



5

Undertaking a Portfolio Investment Survey

This chapter describes the preparatory steps and provides practical advice to compilers for conducting a portfolio investment survey for the first time. The chapter covers: (i) timetable; (ii) legal and confidentiality considerations; (iii) compiling, maintaining, and using a register of respondents; (iv) choosing and developing a computer package to process the survey results; and (v) quality control.

Timetable

5.1 In preparing for the Coordinated Portfolio Investment Survey (CPIS), one of the first steps is to produce a timetable. It serves two main purposes: tasks are identified and their sequencing is established. A timetable will help ensure the success of a national survey.¹

5.2 Each economy's timetable will depend on its circumstances. For example, those conducting a portfolio investment position survey for the first time may have a different timetable from those economies that conduct them regularly. A broad framework to guide first-time compilers of the CPIS is set out below. It can be adapted and, if necessary, expanded to meet local circumstances. Figure 5.1 provides a summary of the framework.

At least 12 months before the reference date of the survey,

- begin preliminary discussions with potential respondents to provide a broad overview of what is to occur by the survey date and to help determine the type of survey to be undertaken: that is, (i) end-investor, custodian, investment (fund) manager, or a combination of these and (ii) aggregate or security-by-security;

- determine under whose authority the survey will be conducted, and if needed, seek agreement from the appropriate regulatory bodies;
- prepare draft survey forms and discuss them with a sample of potential respondents;
- determine the approximate quantity and type of data to be collected, and undertake initial investigations on how the data should be reported and processed—in this regard, consult with a sample of potential respondents;
- begin development of a detailed register of potential respondents; and
- inform all potential respondents of the survey.

At least nine months before the reference date of the survey,

- finalize survey forms and send them to all respondents so that they can set up the computer systems and other tools they will need to complete the survey.

At least six months before the reference date of the survey,

- conduct a trial run with a sample of respondents; all other respondents should be reminded of the survey.

About three months before the reference date of the survey,

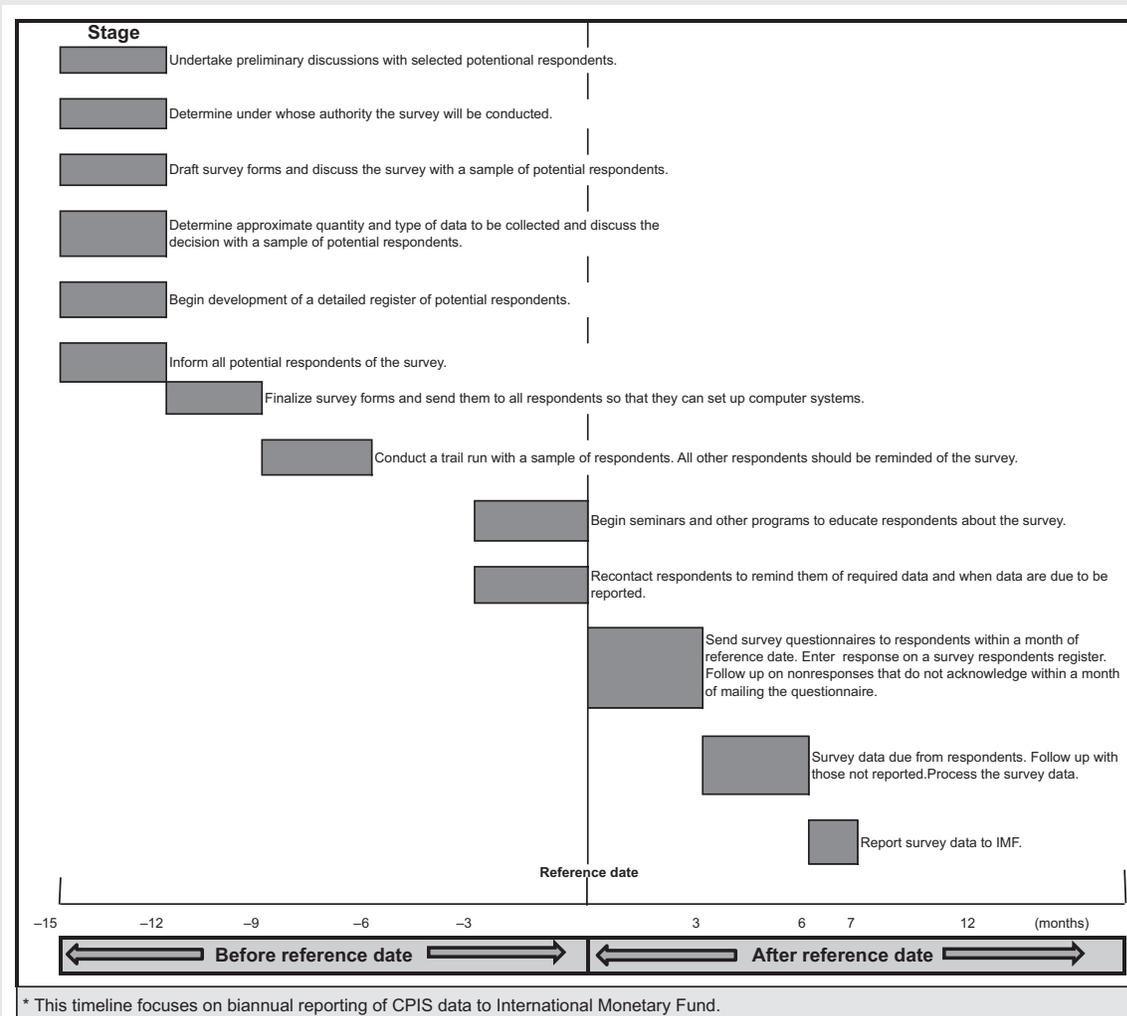
- begin seminars and other programs to educate respondents about the survey, and
- recontact respondents to remind them of the survey's reference date and when data are due to be reported.

About one month after the reference date of the survey,

- send questionnaires to the respondents;
- request them to acknowledge and report the data within three months of the survey reference date;

¹See also paragraphs 2.46–2.55 of *BPM6 Compilation Guide* for an approximate timetable for conducting surveys.

Figure 5.1 Indicative Timeline for Conducting the Coordinated Portfolio Investment Survey*



- follow up with respondents that do not acknowledge within a month; and
- enter responses on a survey respondents register (see Appendix 1, Model Form A).

About three months after the reference date of the survey,

- survey data are due from respondents and follow up those that have not reported, and
- enter responses on register and process results—in processing the survey results, procedures should be established for addressing queries with respondents.

Six months after the reference date of the survey

- report survey data to the International Monetary Fund (IMF) within seven months of the reference date.

Legal and Confidentiality Considerations

5.3 Wherever possible, it is very important for countries to have the appropriate legislation in place that would enable the CPIS to be conducted on a mandatory basis. The legislation also should address

concerns survey respondents may have about the confidentiality of data supplied.

5.4 Each country is unique in respect of legal and confidentiality considerations. Experience indicates that the CPIS information is collected on a mandatory basis in most of the CPIS participant economies; the information is collected on a voluntary basis for a few economies only. In some economies, collection is either mandatory with no penalties or mandatory for some sectors such as deposit-taking corporations.² In general, CPIS data collection is undertaken within the overall framework of balance of payments and international investment position (IIP) data collection system and securities statistics. In most cases, the CPIS is conducted by the agency responsible for balance of payments and IIP compilation (national central bank or national statistical agency). However, in a few economies, CPIS operations are conducted jointly with the statistical agency covering the nonfinancial sector and the central bank or financial regulator collecting information from the financial sector falling under its purview.³

Compiling, Maintaining, and Using a Register of Respondents

5.5 Producing a register of survey respondents (register) is an important function for the implementation of any national survey. CPIS compilers will need to ensure that such register complies with the relevant data protection legislation. In some economies, if a register is maintained on a computer system and includes information about any identifiable institutional unit, that information may be used only for an authorized purpose.

5.6 This section presents some background on compiling and maintaining a register, ideas about what can be stored on the register (and on a computerized register), and finally an explanation of how the register can be used during the national survey.

²CPIS data were collected on a mandatory basis in more than two-thirds of the economies that participated in the end-June 2015 survey.

³See the CPIS Individual and Cross-Economy Metadata Reports on the CPIS website for detailed cross-economy information on what is the legal basis for collecting the CPIS data.

No register can be developed until national compilers decide how they intend to achieve comprehensive coverage of domestic residents' holdings of securities issued by nonresidents, whether primarily through an end-investor survey, a custodian survey, an investment (fund) manager survey, or a combination of these options.

Compiling a Register

5.7 The sources of information on potential survey respondents are varied, and the work required to compile a register will depend on the extent to which a register already exists in the statistical agency. Box 5.1 provides guidance on how to compile a register, including the possible sources of information, based on the experience of the Australian Bureau of Statistics (ABS). In addition, national compilers should refer to Chapter 2 of the IMF's *BPM6 Compilation Guide* on "How to Conduct a Survey," and particularly paragraphs 2.8–2.19, "Developing a Register."⁴ The primary sources of information used in building the register of CPIS participants include the following: monetary authorities' records (including exchange control and international transactions reporting systems), other regulatory/supervisory authorities' records, companies' registration records/reports, securities and exchange commission information, and already-available business registers in statistical agencies.⁵

5.8 The next step after the initial examination of the sources of information is to produce a detailed list of potential survey respondents. The compiling agency must be careful to select the "correct" population (frame of the survey). To do so, the compilers should ideally engage in some preliminary discussions with the largest institutional investors, such as pension

⁴See also Eurostat, *Business Registers Recommendations Manual* (Luxembourg: Publications Office of the European Union, 2010), <http://ec.europa.eu/eurostat/ramon/statmanuals/files/KS-32-10-216-EN-C-EN.pdf>.

⁵See the CPIS Individual and Cross-Economy Metadata Reports on the CPIS website. For nonfinancial corporations and other financial institutions, compilers may not be able to develop a complete business register. Therefore, there may be challenges in cross-checking any survey sample with the total population for these units.

Box 5.1 Australia's Experience in Compiling a Register: Practical Advice

Australia has no central repository or transaction system for identifying or reporting international investment position statistics. Australia has had an open economy with a freely floating exchange rate for over three decades, and no controls or approvals are required for investment flows (although some investment targets in Australia require approval of foreign ownership). To run surveys to measure international investment, it has therefore been necessary to compile a register of organizations from which the data can best be obtained.

The major source for the Survey of International Investment (SII) business frame comes from the Australian Business Register (ABR). The Australian Bureau of Statistics (ABS) has recently moved from having a separate register of enterprise groups with international involvement to the "common frame" maintained by the ABR. The Economic Units Model is used by the ABS Business Register to describe the structure of Australian businesses and other organizations. The Economic Units Model defines organizations by enterprise group, type of activity, location, and legal units to enable organizations to provide data to the ABS at suitable levels of detail. The new register is now able to identify those financing company parts of businesses that channel all the international finance accessed by the enterprise group.

The ABS Business Register is a dynamic database that is updated daily via profiling activity and monthly using Australian Tax Office and ABR data. In order to maintain the Business Register, the ABS profiles large, complex, and economically significant organizations and structures them to accord with the Economic Units Model. These groups are known as the Profiled population. The remainder of Australian Business Number (ABN) registrants are assumed to have simple structures. They are regarded as single legal entity and single enterprise group. These units are known as the Non-profiled population. The two populations are mutually exclusive and cover all organizations in Australia which have registered for an ABN.

The ABS Business Register provides a frame for most ABS economic surveys to enable a consistent, coherent, and point-in-time picture of the Australian economy. Data is extracted from the ABS Business Register on a quarterly basis, producing the "Common Frame." Subsequently, survey frames are extracted from the Common Frame and supplied to various areas of the ABS on cyclical intervals including the SII.

Other sources of information for the SII frame include the following:

- *Government administrative sources.* Depending on legislation and administrative arrangements or the authority of the collection agency, these sources might include the following:
 - (a) taxation records, files, or lists;
 - (b) information held by foreign investment approval or monitoring boards information held by other regulatory authorities, such as lists of entities coming under their supervision and data monitored through supervision requirements (e.g., registered banks, other deposit-accepting institutions, securities brokers, investment managers, investment advisers, and authorized pension or mutual funds);
 - (c) listings of registered custodial businesses that can hold debt securities and other assets on behalf of nonresidents, and lists of registered fund managers that can act on behalf of nonresidents;
 - (d) statutory company reports and company registration details; and
 - (e) records held in foreign exchange control or international transaction reporting systems (e.g., records identifying the originators or recipients of large portfolio investment flows—not available in Australia).
- *Other official sources.* Other official and regulatory sources, many publicly available, include annual statutory accounts for public companies held by the Australian Securities and Investment Commission, submissions made to the Foreign Investment Review Board, various material held by the Reserve Bank of Australia, and annual reports of other government bodies.
- *Media reports.* Newspapers and periodicals are particularly useful sources of information on potential reporting entities. A high proportion of significant transactions are reported in the media, and these reports are used not only to update the register, but also to confirm data reported in the SII. Apart from significant transactions, the media cover many smaller transactions as well as a high proportion of unusual transactions. The use of traditional print media is being supplemented with information obtained electronically from commercial business news services and via the Internet.
- *Publicly available databases.* A wide variety of information is available from public databases. The information differs in completeness, accuracy, and the extent to which it is of use for an SII. These sources include the stock exchange register, possibly packaged by the stock exchange with additional information; commercial equity registries' information services; international credit rating agencies' publications (e.g., Moody's and Standard and Poor's); and market research reports or services, such as reviews by accounting or brokerage firms. The ABS uses several Australian Stock Exchange products, such as monthly updates of share issues listed on the exchange and their prices and indices.

Box 5.1 Australia's Experience in Compiling a Register: Practical Advice (concluded)

- *Industry associations.* These associations and their reports and releases can be a useful source. Apart from the public relations and liaison aspects of a close relationship between the statistical agency and industry associations, many either list members publicly or can make available lists of members, often with indications of their importance or the range of services provided. Particularly in the financial sector, their members are also likely to be significant users of official statistics and thus have a vested interest in accurate data and in assisting statistical or data collection agencies.

funds, mutual funds, banks, insurance corporations, and so on, as well as the appropriate trade associations. The discussions should make these institutions aware of the survey and help the compiling agency to develop an accurate survey frame and decide upon the design of the survey.

5.10 If national compilers decide to conduct an aggregate survey primarily targeted at end-investors, they must decide whether to set a minimum threshold that excludes units with low-value investments in securities issued by nonresidents. For instance, the number of potential survey respondents identified in the review of sources may be very high; but in practice, a significant proportion of investment in securities issued by nonresidents may be undertaken by, or channeled through, a relatively small number of large investors or financial institutions. A minimum threshold may reduce the respondent burden without adversely affecting quality; if necessary, the compiler might consider requiring reports from a sample of these “smaller investors.” However, if there is to be a minimum threshold, the compiling agency must be careful not to exclude potentially important respondents. See also the discussion on reporting thresholds in paragraphs 4.62–4.65 of this *Guide*.

5.11 If the compiling agency decides to conduct a survey targeted primarily at custodians but one that also covers end-investors, it is important to understand the relationship between major investors holding securities issued by nonresidents and custodians to avoid omission or duplication of data. This point is emphasized in paragraphs 4.27–4.53 of this *Guide*. One approach to this issue is to require all large investors to identify their domestic custodians, as well as to indicate any holdings of securities issued by nonresidents that they maintain with nonresident custodians.

The relationship between end-investors and custodians could also be kept on file, but updating this could prove time-consuming.

5.12 Further, proper care is also needed in choosing which respondents to approach; in particular, an awareness of the operations, record-keeping, and accounting practices of the target businesses is helpful for national compilers. Most importantly, statistical reporting targets the holdings of individual resident institutional units, which may significantly differ from consolidated reporting obligations of businesses. Depending on the degree of centralization or autonomy of businesses holding securities, it may be helpful in some circumstances to permit certain units to report on behalf of other units of the same group.

5.13 When approaching an end-investor that is also a custodian, compilers should ensure that the custodian reports its own account holdings as well as those held on behalf of other resident institutional units.

5.14 The treatment and capture of data from unincorporated entities needs particular attention. Because these entities may not prepare full sets of accounts, their holdings of securities issued by nonresidents may be missed in the survey.

5.15 The register will need to be maintained given the likelihood that the survey will be performed on a continuing basis; otherwise, information regarding the entities to be surveyed and the statistical unit to be approached can quickly become out of date. Media reports are a good and timely source of updates for significant businesses, but a review of the sources referred to in Box 5.1 might be appropriate at discrete intervals, especially close to the time of dispatch of the survey forms.

Details Stored on a Register

5.16 The register should contain more than a list of names and addresses. It should also include the following: relevant information on each reporting entity, control the mail-out and receipt of survey forms, and provide information on the status of the response. A possible list of items that can be stored is indicated in Box 5.2.

5.17 Computerizing the register save compilers time and effort, and reduces the scope for error in dealing with survey respondents when the survey is in operation. If a computerized register is to operate efficiently, careful planning and careful maintenance

are required. The type of issues and tasks that need to be considered include the following:

- taking account of the information flows to and from the database (the use of charts and diagrams are highly recommended in the planning phase),
- taking account of the specifications for interrogations and reports to be generated,
- devising a coding structure that embodies the defining characteristics of each respondent in its unique identification number (this is important because it allows the sorting and analysis of respondents and the tracking of nonresponse),

Box 5.2 Information That Can Be Stored on a Computerized Register

Classification Information

Respondent identification code:

Respondent name:

Type of respondent (custodian, mutual fund, pension fund, etc.):

Respondent contact person:

Address, telephone number, and e-mail address of respondent:

Survey form e-mailed (Yes or No):

Flags to alert for special cases (to be handled separately from the automated system):

Response Log Details

Response status (form e-mailed, completed survey form received, in contact, form re-mailed, exempt, etc.):

Date survey form e-mailed:

Date survey form re-mailed or reminder sent:

Date completed survey form received:

Type of data provided by the respondent (aggregate or detailed data):

Add other fields (based on local requirements):

Some Useful Advice

- At the planning stage, it is important to consider which fields will be filled automatically by the computerized system. For example, would the "Date survey form e-mailed" field be updated directly by the e-mailing program or requires manual entry?
- Take care when assigning default values to fields and (as a safeguard against inputting errors) have an accessible, online, separate file that lists those types of input that are currently acceptable for a specified field; that way, unacceptable inputs will be rejected. It is also useful to have a comment area for each entry.

- ensuring that supporting hardware and software are sufficient for the task,
- allowing time for a thorough trial run of the system before “live” use,
- backing up copies of data and software on a regular basis and storing them both on-site and at a remote location so that the files can be restored in the event of a system breakdown,
- ensuring appropriate systems security and access authorization,
- producing thorough documentation on the system, and
- providing for a suitable filing system for associated papers—not least the completed survey forms.

Use of the Register

5.18 Once the national survey is under way, the benefits of an efficient computerized register become apparent. The benefits accrue both at the initial stage of sending out survey forms and at the follow-up stages and beyond.

5.19 At the initial stage, compilers need to e-mail the survey forms and letters. The e-mail address list from the register can be used to implement this task efficiently. At the same time, a record can be written noting which survey respondents will be sent a questionnaire (e.g., set e-mail status to “yes”). Compilers can also perform a quality check to ensure that the right respondent is receiving the right survey form(s). This is particularly important if the e-mailing includes more than one type of survey form. In this way, compilers can quickly identify problems and initiate follow-up action.⁶ The national compiler should note in the response log those entities that have acknowledged the receipt of e-mail/survey forms. Also, the receipt of the completed survey forms need to be entered in the response log, along with the date of receipt. Any changes required to the register (e.g., name and address) could then be

made. Compilers could run a report to verify that the correct entries have been made. Thereafter, they could distribute survey forms to the concerned staff for data capture and editing.

5.20 Compilers should keep a record of each telephone call or correspondence, either in a manual file or as a note against the appropriate record in the response log file. If a survey respondent requires more time to complete the survey form, the compiler should note this information so that reminders are not sent. In such a case, the response log status is changed to indicate “in contact” and follow-up procedures are suspended for a specified period. When new copies of the survey forms are requested, a re-mail is initiated and additional forms are sent to the respondent with the follow-up procedures kept in place. The compiler must update the register if updated information is provided and run a check to confirm that correct details have been stored.

5.21 When the closing date for the return of completed survey forms has passed, the compilers can select the overdue survey respondents from the response log, based on the response status of “outstanding” and the mailing date, and follow-up on nonresponses.

5.22 Several reports can be produced on a regular basis to assess the status of the survey, including the following:

- *transaction reports* lists changes sorted (e.g., by name, ID code, and date) and
- *response log reports* summarizes counts of survey forms mailed, received, deleted, and percentage outstanding; response log listing all survey respondents; and survey status sorted (e.g., by name and identification code).

Choosing and Developing a Computer Package to Process the Survey Results

5.23 Choosing an appropriate computer package is important and needs to be considered carefully by national compilers. The most straightforward approach is to choose the computer package that is already standard in one’s own statistical agency. This approach has several advantages: staff are already trained on how to use the package, the capabilities of the package are known, and computer support is

⁶The U.S. authorities publish a legally binding notice that announces the survey and states that any institution meeting the reporting guidelines is legally required to report, whether or not the institution has received a survey questionnaire. This approach might bring in some firms that are not on the register. Whether this approach can be undertaken in other jurisdictions depends on local institutional and legal arrangements. See [http://ticdata.treasury.gov/Publish/frshc2016\(12-2016\).pdf](http://ticdata.treasury.gov/Publish/frshc2016(12-2016).pdf) for the notice on the survey of ownership of foreign securities by U.S. residents as of December 31, 2016.

presumably available if any technical difficulties arise. In addition, only limited time and effort needs to be spent on deciding on the appropriate package. However, if the survey is a new undertaking, it is worthwhile to consider whether the existing standard package can meet the processing requirements of the survey.

Quality Control

5.24 The accuracy and reliability of individual economy reporters' CPIS data and the IMF's collective CPIS database ultimately depends on high-quality source data.⁷ Quality control at the survey level is paramount; if, despite all the preparations, survey respondents submit poor-quality data, the value of the whole exercise is undermined.

5.25 Experience suggests that national compilers can expect survey respondents to make mistakes. Compilers conducting a national survey for the first time need to be especially vigilant in checking the data supplied; the more experience the respondent has in completing the survey form, the less likely that significant errors will be made. Nevertheless, even the most experienced respondents can make mistakes.

5.26 Quality-control checks can be conducted at various levels in several ways. The compilers can include automated checks in the survey form (for internal consistency), cross-check survey data against

other reported data, and devise analytical checks. They should also be able to check data received from the domestic custodians or domestic end-investors at a detailed or aggregated level.

5.27 This section provides some guidance on a range of possible checks. Nonetheless, the more the survey form fits the domestic circumstances and the more that survey respondents are consulted about what is required of them, the greater the probability of receiving good-quality data. In addition, the greater the likelihood of cooperation if the national compiler could request clarification from the respondents on the data supplied by them.

5.28 Based on the CPIS cross-economy metadata reports, Table 5.1 presents a summary of the comparisons and reconciliations made by national compilers with other sources and series to validate the CPIS data. Other sources used to validate CPIS data include data obtained from regulatory sources and from other statistical collections (such as securities statistics collected by central banks and regulatory agencies), and balance of payments and IIP data. In addition, CPIS data for the reporting period are usually compared with data for the previous period and plausibility checks are done to detect and address any outliers that may represent errors.

5.29 Because one of the purposes of the CPIS is for comparable data to be exchanged among participating economies, compiling agencies may receive data on their residents' portfolio investment liabilities to nonresidents. Some broad checks on the data

⁷See Chapter 6 of this *Guide* for some practical examples from countries involved in the CPIS.

Table 5.1 Practices of CPIS Participants to Validate the CPIS Data

Validation Methods Used →	CPIS data are compared with totals obtained from regulatory sources (1)	CPIS data are compared with totals obtained from other statistical collections (2)	CPIS data are reconciled with BOP/IIP data (3)	CPIS data for reporting period (<i>t</i>) compared with previous period (<i>t</i> – 1) (4)	All of the first four methods (5)	A combination of the first four methods (6)
Number of economies	2	4	14	12	17	24

Source: CPIS Cross-Economy Metadata Reports.

Notes: CPIS, Coordinated Portfolio Investment Survey; BOP, balance of payments; and IIP, international investment position.

received—either by individual counterpart country or on a global basis (i.e., total liabilities to nonresidents)—should be possible. The following subsections focus on the various checks.

Quality-Control Checks through the Survey Form

5.30 The sooner errors are identified and corrected, the better. For this reason, it is recommended that national compilers consider devising a survey form that explicitly includes quality-control checks or requires extra information that can be used as a consistency check.

5.31 For example, collection of following additional pieces of information in survey forms can help national compilers in cross-checking the information reported by custodians:

- *Security identification number:* With the help of a securities database, the security number can help to identify debtor and distinguish a domestic from a nonresident security and a long- from a short-term security, and denote the currency of the security, etc.
- *Quantity of securities held:* This information can allow the national compiler to derive the implicit market value of holdings and help to detect errors in market value reported.
- *Face or nominal value of the (debt) security:* This again is a check on the implicit price valuation in the report and may highlight securities for which survey respondents are unable to provide market prices.

5.32 Further quality checks to the survey forms can be implemented by requesting the respondents to report using a form with standard layout⁸ with in-built consistency checks. In some national data collections, positions and transactions data are gathered on the same survey form, and so the reconciliation is done directly by the respondent. The national compiler of a first-time national survey might consider requesting that survey respondents provide the value of total security assets held against which the reported nonresident holdings could be compared.

⁸For example, the survey on Canadian portfolio investment requires the respondents to provide the survey data using an Excel file with a standard layout (see http://www23.statcan.gc.ca/imdb-bmdi/document/1537_D3_T1_V3-eng.pdf for additional details).

5.33 It is recommended that simple computer-checking procedures be developed to process reported data. For example, a program could be developed that compares the sums of the individual country data with the reported total holdings; the difference should either be zero or a positive value (where country detail is suppressed for confidentiality reasons). Similarly, a program could be in place to highlight zeros or data above a certain size so that any unusual figures can immediately be brought to the national compiler's attention. Many other similar routine checks can be devised.

5.34 More generally, the national compiler could require a senior official of the responding entity to certify that the information provided is complete and accurate; this could help to ensure the data quality and punctuality. Similarly, requesting the name of a contact person helps to ensure that follow-up inquiries are dealt with efficiently.

Quality-Control Checks against Other Reported Data

5.35 Different possibilities exist for checking data against other reported data, especially for assets of financial intermediaries like banks or investment companies, both at the individual respondent and aggregated levels. These financial intermediaries might report separately statistics on portfolio investment position data for supervisory or statistical requirements. Some examples are given below. Verification of the basis for valuation of the assets needs to be ascertained because valuation principles for these other sources may not be at market price. Moreover, it is also necessary to ensure that the data are provided on the residence basis required for the CPIS, since some data sources may be on the entity's global consolidated balance sheet, not just the balance sheet for the domestic economy. It is important to ascertain that the reporting unit is the same and that there is no double counting; for example, one unit within an enterprise group does not report if there is a consolidated report for the whole domestic group.

Central bank (monetary authorities)

5.36 As noted in Chapter 1, reserve assets should be shown separately in global totals and not as part of a country's portfolio investment. Accordingly, data on the geographical breakdown of securities included in

reserves is collected separately by the IMF in a confidential survey—Securities Held as Foreign Exchange Reserves (see paragraphs 2.27–2.32 of this *Guide*).

Banks

5.37 Position data on investment in securities issued by nonresidents are included in the banking statistics and balance sheets. Furthermore, many reporting central banks provide the Bank for International Settlements with information on their commercial banks' investment in securities issued by nonresidents, including a breakdown by country of issuer and by major currency. However, it should be borne in mind when comparing survey results with banking data that the banking data may have been collected for other statistical or other (e.g., supervisory) purposes and that some banks may not record (all) their holdings of securities assets at market prices, especially those held in the “investment account”⁹ (which may be held for reserve or capital requirement purposes and be recorded on a different valuation basis).

Insurance corporations and pension funds

5.38 Position data on investment in securities issued by nonresidents should be included on the balance sheets of insurance corporations and pension funds. However, when undertaking these types of checks, it is important to remember that definitions of terms may differ according to purpose. For example, for pension funds in the United States, securities issued by nonresidents but trading on U.S. securities markets may be categorized as “U.S. securities.”

Investment companies

5.39 Position data on investment in securities issued by nonresidents should be included on the balance sheets of investment companies. In addition, the geographical allocation of the individual investment funds may be estimated through knowledge of their published investment strategy.

Nonfinancial economic sectors (such as corporations or households)

5.40 Position data on investment in securities issued by nonresidents could be included in corporate

balance sheets, but it might be difficult to confirm the data for nonfinancial sectors.

5.41 For those countries where there are no balance of payments transaction data and, therefore, where the range of analytical checks that can be conducted is limited (see next section), attribution of investments by sector and a comparison with available sector data, as outlined above, are probably the best checks that can be made.

Quality Control through Analytical Checks

5.42 The degree to which analytical checks can be developed depends on the availability of comparable data. If data are available, the following checks can be devised:

- If stock data and flow data are independently assembled, an attempt should be made to reconcile these data. Doing so requires consideration of effects caused by different prices, exchange rates, other adjustments like write-offs, or thresholds. Checks can be applied at the individual respondent and aggregate data levels. However, it should be noted that some reconciliation may not be possible, depending on data sources. For example, transactions data may be reported by securities dealers, which could involve some securities held with nonresident custodians. In that case, these securities are unlikely to be recorded if the survey focuses on resident custodians.
- In economies where transactions data are available and the position data are being produced for the first time, an attempt could be made to reconcile position data that were estimated by accumulating transactions data with reported position data. The method of calculating position data from transactions data is described in paragraphs 9.81–9.89 of the *BPM6 Compilation Guide*.¹⁰ The degree of deviation of the cumulated transactions and reported position data could depend on the composition of the holdings, the variability of the relevant exchange rates and market prices of securities, the length of time over which transactions have been cumulated, and net errors and omissions in the

⁹As opposed to the “trading book,” which is usually marked to market prices on a regular basis.

¹⁰Also see IMF, *Quarterly International Investment Position Statistics: Data Sources and Compilation Techniques* (Washington, DC: IMF, March 2011), pp. 16–24, <https://www.imf.org/external/np/sta/iip/2011/pdf/030111.pdf>

reporting systems. However, if the national compiler judges the discrepancy to be significant, it should be investigated. Given the number of assumptions and potential time frame of observations, this check is probably more appropriate for aggregate data, although it could be developed for checking individual respondent's data. The more frequent the surveys of positions, the more reliable the reconciliation.

5.43 One important piece of information required to develop these analytical checks is the currency composition of the portfolio assets, without which the currency and security price revaluations are, at best, an estimate. Therefore, the national compiler might ask survey respondents to provide a breakdown of investments by currency—although this is not a mandatory requirement of the CPIS. As a second-best option, the national compiler might use data on the currency composition of holdings provided by different financial intermediaries (e.g., banks) as a proxy for the currency composition of all survey respondents' holdings.

5.44 Some compilers may face problems, particularly when checking data for claims vis-à-vis individual countries, if their transactions data are based on the “transactor” principle (see *BPM6*, paragraph 4.154), as opposed to the debtor/creditor principle used for position data (see *BPM6*, paragraph 4.148). In other words, it might not be possible to reconcile cumulated transactions data with the positions data from the national survey because different principles of geographic allocation are being used.

Quality Control from the Viewpoint of the Recipient (Debtor) Economy

5.45 Because comparable portfolio investment data may be exchanged among participating economies (subject to confidentiality constraints), national compilers may receive data on their residents' liabilities to nonresidents. Checks could be carried out on data vis-à-vis a single counterpart (creditor) economy

or on data vis-à-vis a group of reporting economies, and at the level of counterpart institutional sectors. While quality control of the assets data is primarily the responsibility of national compilers, compilers in the counterpart economy should also check the “derived liabilities” data and provide useful feedback to the counterpart compiler. As noted in Chapter 1 of this *Guide*, the IMF is organizing a pilot to assess the feasibility of organizing a centralized exchange of information to enhance the sectorization on nonresident issuers. Such information could permit a better sectorization of the counterpart (creditor) economy data and thus a finer reconciliation by individual domestic sectors.

5.46 Regarding individual counterparty data, the recipient compiler (debtor economy) could check the data received to do as follows:

- Compare the data with those previously published. At present, several economies publish data at a bilateral level on their investment in securities issued by nonresidents, which can be used as an approximated range for the position data.
- For debt securities, use information about interest payments vis-à-vis single counterpart economies. From these data, the economy attribution of the outstanding volume of domestic securities could be estimated. However, care is needed with this check because the residence of recipients of interest payments on bearer securities may itself be estimated.

5.47 Each of the estimation methods discussed above are only a broad check. To the extent that data sources like the balance of payments are on a transactor basis, it is not uncommon for the bilateral data to be misleading when compared with data sources (such as the CPIS) that are constructed on the creditor/debtor principle. Nonetheless, these estimates could provide the recipient compiler with a benchmark against which to judge the quality of the data received.