

Reporting Form ARF 116.0

Market Risk

Instruction Guide

This instruction guide is designed to assist in the completion of the *Market Risk* form. This form measures an authorised deposit-taking institution's (ADI's) exposure to market risk arising from positions allocated to the trading book and all foreign exchange and commodity risks. In completing this form, ADIs should refer to *Prudential Standard APS 116 Capital Adequacy: Market Risk (APS 116)* and *Prudential Practice Guide APG 116 Market Risk (APG 116)*.

General directions and notes

Reporting entity

This form is to be completed at Level 1 and Level 2¹ by all ADIs, with the exception of:

- (a) foreign ADIs; and
- (b) ADIs that:
 - (i) do not conduct trading book activity and do not have any foreign exchange or commodity positions; and
 - (ii) have included a statement to this effect in their description of their risk management systems; and that statement also outlines the arrangements in place to ensure that trading book activity does not take place.

If an ADI is a subsidiary of an authorised non-operating holding company (NOHC), the report at Level 2 is to be provided by the ADI's immediate parent NOHC.²

Securitisation deconsolidation principle

Except as otherwise specified in these instructions, the following applies:

1. Where an ADI (or a member of its Level 2 consolidated group) participates in a securitisation that meets APRA's operational requirements for regulatory capital relief under *Prudential Standard APS 120 Securitisation (APS 120)*:

¹ Level 1 and Level 2 are defined in accordance with *Prudential Standard APS 110 Capital Adequacy*.

² Refer to paragraph 4 of *Reporting Standard ARS 116.0 Market Risk*.

- (a) special purpose vehicles (**SPVs**) holding securitised assets may be treated as non-consolidated independent third parties for regulatory reporting purposes, irrespective of whether the SPVs (or their assets) are consolidated for accounting purposes;
 - (b) the assets, liabilities, revenues and expenses of the relevant SPVs may be excluded from the ADI's reported amounts throughout APRA's regulatory reporting returns; and
 - (c) the underlying exposures (i.e. the pool) under such a securitisation may be excluded from the calculation of the ADI's regulatory capital (refer to APS 120). However, the ADI must still hold regulatory capital for the **securitisation exposures**³ that it retains or acquires and such exposures are to be reported in *Form ARF 120.0 Standardised - Securitisation* or *Forms ARF 120.1A to ARF 120.1C IRB - Securitisation* (as appropriate). The risk-weighted assets relating to such securitisation exposures must also be reported in *Form ARF 110.0 Capital Adequacy (ARF 110.0)*.
2. Where an ADI (or a member of its Level 2 consolidated group) participates in a securitisation that does not meet APRA's operational requirements for regulatory capital relief under APS 120, or the ADI elects to treat the securitised assets as on-balance sheet assets under *Prudential Standard APS 112 Capital Adequacy: Standardised Approach to Credit Risk* or *Prudential Standard APS 113 Capital Adequacy: Internal Ratings-based Approach to Credit Risk*, such exposures are to be reported as on-balance sheet assets throughout APRA's regulatory reporting returns. In addition, these exposures must also be reported as a part of the ADI's total securitised assets within *Form ARF 120.2 Securitisation – Supplementary Items*.

Reporting period and timeframes for lodgement

This form is to be completed as at the last day of the stated reporting period (i.e. the relevant quarter) and submitted to APRA:

1. within 30 business days after the end of the reporting period to which the information relates, by an ADI that has APRA's approval to use an internal ratings-based approach to credit risk and/or an advanced measurement approach to operational risk;
2. within 20 business days after the end of the reporting period to which the information relates, by an ADI not covered by paragraph 1.

Unit of measurement

This form should be completed in millions of Australian dollars (**AUD**) rounded to two decimal places, unless otherwise specified in this instruction guide.

Amounts denominated in foreign currency are to be converted to AUD in accordance with *AASB 121 The Effects of Changes in Foreign Exchange Rates*.

³ Securitisation exposures are defined in accordance with APS 120.

Basis of preparation

Capital charges for each relevant component of the traded market risk, foreign exchange and commodities capital requirement (**TFC capital requirement**) should be reported on this form. The total capital charge for each asset class, assessed using the standard method, is calculated by summing the various components. The total TFC capital requirement is calculated as the sum of the standard method charges for each asset class plus any charge reported under the internal model approach.

For capital adequacy purposes, the capital charges must be multiplied by the constant factor of 12.5 to give a risk-weighted equivalent amount. The RWA equivalent amount of:

- (a) the total of the standard method charges for each asset class should be reported under item 3.2 of section B of ARF 110.0; and
- (b) the total of any charge under the internal model approach should be reported under item 3.3 of section B of ARF 110.0.

For commentary purposes, a box labelled *Comments* has been provided under each table.

Specific instructions

For reference purposes, an index of the tables referred to in this instruction guide is included in Attachment A.

1. STANDARD METHOD

Tables 1 & 2: Interest rate risk – General guidance

All positions forming part of the trading book in debt or other interest rate related securities, including interest rate derivatives, forward foreign exchange and quasi-debt securities that behave like debt (refer to paragraph 3 of Attachment B to APS 116), and securitisation and resecuritisation exposures (refer APS 120) should be reported in Tables 1 and 2.

The total capital requirement for interest rate risk consists of charges for specific risk, general market risk, and interest rate-sensitive options risks.

Table 1: Specific risk

1. Non-securitisation Exposures

Columns 1 & 2. Short and Long Positions

The sum of the market values of individual positions other than securitisation and resecuritisation positions in each issuer category should be reported in columns 1 and 2 for short and long positions, respectively. In summing the market values within each category, if there is a matched position in the same security (i.e. both the issuer and issue are identical), the matching positions may be offset and omitted from the

calculation of specific interest rate risk (refer to paragraphs 5, 35, 36 and 38 to 41 of Attachment B to APS 116).

Specific risk is to be assessed according to the classification of issuer of the security or underlying security in the case of derivative instruments. Issuers are classified into the categories of government, qualifying and other, as defined in paragraphs 6 to 10 of Attachment B to APS 116. Instruments with issuers in the government and qualifying categories should be further classified according to the residual term to final maturity of the security or underlying security.

Column 4. Specific risk-weight

The specific risk-weights applicable to each category are detailed in Table 1 of Attachment B to APS 116.

Column 5. Capital charge

Derived field calculated as column 3 *Gross market value* multiplied by column 4 *Specific risk-weight*.

2. Securitisation Exposures

Refer to APS 120 for the definition of ‘securitisation exposure’.

Columns 1 & 2. Short and Long Positions

The sum of the market values of individual securitisation positions in each issuer category should be reported in columns 1 and 2 for short and long positions, respectively. In summing the market values within each category, if there is a matched position in the same security (i.e. both the issuer and issue are identical), the matching positions may be offset and omitted from the calculation of specific interest rate risk (refer to paragraphs 5, 35, 36 and 38 to 41 of Attachment B to APS 116).

Columns 3 & 4. Capital charge (Short and Long Positions)

Specific risk-weights applicable to securitisation exposures are set out in paragraphs 12 and 13 and Tables 2, 3, 4 and 5 of Attachment B to APS 116. An ADI may apply different specific risk-weights in accordance with paragraphs 11 and 14 of Attachment B to APS 116. The capital charge is calculated as the position multiplied by the specific risk-weight. An ADI is permitted to limit the capital charge for an individual securitisation position to the maximum possible loss in accordance with the requirements of paragraph 19 of Attachment B to APS 116.

3. Resecuritisation Exposures

Refer to APS 120 for the definition of ‘resecuritisation exposure’.

Columns 1 & 2. Short and Long Positions

The sum of the market values of individual resecuritisation positions in each issuer category should be reported in columns 1 and 2 for short and long positions, respectively. In summing the market values within each category, if there is a matched position in the same security (i.e. both the issuer and issue are identical), the matching positions may be offset and omitted from the calculation of specific interest rate risk (refer to paragraphs 5, 35, 36 and 38 to 41 of Attachment B to APS 116).

Columns 3 & 4. Capital charge (Short and Long Positions)

Specific risk-weights applicable to resecuritisation exposures are set out in paragraphs 12 and 13 and Tables 2, 3, 4 and 5 of Attachment B to APS 116. An ADI may apply different specific risk-weights in accordance with paragraphs 11 and 14 of Attachment B to APS 116. The capital charge is calculated as the position multiplied by the specific risk-weight. An ADI is permitted to limit the capital charge for an individual securitisation position to the maximum possible loss in accordance with the requirements of paragraph 19 of Attachment B to APS 116.

4. Correlation Trading Portfolio

Columns 1 & 2. Short and Long Positions

The sum of the market values of individual positions in each issuer category should be reported in columns 1 and 2 for short and long positions, respectively. In summing the market values within each category, if there is a matched position in the same security (i.e. both the issuer and issue are identical), the matching positions may be offset and omitted from the calculation of specific interest rate risk (refer to paragraphs 5, 35, 36 and 38 to 41 of Attachment B to APS 116).

Columns 3 & 4. Capital Charge (Short and Long Positions)

The specific risk capital charge (for both short and long positions) should be calculated based on the positions underlying the correlation trading portfolio. These may include securitisation exposures, n^{th} -to-default credit derivatives and other positions used to hedge the correlation trading portfolio.

Specific risk-weights applicable to securitisation exposures are set out in paragraphs 12 and 13 and Tables 2, 3, 4 and 5 of Attachment B to APS 116. An ADI may apply different specific risk-weights in accordance with paragraphs 11 and 14 of Attachment B to APS 116. The capital charge is calculated as the position multiplied by the specific risk-weight. An ADI is permitted to limit the capital charge for an individual securitisation position to the maximum possible loss in accordance with the requirements of paragraph 19 of Attachment B to APS 116.

Paragraph 17 of Attachment D to APS 116 details the capital treatment for n^{th} -to-default credit derivatives. Any other positions used to hedge the correlation trading portfolio such as single name credit default swaps, credit indices or index tranches

should be treated in a manner consistent with Attachment B and Attachment D to APS 116.

Column 5. Capital charge

Derived field calculated as the maximum of the sum of column 3 *Capital charge (short)* and the sum of column 4 *Capital charge (long)*. Both of these are derived fields under item 4.9 of the table.

5. Total capital charge

The sum the subtotals from the specific risk capital charge for standard exposures (item 1.14) and the correlation trading portfolio (item 4.10), plus the sum of:

- a) The capital charges (long positions) for securitisation and resecuritisation exposures; and
- b) The capital charges (short positions) for securitisation and resecuritisation exposures.

In accordance with paragraph 18 of Attachment B to APS 116 an ADI may until 31 December 2013 apply the following alternative calculation for the total capital charge:

The sum the subtotals from the specific risk capital charge for standard exposures and the correlation trading portfolio, plus the maximum of:

- a) The sum of the capital charges (long positions) for securitisation and resecuritisation exposures; and
- b) The sum of the capital charges (short positions) for securitisation and resecuritisation exposures.

This charge will also be captured under item 1.1.1 of the *Market risk summary table*.

Table 2: General market risk

The data to be entered into Table 2 should be calculated according to the methodology detailed in paragraphs 20 to 41 of Attachment B to APS 116. These calculations should be performed and the results reported in Table 2 separately for each currency (without offsetting across currencies) in which material interest rate exposures are held, and in aggregate for all currencies in which interest rate exposures are not material.

APS 116 allows the choice between three methods for the calculation of general market risk (the maturity, duration and pre-processing methods). The pre-processing method should only be used with APRA approval. For each currency, specify the method used in calculating the capital charge. If more than one method is being used for a currency, report the calculations for each method on a different currency and method combination table. APS 116 allows the offsetting of positions between the duration and pre-processing methods. ADIs performing such offsetting should report those positions (netted across the two methods) as pre-processing positions.

Columns 1 & 2. Net long and short risk-weighted positions

The net long and net short risk-weighted positions for each time band should be reported according to the definitions of the bands in Table 6 of Attachment B to APS 116. Offsetting of positions is permitted in accordance with the requirements set out in paragraphs 38 to 41 of Attachment B to APS 116.

Column 3. Total general market risk charge

The total general market risk charge is to be reported in the top line of column 3 for each currency and method combination. This is the sum of the net position and vertical and horizontal disallowances (calculated in accordance with paragraphs 20 to 41 of Attachment B to APS 116 and paragraphs 9 to 15 of APG 116).

Row - Total capital charge across all currencies

Derived field that sums up column 3 *Total general market risk charge* across all currencies and methods. This charge will also be captured under item 1.1.2 of the *Market risk summary table*.

Table 3: Equity position risk

Positions are to be reported on a market-by-market basis, with calculations for each national market in which the ADI holds equities to be reported in a separate line. Equities with listings in more than one market should be reported as positions in the market of their primary listing.

An 'equity position' is the net of short and long exposures to an individual company. Specific risk is assessed as the sum of the net short or long exposure to individual companies irrespective of sign.

Column 1. Positions attracting 8 % specific risk charge

The capital charge for specific risk is equal to 8 per cent of the gross position (i.e. the sum of the absolute value of all long equity positions and of all short equity positions). The gross value of all positions subject to a 8 per cent specific risk charge is to be reported in column 1 *Positions attracting 8% specific risk charge*.

Column 2. Positions attracting 2% specific risk charge

Positions eligible for a 2 per cent specific risk capital charge are set out in paragraphs 50 to 55 of Attachment B to APS 116. The gross value of all positions subject to a 2 per cent specific risk charge is to be reported in column 2 *Positions attracting 2% specific risk charge*.

Column 3. Total specific risk charge

Derived field that calculates the total specific risk charge for each market as the sum of 8 per cent of column 1 and 2 per cent of column 2.

Column 4. Net positions for general market risk

Report the net position in each market in column 4. The net position in each equity market is calculated as the difference between the sum of the long positions and the sum of the short positions. An overall net short position in a market should be indicated by a negative sign.

Column 5. General market risk charge

Derived field that calculates the general market risk charge for each market as 8 per cent of the absolute value of the net position reported in column 4.

Column 6. Total market risk charge

Derived field that calculates the total market risk charge for each market as the sum of the value of column 3 *Total specific risk charge* and the value of column 5 *General market risk charge*.

Row – Total capital charge across all countries

Derived field that sums up column 6 *Total market risk charge* across all markets. This charge will also be captured under item 1.2.1 of the *Market risk summary table*.

Table 4: Foreign exchange risk

For each foreign currency in which the ADI has positions, report separately the AUD equivalent of the net open position in that currency.

The net open position in a particular currency is to be calculated in accordance with paragraphs 58 to 62 of Attachment B to APS 116. In calculating the net open position in each currency:

- (a) include all transactions contracted as at the reporting date (i.e. both traded and non-traded positions) excluding any structural positions; and
- (b) forward positions should be valued at current spot market exchange rates or using net present values.

1. Higher of aggregate net short/long open positions

Report the larger of the sum of the net long positions or the sum of the net short positions under this item.

2. Gold

Report the Australian dollar equivalent of the net open position in gold (including sign) under this item. This should be calculated in the same way as the net open positions in foreign currencies. Gold positions (in AUD equivalent amounts) may be segmented into a gold exposure and a US dollar (**USD**) exposure.

3. Capital charge

Derived field calculated as 8 per cent of the sum of the absolute values of item 1 *Higher of aggregate net short/long open positions* and item 2 *Gold*. This charge will also be captured under item 1.3.1 of the *Market risk summary table*.

Tables 5 & 6: Commodities risk – General guidance

An ADI that uses the simplified approach to calculate the capital charge for commodities risk should complete Table 5. An ADI that uses the maturity ladder approach should complete Table 6.

All commodity positions, both on-balance sheet and off-balance sheet, which are affected by changes in commodity prices, should be included. This includes commodity forwards, commodity futures and commodity swaps. It also includes the delta-equivalent of commodity options (where the delta-plus method for options is used). Commodity derivatives should be converted into notional commodity positions according to the methods set out in paragraph 71 of Attachment B to APS 116.

Each commodity position should first be expressed in terms of the standard unit of measurement (e.g. barrels, kilos, grams) and then converted into Australian dollars using spot rates applying at the close of business on the reporting date (report the AUD figure). If prior approval has been obtained from APRA, positions in foreign currency denominated commodities may be segmented into a commodity exposure and a foreign currency exposure.

The capital charge must be calculated separately for each commodity. Positions in different commodities may not, as a general rule, be offset (refer to paragraph 68 of Attachment B to APS 116 for details of permissible offsetting).

Table 5: Simplified method

Commodity

List each separate commodity in which the ADI has positions.

Columns 1 & 2. Total short position & Total long position

Report the total short position and the total long position in each commodity.

Column 3. Capital charge

Derived field calculated for each commodity as 15 per cent of the net open position (the difference between the total short position and the total long position) plus 3 per cent of the gross position (the sum of the absolute values of the total short position and the total long position).

Row – Total capital charge across all commodities

Derived field that sums up column 3 *Capital charge* for individual commodities under the simplified method. This charge will also be captured under item 1.4.1 of the *Market risk summary table*.

Table 6: Maturity ladder method

Commodity

List each separate commodity in which the ADI has positions.

Columns 1.1 to 7.2

For each of the maturity bands, report the total long position and the total short position in each commodity. Physical stocks should be allocated to the first time band. Positions in commodity derivatives should be assigned maturities in accordance with the treatment set out in paragraph 71 of Attachment B to APS 116.

Column 8. Total capital charge

The capital charge for each commodity is to be calculated in accordance with paragraphs 72 to 75 of Attachment B to APS 116. A separate calculation must be performed for each commodity in which the ADI has a position. Report the total capital charge for each commodity in column 8.

Row – Total capital charge across all commodities

Derived field that sums up column 8 *Total capital charge* for individual commodities under the maturity ladder method. This charge will also be captured under item 1.4.2 of the *Market risk summary table*.

Table 7: Options - Simplified method

The simplified method may only be used by those ADIs that handle a limited range of purchased options. The method requires that options and any associated underlying positions be excluded from the asset class calculations detailed in Tables 1 to 6. Instead a separate capital charge is calculated for each option portfolio.

The method for calculating the capital charge on an options position depends on whether the position is covered or naked. Option positions, which are partially covered, should be separated into a fully covered position and a naked position.

For both covered and naked positions, if positions do not fall within the trading book (for example, options on certain foreign exchange or commodities positions), ADIs may use the book value rather than the market value.

Columns 1, 2, 3 & 4

In the relevant column for each asset class (column 1 *Interest rates*, column 2 *Equities*, column 3 *Foreign exchange*, and column 4 *Commodities*), report the capital charge (refer to paragraph 79 of Attachment B to APS 116) for the following positions separately:

- (a) covered positions:
 - (i) purchased put and long underlying (item 1.1); and

- (ii) purchased call and short underlying (item 1.2).
- (b) naked positions:
 - (i) purchased put (item 1.3); and
 - (ii) purchased call (item 1.4).

1.5. Total capital charge

For columns 1 to 4, item 1.5 *Total capital charge* is a derived field that sums up the capital charges for all positions within each asset class (interest rates, equities, foreign exchange and commodities). The total charges for each asset class will also be captured under items 1.1.3, 1.2.2, 1.3.2 and 1.4.3, respectively, of the *Market risk summary table*.

Table 8: Options – Delta-plus method

An ADI that has approval from APRA to use the delta-plus method must complete Table 8.

ADIs using this method must first calculate the delta-equivalent position of each option. The delta-equivalent position is calculated by multiplying the market value of the underlying position by the absolute value of the delta calculated on that position.

Interest rates

For options with interest rate instruments as the underlying, the delta-equivalent position must be included in the positions and capital charge calculations entered in Table 1 and Table 2, in accordance with the instructions applicable to interest rate instruments.

Equities

For options with equity instruments as the underlying, the delta-equivalent position must be incorporated in Table 3 in the appropriate column as part of a gross position for specific risk depending on whether the underlying instrument attracts an 8 per cent or 2 per cent specific risk charge. The delta-equivalent position must also be included in column 4 *Net positions for general market risk* of Table 3. The specific risk and general market risk treatment should be in accordance with the instructions for Table 3.

Foreign exchange

For options with foreign exchange or gold⁴ as the underlying, the delta-equivalent position must be entered in Table 4, in accordance with the reporting instructions applicable to foreign exchange and gold. Note that for an option over a currency pair not involving AUD, two delta-equivalent positions must be entered into Table 4, one corresponding to the currency bought and the other corresponding to the currency

⁴ Gold is to be treated as a foreign exchange position, in accordance with APS 116.

sold. For currency pairs involving AUD, only one delta-equivalent position is entered in Table 4 for the foreign currency.

Commodities

For options with commodities as the underlying, the delta-equivalent position must be included in either Table 5 or Table 6 (simplified method or maturity ladder method, respectively). This should be reported in accordance with the instructions that apply to commodity risk.

1.1. Gamma impact

ADIs must calculate the gamma impact of each option as detailed in paragraphs 85 to 87 of Attachment B to APS 116. Total gamma impact is to be reported separately for options over interest rates, equities, foreign exchange and gold, and commodities respectively, in columns 1 to 4 of Table 8.

1.2. Vega impact

ADIs must calculate the vega impact of each option as detailed in paragraph 88 of Attachment B to APS 116. Total vega impact is to be reported separately for options over interest rates, equities, foreign exchange and gold, and commodities respectively, in columns 1 to 4 of Table 8.

1.3. Total capital charge

For columns 1 to 4, item 1.3 *Total capital charge* is a derived field that sums up the gamma impact and the vega impact for each category (interest rates, equities, foreign exchange and commodities). The total charges for each category will also be captured under items 1.1.4, 1.2.3, 1.3.3 and 1.4.4 respectively of the *Market risk summary table*.

Tables 9-12: Contingent loss method – General guidance

ADIs that have obtained approval from APRA to use the contingent loss method must complete Tables 9 to 12. The contingent loss method requires exclusion of the options and any associated hedges in the underlying instrument from the asset class calculations in Tables 1 to 6. Instead a separate capital charge is determined. A scenario matrix is constructed that contains changes in the value of the options portfolio and hedges, given specified changes in underlying prices and volatility. A capital charge for general market risk is then determined by taking the largest loss that appears in the matrix.

Specific risk charges, for those options where specific risk is present, are to be separately assessed based on the delta-equivalent amount of each option. For options with interest rate instruments as the underlying, the delta-equivalent positions must be included in the positions and capital charge calculations entered in Table 1. For equity options the delta-equivalent position must be included in Table 3 as part of the gross position for specific risk.

Table 9: Contingent loss method - Interest rate options

A different scenario matrix must be established for each time band and in each currency (refer to paragraphs 89 to 95 of Attachment B to APS 116). ADIs that have approval from APRA to do so, may base the calculation on a minimum of six sets of time bands.

An ADI should report in Table 9 as follows:

- (a) select the relevant currency;
- (b) for each currency, select the method used in calculating the capital charge;
- (c) report the maximum loss figure obtained from the scenario matrix constructed for each time band in each currency;
- (d) sum each column to obtain a maximum loss figure for all time bands by each currency. Report this figure in the top line of column 2 *Total general market risk charge*, for each currency.

Row - Total capital charge across all currencies

Derived field that sums up column 2 *Total general market risk charge* for each currency. This charge will also be captured under item 1.1.5 of the *Market risk summary table*.

Table 10: Contingent loss method – Equity options

Select the relevant countries and report the corresponding maximum loss figure obtained from the scenario matrix constructed for each national market in column 1 (refer to paragraphs 89 to 95 of Attachment B to APS 116).

Row - Total capital charge across all countries

Derived field that sums up column 1 *Maximum loss* to obtain a total capital charge across all countries. This charge will also be captured under item 1.2.4 of the *Market risk summary table*.

Table 11: Contingent loss method - Foreign exchange options

Select the relevant currencies and report the corresponding maximum loss figure obtained from the scenario matrix constructed for each currency pair and gold⁵ in column 1 (refer to paragraphs 89 to 95 of Attachment B to APS 116).

Row – Total capital charge across all currency pairs

Derived field that sums up column 1 *Maximum loss* to obtain a total capital charge across all currency pairs. This charge will also be captured under item 1.3.4 of the *Market risk summary table*.

⁵ Refer to footnote 4.

Table 12: Contingent loss method – Commodity options

Report the maximum loss figure obtained from the scenario matrix constructed for each commodity in column 1 (refer to paragraphs 89 to 95 of Attachment B to APS 116).

Row – Total capital charge across all commodities

Derived field that sums up column 1 *Maximum loss* to obtain a total capital charge across all commodities. This charge will also be captured under item 1.4.5 of the *Market risk summary table*.

2. INTERNAL MODEL

An ADI for which APRA has approved the use of the internal model approach must complete:

- (a) Tables 13 and 14; and
- (b) Tables 18 to 23 relating to stress testing, where the ADI has exposure to the relevant underlying market.

Mixed approaches

In accordance with APS 116, an ADI is permitted to use a combination of an internal model approach and the standard methodology provided that a single approach (either an internal model approach or the standard method) is applied to all material exposures arising within any one risk category (refer to paragraphs 22 to 24 of APS 116). Those ADIs using a combination of the internal model approach and the standard methodology must complete:

- (a) Tables 13 and 14 of ARF 116.0 for those asset classes where an internal model is applied; and
- (b) the relevant tables in the standard method section (Tables 1 to 12) of the reporting form for those asset classes for which a capital charge is calculated using the standard method.

The capital charges determined using the internal model approach and the standard method will be reported on the *Market risk summary table* and summed up for the calculation of the total market risk capital charge.

Specific risk

Where the internal models of an ADI do not cover specific risk on interest rate related instruments and equities (refer to paragraph 4 of Attachment C to APS 116), the ADI must complete Table 1 (for specific risk on interest rate instruments) and Table 3 (for specific risk on equity positions) in the standard method section of the reporting form.

An ADI that has APRA's approval to use an internal model to calculate the specific risk capital charge (refer to paragraphs 43 to 80 of Attachment C to APS 116) may

adopt one of the following two approaches to reporting their Value-at-Risk (**VaR**) and stressed VaR:

- (a) general market risk and specific risk:
 - (i) if the ADI has the capacity to separately report specific risk and general market risk amounts, these amounts are to be reported under items 1.1 to 1.3 and items 2.1 to 2.3 of Table 13 for the interest rates and equities categories, respectively; or
 - (ii) if the ADI is not able to separately report specific risk and general market risk amounts, then total interest rate risk and total equity risk may be reported under items 1.3 and 2.3 respectively, using one of the three methods outlined in the *Total market risk* section below; or
- (b) sub-portfolio containing/not containing specific risk:
 - (i) if the ADI is calculating the specific risk modelling surcharge by separating the specific risk portion of the VaR and stressed VaR measure from the model's estimate of general market risk, then the specific and general market risk amounts are to be reported separately under items 1.1 to 1.3 and items 2.1 to 2.3 of Table 13; or
 - (ii) if the ADI is calculating the specific risk modelling surcharge by identifying sub-portfolios that contain specific risk, the ADI is to report the VaR and stressed VaR amounts for sub-portfolios containing specific risk and sub-portfolios not containing specific risk under items 1.4 to 1.5 and items 2.4 to 2.5 of Table 13 for the interest rates and equities categories, respectively.

Total market risk

Depending on the nature and capability of the risk measurement system in place, ADIs using the internal model approach should employ one of the following three methods to calculate a capital charge.

Method one

An ADI using this method calculates a total VaR and stressed VaR number across those asset classes to which the internal model applies. In calculating this number, an ADI will have discretion to recognise correlations both within and across asset classes.

Method two

An ADI may calculate individual VaR and stressed VaR numbers for each asset class separately. An ADI has the option of incorporating into the calculation, correlations between instruments within an asset class. The total VaR and stressed VaR measure is the sum of the measures for each asset class.

Method three

If an ADI's risk measurement system is structured in such a way that the ADI has the capacity to calculate VaR and stressed VaR measures both across and within asset classes (i.e. a combination of method one and method two), then the ADI should report the VaR and stressed VaR numbers determined using both methods. Owing to diversification effects, the capital charge which results from calculating a VaR and stressed VaR measure across all asset classes (i.e. method one) will be lower than the capital charge which results from calculating VaR and stressed VaR measures for individual asset classes and summing them (i.e. method two). The capital requirement will be based on method one.

Table 13: Value-at-Risk results

Method one

An ADI using *method one* is to report all numbers under item 5 *Total*.

Column 1. End of quarter VaR

Report the VaR number calculated across all asset classes for the last day in the reporting period.

Column 2. Average VaR over past 60 trading days

Calculate the average daily total VaR measure for the 60 trading days, up to and including the last day of the quarter.

Column 3. End of quarter stressed VaR

Report the stressed VaR number calculated across all asset classes for the last day in the reporting period.

Column 4. Average stressed VaR over past 60 trading days

Calculate the average daily total stressed VaR measure for the 60 trading days, up to and including the last day of the quarter.

Columns 5 & 6. Back-testing exceptions

An ADI using an internal model must perform back-tests using both actual and hypothetical trading outcomes (refer to paragraph 82 of Attachment C to APS 116). The results of back-testing on both an actual and a hypothetical basis must be reported in columns 5 and 6 respectively.

An ADI must use the most recent 250 days of aggregated profit and loss and VaR data, up to and including the last day in the quarter (refer to paragraphs 81 to 87 of Attachment C to APS 116 and paragraphs 65 to 85 of APG 116), to calculate the number of exceptions. The aggregated data should consist of the profit and loss and VaR data that apply to all asset classes for which the ADI's internal model is used to calculate a capital charge. Using this data, an ADI should compare each day's trading

outcome (profit or loss) with the corresponding VaR number. If the trading outcome on a particular day is a loss that exceeds the corresponding VaR number for that day, the result is recorded as an exception. An ADI must report the number of exceptions that occur over the 250 days.

Column 7 & 8. Scaling factor (VaR and stressed VaR)

The scaling factor for VaR and stressed VaR consists of a multiplication factor and a plus factor (refer to paragraph 3 of Attachment C to APS 116). A separate multiplication factor is set for VaR and stressed VaR (refer to paragraph 3 of Attachment C to APS 116 and paragraph 30 of APG 116). The multiplication factor is set for each ADI by APRA, and is subject to a minimum of three.

The plus factor is specified by APRA and relates directly to the quarterly back-testing results (refer to paragraphs 81 to 87 of Attachment C to APS 116 and paragraphs 65 to 85 of APG 116). The same plus factor applies to both VaR and stressed VaR.

Column 9 & 10. Scaled average VaR and stressed VaR

Multiply the number in column 2 *Average VaR over past 60 trading days* by the number in column 7 *Scaling factor (VaR)* to determine the scaled average VaR.

Multiply the number in column 4 *Average stressed VaR over past 60 trading days* by the number in column 8 *Scaling factor (stressed VaR)* to determine the scaled average stressed VaR.

6. Incremental risk charge

Where the VaR measures include an estimation of the specific risk charge, report in item 6 the regulatory capital default and migration risks on trading book positions (subject to a capital charge for specific interest rate risk, with the exception of securitisation positions and nth-to-default credit derivatives) that is incremental to the risk captured by the VaR-based calculation (refer to paragraph 49 of Attachment C to APS 116).

The capital charge for incremental risk is given by the maximum of the average of the incremental risk measures over 12 weeks and the most recent incremental risk measure. The incremental risk capital charge is also captured under item 2.3 of the *Market risk summary table*.

7. Comprehensive risk charge – correlation trading portfolio

Where an ADI has approval from APRA to adopt the comprehensive risk approach under paragraph 77 of Attachment C to APS 116, it may report in item 7 the specific risk capital requirement for its correlation trading portfolio as the maximum of the capital charge according to the internally developed approach and 8 per cent of the specific risk capital charge according to the standardised measurement approach. The internally developed approach must capture not only incremental default and migration risks, but all price risks associated with the correlation trading portfolio (refer to paragraphs 77 to 79 of Attachment C to APS 116).

The capital charge for comprehensive risk is given by the maximum of the average of the comprehensive risk measures over 12 weeks and the most recent comprehensive risk measure. The comprehensive risk capital charge is also captured under item 2.4 of the *Market risk summary table*.

8. Capital charge

The capital charge, using method one, is the larger of column 1 *End of quarter VaR* and column 9 *Scaled average VaR* plus the larger of column 3 *End of quarter stressed VaR* and column 10 *Scaled average stressed VaR* plus the *Incremental risk charge* (item 6) plus the *Comprehensive risk charge* (item 7).

The capital charge calculated under the VaR method is also captured under item 2.1 of the *Market risk summary table*. The charge calculated under the stress VaR method is captured under item 2.2 of the *Market risk summary table*.

Method two

An ADI using *method two* is to report numbers under items 1 to 4 *Interest rates, Equities, Foreign exchange and Commodities* respectively.

Column 1. End of quarter VaR

Report the VaR number calculated for each asset class for the last day in the reporting period.

Column 2. Average VaR over past 60 trading days

For each asset class, calculate the average daily VaR measure for the 60 trading days, up to and including the last day of the quarter (i.e. the end of quarter VaR number should be included in the calculation).

Column 3. End of quarter stressed VaR

Report the stressed VaR number calculated for each asset class for the last day in the reporting period.

Column 4. Average stressed VaR over past 60 trading days

For each asset class, calculate the average daily stressed VaR measure for the 60 trading days, up to and including the last day of the quarter (i.e. the end of quarter VaR number should be included in the calculation).

Columns 5 & 6. Back-testing exceptions

An ADI using an internal model must perform back-tests using both actual and hypothetical trading outcomes (refer to paragraph 82 of Attachment C to APS 116). The results of back-testing on both an actual and a hypothetical basis must be reported in columns 5 and 6 respectively.

An ADI must use the most recent 250 days of profit and loss and VaR data for each asset class, up to and including the last day in the quarter (refer to paragraphs 81 to 87 of Attachment C to APS 116 and paragraphs 65 to 85 of APG 116), to calculate the number of exceptions. Using this data, for each asset class, an ADI should compare each day's trading outcome (profit or loss) with the corresponding VaR number. If the trading outcome on a particular day is a loss that exceeds the corresponding VaR number for that day, the result is recorded as an exception. An ADI must report for each asset class, the number of exceptions that occur over the 250 days.

Column 7 & 8. Scaling factor (VaR and stressed VaR)

The scaling factor for VaR and stressed VaR consists of a multiplication factor and a plus factor (refer to paragraph 3 of Attachment C to APS 116). A separate multiplication factor is set for VaR and stressed VaR (refer to paragraph 3 of Attachment C to APS 116 and paragraph 30 of APG 116). The multiplication factor is set for each ADI by APRA, and is subject to a minimum of three.

The plus factor is specified by APRA and relates directly to the quarterly back-testing results (refer to paragraphs 81 to 87 of Attachment C to APS 116 and paragraphs 65 to 85 of APG 116). The same plus factor applies to both VaR and stressed VaR.

For an ADI using *method two*, APRA may specify different scaling factors for different risk categories if it is determined that the quality of an ADI's internal model varies across asset classes.

Column 9 & 10. Scaled average VaR and stressed VaR

For each asset class, multiply the number in column 2 *Average VaR over past 60 trading days* by the number in column 7 *Scaling factor (VaR)* to determine the scaled average VaR.

For each asset class, multiply the number in column 4 *Average stressed VaR over past 60 trading days* by the number in column 8 *Scaling factor (stressed VaR)* to determine the scaled average stressed VaR.

6. Incremental risk charge

Where the VaR measures include an estimation of the specific risk charge, report in item 6 the regulatory capital default and migration risks on trading book positions (subject to a capital charge for specific interest rate risk, with the exception of securitisation positions and nth-to-default credit derivatives) that is incremental to the risk captured by the VaR-based calculation (refer to paragraph 49 of Attachment C to APS 116).

The capital charge for incremental risk is given by the maximum of the average of the incremental risk measures over 12 weeks and the most recent incremental risk measure. The incremental risk capital charge is also captured under item 2.3 of the *Market risk summary table*.

7. Comprehensive risk charge – correlation trading portfolio

Where an ADI has approval from APRA to adopt the comprehensive risk approach under paragraph 77 of Attachment C to APS 116, it may report in item 7 the specific risk capital requirement for its correlation trading portfolio as the maximum of the capital charge according to the internally developed approach and 8 per cent of the specific risk capital charge according to the standardised measurement approach. The internally developed approach must capture not only incremental default and migration risks, but all price risks associated with the correlation trading portfolio (refer to paragraphs 77 to 79 of Attachment C to APS 116).

The capital charge for comprehensive risk is given by the maximum of the average of the comprehensive risk measures over 12 weeks and the most recent comprehensive risk measure. The comprehensive risk capital charge is also captured under item 2.4 of the *Market risk summary table*.

8. Capital charge

The capital charge, using method two, is the larger of column 1 *End of quarter VaR* and column 9 *Scaled average VaR* plus the larger of column 3 *End of quarter stressed VaR* and column 10 *Scaled average stressed VaR* plus the *Incremental risk charge* (item 6) plus the *Comprehensive risk charge* (item 7).

The capital charge calculated under the VaR method is also captured under item 2.1 of the *Market risk summary table*. The charge calculated under the stress VaR method is captured under item 2.2 of the *Market risk summary table*.

Method three

An ADI using *method three* is to report numbers under items 1 to 5 *Interest rates, Equities, Foreign exchange, Commodities* and *Total* respectively.

Column 1. End of quarter VaR

Report the VaR number calculated across all asset classes and the VaR numbers calculated for each asset class for the last day in the reporting period.

Column 2. Average VaR over past 60 trading days

Calculate the average daily total VaR measure for the 60 trading days, up to and including the last day of the quarter (i.e. the end of quarter VaR number should be included in the calculation) for each asset class and across all asset classes (i.e. for the total VaR).

Column 3. End of quarter stressed VaR

Report the stressed VaR number calculated across all asset classes and the stressed VaR numbers calculated for each asset class for the last day in the reporting period.

Column 4. Average stressed VaR over past 60 trading days

Calculate the average daily total stressed VaR measure for the 60 trading days, up to and including the last day of the quarter (i.e. the end of quarter VaR number should be included in the calculation) for each asset class and across all asset classes (i.e. for the total stressed VaR).

Columns 5 & 6. Back-testing exceptions

An ADI using an internal model must perform back-tests using both actual and hypothetical trading outcomes (refer to paragraph 82 of Attachment C to APS 116). The results of back-testing on both an actual and a hypothetical basis must be reported in columns 5 and 6 respectively.

An ADI must use the most recent 250 days of profit and loss and VaR data for each asset class and in aggregate, up to and including the last day in the quarter (refer to paragraphs 81 to 87 of Attachment C to APS 116 and paragraphs 65 to 85 of APG 116), to calculate the number of exceptions. Using this data, for each asset class and for the aggregate, an ADI should compare each day's trading outcome (profit or loss) with the corresponding VaR number. If the trading outcome on a particular day is a loss that exceeds the corresponding VaR number for that day then the result is recorded as an exception. For each asset class and the aggregate, an ADI must report the number of exceptions that occur over the 250 days.

Columns 7 & 8. Scaling factor (VaR and stressed VaR)

The scaling factor for VaR and stressed VaR consists of a multiplication factor and a plus factor (refer to paragraph 3 of Attachment C to APS 116). A separate multiplication factor is set for VaR and stressed VaR (refer to paragraph 3 of Attachment C to APS 116 and paragraph 30 of APG 116). The multiplication factor is set for each ADI by APRA, and is subject to a minimum of three.

The plus factor is specified by APRA and relates directly to the quarterly back-testing results (refer to paragraphs 81 to 87 of Attachment C to APS 116 and paragraphs 65 to 85 of APG 116). The same plus factor applies to both VaR and stressed VaR.

Column 9 & 10. Scaled average VaR and stressed VaR

For each asset class and for the aggregate, multiply the number in column 2 *Average VaR over past 60 trading days* by the number in column 7 *Scaling factor (VaR)* to determine the scaled average VaR.

For each asset class and for the aggregate, multiply the number in column 4 *Average stressed VaR over past 60 trading days* by the number in column 8 *Scaling factor (stressed VaR)* to determine the scaled average stressed VaR.

6. Incremental risk charge

Where the VaR measures include an estimation of the specific risk charge, report in item 6 the regulatory capital default and migration risks on trading book positions (subject to a capital charge for specific interest rate risk, with the exception of securitisation positions and nth-to-default credit derivatives) that is incremental to the

risk captured by the VaR-based calculation (refer to paragraph 49 of Attachment C to APS 116).

The capital charge for incremental risk is given by the maximum of the average of the incremental risk measures over 12 weeks and the most recent incremental risk measure. The incremental risk capital charge is also captured under item 2.3 of the *Market risk summary table*.

7. Comprehensive risk charge – correlation trading portfolio

Where an ADI has approval from APRA to adopt the comprehensive risk approach under paragraph 77 of Attachment C to APS 116, it may report in item 7 the specific risk capital requirement for its correlation trading portfolio as the maximum of the capital charge according to the internally developed approach and 8 per cent of the specific risk capital charge according to the standardised measurement approach. The internally developed approach must capture not only incremental default and migration risks, but all price risks associated with the correlation trading portfolio (refer to paragraphs 77 to 79 of Attachment C to APS 116).

The capital charge for comprehensive risk is given by the maximum of the average of the comprehensive risk measures over 12 weeks and the most recent comprehensive risk measure. The comprehensive risk capital charge is also captured under item 2.4 of the *Market risk summary table*.

8. Capital charge

The capital charge is based on *method one* and hence only item 5 *Total* needs to be considered. The capital charge, using method one, is the larger of column 1 *End of quarter VaR* and column 9 *Scaled average VaR* plus the larger of column 3 *End of quarter stressed VaR* and column 10 *Scaled average stressed VaR* plus the *Incremental risk charge* (item 6) plus the *Comprehensive risk charge* (item 7).

The capital charge calculated under the VaR method is also captured under item 2.1 of the *Market risk summary table*. The charge calculated under the stress VaR method is captured under item 2.2 of the *Market risk summary table*.

Table 14: Largest daily losses over the quarter

Report the five largest daily losses experienced by the total trading book over the reporting period. Report the losses in order of magnitude with the largest loss in row 1, the second largest loss in row 2, and so forth. Report the dates corresponding to each of the losses in column 2. Report the corresponding VaR number for each loss in column 3 (i.e. the 99 per cent one-day VaR number calculated as at the previous business day).

Table 15: Yield curve scenarios

All positions forming part of the trading book in debt or other interest rate related securities must be included in the stress test calculations. Using the scenarios set out in Table 15, separate stress test results should be presented (in a separate row) for positions in each material currency. Positions in immaterial currencies need not be included in the stress testing scenarios. Within each material currency, ADIs may net

across all positions when applying the stress scenarios. In applying these yield curve shifts, ADIs should use the same interpolation method used within their internal model to obtain intermediate points on the yield curve.

It should be noted that the stress tests are expressed in terms of proportional changes in interest rates. An example of the yield curves that would result from the two scenarios, given a hypothetical initial yield curve, is shown in the table below.

	Cash	90 days	180 days	1 year	3 years	5 years	10 years	15 years
Hypothetical initial yield curve	5.40	5.00	5.10	5.30	5.60	5.90	6.40	6.60
Yield curve scenario 1 (Yield x 1.2)	6.48	6.00	6.12	6.36	6.72	7.08	7.68	7.92
Yield curve scenario 2 (Yield x 0.8)	4.32	4.00	4.08	4.24	4.48	4.72	5.12	5.28

Table 16: Interest rate volatility scenarios

ADIs with interest rate options must complete this table. Separate stress results should be reported for interest rate options in different material currencies. Within each currency, ADIs may net across all options. Positions in immaterial currencies need not be included in the stress testing scenarios.

Table 17: Equity scenarios

All equity positions within the trading book must be included in the stress test portfolio revaluations. In assessing the change in portfolio value arising from the pre-specified scenarios, ADIs may net all positions within each national market (refer to paragraphs 42 and 43 of Attachment B to APS 116). A separate scenario matrix should be completed for each national market.

In column 3 (representing a negative change in volatility), only the entry corresponding to a zero per cent change in price needs to be completed. The changes in price in column 1 should be -50%, -25%, 0%, +10%, +20%.

Table 18: Exchange rate scenarios

All exchange rate sensitive positions (as specified in paragraph 58 of Attachment B to APS 116) must be included in the stress test portfolio revaluations. Positions in gold, however, should be excluded.

A separate scenario matrix should be completed for each material currency. For example, the USD scenario should include all spot and forward positions in USD (as specified in paragraphs 14(a) to (d) of Attachment A to APS 116), options on USD/AUD and options on USD against all non-AUD currencies. A decrease in price should be interpreted as a depreciation in the USD. Similarly, for the other currency scenarios, a decrease in price should be interpreted as a depreciation in the specified currency. No separate AUD scenario matrix is needed.

In column 3 (representing a negative change in volatility), only the entry corresponding to a zero per cent change in price needs to be completed. The changes in price in column 1 should be -20%, -10%, 0%, +10%, +20%.

Table 19: Gold and other precious metals scenarios

All positions in gold and other precious metals (including silver, platinum and palladium) must be included in the stress test portfolio revaluations. The price shifts should be applied to each commodity separately; a separate scenario matrix should be completed for each commodity. In assessing the change in portfolio value for each commodity, positions of differing maturity may be netted.

In column 3 (representing a negative change in volatility), only the entry corresponding to a zero per cent change in price needs to be completed. The changes in price in column 1 should be -30%, -15%, 0%, +15%, +30%.

Table 20: Base metals scenarios

All positions in base metals (including copper, aluminium, zinc, nickel and tin) must be included in the stress test portfolio revaluations. The price shifts should be applied to each commodity separately; a separate scenario matrix should be completed for each base metal. In assessing the change in portfolio value for each base metal, positions of differing maturity may be netted.

In column 3 (representing a negative change in volatility), only the entry corresponding to a zero per cent change in price needs to be completed. The changes in price in column 1 should be -50%, -25%, 0%, +25%, +50%.

Table 21: Soft commodities scenarios

All positions in soft commodities (e.g. wool, wheat, corn, and sugar) must be included in the stress test portfolio revaluations. The price shifts should be applied to each commodity separately; a separate scenario matrix should be completed for each commodity. In assessing the change in portfolio value for each commodity, positions of differing maturity may be netted.

In column 3 (representing a negative change in volatility), only the entry corresponding to a zero per cent change in price needs to be completed. The changes in price in column 1 should be -30%, -15%, 0%, +20%, +40%.

Table 22: Energy commodity scenarios

All positions in energy commodities (including oil, gas, and electricity) must be included in the stress test portfolio revaluations. The price shifts should be applied to each commodity separately; a separate scenario matrix should be completed for each energy commodity. In assessing the change in portfolio value for each commodity, positions of differing maturity may be netted.

In column 3 (representing a negative change in volatility), only the entry corresponding to a zero per cent change in price needs to be completed. The changes in price in column 1 should be -40%, -20%, 0%, +20%, +40%.

Table 23: Credit spread risk

All trading book positions which have credit spread risk (including, but not limited to: corporate bonds, floating rate notes, credit derivatives, credit indices, and securitisations) must be included in the credit spread stress test portfolio revaluations.

Columns 1 and 2 are to be completed for exposures which have an external credit assessment (as described in paragraph 5 of Attachment B to APS 116) of BBB- or higher. Column 3 is to be completed for exposures which are either unrated or have an external credit assessment below BBB-.

In Column 1, the price shock applied is either a doubling of the credit spread (table 23.1) or a halving of the credit spread (table 23.2). In columns 2 and 3 the price shock is either a 10% fall in market price (table 23.1) or a 5% increase in market price (table 23.2).

Under 'single name (physicals)' include all physical exposures which have credit spread risk, but which reference a single name rather than a pool of assets. For example: corporate bonds and floating rate notes.

Under 'single name (derivatives)' include exposures to derivatives which have credit spread risk and reference a single corporate name. For example: credit default swaps.

Under 'credit indices' include exposures to credit indices such as Itraxx , CDX and LCDX, other than exposures to tranches of those indices.

Under 'multi-name (physicals)' include exposures to physical exposures which have credit spread risk, and reference more than one underlying exposure, or reference a security with more than one underlying exposure. For example: CLOs, CDOs, CBOs, ABS, RMBS, and CMBS.

Under 'multi-name (derivatives excluding indices)' include exposures to derivatives which have credit spread risk, but are neither single name derivatives nor indices. For example: synthetic CLOs, credit derivatives referencing synthetic CDOs.

Under 'securitisation (indices)' include exposures to securitisation indices such as ABX, and exposures to tranches of indices, such as CDX index tranches.

In summing the exposure within each category, if there is a matched position in the same security (i.e. both the issuer and issue are identical), the matching positions may be offset and omitted from the calculation.

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