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IMPLEMENTATION OF SYSTEM OF NATIONAL ACCOUNTS 2008 AND BALANCE OF PAYMENTS AND INTERNATIONAL INVESTMENT POSITION MANUAL SIXTH EDITION

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IMPLEMENTATION OF SYSTEM OF NATIONAL ACCOUNTS 2008 AND BALANCE OF PAYMENTS AND INTERNATIONAL INVESTMENT POSITION MANUAL SIXTH EDITION

Introduction

1. The Australian Bureau of Statistics (ABS) implemented the Balance of Payments and International Investment Position Manual Sixth Edition (BPM6) and the System of National Accounts 2008 (2008 SNA) with the release of statistics for September quarter 2009. The ABS was the first national statistical agency to implement the revised standards. The implementation coincided with the introduction in the Australian macroeconomic accounts, where relevant, of an update to the industrial classification used by the ABS and Statistics New Zealand. Managing two concurrent significant changes to Australia's macroeconomic statistics was a major challenge that involved many different parts of the organisation. The timing of the implementation coincided with the global financial crisis, which placed significant strain on existing statistical sources and methods and complicated the introduction of the new standards.

2. This paper outlines the processes used, and issues faced, by the ABS in this implementation. The paper presents a number of principles which the ABS adopted to guide the implementation and describes issues that created difficulties. It is hoped that this paper will provide insights to other national statistical organisations as they prepare to implement the new standards.

Organisational context

3. The ABS is Australia's national statistical organisation. The ABS compiles Australia's key macroeconomic statistics including the national accounts, the balance of payments, the international investment position, the financial accounts, government finance statistics and a range of prices indexes including the CPI.

4. The macroeconomic accounts are compiled within one broad organisational unit, the Macroeconomics and Integration Group. Source data for the accounts are drawn from areas within the Macroeconomics and Integration Group, other areas of the ABS and from a range of non-ABS sources.

The Standards

5. The international standards for macroeconomic accounts, apart from those for Government Finance Statistics, were updated concurrently. The new standards are presented in the BPM6 and 2008 SNA. The Government Finance Statistics Manual is currently being revised. The ABS was a strong contributor to the development of BPM6 and 2008 SNA. The ABS is supporting other countries to implement new international standards and through supporting the research agendas for the Balance of Payments and System of National Accounts.

6. The new standards are updates of the Balance of Payments Manual 5th edition and the System of National Accounts 1993, both of which were released in 1993. The updates were in response to the emergence of a number of new economic phenomena which arose or assumed greater importance as economies continued to develop in their complexity or have emerged as important measurement issues.

These issues were initially described in the Information Paper: **Introduction of revised international standards in ABS economic statistics in 2009** (cat. no. 5310.0.55.001).

7. The Australian and New Zealand Standard Industrial Classification (ANZSIC 2006), which is compatible with the International Standard Industrial Classification of All Economic Activities, Rev.4 (ISIC Rev4), and the Standard Economic Sector Classifications of Australia (SESCA 2008) were introduced into ABS economic statistics at the same time as the new international standards.

Management of change process

8. The ABS decided that a clean, once-off cut-over would minimise instability in macroeconomic series induced by standards changes. The alternative approach would have resulted in instability over a period of several quarters, or even years, and a lack of coherence between the rest of the world sector and the domestic sectors in the national accounts. Once this key decision was made, the work programs of a large number of statistical operations had to be coordinated, and a user consultation and communications program had to be developed. The approach came to be known as the "big bang" approach. It was recognised that this approach can be risky if not managed appropriately.

9. This approach was able to be managed in Australia as the ABS is responsible for the national accounts, the balance of payments and many of the data collections that feed into the macroeconomic accounts. Two senior internal ABS governance bodies were created and charged with the coordination. These were the ANZSIC Implementation Board, and the Macro-Economic Statistics Review Committee (MESRC). There was some overlap of membership of these bodies to ensure coordination.

10. The role of the ANZSIC Implementation Board was to ensure that the implementation of the new classification was coordinated across the many data collections and datasets, as well as external data sources (e.g. the industry codes on the Tax Business Register). This was achieved by establishing implementation work programs and monitoring progress against those plans.

11. MESRC was established to consider methodological changes in the macroeconomic accounts. MESRC also considered changes in the SNA and BPM standards when drafts were circulated for comment by international agencies. It signed off, at a detailed level, methodological and conceptual changes across the macroeconomic accounts following finalisation of the standards. MESRC included both senior and operational staff to ensure that the full implications of changes were understood and taken into account.

12. MESRC determined a set of principles for implementing the changes in standards, reviewed proposals to depart from the standards, ensured that user communications plans were adequate, and reviewed implementation progress.

13. At the end of the implementation process the need for MESRC ended. However, it was recognised that one of the roles of MESRC, namely to oversee the introduction of new methodologies into the compilation of macroeconomic accounts, was needed on an ongoing basis. A Macroeconomics Methods Board was set up to undertake this role.

Principles behind the implementation

14. There is a big investment in standards by the ABS including in the System of National Accounts, Balance of Payments Manual, industry classifications and a range of standards for most statistical measures. The ABS tries to influence the international standards as far as possible, accepts that compromises are made, then implement the standards to the fullest extent possible.

15. Building on the experience of implementing previous upgrades to the international standards and other significant changes, the ABS identified the following principles to guide the implementation.

(a) Standards

Departures from standards:

- should be few in number, demonstrate a significant benefit or avoidance of an unwarranted cost (for example, enhance harmonisation with Australian financial reporting standards; not possible for businesses to report the information within a reasonable cost)
- should be carried through all accounts/statistics (that is, no "local" departures) while being aware that some related standards, like Government Finance Statistics, are being updated on a different timetable
- enable a straightforward reconciliation with the standard where feasible
- Only be implemented after extensive consultation and publicity.

(b) Timing of implementation

- Changes impacting GDP should be implemented at the same time (as far as practical) and in conjunction with the introduction of other related standards and classifications (such as ANZSIC 2006). This meant that data changes were required in ABS annual businesses collections for the 2006-07 reference year to coincide with the national accounts processing cycle over 3 years.
- Other changes to be made as practicable.

(c) Coordination and consultation

- The implementation must be centrally coordinated so that there is consistent treatment across the ABS and clients receive a consistent message about plans.
- Clients must be provided with sufficient opportunity to consider the changes being introduced and all clients must have equal opportunity to access this information.

Backcasting, bridging, parallel runs, seasonal adjustment

16. The ABS maintains long time series for national accounts and the balance of payments and international investment position. A large proportion of these series is maintained in original, seasonally adjusted and trend variations. The introduction of changes like 2008 SNA and BPM6 resulted in shifts in the levels of component and total series. If the shift in level was sufficient to distort the seasonally adjusted time series, the ABS revised the historical series to make the time series as continuous as possible.

17. With some changes, like repairs moving from goods to services, it was relatively easy to adjust the time series. However, in some cases there was not sufficient detail available to adjust directly the historical series (e.g. the separate identification of technical reserves in the international investment position and the requirement for more detailed industry classes in the Property and business services division). In these cases a modelling technique was required.

18. Where it is not possible or necessary to maintain a long time series, the ABS adopted an approach of ‘bridging’ the current published estimates and the estimates produced by the revised methodology. This means that estimates on both the current and new basis were produced for one point in time and both sets of estimates are released along with analysis to help clients understand the differences between the series. This approach was used for the annual economic surveys. This technique is particularly relevant for the Balance of Payments Financial Account series, such as industry breakdowns of international investment, where it was not feasible modelled beyond a certain time.

19. Because of the large number of changes to standards being implemented concurrently, together with improved methodologies and normal revisions, interpreting impacts or sources of the changes with any precision was not possible. This was not only a difficulty for users, but also an issue for quality assurance of outputs by the ABS.

Implementation timing

20. Changes to the national accounts, international accounts and their indicator series were implemented in respect of the 2008-09 or the September quarter 2009 reference periods. For example the changes were implemented in the July 2009 issue of Retail Trade (cat. no. 8501.0), the August 2009 issue of International Trade in Goods and Services (cat. no. 5368.0) and the September quarter 2009 issues of Australian National Accounts: National Income, Expenditure and Product (cat. no. 5206.0) and Balance of Payments and International Investment Position, Australia (cat. no. 5302.0).

21. To accommodate additional processing required to compile the macroeconomic accounts according to the revised standards, the release of two key publications were delayed. The September quarter 2009 issue of Balance of Payments and International Investment Position, Australia was delayed one week until Tuesday, 8 December and the September quarter 2009 issue of Australian National Accounts: National Income, Expenditure and Product was delayed two weeks until Wednesday, 16 December 2009. Subsequent issues of these publications were released according to standard timing.

22. The ABS chose a September quarter implementation as this coincided with both the release of the annual financial year publications, the start of a new financial year and the normal timing for introducing historical revisions.

Communicating with users

23. A comprehensive communication plan was developed consistent with the principle that the changes only be implemented after extensive consultation and publicity. The main features of this plan included:

- early presentation of the implementation plans to the Australian Statistics Advisory Council which is the key advisory body to the Statistician on statistical services
- early presentation of the implementation plans and updates on progress to the Economic Statistics User Group which is the key advisory body on economic statistics
- release of an information paper in 2004 on ANZSIC 2006 development, followed by a paper in 2006 on ANZSIC 2006 implementation plans with an update on those plans in 2008
- commencing in 2007, consultation with the key government agencies using macroeconomic statistics

- following this consultation, release in 2007 of an information paper to all stakeholders outlining the key SNA and BPM changes and the implementation plans
- release from June to September 2009 of an information paper for each of the affected publications describing the main changes impacting on that publication, the timing for implementing the changes, the impact on time series in the publication and the impact on the presentation of statistics in the publication; this included the provision of mock-ups of the publication and time series spreadsheets as they would appear after the implementation of the changes
- release in October 2009 of an information paper summarising the main changes and quantifying, to the extent possible, the impact on key aggregates; for some of the more significant changes detailed methodological information was provided
- inclusion in the first release of each publication of a comment on the statistical impacts of the changes.

24. The ABS produces a range of manuals describing the underlying concepts and structure of the key accounts like the Australian System of National Accounts and the Balance of Payments and International Investment Position. These manuals outline the sources, methods and terms used in compiling the accounts. The current versions of these publications reflect SNA93 and BPM5 concepts and a number of references to data sources and methods are out-of-date. The concepts, sources and methods documentation for the Balance of Payments and International Investment Position was partially revised in early 2011 with further updates planned over the rest of the year and early 2012. The revised concepts, sources and methods documentation for the Australian System of National Accounts is scheduled for release in 2012.

Changes to data collections and systems

25. Apart from changes to data collections from ANZSIC06 changes, there were some changes in data collections to support 2008 SNA and BPM6. From a practical point of view the changes to the ABS Annual Integrated Collections (the suite of annual industry surveys) and the Quarterly Business Indicator Survey (the main source of quarterly economic indicators) were minor (although the changes to QBIS coincided with the high impact introduction of non-employed units to the survey), however these reclassified units and coverage changes were difficult to implement into supply-use balancing. This had a consequence of impacting on the changes from 2008 SNA in the supply-use tables and making the implementation process quite difficult.

26. The changes to the Survey of International Investment were not significant for two reasons. First, the ABS form already collected data items that became part of the standard with BPM6 and only some new items (e.g. transactions between Direct Investment fellow enterprises) had to be added. The ABS tested the revised forms with a number of companies to ensure that the required information was understood and available. All companies in the survey were given early notice of the changes so that they could prepare their information systems and for the first quarter with the new forms they were despatched several weeks early. Second, the ABS decided that it was not feasible, at this stage, to collect all the additional supplementary items. Collecting supplementary information like country of ultimate investor would have required a fundamental change to the survey form and processing system which was not feasible.

27. Changes to some of the data models underlying International Investment were more significant than the changes to the directly collected survey data. These changes were both to address BPM6 requirements and to improve data not directly impacted by BPM6. For example, changing the Financial

Intermediation Services Indirectly Measured (FISIM) to reflect better data availability for National Accounts and Balance of Payments, and to implement BPM6 treatment of FISIM (deducting FISIM from interest in the Primary Income Account).

28. Minimal changes to the Survey of International Trade in Services were required for BPM6 due to compliance with BPM5 and MSITS, the main changes were from switching classifications between the Goods Account and Services Account (merchanted, goods for processing etc.). In implementing the standards, a major issue was ensuring coherence between the National and International Accounts, which were simultaneously having standards updated in order to be released for the same reference period. In the case of merchanted, there was significant effort put into implementing the net export values into supply-use tables as no product information was available from survey collections, nor was it feasible to add questions.

29. The ABS produces a limited range of information on Foreign assets and liabilities by broad industry. The industry classification needed to be updated to ANZSIC06. This change was not a focus of planning and considerable remedial action was required to create a credible time series on an ANZSIC06 basis. The main cause of the difficulty was that the units selected in the International Investment Survey are not well represented on the ABS Business Register and therefore there was not a ready link to the ANZSIC06 classification for each unit. In addition there were some major movements in the industry based series (reflecting real world transactions) which were not correctly captured by the initial simple backcasting undertaken. The series is now available back to September 2006.

30. The ABS relies on administrative data from a number of government organisations including the Australian Taxation Office and the Australian Prudential Regulatory Authority (APRA), Australia's financial regulator, and maintains strong relationships with the organisations at both senior and operational levels. Changes to administrative data sources can require a considerably longer lead time than needed for changes to ABS surveys.

31. The ABS Business Register is based on the Australian Business Register maintained by the Australian Taxation Office. The Australian Business Register provides name and address information along with an industry code for each business. The ABS worked closely with the Australian Taxation Office to have the industry classification updated to ANZSIC 2006. This involved changing the industry coder, updating the code of all existing registered businesses and, for a period, maintaining both the old and new ANZSIC code.

32. The ABS uses data from a suite of forms from APRA. The extent of changes required to these forms varied, with the Bank forms only requiring minor changes and the Registered Financial Corporations forms requiring more substantial changes. The changes to the Registered Financial Corporations forms have not yet been implemented but will be incorporated in a form review APRA commenced in 2011.

33. The main change driven from the implementation of new standards was the opportunity to review systems and processes for compiling the accounts. Opening up the Balance of Payments compilation series allowed the ABS to review how it modelled some estimates and made improvements to the way the series was estimated (for example reviewing the insurance model in Trade in Services). It also allowed the removal of redundant series such as the capital account entry for migrant transfers, which was replaced by the Other Volume Change estimates for persons changing residency model (see case study in appendix 3).

Challenges for related outputs

34. The changes to input-output tables were significant due to changes in the industry classification. As the ABS publishes input-output tables with a lag, this gave sufficient time to make adjustments due to

new standards. 2008 SNA reaffirms the 1993 SNA treatment of basic prices. Analysts who use input-output tables however, have expressed a strong preference for the 1968 SNA definition of basic prices. 1993 SNA altered the definition of basic prices with regard to the treatment of transport. Under 1993 SNA, transport which is not separately invoiced was included in the basic price, while that which is separately invoiced was not included in the basic price of the product being transported. This was a change from the 1968 SNA definition of basic price which excluded the transport component whether separately invoiced or not.

35. The ABS considers that the 1968 SNA definition provides more useful statistics for detailed analysis of the economy and intends to apply this definition. As at 2011, this had been implemented in the input-output tables and is being considered for implementation in supply use benchmarks and producer price indexes. This will result only in changes to estimates of output and intermediate consumption by industry for series at basic prices, with no impact on gross value added or GDP or series at purchasers' prices.

36. For the Financial Accounts (flow of funds) there were two key changes:

- Expanding the detail of financial corporations sector used in the National Accounts
- Inclusion of reinvested earnings of investment funds in the financial and non-financial corporations sector

37. The key change introduced with the 2008 SNA and BPM6 classifications was the separate identification of money market funds and other investment funds. Institutions included as investment funds are those institutions which exhibit the following characteristics:

- pooling of investors' monies to purchase assets;
- assets are owned by a separate legal entity, such as a trust or company, which issues shares/units to investors on a proportional ownership basis;
- the fund/company must be open to the public, either via a prospectus or a distribution channel (e.g. a platform); and
- the investors are able to dispose of their units and/or shares within a reasonable period of time, on a well developed secondary market, such as a stock exchange or through readily accessible redemption facilities offered in association with the fund.

38. Funds displaying the above characteristics were classified to the relevant subsector, being either money-market funds, non-money market investment funds, or non-financial investment funds. Several institutions that pool investor funds were not classified as investment funds because they were either not open to the public (e.g. property syndicates) or did not have a sufficiently active secondary market for their units and/or shares (e.g. agricultural, film and timeshare trusts and venture capital development funds).

39. Only those investment funds investing predominantly in financial assets were treated as financial corporations. Those investing in non-financial assets, such as property, were treated as non-financial corporations. This distinction is based on whether the institution's primary income is obtained from rentals, or dividends and interest. This classification of non-financial investment funds was a minor departure from international standards.

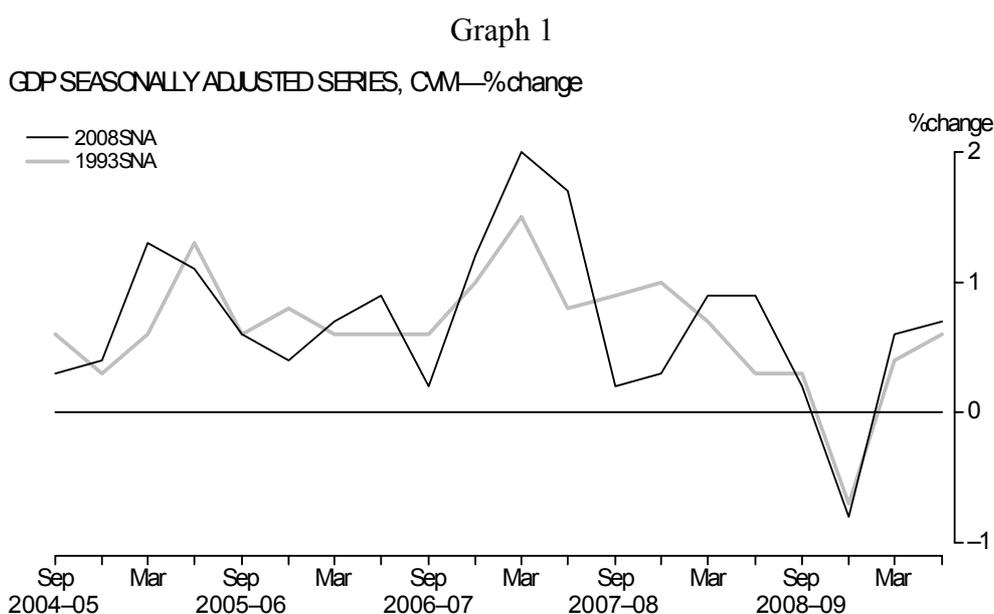
Impacts and challenges implementing new international standards

40. The benefits of a comprehensive set of 2008 SNA compliant national accounts was the ability to adapt to global economic changes, such as the Global Financial Crisis, and maintain a stable set of aggregates with sufficient quality for policy makers and Australia's central bank.

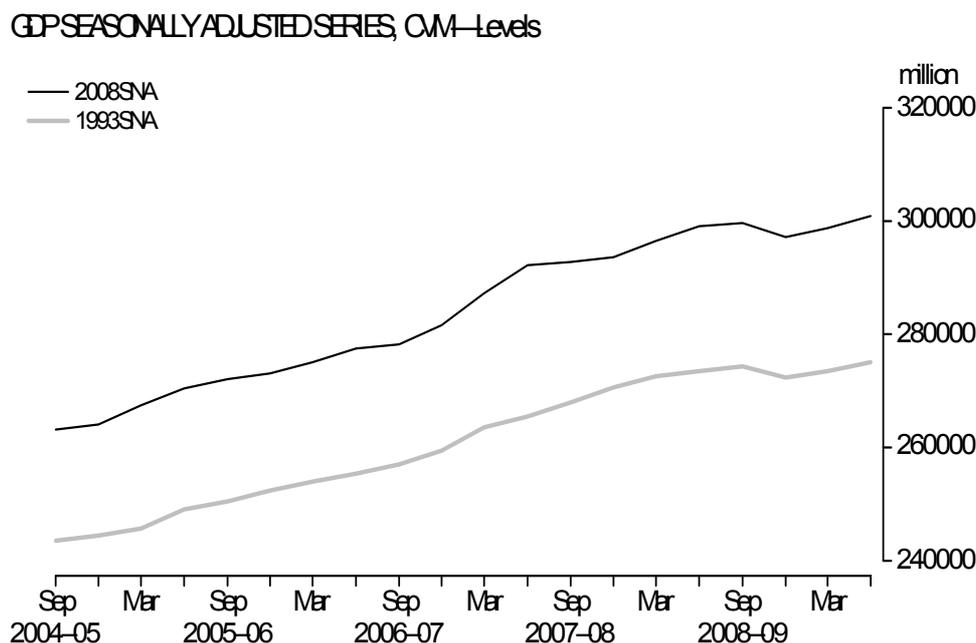
41. The revisions due to changes in international standards were mainly limited to a shift in the level of the main aggregate for the relevant account. In graph 1, the most commonly used measure of national accounts shows that there was minimal impact on real growth rates. These changes were well within the range of standard revisions to GDP growth rates. Graph 2 shows that the levels of GDP increased on average by 9%. One of the more complex changes was the capitalisation of research and development expenditure which is summarised in appendix 3. Another major change to the levels of GDP was the introduction of defence weapons platforms as capital stock although the values are not published due to confidentiality reasons. Both of these changes were offset in other parts of the National Accounts. Using the examples above, defence weapons platforms reduced government expenditure and output by the value of the capital product less consumption of fixed capital; and an increase in capitalisation of research and development products was offset by a reduction in own account expenditure.

42. One of the unintended consequences of a shift in the GDP level before the rest of the world was a distortion to some of the key ratios used to monitor economic performance. For example, within a short time after the release of new data, the Australian government announced that Debt to GDP levels had fallen and Australia's GDP per capita ranking in the OECD had increased. Conversely some other agencies viewed the changes quite negatively as Australia's innovation and research expenditure as a component of GDP fell and Australia lost ground in OECD ranking tables. This was dealt with by explanatory foot notes and, in some cases, the continuation of 1993 SNA equivalent GDP.

43. The complex nature of updating the Australian System of National Accounts and Balance of Payments delayed the publication of results by two weeks. Unfortunately the national accounts released on 16 December 2009 needed to be corrected subsequently. The corrections were to seasonal adjustment of the Value Added of Agriculture, the estimation of components of Household Final Consumption Expenditure in current prices and Real Gross National Income.



Graph 2

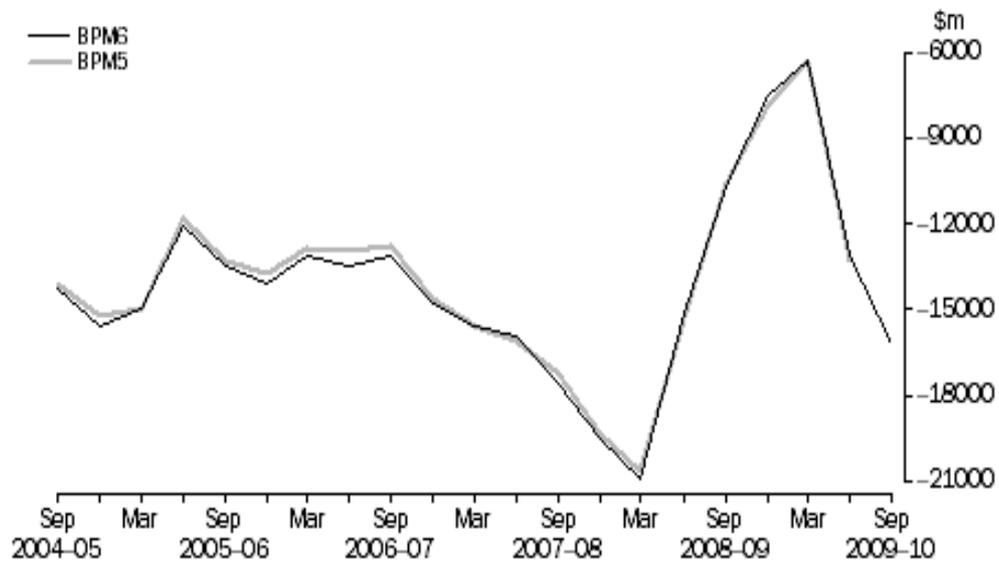


44. The impact of BPM6 on the Balance of Payments and International Investment Position was smaller in comparison to the changes to Australia's national accounts. A number of differences between the 1993 SNA and BPM5, such as FISIM, had been addressed in Australia's implementation of BPM5. Additionally, most of the changes were reallocating existing measures. For example, Australia collects some information on merchanting, goods for processing and repairs on goods. These were simple exchanges between goods and services accounts but further work needs to be done on some aspects of this work. There were minor changes to the net levels of services and income accounts due to the introduction of a pensions model, changes to the treatment of taxes and changes to financial services. In the case of FISIM the amount modelled was offset from interest which meant no impact on the current account.

45. There was virtually no impact on the Current Account balance (graph 3) and a small change to the history of Net International Investment Position (graph 4). The Net Foreign Debt measure (graph 5) remained stable under changes to BPM6, in part a reflection of existing data collected for the IIP and in part a reflection of the comprehensive series of accounts maintained by the ABS. The lower new series of Net International Investment Position and Net Foreign Debt were attributed to better foreign asset measures from implementing BPM6. There were changes to gross flows of IIP from the introduction of a new pension model and revisions to the insurance model. However, one of the more complex cases was the treatment of assets and liabilities of persons changing residency see the immigrant transfers case study in Appendix 3.

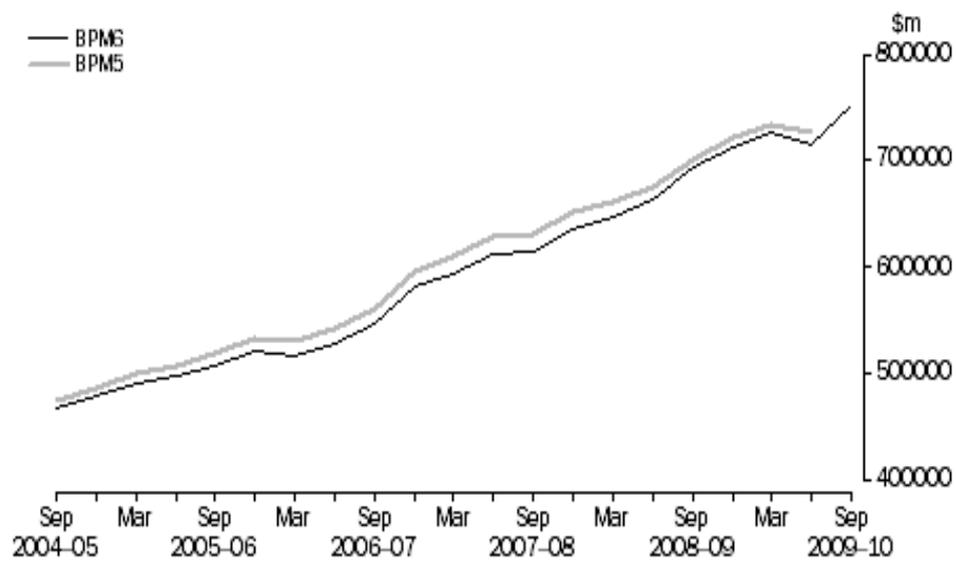
Graph 3

CURRENT ACCOUNT SEASONALLY ADJUSTED SERIES, Levels

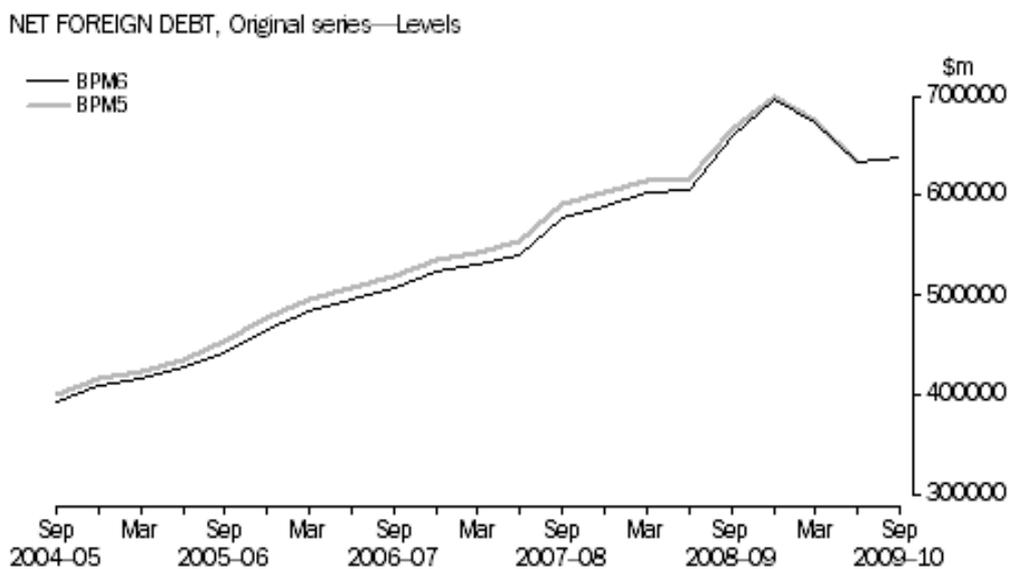


Graph 4

NET IIP AT END OF PERIOD, Original Series—Levels



Graph 5



User response to implementing new standards

Figure 2 - Timeline for implementation of new standards



46. Figure 2 shows the timelines for funding, planning and implementing the ANZSIC06, 2008 SNA and BPM6, and the unfortunate coincidence of the final implementation with the onset of the global financial crisis. User reactions to the release of data compiled to the new standards were coloured by this coincidence. Analysts had to cope with new or significantly different series and interpreting their behaviour by attributing movement to economic phenomena or statistical phenomena. This was also a problem for the compilers of the national accounts.

47. Very close to the implementation date some users suggested that the implementation should be delayed. Delay would have required compilation of BPM5 and 1993 SNA accounts from data collected to BPM6 and 2008 SNA standards.

48. The difficulties users were experiencing were reduced to some extent by the communication program the ABS had put in place to inform users in well advance about the nature of the changes, the likely impacts and the detailed changes to published tables, spreadsheets and other products. Even so this communication program did not reach all users and some were surprised. Others were aware that changes would occur, but the impacts on their work were not apparent until the data were released.

49. In addition to the turmoil in the economy due to the global financial crisis and the Government's reaction to it and the change in standards themselves, there was another impact of the changes in standards. Given the number of data collection and compilation systems that had to be revised to accommodate the standards, the opportunity was taken to improve data sources or methods to address known deficiencies. These quality improvements were impossible to separate out from the standards changes, and made the task of users forecasting or anticipating results more difficult.

50. Setting aside the unfortunate coincidence of the release of accounts to the new standards in a time of turmoil, a more considered user view of elements in the new standards has been formed:

- the new standards are an improvement on the previous standards, result in higher quality output, and are welcomed broadly by users. Of special mention here is the ANZSIC06, which is closely aligned with ISIC rev 4. The systematic allocation of industrial activity based on production function attributes is technically superior to the predecessor standards. The level of industry detail presented in the Australian System of National Accounts better supports economic analysis, particularly productivity analysis. Also worth mentioning are improved economic data about migration and the treatment of reinvested earnings of investment funds.
- Some of the standards changes that attracted some controversy internationally during the revision of the standards are not controversial in Australia. These include the recognition of unfunded employee pension liabilities of government, and the capitalisation of defence weapons platforms. Both of these new features in the standards had been implemented in government accounts in Australia since 1998, when Australian governments adopted accrual accounting standards. Not only were these features not controversial, the government accounting systems generate most of the data required for their implementation, and the ABS has included government employee pension scheme liabilities in the Australian System of National Accounts since 1998.
- There is some scepticism by some users about the utility of capitalising research and development expenditure. It does not seem to explain some of the productivity "puzzles" (as suggested in the literature about unaccounted for intellectual property) while at the same time made forecasting capital formation more difficult. Given the difficult implementation (see Appendix 3 for details), it is difficult to know if this feature of the standards has failed to deliver full promise because of conceptual or measurement methods reasons.
- Australia implemented a reasonably complete set of national accounts when implementing the 1993 SNA and BPM5. Therefore there was little "catchup" in moving to the 2008 SNA and BPM6 by comparison with countries that may have omitted certain 1993 SNA features such as FISIM. Users were familiar with most 1993 SNA concepts and by and large attributed

volatility in series during the global financial crisis to measurement difficulties rather than standards changes.

- There were some user concerns about the shift in the level of GDP due to 2008 SNA. Some agencies that relied on ratio based performance indications, such as business R&D to GDP (downgrade) and debt to GDP (upgrade), GDP per capita (upgrade), move up or down international comparison lists depending on the formulation of the ratio.

51. In summary, most users were more concerned with interpreting data in the context of the global financial crisis than issues to do with the new standards.

International reporting obligations

52. One issue that arose from Australia's early adoption of the new standards was how to report to international organisations. There is tension between publishing statistics to the new standards by the national statistical agency and the publication of statistics by international organisations for international comparability purposes, where not all countries report to the same standards. There are both policy and practical questions that arise.

53. The policy question is the desirability or otherwise of an international agency publishing key indicators different to those published by the national agency. Two sets of key indicators for a country will tend to confuse the economic debate, especially in the country concerned. Informing the domestic economic policy debate is the main reason for producing macroeconomic statistics by the national agencies concerned. International comparability is the main reason for international agencies publishing macroeconomic indicators for countries. Adjustment of one set of key indicators to a different standard will compromise one of the two objectives. The ABS has found it difficult to negotiate a satisfactory outcome on this policy question with the agencies concerned.

54. Similar issues arise when, with no changes to standards, a country departs from the standards for domestic policy reasons. For example the ABS seriously considered estimating a return on capital for non-market producers (mainly general government) as discussed in the 2008 SNA revision process but ultimately not included in the final manual. Some domestic users were enthusiastic about this proposal. Discussion with one international organisation suggested that if Australia included such an estimate, then that agency would adjust our data to exclude it.

55. The ABS also notes that standards and reporting requirements are evolving outside a formal standard setting framework, for example the G20 finance ministers' data gaps initiatives, Basel III developments, and globalisation indicators development. These need to be managed as well.

56. Some of the more detailed international manuals (e.g. the Manual of Statistics on International Trade in Services or the Government Finance Statistics Manual) were not available when the new accounts were being compiled. As a consequence, the ABS needed to choose between the more detailed presentations from these manuals and using the core of the new standards. This means that the ABS will need a separate process to implement more detailed presentations based on these manuals.

57. The ABS underwent a Review of Observance on Standards and Codes by the IMF in 2010. In the review only a handful of recommendations were supplied for Australia's Balance of Payments, none of which were of critical importance to the collection. This would suggest that a comprehensive approach to collections, systems and compilation benefits adherence to international requirements.

58. In summary, the ABS thinks that management of reporting when the standards change needs improvement. There are some things that international agencies might be able to do to cope with the almost inevitable differences between reporting countries short of publishing a different set of key aggregates.

Managing national accounts in a volatile environment

59. From 1992 to the mid 2000s Australia enjoyed a long period of sustained and stable growth. In parallel with the economic phenomena, the compilation effort for macroeconomic accounts was similarly stable. This changed dramatically with the onset of the global financial crisis in 2007 and through 2008 when economic volatility disturbed longstanding relationships. This period coincided with the introduction of new standards for economic accounts (see the timeline graphic earlier in this note) and also retirement of some of the more experienced members of the compilation team. Many of the compilation team during this period had never experienced an economic downturn. An additional challenge during this period was the volume and price measurement of exports of major commodities. In short there was considerable volatility in both the economic environment and the national accounts workplace. Since then the volatility has continued, for example:

- 2007 - 2008 onset of the global financial crisis
- 2008 - 2010 various government measures to counteract the crisis
- 2009 - 2011 significant natural events (break of drought, floods, fires, cyclones, earthquakes, tsunamis) in Australia and regionally
- 2010 - 2011 sovereign debt concerns on international financial markets

60. This volatility had two major impacts on the macroeconomic accounts:

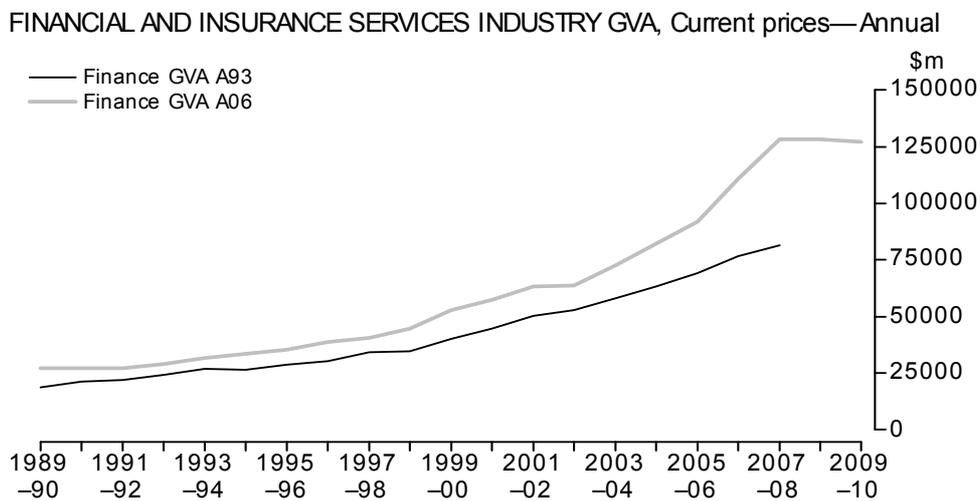
- the emergence of a significant discrepancy between GDP measured by the production method, GDP(P), and GDP measured by the expenditure method, GDP(E). This discrepancy reflected to a large degree the changed relationship between quarterly series used as indicators and the benchmark series established from annual supply/use balancing. The economic explanations for the change in relationships include rapid changes in relative prices particularly resource prices, modification of production methods particularly cost-cutting in intermediate consumption, changes in seasonal patterns, and the impact of government stimulation measures. In addition the unfamiliarity of staff with both volatile conditions and new or modified series resulting from the standards changes added a possible statistical explanation of the emergence of the discrepancy.
- a difficult to explain increase in estimates of FISIM in both the national accounts and CPI that until the onset of the global financial crisis had been stable and predictable. This led to a crisis in confidence about concepts, methods and data sources for this notion. It is worth noting that in Australia the focus of external criticism of FISIM was on the price component, particularly as it impacted the CPI. This is by comparison with other countries where the focus of criticism was on FISIM in nominal terms, possibly because of the use of the CPI in Australia as part of inflation targeting and in Europe the use of nominal GNI to set EU contributions.

61. These impacts required responses to be made by the data collection and compilation teams who were already struggling with new standards and volatile input data. The responses included deployment of a quarterly supply/use model as a tool to quality assure quarterly results by identifying potential

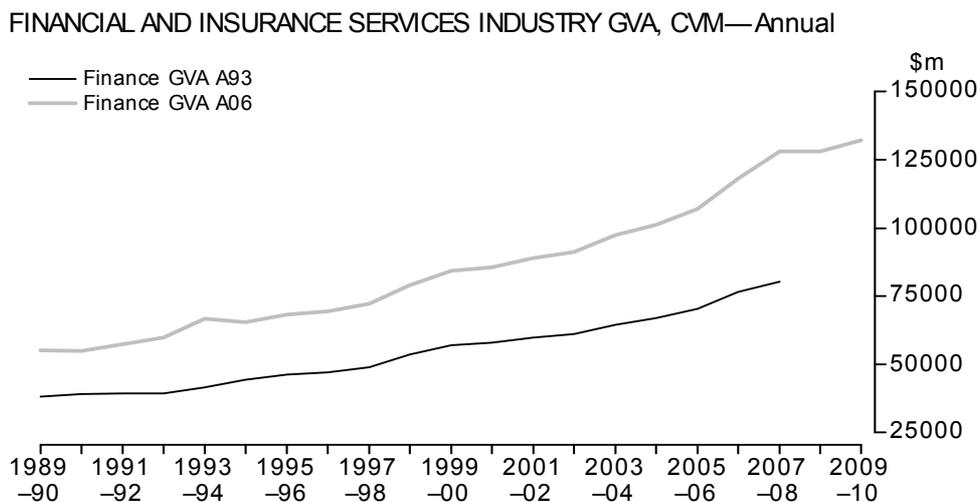
imbalances in volumes and prices; evaluation of data sources and methods for FISIM with the eventual removal of FISIM as a contributor to the headline measure of the CPI; diversion of significant effort into ensuring capture of government stimulus initiatives; diversion of effort into coping with disruptions to data collection activities by natural events; understanding of the performance of many elements of the compilation system when under stress and ensuring that outputs were in line with real-world economic and natural phenomena.

62. The following two graphs show the impact of the review of sources and methods for compiling financial sector production, including FISIM, before and after the change in standards, over the period of the onset of the GFC, in both nominal (current prices) and chain volume (CVM) terms. Of note is price effects, the difference between current and CVM series. The CVM series is less volatile than the nominal. This outcome also reflected in the financial services component of the CPI (including FISIM), where the price effects were similarly volatile. The ABS continues to support the ISWGNA task force investigating the best practice concepts and methods for measuring FISIM.

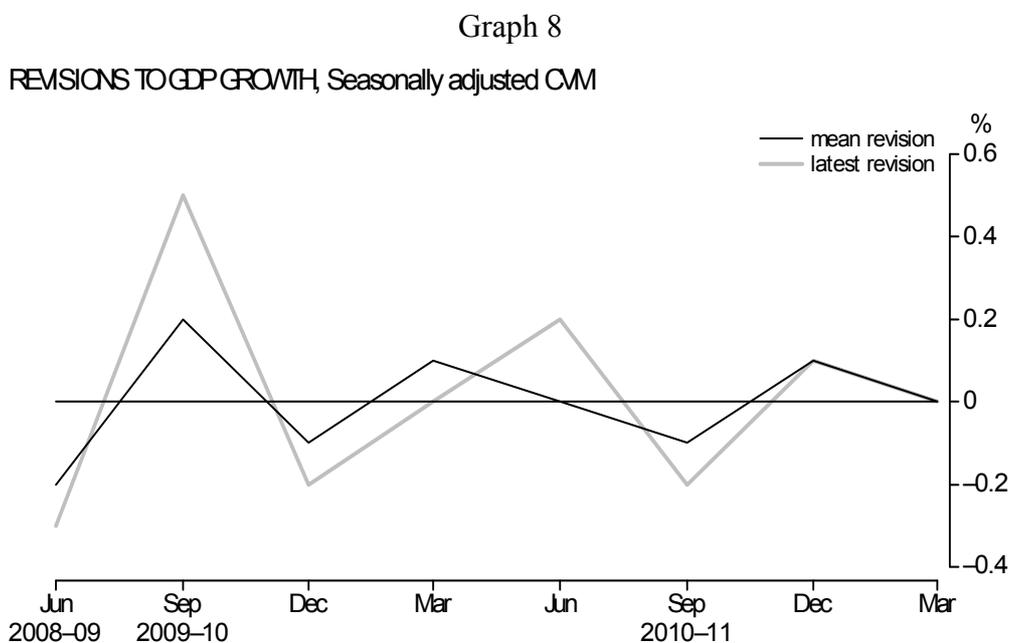
Graph 6



Graph 7



63. Looking forward, there are significant challenges to macroeconomic statistics in global conditions and the likelihood of further volatility. These challenges will make compilation of macroeconomic accounts more difficult than was experienced prior to 2007. The lesson the ABS wishes to pass on to those implementing the new standards in this volatile environment is to plan ahead carefully and be prepared to cope with the unexpected.



Future developments

64. The international Monetary Fund's Government Finance Statistics Manual is in the process of being updated from the 2001 edition, consistent with 2008 SNA and is due for completion in 2012. This may result in some additional changes for some economic categories.

65. It appears that Canada and USA will probably convert to 2008 SNA in 2013 and European Union countries in 2014. This may result in the emergence of best methodological practice closer to these dates as these countries consider their implementation in detail.

Published papers

Release of macroeconomic accounts data

ABS Cat. No. 5204.0, Australian System of National Accounts, 2008-09,
<http://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/5D5846E18D54CB5CCA2577CA0013978C?opendocument>

ABS Cat. No. 5206.0, Australian National Accounts: National Income, Expenditure and Product, Sep 2009,
<http://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/72C8D550C68B28FACA2576DA0012B2DA?opendocument>

ABS Cat. No. 5220.0, Australian National Accounts: State Accounts, 2008-09,
<http://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/C10E2EEFA1D5705CCA2577DF001554A3?opendocument>

ABS Cat. No. 5232.0, Australian National Accounts: Financial Accounts, Sep 2009,
<http://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/88103B01DD3D6BC7CA2576F10015413D?opendocument>

ABS Cat. No. 5302.0, Balance of Payments and International Investment Position, Australia, Sep 2009,
<http://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/6DF804E645F4AA5DCA2576D60012B6E2?opendocument>

ABS Cat. No. 5368.0, International Trade in Goods and Services, Australia, Aug 2009,
<http://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/EBE9BD5D7B723C0CCA2576640011592A?opendocument>

Information papers

ABS Cat. No. 5310.0.55.001, Information Paper: Introduction of revised international standards in ABS economic statistics in 2009, (2007),
<http://www.abs.gov.au/AUSSTATS/abs@.nsf/ProductsbyCatalogue/AAACCFDC646DD1AFCA25734D00127EC2?OpenDocument>

ABS Cat. No. 5310.0.55.002, Information Paper: Implementation of new international statistical standards in ABS National and International Accounts, September 2009,
<http://www.abs.gov.au/AUSSTATS/abs@.nsf/ProductsbyCatalogue/FBD636304CF0ACF7CA25765C0019CE40?OpenDocument>

Release of updated classifications from main economic statistics collections

8155.0 - Australian Industry, 2006-07,
<http://www.abs.gov.au/AUSSTATS/abs@.nsf/Previousproducts/8155.0Main%20Features22006-07?opendocument&tabname=Summary&prodno=8155.0&issue=2006-07&num=&view=>

5676.0 - Business Indicators, Australia, Sep 2009,
<http://www.abs.gov.au/AUSSTATS/abs@.nsf/Previousproducts/5676.0Main%20Features2Sep%202009?opendocument&tabname=Summary&prodno=5676.0&issue=Sep%202009&num=&view=>

Appendix 1

Implementation of 2008 SNA changes

66. Part B of the preface in 2008 SNA outlines the new features of the updated edition of SNA. The following documents those changes, against the relevant group in Part B of the preface.

	Changes to standards	Comments
Assets	The accounting treatment of assets previously called “intangible produced assets” and now called, more descriptively, “intellectual property products” has been clarified and expanded. Many of these assets, often seen as a hallmark of the “new economy,” are associated with the establishment of property rights over knowledge in one form or another.	Publications have been relabelled.
	The treatments of databases and of originals and copies have been modified and the principle of treating expenditure on research and development as capital formation has been introduced. The definition of assets in general was reviewed to set the framework for the discussion of such assets. The review led to several refinements in the treatment of non-produced non-financial assets, covering both tangible assets (for example natural resources) and intangible assets (now identified as contracts, leases and licenses, which can be treated as assets in certain circumstances).	Databases implementation constrained by data Research and Development implemented Natural resources implemented Contracts, leases, licences implemented but constrained by data.
	Expenditures on weapons systems that meet the general definition of assets have been reclassified as fixed capital formation. The analytical concept of capital services has been introduced. Details can be presented in a supplementary table for market producers, bringing into the SNA the advances in research in recent decades in the fields of growth and productivity and helping to satisfy the analytical needs of many users.	DWP implemented, but subject to review of depreciation methods Capital services implemented and presented as part of productivity analysis.

The financial sector	Recommendations regarding the financial sector have been updated to reflect developments in one of the fastest-changing segments of many economies. In particular, the 2008 SNA provides a more comprehensive overview of financial services.	ABS treatment of financial services reviewed and changed to closer compliance.
	The 1993 SNA was modified several years ago to cater for some developments in financial derivatives during the 1990s. At its meeting in March 1999, the United Nations Statistical Commission approved changes to the treatment of financial derivatives. The two most significant changes were that the financial assets boundary was expanded to include financial derivative contracts regardless of whether “trading” occurred on or off exchange, and flows associated with interest rate swaps and forward rate agreements were recorded as financial transactions rather than interest flows. In addition, some new functional classifications were introduced.	Derivatives recommendations were implemented as part of ABS SNA93 changes.
	The measurement of non-life insurance services has been modified in order to provide more plausible estimates following extreme events (for example earthquakes) that result in large insurance payouts.	Accepted in principle, but no extreme events have occurred to require application.
	Guidance on the treatment of impaired (non-performing) loans has been elaborated.	The ABS publishes impaired loans in both nominal and face value terms.
	The method for calculating financial intermediation services indirectly measured, widely known as FISIM, has been refined in the light of experience in implementing the 1993 SNA recommendations.	ABS edited the existing model to clean up the way data fed into it. This ensured the model made economic sense.
	The most far-ranging change in the financial area relates to new guidelines for recording pension entitlements. The SNA now recognizes the liabilities of employers’ pension schemes, regardless of whether funding to meet them exists or not. For pensions provided by government, countries have some flexibility to deviate from this rule in the set of core tables.	Unfunded liabilities arising from government employee pension schemes were recognised as part of ABS SNA93 implementation.

	<p>However, the full range of information required for a comprehensive analysis of pensions is provided in a new standard table that shows the liabilities and associated flows of all private and public pension schemes, whether funded or unfunded and including social security.</p>	<p>Full specification of this table had not been finalised at the time we were implementing SNA08. The table will be compiled as required by international reporting obligations.</p>
<p>Globalization and related issues</p>	<p>The treatments of stocks and flows that are characteristic of economic globalization have been clarified and elaborated. The treatment of remittances from the movement of persons abroad has been expanded, with coverage of the flows being closer to the economic reality.</p>	<p>Methods reviewed and better estimates made.</p>
	<p>The application of the principle of change in ownership of goods has been made universal, resulting in changes to the recording of merchanting and of goods sent for processing, both abroad and within the domestic economy, and then returned to the owner. These changes have shifted the focus away from the physical movements of goods to the impact on the economies of the owner of the products and the processor. As a result, they are consistent with international financial transactions that are increasingly important in a globalized economy.</p>	<p>Implemented, but low impact for Australia. Some data quality issues are being examined.</p>
	<p>In recognition of the changing structures of production and finance in many economies, guidance is now provided about when “special purpose entities”, which are sometimes called shell companies or brass plate companies and which can be created by corporations or the government, should be recognized as institutional units, how they should be classified, and how their operations should be treated.</p>	<p>In principle agreement, but low impact generally. A deviation in classification from recommendations concerning holding companies of major corporate groups (e.g. Bank group holding companies) has been implemented after consultation with major users.</p>

The general government and public sectors	Several principles have been clarified and refined in response to developments in accounting standards for government. The delineation of the government and the public sectors from the other sectors of the economy has been clarified.	No change required, apart from treatment of central bank output.
	The treatments of super dividends paid by public corporations and capital injections into public enterprises have been clarified. The principles for the treatment of public-private partnerships have been outlined and the treatment of restructuring agencies elaborated.	No change required, already in operation under SNA93.
	Handling transactions between general government and related public corporations and with securitization vehicles has been clarified to improve the recording of items that could significantly affect government debt.	No change required.
	The treatment of several classes of loan guarantees has been clarified, and a new treatment has been introduced for standardized guarantees, such as export credit guarantees and student loan guarantees.	Changes implemented for major known items.
	Some other new features are not easily grouped but are no less important. Notable among these are the clarification of ancillary units and holding companies and the introduction of accounting for employee stock options, which came into wide usage in some countries during the 1990s.	No changes required for ancillaries; holding companies see above; employee stock options constrained by data, and now less material following changes in accounting standards and tax law.

67. These new features help maintain the relevance of the SNA in a time of rapid economic and institutional change, building on its solid existing framework. Accordingly, the provision of the guidance on the accounting rules, the accounts and tables, and their integration in the 2008 SNA can be seen as consistent with continuing efforts to implement the *1993 SNA* in all countries. In this regard, the four points made in the Preface to the *1993 SNA* concerning the comprehensiveness of the SNA and the breadth of its applicability not only still hold; they have been reinforced in the 2008 SNA.

Appendix 2

Implementation of BPM6 changes

68. Appendix 8 in BPM6 outlines the changes between the current edition and BPM5.

69. The following documents those changes, against the relevant paragraphs in Appendix 8, where instances in implementing the changes resulted in significant revisions, or where the changes have not been implemented or are in the progress of being implemented.

70. Further commentary on impacts and deviations are provided in the ABS information papers:

ABS Cat. No. 5310.0.55.002, Information Paper: Implementation of new international statistical standards in ABS National and International Accounts, September 2009, <http://www.abs.gov.au/AUSSTATS/abs@.nsf/ProductsbyCatalogue/FBD636304CF0ACF7CA25765C0019CE40?OpenDocument>

ABS Cat. No. 5232.0.55.003, Information Paper: Product changes to Financial Accounts following revisions to international standards, 2009, <http://www.abs.gov.au/AusStats/abs%40.nsf/mf/5232.0.55.003>

	Changes to standards	Comments
Chapter 1. Introduction	No issues arose in implementation.	
Chapter 2. Overview of the Framework	No issues arose in implementation.	
Chapter 3. Accounting Principles	Transactions in external assets between two resident institutional units and transactions in external liabilities between two nonresidents are not recorded in the balance of payments as transactions. However, it is clarified that these transactions can affect sectoral positions; these changes are reflected through reclassification (paragraphs 3.7–3.8; BPM5 paragraphs 485–487).	Not implemented. The ABS treats such cases as transactions, not reclassifications. This treatment adheres to that outlined in the Securities Handbook.
	Changes in financial assets and liabilities due to change in residence of individuals are treated as other changes in the volume of assets (reclassifications) rather than as transactions (paragraph 3.21; BPM5 paragraphs 352–353).	Implemented with significant impacts on the levels of foreign assets and transactions from previous migration.
	The financial account uses the headings “net acquisition of financial assets” and “net incurrence of liabilities” instead of “debits” and “credits” (paragraph 3.31).	Not implemented. This change has only a presentational impact on published information.

Chapter 4. Economic Territory, Units, Institutional Sectors and Residence	The sector classification is amended to be consistent with the SNA in the cases of the central bank and deposit-taking corporations except the central bank, although the continued use of monetary authorities is endorsed in some cases (paragraphs 4.67–4.72; BPM5 paragraphs 514–516).	Implemented with difficulty. The SNA and BPM standards are notionally aligned but this is not apparent to users.
	The sector classification of holding companies is elaborated (paragraphs 4.84–4.85).	The ABS maintains its current practice, where holding companies receive a sector classification that reflects the major economic activities of the controlled entities.
	Residence criteria are specified for various mobile individuals who do not spend or intend to spend a year in one place (paragraphs 4.126–4.127; BPM5 paragraph 72).	Work in progress. The change in standards is expected to have some impact.
Chapter 5. Classifications of Financial Assets and Liabilities	The possibility of supplementary data on contingent assets and liabilities is raised (paragraph 5.10).	Not implemented. The ABS compiles to the standard or required data, but not any supplementary data.
	Interbank positions are shown as an additional financial instrument category on a supplementary basis (paragraph 5.42).	Supplementary data are not compiled.
	The treatment of loans involved in repos and gold swaps is elaborated (paragraphs 5.52–5.55; BPM5 paragraph 418).	The ABS maintains that the best statistical representation of a repo is that of a sale of securities, with the obligation to sell/buy-back similar securities recorded as a forward contract, that is a form of financial derivative.
	Pension entitlements are recognized as a financial instrument. The accrued obligations of unfunded pension schemes are also recognized as economic assets and liabilities (paragraph 5.66).	The ABS experienced difficulties in implementing this change and the impact on published data was large.
	Supplementary additional breakdowns of financial derivatives are introduced (paragraph 5.95).	Not implemented due to data constraints.
	Employee stock options are recognized as an instrument (paragraphs 5.96–5.98).	Not implemented due to data constraints.
	Arrears are identified as a supplementary category of the original asset or liability, rather than in repayment of the original liability and the creation of a new short-term loan (paragraphs 5.99–5.102; BPM5 paragraph 458).	Not implemented as not required for data compiled according to the creditor principle.
A classification by type of interest is included (paragraphs 5.109–5.114).	Not implemented due to data constraints and use of the creditor principle.	

Chapter 6. Functional Categories	Insurance technical reserves are potentially included in direct investment (paragraph 6.27).	Not relevant to Australia.
	The exclusion of debt positions between affiliated financial corporations is specified as being for deposit-taking corporations, investment funds, and other financial intermediaries except insurance companies and pension funds. Permanent debt between affiliated financial intermediaries is treated in the same way as nonpermanent debt (paragraph 6.28; BPM5 paragraph 372).	Implemented with low impact.
	The concept of pass-through funds is introduced (paragraphs 6.33–6.34).	Not applicable due to Australian taxation arrangements.
	Direct investment is broken down into three categories— investment by a direct investor in its direct investment enterprise, reverse investment, and investment between fellow enterprises; the final category is added in this edition (paragraph 6.37; BPM5 paragraphs 368 and 371).	Implemented. Some presentational impacts.
	The treatments of gold lending (paragraph 6.81; BPM5 paragraph 434), repos (paragraph 6.88), special-purpose government funds (paragraphs 6.93–6.98), pooled assets (paragraphs 6.99–6.101), central bank swap arrangements (paragraphs 6.102–6.104), and pledged assets (paragraphs 6.107–6.109) in reserve assets are elaborated.	Not implemented. The ABS views this change as requiring clarification around some issues.
	Liabilities constituting foreign authorities' reserves are not shown as separate items (BPM5 paragraph 447).	Not relevant.
Chapter 7. International Investment Position	A treatment for short positions is provided (paragraph 7.28).	The suggested treatment is not satisfactory for the presentation of coherent statistics on reverse transactions.
	Memorandum and supplementary items for the effect of impaired loan assets are introduced, showing fair values of loans, the values of nonperforming loans, and loan loss provisions (paragraphs 7.45–7.54).	The ABS maintains its preferred approach of recording loans in the main accounts at their 'fair value'.
	Insurance reserves and pension entitlements are recognized as assets and liabilities (paragraphs 7.63–7.68).	Implemented with measurement difficulties.

Chapter 8. Financial Account	The column headings are changed to net acquisitions of financial assets and net incurrence of liabilities (instead of credits and debits, respectively) consistent with their contents. Consequently, negative signs are not used for an increase in assets and positive signs are not used for a reduction in assets (paragraph 8.1, Table 8.1, also paragraph 3.31).	Signage used by the ABS is still on the old version due to system issues.
	Reinvestment of earnings in investment funds is recorded in the financial account (paragraph 8.28 and also paragraphs 11.37–11.39 for the corresponding income entry; BPM5 paragraphs 277–278).	Implemented with significant difficulties.
Chapter 9. Other Changes in Financial Assets and Liabilities Account	No issues arose in implementation.	
Chapter 10. Goods and Services Account	Goods for own use or to give away acquired by travellers that are in excess of customs thresholds are included in general merchandise, rather than travel (paragraphs 10.20 and 10.90; BPM5 paragraph 242).	Work in progress.
	A reconciliation table is introduced to show the relationship between international merchandise trade statistics and goods on a balance of payments basis (paragraphs 10.55–10.56, Table 10.2).	Partially implemented. Confidentiality constrains the full reconciliation table.
	The classification of acquisition of goods and services by nonresident construction enterprises in the economy in which they are working is changed to show separately construction abroad and construction in the compiling economy on a supplementary basis. Goods and services acquired locally are included under this heading, previously under other business services. The inclusion of buildings (excluding the land component) is clarified as being under construction. As a result of these changes, the title of the item is construction, rather than construction services (paragraphs 10.101–10.108, BPM5 paragraph 254).	Work in progress.
	Services of asset-holding entities to their owners, where asset management costs are taken out of income, are recognized (paragraphs 10.124–10.125).	Not identifiable in data.
	FISIM and other implicit financial services have been included in services, with a method for	FISIM has been improved, but the ABS bases FISIM on

	calculation based on the reference rate (paragraphs 10.126–10.136; footnote to BPM5 paragraph 258).	reported income flows, rather than asset and liability stock levels, to ensure consistency with reported income.
	The results of research and development (such as patents, copyrights, and industrial processes) are treated as produced assets included in research and development services (previously treated as nonproduced assets and shown in the capital account) (paragraph 10.148; BPM5 paragraph 358).	Work in progress.
	Audiovisual services are delineated from goods, and the relationship between different kinds of licenses for intellectual property is explained (paragraphs 10.162– 10.166 and Table 10.4; BPM5 paragraph 265).	Not implemented due to measurement challenges.
Chapter 11. Primary Income Account	The treatment of index-linked debt instruments is clarified and modified (paragraphs 11.50(c) and 11.59–11.65; BPM5 paragraph 397).	Some of the treatments are not relevant under the creditor principle.
	Fees on securities lending and gold loans are clarified and treated as interest (paragraphs 11.67–11.68).	Partially implemented. There are some data constraints
	Rent is identified as a component of primary income (paragraph 11.85; previously part of other investment income).	Partially implemented. There are some data constraints
	Taxes and subsidies on products and production are classed as primary income, not current transfers (paragraphs 11.91–11.92; BPM5 paragraph 299).	Partially implemented. There are some data constraints
Chapter 12. Secondary Income Account	The treatment of insurance claims and net premiums and of standardized guarantees is specified (paragraphs 12.41–12.46; BPM5 paragraph 257).	Implemented with improved data.
	Clarification is made on technical assistance as a part of investment projects to be classified as capital transfers (paragraph 12.50).	Work in progress.
	The concepts of (1) personal remittances, (2) total remittances, and (3) total remittances and transfers to NPISHs are introduced (paragraph 12.27).	Not implemented due to data constraints for (1) & (3).

Chapter 13. Capital Account	Insurance claims may be treated as capital transfers in the case of catastrophes (paragraph 13.24; BPM5 paragraph 257).	Implemented in principle, but no catastrophes have yet occurred.
	Inheritance is treated as a capital transfer instead of a current transfer (paragraph 13.31; BPM5 paragraph 303).	Implemented but there are some small data constraints.
	Patents and copyrights are no longer treated as nonproduced assets, so no longer appear in the capital account. (Patents and copyrights are classified as produced assets and appear under particular services, such as research and development services; see Table 10.4.) (BPM5 paragraph 358).	Work in progress.

Appendix 3

Case studies

Capitalising Research & Development

71. A major change in the System of National Accounts 2008 (2008 SNA) is the recognition of expenditure on Research and Development (R&D) as capital formation. 2008 SNA recommends that the value of R&D should be determined in terms of the future economic benefits it is expected to provide. The definition includes the provision of public services in the case of R&D assets acquired by government. In principle, R&D expenditure that does not provide an economic benefit to its owner does not constitute a fixed asset and is treated as intermediate consumption. ABS R&D surveys collect data on business expenditure on research and development (BERD), higher education expenditure on research and development (HERD), government expenditure on research and development (GERD), and private non-profit expenditure on research and development (PNPERD) in respect of four types of R&D activity: pure basic research, strategic basic research, applied research and experimental development.

72. In principle, R&D output is valued at market prices. However, survey data indicate that over ninety per cent of research and development activity is undertaken on own account, and representative market price data for R&D products are not available. R&D is produced as a secondary activity by a broad range of industries. The data collected from R&D performers in the Survey of Research and Experimental Development Businesses, are reported on a cost basis, with costs broken down into labour costs, other current expenditure, land, buildings and other structures, and other capital expenditure. R&D was valued at cost, and input deflators were used to calculate volume measures to overcome these difficulties. The measurement of the stock of R&D assets requires data on the flow of R&D expenditure, in volume terms, estimates of the life span of the various types of R&D assets and an estimate of the retirement distribution pattern of those assets as they become obsolete and leave the capital stock.

73. The R&D survey does not explicitly collect data on international trade in R&D services. However, survey data are classified by funder, and the ABS assumes that expenditure funded from overseas sources constitutes exports of services. Because the R&D survey collects data from performers of R&D, not users, they do not explicitly cover imports of R&D products. Although expenditure on imports by R&D performers is captured by the R&D survey as part of the cost of performing R&D, they do not capture expenditure on R&D by non-performers of R&D, which fall outside the scope of the R&D survey. For practical purposes, it is assumed that imports of R&D products are by R&D performers, and that they will be used as intermediate inputs into own account R&D. It is assumed that R&D funded by non-residents represents exports of R&D services. Both exports and imports of research and development products are collected in the Survey of International Trade in Services (SITS).

Migrant transfers (OVC due to persons changing residency)

74. Migration is the movement of a household unit from one economy to another for an intended period of more than one year. Migrants are covered in the calculation of Net Overseas Migration for population estimates; however the movement of their personal effects, assets and liabilities need to be accounted for. Under Balance of Payments Manual fifth edition (BPM5), this wealth was treated as a capital transfer and limited to personal effects and assets carried across the border. The Balance of Payments and International Investment Position Manual sixth edition (BPM6) revises the treatment of the transfer of assets and liabilities of persons and other entities changing their economy of residence.

75. Household assets in the National Accounts are classified into financial and non-financial assets with property (dwellings and land) included as non-financial assets. The national accounts household balance sheet shows property representing about 60% of household assets. BPM6 requires the creation of a notional resident unit as an owner of the land and buildings. This notional resident unit then is defined as a quasi-corporation. This treatment is designed so that land and other non-relocatable assets such as natural resources are always assets of the economy in whose territory they are located. Otherwise, the land would appear in another economy's national balance sheet. Therefore property assets (dwellings and land) will be included as part of equity in non-resident unincorporated corporations. 2008 SNA treatment will be the same but changes to household non-produced assets, financial assets and income flows need to be adjusted. Based on asset transfer information obtained from the third Longitudinal Survey of Immigrants to Australia, about 60% of settler arrivals transfer assets during their first year of stay. It is assumed that all permanent migrants transfer or otherwise dispose of foreign held assets within two years of migration. The initial 'other change' and resulting position will be amortised through transactions over a two year period. It is assumed that the same pattern of transfer and disposal applies to resident permanent departures as there is no information about the transfer of assets by residents. It was assumed that migrants changing residency long term generally hold onto their original assets as they would be returning to their country of origin.

76. An estimate of the number of households arriving and departing permanently is required to avoid allocating household assets to every man, woman and child that changed residency. For arrivals, the proportion of primary applicants to total arrivals was used to determine the number of households arriving. This information was obtained from the Department of Immigration and Citizenship (DIAC). Household formation rates by age group from the ABS publication Household Wealth and Wealth Distribution (cat. no. 6554.0), were applied to departures to determine the number of households departing.

77. The next layer of complexity for the persons changing residency model was how to conceptually measure long-term migration patterns. Under BPM6 long-term residents (those with the intention to domicile within an economy for more than 12 months) are treated similarly to permanent migration. In contrast to permanent migrants the assumption that migrants run down their assets over two years does not hold. It was assumed that long-term migrants generally hold onto their original assets as they would be returning to their country of origin. Accordingly treatment of changes made to household non-produced assets, financial assets, income flows and tax treatment from these assets were implemented in the National Accounts and Balance of Payments.

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