South African Reserve Bank
From the Office of
the Registrar of Banks

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To: Banks, branches of foreign institutions, controlling companies and auditors of banks or controlling companies

Guidance note 3/2010 issued in terms of section 6(5) of the Banks Act, 1990

Performing market risk hypothetical backtesting by internal models approach (IMA) banks

Executive summary

The Regulations relating to Banks (the Regulations) requires banks that obtained the approval of the Registrar to adopt the internal models approach for the measurement of the bank's exposure to market risk, to conduct hypothetical backtesting and to report hypothetical backtesting exceptions to the Bank Supervision Department of the South African Reserve Bank on a daily basis on the form BA325 and monthly on the form BA320. This guidance note addresses the method for calculating hypothetical profit and loss (P&L).

1. Purpose

1.1 The purpose of this guidance note is to provide guidance on the method for calculating hypothetical P&L.

2. Regulations relating to Banks

2.1 The Regulations relating to Banks states in regulation 39 (14): "A bank that wishes-

(b) to adopt the internal models approach for the measurement of the bank's exposure to market risk arising from positions held in the bank's trading book- ...

(i) shall have in place an independent risk control unit, which risk control unit- ...
(E) shall conduct regular backtesting, that is, an ex-post comparison of the risk measure generated by the bank's model against actual

daily changes in portfolio value over longer periods of time, ***as well as hypothetical changes based on static positions;***"

2.2 This requirement means that IMA banks are required to enter the number of hypothetical backtesting exceptions on the monthly form BA320 (lines 96 through 106, column 6) and the daily form BA325 (lines 20 through 30, column 5).

3. Further guidelines issued by the Basel Committee on Banking Supervision

3.1 The consultative document "Revisions to the Basel II market risk framework" (January 2009) includes the requirement:

"*8. The improvements in the Basel II Framework concerning internal value-at-risk models would in particular require banks to justify any factors used in pricing which are left out in the calculation of value-at-risk. They will also be required to use hypothetical backtesting at least for validation, ...* "

3.2 and

"*9. Model validation standards*

718(XCiX) ...

(b) Further to the regulatory backtesting programmes, testing for model validation must use hypothetical changes in portfolio value that would occur were end-of-day positions to remain unchanged. ... "

4. Process

4.1 For hypothetical backtesting, the following process should be followed.

4.2 Terminology

4.2.1 In this procedure, the word "portfolio" implies <u>risk factor category</u> in reference to lines 97 through 101, in column 6 of the BA320, and lines 21 through 25, column 5 of the daily form BA325. The word "portfolio" alternatively implies <u>desk</u> in reference to lines 103 through 106, in column 6 of the BA320, and lines 27 through 30, column 5 of the daily form BA325.

4.3 Method

4.3.1 In actual backtesting, cleaned close-of-business P&L for day T (known as ex-post actual daily P&L) is compared with VaR based on the portfolio at close-of-business on day T-1 and the price/risk factor movements for the period up until close-of-business on day T-1 (known as ex-ante VaR).

4.3.2 In hypothetical backtesting, hypothetical P&L is calculated as the one-day change in the value of the portfolio under the assumption that the portfolio remains unchanged from the previous day's positions (the portfolio at close of business on day T-1), but P&L is calculated at closing rates on day T. That is, hypothetical P&L is equal to the value of the portfolio at close of business on day T-1 valued at prices for close-of-business on day T, minus the value of the portfolio at close of business on day T-1 valued at prices for close-of-business on day T-1. The resultant hypothetical P&L (known as the ex-post hypothetical daily P&L) is compared with the VaR for day T, which is based on the portfolio and risk factor/price movements at close of business on day T-1 (ex-ante VaR).

5. Regulatory Requirements

5.1 There is no current regulatory obligation for IMA banks to provide hypothetical backtesting results to the Bank Supervision Department (BSD), apart from the hypothetical backtesting exception count, which is reported in lines 96 through 106, column 6, on the form BA320 and lines 20 through 30, column 5, on the form BA325. However IMA banks have been directed to supply hypothetical backtesting graphs to the BSD monthly. In doing so, they should provide graphs that contain both VaR and hypothetical P&L covering a period of no less than 250 trading days, ending on the final trading day of the month to which the graph pertains. Separate graphs should be supplied for diversified level hypothetical backtesting as well as portfolio level hypothetical backtesting.

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The previous guidance note issued was Guidance Note 2/2010, dated 12 May 2010.