segments and specify no less than one risk factor corresponding to each relevant maturity segment;

(D) in respect of material exposure to interest rate movements in major currencies and markets, the bank shall model a yield curve using no less than six risk factors;

(v) in the case of exchange rates, which include gold-

(A) the bank shall, as a minimum, specify relevant risk factors in respect of the exchange rate between the domestic currency and each foreign currency in which the bank has a significant exposure;

(B) the bank's risk measurement system shall incorporate the said risk factors relating to the individual foreign currencies in which the bank's positions are denominated.

(vi) in the case of equities-

(A) the sophistication and nature of the bank's modelling technique for a particular market shall correspond-

(i) to the bank's exposure to the overall market; and

(ii) to the bank's concentration in individual equity issues in the said market;

(B) the bank shall, as a minimum, specify relevant risk factors in respect of each of the equity markets in which the bank holds significant positions, that is, based on the bank's exposure to the overall market and the bank's concentration in individual equity issues in the said market-

(i) the bank shall, as a minimum, specify a risk factor designed to capture market-wide movements in equity prices, such as a market index, and, for example, express positions in individual securities or in sector indices as "beta-equivalents" relative to the said market-wide index;

(ii) the bank shall specify risk factors in respect of the various sectors of the overall equity market, such as industry sectors or cyclical and non-cyclical sectors, and, for example, express positions in individual instruments within each sector as beta-equivalents relative to the sector index;

(iii) the bank shall specify risk factors relating to the volatility of individual equity issues.

(vii) in the case of commodities the bank shall specify relevant risk factors in respect of each relevant commodity market in which the bank holds significant positions, provided that-

(A) a bank with limited positions in commodity-based instruments may specify only one risk factor in respect of each commodity price to which the bank is exposed;

(B) a bank that actively trades in commodities shall duly take account of any variation in the convenience yield between derivatives positions, such as forwards and swaps, and cash positions in the commodity, which yield-

(i) reflects the benefits from direct ownership of a physical commodity, such as the ability to profit from temporary market shortages;

(ii) is affected by market conditions and factors such as physical storage cost;

(C) the bank shall duly manage its exposure to directional risk, forward gap and interest rate risk, and any relevant basis risk.

(e) Quantitative requirements relating to, among other things, minimum statistical parameters for the measurement of a bank's exposure to market risk

(i) A bank that obtained the approval of the Registrar to adopt the internal models approach for the measurement of the bank's exposure to market risk arising from relevant positions held in the bank's trading book and/or banking book-

(A) shall on a daily basis calculate the bank's value-at-risk ("VaR") amount, which VaR amount-

(i) shall be based on a 99^{th} percentile, one-tailed confidence interval;

(ii) shall be based on an instantaneous price shock equivalent to a ten day movement in market prices, that is, a minimum "holding period" of ten trading days, provided that when the bank is unable to determine the required value-at-risk amounts based on a ten day holding period, and the bank's VaR amount is based on a holding period of less than ten trading days, the bank shall scale up the relevant calculated VaR amounts to ten trading days by making use of, for example, the relevant square root of time formula for the treatment of options, provided that a bank that does make use of such square root of time formula to scale up its relevant calculated VaR amount to ten trading days shall periodically demonstrate to the satisfaction of the Registrar the continued reasonableness of the said calculation;

(iii) shall be based on a historical observation period or sample period of no less than one year, provided that-

(aa) the Registrar may require a bank to calculate its value-at-risk amount based on a shorter observation period when, in the opinion of the Registrar, the said calculation is justified by a significant upsurge in market price volatility;

(bb) a bank that uses a weighting scheme or other methods in respect of the historical observation period shall ensure that the "effective" observation period is no less than one year, that is, the weighted average time lag of the individual observations shall not be less than six months, or the method used by the bank shall result in a required amount of capital and reserve funds at least as conservative as the amount calculated in accordance with the requirement related to the aforesaid observation period;

(B) shall update its data sets no less frequently than once every month, provided that the bank shall reassess the relevant data sets whenever market prices are subject to material changes, that is, the bank's internal processes related to the updating of data sets shall be sufficiently flexible to allow for the frequent updating of all relevant data sets;

(C) may recognise empirical correlations **within** broad risk categories such as interest rates, exchange rates, equity prices and commodity prices, including related option volatilities in respect of each relevant risk-factor category, provided that, subject to the prior written approval of and such further conditions as may be specified in writing by the Registrar, a bank may also recognise empirical correlations **across** broad risk factor categories;

(D) shall have in place a robust risk measurement system, which risk-measurement system-

(i) among other things, shall duly capture the unique risks associated with options within each of the specified broad categories of risk, that is, the bank's model shall accurately capture the non-linear price characteristics associated with option positions, provided that-

(aa) ultimately the bank shall move towards the application of a full 10-day price shock to option positions or positions that display option-like characteristics;

(bb) the Registrar may require a bank to adjust its capital measure for option risk through the application of methods such as periodic simulations or stress testing, the results of which simulations or stress testing shall be duly documented;

(ii) shall contain a set of risk factors that captures the volatilities of the rates and prices underlying all relevant option positions, that is, vega risk, provided that a bank with large and/or complex option portfolios shall have in place detailed specifications of the relevant volatilities, that is, based on the relevant different maturities of the bank's option positions, the bank shall measure the relevant volatilities relating to all relevant option positions.

(E) shall, in addition to the aforesaid VaR calculation, calculate a stressed value-at-risk ("sVaR") measure, which sVaR-

(i) replicates a value-at-risk calculation that would be generated on the bank's current portfolio if the relevant market factors were subject to a period of significant stress;

(ii) shall be based on a 10-day, 99th percentile, one-tailed confidence interval value-at-risk measure of the bank's current portfolio, with model inputs calibrated to historical data from a continuous 12-month period of significant financial stress relevant to the bank's portfolio, such as a 12-month period relating to significant losses incurred during the 2007/2008 financial market crisis, which period shall regularly be reviewed by the bank;

(iii) shall be calculated at least once every week;

(iv) calculation and any related matter, including the relevant 12-month period of significant financial stress, shall be subject to such further conditions or requirements as may be specified in writing by the Registrar;

(ii) No particular type of model is prescribed, that is, a bank may, at the discretion of the bank, for example, use models based on variance-covariance matrices, historical simulations, or Monte Carlo simulations, provided that the model used by the bank shall capture all relevant material risks incurred by the bank.

(iii) On a daily basis, as a minimum, subject to any relevant requirement related to the calculation and/or maintenance of a minimum required amount of capital and reserve funds that may be specified in the form BA700 or in regulation 38 of these Regulations, a bank that obtained the approval of the Registrar to adopt the internal models approach for the measurement of the bank's exposure to market risk shall maintain a capital requirement in respect of the said exposure, equal to the sum of-

(A) the higher of-

(i) the previous day's VaR amount, that is, VaR_{t-1}, measured in accordance with the relevant parameters and requirements specified in this subregulation (8); or

(ii) the average amount of the daily VaR amount, that is, VaR_{avg}, calculated in accordance with the relevant parameters and requirements specified in this subregulation (8), in respect of each of the preceding sixty business days, multiplied by the multiplication factor, m_c, envisaged in subparagraph (iv) below;

and, or plus-

(B) the higher of-

(i) the latest available sVaR amount, that is, $sVaR_{t-1}$, measured in accordance with the relevant parameters and requirements specified in this subregulation (8); or

(ii) the average amount of the sVaR amount, that is, $sVaR_{avg}$, calculated in accordance with the relevant parameters and requirements specified in this subregulation (8), in respect of the preceding sixty business days, multiplied by the multiplication factor, m_s, envisaged in subparagraph (iv) below;

that is, the bank's required amount of capital and reserve funds shall be equal to:

$$\max\{VaR_{t-1}; m_c \times VaR_{avg}\} + \max\{sVaR_{t-1}; m_s \times sVaR_{avg}\}$$

(iv) Based on, among other things, the Registrar's assessment of the quality of a bank's risk management system and related processes, the Registrar shall specify in writing the aforesaid multiplication factors, m_c and m_s, which multiplication factors shall in no case be less than three, and a "plus-factor", which plus-factor-

(A) shall directly relate to the ex-post performance of the bank's model, thereby providing a built-in incentive for the bank to maintain or improve the predictive quality of the model;

(B) based on the outcome of backtesting, may range between zero and one, that is, when the backtesting results of the relevant bank-

(i) are satisfactory, and the bank complies with all the qualitative standards specified in regulation 39(14)(b), the plus factor may be equal to zero; or

(ii) fall into the red zone specified by the Registrar from time to time, the multiplication factor applicable to the said bank's model shall automatically increase by one, to four.

(C) shall be based on the outcome of backtesting in respect of the bank's VaR amount, and not the bank's sVaR amount.

(f) Specific matters relating to stress testing

(i) A bank that obtained the approval of the Registrar to adopt the internal models approach for the measurement of the bank's exposure to market risk shall have in place a rigorous and comprehensive programme or process of stress testing-

(A) which programme or process of stress testing-

(i) shall be sufficiently robust to identify events or influences that may have a material impact on the bank's exposure to risk;

(ii) shall form an integral part of the bank's assessment of its capital adequacy;

(iii) shall duly make provision for stress scenarios that cover a range of factors that may cause extraordinary losses or gains in respect of the bank's trading positions and portfolios, or complicate the control of the relevant risks in the said portfolios-

(aa) which factors shall include low probability events in all major types of risk, including the various components of market risk, credit risk and operational risks;

(bb) which stress scenarios shall provide sufficient information relating to the impact of the said events on positions that display linear and/or non-linear price characteristics, that is, options and instruments with option-like characteristics;

(iv) shall be quantitative and qualitative in nature, incorporating, among other things, market risk and liquidity aspects of market disturbances-

(aa) which quantitative criteria shall identify plausible stress scenarios to which the bank may be exposed;

(bb) which qualitative criteria shall include-

(i) an evaluation of the capacity of the bank's capital and reserve funds to absorb potential material losses;

(ii) the identification of steps that the bank can take in order to reduce the bank's exposure to risk, or to conserve capital;

(v) shall be sufficiently robust to combine stress scenarios specified by the Registrar with stress tests developed by the bank in order to reflect the specific risk characteristics of the bank.

(B) the results of which stress testing-

(i) shall routinely be communicated to the bank's senior management and board of directors;

(ii) shall form an integral part of determining and evaluating the bank's management strategy;

(iii) shall be duly documented.

(ii) At the request of the Registrar, the reporting bank shall conduct the tests and provide the information relating to the matters specified below.

(A) Supervisory scenarios not requiring any simulation by the bank

For review by the Registrar, a bank shall have available detailed information relating to the largest losses experienced by the bank during a particular reporting period, which information-

(i) may be compared to the level of required and allocated capital and reserve funds calculated in terms of a bank's internal models;

(ii) shall be sufficient to indicate to the Registrar how many days of peak day losses would have been covered by a given value-at-risk estimate.

(B) Scenarios requiring simulation by the bank

At the request of the Registrar, the reporting bank-

(i) shall subject its portfolios to a series of simulated stress scenarios, which scenarios-

(aa) may include a test of the bank's current portfolio against previous periods of significant disturbance, such as the sharp fall in equity markets during 1987 or the 2007/2008 sub-prime and financial market crisis, incorporating large price movements and a sharp reduction in liquidity associated with such events;

(bb) may evaluate the sensitivity of the bank's market risk exposure to changes in the assumptions relating to volatilities and correlations. Application of this test would require an evaluation of the historical range of variation for volatilities and correlations and an evaluation of the bank's current positions against the extreme values associated with the said historical range;

(cc) may include or evaluate such other matters or assumptions as may be specified in writing by the Registrar;

(ii) shall in writing provide to the Registrar the results of the aforesaid simulated stress scenarios,

Provided that in respect of the aforesaid stress scenarios, the bank shall consider the impact of sharp variations that may have occurred in a matter of days during periods of significant market disturbance in the past. For example, at the height of some of the historic financial market stress events or scenarios, correlations within risk factors approached the extreme values of 1 or -1 for several days.

(C) Scenarios developed by the bank in order to capture the specific characteristics of its portfolio

In addition to the scenarios envisaged in items (A) and (B) above, based on the characteristics of the bank's relevant portfolio, the reporting bank shall develop its own stress tests and scenarios identified by the bank to be most adverse, which scenarios, for example, may include problems experienced in a key region of the world combined with a sharp change in oil prices or prices of other commodities traded in the particular region, provided that-

(i) the bank shall in writing provide the Registrar with a description of the methodology used by the bank to identify and conduct the aforesaid scenarios, and a description of the results;

(ii) the results of the aforesaid stress tests and scenarios shall regularly be reviewed by the senior management of the bank and shall be duly reflected in the relevant policies approved and limits set by the bank's senior management and board of directors.

Provided that when the aforesaid results reveal particular vulnerability to a particular set of circumstances, the bank shall take prompt actions in order to appropriately manage the relevant risks, which actions may include hedging against or reducing the extent of the bank's exposure to market risk.

(g) Matters relating to external validation

From time to time the Registrar may require that a process of external validation be conducted in respect of the accuracy of the models of a bank that obtained the approval of the Registrar to adopt the internal models approach for the measurement of the bank's exposure to market risk, which external validation-

(i) may be conducted by external consultants, external auditors, the Registrar or such other person as may be specified in writing by the Registrar;

(ii) as a minimum, shall provide reasonable assurance to the Registrar that-

(A) the internal validation processes envisaged in regulation 39(14)(b) are duly functioning;

(B) the formulae used-

(i) in the calculation of the bank's risk exposure and required amount of capital and reserve funds; and

(ii) in the pricing of options and other complex instruments,

are regularly validated by a qualified unit, which unit shall in all cases be independent from the relevant trading areas;

(C) the structure of the said internal models is adequate in relation to the bank's activities and geographical coverage;

(D) based on the results of, amongst other things, the backtesting process of the bank's internal measurement system, during which process the bank's value-at-risk estimates are compared to actual profits and losses, it is concluded that the models provide a reliable measure of potential losses that may be suffered by the bank over time, for which purposes, when requested, the bank shall make available the results of and the underlying inputs to its value-at-risk calculations;

(E) data flows and processes associated with the bank's risk-measurement system are transparent and accessible, that is, whenever necessary and provided that the appropriate procedures have been followed, the bank shall ensure easy access to the specifications and parameters of the relevant models.

(h) Matters specifically related to the treatment of specific risk

(i) A bank that has in place a VaR model that measures and incorporates specific risk arising from equity positions, debt securities or other interest rate related instruments, other than securitisation or resecuritisation exposures and n-th-to-default credit derivative instruments, held in the bank's trading book, which model, in addition to the relevant requirements specified in this paragraph (h) and in regulation 39(14)(c) of these Regulations, to the satisfaction of the Registrar, meets all the relevant qualitative and quantitative requirements relating to general market risk models envisaged or specified in paragraphs (c) to (e) of this subregulation (8), may, subject to the prior written approval of and such conditions as may be specified in writing by the Registrar, base the bank's required amount of capital and reserve funds relating to specific risk on the bank's modelled estimate of specific risk, provided that-

(A) a bank that is unable to comply with the additional criteria and requirements specified in this paragraph (h) shall calculate its relevant required amount of capital and reserve funds relating to specific risk in accordance with the relevant requirements specified in the standardised method, in subregulation (7);

(B) unless specifically otherwise provided in this paragraph (h), in the case of securitisation or resecuritisation exposure and n-th-to-default credit derivative instruments, the bank shall calculate its relevant required amount of capital and reserve funds relating to specific risk in accordance with the relevant requirements specified in the standardised method, in subregulation (7);

(C) as a minimum, the bank's model-

(i) shall capture all relevant material components of price risk;

(ii) shall be responsive to relevant changes in market conditions and compositions of portfolios;

(iii) shall duly explain the historical price variation in the portfolio by way of, for example, the application of "goodness-of-fit" measures such as an R-squared measure from regression methodology, or such measure as may be approved in writing by the Registrar;

(iv) shall duly capture concentrations that include magnitude and changes in composition, that is, the bank shall demonstrate to the satisfaction of the Registrar that the model is sensitive to changes in portfolio construction and reflects higher capital requirements in respect of portfolios with increasing concentrations relating to particular names or sectors;

(v) shall be sufficiently robust to an adverse environment, that is, the bank shall demonstrate to the satisfaction of the Registrar that the model signals rising risk in an adverse environment, which, for example, may be achieved by incorporating in the historical estimation period of the model at least one full credit cycle and ensuring that the model duly reflects the impact of the downward portion of the cycle;

(vi) shall duly capture name-related basis risk, that is, the bank shall demonstrate to the satisfaction of the Registrar that the model is sensitive to material idiosyncratic differences between similar but not identical positions such as, for example, debt positions with different levels of subordination or maturity mismatches, or credit derivative instruments that specify different default events;

(vii) shall duly capture event risk which, in the case of debt positions, shall include migration risk, and, for example, in the case of equity positions, events that are reflected in large changes or jumps in prices, such as merger break-ups or takeovers;

(viii) shall be validated through relevant and robust backtesting;

(ix) shall conservatively assess risk arising from less liquid positions and/or positions with limited price transparency under realistic market scenarios;

(x) shall only make use of proxies when available data is insufficient or not reflective of the actual volatility of a position or portfolio, and only when the said proxies are appropriately conservative;

(D) when the bank is exposed to event risk that is not duly reflected in the bank's estimate of VaR due to the event, for example, being beyond the 10-day holding period or 99^{th} per cent confidence interval, that is, low probability and high severity events, the bank shall factor into its internal assessment of economic capital the said impact, for example, through stress testing;

(E) in the case of interest rate related instruments or positions, that is, instruments or positions subject to specific interest rate risk, other than securitisation or resecuritisation exposures and n-th-to-default credit derivative instruments, the bank's internally developed approach shall duly capture incremental default and migration risks, that is, risks that are incremental to the relevant risks specified in item (C) above, provided that-

(i) the bank's incremental risk requirement (IRC) shall as a minimum estimate-

(aa) the default risk, that is, the potential for direct loss due to an obligor's default as well as the potential for indirect losses that may arise from a default event, including losses caused by broader market-wide events affecting multiple issues or issuers; and

(bb) the migration risks, that is, the potential for direct loss due to an internal or external rating downgrade or upgrade as well as the potential for indirect losses that may arise from a credit migration event,

of all relevant unsecuritised credit products over a one-year capital horizon at a confidence level of 99.9 per cent, taking into account the liquidity horizons of all relevant positions or sets of positions;

(ii) the bank's approach and models used to capture incremental risks shall meet a soundness standard comparable to the standard specified in respect of the IRB approach for credit risk, specified in regulation 23 of these Regulations, under the assumption of a constant level of risk, and adjusted where appropriate to reflect the impact of liquidity, concentrations, hedging, and optionality;

(iii) as stated hereinbefore, for each IRC-covered position, the bank's model shall capture the impact of rebalancing positions at the end of their liquidity horizons so as to achieve a constant level of risk over a one-year capital horizon, that is-

(aa) the bank shall rebalance or roll over the relevant positions over the one-year capital horizon in a manner that maintains the initial risk level, as indicated by a metric such as VaR or the profile of exposure by credit rating and concentration.

Rebalancing positions does not imply, as the IRB approach for the banking book does, that the same positions will be maintained throughout the capital horizon. Particularly for more liquid and more highly rated positions, this provides a benefit relative to the treatment under the IRB framework.

However, a bank may use a one-year constant position assumption, as long as it does so consistently across all relevant portfolios.

(bb) the bank shall incorporate the effect of replacing positions of which the credit characteristics have improved or deteriorated over the liquidity horizon with positions that have risk characteristics equivalent to those that the original position had at the start of the liquidity horizon;

Provided that the frequency of the aforesaid assumed rebalancing shall be governed by the liquidity horizon for a given position;

(iv) the liquidity horizon-

(aa) shall represent the time required to sell the relevant position or hedge all material risks covered by the IRC model in a stressed market;

(bb) shall be measured under conservative assumptions, and shall be sufficiently long that the act of selling or hedging, in itself, does not materially affect market prices;

(cc) shall be subject to a floor of three months for any relevant position or set of positions;

(dd) shall be greater for positions that are concentrated-

(i) to reflect the longer period needed to liquidate such positions; and

(ii) to provide adequate capital against two types of concentration, namely issuer concentration and market concentration.

Provided that a bank may assess liquidity by position or on an aggregated basis ("in buckets").

When an aggregated basis is used, such as investment-grade corporate exposures not part of a core CDS index, the aggregation criteria shall be defined in a way that meaningfully reflect differences in liquidity.

(v) the bank's incremental risk requirement shall include the impact of correlations between default and migration events among obligors since dependence among obligors may cause a clustering of default and migration events;

(vi) consistent with the principle contained in these Regulations not to allow any diversification benefit when combining capital requirements for credit risk and market risk, the bank's incremental risk requirement shall not incorporate or reflect any diversification benefit between default or migration events and other market variables, that is, the capital requirement for incremental default and migration risk shall be added to the bank's VaR-based capital requirement for market risk;

(vii) the bank's incremental risk requirement shall appropriately reflect issuer and market concentrations, including concentrations that can arise within and across product classes under stressed conditions.

Therefore, other things being equal, a concentrated portfolio shall attract a higher incremental risk capital requirement than a more granular portfolio.

(viii) within the bank's IRC model, consistent with the principle relating to gross balances, contained in these Regulations, exposure amounts shall be captured on a gross basis, provided that long and short positions that relate to the same financial instrument may be netted, that is, hedging or diversification effects associated with long and short positions involving different instruments or different securities of the same obligor ("intra-obligor hedges"), as well as long and short positions in different issuers ("inter-obligor hedges"), shall not be recognised through the netting of exposure amounts;

(ix) the bank's incremental risk requirement shall duly reflect significant basis risks by product, seniority in the capital structure, internal or external rating, maturity, vintage for offsetting positions as well as differences between offsetting instruments, such as different payout triggers and procedures;

(x) for trading book risk positions that are hedged via dynamic hedging strategies, the bank may recognize a rebalancing of the hedge within the liquidity horizon of the hedged position, provided that-

(aa) the bank shall model the rebalancing of the hedge consistently over the relevant set of trading book risk positions;

(bb) the bank shall demonstrate to the satisfaction of the Registrar-

(i) that the said inclusion of rebalancing results in a better risk measurement;

(ii) that the markets for the instruments serving as a hedge are liquid enough to allow for this kind of rebalancing, even during periods of stress;

(iii) that any residual risks resulting from the bank's dynamic hedging strategies are duly incorporated into the bank's capital requirement;

(xi) the bank's IRC model shall reflect the impact of optionality, that is, the bank's models shall include the nonlinear impact of options and other positions with material nonlinear behavior with respect to price changes, and the bank shall duly consider and evaluate the model risk inherent in the valuation and estimation of price risks associated with such products;

(xii) the bank's model may incorporate correlation effects among the modelled risk factors, subject to the validation standards specified in regulation 39(14)(c);

(xiii) the bank's internally developed approach to capture incremental default and migration risks shall comply with the relevant additional qualitative requirements specified in regulation 39(14)(c);

(xiv) the bank may choose to consistently include all listed equity and derivative positions based on listed equity in its incremental risk model when such inclusion is consistent with how the bank internally measures and manages this risk at the trading desk level, provided that when equity securities are included in the computation of incremental risk, default shall be deemed to occur when the related debt defaults;

(xv) when computing the bank's incremental risk requirement, the bank shall in no case incorporate into its IRC model any securitisation positions, even when securitisation positions are regarded by the bank as hedging underlying credit instruments held in the bank's trading book;

(xvi) the bank's internally developed approach and IRC model shall be subject to the "use test", that is, the bank's approach and model shall be consistent with the bank's internal risk management policies, processes, procedures and methodologies for identifying, measuring, and managing its trading risks;

(xvii) a bank that does not capture the said incremental risks through its internal models shall calculate the relevant required amount of capital and reserve funds for specific risk in accordance with the relevant requirements specified in subregulation (7) above;

(F) the bank's correlation trading portfolio shall be subject to the further conditions and requirements specified in subparagraph (ii) below;

(G) the bank shall regularly conduct backtesting specifically aimed at assessing whether or not specific risk is duly captured, that is, the bank shall conduct separate backtests in respect of each relevant sub-portfolio approved by the Registrar using daily data in respect of the said sub-portfolio subject to specific risk;

(H) the bank shall have in place a robust process in order to analyse exceptions identified through the backtesting of specific risk, which process, among other things, shall serve as a basis for correcting the bank's model for specific risk when the model becomes inaccurate.

(ii) Subject to the prior written approval of and such conditions as may be specified in writing by the Registrar, a bank may incorporate in its internally developed approach and models, the bank's correlation trading portfolio, provided that-

(A) the bank shall demonstrate to the satisfaction of the Registrar-

(i) that the bank complies with the qualitative requirements specified or referred to in this paragraph (h);

(ii) that the bank has sufficient market data to ensure that it fully captures the salient risks of all relevant exposures;

(iii) that the bank's risk measures can appropriately explain, for example through backtesting, the historical price variation of the relevant instruments or products;

(iv) that the bank is able to separate the instruments or positions for which it obtained approval to incorporate them in the bank's comprehensive risk measure from the instruments or positions for which the bank did not obtain the said approval;

(v) that the bank regularly applies a set of specific predetermined stress scenarios-

(aa) which stress scenarios shall be applied at least weekly;

(bb) the results of which stress scenarios, including comparisons with the capital requirements implied by the banks' internal model for estimating comprehensive risks as envisaged in this subparagraph (ii), shall be reported in writing to the Registrar on a frequent basis, but not less frequently than once a quarter;

Provided that any instances where the stress tests indicate a material shortfall of the comprehensive risk measure shall immediately be reported in writing to the Registrar.

(cc) which stress scenarios, as a minimum, shall examine the implications of stresses-

(i) to default rates;

(ii) to recovery rates;

(iii) to credit spreads;

(iv) to correlations on the correlation trading desk's profit and loss;

(dd) based on which stress testing results, the Registrar may impose a supplemental capital requirement against the bank's correlation trading portfolio, which requirement shall be in addition to the bank's relevant internally calculated capital requirement;

(B) the said approach and models shall duly capture not only incremental default and migration risks as stated hereinbefore, but all relevant components of price risk, that is, the bank shall have in place a comprehensive risk measurement approach in respect of its correlation trading portfolio that captures all relevant components of price risk that impact the value of the relevant instruments or products, including-

(i) the cumulative risk arising from multiple defaults, including the ordering of defaults, in tranched products;

(ii) credit spread risk, including the relevant gamma and cross-gamma effects;

(iii) volatility of implied correlations, including the relevant cross effect between spreads and correlations;

(iv) basis risk, including both-

(aa) the basis between the spread of an index and those of its constituent single names; and

(bb) the basis between the implied correlation of an index and that of bespoke portfolios;

(v) recovery rate volatility, as it relates to the propensity for recovery rates to affect tranche prices; and

(vi) to the extent that the comprehensive risk measure incorporates the benefits from dynamic hedging, the risk of hedge slippage and the potential cost of rebalancing such hedges.

(C) this exception shall be available only to banks that actively buy and sell the relevant instruments or products;

(D) the bank's required amount of capital and reserve funds relating to exposures included in the bank's internally developed approach and models shall not be less than eight per cent of the specific risk requirement calculated in accordance with the relevant requirements specified in subregulation (7);

(E) the relevant exposures shall be incorporated into both the value-at-risk and stressed value-at-risk measures of the bank;

(F) the bank shall at least weekly, or more frequently when directed in writing by the Registrar, calculate the incremental risk measure according to the relevant requirements specified in subparagraph (i)(E) above, and the comprehensive risk measure according to the requirements specified in this subparagraph (ii);

(G) the bank's capital requirement-

(i) for incremental risk shall be equal to the higher of-

(aa) the average of the incremental risk measures over 12 weeks; and

(bb) the most recent incremental risk measure,

multiplied by a scaling factor of 1.0.

(ii) for comprehensive risk shall be equal to the higher of-

(aa) the average of the comprehensive risk measures over 12 weeks; and

(bb) the most recent comprehensive risk measure,

multiplied by a scaling factor of 1.0.

(iii) shall be the sum of the aforesaid two amounts, calculated in accordance with the requirements specified in sub-items (i) and (ii) of this item (F).

Provided that for the purposes of these Regulations no adjustment shall be made in respect of any potential double counting between the comprehensive risk measure and any other relevant risk measure.

(iii) For the purposes of these Regulations the presumption shall be that models that incorporate specific risk are not eligible for approval when the stress-testing and backtesting results of the model, at sub-portfolio level, produce a number of exceptions commensurate with the red zones specified in writing by the Registrar in respect stress-testing and backtesting from time to time.

DAILY RETURN: SELECTED RISK EXPOSURE

Page no.

DAILY REPORT: SELECTED RISK EXPOSURE **BA325**
(Confidential and not available for inspection by the public) Daily
Name of bank..
Date..(yyyy-mm-dd)

(All amounts to be rounded off to the nearest R'000)

Summary of selected information	Line no.	Total
		1
Market risk requirement(total of items 2 to 4)	1	
Minimum prescribed pillar 1 market risk requirement[1] (item 17, column 1, plus item 23, columns 1 to 4)	2	
Systemic risk add-on (pillar 2a) market risk requirement[2]	3	
Additionally specified bank-specific (pillar 2b) market risk requirement[3]	4	
Allocated capital and reserve funds for market risk	5	
Surplus/ (deficit) (item 5 less item 1)	6	
Memorandum items:		
Counterparty risk requirement arising from trading book positions (items 8 to 10)	7	
OTC	8	
SFT	9	
Credit-derivative instruments	10	
Liquidity risk[4]		
Funding related items (total of items 12 and 13)	11	
SARB repo participation	12	
Interbank funding	13	
Liquid assets		
Held on preceding day	14	
Month to date average held	15	
Requirement (item 14 of the form BA 310)	16	

1. **Based on the minimum percentage requirement specified in item 1 column 6 of the form BA700.**
2. **Based on the add-on percentage requirement specified in item 2 column 6 of the form BA700.**
3. **Based on the add-on percentage requirement or amount reported in item 8 column 3 of the form BA700.**
4. **Relates only to banks submitting daily information in respect of trading activities.**

(All amounts to be rounded off to the nearest R'000)

Standardised approach Position risk requirement	Line no.	Total	*of which:*	
			Specific risk	General risk
		1	2	3
Total (of items 18 to 22)	17			
Interest rate risk	18			
Equity risk	19			
Foreign exchange risk, including gold	20			
Commodity risk	21			
Options ("carved-out" positions)	22			

(All amounts to be rounded off to the nearest R'000)

Internal models approach Position risk requirement	**Line no.**	**Regulatory VaR amounts**[1, 2]			**Incremental risk charge**[1, 7]	**Internal VaR**[3]		**Backtesting**[4]	
		VaR[2]	**VaR S (specific risk surcharge)**	**sVaR**[2] **(stressed VaR)**		**VaR amount**	**VaR limit**	**Hypothetical**	**Actual**
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Total VaR amounts[5] and incremental risk amount	23								
Interest rate risk	24								
Equity risk	25								
Foreign exchange risk, including gold	26								
Commodity risk	27								
Other	28								
Memorandum items:									
Total VaR amount[5, 6]	29								
Desk 1[6]	30								
Desk 2[6]	31								
Desk 3[6]	32								
Other desks[6]	33								

1. Calculated in accordance with the relevant requirements specified in these Regulations.

2. Based on, amongst other things, a 99 per cent, one-tailed confidence interval, and a minimum holding period of ten trading days.

3. May be based on a confidence interval and/or minimum holding period that differs from the requirements specified in these Regulations.

4. Number of exceptions recorded during the previous 250 days.

5. May not be equal to the sum of individual requirements calculated in respect of the respective risk categories or trading desks due to, amongst others, diversification benefits.

6. Please separately submit in writing the relevant desk description and other relevant information.

7. Refer to regulation 28(8)(h)(i)(E).

(All amounts to be rounded off to the nearest US $'000)

Foreign-currency exposure	Line no.	USD	Euro	GBP	CHF	JPY	Other	Total
		1	2	3	4	5	6	7
Total foreign-currency assets (net of infrastructural investments) (total of items 35 and 40)	34							
Non-residents (total of items 36 to 39)	35							
Foreign currency placed with non-residents	36							
Foreign currency placed in respect of securities borrowing	37							
Foreign currency on-lent to non-residents (line 38 equals line 53)	38							
Other foreign currency	39							
Residents (total of items 41 to 47)	40							
Customer foreign-currency accounts (CFC)	41							
Foreign currency placed in respect of securities borrowing	42							
Foreign currency placements with authorised dealers	43							
Foreign currency placements with S A Reserve Bank	44							
Foreign currency placed with residents, not specified above	45							
Gold coin and bullion	46							
Other foreign currency	47							
Total foreign-currency liabilities (total of items 49 and 54)	48							
Non-residents (total of items 50 to 53)	49							
Foreign-currency funding (loans received)	50							
Foreign-currency deposits attracted	51							
Foreign-currency deposits held in respect of securities lending	52							
Liability in respect of foreign-currency borrowings on-lent to non-residents	53							
Residents (total of items 55 to 58)	54							
Customer foreign-currency accounts (CFC)	55							
Foreign-currency accounts (CFA)	56							
Foreign-currency deposits held in respect of securities lending	57							
Foreign-currency placements from authorised dealers	58							
Commitments[1] to purchase foreign currency (total of items 60 and 65)	59							
Commitments[1] to purchase foreign currency against rand	60							
Residents	61							
Non-residents	62							
Authorised dealers	63							
S A Reserve Bank	64							
Commitments[1] to purchase foreign currency against foreign currency	65							
Commitments[1] to sell foreign currency (total of items 67 and 72)	66							
Commitments[1] to sell foreign currency against rand	67							
Residents	68							
Non-residents	69							
Authorised dealers	70							
S A Reserve Bank	71							
Commitments[1] to sell foreign currency against foreign currency	72							
Effective net open foreign-currency position(s) of reporting bank[1] (item 34 plus 59) less (48 plus 66) in each foreign currency and in all foreign currencies taken together	73							
Limit specified by the Registrar	74							
Internal overnight limits set by the bank's board of directors or senior management (in respect of each individual currency and in the aggregate)	75							

1. Include all unsettled transactions, including spot, forward, options, futures and interest flows.

29. Daily return - Directives, definitions and interpretations for completion of daily return concerning selected risk exposure (Form BA 325)

(1) The content of the relevant return is confidential and not available for inspection by the public.

(2) The purpose of the form BA 325, amongst other things-

(a) is to determine on a daily basis the nature and extent of the reporting bank's exposure to and the related capital requirements in respect of-

(i) market risk or position risk; and

(ii) counterparty risk arising from positions held in the bank's trading book;

(b) is to obtain selected liquidity related information from banks that submit daily information in respect of their exposure to market risk;

(c) is to obtain selected information in respect of the bank's exposure to currency risk arising from positions held in the bank's banking book and trading book.

(3) The aggregate effective net open foreign currency position of the reporting bank in the Republic, together with its foreign operations, calculated in the manner prescribed in this form BA 325, in any one foreign currency and in all foreign currencies taken together, shall not at the close of business on any day exceed an amount specified in writing by the Registrar.

(4) Instructions relating to the completion of the daily return concerning selected risk exposure are furnished with reference to the item descriptions and line item numbers appearing on form BA 325, as follows:

Line item

1, 17 to 22 and 23 to 33 **Market or position risk requirement**

Based on, amongst other things, the relevant directives and requirements specified in regulation 28 and in the form BA320, these items shall reflect the reporting bank's respective required amounts of capital and reserve funds in respect of market risk or position risk.

5 **Allocated capital and reserve funds for market risk**

This item shall reflect the relevant amount of allocated capital and reserve funds in order to provide for the risks pertaining to or arising from the bank's exposure to market risk.

7 to 10 **Counterparty risk**

Based on, amongst other things, the relevant directives and requirements specified in regulation 23 and in the form BA200, these items shall reflect the respective required amounts of capital and reserve funds relating to counterparty credit risk incurred by the reporting bank in respect of transactions, agreements, contracts or instruments held in its trading book.

12 **SARB repo participation**

Based on, amongst other things, the relevant information reported to the bank's senior management and board of directors, this item shall reflect the relevant required amount relating to the bank's participation in the repo-market activity of the Reserve Bank.

13 **Interbank funding**

Based on, amongst other things, the relevant information reported to the bank's senior management and board of directors, this item shall reflect the relevant required amount relating to interbank funding raised by the reporting bank.

14 to 16 **Liquid assets**

Based on, amongst other things, the relevant information reported to the bank's senior management and board of directors, and the relevant directives specified in regulation 27 and in the form BA 310, these items shall reflect the respective required amounts relating to the bank's statutory liquid asset portfolio, including information relating to the daily balance of liquid assets held, the month-to-date average of liquid assets held and the bank's liquid asset requirement.

23 to 33 **VaR amounts**

A bank that adopted the internal models approach for the measurement of the bank's exposure to position risk or market risk shall report in items 23 to 33 the relevant required information relating to, amongst other things, the bank's VaR amount calculated in accordance with the relevant directives and requirements specified in regulation 28(8) and in the form BA320, and the specified information relating to the bank's internal VaR amount and backtesting results.

34 to 75 **Foreign-currency exposure**

Items 34 to 73 shall reflect the foreign-currency positions in selected currencies and in all currencies taken together in respect of the reporting bank in the Republic.

35 A non-resident is an individual, institution or branch of an authorised dealer domiciled outside the Republic of South Africa.

38 Foreign currency on-lent to a non-resident represents advances on-lent to the off-shore office or branch of a South African institution, in terms of the rules, regulations or arrangements issued by the Financial Surveillance Department of the South African Reserve Bank from time to time. (Refer to line item 53 below.)

40 A resident is an individual or institution domiciled in the Republic of South Africa.

41 A customer foreign-currency account (CFC), as an asset account, is a foreign-currency account of a South African institution with an authorised dealer, in terms of the rules, regulations or arrangements issued by the Financial Surveillance Department of the South African Reserve Bank from time to time.

43 An authorised dealer is an institution domiciled in the Republic of South Africa that has been authorised to deal in foreign currency.

50 Foreign-currency funding represents loans obtained by the reporting bank, at the bank's own initiative.

51 Foreign-currency deposits are deposits placed with the reporting bank by non-residents.

52 Foreign-currency deposits held in respect of securities lending represent deposits placed with the reporting bank in respect of securities-lending transactions, in terms of the rules, regulations or arrangements issued by the Financial Surveillance Department of the South African Reserve Bank from time to time.

53 Foreign-currency borrowing on-lent to non-residents represents deposits obtained from the parent company of a foreign institution and on-lent to the off-shore office or branch of a South African institution, in terms of the rules, regulations or arrangements issued by the Financial Surveillance Department of the South African Reserve Bank from time to time.

55 Customer foreign-currency accounts (CFC), as a liability, reflect foreign-currency accounts of South African institutions in terms of the CFC rules, regulations or arrangements issued by the Financial Surveillance Department of the South African Reserve Bank from time to time.

56 Foreign-currency accounts (CFA) reflect resident foreign-currency accounts held with the reporting bank, in terms of the rules, regulations or arrangements issued by the Financial Surveillance Department of the South African Reserve Bank from time to time.

59 Commitments to purchase foreign currency include all unsettled transactions with a commitment to purchase foreign exchange, that is, spot, forward, options, futures and interest flows, etc., at close of business on the reporting date.

66 Commitments to sell foreign currency include all unsettled transactions with a commitment to sell foreign exchange, that is, spot, forward, options, futures and interest flow, etc., at close of business on the reporting date.

60 to 71 For purposes of the completion of items 60 to 71, all transaction between the reporting bank and-

- import and/or export companies, individuals, parastatals and other financial and non-financial companies resident in the Republic, excluding the South African Reserve Bank and other authorised dealers, shall be reported as transactions with **residents**;

- any institution, individual, government, an authorised dealer in foreign exchange resident outside the Republic, etc. shall be reported as transactions with **non-residents**;

- other authorised dealers resident in the Republic shall be reported as transactions with **authorised dealers**;

- the South African Reserve Bank shall be reported as transactions with the **S A Reserve Bank**.

INTEREST-RATE RISK: BANKING BOOK

Page no.

INTEREST RATE RISK: BANKING BOOK **BA 330**
(Confidential and not available for inspection by the public) Monthly
Name of bank...
Month ended... (yyyy-mm-dd)

(All amounts to be rounded off to the nearest R'000)

Static repricing gap	**Line no.**	**Up to 1 month**	**More than 1 month to 3 months**	**More than 3 months to 6 months**	**More than 6 months to 12 months**	**More than 12 months to 3 years**	**More than 3 years to 5 years**	**More than 5 years to 10 years**	**More than 10 years**	**Non-rate sensitive items**	**Total**
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Assets (total of items 2 to 6)	1										
Variable rate items	2										
Adjustable rate items	3										
Discretionary/ administered rate items	4										
Fixed rate items	5										
Non rate sensitive items[1]	6										
Liabilities and capital and reserve funds (total of items 8 to 12)	7										
Variable rate items	8										
Adjustable rate items	9										
Discretionary/ administered rate items	10										
Fixed rate items	11										
Non rate sensitive items[1]	12										
Net funding to / (from) trading desk	13										
Net funding to / (from) ZAR banking book[2]	14										
Net static gap, excluding derivative instruments (item 1 minus item 7 plus items 13 and 14)	15										
Net impact of derivative instruments held in the banking book (total of items 17 and 20)	16										
Swaps and FRAs (total of items 18 and 19)	17										
of which: pay fixed and receive floating	18										
of which: receive fixed and pay floating	19										
Other	20										
Net static gap, including derivative instruments (item 15 and 16)	21										
Cumulative static gap, including derivative instruments	22										

1. Including the aggregate amount of all relevant fair value adjustments. Refer to regulation 30(3)(a).

2. Relates only to the completion of the form BA330 on a legal entity basis that includes any relevant activity/ exposure of a foreign branch.

(All amounts to be rounded off to the nearest R'000)

Interest rate sensitivity: banking book Impact on Net Interest Income (NII)	Line no.	Up to 1 month	More than 1 month to 2 months	More than 2 months to 3 months	More than 3 months to 6 months	More than 6 months to 12 months	Cumulative total for 12 months
		1	2	3	4	5	6
Impact of a parallel rate shock, excluding derivative instruments							
Interest rate increase	23						
Interest rate decrease	24						
Impact of a parallel rate shock, including derivative instruments							
Interest rate increase	25						
Interest rate decrease	26						
Percentage impact of a parallel rate shock on qualifying capital and reserve funds relating to risks other than market risk							
Interest rate increase	27						
Interest rate decrease	28						
Percentage impact of a parallel rate shock on forecast NII							
Interest rate increase	29						
Interest rate decrease	30						
Impact of adverse change in specified key rates							
Adverse impact	31						

(All amounts to be rounded off to the nearest R'000)

Interest rate sensitivity: banking book	Line no.	Up to 1 month	More than 1 month to 2 months	More than 2 months to 3 months	More than 3 months to 6 months	More than 6 months to 12 months	Cumulative total for 12 months
		1	2	3	4	5	6
Adverse correlated risk shock							
NII impact: bank specific shock with assumptions	32						
NII impact: bank specific shock - % of 12 month forecast NII	33						
Net income impact: bank specific shock - % of 12 month forecast net income[1, 2]	34						
							Total
							1
Change in the economic value of equity							
Interest rate increase	35						
Interest rate decrease	36						

1. Relates only to a bank that calculates the relationship between interest rate movements or shocks and non-interest income, bad debts and other relevant variables.
2. Please separately provide information relating to the manner of calculation and any relevant assumptions applied in the said calculation.

30. Interest-rate risk – Directives, definitions and interpretations for completion of monthly return concerning interest-rate risk (Form BA 330)

(1) The content of the relevant return is confidential and not available for inspection by the public.

(2) The purpose of the return, amongst other things, is-

(a) to determine the repricing gap between the reporting bank's assets and liabilities, before and after the impact of derivative instruments are taken into consideration;

(b) to determine the expected cumulative impact on or sensitivity of the reporting bank's net interest income resulting from a two hundred basis points or such other percentage or basis points as may be specified in writing by the Registrar, change in interest rates from expected rates in respect of the reporting bank's expected or forecasted balance sheet relating to banking activities.

Note: For the purpose of these Regulations the risk of changes in the capital value of instruments resulting from changes in interest rates shall be deemed to constitute market risk (position risk), and shall be reported in the form BA 320.

(3) Unless specifically otherwise provided in this regulation 30-

(a) the relevant required information in the form BA 330 shall be reported in Rand and completed on the basis of nominal or notional amounts, provided that subject to the prior written approval of and such conditions as may be specified in writing by the Registrar a bank may complete the form BA 330 on a fair value basis;

(b) subject to the provisions of paragraph (a) above, all relevant amounts shall be calculated and reported on an accrual basis;

(c) all on-balance sheet items and all off-balance sheet items relating to banking activities, which items affect the exposure of the reporting bank to interest-rate risk, shall be included in the form BA 330, including-

(i) any interest-bearing asset or liability instrument or item;

(ii) any security or instrument valued on a discounted basis;

(iii) any zero coupon bond;

(iv) any variable rate instrument that may reprice on a daily or monthly basis, such as call deposits or prime linked instruments;

(v) any adjustable rate instrument with a known reset date, such as a 3 month JIBAR linked product, which instrument-

(A) is linked to a regular base rate;

(B) shall be reported based on its next known reset date;

(vi) any discretionary or administered rate instrument, such as a savings or current account-

(A) the relevant rate of which instrument may or may not change in line with a regular base rate;

(B) the relevant rate of which instrument may be varied at the discretion of the reporting bank;

(C) which instrument shall be reported on the basis of the earliest adjustable interest-rate date;

(vii) any fixed rate instrument, such as a 12 month fixed deposit, which instrument has a predefined fixed interest rate until maturity and shall be reported on the basis of the instrument's relevant residual maturity;

(viii) any relevant derivative instrument,

the relevant values of which instruments or items are influenced by and sensitive to changes in interest rates, irrespective whether or not-

(A) formal interest payments are/were made in respect of the said item or instrument;

(B) the said item or instrument is denominated in Rand or a foreign currency.

(d) any instrument not sensitive to or directly impacted by changes in interest rates, that is, instruments the relevant values of which are indifferent to changes in interest rates, such as capital and reserve funds, shall be included in the form BA 330 as non rate sensitive items;

(e) in order to prevent a net negative interest rate from being applied to interest rate sensitive items, whenever the reporting bank simulates the impact of a rate shock or change on its net interest income, any relevant downward rate shock or change shall be limited to a minimum of zero per cent interest.

(4) A bank-

(a) shall obtain the prior written approval of its board of directors or board-approved committee in respect of any behavioural assumptions or adjustments made in respect of the bank's exposure to interest-rate risk, which assumptions or adjustments might include matters relating to-

(i) business volume;

(ii) business growth; or

(iii) product mix,

provided that-

(A) no bank shall without the prior written approval of and subject to such conditions as may be specified in writing by the Registrar apply any behavioural assumption or adjustment when the bank completes items 1 to 31 of the form BA 330;

(B) the bank may in the completion of items 32 to 34 of the form BA 330 include all relevant assumptions or adjustment approved by the bank's board of directors or board-approved committee in respect of the bank's exposure to interest-rate risk;

(C) the bank shall duly document any behavioural adjustments or assumptions made in respect of the bank's exposure to interest-rate risk;

(D) on prior written request, the bank shall in writing provide to the Registrar any relevant information relating to the assumptions or adjustment approved by the bank's board of directors or board-approved committee in respect of the bank's exposure to interest-rate risk;

(b) shall maintain an appropriate audit trail in respect of the data underlying the base models used for the completion of the form BA 330, which audit trail-

(i) shall include a comprehensive reconciliation between the relevant amounts of assets and liabilities included in the bank's management and board reports and the relevant assets and liabilities relating to banking activities respectively included in the forms BA 330 and BA 100;

(ii) shall duly explain any relevant reconciliation differences;

(iii) on prior written request, shall be submitted in writing to the Registrar.

(c) shall, based on the earliest date of the next interest rate reset date or the maturity of any item, report all relevant positions in the relevant time bands specified in the form BA 330;

(d) shall value any option contract based on the relevant delta value of the said contract or a simplified proxy of the delta value, which delta equivalent value shall be obtained by multiplying the delta value of the relevant contract with the principal value of the relevant underlying instrument.

(5) Instructions relating to the completion of the return are furnished with reference to certain item descriptions and line items appearing on the form BA 330, as follows:

Line items

1 to 22 **Static repricing gap**

Subject to the relevant requirements or provisions specified in subregulation (3), all relevant bucket values shall represent the relevant total amount of assets, gross of any related credit impairment, allowance or provision for loss, and liability items, including the notional amount of any relevant derivative instrument subject to repricing or interest rate risk.

6 **Non rate sensitive assets**

This item shall include any asset item the relevant value of which is not sensitive to or influenced by a change in interest rates, such as a deferred tax asset.

12 **Non rate sensitive liabilities, and capital and reserve funds**

This item shall include any liability item or relevant item related to capital and reserve funds of the reporting bank, the relevant value of which is not sensitive to or influenced by a change in interest rates, such as balances due to creditors or any non interest bearing capital instrument or reserve fund held in the bank's banking book.

13 **Net funding to / (from) trading**

This item shall reflect the net amount of funds borrowed from or lent to the banking related activities of the reporting bank by the bank's treasury, which treasury activity normally is managed in accordance with market risk limits and included in the market risk return as part of the reporting bank's trading activities.

14 **Net funding to / (from) ZAR banking book**

This item relates to the completion of the form BA 330 on a legal entity basis that includes any relevant activity or exposure of a foreign branch and shall reflect the net amount of funds borrowed from or lent to the foreign denominated activities of the reporting bank by the bank's ZAR banking book.

17 to 19 **Swaps and forward rate agreements**

The reporting bank shall separately report swap contracts that pay fixed and receiving floating, and swap contracts that receive fixed and pay floating, as specified in the form BA 330.

The bank shall treat an interest-rate swap contract in terms of which the bank receives a floating-rate as being equivalent to a long position in a floating-rate instrument with a maturity equivalent to the period until the next interest-rate fixing, and a short position in a fixed-rate instrument with the same maturity as the interest-rate swap contract itself.

For example, the reporting bank shall report a two year pay fixed and receive floating forward swap contract commencing in one year's time, which contract has a floating reset date of three months, as a long position in the one year time band and a short position in the three year time band.

Forward rate agreements (FRAs) and future contracts shall be reported on the same basis as purchased and sold positions, that is, long positions and short positions. The maturity of an instrument shall be based on the exercise date, plus the life of the underlying instrument when relevant.

For example, a buyer of a 3 x 6 FRA, that is, borrow money in three month's time, shall report a long position in the 3-month time band and a short position in the 6-month time band.

20 **Other derivative instruments**

This item shall include the aggregate amount of all derivative instruments other than swaps, futures and FRAs, which derivative instruments form part of managing the reporting bank's exposure to interest rate risk in the banking book.

Similar to other derivative contracts the reporting bank shall in the case of an option contract report the relevant contract amounts in the relevant time bands based on the relevant settlement date and maturity date of the contract.

For example, when a bank buys a call option in respect of a 3-month interest future, which option is exercisable in two month's time, the bank shall, based on the relevant delta equivalent value of the contract, report a long position in the 5-month time bucket and a short position in the 2-month time bucket.

Similarly, in the case of a swaption contract, a bank that bought a swaption shall report a short position, that is, a sold position, in respect of the strike date, and a long position, that is, a purchased position, in respect of the maturity date.

22 **Cumulative gap, including derivative instruments**

Based on the net amounts reported in item 21, this item shall reflect the relevant cumulative amount in respect of the reporting bank's repricing gap in a specified time band.

23 to 36 **Interest rate sensitivity**

Subject to the provisions of subregulation (4)(a), based on the reporting bank's ALCO process and model, including all relevant assumptions or adjustments approved by the bank's board of directors or board-approved committee, these items shall reflect and be reconcilable to the relevant ALCO information reported to the reporting bank's senior management and board of directors.

23 to 26 **Sensitivity of net-interest income**

Based on a parallel shift or shock of 200 basis points in the yield curve, up and down, these items shall reflect the simulated impact of the said rate change on the reporting bank's net interest income, which impact shall be reported in respect of each discrete time bucket specified in the form BA 330, with the cumulative total impact amount reported in column 6, before and after the relevant effects of derivative instruments are taken into consideration.

27 and 28 **Impact on qualifying capital and reserve funds**

Based on the relevant amounts reported in items 25 and 26, the reporting bank shall express the relevant impact of the specified rate change on its net interest income as a percentage of the bank's allocated qualifying capital and reserve funds relating to risks other than market risk, as reported in item 105 of the form BA 700.

29 and 30 **Impact of parallel rate shock in yield curve on forecast net interest income**

Based on the relevant amounts reported in items 25 and 26, the reporting bank shall express the relevant impact of a rate change on its net interest income as a percentage of the bank's forecast net interest income for the twelve-month period following the reporting month.

31 **Impact on net interest income of a rate shock in selected key rates**

This item shall reflect the impact on the reporting bank's net interest income over a 12 month period of an unchanged prime interest rate but an adverse movement of 25 basis points in the call rate and 3-month JIBAR rate, or the impact on net interest income of such an adverse change in the said rates as may be specified in writing by the Registrar.

32 to 34 **Impact of adverse correlated risk shock**

Based on the prime rate as the base rate, these items shall reflect the required impact on net interest income and net income of an unfavourable correlated risk shock of 200 basis points, which correlated risk shock shall be calculated on a simulated basis taking into account such assumptions and yield curve shifts that best reflect the uniqueness and complexity of the reporting bank, provided that the reporting bank shall submit in writing to the Registrar all relevant information relating to the said assumptions and yield curve shifts applied in the said calculation and provide the Registrar with such further information as may be specified in writing by the Registrar.

33 Based on the relevant amount reported in item 32, the reporting bank shall express the calculated impact on its net interest income as a percentage of the bank's forecasted net interest income for the twelve-month period following the reporting month.

34 Based on, amongst other things, the impact of an adverse correlated risk shock of 200 basis points on net interest related income, including the impact on net interest income calculated for purposes of item 32, and any other relevant income components that reasonably may be estimated in order to obtain net income, this item shall express the impact of the said adverse correlated risk shock on net income as a percentage of the bank's forecasted net income for the twelve-month period following the reporting month.

35 Based on the formula specified below, a static balance sheet position and a 200 basis point upward parallel shift in the bank's expected yield curve, this item shall reflect the relevant amount by which the economic value of the reporting bank is expected to change.

$$EVE_{sensitivity} = EVE^* - EVE$$

where:

EVE* is the economic value of equity after the said 200 basis point upward parallel shift in the expected yield curve is applied

EVE is the base economic value of equity before the said 200 basis point upward parallel shift in the expected yield curve is applied

36 Based on the formula specified below, a static balance sheet position and a 200 basis point downward parallel shift in the bank's expected yield curve, this item shall reflect the relevant amount by which the economic value of the reporting bank is expected to change.

$$EVE_{sensitivity} = EVE^* - EVE$$

where:

EVE* is the economic value of equity after the said 200 basis point downward parallel shift in the expected yield curve is applied

EVE is the base economic value of equity before the said 200 basis point downward parallel shift in the expected yield curve is applied

EQUITY RISK IN THE BANKING BOOK

Page no.

EQUITY RISK IN THE BANKING BOOK **BA 340**

(Confidential and not available for inspection by the public) Monthly

Name of bank...

Month ended..(yyyy-mm-dd)

(All amounts to be rounded off to the nearest R'000)

Standardised approach for credit risk[1]	Line no.	Exposure value	Risk weighting	Risk weighted exposure	Capital requirement
		1	2	3	4
Equities - listed and unlisted	1		100%		
Private equity and venture capital	2		150%		

1. Including the simplified standardised approach for credit risk.

(All amounts to be rounded off to the nearest R'000)

IRB approach for credit risk Market based approach	Line no.	Exposure value	Risk weighting	Risk weighted exposure[1]	Capital requirement	
		1	2	3	4	
Simple risk weight method (total of items 4 and 5)	3					
Equities - listed	4		300%			
Equities - unlisted	5		400%			
		Exposure value	Risk weighting floor	Risk weighted exposure[1]		Capital requirement
				Without limit[2]	With limit[3]	
		1	2	3	4	5
Internal models approach (total of items 7 and 8)	6					
Equities - listed	7		200%			
Equities - unlisted	8		300%			
Memorandum item:						
Diversified amount	9					

1. **After the application of a scaling factor of 1.06.**
2. **Means the relevant risk weighted exposure amount prior to the application of the specified risk weighting floor, if relevant.**
3. **Means the relevant risk weighted exposure amount after the application of the specified risk weighting floor, when relevant.**

(All amounts to be rounded off to the nearest R'000)

IRB approach for credit risk PD/LGD approach Internal obligor grade[1]	Line no.	Internal rating: PD ratio			Exposure value		Risk weighted exposure[2]	Capital requirement
		PD range		Average PD assigned to the obligor grade (%)		In respect of which the 1,5 scaling factor applies		
		Lower bound (%)	Upper bound (%)					
		1	2	3	4	5	6	7
01	10							
02	11							
03	12							
04	13							
05	14							
06	15							
07	16							
08	17							
09	18							
10	19							
11	20							
12	21							
13	22							
14	23							
15	24							
16	25							
17	26							
18	27							
19	28							
20	29							
21	30							
22	31							
23	32							
24	33							
25	34							
Default	35							
Total (of items 10 to 35)	36							

1. In ascending order, based on exposure weighted average PD.
2. After the application of a scaling factor of 1.06.

(All amounts to be rounded off to the nearest R'000)

Memorandum items:	**Line no.**	**Exposure amount**
		1
Equity exposures exempt from the market based and PD/LGD approaches	37	
Deductions against capital and reserve funds in respect of investments in related entities	38	
Investments in unconsolidated majority owned banking, securities and other financial subsidiaries	39	
Significant minority investments in banking, securities and other financial entities	40	
Investments in insurance subsidiaries and significant minority investments in insurance entities	41	
Significant minority and majority investments in commercial entities that exceed the specified materiality levels	42	
Other investments in related entities, which entities are included in the consolidation of the reporting banking group's accounts, such as significant minority- and majority-owned commercial entities below the specified materiality level	43	

31. Equity risk in the banking book – Directives and interpretations for completion of monthly return concerning equity risk in the banking book (Form BA 340)

(1) The content of the relevant return is confidential and not available for inspection by the public.

(2) The purpose of the return, amongst other things, is to determine the nature and extent of the reporting bank's exposure to investment risk arising from equity positions and other relevant investments or instruments held in its banking book.

(3) *Criteria relating to categorisation of equity exposures held in a bank's banking book*

Based on the economic substance and not the legal form of an instrument, and irrespective whether or not the said instrument makes provision for a voting right, for the purposes of these Regulations equity exposures held in a bank's banking book-

(a) shall include-

(i) any direct ownership interest in the assets and income of a commercial or financial institution;

(ii) any indirect ownership interest in the assets and income of a commercial or financial institution, including-

(A) a derivative instrument held, which derivative instrument is linked to an equity interest;

(B) any instrument or interest held in a corporation, partnership, limited liability company or other type of enterprise that issue ownership interests and which in turn principally is engaged in the business of investing in equity instruments;

(iii) any instrument that-

(A) is not redeemable, that is, the return of invested funds can be achieved only by way of the sale of the relevant instrument, the sale of the rights to the relevant investment or the liquidation of the issuer of the relevant instrument;

(B) does not constitute an obligation of the issuer of the instrument;

(C) entitles the holder of or investor in the said instrument to a residual claim in respect of the assets or income of the issuer of the said instrument;

(D) exhibits or contains characteristics similar to an instrument that qualifies as primary share capital of a bank, as defined in section 1 of the Act;

(E) constitutes an obligation of the issuer of the instrument and the said obligation or instrument makes provision for any one of the conditions or circumstances specified below.

(i) The issuer of the said instrument has the right indefinitely to defer the settlement of the said obligation.

(ii) The obligation specifies that settlement will, or at the discretion of the issuer may, take place by way of the issuance of a fixed number of equity shares of the obligor.

(iii) The obligation specifies that settlement will, or at the discretion of the issuer may, take place by way of the issuance of a variable number of the issuer's equity shares and any change in the value of the obligation is related to, and in the same direction as, the change in the value of a fixed number of the issuer's equity shares.

(iv) The holder of the instrument has the option to require that the obligation be settled in equity shares.

(b) shall exclude any instrument-

(i) held in any institution or entity of which the assets and liabilities are consolidated with the assets and the liabilities of the reporting bank or controlling company;

(ii) that constitutes a deduction against the primary or secondary capital and reserve funds, or tertiary capital, of the reporting bank;

(iii) specified in writing by the Registrar, which instrument or any part thereof, in the discretion of and subject to the conditions specified in writing by the Registrar, should be treated as debt instead of equity.

(4) Based on-

(a) the relevant requirements specified in regulation 23, including in particular regulations 23(6)(j), 23(8)(j), 23(11)(b)(vii), 23(11)(c)(v) and/or 23(11)(d)(v), as the case may be;

(b) the relevant requirements specified in this regulation 31; and

(c) the relevant requirements specified in regulation 38, including in particular regulations 38(2)(a) and/or 38(8), as the case may be,

a bank shall calculate and report, among other things, its relevant specified exposure amounts, risk weighted exposure amounts and/or required amount of capital and reserve funds.

(5) Once a bank adopts the IRB approach as envisaged in regulation 23(10) for all or part of any of its corporate, bank, sovereign, or retail asset classes, the bank shall simultaneously adopt the IRB approach for its equity exposures, subject only to materiality levels as may be specified in writing by the Registrar from time to time, provided that the Registrar may require a bank to implement one of the IRB equity approaches specified in subregulation (5) below when the bank's equity exposures constitute a significant part of its business, even though the bank may not adopt an IRB approach in respect of other asset classes, business units or activities.

(6) *Calculation of risk weighted exposure in respect of equity instruments held in the banking book of a bank that adopted the IRB approach for the measurement of the bank's exposure to credit risk*

(a) Subject to the provisions of regulation 38(2)(a), a bank that adopted the IRB approach for the measurement of the bank's exposure to credit risk shall calculate its risk-weighted assets and related required amount of capital and reserve funds in respect of equity exposures held in its banking book in accordance with the market-based approach or PD/LGD approach specified below, or, subject to the prior written approval of and such conditions as may be specified in writing by the Registrar, a combination of the said approaches, provided that-

(i) the bank shall apply a selected approach in a consistent manner;

(ii) each relevant risk category shall be assessed using a single approach;

(iii) all relevant elements of the reporting bank's exposure to equity risk in the banking book shall be subject to the bank's risk management policies, processes and procedures, and the relevant requirements specified in this subregulation (5);

(iv) no bank shall be allowed to apply a combination of approaches-

(A) within a specific risk category; or

(B) in respect of the same type of risk, across different risk centres;

(v) any relevant equity exposure that constitutes a deduction against the reporting bank's capital and reserve funds in terms of the provisions of regulations 23(6), 23(8), 23(11) or 23(13) shall be included in the form BA 340, and the relevant amount shall be deducted from the bank's capital and reserve funds in accordance with the relevant requirements specified in section 70 of the Act read with the provisions of the aforesaid regulations;

(vi) a bank that adopted the market-based approach-

(A) shall continuously comply with the relevant minimum requirements specified in regulation 23(11)(b)(vii) if the bank wishes to apply the internal model market-based approach specified in paragraph (b)(ii) below;

(B) shall calculate its risk weighted exposure in terms of the simple risk-weight method when the bank is unable to comply with the said minimum requirements relating to the internal model market-based approach specified in regulation 23(11)(b)(vii);