Working Party on Financial Statistics

Recent improvements in the compilation of domestic and international derivatives statistics in the ABS

Common day

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This document has been prepared by Athol Maritz and Derick Cullen (Macroeconomics Research Section, ABS - Australia) and will be presented under item 5 of the draft agenda
RECENT IMPROVEMENTS IN THE COMPILATION OF DOMESTIC AND INTERNATIONAL DERIVATIVES STATISTICS IN THE ABS

Paper Prepared by Athol Maritz and Derick Cullen (Macroeconomics Research Section, ABS)

Abstract

The compilation of high quality derivatives estimates presents one of the more difficult challenges for national statisticians. Derivatives comprise a relatively heterogeneous set of financial instruments, many of which are complex and difficult to understand. The 2008 SNA and BPM6 standards require survey respondents to compile and report information that is often not routinely generated for internal management reporting purposes. A review of derivatives conducted by the ABS in 2007 concluded that respondents were simply not able to report the data required to compile domestic derivatives estimates to 2008 SNA standards. As a result, the ABS put on hold any plans for direct collection of domestic derivatives data, and continued to rely on a simple model for domestic derivatives based on non-resident derivatives data collected in a quarterly survey of international investment. This paper describes recent improvements in the compilation of domestic derivatives data by the ABS using new data sources, and plans for further improvements in the compilation of both international and domestic derivatives estimates over the medium to longer term.

1. Introduction

The purpose of this paper is to document the Australian experience in attempting to compile derivatives statistics to 2008 SNA and BPM6 standards.

A previous paper\(^1\) discussed the difficulties encountered by the Australian Bureau of Statistics (ABS) in attempting direct data collection of domestic derivatives statistics. As part of a broader ABS/Reserve Bank of Australia (RBA)/Australian Prudential Regulation Authority (APRA) data modernisation project, a detailed derivatives questionnaire was designed and tested on a number of major players in the derivatives market. Among the challenges this questionnaire presented to providers were:

- separate reporting of contracts in an asset (positive market value) and liability (negative market value) position;
- tracking contracts that change from asset to liability (or vice versa) over the reporting period;
- attributing changes in value to transactions, value changes and other volume changes;
- providing institutional sector of counterparty;
- providing the required detail on the type derivative.

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Since much of these data were not collected for internal management reporting purposes, providers indicated that they would incur significant extra costs in providing such data to the ABS. The ABS concluded the direct collection was not feasible at that time, and continued to rely on a simple model for domestic derivatives based on non-resident derivatives collected in the quarterly Survey of International Investment (SII). The paper noted a number of possibilities for improvement to derivatives estimates over the longer term, including:

- improved modelling of derivatives positions and;
- requesting that industry bodies collect additional data;
- detailed reporting of derivatives contracts to the ABS such that the ABS could itself compile the required information (so-called 'security-by-security' reporting);
- enhanced accounting standards that might require companies to routinely compile the information required by the ABS.

This paper describes recent improvements in the compilation of domestic derivatives data by the ABS and plans for further enhancements over the longer term.

2. **The importance of derivatives in Australia**

Australia has been a relatively large and sophisticated user of derivatives since the emergence of the derivatives markets in the 1980s. For much of this period, the Australian dollar has been a relatively high interest rate currency. Overseas borrowers took advantage of the attractiveness of these high interest rates to investors to issue bonds in AUD. This started with the AUD Eurobond market during the 1980s and also led to a flourishing Kangaroo bond market in Australia. Australian institutions often provided the cross currency interest rates swaps and associated derivatives required to swap the AUD exposures back into the desired currency. Major financial institutions in Australia have also made extensive use of overseas bond markets, and used derivatives to manage their exposure to foreign currencies. Perhaps for related reasons, the AUD is one of the most actively traded currencies in the world, accounting for trading volume far in excess of the relative size of the Australian economy.

As a result, derivatives are now a significant component of the national and international financial accounts and the Australian international investment position.

3. **Structure of the derivatives market in Australia**

Key features of the derivatives markets in Australia (September 2011) include:

- over-the-counter (OTC) derivatives account for around 86% of total derivatives outstanding, with exchange traded derivatives accounting for 14%;
- Interest rate derivatives account for 69% of outstanding positions, foreign exchange derivatives account for 28%, and credit, equity, commodity and other derivatives account for 3%;
- The dealer community is dominated by banks, with the top 8 banks accounting for 80-90% of turnover for most types of derivatives;
- The major end users are non-financial corporations (NFCs) and other financial corporations (OFCs), with the latter group comprising pension funds, life insurance offices, non-life insurance companies, securitisers and financial auxiliaries, among others.

The 2008 SNA and BPM6 require detailed reporting of derivatives positions and transactions, in line with reporting for other financial instruments. The basis for reporting, and for presentation in the accounts, is market values. The accounts require full reconciliation accounting that attributes the change in the stock of derivatives assets and liabilities to new transactions, changes in market values due to exchange rates and other price changes, and other changes in volume. The financial accounts also require a sectoral breakdown showing positions and transactions between the major institutional sectors of the economy (financial corporations, non-financial corporations, general government, households, not-for-profit institutions serving households, and the rest of the world).

5. The Survey of International Investment

Financial data for the Balance of Payments and International Investment Position is collected in a quarterly Survey of International Investment (SII). The SII collects detailed data on non-resident assets and liabilities from all resident entities with non-resident assets and liabilities totalling over $50 million.

A copy of the derivatives question from the SII, which is designed to collect all the derivatives data necessary to meet BPM6 requirements, is included at attachment 1. Derivatives data is collected in full reconciliation format, by country of counterparty, by residual maturity and by currency.

Derivatives assets and liabilities for the past four quarters are shown in table 1.

Table 1 Non-resident derivatives assets and liabilities by quarter ($m) (a)

<table>
<thead>
<tr>
<th></th>
<th>March 2012</th>
<th>December 2011</th>
<th>September 2011</th>
<th>June 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Derivatives Positions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assets</td>
<td>94,633</td>
<td>99,486</td>
<td>106,040</td>
<td>88,479</td>
</tr>
<tr>
<td>Liabilities</td>
<td>86,666</td>
<td>93,468</td>
<td>87,919</td>
<td>86,814</td>
</tr>
<tr>
<td><strong>Derivatives Transactions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assets</td>
<td>-8,253</td>
<td>-1,794</td>
<td>-1,542</td>
<td>-11,706</td>
</tr>
<tr>
<td>Liabilities</td>
<td>14,125</td>
<td>1,762</td>
<td>19,292</td>
<td>15,485</td>
</tr>
</tbody>
</table>

Source: ABS, Balance of Payments and International Investment Position, March Quarter 2012 (Cat. No. 5302.0)

(a) Asset and liability positions are shown without signs. A negative asset transaction decreases assets and a positive liability transaction increases liabilities.

6. The Survey of Foreign Currency Exposure

The ABS has also conducts a four-yearly Survey of Foreign Currency Exposure (otherwise known as the Hedging Survey), whose objective is to measure the net exposure of the Australian economy to foreign currencies. The major users include the RBA, international organisations such as the IMF that monitor the health of the global economy and other domestic economic analysts. The survey collects data on foreign currency denominated assets and liabilities, and foreign currency denominated derivatives. This enables the measurement of foreign currency exposures before and after the use of derivatives to manage these exposures.
The high level results for the hedging survey are shown below.

Source: ABS, Foreign Currency Exposure, March Quarter 2009 (Cat. No. 5308.0)

The hedging survey shows that in March 2009, the net balance sheet exposure to foreign currencies was $43.7 billion. After including exposures due to expected future cash flows from trade the net exposure was $100.6 billion. Interestingly, the net exposure after hedging with derivatives was $388.1 billion. A similar picture emerged in the two previous surveys.

This seemingly anomalous result is due to the fact that banks and other survey respondents employed different hedging strategies for different instruments. There was very little hedging of direct equity assets or expected future payments and receipts from trade, and portfolio equity assets were only partly hedged. However there was almost complete hedging of foreign currency denominated debt assets and liabilities.

This is illustrated in the following table. Banks, for example, reported $22.7 billion in foreign equity assets that were largely unhedged, but large foreign currency denominated debt assets and liabilities that were almost completely hedged with derivatives.

For a fuller discussion of the results see Foreign Currency Exposure, Australia, March Quarter 2009 (ABS Cat. No. 5308.0).
While the data requirements of the hedging survey and the SII overlap to a large extent they do not coincide exactly. The main data requirements of the hedging survey that are not currently met by the SII are:

- The notional principal of derivatives. Market exposures are determined primarily by notional principals, and these are not currently collected in the SII.
- Detail on the type of derivative. For example the calculation of net exposures requires detail on whether the derivatives involve paying foreign currency or receiving foreign currency.

A copy of the derivatives question used in the 2009 hedging survey is included at attachment 2.

While the primary focus of the hedging survey is to measure Australia's net foreign currency exposures to non-residents, the survey also collects data on foreign currency denominated derivatives with resident counterparties, including the institutional sector of resident counterparties. The hedging survey is therefore a good source of information on the resident sector by counterparty profile of derivatives activity in Australia.
The following table shows the resident sector by counterparty profile for derivatives positions derived from the hedging survey. This profile is based on positions measured in terms of notional principals, and is the sum of pay foreign currency and receive foreign currency positions between sectors.

Table 2 Resident sector by counterparty profiles for foreign currency denominated derivatives (all entries relative to the total for banks)

<table>
<thead>
<tr>
<th>Counterparty</th>
<th>(Part) Sector S122 (Banks)</th>
<th>(Part) Sector S122 (ODCs)</th>
<th>Sector S121 (RBA)</th>
<th>(Part) Sector S127 (CBA)</th>
<th>Sectors S123 to S129 (OFCs)</th>
<th>Sector S11 (NFCs)</th>
<th>(Part) Sector S13 (GG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Banks)</td>
<td>0.704</td>
<td>0.010</td>
<td>0.001</td>
<td>0.001</td>
<td>0.127</td>
<td>0.155</td>
<td>0.001</td>
</tr>
<tr>
<td>(ODCs)</td>
<td>0.010</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>(RBA)</td>
<td>0.001</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>(CBA)</td>
<td>0.001</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>(OFCs)</td>
<td>0.127</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.030</td>
<td>0.027</td>
<td>0.000</td>
</tr>
<tr>
<td>(NFCs)</td>
<td>0.155</td>
<td>0.001</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>(GG)</td>
<td>0.001</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Total</td>
<td>1.000</td>
<td>0.011</td>
<td>0.001</td>
<td>0.001</td>
<td>0.184</td>
<td>0.184</td>
<td>0.002</td>
</tr>
</tbody>
</table>

ODCs = other depository-taking corporations; RBA = Reserve Bank of Australia; CBA = State Central Borrowing Authorities; OFCs = other financial corporations; NFCs = non-financial corporations; GG = general government

Source: ABS, Survey of Foreign Currency Exposure, March Quarter 2009 (Cat. No. 5308.0)

These table shows, for example, that 70% of the derivatives conducted by banks are with other banks and the balance is primarily with OFCs and NFCs. (By coincidence) OFCs and NFCs both have derivatives positions that are in aggregate about 18.4% of the total for banks. It is also notable that only about 4% of foreign currency denominated derivatives do not involve a bank.

7. Compilation of domestic derivatives

As noted in the introduction, apart from the hedging survey the ABS does not currently collect detailed domestic derivatives data, and has for many years employed a simple model for domestic derivatives published in the Financial Accounts. This model estimates domestic derivatives as a fixed proportion of banks' non-resident derivatives (assumed to be the highest quality data source for derivatives), with the proportions estimated from derivatives turnover data collected by the RBA and the Australian Financial Markets Association (AFMA).

The ABS has recently completed a review and update of this model using two new sources of derivatives information - banks' domestic derivatives data obtained from APRA, and resident sector by counterparty profiles taken from the hedging survey.

Derivative positions

The new model is based on banks' domestic derivatives positions provided by APRA, rather than banks' non-resident derivatives positions obtained from the SII. The APRA data are updated quarterly.

The new model also employs the resident sector by counterparty profile taken from last hedging survey conducted in 2009, rather than basing this profile on derivatives turnover data collected by the RBA and AFMA.23

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2 This resident sector by counterparty profile is only measured for foreign currency denominated derivatives, and may not be an accurate profile for non-foreign currency denominated derivatives, and for derivatives overall. The RBA survey of derivatives turnover provides some insight into how the profiles may differ for the two types.
Estimates are obtained by applying the resident sector by counterparty profile to the latest quarterly estimates for banks' domestic derivatives positions.

This generates the following positions for domestic derivatives assets for September Quarter 2011:

**Table 3 Experimental estimates for domestic derivatives assets positions ($m)**

<table>
<thead>
<tr>
<th>Counterparty (Part) Sector</th>
<th>(Part) Sector S122</th>
<th>Sector S121</th>
<th>(Part) Sector S127</th>
<th>Sectors S123 to S129</th>
<th>Sector S11</th>
<th>(Part) Sector S13</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Banks)</td>
<td>1,346</td>
<td>175</td>
<td>157</td>
<td>17,105</td>
<td>20,943</td>
<td>176</td>
</tr>
<tr>
<td>(ODCs)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>119</td>
<td>0</td>
</tr>
<tr>
<td>(RBA)</td>
<td>205</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>(CBA)</td>
<td>184</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>(OFCs)</td>
<td>20,045</td>
<td>0</td>
<td>1</td>
<td>-</td>
<td>3,707</td>
<td>0</td>
</tr>
<tr>
<td>(NFCs)</td>
<td>24,543</td>
<td>139</td>
<td>11</td>
<td>4,344</td>
<td>-</td>
<td>17</td>
</tr>
<tr>
<td>(GG)</td>
<td>206</td>
<td>0</td>
<td>9</td>
<td>0</td>
<td>20</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>46,760</td>
<td>1,485</td>
<td>194</td>
<td>171</td>
<td>21,450</td>
<td>24,809</td>
</tr>
</tbody>
</table>

ODCs = other depository-taking corporations; RBA = Reserve Bank of Australia; CBA = State Central Borrowing Authorities; OFCs = other financial corporations; NFCs = non-financial corporations; GG = general government

This compares with estimates for domestic derivatives assets for September Quarter 2011 generated by the old model:

**Table 4 Current estimates for domestic derivatives assets positions ($m)**

<table>
<thead>
<tr>
<th>Counterparty (Part) Sector</th>
<th>(Part) Sector S122</th>
<th>Sector S121</th>
<th>(Part) Sector S127</th>
<th>Sectors S123 to S129</th>
<th>Sector S11</th>
<th>(Part) Sector S13</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Banks)</td>
<td>-</td>
<td>26,126</td>
<td>0</td>
<td>4,610</td>
<td>0</td>
<td>6,147</td>
</tr>
<tr>
<td>(ODCs)</td>
<td>33,925</td>
<td>0</td>
<td>9,221</td>
<td>0</td>
<td>13,063</td>
<td>4,610</td>
</tr>
<tr>
<td>(RBA)</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(CBA)</td>
<td>5,987</td>
<td>11,973</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(OFCs)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(NFCs)</td>
<td>7,982</td>
<td>16,962</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>(GG)</td>
<td>2,993</td>
<td>5,987</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>50,887</td>
<td>61,048</td>
<td>0</td>
<td>13,831</td>
<td>0</td>
<td>19,210</td>
</tr>
</tbody>
</table>

ODCs = other depository-taking corporations; RBA = Reserve Bank of Australia; CBA = State Central Borrowing Authorities; OFCs = other financial corporations; NFCs = non-financial corporations; GG = general government

Source: ABS, Australian National Accounts: Financial Accounts, March Quarter 2012 (Cat. No. 5232.0)

of derivative (see Attachment 3). The position data suggest that compared to foreign currency denominated derivatives, end users account for slightly more non-foreign currency denominated derivatives. The turnover data indicate the opposite. The hedging survey profiles have not been adjusted in the current iteration of the derivatives model

3 The hedging survey will be conducted again in 2013, and will provide an updated resident sector by counterparty profile.

4 In the published Financial Accounts, OFCs are further split into pension funds, life insurance offices, non-life insurance, securitisers and other financial intermediaries
The main differences are:

- derivatives positions for OFCs are now estimated and presented separately (previously they were included with ODCs);
- banks are more important as counterparties and ODCs are correspondingly less important, reflecting structural changes in the financial sector;
- while the totals for NFCs are similar, the new model attributes the bulk of these counterparty positions to banks rather than ODCs.
- the totals for NGG and CBAs are significantly lower.

Note also that while the totals for banks' positions with other sectors are similar, the new model recognises a much larger volume of bank positions with other banks that are not published in the sectoral accounts;

Similar differences are evident in a comparison of derivatives liability positions.

**Derivative transactions**

The APRA data do not include transactions. Banks' domestic derivatives transactions continue to be modelled as a fixed proportion of banks' non-resident derivatives transactions obtained from the SII. Thereafter, the model for transactions is exactly the same as the model for positions, with the resident sector by counterparty profile obtained from the hedging survey.

This generates the following transactions for derivatives assets for September Quarter 2011:

<table>
<thead>
<tr>
<th>Counterparty</th>
<th>(Part) Sector S122</th>
<th>(Part) Sector S122</th>
<th>Sector S121</th>
<th>(Part) Sector S127</th>
<th>Sectors S123 to S129</th>
<th>Sector S11</th>
<th>(Part) Sector S13</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Banks)</td>
<td>-</td>
<td>-216</td>
<td>-28</td>
<td>-25</td>
<td>-2,747</td>
<td>-3,363</td>
<td>-28</td>
</tr>
<tr>
<td>(ODCs)</td>
<td>-27</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-19</td>
<td>0</td>
</tr>
<tr>
<td>(RBA)</td>
<td>-4</td>
<td>0</td>
<td>-28</td>
<td>-25</td>
<td>-2,747</td>
<td>-3,363</td>
<td>-28</td>
</tr>
<tr>
<td>(CBA)</td>
<td>-3</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>-1</td>
<td>-1</td>
</tr>
<tr>
<td>(OFCs)</td>
<td>-343</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-595</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>(NFCs)</td>
<td>-420</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-74</td>
<td>-</td>
<td>-3</td>
</tr>
<tr>
<td>(GG)</td>
<td>-4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>-801</td>
<td>-218</td>
<td>-28</td>
<td>-25</td>
<td>-2,821</td>
<td>-3,981</td>
<td>-32</td>
</tr>
</tbody>
</table>

ODCs = other depository-taking corporations; RBA = Reserve Bank of Australia; CBA = State Central Borrowing Authorities; OFCs = other financial corporations; NFCs = non-financial corporations; GG = general government
This compares with estimates for derivatives assets for September Quarter 2011 generated by the old model:

<table>
<thead>
<tr>
<th>Counterparty</th>
<th>(Part) Sector S122</th>
<th>(Part) Sector S122</th>
<th>Sector S121</th>
<th>(Part) Sector S127</th>
<th>Sectors S123 to S129</th>
<th>Sector S11</th>
<th>(Part) Sector S13</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Banks)</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>-1,059</td>
<td>-397</td>
</tr>
<tr>
<td>(ODCs)</td>
<td>-4,500</td>
<td>0</td>
<td>-794</td>
<td>0</td>
<td>-2,250</td>
<td>-794</td>
<td></td>
</tr>
<tr>
<td>(RBA)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>(CBA)</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>(OFCs)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>(NFCs)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>(GG)</td>
<td>-102</td>
<td>-206</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>-871</td>
<td>-5,098</td>
<td>-2,382</td>
<td>-3,309</td>
<td>-1,191</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ODCs = other depository-taking corporations; RBA = Reserve Bank of Australia; CBA = State Central Borrowing Authorities; OFCs = other financial corporations; NFCs = non-financial corporations; GG = general government

Source: ABS, Australian National Accounts: Financial Accounts, March Quarter 2012 (Cat. No. 5232.0)

8. Proposed enhancements to the SII

While the SII has been a successful survey over a long period of time, it is complex and it is clear that some data items are difficult for respondents to provide. Among these are the various components of the derivatives reconciliation account. The data above provide a good example. Banks' asset positions are $46,760 while NFCs asset positions are $24,809. Yet transactions on banks' assets are $801 while transactions on NFC assets are $3,981. This seeming anomaly derives from published non-resident derivatives transactions that are approximately $2 billion on an asset position of $100 billion and $20 billion on a liability position of $80 billion. In order to improve confidence in the accuracy of these numbers, a number of enhancements to the SII are proposed.

Collect and publish notional principals

There are two main reasons for collecting and publishing notional principals as well as market values (MVs):

1. To facilitate editing of derivatives data. Derivative transactions (that is, settlements on derivative contracts) are obtained by multiplying notional principal amounts by interest rates and/or exchange rates. Notional principals are therefore required to assess whether reported transactions are reasonable. Similarly, the change in MV of derivatives is obtained (approximately) by multiplying notional principals by the change in interest rates and/or exchange rates. Again, notional principals are therefore required to assess whether reported MV changes are reasonable. Without notional principals it is impossible to assess whether reported transaction and MV changes make any sense (except of course to the extent that the time series of reported numbers should be well behaved).

2. To meet users' needs. The 2008 SNA and BPM6 recommend reporting of notional principals as a supplementary item. Notional principal is required, for example, for an assessment of derivative exposures. Inclusion of notional principals may also provide an opportunity to integrate the hedging survey with the SII.
Collect further detail on type of derivative

By contrast with other financial instruments, derivatives comprise a relatively heterogeneous collection of financial transactions. For both meeting user needs, and for editing, it is worthwhile collecting and publishing derivatives at a finer level of detail.

For example, the 2008 SNA and BPM6 recommend a distinction between forwards and options. Users are also likely to find it useful to distinguish between foreign currency denominated and non-foreign currency denominated derivatives, between exchange-traded derivatives and OTCs, and between longer dated and shorter dated derivatives. For users with an interest in assessing exposures, it is also important to distinguish between pay foreign currency derivatives and receive foreign currency derivatives and between pay fixed and receive fixed derivatives.

Furthermore, without more detail on the type of transaction it is difficult to edit and interpret derivatives data, even with notional principals. For example, without knowledge of whether a derivative involves paying foreign currency or receiving foreign currency it is impossible to know whether MV should rise or fall for a given change in exchange rates.

Modify the reconciliation accounts for derivatives

The reconciliation accounts attribute changes in MV to changes in exchange rates, changes in underlying prices (usually interest rates) and other volume changes (OVCs). Even for conventional assets and liabilities this is difficult for respondents to complete accurately, particularly when it is not produced routinely for internal management purposes. It is an order of magnitude more difficult to complete accurately for derivatives because a transaction that starts the quarter as an asset may not end the quarter as an asset. Thus the set of transactions that end the quarter as assets may not be the same as the set of transactions that start the quarter as assets. Strict compliance with the standards requires a complex manipulation to treat a transaction as an asset until its MV falls to zero and then treat it as a liability thereafter. Our respondents have indicated that this is simply not feasible.

The ABS is investigating a more pragmatic approach that starts with what respondents are able to provide:

(1) identify derivatives with a positive MV at the end of a quarter,
(2) determine the MV at the beginning of the quarter for this set of derivatives,
(3) present a reconciliation account for this set of derivatives.

This leaves the discrepancy between the MV at the beginning of the quarter of those transactions that ended the quarter as assets (ie (2) above), and the MV of assets at the end of the previous quarter. The ABS is investigating how to interpret this discrepancy and how best to attribute it in the reconciliation accounts. Where the discrepancy is unduly large, it may be worthwhile investigating the source and implementing a special treatment.

Confrontation with APRA non-resident derivatives data

APRA collects data on non-resident derivatives positions as well as domestic derivatives positions, but the ABS has not previously accessed this data due to costs and systems difficulties. Since the non-resident derivatives data should be consistent with derivatives data reported in the SII, the ABS is investigating whether this data can be used to confront/check the non-resident derivatives positions reported in the SII.
**Integrating hedging survey requirements into the SII**

Almost all the key requirements of the hedging survey would be accommodated by the enhancements noted above. These enhancements are further detail on type of derivative, including pay foreign currency versus receive foreign currency derivatives, and the collection of notional principals as well as market values of derivative positions.

Additional requirements may be met by having two versions of the derivatives question on the SII; a simpler version for end users such as NFCs and a more elaborate version for dealers such as banks.

9. **Proposed enhancements to the model for domestic derivatives**

*Derivative positions*

The current domestic derivatives model is based on banks' domestic derivatives and uses the hedging survey to establish the relative size of other sectors. However it is possible to employ APRA data for other financial sectors (ODCs and some OFCs) and the ABS Survey of Financial Intermediaries (SFI) for the remaining sectors as an alternative to the relativities established in the hedging survey. This would also address the fact that the hedging survey only includes foreign currency denominated derivatives. If the relative size of other sectors is different for foreign currency denominated and non-foreign currency denominated derivatives (see Attachment 3), the hedging survey only provides an approximation for total derivatives.

However the hedging survey would still have to be used to derive resident sector by counterparty profiles. A further enhancement would involve using RBA turnover data to measure the difference between banks' counterparty profiles for foreign currency denominated and non-foreign currency denominated derivatives, and modifying the hedging survey profiles accordingly.

*Derivative transactions*

The UK employs a model for derivatives transactions based on profit and loss (P&L) data for derivatives that splits P&L between net spread earnings and changes in MVs. The first item is essentially net transactions and the second is MV changes due to changes in underlying rates/prices.

The ABS will investigate whether this is a viable approach for Australia. This will depend on whether P&L data collected by APRA has this level of detail, or whether this level of detail can be collected as part of the current APRA forms review.

10. **Longer term plans for direct collection of domestic derivatives data**

*Direct collection by APRA and the ABS*

The ABS is currently conducting a further investigation into the feasibility of direct collection of the domestic derivatives data required to meet 2008 SNA standards. For the financial sectors, this would involve reporting through APRA, and the requirements for derivatives reporting would be included in the broader APRA forms review. A previous review of derivatives compilation in the ABS (see introduction) identified a number of difficulties for respondents in meeting the ABS reporting requirements, and the ABS will conduct a further round of consultation with major providers to determine whether these difficulties persist. There is some reason for optimism; it seems clear for example that respondent are now able to report separately for derivatives in an asset and liability position, and various changes to accounting standards may make some of this information more readily available.
For other sectors the data could be collected through an enhanced SFI, and it may be possible to introduce a question for domestic derivatives similar to that in the SII. The only additional requirement may be resident counterparty data.

**Data collection via Transaction Repositories and/or Central Counterparties**

An alternative to direct collection of domestic derivatives data by APRA and the ABS is promised by the Australian Government commitment to introduce a legislative framework to ensure the implementation of three key G20 commitments related to derivatives:

- reporting of all OTC derivatives to Transaction Repositories (TRs),
- clearing of all standardised derivatives through central counterparties (CCPs),
- execution of all standardised OTC derivatives on exchanges or electronic trading platforms, where appropriate.

The implementation of centralised clearing and/or mandatory reporting of OTC derivatives to TRs would provide an efficient means for collecting derivatives information. The challenge for the ABS is to ensure that the reporting requirements include the data items required for compiling derivatives statistics to 2008 SNA and BPM6 standards. For example, the ABS has recommended in comments on the consultative report on TRs that they collect market values, or have the means for calculating market values from more detailed derivatives data. The ABS has also recommended that the institutional sector of each counterparty to a derivatives transaction be collected/recorded. The broader problem faced by the ABS is that the data collected for prudential and regulatory purposes would not necessarily include all items required for compiling derivatives estimates according to international statistical standards. This problem is likely to be exacerbated in cases where non-resident TRs and CCPs are employed.

The ABS would be keen to hear of the experiences of other countries in attempting to access data from TRs and/or CCPs.
**Attachment 1: The Survey of International Investment - derivatives question**

### Part C - Derivative contracts in a net liability position with non-residents

**Note:**
Derivative contracts in a liability position are those:
- with a negative mark to market value at the end of the quarter, or
- that matured during the quarter with a negative mark to market value; that is, requiring a net payment on settlement (see Note C2)

#### 5a Derivative contracts of your Australian enterprise group in a net liability position with non-resident, by country

- **see Notes Part C**

<table>
<thead>
<tr>
<th>Country of non-resident creditor</th>
<th>Opening position at 30/6/2009</th>
<th>Changes during the quarter</th>
<th>Closing position at 30/9/2009 (1+2-3 +4+5+6=7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>see Note 3.5 see Note C2 (1)</td>
<td>see Note C4 (2) $A,000</td>
<td>see Note C4 (3) $A,000</td>
<td>see Note C2 (7) $A,000</td>
</tr>
<tr>
<td></td>
<td>$A,000</td>
<td>$A,000</td>
<td>$A,000</td>
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</table>

<table>
<thead>
<tr>
<th>Settlements</th>
<th>Receipts</th>
<th>Payments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Valuation and other changes</th>
<th>Market price changes</th>
<th>Exchange rate variations</th>
<th>Other changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>see Note 3.8 (4)</td>
<td>see Note 3.9 (5)</td>
<td>see Note 3.10 (6)</td>
<td>see Note C2 (7)</td>
</tr>
<tr>
<td>$A,000</td>
<td>$A,000</td>
<td>$A,000</td>
<td>$A,000</td>
</tr>
</tbody>
</table>

| Total - Question 5a | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

#### 5b Residual maturity of derivative contracts of your Australian enterprise group in a net liability position with non-resident, cross-classified by currency - see Notes 3.16 and C5

<table>
<thead>
<tr>
<th>Currency as at 30/9/2009 ($A,000)</th>
<th>Residual maturity of contract</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;= 90 days</td>
<td>&lt;= 6 mths</td>
</tr>
<tr>
<td>Australian dollar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>US dollar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UK pound</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Japanese yen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Euro</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swiss franc</td>
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<td></td>
</tr>
</tbody>
</table>
Attachment 2: The Hedging Survey - derivatives question

Part C – Financial derivative contracts with a foreign currency component (as at 31 March 2009 – $A million)

Note
• Banks to report trading and banking books together.

6 Notional principal of outstanding financial derivative contracts involving the purchase of a foreign currency and the sale of Australian dollars

Including
• Forward contracts (including repos)
• Swaps
• Futures
• Options

(a) Notional principal of contracts with non-resident counterparties (by sector of counterparty) (see Notes 2.2, 2.9 and 5.1 to 5.7)

<table>
<thead>
<tr>
<th></th>
<th>(SA million)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>US dollar</td>
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<tr>
<td>Banks</td>
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<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
</tr>
</tbody>
</table>
### Part C – Financial derivative contracts with a foreign currency component
(as at 31 March 2009 – $A million) – (continued)

6 Notional principal of outstanding financial derivative contracts involving the purchase of a foreign currency and the sale of Australian dollars – (continued)

(b) Notional principle of contracts with resident counterparties (by sector of counterparty) (see Notes 2.2 to 2.8 and 5.1 to 5.7)

<table>
<thead>
<tr>
<th>($A million)</th>
<th>US dollar</th>
<th>UK pound</th>
<th>Japanese yen</th>
<th>Euro</th>
<th>Swiss franc</th>
<th>NZ dollars</th>
<th>Other</th>
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</thead>
<tbody>
<tr>
<td>Banks</td>
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<td></td>
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</tr>
<tr>
<td>Other depository corporations</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Reserve Bank of Australia</td>
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<tr>
<td>Central borrowing authorities</td>
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<tr>
<td>Other financial corporations</td>
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<td></td>
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<tr>
<td>Non financial corporations</td>
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</tr>
<tr>
<td>General government</td>
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<td>Total</td>
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</tr>
</tbody>
</table>

(c) Notional principal of contracts by residual maturity profile (include both resident and non-resident counterparties) (see Note 5.1 to 5.7)

<table>
<thead>
<tr>
<th>($A million)</th>
<th>&lt;= 90 days</th>
<th>&gt; 90 days &lt;= 6 mths</th>
<th>&gt; 6 mths &lt;= 1 year</th>
<th>&gt; 1 year &lt;= 5 years</th>
<th>&gt; 5 years</th>
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</thead>
<tbody>
<tr>
<td>Total</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

(d) Notional principal by type of derivative contract (see Notes 5.1 to 5.7)

<table>
<thead>
<tr>
<th>($A million)</th>
<th>US dollar</th>
<th>UK pound</th>
<th>Japanese yen</th>
<th>Euro</th>
<th>Swiss franc</th>
<th>NZ dollar</th>
<th>Other</th>
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<tr>
<td>Forward foreign exchange</td>
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<td></td>
</tr>
<tr>
<td>Cross-currency interest rate swaps</td>
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<td></td>
</tr>
<tr>
<td>Futures</td>
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<td></td>
</tr>
<tr>
<td>Currency options</td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Other</td>
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</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>
Attachment 3: A comparison of counterparty profiles for foreign currency denominated derivatives and non-foreign currency denominated derivatives using the RBA BIS Triennial Survey

The RBA survey of derivatives positions for reporting dealers (primarily banks) shows the distribution over different counterparties for foreign currency denominated derivatives and non-foreign currency denominated derivatives. For derivatives positions there is no distinction between resident and non-resident counterparties. Table 7 indicates that relative to foreign currency denominated derivatives, reporting dealers tend to transact a higher proportion of non-foreign currency denominated derivatives with other reporting dealers and a lower proportion with end users.

Table 7 Counterparty profile for derivatives positions for reporting dealers in the RBA BIS Triennial Survey of Derivatives

<table>
<thead>
<tr>
<th>Proportion by counterparty</th>
<th>Foreign currency denominated</th>
<th>Non-foreign currency denominated</th>
<th>Both</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reporting dealers</td>
<td>0.55</td>
<td>0.65</td>
<td>0.62</td>
</tr>
<tr>
<td>Other financial institutions</td>
<td>0.35</td>
<td>0.29</td>
<td>0.31</td>
</tr>
<tr>
<td>Non-financial customers</td>
<td>0.10</td>
<td>0.06</td>
<td>0.07</td>
</tr>
<tr>
<td>Total</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>

The RBA survey of derivatives turnover for reporting dealers (primarily banks) also shows the distribution over different counterparties for foreign currency denominated derivatives and non-foreign currency denominated derivatives. However for derivatives turnover there is also a distinction between resident and non-resident counterparties. The following table indicates that relative to foreign currency denominated derivatives, reporting dealers tend to transact a lower proportion of non-foreign currency denominated derivatives with other resident reporting dealers and a higher proportion with resident end users.

Table 8 Counterparty profile for derivatives turnover for reporting dealers in the RBA BIS Triennial Survey of Derivatives

<table>
<thead>
<tr>
<th>Proportion by counterparty</th>
<th>Foreign currency denominated</th>
<th>Non-foreign currency denominated</th>
<th>Both</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reporting dealers - residents</td>
<td>0.16</td>
<td>0.13</td>
<td>0.15</td>
</tr>
<tr>
<td>Other financial institutions - residents</td>
<td>0.06</td>
<td>0.12</td>
<td>0.07</td>
</tr>
<tr>
<td>Non-financial customers - residents</td>
<td>0.02</td>
<td>0.09</td>
<td>0.03</td>
</tr>
<tr>
<td>Non-residents</td>
<td>0.76</td>
<td>0.67</td>
<td>0.74</td>
</tr>
<tr>
<td>Total</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>