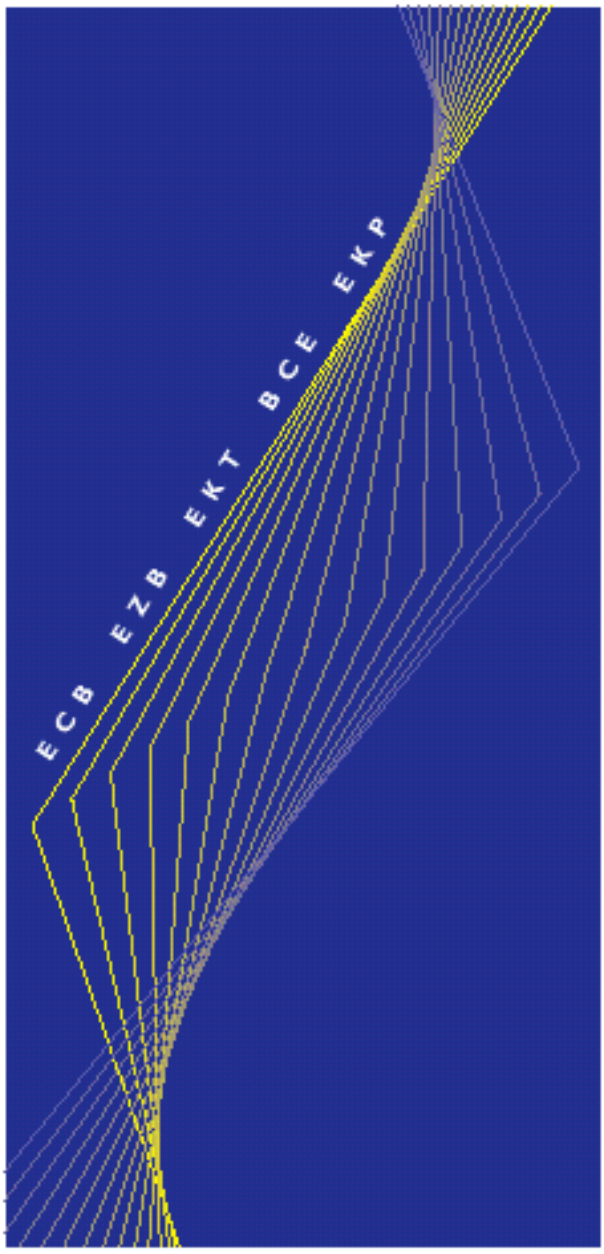
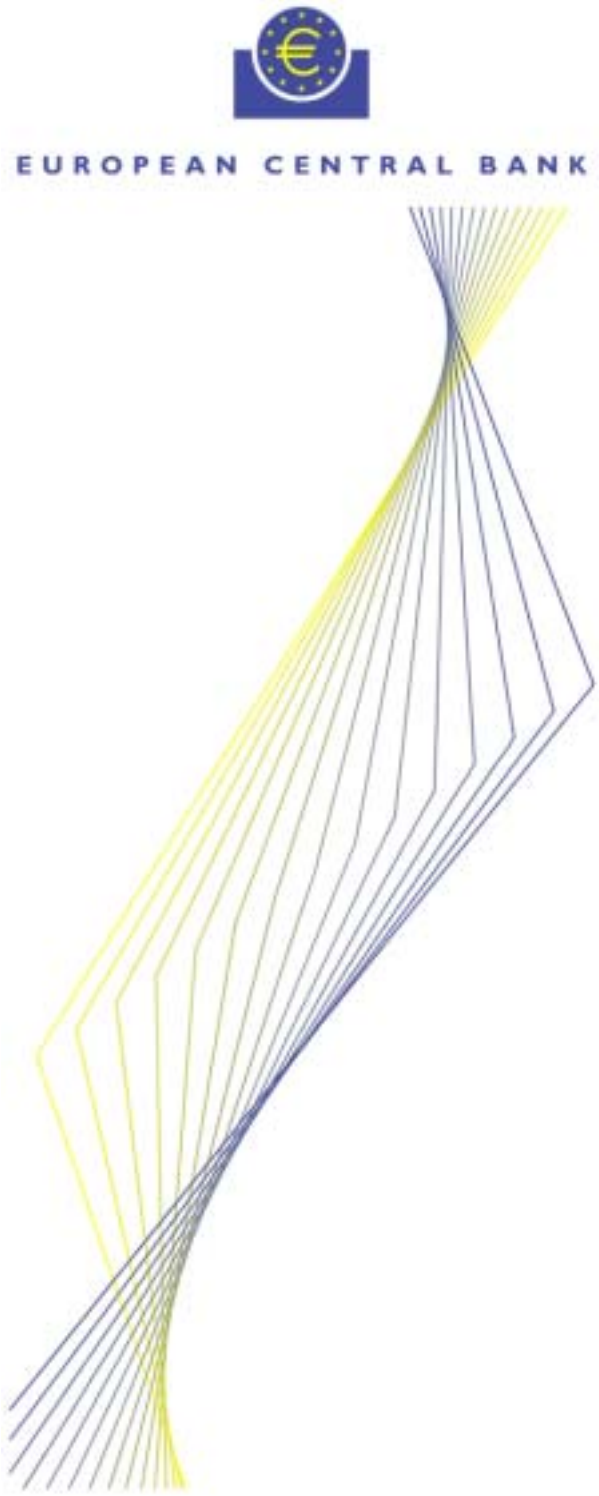
EUROPEAN CENTRAL BANK



TASK FORCE ON PORTFOLIO INVESTMENT COLLECTION SYSTEMS

FINAL REPORT

June 2002



TASK FORCE ON PORTFOLIO INVESTMENT COLLECTION SYSTEMS

FINAL REPORT

June 2002

Address	**Kaiserstrasse 29**
	D-60311 Frankfurt am Main
	Germany
Postal address	**Postfach 16 03 19**
	D-60066 Frankfurt am Main
	Germany
Telephone	**+49 69 1344 0**
Internet	**http://www.ecb.int**
Fax	**+49 69 1344 6000**
Telex	**411 144 ecb d**

As at March 2002.

ISBN 92-9181-313-3

CONTENTS

EXECUTIVE SUMMARY

Introduction

Summary of the mandate

1. The Task Force on Portfolio Investment Collection Systems (TF-PICS) was set up by the Working Group on Balance of Payments and External Reserves Statistics (WG-BP&ER) to investigate the need for and the characteristics of harmonised systems for the collection of data on portfolio investment for the balance of payments (b.o.p.) and the international investment position (i.i.p.). More specifically, its mandate covered the investigation of different data collection models (DCMs) and their assessment on the basis of a qualitative cost-benefit analysis. The aim was to define each DCM in terms of the reporting population, the content of the reports and a corresponding reporting calendar.

Review of output requirements and quality criteria

2. Under the mandate, each DCM was to be assessed in terms of its ability to provide data in accordance with envisaged output requirements subject to transparent quality criteria for the euro area aggregates. The envisaged output requirements for assets and liabilities were reviewed by the TF-PICS and placed in order according to the increasing demands for output classifications by instrument, by sector of the security holder/issuer and by debtor/creditor country. The output requirements considered were: (i) a monetary presentation; (ii) geographical detail (for assets); and (iii) data needed for Monetary Union Financial Accounts (MUFAs).

3. For the quality criteria, the TF-PICS decided to use the theoretical framework developed by the WG-BP&ER and approved by the Statistics Committee (STC) for monitoring quality in the compilation of b.o.p. and i.i.p. statistics.[1]

Current national practices and consequences for the euro area aggregates

Features of present collection systems and most common problems

4. In most European Union (EU) countries, the collection systems for cross-border portfolio flows are at present embedded in the general b.o.p. DCMs. Only in a few cases are portfolio investment flows collected by means of tailored models adapted to the specific requirements and features of this special type of information.

5. However, it is worth noting that the collection of information on a security-by-security basis is already a widespread practice among EU countries, for both stock and flow statistics. Nine countries

[1] See "Assessing the quality of the euro area b.o.p./i.i.p. statistics", ST/STC/BP/QUALIMP3.DOC, 30 April 2001.

collect (or plan to collect in due course) portfolio investment figures incorporating the ISIN[2] (or any equivalent unique code) that permits the identification of the individual securities exchanged in portfolio investment transactions.

6. Among the most substantial problems of collection systems identified by the TF-PICS are: (i) challenges stemming from the international integration of markets; (ii) correct recording of portfolio liabilities; (iii) limited coverage of holdings with foreign custodians; (iv) reporting by respondents outside the financial sector; (v) correct identification of the issuer (vital for a correct distinction between EMU and non-EMU securities); (vi) the identification of repo-type transactions; (vii) consistency between stock and flow data; (viii) the lack of flexibility to produce new breakdowns; (ix) the ability to cover new forms of trading (e.g. over the internet); and (x) the recording of income on an accruals basis.

7. Most of the common problems of national b.o.p. collection systems directly affect the supranational aggregates on the output side. However, in the special case of portfolio investment, there are additional problems that indirectly endanger the quality of euro area statistics. This is particularly true for the special algorithm applied for the compilation of the euro area/EU portfolio investment liabilities side.

8. The experience of the ECB with the compilation of (monthly) euro area portfolio investment statistics revealed the following (non-exhaustive) list of asymmetries that distort the final results: (i) erroneous intra/extra-euro area split of assets; (ii) incorrect instrument classification; (iii) application of divergent valuation criteria; and (iv) non-application of the accruals principle or its application on the basis of dissimilar principles (e.g. debtor/acquisition/creditor). Moreover, for the time being a breakdown by issuing sector of euro area securities is not possible, which prevents the production of a complete monetary presentation. This problem has become particularly acute in the light of additional requirements seeking to enable the analytical use of b.o.p. statistics, for instance, in monetary analysis.

9. Substantial experience on the collection of stocks has been gathered through the "Co-ordinated Portfolio Investment Survey" (CPIS). It is expected that the future exchange of data between CPIS compilers will enable further improvements in quality, e.g. through bilateral comparisons of data on assets and liabilities.

Potential benefits of harmonising collection systems in the field of portfolio investment

10. From the **supranational perspective** (e.g. euro area aggregates), the harmonisation of inputs would allow an improvement in several dimensions of the quality of the statistics, among them *stability* and *transparency*, but most of all *accuracy*. However, since the inaccuracies in the supranational aggregates stem from problems at the national level, improving the quality of those supranational aggregates would entail benefits at the **national level** too.

---

[2] International Securities Identification Number.

11. Efforts to improve the quality of portfolio investment statistics should, in the opinion of the TF-PICS, be a joint initiative between all Member States. The benefits from such a joint strategy would be found in the spread of "best practices", cost savings from common investments (such as the CSDB, the ECB Centralised Securities Database), improvements in the coverage of national statistics via some type of multilateral exchange of data (such as in a third-party reporting (TPR) approach) and the creation of a more level playing-field for reporting agents and compilers within the EU/euro area.

Cross-border trade in securities

12. The first sections and the last section of Chapter III of the full report provide a profile of cross-border securities trading and investment and of the market for repurchase agreements (repos) respectively. Since this is provided as background information only, it is not included in this summary.

Global custodians as a potential source of information

13. In order to gain an insight into the value of global custodians and custodians in general as providers of information on the investments of their clients, TF-PICS participants conducted an investigation in collaboration with six major global custodians.

14. The investigation of global custodians concentrated on the possibility of them delivering information for the production of portfolio investment statistics. The results of this investigation showed that global custodians were able to identify the country of residence of the account holder and that they could report transactions and stocks (at market value) for their clients. On the subject of provision of accrued interest data on holdings, the findings ranged from mixed to negative. Furthermore, only one global custodian could distinguish between direct investment and portfolio investment transactions/holdings. In general, they were also unable to correctly identify clients' repo transactions, especially when these were executed through agents other than themselves. Reporting on a security-by-security basis was considered easier than aggregated reporting. Detailed information on the institutional class of the account holder was generally unavailable.

15. The identification of the account holder does not, however, guarantee identification of the beneficial owner. This problem stems from the fact that custodians use omnibus or nominee accounts for securities held with other custodians and, therefore, the beneficial owner cannot be identified. Consequently, when the account holder is another custodian, a geographical and/or sectoral misallocation or even a distortion of the aggregate (resulting, for example, from double-counting) could result.

16. In summary, the use of information from global custodians is limited owing to the existence of custody chains. It should also be added that, so far, there is no legal obligation for any institution outside a national jurisdiction or outside the EU/euro area to deliver regular reports on securities holdings/transactions. As many global custodians are located outside the EU, data provided by them could only be used to produce supplementary information.

Selected issues related to the statistical reporting of portfolio investment

Collecting and compiling data for portfolio investment liabilities

17. Three different approaches were considered for the collection of data on portfolio liabilities. The first two approaches (residual and mixed) can be used side-by-side for the various instruments. The third one (the register approach) is specifically aimed at the collection of data on equity.

18. In the residual approach, national portfolio investment liabilities are calculated as the difference between the total amounts outstanding of all securities issued by residents and the holdings of such securities by residents. Data for the residual approach can be collected both directly from issuers and end-investors and indirectly from custodians or asset managers, the size of the reporting population depending on the choice between the direct and indirect approaches. The residual approach can deliver data for both portfolio investment liabilities and for domestic financial accounts (as it also covers resident holdings of domestic securities). It can provide a very high level of consistency and very useful quality checks if the data are collected and processed on a security-by security basis (e.g. the resident end-investors' holdings of a certain security cannot exceed the total amount issued).

19. When using the mixed approach, portfolio investment liabilities are calculated as the net balance of all cross-border custody holdings between issuers, central securities depositories (CSDs), custodians and resident end-investors. The use of this approach relies heavily on a detailed knowledge of the custody industry. The mixed approach requires a more limited size of the reporting population, which is achieved by mainly depending on indirect reporting.

20. Some countries may be able to use the (share) register approach for tracing holdings of equity and debt by virtue of the legal obligation to record the legal ownership of a company's securities in those countries. While there are clear advantages to using securities registers, there are also limitations owing to the existence of bearer instruments and the use of nominee accounts, especially for debt instruments.

21. Misclassification or double-counting of direct investment are risks in all approaches, except the share register approach for equity. It is not possible to determine a geographical or sectoral breakdown of portfolio investment liabilities by creditor under any of the approaches, except for the share register approach for equity.

Third-party reporting

22. A classical challenge, or even a "blind spot", of national b.o.p. data collection systems is represented by holdings (transactions) by residents in (or using) accounts held abroad. In particular, systems based on indirect reporting through banks or other intermediaries on behalf of their clients face this challenge. The traditional solution has been to introduce supplementary direct reporting. However, the direct collection of this information involves special problems, among them the fact that non-institutional investors and households are especially difficult and costly to cover with direct

reporting tools. Consequently, the idea is to collect this information via third parties (i.e. non-resident compilers) and exchange it on a reciprocal basis.

23. The biggest hurdle for the introduction of a TPR scheme is the difficulty of correctly identifying the actual end-investor among the non-resident clients or even their institutional sector by the reporting intermediaries. In addition, any TPR scheme focusing on the EU/euro area would suffer from a lack of information on holdings outside the EU/euro area (called the Rest of the World (RoW) gap).

24. Thus, on the basis of the findings of the present investigations, which are inconclusive as to the potential costs and benefits, the TF-PICS concluded that it was not yet feasible to use a comprehensive TPR scheme for the collection of data on portfolio investment.

25. It might, however, be worth considering a "minimum" approach for securities holdings of households. The feasibility (in terms of costs and benefits) of such a reduced version of the TPR scheme, as well as its applicability/usefulness, would have to be examined further. It is thus recommended that the possibility of conducting a pilot study be explored as part of the follow-up to the work of the TF-PICS.

Aggregate versus security-by-security reporting

26. The security-by-security approach presents many advantages in terms of quality (e.g. accuracy, consistency, etc.), standardisation and synergies with other statistics. In connection with the availability of a securities database (SDB), it potentially offers many additional breakdowns in the field of portfolio investment statistics (e.g. by instrument type, issuer sector, issuer country, currency of issue, maturity, etc.).

27. This approach therefore also offers a high degree of flexibility in terms of adapting to new requirements and recalculating consistent time series, and enables numerous quality checks at the level of individual securities. A further advantage of security-by-security reporting is that it allows the compiler to directly derive income data on an accruals basis by using an SDB. However, the lack of ISINs (or other international identifiers) for certain instruments might present an obstacle in some countries to the universal applicability of security-by-security reporting.

28. In comparison with aggregate reporting, security-by-security reporting implies a shift of the costs from the reporting agents to the compiler. The overall costs (i.e. for both reporting agents and compilers considered together) of introducing new breakdowns would diminish however. Security-by-security reporting requires a significant initial investment (i.e. to set up an SDB and implement changes in procedures) and implies additional database maintenance costs.

29. The availability of the CSDB would improve the degree of standardisation and harmonisation of portfolio investment statistics and would allow the costs of implementing a security-by-security approach to be shared by compilers.

Recording stocks and/or flows

30. One of the key questions concerning any collection system is whether data on flows, stocks or both should be collected from respondents. It would be ideal in terms of quality and consistency to collect both stocks and flows together at the same frequency. However, this might not always be feasible as it may make the reporting burden too heavy.

31. The accumulation of flows to derive stocks is currently a fairly common practice. However, this is not acceptable on an annual basis for a future data collection scheme. Certain requirements (e.g. the provision of data on external debt or the calculation of accruals) may require the production of stock figures more often than annually. The TF-PICS is of the opinion that accumulating flows to derive intra-annual stocks for these purposes should be deemed an acceptable practice, but only if done on a security-by-security basis.

32. The derivation of flows from stocks has many advantages in terms of the reporting burden. Reporting agents often find stocks easier to report at a high frequency, thereby improving timeliness. On the other hand, drawbacks such as the decrease in quality (e.g. accuracy), a higher compilation and processing burden for the compiler, the likely increase in errors and omissions, or missing data on gross stock market activity, should also be taken into consideration. In order to ensure the quality of the derived flows, the availability of stocks with monthly periodicity was considered a prerequisite. Moreover, the use of security-by-security methods in both reporting and compilation would produce much more reliable results than the use of aggregate data.

Repurchase agreements

33. The repo market has gained a high level of significance in securities markets in recent years. Given the usually rather short maturity of repos and the large volume of gross flows involved, the distortions are more significant for portfolio investment transactions than for positions.

34. Whatever the case, custodians can identify their own repo-type transactions and positions, so that, generally speaking, repos conducted by Monetary Financial Institutions (MFIs) should not constitute a problem for the correct recording of portfolio investment. However, custodians cannot in general identify clients' repos unless they are directly involved as a counterpart. Therefore, repos mainly distort indirect custodian-based reporting systems, while they distort direct reporting systems and indirect settlement-based systems to a lesser extent. The size of this problem with indirect reporting depends on the participation of resident sectors other than the MFI sector in the repo market, which is rather limited so far.

35. At present, many countries can only derive information on repo-type transactions from settlements. The availability of information on repos is holding back some ongoing developments in the field of b.o.p. statistics. Direct reporting by end-investors and/or indirect reporting by asset managers are other sources enabling the relevant adjustments to the information provided by

custodians on clients' holdings. Here again, the need for additional monthly reporting concerns only resident institutions in sectors potentially active in the market (e.g. institutional investors).

36. In addition to the possible corrections needed in the field of portfolio investment, the TF-PICS is of the opinion that separate reporting on repos may also be useful for analytical purposes and for covering potential future output requirements (e.g. ongoing discussions concerning the forthcoming sixth edition of the Balance of Payments Manual of the International Monetary Fund (BPM6) on separate disclosure of repos as loans in the other investment account).

Distinguishing between portfolio investment and direct investment

37. According to the fifth edition of this Manual (BPM5), all tradable shares and debt securities held between associated enterprises should be recorded as direct investment in the b.o.p. and the i.i.p. Two problems can arise from this recommendation. Double-counting can occur when such instruments are included in both direct investment and portfolio investment reports. If, however, such holdings are included in portfolio investment and excluded from direct investment, there is a misclassification.

38. Depending on the collection systems for portfolio investment and direct investment, certain corrections are needed to avoid double-counting and/or misclassifications. To enable these corrections to be made, information on the issuer and the end-investor is needed. Security-by-security reporting is most useful in this regard.

Sampling and grossing-up techniques (in the context of security-by-security reporting)

39. The applicability of sampling and grossing-up techniques to the collection of portfolio investment figures warrants a thorough analysis. The TF-PICS was unable, in the time available to it, to investigate these techniques to the extent deserved. It is therefore recommended that such an analysis be conducted as part of the follow-up work.

40. The TF-PICS did, however, investigate sampling and grossing-up in connection with another important issue related to the collection and compilation of portfolio investment data, namely security-by-security reporting. On this subject, the TF-PICS concluded that security-by-security reporting would have the same advantages in direct reporting/survey systems as in indirect collection systems, e.g. for classification and valuation purposes.

41. Empirical evidence, though not totally conclusive, suggests that a meaningful grossing-up of the results of sample surveys at the level of individual securities is not feasible. The diversity of respondents' portfolios broken down by ISIN may be too great for this purpose. The sample required for such a detailed grossing-up would have to be close to a census. Data originally collected on a security-by-security basis would then be grossed up after the individual securities were aggregated by instrument, country and issuer sector. In the case of security-by-security reporting, there would be no need to make special provisions in the sample selection.

The case of multinational companies

42. In the course of analysing potential future reporting systems for portfolio investment, it became clear that it was necessary to take a closer look at the ongoing work of the Technical Group on Direct Reporting (TG-DR) on the multinational model. In view of the overlap between their work, both the TG-DR and the TF-PICS felt it necessary to exchange views and experiences. The TF-PICS contacted the TG-DR, offering to study the multinational model in its own investigations.

43. The main conclusion of the TF-PICS from the multinational exercise was that the reporting forms for portfolio investment (i.e. the August 2001 version) were not flexible enough to fit into the various potential DCMs for portfolio investment. Some additions to the reporting forms were recommended to ensure that these forms would fit into the future framework for portfolio investment collection systems.

44. In the majority of cases and countries, the relative importance of either non-financial or multinational companies for portfolio investment assets does not seem very high, although the absolute figures may not be negligible. On the liabilities side, the importance of these companies as securities issuers has grown in the euro markets as a result of financial disintermediation and the intensification of euro issuance and can be deemed significant for some countries, especially those that are small.

Ways of approaching the reporting population

45. This chapter presents a general overview of the three channels through which b.o.p. compilers can obtain the relevant information on portfolio investment transactions and positions. It is important to point out that these ways of obtaining information from reporting agents neither represent complete DCMs nor recommendations by the TF-PICS. In order to be used in practice, any single approach normally requires some kind of combination with either of the two remaining channels.

46. The TF-PICS identified three different channels for obtaining the information from the reporting population. (A) and (C) represent indirect channels, whereas (B) corresponds to a direct approach. The three channels are as follows:

(A) Indirect settlement-based reporting by domestic banks for their own transactions and transactions executed on behalf of their clients;

(B) Direct reporting by domestic issuers/end-investors; and

(C) Indirect reporting by custodians or other intermediaries (e.g. asset managers/brokers/dealers).

47. In principle, all ways of approaching reporting agents are compatible with security-by-security reporting. Channels B and C could involve the reporting of only stocks or flows (probably in combination with security-by-security reporting), with the respective missing stocks or flows then being derived (although the TF-PICS does not consider the derivation of stocks by accumulating flows on a yearly basis to be an acceptable practice).

48. The three channels were assessed against the following criteria: the reporting population, its size and the reporting frequency, the output requirements as defined in Chapter I, the criteria for timeliness currently set out in ECB Guideline ECB/2000/4, the availability of quality and consistency checks, and the ability to provide information on income. In addition, by assessing the channels in this way, it was intended to derive arguments on their applicability under the so-called "matrix" approach, i.e. the pros and cons of each channel are weighed up for each individual sector of the economy (see Chapter VI).

49. The way in which these three channels are practically combined at present is illustrated in the second part of this chapter where current practices and future plans for new collection systems in EU countries are presented.

Channel A: indirect settlement-based reporting by domestic banks

50. The TF-PICS identified the following advantages of this type of collection method. As a result of its dependence on indirect reporting by MFIs, the size of the reporting population is relatively small. Another advantage of this collection method stems from the long history of co-operation between national central banks (NCBs) and MFIs and its ability to provide data at a high frequency within the appropriate deadlines. Furthermore, settlement-based collection systems are relatively easy to adapt to security-by-security reporting (thus enabling further quality checks) and present only minor problems with regard to double-counting of direct and portfolio investment.

51. As regards the disadvantages, the TF-PICS identified problems resulting from the widespread use of netting and clearing techniques and the clear need for complementary reporting via Channel B, e.g. for settlements through accounts with foreign banks. There would also be a need to supplement this channel with the collection of pure stock statistics via either of the other two channels. It is very difficult for this system to deliver income figures on an accruals basis (unless calculated using monthly stocks on a security-by-security basis, in combination with the information provided by an SDB). Finally, this channel is unable to provide a geographical breakdown of liabilities by creditor country.

Channel B: direct reporting by resident issuers/end-investors

52. The main advantages of Channel B can be summarised as follows. All relevant reporting agents can, in principle, be covered by this channel (i.e. there is no need to complement the information collected with additional reporting through other channels). When collecting stocks and flows together at the same frequency, they can be fully reconciled, thus allowing more macro and micro-analytical consistency checks, although, as both stocks and flows are collected through the same channel, consistency can only be ensured by checking against other independent information sources. Additionally, income figures can be delivered on an accruals basis (though probably following accounting guidelines rather than statistical valuation rules). Lastly, it is possible to distinguish

between direct and portfolio investment on the assets side (and also on the liabilities side if the share register approach is being followed).

53. The most important drawback of this collection method is the potentially large size of the reporting population (e.g. households), which makes the use of some kind of sampling or grossing-up technique necessary. The TF-PICS also expects some difficulties in receiving the data at a high frequency and within the appropriate deadlines, especially for some specific sectors. It can be more difficult to use security-by-security reporting for sectors unfamiliar with this way of reporting/storing information, although there is not much experience on this subject yet.

54. Care has to be taken in order to collect the information according to BPM5 principles and methodology, which differ from the accounting principles used by reporting agents when producing their balance sheets. As with Channel A, this method cannot deliver a geographical breakdown of liabilities by creditor country (unless the share register approach is being followed). Furthermore, corrections are needed on the liabilities side to exclude/correct for direct investment holdings (except where a share register approach is applied).

Channel C: indirect reporting by custodians or other intermediaries

55. Like Channel A, this reporting channel benefits from a relatively small reporting population and it is able to deliver data at a high frequency within the appropriate deadlines, though perhaps with some additional burden on the compiler. It is relatively easy to adapt to security-by-security reporting (thus enabling further quality checks). Like Channel B, it allows a full reconciliation between stocks and flows, in particular when the information reported by custodians enables the identification of individual clients (e.g. via tax registration numbers). Micro-checks are also possible through Channel C. Income can be collected on an accruals basis, but instead of being reported by the intermediaries, it is deemed more appropriate to produce these data by combining monthly stocks on a security-by-security basis with information from an SDB.

56. This channel does, however, require some complementary information via Channel B, i.e. direct reporting of securities held in custody abroad. There is also a need to solve specific problems, such as: (i) the exclusion of repo-type transactions/positions; (ii) the risk of double-counting; and (iii) the exclusion of direct investment holdings. Some of these problems could be overcome by making use of Channel B. Again, this channel – like both the other channels – does not enable the derivation of a geographical breakdown of liabilities by creditor country.

Current practices and future plans

57. For information on the current deployment of the three channels and partial changes to current systems, the reader is referred to the full report (see Table II.1). It is worth noting that a number of countries have recently decided to abolish their current collection systems, either completely or only for portfolio investment.

58. For instance, the following countries have already started a complete restructuring of their systems. Austria plans to abolish its settlement-based collection system and will introduce indirect reporting by custodians (Channel C) within a couple of years. It is considering using the residual approach for liabilities so as to be able to compile both the b.o.p. and the i.i.p., as well as a set of financial accounts. By analogy, Spain will also introduce indirect reporting by custodians in combination with direct reporting for securities deposited abroad from 2002 onwards for both stocks and flows, but the settlement-based system (which will be kept to compile parts of the b.o.p.) will temporarily continue being the basis for the b.o.p./i.i.p. until the new system is seen to deliver consistent information of sufficient quality. The Netherlands will abolish its settlement-based collection system in the first half of 2003, and replace it in the area of portfolio investment with direct reporting (Channel B) for assets and indirect reporting (Channel C) according to the mixed approach for liabilities. All three countries have chosen to maintain or introduce security-by-security reporting in their new systems.

Conclusions and recommendations

Introduction

59. This chapter lists a number of conclusions and recommendations. Some were taken directly from the previous chapters, while others were drawn up by combining the analyses from Chapters IV and V. They were selected/prepared to provide countries with advice on how to maintain their current data collection systems and/or on which issues to study when thinking about a move to a different system. The TF-PICS considers these issues to be important factors in determining the quality of the data that can be produced with a certain type of collection system.

60. The TF-PICS agrees that the driving force behind any harmonisation of inputs should be the search for common strategies, which could assist in facing common challenges concerning the quality of the European aggregates and national statistics. The following recommendations can therefore be regarded as a definition of good or best practices, to be taken into consideration by compilers depending on the relevance for their country and the consequences for the compilation of the euro area aggregates.

61. It was deemed important to mention that any change to existing collection systems or a move to a completely new collection system involves considerable costs, although the TF-PICS did not investigate these in detail. The TF-PICS also acknowledges that specific features of cross-border securities trading in individual economies may render certain data collection strategies more or less suitable. In particular, in the case of non-banks, the quality of the data collected depends on the degree to which compilers can enforce reporting obligations (e.g. through penalties or fines), the political acceptance of an increased reporting burden and, not least, the resources available to the compiler.

62. However, any reporting channels based on current (country-specific) circumstances should always take into account the fact that these circumstances are potentially subject to (relatively rapid)

changes, which are beyond the control of the b.o.p. compiler. Thus, a forward-looking approach, which offers some flexibility to adapt to new institutional and business frameworks, would be desirable.

General conclusions and recommendations: security-by-security reporting

63. The TF-PICS has concluded that, although security-by-security reporting entails considerable costs to set up and maintain, it has so many advantages that compilers should seriously consider its adoption if it is not used already. Especially in terms of quality (i.e. accuracy and consistency), standardisation and flexibility, security-by-security reporting presents many advantages for the compiler.

64. It can also be used to derive flows from high-frequency stock data, which would reduce the reporting burden for reporting agents and make possible many quality checks at a very detailed level. Especially in combination with the availability of stocks at a monthly frequency (either collected or derived), security-by-security reporting can be extremely useful for the calculation of interest on an accruals basis. Security-by-security reporting reduces the amount of detail (in terms of breakdowns) to be reported by respondents, with a consequent reduction in their reporting burden.

65. In addition, from a euro area perspective, the availability of security-by-security data permits the performance of detailed one-off checks in case of inconsistencies in the euro area aggregates. This may be particularly helpful in the context of the indirect reporting method applied for the compilation of euro area portfolio investment liabilities and in view of the divergent compilation methods in place in the euro area countries.

66. Many of the costs of a security-by-security reporting system are fixed, which means that these can be spread more widely by using the system as intensively as possible. The availability of the CSDB will be key in harmonising these efforts and will allow costs to be shared among compilers. A significant advantage of this database is that it will provide homogeneous breakdowns (i.e. by instrument, country and issuer sector). Additionally, other information available in the CSDB (interest rates, prices, currencies of denomination, etc.) will allow securities to be valued homogeneously. Concerning costs, the extent to which they are spread depends on the way the division of labour is organised between compilers. An equitable spread of the costs will be critical to the success of the CSDB.

Conclusions and recommendations for specific features of data collection models

Input dimensions of data collection models: a general framework

67. One basic conclusion from the material gathered during the work of the TF-PICS is that it was not possible to derive a single and uniform DCM that would be applicable in all countries. Instead, the most detailed recommendations that can be provided for data collection systems resemble a “common platform” for the collection of data on portfolio investment.

68. Furthermore, the TF-PICS reckons that there is no single way of approaching specific reporting groups (i.e. either directly, or indirectly through custodians or domestic MFIs) suitable for all types of reporting agent. In fact, the most suitable collection system for any individual country may be likely to combine features of both direct and indirect reporting, applying one or the other for each institutional sector. In this respect, the TF-PICS suggests the adoption of the "matrix" approach, as set out by the Committee on Monetary, Financial and Balance of Payments Statistics (CMFB) and the STC. In the work of the TF-PICS, this has come to be known as the "sectoral" approach.

69. The TF-PICS classified individual combinations of input dimensions (which can be employed under the "sectoral" approach) as "ideal", "good" or "acceptable" practices. The actual selection of specific practices (subject to a minimum ranked as acceptable) by individual countries will depend on the specific domestic circumstances and resources available. A cost-based assessment of all individual DCMs was deemed beyond the mandate of the TF-PICS.

70. In contrast to the output requirements set out in the introduction, any DCM can be defined by specific features on its input side, which can be analysed according to selected dimensions, e.g. level of detail and type of information collected, collection method, reporting channel or frequency of reporting (see Table VI.1 of the full report).

Input dimensions of data collection models: a ranking of combinations

71. Any DCM may be described by a combination of the following three dimensions: "level of detail", "type of information" and "frequency". The annexed table presents a list ("cascade") of selected combinations, which the TF-PICS considers as relevant. On the one hand, this list allows a comparison of data collection systems of individual countries as they stand today. On the other hand, it ranks the list of acceptable practices (from the ideal approach to the minimum acceptable solution).

72. The TF-PICS developed a classification of the input dimensions into "acceptable" (and better) combinations and "unacceptable" approaches. Combination (7) represents the features of a data collection system that reporting agents of any institutional (sub-)sector should, in theory, be able to meet (i.e. a "minimum benchmark"). Combinations above this line are considered as generally accepted targets for any improvements to DCMs.

Input dimensions of data collection models: direct versus indirect reporting

73. Beyond the general framework presented above, the TF-PICS identified a small number of general principles guiding the choice between direct and indirect reporting. Only for MFIs and for households was there a clear-cut consensus about the most suitable approach. Direct reporting would be the most suitable approach for MFIs, and households could in practice only be covered through indirect reporting. As stated above, for other non-MFI sectors, the most suitable approach depends on various factors, which the compiler has to assess.

74. In general, direct reporting was believed to be more suitable for large companies than for small and medium-sized ones. Furthermore, the quality of the data will be higher if the requested

information is closer to the business needs of the company itself. In this respect, information on stocks is often more readily available than that on flows.

75. The main advantages of indirect reporting are its efficiency (it covers a large target population with a small number of reporting agents) and its timeliness. There are, however, also a number of drawbacks, particularly for the collection of data on portfolio investment. These drawbacks differ according to the exact source of the indirect reporting (i.e. banks providing settlement data, custodians or investment managers). Where necessary, indirect reporting needs to be supplemented with direct reporting.

76. The combination of direct and indirect reporting presents its own problems too. Care should be taken to avoid both gaps (lack of coverage) and overlaps (double-counting). Again, security-by-security reporting could prove to be a helpful tool in this respect.

Issues for further investigation

77. The TF-PICS also suggests a number of issues for further investigation. They include portfolio investment income, a feasibility/pilot study for a minimum TPR approach, a more detailed study of the applicability of sampling and grossing-up techniques, and the conduct of specific case studies on internet trading (a subject not covered in this report owing to time constraints).

78. As the TF-PICS did not explicitly investigate the actual applicability of any suggestions for individual countries, feasibility studies would be necessary to study the cost and other aspects of the implementation of recommendations presented in this report. The results of these feasibility studies and any other experience gained from changes made to national models should be exchanged between the compilers of b.o.p./i.i.p. statistics.

79. Finally, the TF-PICS agrees that all conclusions drawn in this report may be called into question by future developments and financial market innovations. Thus, the TF-PICS stresses the need for the relevant bodies to permanently monitor these developments and to review their impact on the results of this report.

Annex

Features of data collection models: ranking of combinations of input dimensions

(1)	Monthly flows [security-by-security] + monthly stocks [security-by-security]	Ideal
(2a)	Monthly flows [security-by-security] + quarterly stocks [security-by-security]	Good
(2b)	Monthly flows [security-by-security] + annual stocks [security-by-security]	
(3)	Quarterly stocks [security-by-security] + monthly flows [aggregate]	Acceptable
(4)	Monthly stocks [aggregate] + monthly flows [aggregate]	
(5)	Monthly stocks [security-by-security] + **derived** monthly flows [security-by-security]	
(6)	Annual stocks [security-by-security] + monthly flows [aggregate]	
(7)	Quarterly stocks [aggregate] + monthly flows [aggregate]	
(8)	**Derived** annual stocks [security-by-security] + monthly flows [security-by-security]	Unacceptable
(9)	Quarterly stocks [security-by-security] + **derived** quarterly flows [security-by-security] + *estimated monthly flows [aggregate]*	
(10)	Annual stocks [security-by-security] + quarterly flows [aggregate] + *estimated monthly flows [aggregate]*	
(11)	Quarterly stocks [aggregate] + quarterly flows [aggregate] + *estimated monthly flows [aggregate]*	
(12)	**Derived** annual stocks [aggregate] + monthly flows [aggregate]	

Notes: "Derived stocks" = accumulation of flows.
"Derived flows" = difference between stocks (adjusted for exchange rate and price changes).
"Estimated flows" = monthly split estimated from quarterly flows.

FULL REPORT

I. Introduction

Summary of the mandate

1. The Task Force on Portfolio Investment Collection Systems (TF-PICS) was set up by the Working Group on Balance of Payments and External Reserve Statistics (WG-BP&ER) to investigate the need for and the characteristics of harmonised systems for the collection of data on portfolio investment for the balance of payments (b.o.p.) and the international investment position (i.i.p.). More specifically, its mandate covered the investigation of different data collection models and their assessment on the basis of qualitative merits and costs. Each data collection model was to be defined according to the reporting population, the content of reports and a corresponding reporting calendar. The core mandate specified the following to be delivered:

- ✓ The identification of a small number of relevant data collection models and an exhaustive description of their features;
- ✓ A detailed investigation on technical feasibility and analytical benefit of those data collection models, covering at least questions regarding the collection of data on stocks and/or flows, portfolio investment income, the compilation of liabilities and the possibilities for sampling and grossing-up techniques;
- ✓ Assess the data collection models on merits (the ability to fulfil certain output requirements) and costs (reporting burden for reporting entities and for the compiler).

2. Although the following report is covering almost all aspects of the mandate it appeared during the work of the TF-PICS to be impossible to cover all issues raised in the mandate in same depth. In particular the question of collecting information on income related to holding of or outstanding securities could not be covered in specific discussions.[1] However, the TF-PICS members hope that the general results on the issue of collecting portfolio investment flows and stocks would serve a subsequent task force devoted to income issues as a useful basis in the near future.

[1] Instead the portfolio relate income was briefly encompassed in the qualitative assessment of the merits and costs of selected reporting channels (see chapter V).

Structure of the report

3. The rest of this chapter explains the output requirements that were used as benchmarks for the assessment of the merits of data collection models and the quality criteria that they were supposed to meet.

4. In chapter II, current national practices and envisaged changes of the data collection in the field of portfolio investment are reviewed. On this basis the most common problems are identified and analysed in the context of the compilation of euro area aggregates. The chapter closes with a summary of potential benefits of harmonisation of collection systems.

5. Chapter III gives an overview of the technical aspects of cross-border securities trading, with a view to providing the reader with background information on the custody industry and its ability to function as a potential sources for statistics and the market for repurchase agreements (and similar kinds of contracts such as sell/buy backs and security lending).

6. Chapter IV provides analyses of selected issues on the statistical reporting of portfolio investment. Issues analysed include the collection of data for portfolio investment liabilities, the possible use of Third Party Reporting (TPR), aggregate versus security-by-security reporting and the recording of stocks and/or flows. Also, effects of repurchase agreements and similar contracts on the collection of data are explored. The distinction between portfolio investment and direct investment is addressed, along with techniques for sampling and grossing up. Finally, the results of Eurostat's Technical Group on Direct Reporting (TG-DR) on the structure of a reporting model for multinationals (as of October 2001) are considered.

7. In chapter V, three ways of approaching the reporting population of portfolio investment statistics ("reporting channels") are presented. First, settlement systems for flows (in combination with other channels for stocks), are considered. This approach may be seen as a reference as it corresponds to a method that is currently in use in many member states. Secondly and thirdly two additional reporting channels, predominantly based on direct reporting and on indirect reporting respectively, are discussed as theoretical approaches to be used comprehensively or in combination with each other.

8. The final chapter, chapter VI, presents conclusions and recommendations. In its general part the merits of security-by-security reporting are highlighted. For specific issues a framework for describing data collection models is introduced. It aims at applying selected features of the data collection approaches as discussed in chapter IV and V to the "matrix approach" as developed by the Committee for Monetary, Financial and Balance of Payments Statistics (CMFB) and the Statistics Committee (STC). This exercise has come to be known as the "sectoral approach" in the work of the TF-PICS and mainly concerns the selection of direct or indirect reporting, along with other specifications of the data collection (e.g. aggregate or security-by-security) for different sectors of the economy. Moreover a ranking of different combinations of input related dimensions of data collection models (from "ideal" to "not acceptable") is given. The report concludes with suggestions for steps to be taken up in the follow-up of the TF-PICS.

Review of output requirements

9. According to the mandate merits of a data collection model were determined as the ability to provide data according to envisaged output requirements subject to transparent quality criteria for euro area aggregates. The envisaged output requirements for assets and liabilities were reviewed by the TF-PICS and are summarised in annex 1. In the annex, the output requirements are ordered according to increasing demands for classifications in the output by instrument, sector of the holder and issuer and geographical breakdown of the debtor/creditor.

10. Any data collection model can thus be assessed on the basis of whether it could, in principle, provide monthly data, whether it would focus on stocks and/or flows and whether it can fulfil the output requirements. No assumptions were made à priori about the frequency of each type of information. Only data collection models were considered that could provide monthly flow data and annual stock data as a minimum. Nor were assumptions made about the minimum geographical breakdown since this was being discussed in the WG-BP&ER at the time this report was written.

11. The output requirements regarding breakdowns (such as sector, instrument or maturity) for both assets and liabilities correspond to different classifications in the IMF Balance of Payments Manual, Fifth Edition, 1993 (BPM5) and the SNA 93 [2]or ESA 95[3] respectively[4]. In its basic form (A.1 and L.1) it matches to the current specifications set out in the Guideline of the European Central Bank on the statistical reporting requirements of the ECB in the field of balance of payments statistics, the international reserves template and international investment position statistics (ECB/2000/4, 11 May 2000).

12. For assets, the next specification (A.2) refers to the output requirements needed for a monetary presentation of b.o.p. and i.i.p.[5] The only additional requirement in excess to those of the basic specification is a split by Monetary Financial Institution (MFI)/non-MFI of the issuer. Going a little further than the absolute minimum, the extended monetary specification (A.3) requires a split not only by MFI/non-MFI but also by all four sectors as used in the BPM5.

---

2 System of National Accounts of the United Nations.

3 European System of National and Regional Accounts (EC Regulation No. 2223/96 dated 25 June 1996).

4 As this exercise is tightly linked to the international statistical standards a specific requirement of the ESCB's MFI balance sheet statistics, namely the separate identification of debt instruments with a maturity of "more than 1 and less than 2 years", is not being considered as an "standard" output requirement from the perspective of b.o.p./i.i.p. statistics. It is rather deemed an additional merit of any portfolio investment reporting system.

5 For further details on the monetary presentation of the b.o.p., please refer to the document "ST/STC/BP/MONEPRES.DOC" (presented to the STC in its February 2000 meeting)

13. As an extension to the basic output requirements, the TF-PICS defined a geographical specification (A4) whereby the issuers from the non-EMU area are split by country of residence. The TF-PICS did not consider a concrete list of countries for this split as the issue of geographical data requirements were under discussion by the WG-BP&ER at the time this report was written.

14. Specification A.5 (GeoMon) was defined as a combination of (A.2) and (A.4), where both the sector of the issuer is split by MFI/non-MFI and the country of the issuer is split by country of residence. Alternatively, the sector breakdown could be further extended to the four sectors defined in the BPM5.

15. As a final specification, the TF-PICS defined output requirements that could fulfil the data needs for Monetary Union Financial Accounts (MUFA) by extending the instrument breakdown and the sector breakdown for the issuer and the holder according to that from ESA 95. These extended breakdowns for instrument and sector of issuer were also applied to portfolio investment liabilities (L.2). For liabilities, given the recommendation of the previous Task Force on Portfolio Investment [6] to rely on counterpart data, no additional requirements regarding the country and sector of the holder were considered.

Quality criteria

16. The second determinate of the assessment of merits of data collection models is the ability to comply with a set of quality criteria describing the way the information is collected, processed and transformed to aggregated statistics. To apply a set of transparent indicators for quality the TF-PICS decided to use the theoretical framework that has been developed by the WG-BP&ER and approved by the STC for monitoring the dimension of quality in the compilation of (b.o.p. and i.i.p.) statistics.[7]

17. This framework comprises for dimension of quality (serviceability, accuracy, integrity and accessibility) and identifies several sub dimensions. It clearly shows that quality of statistics is a "multi-dimensional" concept, which can be both applied to the input (process or institutional set-up) as well as to the output (product) side of statistics.

---

[6] Task Force on Portfolio Investment, full report and executive summary endorsed by the WG-BP&ER in September 1999 (ST/STC/BP/TFPIFIRE.DOC and ST/STC/BP/TFPIEXSU.DOC, 22 September 1999).

[7] See reference document "ST/STC/BP/QUALIMP3.DOC" approved by the STC in April 2001.

18. An outline of this structure is presented in annex 2. In the context of the work of the TF-PICS it is particularly interesting to identify the relevance of each indicator for assessing the merits of a specific data collection model. This assessment has also to take into account the interrelation between specific quality (sub)dimensions, which clearly illustrates that at least some quality dimensions may not easily be "maximised" without any (counteracting) effect of others. The most prominent trade-off / inverse relationship exist between:

- Timeliness and accuracy: the common understanding is that the shorter the deadline, the more challenging it is to achieve accuracy. However, timeliness may be achieved without being detrimental to accuracy if the exchange of information on compiling methods within the EU/euro area, i.e. the adoption of "best practices", would trigger a reorganisation or a review of practical (and legal) constraints contributing to the late compilation.
- Stability and accuracy: although users appreciate stable data, this feature of a data collection model could indicate that additional (more comprehensive) information is not being used to enhance the picture given in the first assessment. It could even imply that deficiencies in the first compilation of the observation are being kept undisclosed (for some time).
- Stability and integrity: any data collection model should allow the compiler to deliver an accurate picture according to an advanced and stable release calendar. However, it is unlikely that the first assessment could use the complete set of information needed to provide the most accurate figures. Thus, the more timely the data, the more they are subject to subsequent revisions (see first bullet point). However, revisions of a large magnitude would be a sign of lack of accuracy in the data collection and/or compilation process, and hence, in their integrity.

II. Current national practices and consequences for the euro area aggregates

Features of present collection systems

19. At present, in a wide majority of European Union (EU) countries the collection systems for cross-border portfolio flows are embedded in the general b.o.p. data collection models. Only in a few cases portfolio investment flows are collected by means of tailored models adapted to the specific requirements and features of this special type of information.

- For instance, ten EU countries collect the largest part of this information from settlements, whereas three countries integrate portfolio investment within the surveys addressed to b.o.p. reporters.
- Two EU countries currently collect portfolio investment flows almost exclusively from domestic custodians, whereas two more countries (currently in a process of revision of their collection systems) will also receive portfolio flows from custodians in the near future.

20. As regards the collection of stocks in addition to the three countries currently running survey-based systems for the whole b.o.p., six countries compile portfolio investment positions based on pure stock data collected through annual or higher frequency surveys (on either custodians or end-investors).

- Five EU countries use (partially or as the single source of information) the accumulation of b.o.p. flows to compile the end-year i.i.p. stocks;
- Most Member States of the EU already produce portfolio investment stock statistics with higher than annual frequency (mostly on a quarterly basis).

21. Thirteen countries currently receive (or plan to receive in the near future) information from custodians. In some cases this is the main source of information for stocks (when custodians also report information on their customers' portfolio), while in others the reports are only used for checking purposes or restricted to the MFIs' own positions.

Table II.1: Summary of current practices and future plans[8]

Country	Flows	Stocks	Future plans
AT	Settlements [s-by-s]	Monthly custodian survey [s-by-s]	• Stocks: monthly custodian surveys + direct reporting by end-investors [s-by-s] • Flows: derived and/or collected (not yet fixed) [s-by-s]
BE	Settlements [aggr.]	Cumulated flows [aggr.]	• Y and Q surveys on stocks (s-by-s) + transactions with MFIs (census) • Use of resident issues and redemptions (checking)
DE	Settlements [aggr.]	Cumulated flows [aggr.] + Annual custodian survey [aggr.]	• Introduce s-by-s (flows and stocks) • S-by-s and a higher frequency for annual custodian survey might be considered
DK	Settlements [s-by-s]	Annual custodian survey [partly aggr., partly s-by-s]	• Increase direct reporting • Quarterly survey will be available as of 2001 Q4
ES	Settlements [s-by-s]	Cumulated flows [s-by-s]	New system: monthly custodian survey s-by-s (flows and stocks) + direct reporting for securities with foreign custodians
FI	Monthly end-investor survey + custodian survey for liabilities and household assets [aggr.]	Monthly end-investor survey + custodian survey for liabilities and household assets [aggr.]	Use of CSDB will be investigated
FR	Settlements [s-by-s]	Annual custodian survey [s-by-s]	Quarterly stocks plus new breakdown by NR issuer sector
GR	Settlements [aggr.] + Stock brokers (s-by-s) + mutual funds (s-by-s) + investment com. (s-by-s)	Quarterly: custodian survey (s-b-s) for liabilities + MFIs and non-MFIs survey (s-b-s) for assets Annual: non-financial enterprise surveys [aggr.]	• Monthly custodian survey for stocks (s-b-s) • Introduce s-b-s in the monthly flows from the settlement system
IE	Quarterly survey [aggr.]	Quarterly survey [aggr.]	
IT	Settlements (aggr. for MFIs; s-by-s for the other sectors)	Cumulated flows [s-by-s] + MFIs' balance sheet [aggr.]	1) MFIs reports s-by-s 2) Introduce annual survey (s-by-s)
LU	Settlements [aggr.]	Cumulated flows [aggr.]	
NL	Settlements [aggr.]	Annual custodians/end-investors survey [s-by-s]	New system: end-investor survey s-by-s plus households via custodians

[8] Mostly based on the presentations made by the TF-PICS members describing their current systems during the introductory meeting of the TF-PICS (January 2001). Further information is available in the ECB "B.o.p. Book" and the "Tables for the Six-Monthly Review".

Country	Flows	Stocks	Future plans
PT	Monthly custodian survey [s-by-s]	Monthly custodian survey [s-by-s]	
SE	Monthly custodian survey [s-by-s]	Monthly custodian survey [s-by-s]	
UK	Quarterly survey [aggr.]	Quarterly survey [aggr.]	Use CPIS results to improve data

22. All compilers pay special attention to domestic portfolio investments not executed through resident banks. When these investments are settled by means of accounts opened in foreign banks settlement-based systems have difficulties in capturing the b.o.p. relevant flows. An approach based on domestic custodians may show comparable drawbacks, when the securities acquired are held with non-resident custodians, as these entities are not subject to any reporting obligation to the national compiler. On the other hand keeping registers of reporters up to date may constitute a problem in countries running survey-based systems. Consequently domestic investors with foreign securities deposited abroad and/or investing through accounts held with non-resident banks are usually compelled to report on these transaction/positions directly to the b.o.p. compiler. (However, some countries do experience some problems related to reporting timeliness and the level of coverage)

23. The MFIs (including the national central banks (NCBs)) are playing a special role in a wide majority of portfolio investment reporting systems. This not only results from the fact that they are major players in secondary markets, but also because MFIs usually report on behalf of their customers in indirect reporting systems, either as the channels through which clients settle their portfolio flows (settlement-based systems) or as the major part of the depositories/brokers/dealers/asset managers who provide their clients with custody or some other managerial services.

24. Stage Three of the European Economic and Monetary Union (EMU) introduced – for EU Member States that adopted the Euro – the obligation to extend the usual concept of residency in external statistics to additionally separately identifying flows vis-à-vis countries outside the euro area. In the field of portfolio investment, this implies the need to introduce a split intra/extra on both the asset side of portfolio investment and the credit side of portfolio income. Thus the construction of the euro area aggregates require a distinction between holdings of and transactions with securities issued within and outside the euro area, an obligation that has so far been met by different approaches:

- Most compilers introduced a fully-fledged country breakdown in their reporting requirements, most of them by means of a security-by-security reporting system;
- Three Member States of the euro area only collect distinct information on an intra-extra split (being directly provided from reporting agencies); one pre-in country does not produce high frequency statistics geographically broken down.

25. The collection of information on a security-by-security basis is already a widespread practice among EU countries, for both flows and stock statistics. Nine countries collect (or plan to collect in due course) portfolio investment figures incorporating the ISIN[9] code (or any equivalent unique code) that permits the identification of the individual securities exchanged in portfolio investment transactions.

Most common problems

26. Starting from the presentation of the main characteristics of the portfolio investment data collection systems currently in place, the TF-PICS identified the most substantial shortcomings of the models. Whereas in some cases the problems are connected with specific features of a particular system, several problems are considered as widely shared by almost all countries, regardless the collection system they employ.

27. The following list is not intended to be exhaustive, but rather reflect the most substantial problems:

- ✓ International integration of markets. This is the underlying challenge of measuring national cross-border portfolio investment. The effects are twofold (i) widespread participation of international investors in domestic markets and generalisation of resident borrowers' issues in foreign markets (liabilities); and (ii) the expansion of domestic investors to foreign markets (assets). Against this background, the difficulties of portfolio investment systems in most countries to collect the necessary information have mounted substantially;
- ✓ Correct recording of the liabilities side. The "classical" problem of identifying non-resident end-investors in securities issued by residents for the collection of stocks is constantly challenged, in particular by the existence of long intermediary chains or by specific financial channels such as bearer paper, nominee accounts, etc.

  In case the stock of national liabilities is derived via the so-called "residual approach" the individual compilers are confronted with the problem of tying up two lose ends. Measuring the correct outstanding amount of resident securities on the one hand and the recording of holdings of these securities by resident investors on the other hand. Mistakes in the coverage of holdings of domestic securities by residents might magnify errors in the estimation of non-resident holdings, given that the latter constitutes merely a part (often small) of the total domestic securities outstanding;

[9] International Securities Identification Number.

- ✓ Holdings abroad by domestic investors. The following difficulties are linked to this type of acquisitions/holdings, which are considered to be of increasing importance: (i) Special collection systems have to be set up in case the general reporting channels are not able to capture this type of investment (e.g. end-investors have to report directly to the b.o.p. compiler even in indirect collection systems); (ii) it may be difficult to get this information in time, specially at high frequencies (e.g. monthly); (iii) the identification of the relevant reporting population may not be straightforward and updates of respective registers are particularly difficult;
- ✓ In general the information available is less comprehensive from respondents outside the financial sector (specially the household sector). This problem mainly affects those systems in which such end-investors have to report directly to the b.o.p. compiler (e.g. direct reporting systems/survey-based systems);
- ✓ Correct identification of the issuer, noteworthy of specific securities such as (very) short-term securities, securities issued at International Central Security Depositories[10], securities with two first digits of the ISIN code corresponding to the market of issue instead of the issuer's country of residence etc. Security-by-security systems are in particular sensitive to the problem of missing identifier (such as an ISIN or similar code). However, in systems in which the resident investor should directly provide details such as the geographical classification, the correct identification of the residency of the issuer might in special cases most likely be also problematic;
- ✓ Separate identification of repo-type transactions/securities lending from pure portfolio investment flows/stocks. Mainly custodian-based systems are concerned, though some other types of indirect reporting (e.g. settlements) could also be affected to some extent;
- ✓ Reconciliation of flows and stocks. Only few systems allow a deep and transparent checking of the information retrieved for transactions and positions; this shortcoming is in particular virulent in systems that still (partly) relay on cumulated flows;
- ✓ Calculation of new breakdowns and historical series with additional details. The lack of flexibility to adapt to new requirements and produce (ex-post) adequate historical series notably affects the consistency of the final (aggregated) statistics;
- ✓ New forms of securities trading. Although each compiler is aware that new platforms for securities trading (e.g. Internet) are potentially opening gaps in the reporting systems it seems that presently no sound quantitative assessment of this type of transactions can be made.

[10] "XS issues"

Problems linked to the compilation of supra national aggregates

28. Most of the common problems of national b.o.p. collection systems also directly affect the supra national aggregates. Any quality problem in national statistics is transferred to the statistics of the euro area/EU, as the contributions to the aggregate are built up on the basis of the national statistics.

29. However, in the special case of portfolio investment, there are even additional problems that indirectly endanger the quality of euro area statistics. This is in particular true for the special algorithm applied for the compilation of the euro area/EU portfolio investment liabilities side.

30. The liabilities (both flows and stocks) cannot directly be measured because, on the one hand, domestic (national) securities flowing back to other euro area countries cannot be captured by national b.o.p. collection systems (flows) and, on the other hand, most of the times euro area issuers cannot identify the final holder of the securities they issue (stocks). Therefore, the supra national liabilities side is calculated as net issues of paper by euro area residents minus net recorded acquisitions of such paper by residents in the euro area (i.e. the sum of intra-euro area assets is deducted from the aggregation of all national liabilities). A similar approach is in place for the compilation of the related income for the euro area portfolio investment. Likewise an equivalent system will be set up for i.i.p. stocks when compiled on a step-2 basis.

31. The consequence of this approach is that – in addition to any inaccuracies that result from incorrectly identifying the "extra" contributions – (bilateral) asymmetries among member states with respect to intra-euro area portfolio transactions automatically generate additional errors in the liabilities of the euro area/EU aggregate.

32. The experience of the ECB with the compilation of (monthly) euro area portfolio investment statistics revealed the following (non-exhaustive) list of asymmetries that distort the final results. (i) erroneous geographical split "intra/extra" of assets (i.e. mistaken identification of the residency of issuer); (ii) wrong instrument classification (e.g. due to incorrect perception of maturity), which generates two errors with opposite signs in both instruments involved; (iii) application of divergent valuation criteria (specially in the case of mergers and acquisitions settled via exchange of shares); (iv) non-application of the accruals principle by all Member States (or application on the basis of dissimilar principles, e.g. debtor/acquisition/creditor) etc.

33. Moreover, for the time being a breakdown by issuing sector of the euro area securities acquired / held by non-residents is not possible. The specific problem of missing a full sector breakdown of the portfolio investment statistics has become in particular pungent in the light of additional requirements to enable the analytical use of b.o.p. statistics for instance in monetary analysis.[11] Furthermore the sectoral split of portfolio investment liabilities (at least between MFIs and non-MFIs) is actually a pre-requisite for the full implementation of the monetary presentation of the euro area b.o.p.

34. Substantial experience on the collection of stocks has been gathered through the 'Co-ordinated Portfolio Investment Survey' (CPIS) which was organised by the IMF for the first time in 1997. The IMF also identified many of the problems listed above with regard to stocks[12]. Already, the CPIS itself and its Survey Guides have propagated the use of best practices for the collection of stocks in order to tackle these problems. It is expected that the future exchange of data between CPIS-compilers will enable further improvements in quality, e.g. through bilateral comparisons of data on assets and liabilities.

Potential benefits of harmonising collection systems in the field of portfolio investment

35. The idea of tackling the deficiencies in the present portfolio investment data collection via harmonisation was in particular raised when the problems were approached from the perspective of the final aim of producing reliable supra national statistics. Thus the potential benefits linked to further harmonisation of the input side may be seen (somewhat erroneously) as solely derived from and focusing on the obligations of NCBs and national statistical institutes (NSIs) (where relevant) to comply with the statistical information requirements of the European System of Central Banks (ESCB) (or in particular the Eurosystem). However, as will be indicated below, steps to harmonise the data collection process should likewise have direct positive benefits for national statistics. In any way both aspects can be seen as interrelated, as many of the problems identified as common for many countries, have the origin in the intensifying international integration of cross-border securities trading.

36. Obviously an important and efficient way to improve supra national aggregates is to achieve better quality of national contributions. Given the list of problems in the national portfolio investment collection systems outlined earlier in this chapter, measures should focus on the need for high quality contributions from Member States for the compilation of euro area aggregates. The breakdowns essential for the calculation of the euro area aggregates should have highest priority. For instance, on the liabilities side accurate instrument and sector breakdown of national global contributions is crucial. In addition, on the assets side, the national contributions must contain accurate country breakdowns in

---

[11] Though, as mentioned in §11 the necessary maturity split of up to and including 2 years is not being considered as standard output.

[12] See IMF Working Party on the Measurement of International Capital Flows, "Report on the Measurement of International Capital Flows", 1992, also known as the Godeaux Report.

order to arrive at proper euro area aggregates as well as breakdown by sector of external debtor (links to monetary statistics and monetary presentation of the b.o.p.). It is important in this framework that the benefits of harmonisation, where feasible, of national portfolio investment collection systems are tackled.

[Note: the side benefits derived from harmonisation of collection systems are presented in this chapter from a merely conceptual viewpoint. The specific conclusions reached by the TF-PICS concerning whether further harmonisation (and to which extent) could/should be aimed at in the euro area are only dealt with in chapter VI, considering the outcome of the analysis of all relevant issues carried out in the previous chapters.]

37. From the **supra national perspective**, e.g. the euro area aggregate, the harmonisation of inputs would allow to improve several dimensions of the quality of the statistics, among them *stability*, and *transparency* but most of all *accuracy*.

38. There are obviously chances to enhance the precision of the inputs for the aggregation and thus automatically the final results. The list of problems common to most compilers and of difficulties in the actual production of euro area aggregates provide numerous starting points for improving the accuracy:

- There is a need to improve the exactness of (or at least decrease asymmetries in) several types of classifications of the traded securities such as the identification of the residency of issuer or the specific type or maturity of an instrument. Looking at the most recent output requirements this also includes the institutional sector of the issuer (at least in the euro area);
- Different degrees of completeness of the inputs to the supra-national aggregate, such as in the coverage of investments of households or the holdings of securities in custody abroad are hampering the overall significance of the aggregate statistics;
- Variations in valuation of individual securities (especially mergers and acquisitions settled via exchange of shares) were also identified as sources for distortions, for both "intra" and "extra" euro area transactions. Differences in the application/non-application of the accruals principle also generate important asymmetries, which endanger the accuracy of external statistics;
- Finally, (following the ECB Guideline ECB/2000/4) a first step of harmonisation of the ways specific output requirements towards the ECB have to be fulfilled is already in the pipeline. Beginning with reports on the 2001 i.i.p. Member States are explicitly obliged to introduce in assets real stock statistics as opposite to the (still wide spread technique) of cumulating flows. Any deviation from this requirement affects the quality and accuracy of annual external stocks.

39. If the underlying collection of all contributions to the aggregate had the same frequency the distortions in the stability of the aggregate due to the necessary integration (or revisions) of monthly and quarterly information could be avoided.

40. Finally, the more the euro area statistics will be under close public scrutiny the more important a transparent compilation process over all euro area members will become. Only if the methodology and detailed sources employed in the generation of the aggregates can be disclosed (when demanded) a high-level integrity (i.e. reputation) of the published information can be achieved and maintained.

41. The increasing loss in quality of some existing data collection systems makes it necessary to define an array of new compilation systems that could meet ECB information requirements. The necessary steps of national individual compilers might equally be carried out in a joint initiative in all Member States. The potential benefits from **national perspective** of such a strategy would open the following options:

- A joint approach would at least foster the propagation of "best practices" in the field of portfolio investment statistics leading to a general adoption of specific elements;
- It would allow to save costs for national compilers if synergies of common investments (such as the Centralised Securities Database (CSDB)) were realised within the Eurosystem;
- It could even offer the possibility of directly improving the coverage of national statistics via some type of multilateral exchange of data, such as in a Third Party Reporting (TPR) approach (e.g. for households deposits abroad);
- The "equal playing field" for all reporting agents and compilers within the EU/euro area would simplify requests for necessary resources for statistical applications and (at least on average) strengthen the compilers position against the reporting population.

Box II.1: Data quality and harmonisation

With regard to the list of problems in the present compilation of the Portfolio Investment flows and stocks and the specific problems linked to the compilation of supra national aggregates the TF-PICS has derived the following conclusions:

- It is important to improve national contributions for the calculation of euro/EU aggregates. Measures on national level to improve collection and compilation of the portfolio investment account should focus on the quality of the aggregates and breakdowns essential for supra national aggregates;
- Closely interrelated to this is the need to harmonise to the extent feasible the collection of portfolio investment statistics among member countries. Finding a joint approach would increase the comparability of the national contributions and improve their use for the calculation of supra national aggregates. It would also encourage the wide spread use of best practices among Member States.

III. Cross-border trade in securities

42. This chapter provides a profile of the organisation of cross-border securities trading and investment[13]. It is intended to provide some relevant background information, which should make the following chapter easier to understand. The first section of this chapter presents an overview of the industry of cross-border trade in securities. Next, the second section presents the outcome of various investigations into the possibility to use custodians as a source for statistics on portfolio investment. Most of the information presented here was gathered from custodians with a special emphasis on so-called global custodians. The third and final section of this chapter gives a summary exposition of the market for repurchase agreements and similar contracts such as sell-buy-backs and securities lending.

A typology of custodians

43. A central role in the (cross-border) trade of securities, i.e. managing the holding of securities for individual investors, is performed by institutions called custodians. In short custodians are financial institutions (usually banks) that provide safekeeping of securities for others. In earlier times, safekeeping involved the actual storage of the physical (paper) securities in vaults. When securities changed hands, it meant that the paper securities had to be moved from the custodian of the seller to that of the buyer. Because of the cumbersome procedures and the security risks involved, most countries have adopted legislation during the past few decades that made possible the demobilisation and dematerialization of securities. Demobilisation involves depositing the physical securities in a central location and the handling of transactions through administrative systems. With dematerialization, no physical securities are printed at all. Records about the securities are kept at central location and all handling is done through administrative systems (so-called book-entry systems). For the central locations, special organisations are created that are known as central securities depositories (CSDs). These organisations can be linked to a country, a type of security or a specific market. The extent of demobilisation/dematerialization of securities varies by country. In general, the proportion of demobilised/dematerialised securities to the total is very high in Europe (>95%).

44. The typical clients of the CSDs are the custodians. Custodians keep the securities with CSDs on behalf of end-investors or other custodians or on their own behalf. There are many functions that can be offered under the umbrella of the service of custody and each custodian can in practice perform any or all of those functions. The most basic function is the safekeeping and administration for an end-investor of securities issued in the country where the custodian is located. This "retail" function of the custodian involves safekeeping and settlement (the transfer of securities when traded) of the securities. More complicated functions concern the collection of income (dividends and coupons) and redemption, and the execution of corporate actions (e.g. conversions and rights, bonus and

[13] This section has been drafted on the basis of information from various publications, among which: G-10 Committee on Payment and Settlement Systems, March 1995, Cross-border securities settlements, Basle.

subscriptions issues). In recent years, custodians have extended their services to the payment and reclaiming of taxes, proxy-voting and other non-core functions such as securities lending. Retail custody is mostly used by individuals or organisations with limited portfolios.

45. Custodians can also perform a "wholesale" function for end-investors. These so-called global custodians provide services for a whole range of securities and/or markets, usually for institutional investors and high-wealth individuals with more varied portfolios. In those countries where it does not have a presence itself, global custodians employ local sub-custodians for the actual custody of the securities. Conversely, banks offering a 'retail' custody service to local investors are likely to avail themselves of the services of a global custodian for assets originating outside their home territory. Global custodians exist by virtue of being able to manage their custody services in a more efficient way thanks to economies of scale, i.e. they can provide custody at lower costs than if these services were purchased separately from a variety of local agents.

46. A special kind of custodian that deserves mentioning is the International Central Securities Depository (ICSD). There are currently two such organisations: Euroclear and Clearstream (formerly known as Cedel). These ICSDs offer a multitude of services to the cross-border financing industry especially clearing and settlement of international securities and cross-border transactions in domestic securities (see below). In addition they also function as a central location for the deposit of international issues. Euroclear and Clearstream do not actually hold the global notes themselves. For this, they use a network of banks that function as common or specialised depositories (depending on the permanent form of the securities either as a global certificate or as individual certificates).

47. Custodians should not be confused with investment/asset managers. Investment/asset managers provide advice and manage a client's portfolio for a fee. So in contrast to custodians they do not provide safekeeping of the assets and other functions, such as the collection of income, the payment of taxes or handling of redemptions. Instead investment/asset managers themselves use custodians for safekeeping of securities. The mandate of an investment/asset manager can vary from the provision of investment advice (regular or ad hoc) to the full-fledged day-to-day management of a client's assets. The latter case is very similar to the function of a manager of an investment fund. As part of their mandate, they carry out orders for their clients to purchase or sell securities. Through their involvement in trading, they can distinguish whether the transaction took place with a resident or with a non-resident counterpart. In some cases, the same institution provides both the function of investment/asset manager and custodian.

Channels for settling cross-border trades

48. Building on the typology of custodians from the paragraphs above, it follows that investors have a number of options for the safekeeping of their securities and the settlement of trades. Figure III.1 below provides an overview of possible custody relationships between an investor and its custodian(s) when involved in cross-border holding of securities.

49. An end-investor resident in country A has four separate alternatives to hold or 'own' a security deposited with a non-resident CSD. (Note that this security can be issued by a fellow resident or by a non-resident of country A.)

(1) Direct access: the resident keeps the security directly either with a non-resident custodian (1a) or with a resident custodian (1b);

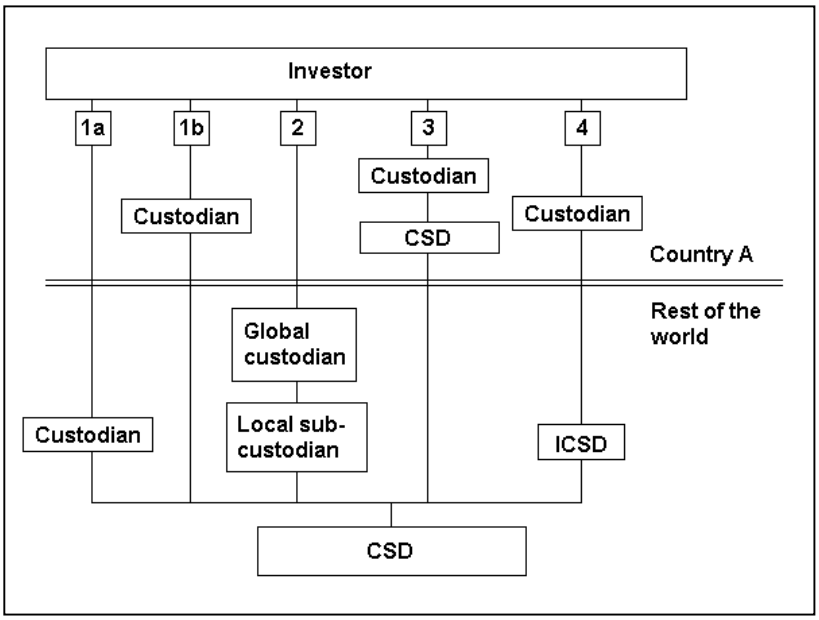
(2) Global custodian: the resident keeps all his securities with one global custodian. This global custodian in turn uses local subcustodians to actually keep the securities issued in the country where the subcustodian is established;

(3) CSD-to-CSD: many CSDs maintain bilateral links so that in order to hold a security deposited with a non-resident CSD, the investor can keep the security through a resident custodian;

(4) ICSD-to-CSD: like CSDs, International CSDs (Euroclear and Clearstream) also maintain bilateral links with each other and with national CSDs. This also provides a channel through which a resident can hold a security through a resident custodian.

50. From figure III.1 it is clear that the cross-border trade in securities involves more or less complicated custody-chains. It is therefore very important when collecting information from custodians to keep in mind which organisation is performing which function for whom.

Figure III.1: Alternative channels for settling cross-border trades



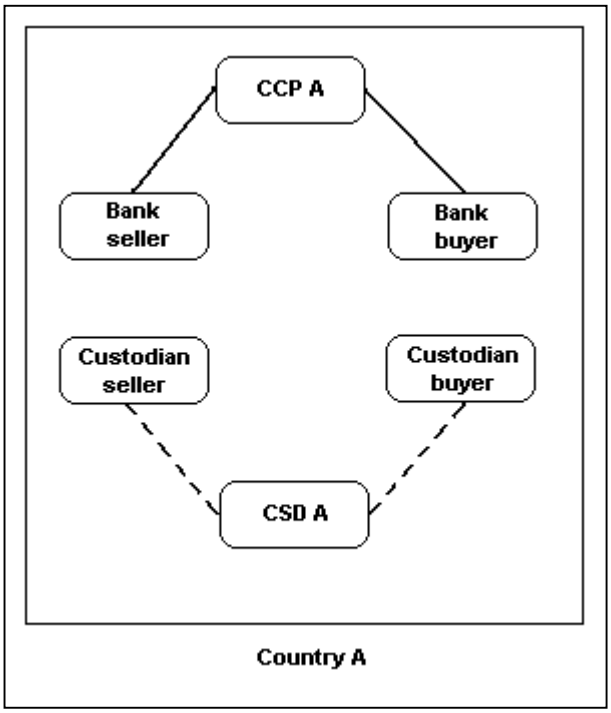
Adopted from the G-10 Committee on Payment and Settlement Systems (CPSS) report Cross Border Securities Settlements

Cross-border settlement of securities

51. Securities are traded by matching one way or the other orders to purchase and sell. After the orders are executed and contracts are entered into, the deal has to be settled. The settlement of a transaction in securities involves the delivery of the securities and the transfer of funds. In domestic transactions, both sides of the transaction are settled through domestic systems. The securities are transferred from the custody account of the seller to that of the buyer and the funds are moved from the bank account of the buyer to that of the seller[14]. A transaction for which the transfer of the securities and that of the funds are linked (in the sense that the transaction is settled only if both the securities and the funds are available) are known as 'Delivery versus payment' or DVP transactions. This involves numerous exchanges of information between banks and custodians to make sure that the transaction can in fact be settled. Transactions for which both sides are not linked are known as 'Free of payment' transactions. For these transactions, the custodian of the seller transfers the securities to the buyer on order from the seller. The buyer and the seller take care of the transfer of the funds themselves. In both cases, the transfer of the funds can take place through the accounts of a central counterparty (CCP), either a commercial bank (commercial money) or a central bank (central bank money). The settlement of a domestic transaction is shown in figure III.2. The top half of the figure represents the transfer of the funds through the CCP. The bottom half shows the transfer of the securities, which is effected through the CSD.

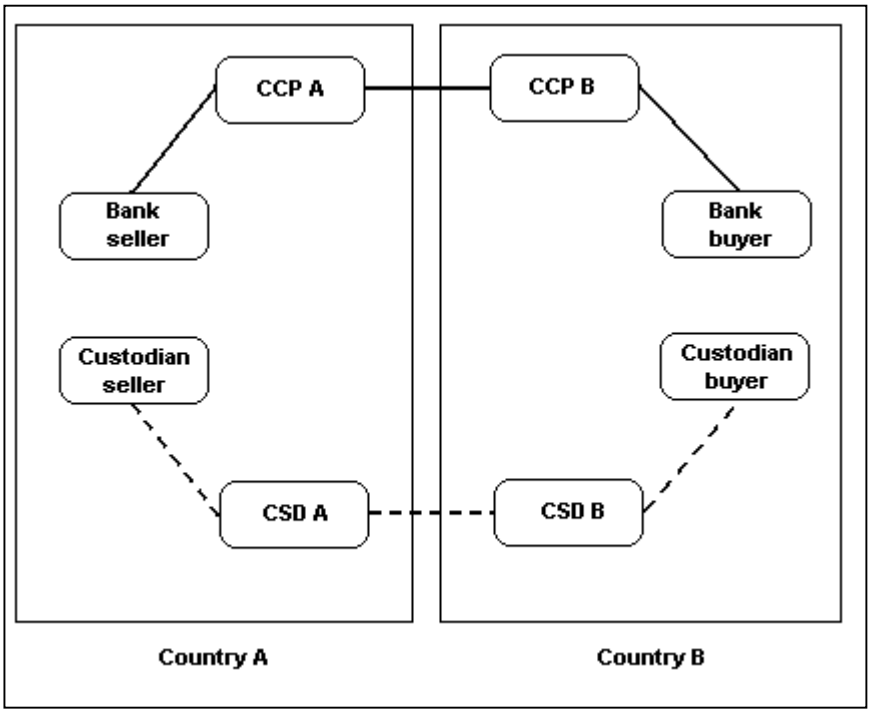
[14] Clearing, the netting of payments and/or securities' transfers by some central counterparty (the clearing organisation, often connected to an exchange), which may trigger additional complexity to data collection, is not considered here.

Figure III.2: Settlement of a domestic transaction



52. With cross-border transactions, when seller and buyer are residents in different countries, there are a number of alternatives depending on the channels used as explained in the former section. In the case of direct access, when both seller and buyer keep their securities accounts with custodians in the same country, the securities are transferred in the same way as for a domestic transaction. Only the transfer of the funds involves a cross-border payment. When a global custodian is used, it is the sub-custodian that arranges for the actual transfer of securities and funds. When buyer and seller use custodians and banks in different countries, both the securities and the funds have to be transferred from one domestic system to the other. The securities could for instance be transferred via the bilateral CSD links that are maintained. The funds could be transferred through any cross-border payments system, such as TARGET when using central bank money. This example is shown in figure III.3.

Figure III.3: Settlement of a cross-border transaction



53. The ICSDs' Euroclear and Clearstream simplify cross-border transactions. These organisations can arrange for both the transfer of securities and the transfer of funds without the securities having to leave their systems. They act both as central counterparty for the funds and as custodian for the securities. This makes their use relatively cheap and efficient.

Global custodians as potential source of information

54. In order to get insight into the value of global custodians and custodians in general as providers of information on the investments of clients, TF-PICS participants conducted an investigation with six major global custodians[15]. Since this group can be regarded as the institutions with the most sophisticated systems and service packages, the information they can provide may be seen as the maximum possible retrievable from the custody sector.

[15] The global custodian issue was investigated at the proposal of the Italian representative in the Task Force. The global custodians interviewed were: Bank of New York, Citibank, JP Morgan Investment Services, Deutsche Bank, HSBC and State Street.

Identification of end-investors

55. First global custodians were asked what information was available on their clients and on their stocks of securities held. The global custodians seemed fairly confident to be able to identify the country of residence of the account holder. However, it appeared to be more difficult for them to identify the country of residence of the beneficial holder, for example in the case of a collective investment scheme or in case the customer was another custodian. The first case, which is very common for global custodians, does not pose a problem with regard to the collection of b.o.p. statistics since there is no need to look through the investment fund. The country of registration of the fund can still be used for the geographical allocation of the holder. The second case is more problematic and a geographical and/or sectoral misallocation could result. This problem stems from the fact that custodians use omnibus or nominee accounts for securities held with other custodians.

Further details on account holders

56. Detailed information on the institutional class of the account holder was available only for one of the interviewed global custodians. For the others, a detailed breakdown by economic sector seemed more problematic, although they indicated that they would be able to provide this kind of data to some extent. A rough sectoral breakdown of the account holder would be very important, as this could be used to assess the likelihood of the account holder being an "end investor".

57. All global custodians reported that they could provide the total market value of holdings for their clients. The reporting on a security-by-security basis was considered easier than aggregated reporting, as the former is more closely related to the structure of their own databases. When asked about the difficulty of reporting transactions and stocks all six indicated that the bulk of the data were on their systems and it would be a case of slicing the information another way to provide the figures.

58. On the subject of provision of accrued interest data on holdings the answers were mixed to negative. Finally, all but one clearly stated that they would in general be unable to distinguish between direct investment and portfolio investment transactions/holdings.

Treatment of repurchase agreements and similar contracts

59. On the issue how repurchase agreements and similar contracts would impact on the data they could report the answers were mixed. Considering repurchase agreements, the majority of custodians declared to treat such a transaction in the same way as a normal sale or purchase. On the basis of their data, repurchase agreements would therefore incorrectly show up as normal portfolio investment flows. One custodian reported to be able to identify any repo business that was handled by its own repo desk. They would however not be able to identify any repos that clients organised through competitors' desks. Turning to stock lending, it appeared that custodians would in general be able to identify this from their records.

Box III.1: A 'Global Custodian Model' as an alternative data collection for b.o.p./i.i.p.

In the course of the intensifying integration of the international securities markets importance "wholesale" custodians that operate on an international level have developed. As these global custodians offer their service on a global level, the securities they manage for their clients reach a high coverage of all securities that are internationally traded or a high percentage of the outstanding amount respectively[16]. In theory a very small number of entities could serve as an ideal reporting population, which would allow to cover a significant part of holdings/transactions of end-investors in various countries.

The information management of global custodians would actually allow technically to provide a broad range of information even in security-by-security format (which has advantages for both the reporter and the compiler[17]). Nevertheless, there are at least two problems, which (presently) obstruct the development of such a "Global Custodian Model":

- Custodian chains: According to the information retrieved from global custodians they would only for a limited part of their clients be able to identify the residency of the beneficial owner. This comes from the fact that a global custodians' client can also be an intermediary itself through which the global custodian can not look. Thus the results of any survey of global custodians would have to be matched with supplementary information of (local) custodians, in order to correctly identify the actual residence of the end-investor. However empirical investigations indicate that the relationships between global and sub-custodians would be likely to generate double counting problems. Consequently it would be necessary to establish a mechanism to ensure that assets held in any kind of sub-custody role were counted only once. This matching process seems presently not manageable. (On the other hand one global custodian stated that while double counting may be a problem at present, they were developing a system that would give a "net" position for the assets they hold for clients.);
- Legal framework: The other obstacle is that so far no legal obligation can be provided to oblige any institution outside a national jurisdiction or outside the EU/euro area to deliver regular reports on holdings/transactions of securities.

Thus global custodians, if at all addressed in data collection models, could only be used to produce supplementary information, which could on the other hand of course be extremely valuable for checking purposes.

60. More information on the use of custodians was collected in one empirical study, referring to holdings of Belgian Government bonds and Treasury Certificates. (See supplementary document No 1).

[16] The combined assets under custody of the six institutions that were interviewed were estimated to be approximately US $ 30 trillion (end June 2001). This would (according to Bank of New York and State Street) represent approximately 50% - in value terms - of all global freely tradable financial assets.

[17] See the section on aggregate versus security-by-security reporting in chapter IV.

The market for repurchase agreements and similar contracts[18]

61. Another significant feature of modern international securities markets is the importance of the high volumes of holdings of securities used as collateral in short term (re)financing activities. An entire sub-industry has developed and although comprehensive information over some years on these types of contracts is absent, anecdotal evidence points to a continuing increase in their importance in European and global securities markets over coming years. (Recent data from a survey conducted by the European Repo Council (ERC) of the International Securities Market Association (ISMA)19 for instance provide an indication of the importance of these contracts. Information from the same study also offers insight into how repos and other such contracts are settled.)

62. First, in the next part of this section, the three main forms of these contracts (classic repurchase agreements, sell/buy backs and securities lending) are described briefly as a service to the reader. No effort is made to go into the methodological discussion of how these transactions should be dealt with. Current advice from international guidelines is taken for granted. (An assessment of the challenge and risks that this business creates for any statistical reporting that would be compliant with the international standards is given in chapter IV, including results from a fact finding exercise by TF-PICS participants.)

Classic repurchase agreements

63. Classic repurchase agreements involve the initial sale of securities from seller to buyer and the repurchase of those securities at either a fixed or a variable date in the future. The objective of the transaction is the provision of a loan from the buyer to the seller, for which the securities act as collateral. The contract is called a reverse repurchase agreement when seen from the buyer's side. The market value of the securities usually exceeds the nominal value of the loan by a certain percentage, known as the haircut. This protects the lender to some extent from the loan becoming undercollateralised. The borrower (seller) redeems the lender (buyer) at the end of the contract for the nominal amount plus interest. The interest rate applied, the repo rate, can be both fixed or variable. The borrower then returns the securities. For most classic repos, government bonds are used as collateral because of their low credit risk and high liquidity.

---

[18] Information on the various forms of the contracts discussed was taken from the G-10 Committee on Payment and Settlement Systems, July 1999, Securities lending transactions: market development and implications, Basle.

[19] ISMA, September 2001, European repo market survey number 1 – conducted June 2001, Zurich.

64. Any income (coupon) paid to the buyer of the security (lender) is immediately reimbursed to the seller. On the basis of this, together with the fact that the buyer of the security has committed to the resale of the security, it could be argued that the seller retains the economic ownership of the security during the lifetime of the repurchase agreement. International guidelines for the statistical treatment of classic repos therefore advise to treat them as collateralised loans and not as portfolio investment transactions.

Sell/buy backs

65. In the case of a sell/buy back, the seller actually transfers the legal title of the security to the buyer in the same way as for a normal transaction. In contrast to classic repos, any income that the buyer of the security receives is not paid on to the seller but is reinvested until the maturity of the contract and deducts the substitute payment (including reinvestment interest) from the repurchase proceeds due to be paid by the seller. Sell/buy back contracts therefore are often quoted in terms of a forward price of the security exchanged instead of in terms of an interest rate. Nevertheless, the buyer of the security still retains the obligation to sell the security back to the original seller and to reimburse him for any income received on it during the lifetime of the contract. International guidelines therefore also state that sell/buy backs should be regarded as collateralised loans.

Securities lending

66. Securities' lending is most often used by investors to cover a short position on a particular security rather than of the provision of a loan. A short position denotes the situation where the investor has sold a security that is not actually in its possession, either in the cash market or in the context of a forward contract. At the time of settlement the investor borrows the security that was sold short in order to comply with the terms of the transaction. Because the borrower needs legal title to the securities to honour his obligation, he obtains legal title from the lender. In the case of securities lending, money or other securities are usually provided as collateral. The lender of the security receives a fee for the service provided but no interest is paid. From an economic point of view, cross-border transactions in bond lending which involve an exchange of cash as collateral are treated in b.o.p. in the same way as plain vanilla repos, as collateralised loans.

Settlement of repos

67. Repurchase agreements, sell/buy backs and securities lending are all executed in the over-the-counter (OTC) market (i.e. they are not traded on an exchange). Because of the complicated structure of the contracts, they are mostly used by large professional players such as banks and institutional investors. These market players can deal with each other in various ways. One of the most common ways to close a deal in the repo market (according to the ERC ISMA survey) is through direct inter-dealer contact. As an alternative to these bilateral deals, market participants can use intermediaries that provide some form of market making. Most active on these markets are broker-

dealers but (global) custodians have also developed this service mainly for institutional investors. In both cases, lender and borrower have knowledge of each others identity.

68. A relatively small percentage of deals is done through Automatic Trading Systems (ATSs). In these systems, the identity of the participants is not disclosed or is only made known after a deal was closed. Trading in ATSs on the basis of anonymity is combined with settlement through a central clearing counterparty (CCP). In those cases, the CCP adopts the role of counterparty in all parts of the transaction for all market participants. In contrast to the participants, the CCP knows the identity of all participants in the ATS, so that its information could be used as a source for statistics.

69. In any case, lender and borrower can determine the residency of their direct counterpart or of the CCP in order to distinguish transactions with residents and with non-residents.

IV. Selected issues on the statistical reporting of portfolio investment

70. In this chapter a number of issues are explored which merit special attention. In most cases the topics were first studied in subgroups of the TF-PICS. The results of the subsequent discussions in plenary meeting are presented as a set of conclusions at the end of each section. It might be worth mentioning here that each section is explicitly highlighting one special aspect of portfolio investment statistics. So instead of re-iterating the entire complexity of data collection at each instance the sections in general describe only a single dimension of the data collection process.

71. The first section of this chapter deals with the different alternatives for the collection of data for and the compilation of portfolio investment liabilities. Next, the possibilities for using third party reporting (TPR) in the compilation of portfolio investment are investigated. In the third section, the merits and costs of security-by-security reporting versus aggregate reporting are examined. The possibilities for deriving flows from stocks are investigated in section four. Section five presents the effect of the repo market on portfolio investment and explores its consequences for data collection. After that, in section six, the distinction between portfolio investment and direct investment in data from alternative sources is considered. The possibility of sampling and grossing-up portfolio investment figures on a security-by-security basis is further explored in section seven. Finally, the last section deals with the importance of multinationals in the field of portfolio investment as well as some other related issues.

Collecting data for and compiling portfolio investment liabilities

72. In this section, the data requirements are investigated to compile portfolio investment liabilities. The requirements were reviewed to compile portfolio investment liabilities based on the national residency concept. The euro area aggregate is assumed to be determined as the sum of national liabilities minus the sum of intra-EMU assets. Three different approaches are considered here for the compilation of national liabilities[20]. The first two approaches can be used side-by-side for different instruments. The third one is specifically aimed at the collection of data on equity. The three approaches are:

1. The residual approach: calculate national portfolio investment liabilities as the difference between the total amounts outstanding of all securities issued by residents and the holdings of residents. Data for the residual approach can be collected both directly from issuers and end-investors and indirectly from custodians or asset managers;
2. The mixed approach: where national portfolio investment liabilities are calculated as the net balance of all cross-border custody holdings between issuers, CSDs, custodians and resident end-investors; and

[20] For the production of portfolio investment flows, the use of settlements may not require the application of any of these approaches in countries where the level of intermediation does not pose substantial problems to identify initial sales of domestic securities to non-resident investors, especially as regards issues in foreign markets.

3. The (share) register approach: for tracing holdings of equity.

73. A technical explanation and examples of how to compile portfolio investment liabilities of the first two approaches is included in annex 3. For expositional purposes, the example was kept simple by not taking into account inter-custodian relationships beyond those between a CSD and a custodian. In practice, the situation can be more complicated e.g. because of the existence of global custodians. However, it can be shown that all these cases are variations of the basic relationships shown in annex 3.

74. Both the residual and mixed approaches are also clarified using the table in annex 4. In annex 4, non-resident holdings of domestic securities constituting portfolio investment liabilities are indicated with the striped border. The grey shaded cells represent the relevant holdings for which data could be gathered through TPR (see next section of this chapter). The approaches are assessed with respect to the population of reporters. Three kinds of reporter are distinguished: CSDs/custodians, issuers of securities and resident end-investors.

The residual approach – direct reporting

75. In principle, all holders of domestic securities that are relevant for the calculation of portfolio investment liabilities are non-residents. As it is generally much more difficult (if not impossible) to collect data from non-residents than from residents (e.g. they fall outside the reach of national legal frameworks), there is no possibility of a direct end-investor approach. Instead, the information necessary can be derived from data reported by residents. For the residual approach, two main sets of data are used: the total amounts outstanding of securities issued by residents and the total holdings of the same securities of resident end-investors. Portfolio investment liabilities are then calculated as the difference between the two. This approach is especially useful when data on resident holdings is also used for compiling financial accounts.

76. From a purely technical point of view, a disadvantage of calculating non-resident holdings as a residual is that any errors in either of the two sets of data will lead to errors of equal size in the final assessment in absolute terms. Since non-resident holdings are usually a small fraction of the total outstanding amounts, these errors magnify in relative terms the errors for non-resident holdings. For example, if the amount outstanding totals EUR 100 million and the actual resident holdings come to 80% (EUR 80 million), every 1% error in this figure (EUR 800.000) will lead to a 4% error in non-resident holdings. (If resident holdings are 90% of the total, the factor increases to 9!) In addition, this approach does not allow the derivation of any geographical or sectoral breakdown of the non-resident holdings by country/sector of the creditor. On the other hand, the residual approach in combination with security-by-security reporting allows for many very powerful consistency and quality checks. The holdings of a certain security of resident end-investors can for instance not exceed the total amount issued.

77. In order to assess correctly all amounts outstanding of securities issued by residents, data have to be collected on securities issued both domestically and abroad. This information could be gathered directly from all domestic issuers. Alternatively, the compiler may rely on a securities database in which all issues of residents are recorded. No reporting by issuers is then required. A prerequisite for this is reporting all other information security by security. Depending on the data providers, in some cases updating the database may entail approaching the domestic issuer anyway in order to get the required information.

78. For the second set of data, the holdings of residents, direct reporting can also be used. This implies the need to cover a very large population, namely all resident end-investors. Especially the coverage of households can be problematic for obvious reasons. Extensive sampling and grossing up might be needed on practical grounds, which would in turn amplify the magnification problem. This problem may bring in some degree of uncertainty on the feasibility of this approach for certain countries.

79. The direct reporting residual approach has the advantage of correctly deriving the non-resident holdings of physical securities by subtracting resident holdings from total amounts outstanding. The indirect residual and mixed approaches (see below) can not do this when physical securities are kept in self-custody (in cases such as e.g. some strategic investments in unquoted shares, which are often not placed with any custodian) or with non-resident custodians since not all resident end-investors are covered directly. The importance of these problems varies from country to country (e.g. self-custody might be deemed marginal in some economies).

80. By deducing non-resident holdings as a residual, the liabilities will also include securities held by associated non-resident companies, which should be included under direct investment in the reporting economy. For the direct reporting residual approach, reclassifications or deductions therefore have to be made for those securities, depending on how the information on direct investment is collected. Security-by-security reporting of both portfolio and direct investment would be most helpful for this in combination with an identification of the non-resident (direct) investor. Possible sources for this information include not only direct investment reports but also news media and other commercial sources, data from stock exchanges and administrative and supervisory data.

The residual approach – indirect reporting

81. Depending on the extent to which trading is registered through book-entry systems (the degree of demobilisation and/or dematerialization), the amount issued domestically can be readily assessed from information from the central securities depository (CSD). Information then still has to be collected on securities issued abroad. Since indirect reporting by the CSD can not cover these, direct reporting from companies could be needed to fill this gap. Usually, these companies are the more active participants on international financial markets such as banks and other financial institutions. Again, the compiler can also rely on a securities database for the information on domestic issues and/or issues abroad, by which the reporting of this information becomes no longer necessary.

82. The information on domestic securities held by resident end-investors can also be collected indirectly. In the case of reporting by custodians, double counting has to be avoided by instructing them to exclude all holdings of other (domestic) custodians. All reported holdings of residents should relate to holdings of end-investors only. Again, indirect reporting through custodians will deliver incomplete information if the end-investors hold securities with non-resident custodians. This could be countered through TPR of holdings of domestic securities held by resident end-investors with non-resident custodians. The data from the indirect approach might then still have to be complemented with the collection of data on securities held with foreign custodians outside the reach of TPR directly from resident end-investors themselves. [21]

83. Since portfolio investment liabilities are derived in the same way as with the direct reporting residual approach, the data also have to be corrected for securities held by associated non-resident companies. The corrections as such can be made in exactly the same way.

84. Sweden presents a special variation of the residual approach, which relies on information, obtained from a share register. The Swedish CSD (Värdepapperscentralen) makes twice a year an extensive list of ultimate beneficial owners of all Swedish shares for tax purposes. This information also provides good insight on the sector distribution of domestic holdings of Swedish shares for financial accounts and, concerning b.o.p., to get (by residual) foreign holdings of Swedish shares. However, there is no possibility to identify the non-resident holder, either with regard to the country of residence or to distinguish direct from portfolio Investment relationships.

[21] In some cases, non-resident custodians may acquire part of certain securities issued in domestic markets and trade them later on in foreign markets. Especial caution is needed to avoid double counting in such cases.

The mixed approach

85. For the mixed approach, all cross-border custody relationships between issuers, CSDs/custodians and end-investors are assessed. Like with the indirect reporting residual approach, collection of data from all types of reporters is necessary. Instead of calculating the non-resident holdings as the residual of the total amount outstanding and the total resident holdings, the mixed approach centres on the information that is directly relevant to non-resident holdings primarily from custodians. How the non-resident holdings of domestic securities are actually calculated can again be illustrated with the example in annex 3.

86. The first step, from issuer to CSD, leads to the identification of securities deposited with a non-resident CSD – issues abroad (credit). Data on domestic issues (e.g. from the resident CSD) are not collected. Moving through the tree of relationships, one next arrives at the CSD-custodian relation. From the resident CSD, the deposits of non-resident custodians (also including other foreign (I)CSDs for bilateral links) are collected (credit). Resident custodians also have to report on non-resident holdings, which include those of both non-resident end-investors and non-resident custodians (credits). But they also report on their securities held in deposit abroad (debit). Finally, all resident end-investors have to report on their holdings of domestic securities held with non-resident custodians (debit). The net balance of all securities held in deposit by non-residents (the sum of all the credits) and the securities held in deposit with non-residents (the sum of the debits), equals the holdings of non-residents.

87. In a way, the mixed approach suffers from the same drawback as the residual approach that errors in the data collected for total outstanding securities and resident holdings lead to corresponding errors in non-resident holdings calculated as residual. Though it is always true that errors in the assessment of any sub-population lead to corresponding errors in aggregates, the significance of the distortion depends on the distribution of the population of investors between residents and non-residents. Should resident investors account for most of the holdings of domestic securities, the mixed approach would suffer less from this "magnification" problem than the residual approach. For securities issued abroad, the mixed approach actually coincides with the residual approach.

88. There is no risk of double counting since the only criterion for reporting holdings is whether they are held with/by a non-resident. Similarly again, this approach also does not allow a geographical division of non-resident holdings by creditor. The approach makes no attempt to identify non-resident end-investors since information about this is generally not available with resident custodians anyway (e.g. acting as sub-custodians on behalf of a global custodian). A geographical breakdown by first known counterpart is possible but has extremely limited analytical value.

89. Another consequence of the fact that custodians cannot (always) identify the end-investor is that they will not have complete information on direct investment transactions. The data from the mixed approach therefore has to be corrected for securities held by associated non-resident companies. The same considerations as for the residual approaches count here.

The share register approach

90. In some countries the compilation of data on portfolio investment liabilities relies on the use of register information. Under the law in the United Kingdom and Ireland, legal ownership of a company's securities is constituted by the entries in the register maintained by the company or on its behalf by a registrar. These registers are used to determine the residency of the holder of securities issued by residents and held by non-residents.

91. In the UK this approach is used for the compilation of equity liabilities and is facilitated by the downloading of information from the Crest electronic settlement system. The Crest system has been used for the electronic settlement of shares and other corporate securities in the United Kingdom, Ireland and the Isle of Man since 1996. Stock held in Crest is fully dematerialised. The registers are then analysed by country of holder to determine the resident and non-resident elements of each register. [22] In the UK the approach to estimate liabilities in debt securities is the residual approach.

92. In Ireland rather than using the Crest system to directly obtain this information, the issuers of securities are themselves surveyed. They then use the Crest registers to determine the residency of the holders of their securities. The registers for both equity and debt securities are used in this way. Registers maintained in respect of securities issued on other markets are also used. The objective is to cover all securities issued irrespective of the market of issue.

93. The use of registers has the advantage of detailing the legal owners of securities who obtain the stream of income by way of dividends or interest coupons. It is clearly important for the beneficial owner of a security to ensure that they establish their legal ownership and have their name listed on the register. In addition, the requirements of the Stock exchange regarding the disclosure of the names of persons/entities holding over 3% of a company's shares in the company's accounts allow the distinction between portfolio and direct investment to be made.

94. The use of registers is also vital when collecting data on mutual fund shares. This data is not normally available from custodians and forms a significant element of total portfolio investment liabilities.

[22] Further information on the approach used by the Office for National Statistics (ONS) can be obtained in the Share Ownership survey 2001 edition.

Conclusions:

- The residual approach can deliver data for both portfolio investment liabilities and for domestic financial accounts. It may provide very powerful consistency and quality checks if the data are collected and processed on a security-by security basis. It though may suffer from magnification of errors in the constituent aggregates (total amounts outstanding and holdings of resident end-investors) where resident holdings constitute the largest fraction of the total outstanding amount;
- The residual approach in combination with security-by-security reporting could imply for some countries an adaptation of the securities databases (need to cover all domestic issues) and a consequent increase in the compilation burden (in terms of volume of information to be recorded, checked and aggregated). The magnitude of these adaptations and additional burden depends on whether residents or non-residents are the largest holders of domestic securities and on the share of domestic securities involved in cross/border trading;
- Misclassification or even double counting with direct investment is a risk in all approaches, except the share register approach for equities;
- The mixed approach may suffer less from the magnification problem as it limits the size of the reporting population;
- Some countries may encounter difficulties in applying the residual/mixed approaches at high frequencies, especially for the production of flows. The difficulties might be deemed more severe for the methods requiring direct end-investor information, i.e. the residual direct approach, though the residual indirect and the mixed approaches might also be fairly demanding for some countries if applied monthly/quarterly;
- It is not possible to determine a geographical or sectoral breakdown of portfolio investment liabilities by creditor with any of the approaches, except perhaps for the share register approach for equity;
- While there are advantages in using securities registers, there are a number of difficulties: (i) if a security issued is not a registered security (e.g. a bearer bond) it is difficult to correctly estimate the non-resident element of the amount issued; (ii) if the security is held through a nominee account it is also difficult to establish the residency of the beneficial owner, although the use of nominee surveys can be used to identify the beneficial holder; (iii) this approach is hardly feasible in countries where the institutional/legal framework does not foster the existence of securities registers.

Third party reporting

95. This section presents the results of an investigation on the potential gains of retrieving information for national compilers and the supra national aggregates via TPR. A fact-finding exercise was set up to assess the feasibility and costs of introducing TPR. To this end a questionnaire was developed and sent to b.o.p. compilers in the EU. As any investigation of the feasibility of TPR would have to address the question of correctly integrating the information, (i.e. avoid double counting) the feedback received was in particular examined against the possibilities of identifying end-investors (in particular households).

96. The TF-PICS conducted its fact-finding on the feasibility of a TPR for the EU / euro are countries under the assumption that it would be in first place necessary to study the theoretical possibility of a sufficiently efficient model. The necessary legal framework could be provided later – at least in the euro area.

97. The structure of this section is the following. The first three parts review the rationale, the scope and addressees and the limits with respect to the concept of TPR respectively. The section ends with the conclusions of the investigations.

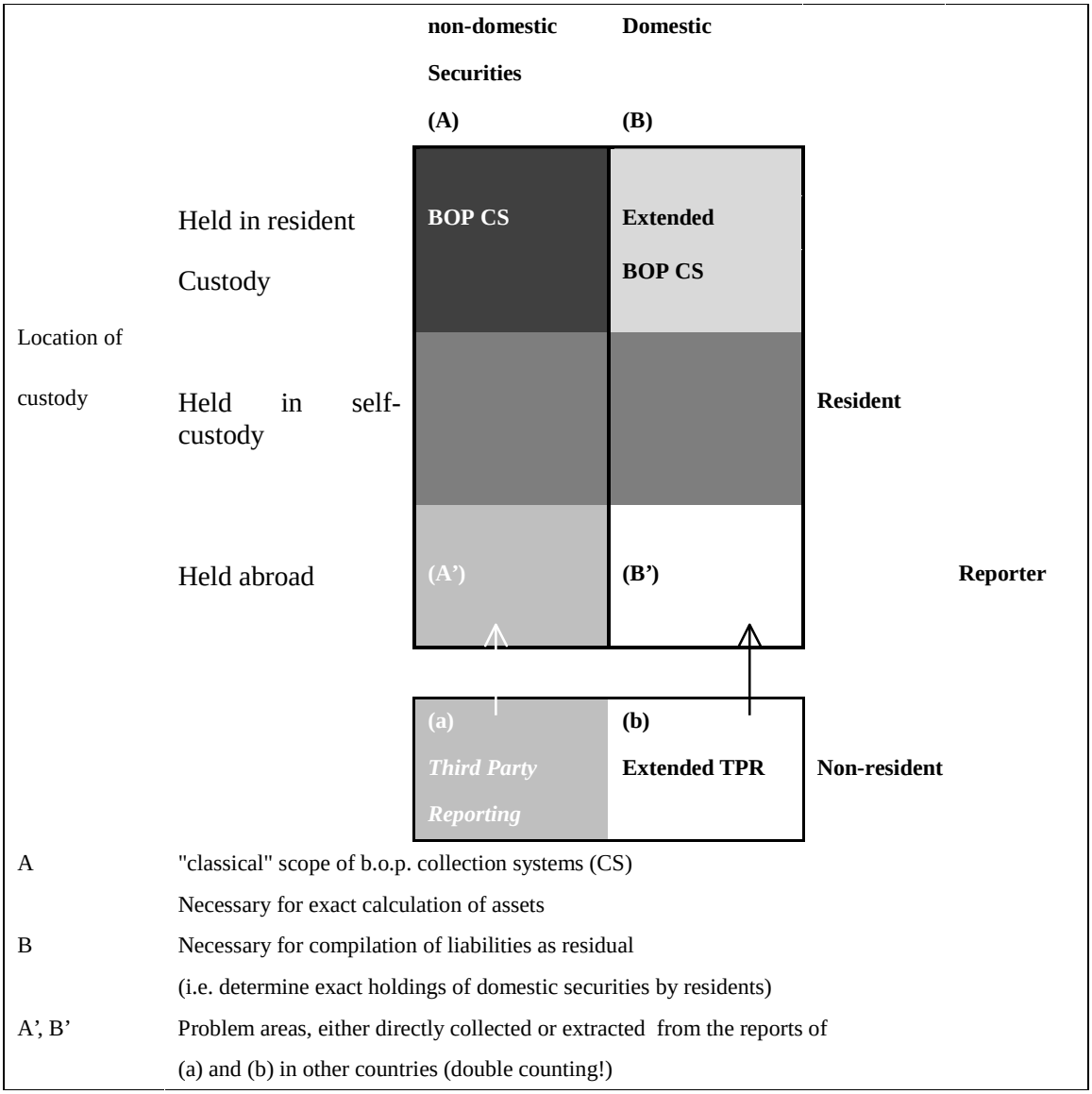
Rationale behind TPR

98. A classical challenge or even "blind spot" of national b.o.p. data collection systems are holdings (transactions) by residents in (or using) accounts held abroad. In particular, systems that are based on indirect reporting through banks or other intermediaries on behalf of their customers suffer from this. The traditional solution has been to introduce supplementary direct reporting. However, the direct collection of this information involves special problems, among them the fact that in particular non-institutional investors and households are difficult and costly to cover with direct reporting tools. Consequently, the idea is to collect this information via third parties (i.e. non-resident compilers) and exchange them (on a reciprocal basis).

99. TPR is mainly considered in connection with indirect data collection systems. On the side of the compiler, it is meant to solve missing information on securities held by residents not with resident custodians. These securities might either be the subject of safekeeping at non-resident custodians or held in self-custody ("at home" or " abroad"). TRP models can (theoretically) cover the first part only. It requires that the "host" countries approach reporting agents and require them to report on behalf of their non-resident clients.

100. Figure IV.1 illustrates how TPR could in theory supplement b.o.p. collection systems or even substitute parts of them. The asset side of portfolio investment statistics (column A) comprises securities issued by non-residents that are held by residents. Data collection through TPR can also cover the residents' holdings of domestic securities (column B) to be used for the compilation of portfolio investment liabilities.

Figure IV.1: Securities held by residents



101. One interesting question in this context is therefore whether self-custody – defined as "physical storing of non-dematerialised securities outside any deposit or register run by a bank or custodian to administer the holding" – plays a significant role in security holdings of residents in the Member States of the EU.

Scope and addressees of TPR

102. The aim of TPR is to produce the information that a "partner country" in a multilateral data exchange would actually be able to integrate in its own data collection system. The starting point is that a compiler would retrieve information on securities (holdings and transactions) of non-residents from resident institutions, broken down by the residency of their clients. Furthermore, a necessary prerequisite for the use of TPR is the identification of end-investors among these clients. A minimum solution would be the identification of private households, that may serve as a proxy for a group of

investors that can safely be interpreted as end-investors (referred to as the "household approach"). The maximum solution would require the identification of all end-investors and their classification by sector according to BPM5 or even better according to SNA 93/ESA 95 (the "multi-sector approach).

103. Above all a full integration of the information received from partner countries would require that the provided data are broken down in the exact same way than the originally compiled b.o.p. statistics, i.e. a breakdown by residency (and sector) of the debtor and by instrument would be needed. Table IV.1 gives an overview of the data elements that would have to be covered in a collection system that complies with the requirements of a (multilateral) data exchange of TPR data.

Table IV.1: Data collected for TPR

<table>
<tr><th></th><th>Aggregate</th><th>Security-by-security +</th></tr>
<tr><th></th><th colspan="2">Reporting</th></tr>
<tr><td>Residency of holder</td><td colspan="2">To be identified</td></tr>
<tr><td>Institutional sector of holder- identification of
- End-investor / intermediary
- Households only ("Household approach")
- All sectors ("Multi-sector approach")</td><td colspan="2">to be identified</td></tr>
<tr><td>Residency of issuer</td><td rowspan="4">Additional reporting requirement</td><td></td></tr>
<tr><td>- Domestic</td><td>✓</td></tr>
<tr><td>- Non-resident (intra/extra or detailed)</td><td>✓</td></tr>
<tr><td>Institutional sector of issuer</td><td>✓</td></tr>
<tr><td>Instrument</td><td>✓</td></tr>
</table>

+) assumption: supplemented by a CSDB

104. The most critical issue in the context of TPR is how to avoid double counting. The fact that a particular custodian in country (A) that would report securities holdings (transactions) on behalf of non-residents is not sufficient for any "partner" country (B) to receive information that can actually be integrated in their b.o.p. statistics in a consistent way. In case the non-resident entity resident in (B) would again act on behalf of clients from yet another country (C) this could – if not identified and cancelled out – create two entries in the b.o.p. of country (B) and country (C). The result of such custodian-chains could be that the overall aggregate of several countries was wrong and country (B) did not receive and process economically useful information.

105. Thus a core question is whether any collection system in the EU has the capability and experience with identification of end-investors among the non-residents that are using the services of resident custodians or other institutions that would be able to report on these activities. Following the minimum requirement outlined above, the ultimate question would be if at least households could be identified.

106. The question of integrating any TPR results that would be correctly classified by resident and sector of end-investor would in theory lead to the investigation of numerous combinations of aggregated figures that would be bilaterally exchanged and matched with the b.o.p. statistics of receiving countries. Alternatively the option of collecting and exchanging theses data on a security-by-security level can be addressed, as in this case all types of collection systems could benefit from TPR results in an optimal way.

Limits of TPR

107. One general drawback is inherent to the idea of TPR. How perfect a TPR scheme between a group of countries (e.g. the EU or euro area) might ever become, it would never be able to give a comprehensive picture as there is always a part of the ”rest of the world” that would be missing. Another constraint might be that the introduction of TPR would require that (almost) all EU/euro area member states would have to introduce it simultaneously to produce meaningful results. A third possible distortion could be caused by the use of holdings of residents at non-resident custodians for repo or bond lending activities.

108. Finally one can argue that the concept of TPR would be better suited for the collection of information on positions than on transactions. The reason is that in the case a custodian in country (A) who reports that a non-resident (of country B) is selling a security issued by a resident of the same country (B) would have to identify the residency of the buyer of this security. In other words, while the common challenge for a b.o.p. compiler is to identify the transactions in domestic securities with non-residents, the case of TPR would require a similar identification of the triple “issuer/seller/buyer” for all other countries participating in the TPR system. Thus any considerations concerning flows in the context of TPR might be rather limited to the derivation of flows from stocks.

Fact-finding on common practices

109. According to a questionnaire among b.o.p. compilers in the EU virtually all countries indicated that the holdings of residents abroad – in particular non-institutional investors – represent a weak point in the national b.o.p. statistics. Coverage problems in national b.o.p. collection systems are however an unbalanced phenomenon. This indicates that it might be difficult to design a TPR model with a balanced sharing of costs and benefits between participating countries.

110. Moreover, following the outcome of this questionnaire there seems to be no clear evidence whether private households’ holdings abroad (from the perspective of either the country of the investing households or the country of the custodian) are of particular relevance for portfolio

investment. However, some countries perceive clear indications that this might become a more important issue in the future.

111. The fact finding also revealed that the basic pre-requisite for TPR, namely experience with indirect reporting seems to be fulfilled or technically feasible. (At least some preliminary discussions with potential reporting entities indicate that such an indirect reporting would theoretically be possible.) Thus the indirect data collection on activities of non-residents might actually be an option, even on a security-by-security level.

112. Most important, however, it turned out that only a few countries would be able to identify the actual end-investors among non-resident clients of domestic custodians, neither would a comprehensive breakdown by institutional sector be available. Thus the indispensable prerequisite for avoiding any double counting within cross-border "custodian chains" would either not or only partly fulfilled.

Conclusions:

- The biggest hurdle for an introduction of a TPR scheme is the difficulty to correctly identify the actual end-investor among the non-resident clients or even their institutional sector by intermediaries;
- In addition any TPR scheme focusing on the EU/euro area, would suffer from a lack of information on the holdings outside the EU/euro area (Rest of the World (ROW)-gap); therefore, such a reporting scheme would not be directly adaptable to any general data collection model, as it would be incomplete by definition, i.e. it would not cover all possible destination countries. ***It should rather help to close or at least monitor any gaps in various collection systems***;
- Thus, according to the present results of the investigations, as no conclusion has yet been reached on the costs and the potential benefits, a data collection model for portfolio investment could hardly count on the use of a comprehensive TPR scheme;
- It might however be worth to consider a "minimum approach" (possibly on a low frequency, i.e. annually, should holdings in custody abroad become of particular relevance) for securities holdings of households. The design (e.g. format, frequency, etc.) of this TPR schema would have to be consistent with any general recommendation on the coverage of households in future data collection models;
- Nevertheless, the feasibility (in terms of merits and costs) of such a reduced version of the TPR scheme as well as its applicability/usefulness considering the particularities of each specific data collection model could need further examination. It is thus recommended to explore the possibility of conducting a pilot exercise as part of the follow-up to the work of the TF-PICS (see chapter VI).

Aggregate versus security-by-security reporting

113. This section considers the pros and cons of security-by-security versus aggregated reporting. It also includes an analysis of the details that can be covered through the security-by-security approach, in conjunction with a securities database such as the CSDB. The second part outlines the resources needed for setting up and maintaining a security-by-security reporting system.

114. The underlying benchmark data collection system (i.e. based on custodians, end-investors or settlements) as well as the reporting sector from which the information is to be collected (i.e. MFIs, other financial institutions or non-financial companies) may either emphasise or conversely soften the tone of the conclusions.

Pros and cons of a security-by-security versus an aggregated reporting

115. As advantages of one specific approach could also be interpreted as disadvantages of the other, both pros and cons are presented henceforth from the perspective of the security-by-security approach. However, this list of advantages/disadvantages does not intend to question the ability of either system to produce an outcome compliant with the relevant quality standards.

116. Using the security-by-security approach, the aggregation of b.o.p. and/or i.i.p. data into the required breakdowns can be performed in a standardised and harmonised way by the compiler. This avoids potential miscalculation or the use of non-generalised aggregation procedures by the different reporting entities, with clear advantages in terms of quality and homogeneity. The quality of the results (in terms of e.g. accuracy, consistency, etc.) would be significantly increased by using a reliable reference Securities Database (SDB). Other advantages like improvement in timeliness may be deemed less clear-cut. The project of implementing and maintaining a CSDB within the ESCB would obviously improve the overall availability of the necessary reference data on individual securities relevant in the area of cross-border trading.

117. The security-by-security approach increases the quality of the data as it allows better checking and greater accuracy in the calculation of stock and/or flow data. For example: it may enable the identification of double-counting among custodians and sub-custodians; it allows reconciliation of flows and stocks at a security level and improves bilateral geographical comparisons of data; it allows detailed comparisons of outstanding amounts and reported securities deposits indicating gaps or double reporting. In short, numerous quality checks may be performed at the level of the individual security instead of for a group of securities.

118. Moreover, the availability of information at the level of individual securities would ease the identification of direct investment relationships between holders and issuers of specific (mainly equity) securities. This could downgrade the risk of both misclassification of holdings/transactions (i.e. between direct and portfolio investment) and even double counting. This additional advantage could be especially helpful in the case of indirect reporting systems in which end-investors are not requested to provide further details on their relations to the issuer companies.

119. Another feature of the security-by-security approach is the greater flexibility to take care of new/additional output requirements (for example change in the geographical zones, in the instrument breakdown or a split by currency) and to easily obtain consistent time series. This is most often possible, without additional requests to the reporting entities, by means of adaptations in the aggregation procedures managed by the compiler.

120. The availability of more detailed data (link to the reference SDB) allows synergies with other statistics such as financial account statistics, monetary statistics, securities issues statistics. Furthermore this information is particularly useful to identify the ESA95 instrument breakdown and the ESA95 issuer sector breakdown. Another relevant information is the currency of denomination of the security (for monetary statistics purposes) and the marked-to-market value of securities (possibility to estimate stock data at a higher frequency, i.e. quarterly stocks for financial account purposes). Finally, data on a security-by-security basis also allow the calculation of accrued interest.

121. Among the synergies with other statistics, the use of b.o.p. information to cross check monetary data would require sorting out the problem of the different splits existing between monetary and b.o.p. statistics: while b.o.p. statistics distinguish between short term and long term debt securities by original maturity with the border line between both categories established in one year, monetary statistics would require also the separate identification of debt securities issued with an original maturity up to two years. The availability of information security-by-security would enable fulfilment of this additional requirement without posing any additional burden on reporters.

122. Elaborating further on this argument, security-by-security reporting would reduce the amount of details (in terms of breakdowns) to be reported by respondents, with a consequent reduction in their reporting burden. The reduction of details is strictly connected to the existence of a securities database, available to the compiler (see following point). It also allows a more efficient dialogue with the respondents.

123. The main cons with respect to security-by-security reporting are as follows. The compiler has to bear the cost of buying/managing a SDB, of developing compatible software in order to receive the information from the respondents and to develop/update the aggregation procedures. Moreover, in a security-by-security system the volume of information recorded and its treatment by the compiler implies an adequate data processing system (in terms of capacity and complexity). Also from a human resources point of view the security-by-security reporting requires specifically skilled operators (staff well trained for properly working within the highly automated system and with an additional expertise in financial markets and instruments). It must also be stressed though that the amortisation of the initial investment for the SDB, procedures and employees' training can be considered to be rapid as the system is very intensively used.

124. Especially for very short-term securities or other less liquid instruments (e.g. private placements or mutual funds' units in some countries), no unique and internationally standardised identifier (such as an ISIN code) might be available, at the time the respondent is asked to report the data. Moreover there is the problem of private placements for which the issuer does not care to retrieve

an ISIN code from the national numbering agency. Consequently there might be the need to use generic codes and/or employ some supplementary aggregated reporting. According to recent experience, the assignment of ISIN codes is fast becoming more widespread, although the problem of lack of ISIN codes for e.g. private placement remains.

Estimation of the resources needed

125. The costs and resources needed to maintain a security-by-security system could be split into two broad categories: those needed for the necessary SDB and those to process the data. Additionally, the costs can be broken down into an initial investment (start-up or implementation costs) and costs for maintenance.

Securities database

126. Generally spoken, the costs of implementation and maintenance of a SDB depends on:

- The number of data fields to be included (in particular, special costs are often charged for quotation information by commercial data providers);
- The number of securities (most data providers charge a fixed rate per security);
- The frequency of updating.

127. In case several national compilers have developed and have operated such a database on their own, the entire costs would multiply. Alternatively, the availability of a CSDB could certainly lower the costs of the securities database. On the other hand the utilisation of the CSDB would require the development of systems and procedures for sharing the data.

Data processing

128. The assessment of implementation and operating costs must also include the data processing, that ensures the link between the respondents' data on a security-by-security basis and the information included in the securities database. It implies rather high costs in the implementation phase, largely attributable to purchasing/developing the necessary hardware and software. A high degree of automation is necessary for the acquisition of the data (custodians' reports and securities database), for the comprehensive checking procedures and for the aggregating routine. As a consequence the respective staff has to be well skilled and trained on the system. Additional expertise is required in the field of financial instruments and financial markets. Staff checking the security-by-security reports and the aggregation/validation of the final data should have a good knowledge in the area of portfolio investment (relevance of the phenomenon, ability to detect errors in the reported data).

129. In conclusion, since in any data collection model, the costs (e.g. securities database, aggregation procedures, etc.) are to be borne by the system as a whole (reporting entities and compiler), the choice of the security-by-security reporting means essentially to translate the bigger part

of the costs to the compiler. The advantages in terms of quality, standardisation and of synergies with other statistics are very relevant. The amortisation of the initial investment (securities database, procedures, etc.) by the compiler can be considered rapid if the system is very intensively used. Because of the wide range of the reports' design (from paper form to electronic data) a compiler is currently obliged to run a professional data processing system in which adding new fields imply increasing costs. The introduction of security-by-security techniques would imply that the marginal costs of additional breakdowns would diminish. The availability of a CSDB would largely improve the degree of standardisation and harmonisation of portfolio investment statistics.

Conclusions:

- The security-by-security approach reveals many advantages in terms of quality (e.g. accuracy, consistency, etc.), standardisation and synergies with other statistics;
- This technique offers a high degree of flexibility in terms of adaptation to new requirements and re-calculation of consistent time series;
- In connection with the availability of a securities database, it potentially offers many additional breakdowns in the field of portfolio investment statistics (e.g. type of instrument, issuer sector, issuer country, currency of issue, maturity, etc.);
- It enables numerous quality checks at the level of individual securities;
- Information on income on an accrual basis can be provided by the reporter or can be obtained by the compiler by using a SDB;
- The lack of ISIN-codes (or other international identifiers) for certain instruments might be an obstacle in some countries;
- Security-by-security in comparison with aggregate reporting implies a shift of the costs from the reporting agencies to the compiler (e.g. many reporters keep track internally of information security-by-security; aggregating these data may imply higher costs);
- The overall costs (i.e. for both reporters and compiler considered together) of introducing new breakdowns would diminish (i.e. high degree of flexibility in terms of adaptation to new requirements and re-calculation of consistent time series);
- It requires a significant initial investment (SDB and changes in procedures) and additional costs of maintenance. The period of amortisation would depend on how intensively the system is used;
- The availability of a CSDB would largely improve the degree of standardisation and harmonisation of the portfolio investment statistics and very likely reduce the overall costs for compilers to apply the security-by-security approach.

Recording of stocks and/or flows

130. One of the key elements of any collection system is the question whether flows, stocks or both should be part of the data collected from respondents. In theory, it could be considered to gather flows and stocks simultaneously with reconciliation performed by either the respondent or the compiler. In any case the compiler should ensure the accuracy of the data received by cross-checking with alternative information sources, and by liasing closely with respondents.

131. For practical reasons (i.e. availability of data, reducing the respondent's burden) it might only be possible to collect either flows or stocks at specific frequencies (e.g. monthly) and to consequently derive one from the other, taking into account that inaccuracies can occur in such a process: (i) deriving stocks by accumulation of flows is common practice in some countries where flows are more easily available; however, the results are often not satisfactory, especially if this practice is applied over long periods of time; (ii) in direct reporting schemes or in case of custodian surveys it is often considered to be easier for the respondent to deliver pure stocks instead of flows. The compiler would then have to derive flows from stocks using appropriate procedures. Therefore, as in the case of security-by-security versus aggregate reporting, the underlying benchmark data collection system and the specific reporting sector may influence the interpretation of the results of this analysis.

132. This section mainly focuses on the procedures and potential caveats in connection with the derivation of flows from stocks for portfolio investment, though the accumulation of flows to derive stocks is also briefly covered in the first part. In the second part some basic concepts are explored while in the third and fourth part some practical aspects and results of empirical exercises are presented respectively.

133. It is important to highlight that the output resulting from the derivation of flows from stocks or vice versa will always suffer from deterioration in terms of quality (e.g. accuracy, consistency, etc.), especially if performed on an aggregate basis for instruments with volatile prices like shares. The last part of this sub-section tries to quantify this qualitative decrease in some specific circumstances.

Basic concepts of deriving flows from stocks

134. The following features have to be considered in the calculation process to derive flows from stocks: [23]

(1) *Stock at the beginning and stock at the end of the period*: it is necessary to distinguish between availability of nominal values and marked-to-market values. In the course of the calculation process it is always necessary to have nominal values, either by directly collecting them or by transforming market values into nominal values;

(2) *Other adjustments*: e.g. write-offs; reclassifications between instruments, sectors and other breakdowns; and, most important of all reclassifications with direct investment. Direct reporting and/or close connection and integration with other areas of a collection system (i.e. for direct investment) are essential. Data collection on a security-by-security level would make it easier to automatically detect such reclassifications;

(3) *Difference of nominal stocks and valuation adjustments:* the usual way to calculate flows from stocks is to value the difference between the nominal stocks at the beginning and at the end of the period (once deducted the other reclassification adjustments) with average prices and exchange rates. The underlying assumption is that these average prices and rates are representative enough for the true (and unknown) transaction prices and rates. If only stocks at market values are available from the data collection system then an implicit retransformation into nominal stocks using end-of-month prices and exchange rates has to take place. In addition, price and exchange rate adjustments should also be derived in order to gain a complete reconciliation of flows and stocks. Different formulas and methods could be used for this purpose. [24]

---

[23] A special case that should be paid special attention is the transfer of securities deposits without triggering "real" payments, due to e.g. changes in ownership from one entity to another because of mergers, restructuring measures of multinationals or migration. In some cases, custodians are not able to identify these movements in the securities accounts as real transactions (hence in these cases the derivation of flows from stocks could offer even better results). In this context recording the proper counter entries to such flows would be an additional problem for the b.o.p.

[24] For more details, please refer to the supplementary document: "*The issue of stock/flow reporting and derivation of flows from stocks, Full report*".

Practical aspects of deriving flows from stocks

Aggregated vs. security-by-security

135. In an aggregated collection system usually only market values can be collected. The accuracy of the flow derivation procedure in such a framework would depend on the availability of breakdowns (currency, instrument, country of issuer, market of issuance etc.) and of consistent aggregated average, end-period price indices and exchange rate indices. While exchange rates should be relatively easy to get, it is much more difficult to find appropriate price indices. Using index information from stock exchanges or data providers or collecting this information directly from respondents are alternatives to be considered here. All of these possibilities entail the risk of not adequately reflecting the true (and unknown) portfolio of the respondent and the risk of using inconsistent or inappropriate valuation procedures. Therefore aggregated portfolio stock data can be considered as less than ideal for the derivation of flows.

136. In a security-by-security collection system it is more reasonable to ask for nominal stocks. It would be up to the compiler to apply the necessary valuation adjustments both for stocks at market value and derived flows for every single security. This, of course, implies the need for a very comprehensive securities database with all the necessary quotation information. In addition, comprehensive exchange rate data will be needed.

137. In connection with timeliness (the next point) the time for necessary updates of the securities database (especially for newly issued securities) in case of security-by-security reporting and the time to compile, process, check and correct the data also has to be considered. To be concrete, the feasibility of deriving flows from stocks on a monthly basis should be carefully analysed for each specific situation.

138. In conclusion, the accuracy of flows derived from stocks on a security-by-security basis is much higher than for the aggregated approach.

Timeliness and frequency of reporting

139. The most demanding output requirement corresponds to the provision of monthly portfolio investment flows with an instrumental and sectoral breakdown in 30 working days. In indirect reporting schemes (e.g. custodian surveys or settlement systems) it is easier to meet this requirement due to the lower number of respondents who usually are better equipped in terms of technical and organisational infrastructure to quickly produce statistical data at a high frequency.

140. Monthly frequency and tight deadlines are in general very difficult to fulfil in case of high dependence on direct reporting (particularly for medium-/small-sized reporters). It is, however, reasonable to assume that supplying pure stocks without flows (probably also in combination with security-by-security) should be a lower burden for end-investors than supplying a full reconciliation of stocks and flows. Therefore the collection of stocks without flows could help to meet the high demands in terms of reporting frequency and delivery dates.

141. It is worth emphasising that in any flows-from-stocks system a monthly reporting frequency of stocks, at least for the bulk of the data, can be considered as a minimum requirement. Due to the above-mentioned inherent inaccuracies in the application of average prices and exchange rates it is not possible to solely rely on quarterly data. The uncertainties and inaccuracies of quarterly flow derivation would likely be too high.

Box IV.1: Empirical analysis of derivations of flows from stocks

In Austria four exercises based on actually reported security-by-security data and on the securities database were conducted to get an empirical indication about the potential problems and quality losses of derived flows.[25] The data samples were limited in size and not fully representative and the results may therefore not be easily transferred to other countries. Nevertheless some tentative conclusions can be derived from the outcome.

(1) Actual "gross" flows vs. derived "net" flows

One of the major concerns of deriving flows from stocks is the fact that "gross" flows in the sense of buying and selling of securities within a reporting period (i.e. a month) could, by definition, not be captured in such a system, since these securities would never show up in either initial or end-month stock reports. Therefore, if securities were very actively traded at volatile prices within a month (e.g. buying and selling at different prices in between the month) the differences between stocks valued at average prices would not appropriately capture the actual transactions. Apart from inaccuracies in the derived flows this would also cause errors and omissions under the assumption that the counter entries of the PI flows were captured correctly.

The volatility of asset prices is considered to be much bigger for quoted shares than for other instruments, though it may also concern bonds and notes, especially in times of rapid and huge changes in interest rates. In these cases missing gross flows would be a matter of concern. In addition, the trading patterns (i.e. frequent buying and selling) are potentially also more volatile for equity securities than for bonds.

In order to measure the importance of these intra-period gross flows for equity securities, Austrian (gross) settlement data were analysed for quoted shares on the assets side and for all equity securities on the liabilities side. The results showed that on average two thirds of all the securities examined were sold and purchased within a month. These heavily traded equity securities also accounted for near the whole overall gross turnover (sum of sales and purchases) of the respective months.

It cannot be concluded from these results that calculating flows from stocks would always lead to substantial mistakes. It was merely demonstrated that ***intra-period gross flows could be expected to be of particular relevance****. For further conclusions, it is necessary to go on with the analysis (see next sub-section).*

[25] For a complete overview of the results of these exercises, please refer to the supplementary document: "*The issue of stock/flow reporting and derivation of flows from stocks, Full report*".

(2) Calculating the difference between actual and derived flows for selected securities

In the previous exercise it was concluded that intra-period sales and purchases could be a problem under "unfavourable" circumstances. The aim of this second exercise was to get an indication for the true inaccuracy (i.e. the difference between the actual flows and the derived flows in the year 2000) based on some non-resident quoted shares ranking among the twenty securities most heavily traded by Austrian residents.

This exercise delivered a relatively uneven picture. On the one hand, it became obvious that the annual differences in net transactions could be substantial, especially if the overall net volume traded was not very high. On the other hand, there were securities with relatively high differences in the monthly data, which largely cancelled each other out in the annual aggregate. Not surprisingly it was also concluded that the higher the volatility of the prices, the higher the potential differences in the monthly data became. This, however, did not always translate to the annual figures, where the monthly differences sometimes cancelled each other out.

However, the differences between the actual and the derived flows were not overly significant in the majority of the cases, since most of the annual differences for the sample were below 10 %. In a few instances, however, the flows-from-stocks method would have led to noticeable differences, especially for high frequency (monthly) data and in periods of very volatile asset prices.

Derived flows appeared to be quite acceptable in the overall statistical framework, even for volatile instruments like shares. *One could also conclude that for instruments that usually do not show very volatile prices (i.e. debt securities) a derivation of flows from stocks will deliver more than satisfactory results. In the end* ***it appears to be a question of merits and costs*** *whether the effort should be taken to collect actual flows, at least for very volatile securities like shares, in order to have a somewhat higher quality of flows.*

(3) The case of very short-term instruments

One possible concern for calculating flows from stocks is that short-term instruments with a maturity of less than one month might not be captured at all. Though, unlike equity securities, the volatility of prices and secondary market trading is probably not very substantial for such instruments, there could be some gaps in the flow data due to exchange rate fluctuations or due to missing accruals calculated from stocks which simply might not be available.

The securities database of the OeNB was analysed for all securities issued after 1st January 1999 in order to find out how many securities had an intra-month maturity that could become problematic in stocks-only reporting schemes. The conclusion was that only a non-significant proportion of resident and non-resident short-term securities might pose a problem. However, recent developments have shown that the popularity of such securities is on the rise.

The conclusion is that presently securities issued with original maturity below one month should not be a big concern*. Nevertheless, it cannot be ruled out that this phenomenon might one day become a more substantial problem for stocks-only reporting systems.*

(4) Possible refinements of the flows-from-stocks derivation process

As mentioned above, any average price could reflect the actual transaction price in an unsatisfactory way if the actual transaction dates are unevenly disbursed and if the prices have been very volatile during the period. One possible strategy to avoid distortions in deriving flows from stocks could be the use of "refined" average prices to value the differences between the nominal stocks.

The fourth exercise tried to validate this idea by comparing three average prices which were calculated with different complexity: (1) the "mean" price; (2) the unweighted average; and (3) the weighted average price (weighted with the respective daily volumes), intended to represent the most refined average.

These prices were applied for the derivation of notional flows for those quoted shares already used in the second exercise (see above). These derived flows were compared with the actually measured flows for the year 2000. It could be shown that the weighted average price was usually the most accurate average price, though the differences between the three kinds of derived notional flows were very small for most of the selected shares. Not unexpectedly, there was also some correlation between the volatility of the individual share price and the differences in the average prices.

Considering the fact that the gross volumes of flows are usually dominated by a relatively small number of securities, it could be concluded that: ***(i) for those quoted shares which are both important for the overall aggregate in terms of gross flows and which show volatile prices a more complex algorithm to derive notional flows using "refined" average prices could be justified; (ii) for the bulk of the securities this seems not to be the case; and (iii) it should be noted that these results can only be applied in practice if a security-by-security system is in place.***

Conclusions:

- In any data collection system, the ideal solution would be to simultaneously collect information on both flows and stocks on a monthly basis;
- However, in order to reduce reporting burden and due to practical limitations of respondents' information systems it may not always be feasible to collect both flows and stocks.

Derivation of stocks from flows

- The accumulation of flows to build up stocks is currently a fairly common practice, which is not acceptable on an annual basis for a future data collection scheme, since any errors in the calculation of flows in one specific period would become permanent in any subsequent stock derived;
- Some specific circumstances (e.g. provision of external debt or calculation of accruals) may require producing stocks at a frequency higher than annual; the TF-PICS is of the opinion that cumulating flows to build up intra-annual stocks should be deemed an acceptable practice only if done on a security-by-security basis.

Derivation of flows from stocks

- The derivation of flows from stocks is advantageous in terms of reporting burden. Timeliness and high frequency reporting are other supportive arguments; on the other hand aspects such as the regular update of the SDB and the time to compile, process, check and correct the data would have to be taken into account;
- Furthermore, drawbacks such as decrease in accuracy, higher compilation and processing burden for the compiler, likely increase in errors and omissions (under the assumption that the offsetting entries were captured correctly) or information missed on gross stock market activity for cross border transactions should also be balanced;
- A prerequisite for the derivation of flows is the availability of stocks with monthly periodicity;
- Security-by-security data collection and compilation is much better suited for the derivation of flows from stocks than aggregated reporting. For the latter the risks of inaccuracies and errors are considerably higher;

- The process of deriving flows from stocks entails some inherent risks for the outcome in terms of other dimensions of quality (apart from timeliness), especially for instruments with high gross volumes of intra-period trading and highly volatile asset prices. For these securities the use of more complex average prices based on daily quotations and daily trading volumes might be worth considering;
- Distortions may affect particularly high frequency data (months), with lower distortions in cumulated periods (quarters, years). In times of very volatile asset prices the risks will increase;
- Despite the risks, it can be assumed that the end results of a flow-from-stocks scheme are inferior in terms of quality, but still acceptable if information on stocks is obtained with a monthly frequency and valuation differences can be calculated for specific time spans (e.g. on a security-by-security basis). This has to be weighed against the advantages in terms of reporting burden.

Repurchase agreements [26]

142. In this section, an in-depth analysis of whether the (non-) identification of securities temporarily lent out/ borrowed as distinguished from outright portfolio investment transactions could constitute a substantial problem for the compilation of portfolio investment figures.

143. In principle, end-investors may provide the compiler with separate information on their repo-type transactions. Thus the potential distortions these deals could cause to the assessment of portfolio investment mainly affect indirect reporting systems based on custodians, with less direct implications to either direct reporting systems or indirect systems based on settlements (in which communication channels need to be established between MFIs and clients beforehand).

144. The analysis focused on three different subjects:

(I) An assessment was made of the size of the repo-market in relation to the volume of the overall portfolio investment. Especial attention was paid to the breakdown by sectors of the repo market; [27]

(II) Local custodians were contacted in order to further seek whether or not they would be able to identify securities exchanged under repo-type agreements, considering both their own portfolios and their customers' securities accounts;

(III) Finally, in order to assess the overall picture of the problem as well as to seek which solutions are currently being implemented at country level, a questionnaire was designed and sent to the members of the TF-PICS in order to gather Member States' experience in the collection of information on repo-type transactions/positions.

---

[26] A complete overview of the functioning of the repo market can be found in the report released by the Technical Committee of the International Organization of Securities Commissions (IOSCO) and the BIS Committee on Payment and Settlement Systems (CPSS): "Securities lending transactions: market development and implications" (July 1999).

[27] To this aim, three empirical exercises were conducted in France, Spain and Luxembourg (see specific results in the box.) To access the whole set of results, please refer to the supplementary document "*Repo-type transactions/positions. Full report*".

Box IV.2: Empirical assessment of the repo market[28]

With the aim to assess the importance of the repo market, three empirical exercises were conducted in France, Spain and Luxembourg. The major conclusions of each exercise can be summarised as follows. In France, portfolio investment and repo-type stocks (including securities lending) corresponding to end-1998 were analysed. A wide majority of the individual securities studied, considering all instruments, were affected by repos, in most cases involving rather substantial amounts. However, the significance of repo-type positions in proportion to the total of portfolio investment stocks depended on the type of instrument concerned. The incidence of repo-type positions to total stocks was higher for bonds than for equity securities. In relative terms, bond instruments were more involved in securities lending than in pure repos, whereas equity securities were exchanged more often in pure repos than in securities lending.

As regards the degree of involvement of the different resident sectors in the repo market (as revealed by the open stocks as at end-1998) the most substantial part corresponded to the MFI sector, though the proportions corresponding to the non-financial sectors were neither negligible. The participation of the non-financial sectors (in comparison to the MFI sector) was proportionally more significant in the case of repo-type contracts with domestic securities than in the case of reverse stocks with foreign securities.

For Spain, data were gathered on the volume of repo-type transactions against portfolio investment flows in 2000. The exercise only covered transactions involving an exchange of cash (i.e. excluding securities lending). Broadly speaking, gross flows of repos and reverse repos doubled the size of outright purchases and sales of securities. Most repos in Spain involved the exchange of bonds and notes as collateral, although the proportion 'repo flows/portfolio investment flows' was much larger in the case of money market instruments. No repos with exchange of shares were registered during the period under study.

The high volume of gross transactions (notably due to the usually extremely short-term maturity of these contracts) revealed that the potential distortions stemming from repo-type contracts on the assessment of portfolio investment could be deemed more significant in the case of transactions than for portfolio investment stocks.

[28] In September 2001, the International Securities Market Association (ISMA) produced a similar empirical study: "*European repo market survey Number 1 – conducted June 2001*". On the basis of information provided by a sample of European banks, this survey came to fairly similar results in terms of e.g. the most usually exchanged collateral securities, distribution by maturity of the contracts, proportions between pure repos and securities lending and borrowing, etc.

Concerning the degree of involvement of the non-financial sector in the repo market, the results in Spain proved that only a minor part of the total gross flows corresponded to these sectors. This result could be deemed fairly logical since MFIs perform these transactions as a usual way of financing even intra-day so that the average life of their contracts is usually rather short thus being at the origin of the large proportion of gross flows of repos corresponding to the MFIs sector.

In Luxembourg, stocks of repurchase agreements in comparison with total portfolio investment positions in the balance sheet of the Luxembourg MFIs (1998-2001) were used to asses the size of the repo market. The data showed that since end-1998, repo stocks increased substantially. Repo positions with counterparts other than MFIs were clearly on an upward trend. Repo stocks vis-à-vis extra EMU counterparts also registered a significant increase since 1998, starting from almost negligible positions. This trend is especially noteworthy vis-à-vis non-MFI counterparts (though an upward tendency with MFI counterparts has also been registered). Repo positions with intra-EMU counterparts were quite stable, being virtually all of them vis-à-vis the MFI sector.

Information gathered from custodians

145. Several contacts were conducted at local level with custodians located in Luxembourg, France and Spain. These contacts were carried out either by questionnaires or direct interviews. The outcome of these contacts, which were undertaken by each country in an independent manner, are remarkably coincident, thus pointing to conclusions that may most likely be extrapolated to the rest of the countries. The main results of the investigations from these three countries can be summarised as follows:

- Information on repos and similar contracts conducted by banks on their own account is generally available, even on a security-by-security basis and at a monthly frequency;
- Data from custodians on repos performed by clients are generally poor or not available at all;
- Information on flows is much less readily available than information on stocks;
- This information is most usually available on a security-by-security basis;
- Even if the details on own repo positions/transactions are available in internal systems, these systems can not always be adapted to statistical reporting.

Outcome of the questionnaire

146. A questionnaire was circulated among b.o.p. compilers within the 15 members of the European Union. It was intended to gather different views as regard the potential problems derived from the fact that the balance of the securities accounts held by custodians' customers could be distorted by securities temporarily acquired/borrowed, which cannot be easily distinguished from the account holders' outright portfolios. At the same time, it was also intended to deliver an overview of the information sources currently used by member states for repo-type transactions/positions.

147. In short, the outcome of the questionnaire could be summarised as follows: the magnitude of the problem seems indeed relevant, since a wide majority of member states either collect or plan to collect information on portfolio investment stocks/flows from domestic custodians and most of them recognise that custodians are not able to easily identify repo positions/transactions in the balance of the securities accounts of their customers.

148. Apparently there are not many potential sources currently exploited for the provision of information on repo positions/transactions. Among them, banks' balance sheets are most often used to adjust portfolios of the MFIs sector, whereas banks' settlements and direct reporting by resident investors are the most common information sources for repos of the other resident sectors. This stands against some ongoing developments (e.g. forthcoming European legislation on cross-border settlements), whose evolution could jeopardise the applicability of settlements for the derivation of inter-alia useful information on repo transactions in the short-medium term.

149. The situation is even more critical as regards the correct allocation of portfolio investment assets among resident sectors, since the information on domestic repos with foreign securities is more difficult to capture by means of pure b.o.p. sources except in case of direct reporting systems.

150. A large number of countries currently rely on adjustments directly performed by reporting agencies (e.g. domestic custodians or end-investors) to the portfolio investment transactions/positions declared to the b.o.p. compiler (held on their own behalf or on behalf of their clients). However, such an approach offers little (if any) opportunity for checking the validity of adjustments performed by custodians. Furthermore, the general impression expressed was that custodians may to a large extent lack the information on repos carried out by their customers and thus the accuracy of such adjustments might be questionable.

Conclusions:

- High overall significance of the repo market;
- Given the usually rather short maturity of these contracts and, thus, the large volume of gross flows involved, the distortions are more significant for portfolio investment transactions than for positions;
- In some countries, most repo-type contracts are carried out by MFIs. The proportions corresponding to resident sectors other than MFIs are in those countries relatively limited (being more prominent for stocks than for flows);
- In principle, end-investors are able to provide the compiler with separate information on their repo-type transactions. Thus the distortions detected by the TF-PICS mainly affect indirect reporting systems based on custodians, with less direct distortions on direct reporting systems and indirect systems based on settlements (in which communication channels need to be established between MFIs and clients beforehand);
- Custodians can identify their own repo-type transactions and positions, i.e. generally speaking, MFIs' repos should not constitute a problem;
- Custodians cannot identify customers' repos;
- The relevance of the problem for indirect reporting depends on the participation of resident sectors other than MFIs in the repo market (rather limited so far in the countries investigated by the TF-PICS, i.e. France, Spain and Luxembourg) and on the fact that indirect reporting is based on custodians;

- At present many countries do only get valuable information on repo-type transactions from settlements. The future availability of this information source stands against some ongoing developments (e.g. forthcoming European legislation on cross-border settlements);
- Other sources for the relevant adjustments to the information provided by custodians on customers' holdings could be reported directly by end-investors and/or asset managers (which are normally fully aware of the final destination of their clients' funds);
- In an indirect reporting scheme, only resident institutions within sectors potentially active in the market (e.g. institutional investors) could require monthly reporting for these adjustments to correct the information provided by custodians;
- Other market participants could report at lower frequency (e.g. quarterly or annually) to monitor that their participation in the market can still be deemed not substantial. The provision of the required information very frequently (e.g. monthly/quarterly) and within the appropriate timeliness could be uncertain in some countries;
- In addition to the possible corrections needed in the field of portfolio investment, the TF-PICS is of the opinion that separate reporting on repos may also be useful for analytical purposes and to cover potential future output requirements (e.g. ongoing discussions concerning BPM6 on separate disclosure of repos). It should be borne in mind that in any case it will always be necessary to show repo transactions as loans/deposits in the other investment account.

Distinguishing between portfolio investment and direct investment

151. According to BPM5, all tradable shares and debt securities held between associated enterprises should be recorded as direct investment in the balance of payments and the international investment position. Two potential problems can arise from this guideline. Double counting can occur when such instruments are included in both direct investment and portfolio investment reports. Otherwise, by including such holdings in portfolio investment and excluding them from direct investment, a misclassification is made.

152. In the case of flows, in closed settlement-based systems co-existent real and neutral transactions may lead to misclassifications and/or double counting. In open settlement systems double counting is avoided although misclassification remains a risk. For stocks, the compilation of both direct investment and portfolio investment requires conducting tailored surveys addressed to either end-investors or custodians.

153. For data collected via surveys, the analysis requires separate consideration of assets and liabilities. As regards assets, when using direct reporting for both portfolio investment assets and direct investment abroad, clear guidelines can be provided to the reporter so that double counting and misclassifications can easily be avoided, even though correct application by reporters can never be ensured. When indirect reporting through custodians is used for portfolio investment assets, corrections are often necessary since custodians will not have complete information on the relationship between the resident clients and the i associated non-resident companies. These corrections could either be done by the compiler or by the custodian when provided with a list of both end-investors and issuers.

154. For the liabilities side, the first section of this chapter already highlighted the main problems. No portfolio-investment system, except when share registers are used, is able to exclude securities held by associated non-resident companies from portfolio liabilities. Separate corrections therefore have to be made on the basis of either direct investment data itself or on the basis of information from other sources.

155. In all cases, identification of the type of the security, the issuer and the end-investor is necessary. Security-by-security reporting would therefore be most useful to make corrections.

156. It is of utmost importance highlighting the practical difficulties the implementation of any correction entails, especially to adjust portfolio investment figures collected indirectly via e.g. custodians. Ahead of the adjustment, it is necessary to isolate first securities kept in self-custody by direct investors (i.e. outside the custodian chain), since no correction would then be necessary. Any other adjustment concerning securities not previously reported by domestic custodians (e.g. securities in custody abroad) could be equally erroneous. All this suggests that a careful analysis of the type of information collected would be an absolute necessity.

Conclusions:

- In the case of flows, in closed settlement-based systems co-existent real and neutral transactions may lead to misclassifications and/or double counting; in open settlement systems double counting is avoided although misclassification remains a risk;
- For assets, double counting and misclassifications are most easily avoided through the use of direct reporting. When indirect reporting through custodians is used, corrections are necessary;
- For liabilities, all systems require corrections for direct investment (except when using share registers);
- For these corrections information on the issuer and on the end-investor is needed. Security-by-security reporting is most useful in this regard;
- In any case, a careful analysis should be conducted beforehand in order to exclude from the corrections securities not previously reported as portfolio investment (e.g. securities in self-custody or deposited abroad).

Sampling and grossing up techniques (in the context of s-b-s reporting)

157. The use of sampling and grossing up techniques for the collection of b.o.p. figures is currently not a widespread practice. This kind of techniques are mainly in use in some of the countries running collection systems based on surveys directly addressed to the relevant reporting agencies (i.e. not passing through other indirect reporters like e.g. domestic MFIs).

158. More specifically, a detailed investigation of the applicability of these techniques for the collection of portfolio investment figures (e.g. identification of the frame population, sample design, references for grossing up the figures, information sources to update the relevant registers, etc.) was seen as too demanding by the TF-PICS. Hence, it is recommended conducting a more careful analysis of this subject as part of the follow-up work to be completed subsequently (see chapter VI).

159. However, the TF-PICS is in particular interested whether these techniques could be compatible with information collected security by security. As a start a single study on the feasibility of sampling and grossing up on a security-by-security basis was carried out.[29]

160. This contribution deals with a special aspect of sampling and grossing up procedures: The possibility to gross up on a security-by-security level for portfolio investment. The assumptions underlying to this analysis would be the following:

- Data collection is done on a security-by-security basis. This implies that the respondents only report ISIN-codes with nominal values/numbers for stocks and/or transaction values for flows. The individual reporting form comprises the complete range of securities holdings. No classification and, at least for stocks, no valuation or classification work is done by the respondent. These procedures are part of the compilation process on the compiler's side, which implies the existence of a securities database;
- The collection and grossing up of data refers only to holdings of securities by the respondents. These holdings may also comprise resident issues held with resident and/or non-resident custodians, depending on the type of calculation method for the liabilities side (mixed or residual approach). The question of grossing up on a security-by-security level does not arise for the liabilities side, i.e. outstanding amounts of resident issues which may have to be collected directly from issuers, unless they can be derived from a reference SDB;
- Data is collected only directly from respondents. No custodian information is used;
- No census is conducted as far as the regular data collection is concerned. Questionnaires are sent to stratified samples of respondents and the results are grossed up. Grossing up in this context does not refer to a mere "cutting-off-the-tail" where only a comparatively small percentage is added in order to compensate for data below a certain reporting threshold. It is

[29] This analysis is based on the investigations performed by Austria. General material (including empirical results) as well as an introductory and overview on sampling techniques prepared by Finland are presented in the supplementary document "*Sampling and grossing up*".

assumed that a major part of the potential reporting population is not really asked for data and has to be taken into consideration by way of estimation.

161. There are two scenarios how the data can be grossed up in such a collection system:

1. The security-by-security data is only used for classification/valuation/checking-purposes on the respondents' level and the grossing up is then done based on the aggregates received from the respondents. In this case the availability and usage of security-by-security data basically stops at the level of the respondent. The intermediate and final aggregates do not have any security-by-security breakdowns;

2. The security-by-security data itself is grossed up with the underlying assumption that either the portfolios of respondents are very "similar" even on the level of individual securities or that the sample is so big that such a grossing up can be made with high accuracy. The overall aggregates would still be available broken down by individual securities, if needed.

Scenario 1: Collection on security-by-security basis and grossing up of aggregates

162. In this scenario the sampling and grossing up process is not very different from a collection system based on aggregated data. The difference between security-by-security and aggregated data collection in this context would be limited to the level of the reporting form sent to the respondent.

163. All the advantages and disadvantages of security-by-security data collection apply in this context, too. Consequently the quality of the collected data which serve as a starting point for further compilation procedures could be higher. However, once the respondents' data have been classified, checked and, if necessary, valued the compiler more or less "leaves" the world of security-by-security data collection and continues working on aggregated data. In other words, once the grossing up process starts, there is no particular difference to a system where the data have been collected from respondents on an aggregated basis in the first place. Neither the selection of the sample nor the grossing up would have to be much different whether security-by-security or aggregated data collection is used. In an ideal case the outcome at the respondent's level should be the same.

164. It could be concluded that in a scenario where the data is collected security-by-security but grossed-up on an aggregated basis, some advantages would be lost (e.g. reduced quality and consistency checking at the level of individual securities, smaller analytical value, etc.). Given the proper IT-infrastructure, (i.e. storing the data on the respondents' level) some other advantages would remain though, e.g. ability to obtain new breakdowns and to adapt to new requirements. However, the flexibility of this approach would actually be smaller if new samples were needed to derive new breakdowns. Only if the same sample were also valid to obtain new breakdowns, then the security-by-security approach could still be worth, as it could offer more flexibility than the aggregated approach.

Scenario 2: Collection on security-by-security basis and grossing up on the level of the individual security

165. The second scenario tries to avoid the insufficiencies of the first scenario by grossing up every single security up to the level of the final aggregates. Grossing up procedures would consequently have to be detailed enough to be applied on the level of every single security. The question is whether it is possible to carry out such a grossing up procedure with sufficient accuracy.

166. In any sampling and grossing up procedure the quality of the outcome depends , among other things, mainly on the following aspects:

- The register about the potential reporting population on which the sample must be based;
- The selection procedure for the sample;
- The size of the sample;
- The grossing up procedure.

167. Regarding the selection procedures it is safe to assume that this process mainly depends on the availability and quality of register information. At best it can be expected that such information provide some clues about the overall importance of portfolio investments of potential respondents but not about how "representative" the individual portfolios at any point in time might be. Therefore it can be assumed that no special provisions can be made in the stage of sample selection to enable a better grossing up on a security-by-security level.

168. Regarding the size of the sample it can be said that a general rule is: "the bigger the sample the better the quality and breakdowns of the data". In other words, the more breakdowns for outputs required (country-by-country, instruments etc.), the bigger the sample would have to be. The breakdown by ISIN can be considered to be the most challenging breakdown imaginable. This would lead to the conclusion that a meaningful grossing up on the level of the individual security would require a very big sample which, especially in the case of portfolio investment, should be close to a census. One big advantage of collecting data on a security-by-security basis in this context would be the fact that at least the questionnaire itself would not have to be made more detailed and complicated for the respondent. The linkage between the ISIN-code given by the respondent and the securities database would automatically provide all the classifications included in this database.

169. In this context the question has to be asked whether it is actually necessary to do sampling and significant grossing up for all resident sectors in the field of portfolio investment. As far as companies from the financial sectors are concerned, it is safe to assume that most countries will try to reach a fairly extensive coverage of respondents. The same will probably apply to non-financial enterprises in the field of portfolio investment since the number of relevant investors or issuers in this sector is also usually limited.

170. The number of relevant "players" in cross-border portfolio investment for sectors like MFIs, institutional investors and enterprises will, at least in many countries, be relatively limited. Therefore, carrying out an (almost) census (incl. some cutting-off-the-tail) may very well be a feasible option. This may be different for the household sector as long as only direct reporting is considered, but this aspect is already tackled in other sections of this chapter. For some countries, setting up, maintaining and updating the register could be a very complicated task. The identification of the relevant "players" could also be a difficult task, especially when anonymity is in force and it is not possible to keep track internally of the individual residents involved in cross-border portfolio investment transactions (in e.g. some settlement-based systems).

Box IV.3: Empirical exercise in Austria

In order to substantiate this analysis, one empirical exercise was performed with non-financial direct reporters in Austria with securities deposited with custodians abroad. The aim of this exercise was to find out whether the respondents' portfolios were representative enough to allow a grossing up even on the level of individual securities.

The figures showed that the portfolios of respondents were very diverse on the level of the individual security. A grossing up on this level did not appear to guarantee obtaining an accurate overall picture. Therefore, the conclusion could be that it is highly unlikely that a meaningful grossing up can actually be carried out at the level of individual securities. The size of the sample to enable such a detailed grossing up would be close to a census. For some sectors of the economy the latter may actually be a feasible option due to the usually limited number of relevant players.

Conclusions:

- The applicability of these techniques for the collection of portfolio investment figures (e.g. identification of the frame population, sample design, references for grossing up the figures, information sources to update the relevant registers, etc.) deserves a thorough analysis, which should include inter alia how to identify the relevant players in portfolio investment, especially in countries with restrictions linked to anonymity. It is therefore recommended to conduct such an analysis as part of the follow-up work.

Applicability of these techniques to portfolio investment on a security-by-security basis:

- Any survey system, even when based on sampling and grossing up, could include security-by-security reporting in the primary data collection from the respondents;
- Using security-by-security reporting forms in direct reporting/survey systems would basically have the same advantages as in indirect collection systems;
- There should be no problem in grossing up aggregates that were originally collected on a security-by-security basis. There should also be no need to make special provisions in the sample selection in case of security-by-security reporting;
- Some of the advantages of a security-by-security system are, however, lost if the grossing up in the course of the compilation process cannot be done on a security-by-security, but only on an aggregated level.

Grossing up

- Some empirical evidence, though not totally conclusive, suggests that a meaningful grossing up of the results of sample surveys at the level of individual securities is not feasible. The diversity of respondents' portfolios broken down by ISIN may be too high;
- The size of the sample to enable such a detailed grossing up would probably be close to a census. For some sectors of the economy the latter may actually be a feasible option due to the usually limited number of relevant players (considering difficulties in some countries due to the restrictions imposed to preserve anonymity).

The case of multinational companies (as of October 2001)

171. In the course of analysing potential future reporting systems for portfolio investment it became clear that it was necessary to take a closer look at the ongoing work of TG-DR on reporting forms for multinationals.

172. While TG-DR was investigating a reporting scheme (including portfolio investment) specifically for companies, TF-PICS was mandated to develop an overall concept for portfolio investment collection encompassing all holding sectors. Some overlaps in the work of both groups were apparent. Since TG-DR intended to approach reporting agents with concrete proposals for reporting forms, both the TG-DR and the TF-PICS felt it necessary to exchange views and experiences. The TF-PICS contacted the TG-DR with the offer to study the multinational model in the context of its own investigations, the results of which are presented hereafter.

Analysing the compatibility of the concepts

173. The proposed reporting forms for portfolio investment of the TG-DR were analysed and compared with the concepts and ideas discussed by the TF-PICS. Though neither group had final results or conclusions at the time this investigation was carried out, the concepts in both groups were developed far enough to discover potential caveats and inconsistencies. The underlying assumption was that the final recommendations of the TF-PICS would not necessarily derive one single detailed collection system but rather on a framework of best practices to be applied depending on the countries' specific circumstances under a costs/merits perspective. The main points raised by the TF-PICS were:

- Calculation of the liabilities side: the reporting forms were designed to fit the mixed approach and did not take account of other ways to calculate the liabilities side (residual or share register approach);
- Existence of direct/indirect reporting systems: the possibility of having any indirect reporting for multinationals' assets was excluded due to the lack of a breakdown of the directly reported holdings according to place of custody;
- Aggregated vs. security-by-security reporting: according to the proposal this would be left to the respondent's choice. The feasibility of leaving the choice of the way of reporting to the respondent was doubted by some, though not all TF-PICS members that carried out the analyses.

Technical comments

174. Additional comments of more technical nature and regarding the wording of some of the guidelines for multinationals were also made, especially concerning the distinction between direct and portfolio investment in the forms.

175. Some of the remarks made by the TF-PICS in the course of August and September 2001 were taken on board in a subsequent version of the reporting forms for multinationals, allowing for more flexibility in the calculation of liabilities (residual approach was included) and in direct/indirect reporting (a breakdown of holdings by place of custody was included).

Investigating the importance of multinationals for portfolio investment

176. A fact-finding exercise was carried out to assess the importance of portfolio investment transactions and stocks that might be directly reported by multinational companies. In a questionnaire the b.o.p. compilers of the EU Member States were asked to evaluate the importance of non-financial multinational companies (parents and their subsidiaries) as holders or issuers in the area of portfolio investment. In case that no data on multinationals were available directly, an assessment of the entire sector non-financial enterprises (SNA 11000) was asked for. This investigation was based mainly on stock data ranging from 1998 to 2000 (depending on the availability of data in each country) and does not allow definitive conclusions about future developments.

177. The results revealed that in the majority of countries the multinationals' contributions (or, alternatively for some countries, the contribution of non-financial enterprises) to the total aggregates per instrument for assets were considered to be less than 5%. Although this could represent billions of euros in stocks and flows, multinational companies outside the banking sector are clearly more important for direct and other investment. Conversely portfolio investment seems to be more dominated by (multinationals of) the financial sectors, which are not covered by the approach under discussion (in October 2001).

178. However, the situation was different from country to country. The average size and structure of companies and the degree of their international affiliations are apparently not always comparable. In addition, the types of investments and financing of non-financial multinational companies may be different, too. Multinational companies, especially those of smaller member states, sometimes play quite an important role as issuers of securities, especially of shares. There was less evidence that multinationals act as major holders of securities compared to other sectors of the economy.

Conclusions

- The main conclusion of TF-PICS regarding the multinationals exercise was that the reporting forms for portfolio investment (version of August 2001) were not flexible enough to fit to the various potential data collection models for portfolio investment. Some extensions of the reporting forms were recommended in order to ensure that these forms would fit into the future framework of portfolio investment collection systems;
- In the majority of cases and countries the relative importance of either non-financial or multinational companies for portfolio investment assets seems not very high, although the absolute figures may not be negligible. As regards liabilities, the importance of these companies as issuers of securities (in an upward trend in euro markets as a result of disintermediation processes and intensification of euro issuance) can be deemed significant for some (especially small) countries.

V. Ways of approaching the reporting population

179. The first part of this chapter presents a general overview on the channels through which b.o.p. compilers can obtain the relevant information on portfolio investment transactions and positions. It is important to highlight that these ways of getting information from reporting agencies do not represent themselves any complete data collection model nor recommendations by the TF-PICS. In order to be used in practice, any single approach normally requires a combination with either of the remaining two channels to a certain extent. (For instance in order to approach specific sectors with particularly problematic features, to complete flows statistics with the production of pure stocks, to implement certain adjustments, to increase the level of coverage, etc. since they may often complement each other.)

180. The TF-PICS identified three different channels for getting the information from the reporting population. (A) and (C) represent indirect channels, whereas (B) corresponds to a direct approach. The three channels are as follows (for an overview see annex 5):

(A) Indirect reporting through settlements reported by domestic banks on their own transactions and transactions executed on behalf of their clients;

(B) Direct reporting by all domestic issuers/end-investors;

(C) Indirect reporting through the information gathered from custodians or other intermediaries (e.g. asset managers/brokers/dealers).

181. The current deployment of these three alternatives is rather different since the first approach constitutes a basic pillar of the collection system for portfolio investment in many member states, whereas the other two channels are less widely spread as a way to approach comprehensively the whole population. However, both (B) and (C) are much more used to complement the first approach either to obtain some missing information (e.g. transactions settled through accounts abroad), to cover some problematic sectors of the economy (e.g. households) or to collect stock statistics, normally at lower frequency. (B) and (C) can also be complementary among themselves (e.g. for the provision of adjustments, complementary source for checking purposes, etc.)

182. All ways of approaching reporters are in principle compatible with security-by-security reporting. Likewise, channels B and C could rely on the reporting of only stocks or flows (probably in combination with security-by-security reporting), being then derived flows or stocks respectively (though the Task Force does not consider an acceptable practice calculating stocks by accumulation of flows on a yearly basis).

183. The three channels are assessed according to the following criteria:

- Reporting:
  - Description of the reporting population;
  - Size of the reporting population;
  - Frequency of reporting.
- The output requirements as defined in chapter I, with the following requirements as an absolute minimum (basic requirements):
  - Monthly flows;
  - Annual stocks; quarterly stocks (in order to e.g. cross check monetary statistics, calculation of accruals, provide external debt statistics to the IMF, etc.) is deemed an additional merit;
  - Instrument breakdown according to BPM5;
  - Sector of the holder according to BPM5 for assets;
  - Country of the issuer (EMU/non-EMU) for assets;
  - Sector of the issuer according to BPM5 for deriving a sector breakdown of liabilities.
- The criteria for timeliness were taken as those currently set out in the ECB Guideline ECB/2000/4:
  - Monthly flow data within 30 working days;
  - Annual stock data within 9 months.
- Availability of quality and consistency checks;
- Ability to provide information on income.

184. Furthermore, there is an evident link between the conclusions extracted from the technical analyses carried out in chapter IV and the different channels for the collection of portfolio investment figures. Actually, in the analysis of some specific issues included in the former chapter it was stated several times (e.g. security-by-security versus aggregate reporting, recording of stocks and/or flows, etc.) that the underlying benchmark data collection system and the specific reporting sector may influence the interpretation of the results. Following this reasoning, these three ways of collecting information have also been investigated with respect to a number of special subjects: the distinction between direct and portfolio investment, correcting for repos and similar contracts and the possible use of TPR. In addition, their adaptability to the collection of information security-by-security and whether only stocks and/or flows could be collected have also been considered for each specific channel. At the end of each analysis a qualitative assessment of costs and benefits associated to each approach summarises the main conclusions.

185. In addition, by assessing the channels this way it is intended to derive arguments on their applicability along the so-called “matrix approach”, i.e. pros and cons of each channel are weighed up within the framework of each individual sector of the economy (see chapter VI).

186. The way in which these three channels are combined on practical grounds at present is illustrated in the second part of this chapter by presenting current practices and future plans for new collection systems in countries within the European Union.

Channel A: indirect reporting through settlements collected from domestic banks

Flows – reporting

187. Settlement systems, or International Transaction Reporting Systems (ITRS), are still widely used in Europe. In principle, transactions in portfolio investment are collected from purchases and sales of securities (mostly reported by banks on the basis of changes in accounts). The main group of reporting entities therefore consists of banks. This population is relatively concentrated and coverage is therefore usually quite high for a small group of reporters.

188. As far as economic agents use banks outside the compilers' country, data from the banks have to be supplemented with direct reporting on accounts abroad, i.e. by making use of channel (B) to supplement pure settlements. This population is more scattered and harder to identify. It is also much larger than the group of banks (even if MFIs may be usually dominant, especially in some countries, and constitute the most reliable group of reporters).

Flows – output requirements

189. Settlement systems are usually operated in monthly production cycles. This, in combination with the relatively small reporting population of banks and direct reporters, makes them very capable in collecting monthly data with high coverage. The transactions have to be classified according to the country of the issuer into domestic securities and foreign securities (assets and liabilities), by type of security, by sector of the issuer and for assets by sector of the holder. As far as banks report the information, they sometimes have to consult their clients for these details (e.g. for blank receipts) which is very labour intensive and costly. When security-by-security reporting is used, these classifications can be made by the compiler (with the exception of the sector breakdown of the holders), but this requires the provision of a security identifier (such as the ISIN code) with each transaction. For the majority (though not all) of the participating countries, most relevant flows in portfolio investment correspond to banks' own transactions, for which the provision of an identification code does not pose any problem.

190. Closed settlement systems have a disadvantage in that it is becoming much harder to identify "real" from "neutral" transactions. The use of multilateral settlement systems for securities (such as those operated by Euroclear and Clearstream) has made this more apparent in recent years. Settlement systems, which focus on cross border payments, usually do not cover transactions in foreign securities between residents. This leads to a false sector attribution, which can be corrected by making use of stocks collected through either of the other two channels (B) or (C). In this regard, the availability of stocks normally at a frequency lower than monthly could constitute a problem.

191. Following international guidelines on the treatment of repo-type transactions is not a major problem, since transactions can only be classified once in a settlement system. Like for repos, double counting of portfolio investment and direct investment transactions in a settlement system is prevented. Misclassification is still a possibility though.

Flows – timeliness

192. Timeliness is usually very good for settlement systems. The small population and the high degree to which reporting can be automated by banks makes it possible to compile monthly data within short deadlines. Timeliness for the reporting of transactions through accounts abroad by direct reporters is substantially lower.

Stocks – reporting

193. Settlement systems themselves are not suitable for compiling real stocks. Accumulation of flows does not produce reliable data[30]. It has to be borne in mind that any errors in the calculation of flows in one specific period would become permanent in any subsequent stock derived from the accumulation of flows. Therefore, real stock data should be available at least yearly. The accumulation of flows to build up stocks may be acceptable for first estimates of annual stocks and for intra-year stocks.

194. A separate data collection system therefore has to be set up for stocks at least on annual basis. This requires complementing channel (A) with either of the other two channels for approaching the reporting population. In most cases, this is a custodian survey, i.e. channel (C).

195. In the case of channel (C), i.e. a custodian survey, the population of reporting entities is well known since these are banks that also report for the settlement system. The size of the population is therefore also relatively small. However, this channel requires some adjustments to the figures collected from custodians, which most of the time have to be provided directly by domestic issuers and end-investors, i.e. by making use of channel (B). For instance, in some countries, due to the increase in the use of global custodians, it has been necessary to supplement the reporting of domestic custodians with direct reporting of securities held with custodians abroad. Moreover, repo-type positions corresponding to custodians' customers should also be provided to correct the information reported by custodians. In addition, for the compilation of portfolio investment liabilities, due to the practise of cross-listings (ADRs and such) and the popularity of international (euro-)bonds, securities issued abroad also have to be reported directly (unless liabilities are compiled using the residual approach and making use of the information provided through a SDB).

[30] See also: Task Force on Portfolio Investment, full report and executive summary endorsed by the WG-BP&ER in September 1999 (ST/STC/BP/TFPIFIRE.DOC and ST/STC/BP/TFPIEXSU.DOC, 22 September 1999).

196. TPR could, depending on the coverage, replace the reporting of direct reporters for the assets side, thus limiting dependence from channel (B). A partial variant of TPR (i.e. limited to some specific sectors of the economy like e.g. households) could improve the level of coverage, filling some of the gaps resulting from missing reporters. On the liability side, it could possibly add some geographical detail. To derive the whole of the liabilities side would only be practical in very widespread international data sharing.

Stocks – output requirements

197. As indicated above, channel (A) needs to be complemented with stock statistics at least on an annual basis using either of the other two channels, normally channel (C), which actually corresponds to a stocks only version of the indirect reporting survey. Custodians have to split their securities in custody by resident client/sector of the holder. Alternatively in some countries (e.g. Spain) custodians report using individual identifiers for their customers like e.g. fiscal numbers, so that the sector breakdown can be obtained by the compiler itself using appropriate registers. In addition, without security-by-security reporting custodians have to split foreign securities by type of security and by country of issuer. These data have to be supplemented with direct reports of securities held with custodians abroad according to the same classifications.

198. For liabilities, both prevailing compilation systems (residual and mixed approach) are compatible with the survey on custodians. Both approaches require the collection of data on resident holdings of domestic securities at least partially [31]: (i) the mixed approach only requires data on such domestic holdings with custodians abroad via direct reports Moreover, due to the increase in issues abroad, the use of CSD-to-CSD links and global custodians, the custodian survey itself has become more complicated and the need for direct reporting has mounted. (ii) As regards the residual approach, it entails an enlargement of custodian reports to all clients' holdings of resident securities. In this regard, similar difficulties to those mentioned for the mixed approach can be encountered concerning the expansion of domestic issues in international markets and domestic securities by residents held in custody abroad. While the first concern could be solved by means of information provided by securities databases, the second one would also require the provision of complementary information directly by end-investors, i.e. again making use of channel (B).

199. In the custodian survey, specific corrections need to be made for securities lent or borrowed Also, in general, direct investment relations are not known to the custodian so that double counting could result. Security-by-security information could provide a solution for this.[32.]

---

31 See "*Collecting data for and compiling portfolio investment liabilities*" in chapter IV.

32 For further details on these problems, see the respective selected issues in chapter IV.

Stocks – timeliness

200. Custodians are usually able to provide the data within short deadlines and with high frequency. In fact, experience has shown that quarterly or monthly surveys are reported more dutifully as the advantages of automating the survey are larger than for annual surveys (even if high-frequency surveys security-by-security are more burdensome for compilers in terms of time to receive, process and check the information). Direct reporters have more trouble in retrieving the information in time, since they are sometimes dependent on their custodians abroad to provide the necessary information.

Quality and consistency checks

201. Since the settlement system requires a more or less independent source for the provision of stocks (as already mentioned, most of the times via custodian surveys), aggregate reporting provides direct and micro-level consistency checks. When both are combined with security-by-security reporting at a high frequency, more sophisticated checks are feasible. Possible causes for inconsistencies between transactions provided through settlements and stocks collected from a custodian survey are the treatment of repos, differences in population coverage (especially the group of direct reporters), transactions between residents in foreign securities or the application of different geographical principles (debtor/creditor vs. first known counterpart). The regular and automated integration and reconciliation of the data from the custody survey and from the settlement system could also be used to overcome some of the gaps and deficiencies of settlement data, i.e. using stocks to derive better sectoral breakdowns of settlement flows, to generate flows between resident sectors and to calculate accruals which cannot be captured via settlements.

Provision of information on income

202. Income from portfolio investment is usually collected as part of the regular reporting in settlement systems. However, the raw data is usually on a payments basis and not on an accrual basis. Without security-by-security information in combination with accurate information on monthly stocks of securities it is very difficult to compile accrued income.

Box V.1: Summary qualitative assessment of merits and costs

Pros/merits:

- Size of the reporting population (MFIs): relatively small; long history of co-operation with NCBs;
- Good timeliness (ability to deliver data at high frequency within the appropriate deadlines);
- Relatively easy to adapt to security-by-security reporting (thus enabling further quality checks);
- Limited problem of double counting (direct/portfolio investment).

Cons/costs

- Problems derived from the widespread use of netting and clearing techniques;
- Need for some complementary information via channel (B) e.g. settlements through accounts with foreign banks;
- Need to supplement at least on an annual basis with pure stock statistics, e.g. by making use of channel (C);
- Difficulties to deliver income figures on an accrual basis (unless calculated using monthly stocks security-by-security in combination with the information provided by a SDB);
- No geographical breakdown of liabilities based on the creditor principle (information may exist on a transactor basis).

Channel B: direct reporting from resident issuers/end-investors

Reporting

203. Assets: The reporting population consists in principle of all end-investors. However, on practical grounds in the case of some resident sectors only a sample of the total population may be covered. Therefore, a good register for each of the sectors is an absolute necessity[33]. Direct reporters can be classified by sector by the compiler at the level of detail required as the sector of holder corresponds to sector of the reporter and the detail in this classification only depends on the information with the compiler. In terms of deriving correct resident sectoral breakdowns direct reporting may present an advantage over settlements and custodian reporting where, in the case of most countries, indirectly classified flows or stocks have to be used.

204. A full integration at micro level of flows and stocks on the asset side in this approach would require respondents to report their stocks as well as all transactions in these instruments, regardless if these transactions have been made with residents or non-residents. By adding all reported transactions, it is intended that transactions between residents be cancelled out, resulting into an integrated stock-flow statistic vis-à-vis other countries. However, it should be observed that due to practical limitations of respondents' information systems it might not always be feasible to collect both flows and stocks[34].

205. An exception to direct reporting could involve households. Resources are usually too scarce to organise extensive household surveys at a high frequency. Using indirect reporting for households (i.e. channel (C), that is a custodian survey) could provide enough coverage as long as households do not use custodians outside their country of residence. Insofar as households act like larger direct reporters (such as institutional investors) and hold securities with foreign custodians, a regularly held direct reporting survey would still be necessary. A reduced version of the TPR approach (limited to households) could also improve the coverage of this sector.

206. Liabilities: The residual approach is the only actual direct reporting approach to collecting data on liabilities, except where share register information can be provided by the issuer. Direct reporting by non-resident end-investors is not feasible. No geographical breakdown can be provided through this approach. The data collected actually relates to investments by residents in domestic securities and issues (domestic and/or abroad). (With a security-by-security reporting, the latter information could be retrieved from the security database.) This channel is ideally suited to combine the collection of data for b.o.p. and MUFA. In the share register approach, registers of the holders of securities issued are held by the issuing company or by a registrar acting on behalf of the issuer. This register can be used to identify non-resident holders. [35]

---

[33] See more details in chapter IV and the supplementary document on "*Sampling and grossing up*"

[34] See conclusions of "Recording of stocks and/or flows" in chapter IV

[35] See conclusions on the share register approach within *Collecting data for and compiling portfolio investment liabilities* in Chapter IV

Output requirements

207. In order to collect reliable flow data, an integrated stock-flow reporting model could be used on a monthly basis, though the ability of this model to provide monthly data for all sectors should be carefully tested in each specific country. One alternative would be to collect only stocks with a monthly frequency security-by-security and to derive the flows. Type of security, sector of the issuer and other possible classifications are then also derived on the basis of data from a securities database. Otherwise, the reporter has to supply aggregate data with these classifications.

208. For assets, clear guidelines are needed to avoid double counting of portfolio investment and direct investment. On the liability side the data are to be corrected for securities held by associated non-resident companies. Repurchase agreements and the like need special attention, possibly in separate forms.

Timeliness

209. Like with channel (A), direct reporters are often dependent on their custodians for information. Many large professional end-investors (banks naturally) have the information themselves. Reporting could be less timely, although important direct reporters would have a strong incentive to automate the reporting when required to do so at a high frequency.

Quality and consistency checks

210. In particular the integrated stock-flow model provides powerful consistency checks (though as long as both flows and stocks are derived from the same source, comparison with other information sources would ensure further consistency). Direct reporting also allows micro- (by reporter) consistency checks with other data (annual reports, other statistics).

Provision of information on income

211. Income is usually collected from direct reporters on an accrual basis. However, this information does most probably follow accounting valuation rules and thus may not fully comply with statistical guidelines.

Box V.2: Summary qualitative assessment of merits and costs

Pros/merits:

- The most relevant reporters are potentially covered (no need to complement with additional information);
- Possibility of full reconciliation between flows and stocks;
- More macro- and micro-analytical consistency checks;
- Income figures can be delivered on an accruals basis (though probably following accounting guidelines rather than statistical valuation rules);
- Ability to distinguish between direct and portfolio investment on the assets side (and also on the liabilities side if the share register approach is in place)

Cons/costs

- Large size of (potential) reporting population (e.g. households), which makes it advisable not to approach the whole census but rather a sample, at least in the case of some resident sectors. In that case, procedures for grossing up have to be applied;
- Possible difficulties associated to timeliness, i.e. there can be problems to receive the data at high frequency and within the appropriate deadlines, especially for some specific sectors (e.g. small non-financial enterprises);
- It can be more difficult to integrate security-by-security reporting in the case of sectors (like e.g. small enterprises) not familiar with this way of reporting/storing the information (though maybe there is not enough experience on this stance yet);
- The stock-flow model is based on the BPM5 principles and methodology, which differ from accounting principles that are used by reporters for producing their balance sheet;
- No geographical breakdown of liabilities except where share registers can be used;
- On the liability side need to re-classify direct investment holdings except for share registers.

Channel C: indirect reporting through custodians

Reporting

212. Assets: For indirect reporting of assets, custodians report all foreign securities held by residents. This has the advantage of a relatively small population and a high coverage of end-investors. Additionally, direct reporters will have to provide information on foreign securities held with non-resident custodians, i.e. supplementary information via channel (B) would be necessary. Direct reporters need to be able to make this distinction. The problems related to direct reporting are the same as in channel (B), but only limited to a subset of the information.

213. An alternative that could help to overcome this problem could be the use of information provided by brokers and dealers (role that can be performed by e.g. banks or other financial intermediaries) engaged in cross-border trading of securities. This information source has been referred to in other parts of this report as asset managers[36]. The information provided by these reporters should also be complemented by channel (B), i.e. direct reporting, for the part that investors could trade directly with non-resident counterparts (i.e. not channelled through domestic brokers and dealers). In some countries, legal restrictions impose the need to always passing through these intermediaries, while it may not be the case in some others. Therefore, the significance of the information that these reporters may provide varies significantly from country to country. In some cases they may only provide information on transactions, whereas in some others they also provide stock figures.

214. Liabilities: Indirect reporting for liabilities is identical to the custodian survey on non-residents and/or residents holdings of domestic securities presented in the description of channel (A) regarding the need to complement settlements with pure stocks, plus the provision of flows. Direct reporting on domestic securities held with foreign custodians and on issues abroad, i.e. channel (B), will have to supplement the data from the custodians.

215. The ability of custodians to report true flows monthly has not been assessed, though some countries have already got information from their domestic custodians that they might be willing to do it. In those cases where this could turn out to be difficult, one possibility would be to calculate flows from stock data

216. TPR could complement and at least partially substitute for direct reporting of assets and liabilities.

[36] See description of asset managers in chapter III.

Output requirements

217. In some countries custodians can report using individual identifiers for their clients like e.g. fiscal numbers, so that the compiler itself can obtain the sector breakdown using appropriate registers. When this is not feasible, custodians have to report the data by the sector of the resident. Since they base this on their client databases, the quality and detail of the sector classification depends on the detail and quality of their client databases. The classifications they use are not usually suited for statistical purposes though. A potential way to improve the classification work of custodians would be to provide them with comprehensive lists of possible clients and their correct sectoral classifications. This could at least be done for the most prominent institutional investors, government agencies etc. The most challenging problem in this context would be to build suitable registers and to make them compatible with the custodians' client databases.

218. Custodians often have trouble distinguishing between portfolio investment and direct investment. Security-by-security reporting could provide a basis for a solution for reclassifying direct investments. Likewise custodians often face problems reporting certain repo like transactions performed by their clients. They can in general not determine whether a real transaction is involved or a reversible one when securities are borrowed/lent by their customers. They would need to consult their client on the nature of the transactions, putting an additional burden on the custodian.

Timeliness

219. Custodians are able to provide detailed data (security-by-security should be no problem) within short deadlines. For direct reporters, this depends on their size and their familiarity with security data. They are often dependent on custodians for information. Advantages in timeliness from the point of view of the ability of custodians (reporters) to provide the information, even security-by-security, could pose some extra burden on the compiler though, which should receive, process and check the information within such tight deadlines.

Quality and consistency checks

220. If the information collected from custodians is provided by means of an integrated stock-flow model, it could provide powerful consistency checks. Macro-level (e.g. by sector) checks are always possible. Moreover, if custodians report using individual identifiers for their customers (e.g. the fiscal number) micro-level (by reporter) checks with other sources are also possible in the indirect reporting system.

Provision of information on income

221. Income can theoretically be collected from custodians on an accrual basis, but on practical grounds it is very unlikely that custodians can easily report accruals on behalf of their customers. The collection of information on a security-by-security basis in combination with the use of a SDB and

monthly stock data may be a more feasible way of obtaining accrued interest figures by the b.o.p. compiler himself.

Box V.3: Summary qualitative assessment of merits and costs

Pros/merits:

- Relatively small size of the reporting population (resident custodians);
- Good timeliness (ability to deliver data at high frequency within the appropriate deadlines), maybe with some extra burden placed on the compiler side;
- Relatively easy to adapt to security-by-security reporting (thus enabling further quality checks);
- Possibility of full reconciliation between flows and stocks;
- Income can be collected on an accrual basis, but instead of being reported by custodians, it is deemed more viable by combining monthly stocks security-by-security with information from a SDB.

Cons/costs

- Need for some complementary information via channel (B), i.e. direct reporting of securities in custody abroad;
- Need to sort out specific problems like (i) the exclusion of repo-type transactions/positions; (ii) avoid risk of double counting; and (iii) exclusion of direct investment holdings. Some of these problems should be overcome by making use of channel (B);
- No geographical breakdown of liabilities.

Current deployment and future plans

Current deployment

222. Traditionally, approach A (settlement system, either open or closed) has been used by many countries in Europe to collect flow data for the balance of payments. Data on portfolio investment have therefore been collected as part of the general data collection system in most countries. The actual form of the system used has been very diverse though. A large number of countries, Austria, Denmark, France, Germany (in the near future), Italy (except for MFIs) and Spain incorporate security-by-security reporting in their settlement system. Belgium, Luxembourg, (which have shared one system, although Luxembourg will maintain its own system from 2002 onwards), Greece and the Netherlands, have relied on aggregate reporting.

223. These countries have also used diverse strategies to collect data on stocks for the international investment position. Belgium, Luxembourg, Germany, Italy (except for MFIs and monetary authorities) and Spain have used cumulated flows to derive stocks. Austria, Denmark, Greece, Germany (in addition to the accumulation of flows) and the Netherlands have surveyed custodians (or, in the case of France, asset managers) to collect data on stocks (approach C), though again with different frequencies (ranging from monthly in Austria to annual in the Netherlands and Germany) and either on an aggregate or on a security-by-security basis.

224. Both for the collection of flows and stocks, countries have used direct reporting either to partially replace or supplement their indirect collection systems.

225. Ireland, Finland and the United Kingdom have for a long time used direct reporting (approach B) to collect data for both the balance of payments (flows) and the international investment position (stocks) as an integral part of the data collection for national accounts. Sweden has always used indirect reporting by custodians and investment managers (approach C), whereas Portugal has moved in recent years to this approach from a settlement system.

Future plans

226. A number of countries have recently decided to abolish their current collection system, either completely or only for portfolio investment. Austria plans to abolish its settlement system and will introduce indirect reporting from custodians (approach C) within a couple of years. Full direct reporting (approach B) for assets of important investors (even outside the MFI-sector) is also under consideration. Austria will continue using the residual approach for liabilities so as to be able to compile both b.o.p. and i.i.p. as well as a set of financial accounts.

227. Spain will also introduce indirect reporting from custodians in combination with direct reporting for securities deposited abroad from 2002 for both flows and stocks. For the calculation of portfolio investment liabilities the mixed approach will be used. Portfolio investment data from the settlement system (which will be kept to compile parts of the b.o.p.) will temporarily continue being

the basis for the b.o.p./i.i.p. until the new system proves to deliver consistent information at a sufficient level of quality.

228. The Netherlands plans to abolish its settlement system in the first half of 2003 and to replace it for portfolio investment with direct reporting for assets (approach B) and indirect reporting according to the mixed approach (approach C) for liabilities.

229. All three countries have chosen to maintain or to introduce security-by-security reporting in their new systems [partial improvements to the collection systems planned by other countries can be consulted in the table included in chapter II].

VI. Conclusions and recommendations

Introduction

230. This chapter lists a number of conclusions and recommendations. Some were taken directly from the previous chapters (notably from chapter IV) and are repeated here for convenience. Others were drawn up by combining the analyses from chapters IV and V. They were selected to provide countries with advice on how to maintain their current data collection system and/or which issues to study when thinking about a move to a different system. The TF-PICS considers these issues to be important factors in determining the quality of the data that can be produced with a certain type of data collection system.

231. The TF-PICS agrees that the driving force behind any harmonisation of inputs would be to find common strategies that could assist in facing common challenges to the quality of the European aggregates and the national statistics. (See the list of relevant priority issues identified in chapter I and II.) The recommendations can therefore be regarded as a definition of good or best practices, to be considered by compilers depending on the relevance of a certain problem for their country and its consequences for the compilation of the euro area aggregates.

232. Although the TF-PICS did not investigate them in a detailed manner, it was deemed important to mention that any change to existing collection systems or a move to a completely new collection system involves considerable implementation costs. These costs are determined by the suitability of a certain data collection system for a particular country and depend on many things. The TF-PICS acknowledges that specific circumstances in cross-border trading of securities in individual economies may – at least partially – require a specific data collection strategy of the compiler, among them:

- Size of the reporting populations;
- Integration in international markets (e.g. degree of openness of the domestic market);
- Identifiable patterns in the behaviour of market participants;
- Current practices and tradition (many compilers have a very long history of liasing with banks);
- Availability and coverage of registers of securities, holders of securities etc. for administrative and other reasons;
- The relevance of certain practices for reporters (e.g. the use of repos, custody abroad); and
- The ability of banks and non-banks to provide the kind of data needed.

233. In particular in the case of non-banks the quality of the data collected depends on the degree to which compilers can enforce reporting obligations (e.g. through penalties and fines), the political acceptance of (increased) reporting burden, and not least of all the resources available to the compiler. Some data collection systems require more resources for the compiler than others and a change to an existing system or a move to a new system involves large investments for both the reporters and the compiler.

234. However, any reporting channels based on current (country specific) circumstances should always take into account that these circumstances are potentially subject to (relatively quick) changes, which are beyond the control of the b.o.p. compiler. Thus a forward-looking approach, which offers some flexibility to adapt to new institutional and business frameworks, would be desirable.

235. There is an important connection between improvements in the data on portfolio investment and the widespread availability of a reference (centralised) securities database containing all the necessary information on individual securities for the promotion of accurate and consistent statistical classifications in all Member States. The possibility of generating excerpts from such a reference database to reporting agencies as well should be explored.

General conclusions and recommendations – security-by-security reporting

236. This section presents a number of conclusions and recommendations about security-by-security reporting that are in general not dependent on the type of data collection system. Security-by-security reporting is used mainly in connection with indirect reporting, but can be used with direct reporting as well.

237. The TF-PICS has concluded that, although it entails considerable costs to set up and maintain, security-by-security reporting has so many advantages that compilers should seriously consider its adoption if not used already. Especially in terms of quality (accuracy and consistency), standardisation and flexibility, security-by-security reporting presents many advantages for the compiler, though the ability of an aggregate system to produce results compliant with the relevant quality standards is in general not mistrusted.

238. Security-by-security reporting for instance would allow the compilation of data according to different instrument classifications (for example that used in money and banking statistics) from the same basic data. In addition, from the euro area perspective the availability of data security-by-security permits to perform detailed one-off checks in case of inconsistencies in the euro area aggregates. This may be particularly helpful in the context of the indirect method applied for the compilation of the euro area portfolio investment liabilities and the number of divergent compilation methods in place in the euro area member states.

239. It can also be used to derive flows from high-frequency stocks, which would lower the reporting burden for reporters and makes possible many quality checks at a very detailed level. Especially in combination with the availability of stocks at a monthly frequency (either collected or

derived), security-by-security reporting can be extremely useful for the calculation of income on an accrual basis.

240. Many of the costs of a security-by-security system are fixed, which can be spread by using the system as intensively as possible. Also, if the security-by-security system is used for one type of reporter (e.g. custodians), the advantages of the system can be best put to use by employing the system for as many other sectors as possible.

241. Security-by-security reporting reduces the amount of details (in terms of breakdowns) to be reported by respondents, with a consequent reduction in their reporting burden. This reduction of reporting details, however, requires that an adequate securities database is available to the compiler. It also allows a more efficient dialogue with the respondents in the course of checking of reports.

242. The availability of the CSDB would have a decisive role in terms of harmonisation of these efforts and would allow sharing of costs among compilers. A significant benefit is the provision of homogeneous breakdowns (i.e. by instrument and by country and sector of issuer).. Additionally, other pieces of information available in the CSDB (interest, price, currency, etc.) will allow to value securities homogeneously. Concerning costs, the extent to which they are spread depends on the way the division of labour is organised between compilers. However, an equitable spread of the costs is critical to the success of the CSDB.

Conclusions and recommendations for specific features of data collection models

Input dimensions of data collection models – a general framework

243. One basic conclusion from the material gathered during the work of the TF-PICS is that it was not possible to derive on the input side of the data collection process a single and uniform data collection model (DCM) that would be applicable in all countries. Instead the most detailed recommendations that can be provided for data collection systems resemble a “common platform” for data collection on portfolio investment.

244. Furthermore the TF-PICS reckons that even no single way of approaching specific groups of the target population (i.e. either directly or indirectly, through custodians or via settlements through domestic MFIs) may be suitable for all types of reporters. Whereas some institutional sectors might have a more extensive tradition in reporting directly to b.o.p. compilers (e.g. MFIs, general government, etc.), some other segments of the target population could require different approaches (e.g. households, small-sized non-financial enterprises, etc.).

245. In fact, the most suitable collection system for any individual country may likely combine features of both direct and indirect reporting, along the lines of an independent analysis of each institutional sector. In this respect the TF-PICS suggests to follow e the “matrix approach”, as set out by the CMFB and the STC. In the work of the TF-PICS this has come to be known as the “sectoral approach”.

246. The advantage of such a frame is to offer each compiler the flexibility to "draw the line" that separates the application of direct and indirect reporting along specific sub-sets of the reporting population, i.e. the institutional sectors. In addition it allows selecting preferred options where relevant (e.g. derivation of flows from stocks, cutting of the tail and grossing up, etc.). In the end, this approach de facto means that several DCMs can be derived by combining different options for each of the input dimensions for each individual (sub)sector. However, as the TF-PICS classified individual combinations of input dimensions (that can be employed throughout the "sectoral" approach) as "ideal", "good" or "acceptable" practices, the number of resulting data collection models is in the end limited. The actual selection of specific practices (as a minimum ranked as acceptable) by individual countries will depend on the specific domestic circumstances mentioned in the introduction of this chapter and the specific resources available. An assessment of all individual data collection models with respect to costs was deemed out of the scope of the mandate of the TF-PICS.

247. In contrast to the output requirements set out in the introduction, any data collection model can be defined by specific features on its input side, which can be analysed according to selected dimensions(see table VI.1).

Table VI.1: Input dimensions of a data collection system

Dimension	**Options**
Level of detail of the information collected	1. Aggregate 2. Security-by-security (SBS)
Type of information collected	1. Stocks and flows (S&F) 2. Stocks only (flows potentially derived) (S) 3. Flows only (stocks potentially derived) (F)
Collection method	1. Census 2. Sample survey 3. Cutting of the tail
Reporting channel	1. Indirect (settlements) 2. Direct (end-investor/issuer) 3. Indirect (intermediaries)

248. A general framework that combines the "institutional sector" of the target population with the "input dimension" identified above in a matrix form is presented in the annex 6.

Input dimensions of data collection models – a ranking of combinations.

249. Focusing on two dimensions, "level of detail" and "type of information", and supplementing it with the dimension of "frequency" (in which the information is collected), any model may be described by a single combination of the three dimensions.

250. Table VI.2 presents a list ("cascade") of selected combinations, which the TF-PICS considers as relevant - both from a perspective of current country practice and as a way of illustrating a stepwise refinement of the input side of DCMs (from bottom to top). On the one hand this allows comparing data collection systems of individual countries as they stand today, on the other hand it ranks the list of acceptable practices (from the ideal approach to the minimum acceptable solution). The latter is logically derived from the "general" conclusions and recommendations by the TF-PICS. The ranking among the "acceptable solutions" could be subject to further debate, as regards in particular the prevalence between collecting pure flows monthly on an aggregate basis and deriving flows from monthly stocks security-by-security.

251. In detail the TF-PICS developed a classification of the input dimensions in "acceptable" (and better) combinations and "non-acceptable" approaches. In this sense it is understood that the combination (6) represent features that the data collection system from reporters of any institutional (sub)sector should in theory be able to meet (i.e. a "minimum benchmark"). Combinations above this line are considered as generally accepted targets for any improvements in DCMs. According to the "sectoral" approach it would be up to an individual compiler to decide which reporters/institutional sector would be required to report according to a specific requirement. For instance the more homogenous a reporting population and the closer the contact to the compiler, the higher the chance to employ reporting strategies that come closer to the "ideal" reporting scheme (1).

Table VI.2: Features of DCMs –ranking of combinations of input dimension

(1)	Monthly flows [s-b-s] and monthly stocks [s-b-s]	Ideal
(2a)	Monthly flows [s-b-s] and quarterly stocks [s-b-s]	good
(2b)	Monthly flows [s-b-s] and annual stocks [s-b-s]	
(3)	Quarterly stocks [s-b-s] + monthly flows [agg.]	Acceptable
(4)	Monthly stocks [agg] + monthly flows [agg]	
(5)	Monthly stocks [s-b-s] + **derived** monthly flows [s-b-s]	
(6)	Annual stocks [s-b-s] + monthly flows [agg]	
(7)	Quarterly stocks [agg] + Monthly flows [agg]	
(8)	**Derived** annual stocks [s-b-s] monthly flows [s-b-s]	not acceptable
(9)	Quarterly stocks [s-b-s] + **derived** quarterly flows [s-b-s] + *estimated monthly flows [agg]*	
(10)	Annual stocks [s-b-s] quarterly flows [agg] + *estimated monthly flows [agg]*	
(11)	Quarterly stocks [agg] + quarterly flows [agg] + *estimated monthly flows [agg]*	
(12)	**Derived** annual stocks [agg] + monthly flows [agg]	

Notes: "derived stocks" = cumulation of flows.
"derived flows" = as difference of stocks (adjusted for exchange rate and price changes)
"estimated flows" = split by months estimated from quarterly flows

Input dimensions of data collection models – direct versus indirect reporting

252. Beyond the general framework presented above, the TF-PICS identified a small number of general principles with regard to the choice between direct and indirect reporting. Only for MFIs and for households was there a clear-cut consensus about the most suitable approach. Direct reporting would be the most suitable approach for MFIs and households could in practice only be covered through indirect reporting. As stated above, for other non-MFI sectors, the most suitable approach depends on various factors which the compiler has to assess.

253. In general though, direct reporting was believed to be more suitable for large companies than for small and medium sized ones. Large companies, having more resources at their disposal, would be better able to make the necessary investments in information technology. Nevertheless, the quality of the data will be higher if the requested information is closer to the business needs of the company itself. In this respect, information on stocks is often more readily available than flows. Generally speaking, direct reporting of non-MFIs is expected to be potentially less timely than indirect reporting through MFIs. With respect to a security-by-security data collection there can be difficulties to integrate reporters which do not keep track of information at the level of individual securities in their internal databases. In contrast, direct reporting enables many checks at micro-analytical level.

254. The main advantages of indirect reporting are its efficiency (covers a large target population with a small number of reporters), its timeliness and a straightforward adaptability to security-by-security reporting. There are however also some drawbacks, particularly for the collection of data on portfolio investment. These drawbacks depend though on the exact source of reporting: banks (settlement data), custodians or investment managers. When using custodians to collect information there is a potential for double counting because of custodian chains and because they are usually unaware of reversible transactions (repos) and direct investment relationships. Investment managers on the other hand will be informed of reversible transactions. Where relevant though, indirect reporting will have to be supplemented with direct reporting. Examples include information on repos and custody abroad when relying on custodians for stocks, or information on accounts abroad when flows are collected from settlements.

255. The combination of direct and indirect reporting presents its own problems too. Care should be taken to avoid both gaps (lack of coverage) and overlaps (double counting). Again, in this respect security-by-security reporting could prove to be a helpful tool. In addition, custodian reporting using individual identifiers for their clients could also be very beneficial in order to avoid mistakes and to match direct and indirect reports.

Issues for further investigation

256. This section presents issues that could not be investigated or were not investigated extensively enough by the TF-PICS but which were considered to be important. Thus it is suggested to consider them for further investigation

- Portfolio investment income – a detailed investigation of the consequences of the analysis of this report on several dimensions of the recording of income should be launched;
- TPR – further studying is proposed; e.g. a feasibility study, possibly followed by a pilot study (for e.g. the minimum approach);
- Sampling / grossing up – the applicability of these statistical techniques in the field of portfolio investment would have to be studied in more detail;
- Internet trading – as there is only limited experience with new means of trading so far, it would be helpful to conduct specific cases studies in those countries / sectors where new facilities gain more and more importance.

257. As the TF-PICS did not explicitly investigate the actual applicability of any suggestion in the framework of individual countries feasibility studies would be necessary to study the cost and other aspects of the implementation of recommendations presented in the report. It was recognised that only the individual compiler would have access to all necessary information to study the costs of adapting their collection system, even (or particularly) in examples where supra-national suggestions have already reached a very detailed form (e.g. the "multinational model"). The results of these feasibility studies and any other experience on changing national models should be subject of an intensive exchange of information between the compilers of b.o.p./i.i.p. statistics. As the TF-PICS did not tackle the question of how its recommendations should be put into practice, the timing for any possible changes in Member States' collection systems was not considered either in this report.

258. Finally the TF-PICS agrees that all conclusions drawn in this report may be challenged by further development and innovations in the financial markets. Thus the TF-PICS explicitly highlights the necessity that the relevant bodies permanently monitor these developments and to review their impact on the results of this report.

List of annexes

List of supplementary documents

ANNEXES

1. B.o.p./i.i.p. output requirements for portfolio investment for national compilers

Assets

	Frequency	Stocks/flows	Instrument breakdown	Country of holder	Sector of holder	Country of issuer	Sector of issuer
A.1 Basic	M/Q	S/F/S&F	BPM5	Not applicable	BPM5	EMU / non-EMU	-
A.2 Monetary	M/Q	S/F/S&F	BPM5	Not applicable	BPM5	EMU / non-EMU	MFI / non-MFI
A.3 Extended monetary	M/Q	S/F/S&F	BPM5	Not applicable	BPM5	EMU / non-EMU	BPM5
A.4 Geographical	M/Q	S/F/S&F	BPM5	Not applicable	BPM5	EMU / extended	-
A.5 GeoMon	M/Q	S/F/S&F	BPM5	Not applicable	BPM5	EMU / extended	MFI / non-MFI
A.6 MUFA	M/Q	S/F/S&F	ESA 95	Not applicable	ESA 95	EMU / non-EMU	ESA 95

Liabilities

	Frequency	Stocks/flows	Instrument breakdown	Country of holder	Sector of holder	Country of issuer	Sector of issuer
L.1 Basic	M/Q	S/F/S&F	BPM5	-	-	Not applicable	BPM5
L.2 MUFA	M/Q	S/F/S&F	ESA 95	-	-	Not applicable	ESA 95

Legend

Frequency:	M = monthly, Q = quarterly, A = annually	
Stocks/flows:	S = stocks only (flows derived), F = flows only (stocks derived), S&F = stocks and flows, flows gross or net	
Instrument breakdown:	**BPM5**	**ESA 95**
	Equity	Quoted shares
		Non-quoted shares
		Mutual fund shares
	Bonds and notes (maturity > 1 year)	Securities other than shares, long term
	Money market instruments (maturity ≤ 1 year)	Securities other than shares, short term
Country of holder/issuer:	EMU = aggregate / individual Member States	
	extended = selected regions or countries / full geographical split (CPIS)	
Sector holder / issuer:	**BPM5**	**ESA 95**
	Monetary authorities	Monetary authorities
	Other MFIs	Other Monetary financial institutions
	General government	General government
	Other sectors	Non-financial corporations
		Other financial intermediaries, except insurance corporations and pension funds
		Financial auxiliaries
		Insurance corporations and pension funds
		Households
		Non-profit institutions serving households

2. Quality criteria relevant for b.o.p./i.i.p. statistics

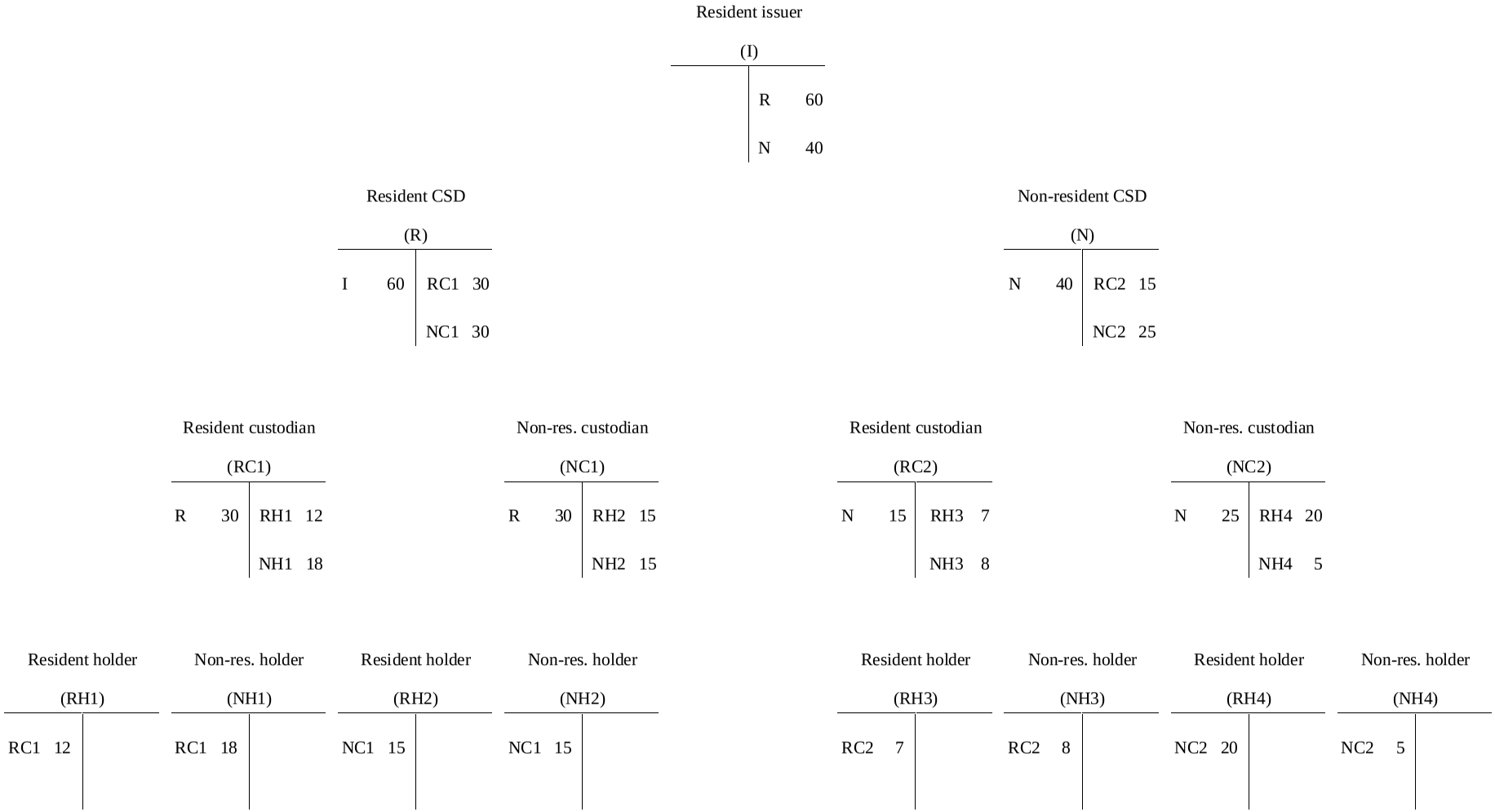
Dimension	Sub-dimension / indicator	Relevance for portfolio investment data collection models
Serviceability	Relevance Degree to which the data fulfil the needs expressed by users.	The importance of securitisation in cross-border international investment relationships is undisputed; prominent role of financial account recently reconfirmed by the EB of the ECB
	TIMELINESS Time lag between period or event in question and the availability of the statistical data that respond to it.	Crucial feature of statistics on portfolio investment transactions due to the extremely demanding requirement to produce monthly statistics within 6 weeks
	STABILITY Likelihood of necessary revisions; on the basis of stable data decisions can be made as soon as the data are released (see also ACCURACY).	Revisions are in general unavoidable; however, in particular for the calculation of supra-national aggregates a consistent revision policy of all contributing sources is highly recommendable
	CONSISTENCY Consistency allows comparability of statistics by users; main features i) over time ii) between data collected at different frequencies iii) internationally iv) numerical, e.g. between stocks & flows	Whereas the consistency of data produced at higher and lower frequency might not be seen as the top priority, the reconciliation between stocks and flows is a key quality feature of portfolio investment statistics; this is both relevant for analytical as well as for quality control purpose

Accuracy	**ACCURACY** Degree to which data correctly describe or quantitatively assess the phenomenon that the corresponding statistics were designed to measure; it can be defined as the closeness of the presented value (directly collected or estimated) to the (unknown) true population number.	In previous questionnaires within the WG-BP&ER this indicator has received particular attention; the correct identification of the residency of the issuer of a security is the most critical item in cross-border portfolio investment statistics; furthermore the demanding categorisation according to type of instruments, maturity or sector of holder / issuer adds to the high standards to which portfolio investment data should comply;
	PLAUSIBILITY Plausibility describes the (internal) likelihood of the data; for instance significant outliers or sudden and unexpected changes in trend need investigation, especially when there is virtually no economic and/or methodological explanation for them.	Any secondary source out of the broad range of indicators describing the development in the financial industry should be employed

Integrity	**INTEGRITY** Integrity is achieved through transparency of the procedures and practices, by which statistics are collected, compiled and disseminated.	The feature of being able (at least in theory) trace down the origin of a particular result b.o.p./i.i.p. statistics is of particular relevance in the context of compiling a supra-national aggregate on basis of contributions generated by a variant of data collection models; consequently this indicator points to one of the most relevant arguments for harmonisation of inputs

Accessibility	**ACCESSIBILITY** Accessibility reflects the ease of obtaining the information disseminated by a statistical agency, the suitability of the form in which it is shown, the media of dissemination and the availability of metadata.	Both indicators are of national as well as an supra-national relevance; initiatives of the WG-BP&ER (for instance the b.o.p. book, the methodological notes on the website etc.) have already increased the transparency of national and supra-national data for users
	TRANSPARENCY Transparency is achieved if the dissemination of statistics is accompanied with a complete set of information (the "metadata") on the real content of the statistics themselves, including: i) a description of the data; ii) its coverage; iii) its compliance with international methodological standards; iv) the main cases for departure from agreed standards; v) a description of the main estimation procedures applied for missing data	

3. Schematic overview of cross-border custody relationships



1. In the scheme above, the combined holdings of non-residents (NH1 to NH4) of securities issued by residents equals 46 (18+15+8+5), which is the figure to be compiled. The resident issuer has issued securities totalling 100, 60 of which were deposited with a resident CSD and 40 with a non-resident CSD (issues abroad). The debit and credit entries do not represent assets and liabilities as such, but consist of securities held with (debit) and in custody for (credit) non-residents.

The residual approach – direct reporting

2. With the direct reporting residual approach, the total amount outstanding (100) is either collected directly from the issuer or taken from a securities database. Data is also collected from all resident holders RH1 to RH4 which adds up to 54 (12+15+7+20). The difference between the amount outstanding (100) and resident holdings (54) equals the 46 in the hands of non-residents.

The residual approach – indirect reporting

3. The total amount outstanding according to the indirect approach would be compiled by adding 60 from the resident CSD plus 40 from the issuer, equalling 100. Alternatively, this information could again be taken from a securities database. Resident holdings are collected from resident custodians, 12 from RC1 and 7 from RC2. For the indirect approach, collection of data on securities held abroad is still necessary from RH2 and RH4 totalling 35 (15+20). Again, resident holdings total 54 (12+7+15+20) which leaves 100-54=46 held by non-residents.

The mixed approach

4. For the mixed approach, the issuer is directly approached for issues abroad (credit 40). Then the CSD is asked to report on the holdings of non-residents, in this case non-resident custodian NC1 (credit 30). Resident custodians RC1 and RC2 report their holdings with non-residents (debit 15 from RC2), and holdings for non-residents (credit 18 from RC1 and credit 8 from RC2). As a final step, resident end-investors report securities held with non-resident custodians (debit 15 from RH2 and debit 20 from RH4). By adding up all credits (40+30+18+8=96) and debits (15+15+20=50) and taking the net balance, the same grand total of 46 is calculated.

4. Representation of national portfolio investment liabilities

Place of issue			Domestic (D)			Abroad					
						E(M)U (E)			Non-E(M)U (N)		
Place of custody			Domestic (D)	E(M)U (E)	Non-E(M)U (N)	Domestic (D)	E(M)U (E)	Non-E(M)U (N)	Domestic (D)	E(M)U (E)	Non-E(M)U (N)
Investors	Resident (R)		R-D-D	R-D-E	R-D-N	R-E-D	R-E-E	R-E-N	R-N-D	R-N-E	R-N-N
	Non-resident	E(M)U (E)	E-D-D	E-D-E	E-D-N	E-E-D	E-E-E	E-E-N	E-N-D	E-N-E	E-N-N
		Non-E(M)U (N)	N-D-D	N-D-E	N-D-N	N-E-D	N-E-E	N-E-N	N-N-D	N-N-E	N-N-N

5. The residual and mixed approaches can be illustrated in another way using the table shown above. This table has three dimensions: the residency of the investor (resident, E(M)U and non-E(M)U), the place of issue (the location of the CSD) and the place of custody (both divided into domestic, E(M)U and non-E(M)U). All cells representing holdings of securities are identified by a specification of each of the three dimensions. E.g. R-D-D represents the holdings of resident end-investors of securities issued domestically with domestic custodians. The two lower rows (E and N) represent non-resident holdings of domestic securities constituting portfolio investment liabilities (indicated with the striped border). The grey shaded cells represent the holdings for which data could be gathered through third party reporting.

The residual approach – direct reporting

6. Both direct and indirect residual approaches derive non-resident holdings by subtracting all resident holdings (row R) from the total amount outstanding (all cells). The direct approach for collecting information on the holdings of resident end-investors retrieves this data directly from residents (row R). The direct approach for the calculation of the amount outstanding collects data on all issues (domestic, E(M)U and non-EMU) from the issuer or takes them from a securities database.

The residual approach – indirect reporting

7. The indirect approach collects data on the first three columns X-D-D, X-D-E and X-D-N (where X stands for R, E and N) from the domestic CSD and on the other six from the issuer. The indirect approach takes data on R-D-D, R-E-D and R-N-D from domestic custodians and collects the other cells from resident end-investors. Third party reporting within the E(M)U could also deliver data on holdings with custodians in other E(M)U member states, cells R-D-E, R-E-E and R-N-E.

The mixed approach

8. The mixed approach derives non-resident holdings for securities issued domestically in a different way from the non-resident holdings of securities issued abroad. For the former, first holdings of non-residents are collected from domestic custodians, represented by cells E-D-D and N-D-D. The other four cells (E-D-E, N-D-E, E-D-N and N-D-N) are assessed from the holdings of all non-residents (both custodians and end-investors) with the resident CSD or custodians and subtracting from this all holdings of resident end-investors with foreign custodians, cells R-D-E and R-D-N. Cells R-D-E and R-D-N could in principle be collected through third party reporting. For securities issued abroad, the total amounts outstanding are first compiled from which all resident holdings are subtracted (the mixed approach for securities issued abroad thus resembles the residual approach). For these resident holdings data for cells R-E-D and R-N-D are collected from resident custodians while data for cells R-E-E, R-E-N, R-N-E and R-N-N are collected directly from the resident end-investor or through third-party reporting.

5. Summary of the characteristics of the reporting channels

Characteristic	Channel A: Settlements	Channel B: Direct reporting	Channel C: Indirect reporting via custodians
Reporting			
• **Description of the population**	Banks and direct reporters	Direct reporters	Custodians and direct reporters
• **Size of the population**	Relatively small	Whole economy	Relatively small
• **Frequency**			
▪ **Flows**	Monthly	Monthly or quarterly	Monthly or quarterly
▪ **Stocks**	***To be supplemented (most often via channel C), at least on an annual basis***	Monthly or quarterly	Monthly or quarterly
Contents of reports			
• **Forms for indirect reporters**			
▪ **Assets**	1) Receipts 2) Payments		1) Foreign securities (own and clients')

Characteristic	Channel A: Settlements	Channel B: Direct reporting	Channel C: Indirect reporting via custodians
▪ **Liabilities**			1) Non-residents holdings of domestic securities 2) Holdings of domestic securities with non-residents
• **Forms for direct reporters**			
▪ **Assets**	1) Receipts on accounts abroad 2) Payments on accounts abroad	1) Foreign securities 2) Foreign securities borrowed 3) Foreign securities lent	1) Foreign securities held with foreign custodians 2) Foreign securities borrowed 3) Foreign securities lent
▪ **Liabilities**		1) Securities issued 2) Domestic securities 3) Domestic securities borrowed 4) Domestic securities lent	1) Securities issued abroad 2) Domestic securities held with foreign custodians 3) Domestic securities borrowed 4) Domestic securities lent
• **Data**	Account balances and mutations	Possibility of integrated stock/ flow reports	possibility of integrated stock/ flow reports

Characteristic	Channel A: Settlements	Channel B: Direct reporting	Channel C: Indirect reporting via custodians
• **Classifications:**	Country and sector of issuer Sector of the holder for assets	Country and sector of issuer	Country and sector of issuer Sector of the holder for assets
• **Timeliness**	Good	Reporting could be less timely	Good for custodians; lower for end-investors adjustments
• **Aggregate vs. s-b-s**	Both possible	S-b-s possible but not common	Both possible
• **Income**	Cash basis	Accrual basis (accounting rules)	Accrual basis
• **Quality checks**	Macro-level	Micro-level	Macro-level (micro-level possible if clients are identified individually)
• **Direct vs. Portfolio investment**	No double-counting	No double-counting/corrections needed on the asset side. For liabilities, reclassifications required (unless share registers in place)	Corrections needed
• **Repos**	No double-counting	Corrections needed	Corrections needed
• **Third party reporting**	Less relevant (but could improve coverage)	Less relevant (but could improve coverage)	Could replace direct reporting

6 Features of data collection broken down by institutional sector – the ”matrix approach” for portfolio investment statistics

Target popoulation broken doewn by institutional sector	Reporting channel		Type of information collected		Details of information collected		Collection method	Repo correction
	direct	indirect (*) (**)	stocks	flows	aggregate	s-b-s		
Monetary authorities								
Other MFI's / above threshold, selected sub-population								
Smaller MFI's								
Other financial intermediaries								
Financial auxiliaries								
Insurance companies / above threshold, selected sub-population								
Insurance companies								
Pension funds / above threshold, selected sub-population								
Pension funds								
General government **- Central government**								
- Local government								
- Social security funds								
Non-financial companies / above threshold, selected sub-population								
Non-financial companies / rest								
Households / above threshold *[maybe less relevant]*								
Households								
Non-profit institutions serving households / above th., sel.sub-pop.								
Non-profit institutions serving households								

**) Reporting via custodians; missing holdings/transactions abroad would be collected via supplementary direct reports;*
for postions of households a TPR system could be applied;
indirect data collection might have to besupplemented by direct reports for repos
***) includes also reporting of flows via settlement systems*

7 Participants of the Task Force on Portfolio Investment Collection Systems

Mr Matthias Ludwig	**Deutsche Bundesbank**
Ms Gabriele Meinert	
Mr Philippe Lambot	**Banque Nationale de Belgique**
Mr Frank Øland Hansen	**Danmarks Nationalbank**
Mr Alexandros Milionis	**Bank of Greece**
Mr Andreas Karapappas (April meeting only)	
Ms Maitena Duce	**Banco de España**
Ms Corinne Devillers	**Banque de France**
Ms Laura Graziani	**Ufficio Italiano dei Cambi**
Mr Raymond Chaudron (chairman)	**De Nederlandsche Bank**
Mr Enrico Vroombout (from February meeting onwards)	
Mr Robert Westwood	**Bank of England**
Ms Anna Lindahl (until March meeting)	**Sveriges Riksbank**
Mr Lars Fors (April meeting)	
Mr Gunnar Blomberg (from September meeting onwards)	
Mr Robert Zorzi	**Oesterreichische Nationalbank**
Mr Joe McNeill	**Central Bank of Ireland**
Mr Michael Connolly	**Central Statistics Office, Ireland**
Mr Harri Kuussaari	**Suomen Pankki**
Mr Philippe Arondel	**Bank Centrale du Luxembourg**
Mr Peter Neudorfer	**European Central Bank**
	Balance of Payments Statistics and External Reserves Division
Mr Carlos Sánchez Muñoz	**European Central Bank**
	Balance of Payments Statistics and External Reserves Division
Mr Frank Mayerlen	**European Central Bank**
	Money and Banking Statistics Division

SUPPLEMENTARY DOCUMENT I

CUSTODIAN INDUSTRY*

I. Introduction

1. The paper is split into three sections. The first section examines the issue of the global custodian source of data. The second section includes the results of one empirical study referring to holdings of Belgian Government bonds and Treasury Certificates. The third part focuses on some final conclusions.

II. Global custodians

2. The analysis of the global custodian source of data is relevant, as they are highly specialised in the custody and in the settlement services for securities in multiple markets.

3. The global custodians are usually able to carry out the significant investments in information technology and communication systems that are necessary for integrating the services provided by a network of local custodians and sub-custodians. In this way they are able to provide their customers, usually large institutional investors located all over the world, with custody and settlement services across multiple markets. Thank to economies of scale they manage the global custody service in a cost-effective way, i.e. at lower costs than if these services were purchased separately from a variety of service providers or local agents.

4. Given these circumstances the global custodians would be a sort of privileged source of data that is worth to be investigated.

5. The first part of this section examines in depth the characteristics of euro/non euro area global custodians' business and the available data. The second part of this section focuses, from a conceptual and practical point of view, on the usefulness of the data potentially provided by the global custodians, not necessarily located in the euro area, and on the possibility to integrate their data into a more general model.

Global custodians business and available data

6. The analysis was conducted by interviewing six major global custodians (euro/non euro area located mother companies and/or euro area located subsidiaries)[1].

7. The first issue was on the coverage of the data. The information global custodians have on their clients and on the stocks held was examined. With respect to the coverage:

8. they seemed fairly confident to be able to identify the country of residence of the account holder. More difficult resulted the identification of the country of residence of the beneficial holder, for example in the case of a collective investment scheme or in the case of a customer who is another custodian[2].

---

* By Laura Graziani, Philippe Lambot, Gabriele Meinert, Paul Sarlet, Robert Westwood.

1 The interviewed global custodians are: Bank of New York, Citibank, JPMIS, Deutsche, HSBC and State Street. See annexes 1 and 2 for the complete reports derived from the interviews.

- Indications about the institutional class of the account holder are available in a detailed way only for one of the interviewed global custodians. For the others the detailed economic sector breakdown seemed more problematic, even if they felt that they would be able to do this to some extent. A rough sectoral breakdown of the account holder would be very important, as this could be used to assess the likelihood of the account holder being an "end investor".
- They were all confident that they could provide total market value of holdings for their clients.
- The reporting on a security-by-security basis was considered easier than the aggregated way, as the former is how their databases are constructed.
- When asked about the difficulty of reporting transactions and stocks all six indicated that the bulk of the data were on their systems and it would be a case of slicing the information another way to provide the figures.

9. The second issue referred on an assessment of the custodians' chain. There was a general agreement that the relationships between global and sub-custodians would be likely to generate double counting problems. The problems being that if custodians were surveyed (data collection model based on the indirect reporting by custodians), it would be necessary to ensure that assets held in any kind of sub-custody role were counted only once. One global custodian stated that while double counting may be a problem at present, they were developing a system that would give a "net" position for the assets they hold for clients.

10. The third issue was on how the stock lending/repo process would impact on the compilation of the data. The answers were mixed.

- Considering repo, the majority of custodians show a repo transaction in the same way as a normal sale/purchase. Therefore on the basis of their data repos would incorrectly show up as PI flows. One custodian mentioned their repo desk and stated that as a result they would be able to identify any repo business they put through. They would not be able to identify any repos that clients organised through competitors' desks.
- Turning to stock lending, it appears that custodians would in general be able to identify this from their records.
- Despite the high media profile of repo/stock lending business, it seems that custodians will generally have only a small amount out on repo or lending at any one time[3]. They added that this is increasing, but not particularly sharply.

---

[2] The first case, which is very frequent for global custodians, do not pose a problem from a compilation standpoint as according to the system of National Accounts there is no need to look through the trust. As a consequence the geographical allocation could be based on the country of registration of the fund. The second case is more problematic and a geographical/sectoral misallocation could happen. The problem is common to all the models based on custodians data.

[3] One custodian said no more than around 2% to 3% of total equity assets.

Note: There are recent reports on interesting developments in the US, which may soon or later also influence Europe (e.g. global custodian in London or European CSDs). The core is the introduction of systems that will signal to custodians whether deals are outright or repo. Specifically, when the CSD sends a message to a custodian to release/accept stock from/into its omnibus account the message will include the information as to whether this is for an outright transaction or a repo. Once this type of information would be available to custodians it should at least in theory enable them to report transactions/positions correctly for bop/iip. Interestingly, it seems that this innovation has been driven by the custodians, who found themselves facing increasing costs associated with redirecting corporate actions.

11. On the subject of provision of accrued interest data on holdings the answers was mixed to negative[4]. Finally, all but one clearly stated that they would in general be unable to distinguish between DI and PI transactions/holdings.

The conceptual model

12. In theory, if it were possible to select only few global custodians (not necessarily located in the euro area) whose accounts cover an high percentage of the (world-wide) outstanding amount or turn-over in securities, the data collection model for portfolio investment data could be constructed by approaching these few data providers.

13. The advantages of this approach are linked to the facility of collecting the data from a small number of reporting entities and, consequently to the possibility of reducing in importance the problem of the double counting of the data.

14. In practice the main issue would be the selection of a significant set of global custodians. Moreover the resulting picture, even if reliable for the dimension of the phenomenon, would be based on the geographical and sectoral breakdown of account holder data.

15. As long as the representative global custodians are located in the non-euro area the data should be provided on a voluntary basis. Consequently the global custodians' willingness to provide the data and the linked economic costs should be explored.

16. According to the BIS Committee on Cross Border Securities Settlements, there are different and not mutually exclusive channels through which a non-resident of the country of issuance of a security could affect the cross border transaction in the security. In recent years institutional investors have increasingly used the global custodians and security dealers have increasingly turned to International Central Securities Depositories (ICSDs) to settle trades in European government securities. The direct use of local agents remains the most common way for cross border settlements and for the securities' custody.

[4] Only one stated that their global securities masterfile would enable them to provide it. Another stated that they would be able to provide accrued interest data only for a limited part of their clients. The remainder did not feel they would be able to provide the data.

17. Accordingly an alternative indirect data collection model for portfolio investment should imply the integration of the data of the local euro area custodians with those of the global custodians and ICSDs. Such a model would require to approach all the custodian entities located in the euro area, and to identify at least the following items, useful to assess either the euro area assets or the euro area liabilities:

	Securities issued by	
	non euro area residents only (Assets)	**euro area residents only** (Liabilities)
1 – euro area MFIs own holdings	YES	NO
2 – holdings on behalf of non-MFIs - located in the non-euro area	NO	**YES**
3 – holdings on behalf of non-MFIs - located in the euro area	YES	NO
4 – holdings on behalf of MFIs - located in the non-euro area	Potentially YES (*)	Potentially YES (*)
5 – holdings on behalf of MFIs - located in the euro area	NO	NO

(*) The non-euro area MFIs could act as custodians both for euro and non euro area residents.

18. For the first three items the account holder may be considered an end investor and, consequently the sectoral/geographical allocation of the assets/liabilities can be considered the same of the account holder. On the contrary for the forth and fifth items the account holder is an MFI and not necessarily an end investor. For the fifth item information can be asked to a euro area MFI, in order to correct the geographical and sectoral allocation. For the forth item, due to he lack of data from the non-euro area MFIs, the geographical/sectoral breakdown may result in a misallocation. No comprehensive empirical material on the relevance of this item was available. Partial data have been calculated with respect to short-term securities issued by German MFIs and with reference to Belgian Government Bonds/Certificates of Deposits.[5] If the amount were considered relevant there would be the option to use holding accounts data of a limited number of non-euro area (global) custodians, in order to improve the geographical or the sectoral allocation of the item.

19. It should be noted that for this model coverage problems could occur as it might not be possible to collect holder information for securities directly deposited with custodians located outside the euro area or for securities kept in self custody by the final investors.

[5] See following sections 2.1 and 2.2.

The empirical study

Holdings of Belgian Government Bonds and Treasury Certificates

20. A survey has been conducted with regard to the holdings of (long-term) Belgian Government Bonds and (short-term) Treasury Certificates. In this framework, holdings are listed according to a "national residency criterion" (with a breakdown into MUMs and extra euro area) as well as following a "euro area residency criterion" (extra euro area only)[6] . So, percentages of identifiable end investors could be established from a national and from a euro area point of view.

21. In a first step, the survey is based on information from a central securities settlement system, namely the securities clearing-system of the National Bank of Belgium.

22. In a second stage, direct participants, among which Euroclear and Clearstream, have been questioned.

23. Finally, in a third step (relevant only from a national point of view), contact has been taken with a third country (France) in order to know the amount of the own holdings of their MFIs. (the aim was to cover those custodians in France that are customers of direct participants in the clearing system of the National Bank of Belgium.) The results are added to the column "MFIs own holdings" after deduction of the amounts that have already been included for "French" MFIs that are direct participants in the clearing system.

24. This leaves finally the following percentages for holdings by identifiable end investors:

a) Applying the "national residency criterion" :

Step 1: 6 % of all non-resident holdings would belong to identifiable end investors,

Step 2: 11 % of all non-resident holdings,

Step 3: 16 % of all non-resident holdings; the residual 84% of all non-resident holdings is on behalf on MFIs (50% due to euro area MFIs and 34% due to non-euro area MFIs).

b) Based on the "euro area residency criterion":

Step 1: 3,6 % of extra euro area resident holdings would belong to identifiable end investors,

Step 2: 4,1 % of extra euro area resident holdings.

[6] See annex 4 for the complete report by the Banque Nationale de Belgique and for the detailed data.

III. Summary and conclusions

25. If it were possible to select a small sample of global custodians covering a high percentage of the (world wide) outstanding amount in securities, the data collection model for portfolio investment could be simply based on these few data providers. The main advantages of this approach would be the facility of collecting the data from a small number of reporting agents and the possibility to reduce in importance the problem of the double counting. On the other hand there would be the main issue of selecting a representative sample of global custodians. Moreover, as long as the representative global custodians are located in the non-euro area the data should be provided on a voluntary basis.

26. An alternative indirect data collection model for portfolio investment would imply to interview all the custodians located in the euro area and to break down their customers' holdings into the non-euro MFIs/euro non-MFIs/non-euro non-MFIs breakdown. The main issue in this case would be the need to estimate the amount of securities held in custody directly abroad or held in safekeeping. The geographical and sectoral allocation of the holding accounts on behalf of non-euro area MFIs could be improved by using the data from a limited number of non-euro area (global) custodians.

27. In an empirical study conducted by Belgium on Government Bonds and Treasury Certificates, about 84% of the total holdings on behalf of non residents can be attributed to MFIs (euro area MFIs: 50%; non-euro area MFIs: 34%). The residual 16% could be identified as holdings of end investors. These percentages refer to the "national residency" criterion and are derived thank to data from one neighbouring country. In contrast only 4 % of the total holdings on behalf of extra euro area residents could be identified as belonging to end investors.

28. It is obvious that different results could probably have been obtained considering different instruments and analysing all the euro area custodian chain.

IV. Annexes

Conference call with a global custodian[1]

The global custodian is State Street of Boston and was contacted through a conference call[2].

During the conference call four main issues were taken up. The first issue refers to the **coverage of the data** recorded into the global custodian's database. The related questions were aimed to understanding the amount (or the percentage) of the securities, respectively issued by euro area residents and by non-euro area residents, which are in custody with the interviewed subject. The coverage questions were also finalised to clarify whether the interviewed global custodian is specialised in providing custody services for specific types of securities. Also the availability of the information on the ISIN code and on the country of the account holder was investigated.

The second issue was on the **type of customers (account holders)** that ask the custody services. Special attention was dedicated to assess the availability of the information on customers' institutional sectors. In fact this information could be valuable to assess the likelihood of the account holder being an "end investor".

The third issue was on the **double counting problem** that occurs when there are chains of custodians/sub-custodians/local agents. This problem is particularly relevant for the global custodians, as these entities usually use a network of sub-custodians located in the country where the securities have been issued.

The fourth issue was on the possibility to identify **the securities used for repo-type transactions**.

The questions mainly focused on the securities issued by and in the name of euro area residents (liabilities of the euro area).

With reference to the coverage, the global custodian stated to cover in global custody about the 5% of the total amount of the equities issued by euro area residents and about 10-12% of the equities issued by non euro-area residents. It also confirmed that the ISIN code of the securities and the country of residence of the account holders are recorded. Finally it clarified that its custody services are not specialised by type of security, issuing sector, market of issuance, but cover a wide range of securities (equities, government bonds, asset backed securities, and so on).

As to the type of customers the global custodian indicated that its customers are big institutional investors (specially mutual funds and pension funds), with a portfolio of more than 100 million of USD each.

Indications about the institutional class of the account holder are available, so that it would be possible to assess whether the customer is another custodian, a general government entity, a central bank, a mutual fund and so on.

---

[1] Laura Graziani - Statistics Department - Ufficio Italiano dei Cambi.

[2] The participants to the conference call were two researchers working for the State Street Bank instructed by the bank management in Boston, a representative of the branch located in London, Mr Mayerlen, Mr Westwood and the writer.

More difficult was for the global custodian to understand the concept of end-investor or to identify the beneficial holder of the securities, for example in the case of a unit trust (mutual fund/pension fund) or in the case of a customer who is another custodian. Anyway the great majority of the global custodian customers are mutual funds and pension funds. In general, these entities are recognised by the system of National Accounts as separate "institutional units" and consequently considered as the holding units. In other words there would not be for a mutual fund and a pension fund the need to look through the trust. As a consequence, the geographical allocation of a mutual fund and of a pension fund could be based on the country of registration of the fund.

The questions aimed at a general assessment on the custodians chain confirmed that, for securities issued by and in the name of euro area residents, the global custodian holds accounts with Clearstream and Cedel. Also very relevant are the accounts held with other sub-custodians, mainly local agents located in the country of issuance.

As far as these local agents are residents in the euro area, and in the case of a data collection model based on the indirect reporting by euro area custodians, the problem of the double counting matters.

With reference to the securities used for repo-type transactions, the interviewed global custodian confirmed that mainly government bonds and medium/longer term bank bonds are used. It also stated that the customers' accounts on securities are not affected by repo-type transactions.

Moreover the system for recording the transactions and positions makes it possible to identify the securities under a repo-type transactions.

Global custodians[1]

Introduction

Custody at its most basic level is the safe keeping of assets and settlement of trades on behalf of beneficial owners. Global custodians – who offer their services in the main to large institutional investors, banks, mutual funds and central banks – will take on the task of custody across all the markets in which the client has assets. (They will also tend to have an international spread of clients). Increasingly, along with the core custody business they are offering value added management information such as performance analysis. While global custody is a comprehensive service, the provider may not have a presence in all markets world-wide. In those where it does not, it may employ a local or sub-custodian who will use specialist knowledge of local markets, conditions and procedures (including taxation), to provide custody on the global custodians' behalf. Conversely, banks offering a 'retail' custody service to local investors are likely to avail themselves of the services of a global custodian for assets originating outside their home territory.

Summary

This note is based on a series of meetings/follow up discussions with six major global custodians - Bank of New York (BoNY), Citibank, JPMIS, Deutsche, HSBC and State Street. [Their combined assets under custody are estimated to be approximately US $ 30 trillion at end h1 2001. To put this in perspective, this is approximately 50% - in value terms - of global freely traded financial assets].

This note is divided into three broad sections – coverage, definition and reporting. The first examines the depth of the information custodians have on their clients and the stocks held on their behalf. The definition section considers how global custodians' relationships with other market participants and their activities in the market would impact on the usefulness of the data they could provide. The reporting section looks briefly at the mechanics and costs of data reporting from the custodians' standpoint.

Coverage

Custodians gave a qualified yes to the question of whether they could give the country of residency of the issuer of securities held for clients. All but one – the largest by assets under custody – stated that they held information on the basis of nationality of the market in which the security was issued, rather than issuer.

Turning to the information they have on their clients, they stated that in general they would be able to split them on a resident/non-resident basis. The main circumstance in which they would not be able to do so would be if they were acting as custodians for collective investment schemes – one stated that around 15% of assets held in global custody were for mutual funds. This is not a problem from a compilation standpoint – in National Account terms there is no need to look through the residency of the funds to that of the holders of the units.

---

[1] Robert Westwood - External Finance Statistics - Monetary and Financial Statistics Division - Bank of England.

When asked if they could refine the resident/non-resident split further to provide residency of the holder, the answer was again a qualified yes. They seemed fairly confident they could do this for the bulk of their clients. Principally this would be done from clients' tax records; the main stumbling block arises where the client manages his own tax affairs. [There may be some problems at the margin if the client's domicile for tax purposes is not the same as their country of residency as defined in BPM5.] Extending the refinement to grouping clients by economic sector – e.g. bank, other financial, corporate, household, etc – was seen as more problematic. In general they felt that they would be able to do this to some extent. Only one seemed confident that they would be able to provide such a detailed analysis.

Finally, they were all confident that they could provide a total market value of holdings for the non-resident clients (they could identify). While there was some variation in the level of accuracy they attached to these valuations, it seemed that in every case it would be fit for purpose. [One elaborated on how they would do this. They have a global securities masterfile. This has static data – i.e., ISIN/CUSIP, nominal issued/outstanding, coupon/redemption date, issue price, etc - basically characteristics that do not change over time. This masterfile is used, amongst other things, for pricing purposes. It takes several different feeds – Extel, Bloomberg, etc – and checks the prices given for each security. If 2 or 3 are the same they are accepted automatically. They stated that in practice this reduces the number of manual interventions to a "handful". (This valuation is done on a daily basis). They would therefore be able to combine the price data on the masterfile with the records of nominals held to get a total value].

Definition

There was general agreement that the relationships between global and sub-custodians would be likely to generate double counting problems – at least. The problem being that if custodians were surveyed, it would be necessary to ensure that assets held in any kind of sub-custody role were counted only once. In the US enquiry, this problem was solved by the use of a set of forms that enable the compiler identify assets held at more than one level of custody. [One custodian pointed out that they have cases that could lead to treble counting. For example, a Swedish bank acting as custodian for a client may use them as a global sub-custodian for all non-Swedish assets. The global custodian may then in turn use further local custodians for some assets]. However, another stated that while double counting may be a problem at present, they were developing a system that would give a 'net' position for the assets that they hold for clients. They also identified a bifurcation in the market with one group of custodians moving towards increasingly doing their own local custody while the others were moving in the opposite direction. They offered the opinion that the first group was likely to develop systems similar to their own and that therefore the double counting problem from this group could diminish.

On the question of how the stock lending/repo process would complicate compilation, the answers were mixed. (Repoing out/lending stock is generally done to brokers to enable them to cover a short and the custodian would not know the nationality of the investor the broker sells the stock on to). Both processes would potentially cause problems. Considering repo firstly, on their records custodians' show a repo transaction in the same way as they would a normal sale/purchase. Therefore on the basis of their data repos

would show up as a PI flow. As legal but not beneficial ownership change in a repo, it would be incorrect to record these as PI flows; hence there will be overstatement as a result. (One custodian mentioned their own repo desk and stated that as a result they would be able to identify any repo business that they put through. They would not be able to identify any repos that clients organised through competitors' desks).

Turning to stock lending, it appears that custodians would in general be able to identify this from their records. Despite the high media profile of repo/stock lending business, it seems that custodians will generally have only a small amount – one custodian said no more than around 2% to 3% of total equity assets - out on repo or lending at any one time. They added that this is increasing, but not particularly sharply. Lack of opportunity and the risk averse nature of clients were seen as the major factors limiting growth.

On the subject of provision of accrued interest data on holdings the response was mixed to negative. One stated that their global securities masterfile would enable them to provide it. [They have data on nominal purchased/price paid/coupon for fixed interest stocks. For equities the income would be accrued on the basis of the previous dividend]. Another stated that they would be able to provide accrued interest data only for those of their clients that opted for their full investment accounting and/or performance measurement options. (The reason being the data were required for these processes). The remainder did not feel they would be able to provide the data. Finally, all but one clearly stated that they would in general be unable to distinguish between DI and PI transactions/holdings. The outlier said it was possible that the required data were available on their systems, but that it would take considerable manual intervention to retrieve it.

Reporting

When asked about the difficulty of reporting transactions and stocks all six indicated that the bulk of the data were on their systems and it would be a case of slicing the information another way to provide the figures for us. The degree of anticipated difficulty in doing so varied considerably. (Only one indicated that their systems were fairly inflexible and that it may require a considerable amount of intervention to produce the data. The remainder appeared to have more confidence in their IT).

They were all keen to emphasise the volume of data involved. Three custodians stated that they each processed around 1 million transactions a month on behalf of clients, reporting of stocks was seen as more viable option. [In general they appeared to have 90-100 thousand securities in their static databases]. When asked about the relative difficulty of reporting security by security against an aggregate basis the feeling was that the former would probably be easier as this is how their databases are constructed.

Holdings of Belgian Government Bonds and Treasury Certificates[1]

The main question is how to get information from custodians, or global custodians, about the geographical breakdown into categories of holders of portfolio investments in order to identify groups of end-investors.

A study has been conducted on Belgian Government securities, especially on OLOs (bonds) and on Treasury certificates. Both are dematerialised securities and are registered in the book-entry clearing system of the National Bank of Belgium.

For these securities, we can have recourse, **in a first step**, to information from the **centralised custodian**, i.e. the clearing system of the National Bank of Belgium.

Each participant in the clearing system of the National Bank of Belgium disposes of two accounts :

- ✓ **own holdings**,
- ✓ holdings on behalf of customers.

Own holdings of participants can be considered as securities held by end-investors. Holdings on behalf of customers can only be considered as securities held by end-investors as far as those customers are non-MFIs. So, it would be useful to know the breakdown between MFIs and **non-MFIs**.

In order to make such a split between MFIs and non-MFIs in holdings of customers, we do need some **information from a second level of custody**. We can partially get that kind of information from a quarterly survey on the location of dematerialised securities. In the framework of this survey, participants are asked how their holdings on behalf of customers can be split into

- ✓ non-resident customers in the euro area :
  - ✓ MFIs,
  - ✓ **others customers**,
- ✓ non-resident customers outside the euro area :
  - ✓ MFIs,
  - ✓ **other customers**.

Only underlined categories can be considered as groups of end-investors exclusively.

On that basis, as of the end of March 2001, we get the breakdown as shown in the next tables (national residency criterion and euro area residency criterion).

[1] Philippe Lambot and Paul Sarlet - Banque Nationale de Belgique

Within the national approach, additional information has been asked to France about their resident MFIS (third step in related table).

It should be noted that the breakdowns have been influenced by repos. Until now, it has proved impossible to correct the breakdowns, but it should be possible from 2002 on, because the survey is going to cover that issue from September 2001 on.

GEOGRAPHICAL BREAKDOWN OF HOLDINGS OF BELGIAN GOVERNMENT SECURITIES ABROAD

NATIONAL RESIDENCY CRITERION

(In billions of)

	Holdings in other MUMs				Holdings extra euro area				Overall total of holdings abroad	Identifiable end investors abroad		Non identifiable end investors abroad	
	MFIs identi-fiable own holdings	MFIs unidenti-fiable holdings	Non MFIs	Total	MFIs identi-fiable own holdings	MFIs unidenti-fiable holdings	Non MFIs	Total		Holdings	% of total holdings abroad	Holdings	% of total holdings abroad
STEP 1 - INFORMATION FROM CENTRALISED CUSTODIAN													
OLOs	4.3	NA	NA	66.8	0.7	NA	NA	35.1	101.9	5.0	5%	96.9	95%
CERTIFICATES	1.3	NA	NA	5.8	0.8	NA	NA	5.7	11.6	2.1	18%	9.4	82%
TOTAL	5.6	NA	NA	72.6	1.5	NA	NA	40.9	113.5	7.1	6%	106.4	94%
STEP 2 - INFORMATION FROM STEP 1 AND FROM MFIs PARTICIPATING IN THE CENTRALISED CUSTODY SYSTEM													
OLOs	4.3	58.2	4.3	66.8	0.7	34.3	0.2	35.1	101.9	9.5	9%	92.5	91%
CERTIFICATES	1.3	4.1	0.5	5.8	0.8	4.9	0.0	5.7	11.6	2.6	22%	9.0	78%
TOTAL	5.6	62.2	4.8	72.6	1.5	39.2	0.2	40.9	113.5	12.0	11%	101.4	89%
STEP 3 - INFORMATION FROM STEPS 1 & 2 AND FROM CUSTOMERS OF DIRECT PARTICIPANTS, THAT ARE ESTABLISHED IN ONE OTHER MUM													
OLOs	9.4	53.1	4.3	66.8	0.7	34.3	0.2	35.1	101.9	14.6	14%	87.3	86%
CERTIFICATES	2.4	3.0	0.5	5.8	0.8	4.9	0.0	5.7	11.6	3.6	31%	7.9	69%
TOTAL	11.8	56.1	4.8	72.6	1.5	39.2	0.2	40.9	113.5	18.2	16%	95.3	84%

GEOGRAPHICAL BREAKDOWN OF HOLDINGS OF BELGIAN GOVERNMENT SECURITIES ABROAD

EURO AREA RESIDENCY CRITERION

(In billions of)

	Holdings extra euro area				Overall total of holdings abroad	Total général	Identifiable end investors abroad		Non identifiable end investors abroad	
	MFIs identi-fiable own holdings	MFIs unidenti-fiable holdings	Non MFIs	Total			Holdings	% of total holdings abroad	Holdings	% of total holdings abroad
STEP 1 - INFORMATION FROM CENTRALISED CUSTODIAN										
OLOs	0.7	NA	NA	35.1	101.9		0.7	1.9%	34.4	98.1%
CERTIFICATES	0.8	NA	NA	5.7	11.6		0.8	13.9%	4.9	86.1%
TOTAL	1.5	NA	NA	40.9	113.5		1.5	3.6%	39.4	96.4%
STEP 2 - INFORMATION FROM STEP 1 AND FROM MFIs PARTICIPATING IN THE CENTRALISED CUSTODY SYSTEM										
OLOs	0.7	34.3	0.2	35.1	101.9	178.3	0.8	2.4%	34.3	97.6%
CERTIFICATES	0.8	4.9	0.0	5.7	11.6	29.9	0.8	14.1%	4.9	85.9%
TOTAL	1.5	39.2	0.2	40.9	113.5	208.3	1.7	4.1%	39.2	95.9%
STEP 3 - INFORMATION FROM STEPS 1 & 2										
OLOs	0.7	34.3	0.2	35.1	101.9		46.0	45%	55.9	55%
CERTIFICATES	0.8	4.9	0.0	5.7	11.6		6.0	52%	5.6	48%
TOTAL	1.5	39.2	0.2	40.9	113.5		52.0	46%	61.5	54%

SUPPLEMENTARY DOCUMENT II

REPO-TYPE TRANSACTIONS/POSITIONS*

I. Introduction

1. Throughout the period of activity of the Task Force on Portfolio Investment Collection Systems (TF-PICS) the problems associated with the existence of repo-type transactions for the assessment of portfolio investment stocks and flows have been repeatedly analysed. However, even if the TF-PCIS members acknowledged these difficulties as presented during former meetings of the TF-PICS, it was deemed necessary to undertake a more in-depth analysis of the problem.

2. Accordingly, the follow-up group on repo-type transactions was commissioned by the TF-PICS to further investigate to which extent the (non-) identification of securities temporarily acquired/borrowed from outright portfolios could constitute a substantial problem for the collection of portfolio investment figures, notably as regard the reporting of information by custodians for statistical purposes.

3. Following this mandate, the participants in the sub-group split the work in three different areas:

I) First, it was deemed necessary to assess the magnitude of the problem by measuring the size of the repo-market in relation to the volume of the overall portfolio investment. To this aim, three empirical exercises with data of dissimilar nature have been conducted in France, Spain and Luxembourg.

II) Second, once the importance of the problem was determined, several contacts with local custodians were undertaken in the three above-mentioned countries in order to further seek whether or not they could be able to identify securities exchanged under repo-type agreements, considering both their own portfolios and their customers' securities accounts.

III) Finally, in order to accomplish an overall picture of the problem as well as to seek which solutions are being currently implemented at country level, a questionnaire was designed and sent to the members of the TF-PICS in order to gather Member States' experience in the collection of information on repo-type transactions/positions.

---

* By Maitena Duce, Corinne Devillers, Philippe Arondel and Carlos Sánchez Muñoz

4. According to the structure of the work, the document is in three sections corresponding to the subjects described above. The tables included in Annex1 summarise the main answers received from member states to the questionnaire on repo-type transactions positions.

II. Weighing up the significance of the problem: empirical exercises

France: repo positions in relation to portfolio investment stocks

Introduction

5. The purpose of this study is to assess the significance of the repo market in relation to the importance of the portfolio investment account. To this end, the volume of repo positions was compared with the total portfolio investment stocks not corrected for repos, distinguishing between stocks of foreign securities held by residents and stocks of resident securities held by non-residents.

6. The securities accounting for the largest portfolio investment stocks were selected by type of instrument (equities and bonds), with a distinction between domestic and foreign securities.

7. In this note, the major conclusions are as follows:

(i) The significance of repo positions on the total portfolio-investment stocks and whether they are "pure repos" or securities lending mainly depend on the type of instrument concerned. For instance, the proportion of repo-type positions to total portfolio is higher for bonds than for equity securities.

(ii) The amounts are in most cases not at all marginal (often representing more than 10 % of the total of securities held in portfolio).

8. These findings should be assessed bearing in mind the shortcomings necessarily associated to this study. The real impact of repos on the portfolio is not always easy to determine, mostly due to the fact that repo-type transactions are often mixed with other operations, like outright sales, or even new repos or securities lending. This second level of transactions has, in its turn, an impact on the portfolios that should be, in theory, taken into account, although an appropriate consideration is very difficult in practice. So, the availability of information on repos is not always straightforward and sometimes some assumptions are necessary to estimate the nature of the transactions in which securities are exchanged, thus being able to measure their impact on the portfolio stocks.

9. The importance of the repo market can be estimated on either a gross or a net basis. On the one hand, it is possible to estimate the absolute volume of repo stocks, defined as securities sold/bought under repo agreements plus securities temporarily lent/borrowed. Alternatively, it is possible to consider only the net impact of repos, i.e. securities bought under repos plus securities temporarily borrowed minus securities sold under repos and securities temporarily lent. The

second estimation might be deemed closer to the real correction that must be done on the portfolio in order to get a stock consistent with the related flows from a methodological point of view, i.e. to achieve a correct integration of the securities in the portfolio of the real owner.

10. Accordingly, the methodology followed in the subsequent sections conforms to this second approach, i.e. the importance of repo stocks is assessed through the volume of temporary acquisitions net of temporary sales. The first approach provides similar or even more clear-cut conclusions on the indisputable significance of the repo market.

Specificities of the empirical exercise: sources of information and data studied

(i) Sources of information

11. Two sources of information are used, for the total of portfolio investment (PI) and for repos respectively:

a) For PI stocks, the figures have been obtained from end-year stocks on a security-by-security basis. The data are reported by banks and concern their own portfolio and the portfolio they held in security accounts on behalf of their clients. These stocks based on security accounts are not corrected for the impact of repos. Indeed, the basic information received from banks for their own positions is only adjusted for foreign securities repoed and lent (according to the rules of banking balance sheets). It is not adjusted for securities borrowed. The outstanding amount of securities held on behalf of their clients is not adjusted for either repos or securities lending.

b) For repos: for their own accounts and accounts held by their clients, banks have to declare with specific codes the outstanding amounts of securities divided into:

   1 bought in repos

   2 sold in repos

   3 temporarily borrowed

   4 temporarily lent

12. Similarly to other data on securities, the figures on repos are on a security-by-security basis with the indication of the ISIN code. Moreover, the status (resident/non-resident) of the counterpart to the repo-type transaction is reported.

(ii) Data covered by the study

13. The data analysed were divided into two categories:

(i) French and foreign equities

(ii) French government bonds and foreign bonds.

14. For each category, the main securities (determined by the proportion of the stock in each security in relation to the total of the instrument, i.e. either bonds or equities) were selected. Then, a comparison was made between the volume of repo positions and the total PI stock declared in each security selected.

15. This comparison was made only for shares and bonds because for:

(i) other equities: no repos are declared;

(ii) money market instruments are mainly identified with generic[1] codes, thus a study security-by-security is not possible;

16. The data relate to the stocks at the end of 1998.

Results of the study

(i) Main results

17. Even if it is difficult to underline common characteristics (see last section), some aspects can be pointed out:

- Only about 20 % of the individual securities studied, considering all instruments, were not affected by repos.
- In relative terms, bond instruments are more involved in securities lending than in pure repos, whereas equity securities are exchanged more often in pure repos than in securities lending
- The amount of repo-type transactions (whatever their nature, i.e. either "pure repos" or securities lending), are larger for resident and non-resident bonds (30 % on average of the stock of bonds) than for resident and foreign equities (usually less than 15 % of the stock of equities).

1 Codes encompassing securities with the same characteristics (currency of issue, country of residence of the issuer, etc.)

(ii) Detailed results

18. French equities:

- Number of securities studied: 22 French equities;
- Volume of securities involved in repos: only 5 equities are not involved in repos;
- Type of repos: equities are more involved in "pure repos" (65 % of the total of repo-type stocks) than in securities lending (20 % for securities lent and 15% for securities borrowed).
- Significance of repos compared to the stock in portfolio: the repo positions (whatever their nature) represent on average less than 5 % of the total amount of the stock held in portfolio, and usually less than 2 %. It must also be noted that the larger the volume of the stock of a specific equity security, the larger the stock of repos (this is not the case for bonds).

19. Foreign equities:

- Number of securities studied: 41 foreign equities;
- Volume of securities concerned: 44 % of the equities studied are not involved in repos;
- Types of repos: the "pure repos" are rare, the securities lent represent 39 % of the total of repos and the equities borrowed 54 %.
- Significance of repos compared to the stock in portfolio: the amounts of repos are very variable according to the security; the range of significance varies between 1% and 40% of the total of the portfolio investment stock.

20. French Government bonds:

- Number of securities studied: 26 French Government bonds;
- Volume of securities involved in repos: all the bonds studied are affected by repos;
- Significance of repos compared to the stock in portfolio: the amounts of repos are very different from one security to another: from 1% to 70% of the total portfolio. 17 French Government bond out of the 26 types of bonds studied have been impacted by repos representing more than 10% of the total portfolio.

21. Foreign bonds:

- 39 securities were selected (mainly Government bonds).
- These bonds are affected almost exclusively by pure repos and not by securities lending.

- There are very diversified situations: either the impact is low (18 securities of the 39 are subject to repos representing less than 10%of the total portfolio) or large (17 securities among the 39 are subject to repos representing more than 30% of the total portfolio).

Distribution by sectors of the data studied

22. The share of resident sectors in the repo market was studied through information provided by banks on the importance of their own repo-positions and the positions they hold on behalf of their customers. The figures refer to stocks of repos at end 1998. These results should be taken with caution since they are only estimations (a complete overlook would require a much deeper investigation).

23. The percentages refer to all types of repos ("pure repos" as well as securities lending):

1. repos on foreign equities:
    - own portfolio about 65%
    - portfolio of customers (including banks)about 35%
2. repos on foreign bonds:
    - own portfolio about 80%
    - portfolio of customers (including banks)about 20%

1.

24. The conclusion would be that repos mainly concern banks' own portfolios. Nonetheless, in some cases, it could be also significant for some customers. More specifically, stocks of repos may be important as compared with the total portfolio held by some specific customers. These conclusions may most likely change from country to country.

Spain: repo-type transactions compared with portfolio investment flows

Introductory remarks

25. The basic information on which this exercise is based encompasses transactions corresponding to the year 2000 recorded under the portfolio investment and the other investment (for repurchase agreements) sub-accounts of the Spanish balance of payments.

26. For repo flows the exercise only covers those transactions in which there is an exchange of cash (i.e. excluding securities lending, since these transactions cannot be captured by the Spanish settlement-based collection system).

Outcome of the exercise

27. In gross terms (i.e. credits plus debits or purchases plus sales considered altogether), the volume of repo/reverse repo transactions is much larger than the size of outright purchases and sales of securities. In the year 2000, gross repo transactions doubled the level of gross purchases and sales recorded under the portfolio investment sub-account.

28. *Table & graphic 1* compare portfolio investment and repo transactions broken down by instrument. Most repos in Spain involve the exchange of bonds and notes as collateral. Nevertheless, the proportion 'repo flows/portfolio investment flows' is larger in the case of money market instruments (7,5) than for bonds and notes, for which this proportion amounts to nearly 3. It should be mentioned that no repos with exchange of shares have been registered during the period under study.

29. *Table and graphic 2* compare portfolio investment and repo transactions by instruments and issuers. The breakdown by issuer shows that in the Spanish market most repos take place with domestic securities, while repos with foreign securities represent only 11% of the total. Bonds and notes are also the most often exchanged instrument in repo transactions involving securities issued by non-residents (actually no repos with either foreign money market securities or foreign equities were registered in the year 2000 in the Spanish balance of payments).

30. *Table 3* shows the breakdown by issuing sector (only available for domestic securities) and by issuing country. A wide majority of repo transactions were carried out with General Government bonds (99,9%). For repos with foreign securities the breakdown shows that the securities issued by residents inside the European Monetary Union represent 67,86% of the total exchanged, while securities issued by residents in the United States of America account for 29,8% (to complete nearly 98 % of the total). This breakdown is based on the first two digits of the ISIN code. Therefore, sometimes these data reflect the market in which the securities are issued instead of the proper residency of the issuer.

31. Tables 4 and 5 show the amounts corresponding to the repo transactions in which the 15 most traded securities have been exchanged. These tables aim at assessing the degree of concentration of the repo market on specific types of securities. In the case of domestic securities (table 4), repos with the 15 most traded bonds represent 79,40% of the total repo transactions with domestic bonds, while the 15 most traded money market instruments amount to 87,28% of the total repurchase agreements with domestic money market instruments.

32. In the case of foreign securities (table 5) the 15 most traded securities only represent 35,12% of the total repo transactions with foreign securities (i.e. there seems to be a much more reduced degree of concentration as regards the type of foreign securities exchanged in the repo market). Securities issued by residents in the United States of America constitute the most often exchanged type of collateral under repurchase agreements, followed by securities issued in Germany and Italy.

Distribution by sectors of the data studied

33. In the table & graph 6, a comparison between portfolio investment transactions and repo type transactions broken down by resident sector is shown. For portfolio investment the institutional sector is assigned according to the sector of the resident issuer (for liabilities) and the sector of the resident subscriber or buyer of the securities (assets). For repo transactions the sector is assigned according to the sector of the resident transactor.

34. Most repo transactions in Spain are carried out by resident MFI's (98% of the total). The other resident sectors represent a residual part of the total repo transactions. It should be mentioned that no repo transactions carried out by the general government have been registered during the period under study. However, in portfolio investment transactions the general government sector represents 41% of total gross data followed by other resident sectors (35%) and MFI's (24%), mostly resulting form the importance of the general government as net issuer of debt securities (liabilities)

TABLE & GRAPHIC 1

Portfolio investment and repurchase agreement transactions

Total assets and liabilities: gross data (credits plus debits)

Breakdown by instruments

EUR millions

	Year 2000	
	Portfolio investment	**Repurchase agreements**
Total instruments	**1.892.488**	**3.522.068**
Equity capital	737.123	0
Bonds and notes	1.129.222	3.329.843
Money market instruments	26.143	192.225

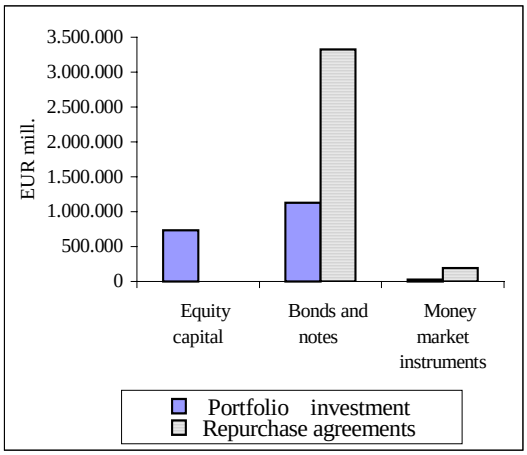


TABLE & GRAPHIC 2

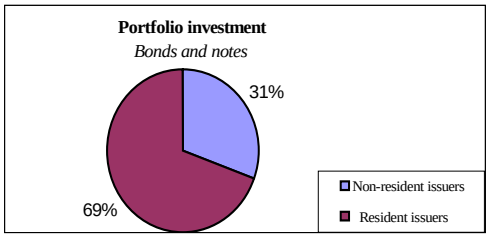
Portfolio investment and repurchase agreement transactions

Total assets and liabilities: gross data (credits plus debits)

Breakdown by instruments and issuers

EUR millions

	Year 2000	
	Non-resident issuers	**Resident issuers**
Equity capital		
Portfolio investment	204.249	532.874
Repurchase agreements	0	0
Bonds and notes		
Portfolio investment	345.177	784.045
Repurchase agreements	353.289	2.976.554
Money market instruments		
Portfolio investment	14.186	11.958
Repurchase agreements	0	192.225



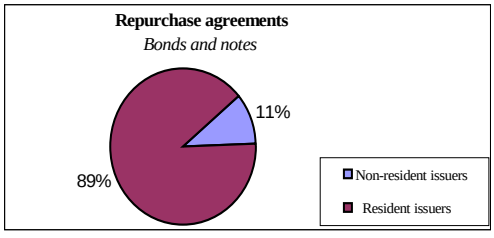


TABLE 3

Repurchase agreement transactions

Total assets and liabilities: gross data (credits plus debits)

Domestic securities

Breakdown by issuing sector

EUR millions

	Year 2000
Monetary financial institutions	*64*
General government	*3.168.584*
Of which: Central government	3.165.580
Other resident sectors	*130*

Foreign securities

Breakdown by issuing country (a)

EUR millions

	Year 2000
European Union	*247.412*
Of which: European Monetary Union	239.742
Eurobonds	1.606
Rest of the world	*105.877*
Of which: United States	105.299

(a) Breakdown according to the first two digits of the ISIN code. The breakdown reflects the market in which the securities are issued, and not the residency of the issuer.

TABLE & GRAPHIC 6

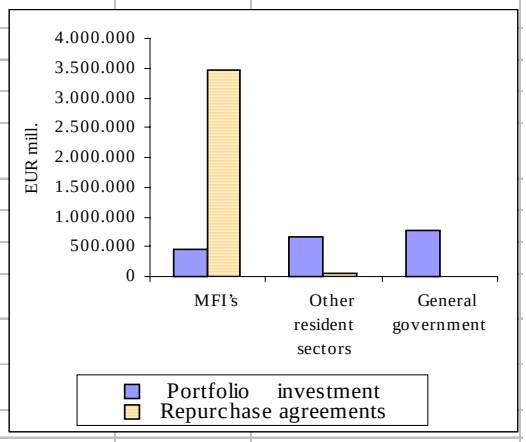
Portfolio investment and repurchase agreement transactions

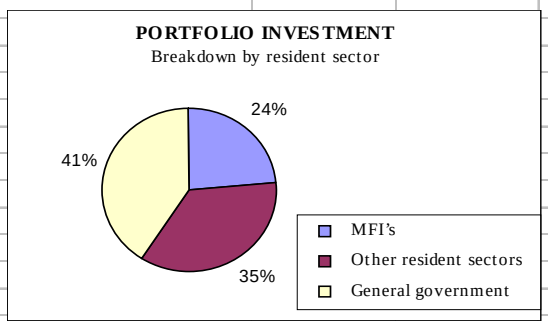
Total assets and liabilities: gross data (credits plus debits)

Breakdown by resident sector

EUR millions

	Year 2000	
	Portfolio investment	Repurchase agreements
Total sectors	**1.892.488**	**3.522.068**
MFI's	446.202	3.465.451
Other resident sectors	668.608	56.617
General government	777.678	0





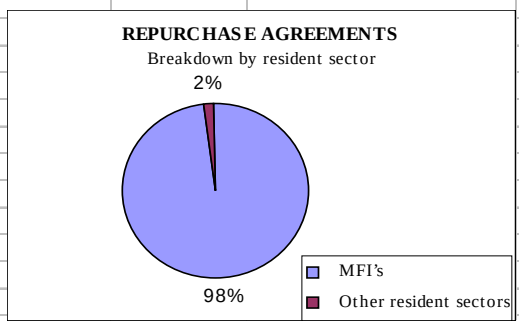


TABLE 4

Repurchase agreement transactions with domestic securities
Top 15 most traded securities
Credits plus debits

Bonds and notes

ISIN code	Issue name	EUR mill.
ES0000011652	Kingdom of Spain	283.093
ES0000012361	Kingdom of Spain	228.713
ES0000012239	Kingdom of Spain	223.131
ES0000012379	Kingdom of Spain	179.018
ES0000012064	Kingdom of Spain	176.280
ES0000011512	Kingdom of Spain	173.520
ES0000012247	Kingdom of Spain	161.628
ES0000012072	Kingdom of Spain	144.056
ES0000012387	Kingdom of Spain	141.889
ES0000011660	Kingdom of Spain	140.541
ES0000011603	Kingdom of Spain	124.318
ES0000012254	Kingdom of Spain	122.424
ES0000011645	Kingdom of Spain	99.082
ES0000011868	Kingdom of Spain	86.717
ES0000012080	Kingdom of Spain	80.267
		2.364.677
% on the total transactions with domestic bonds and notes		79,40%

Money market instruments

ISIN code	Issue name	EUR mill.
ES0L00105251	Kingdom of Spain	35.016
ES0L00106085	Kingdom of Spain	27.028
ES0L00106226	Kingdom of Spain	23.692
ES0L00103165	Kingdom of Spain	14.939
ES0L00105111	Kingdom of Spain	10.665
ES0L00110129	Kingdom of Spain	9.432
ES0L00103306	Kingdom of Spain	6.749
ES0L00008182	Kingdom of Spain	6.204
ES0L00108032	Kingdom of Spain	5.633
ES0L00107067	Kingdom of Spain	5.350
ES0L00202017	Kingdom of Spain	5.256
ES0L00109147	Kingdom of Spain	4.980
ES0L00104270	Kingdom of Spain	4.839
ES0L00109287	Kingdom of Spain	4.110
ES0L00112216	Kingdom of Spain	3.888
		167.781
% on the total transactions with domestic money market instruments		87,28%

TABLE 5

Repurchase agreements transactions with foreign securities
Top 15 most traded securities
Credits plus debits

Bonds and notes

ISIN code	Issue name	EUR mill.
US9128275Z13	United States of America	17.030
DE0001135135	Bundesrepublik Deutschland	15.148
US9128274E92	United States of America	13.762
IT0001338612	Republic of Italy	9.732
DE0001141240	Bundesrepublik Deutschland	9.301
US9128276C19	United States of America	9.294
IT0001453262	Republic of Italy	9.048
DE0001134872	Bundesrepublik Deutschland	8.041
US9128275S79	United States of America	4.963
US9128275X64	United States of America	4.851
US9128276D91	United States of America	4.825
DE0001135127	Bundesrepublik Deutschland	4.723
US9128275N82	United States of America	4.685
US9128276A52	United States of America	4.353
NL0000102259	Nederland	4.317
		124.073
% on the total transactions with foreign bonds and notes		35,12%

Luxembourg: repo positions in proportion to portfolio investment stocks in the MFIs' balance sheets

Nature of the data analysed

35. The data studied refer only to one side of repurchase agreements, which corresponds to the sales of securities from the portfolio of the Luxembourg MFIs in exchange for cash with an obligation to return the securities. Therefore they exclude securities lending, reverse repos and buy-sellback positions.

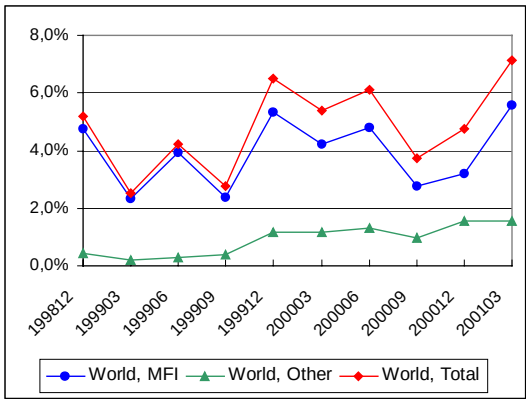
36. For the comparison through time, ratios of repo positions to security stocks of MFI (including equities, bonds and notes and money market instruments) have been calculated.

37. The repo figures are broken down by sector (MFIs/non-MFIs) and country of the counterpart (EMU except Luxembourg, Extra EMU). These figures are compared to the total amount of security position in order to analyse the changes through time.

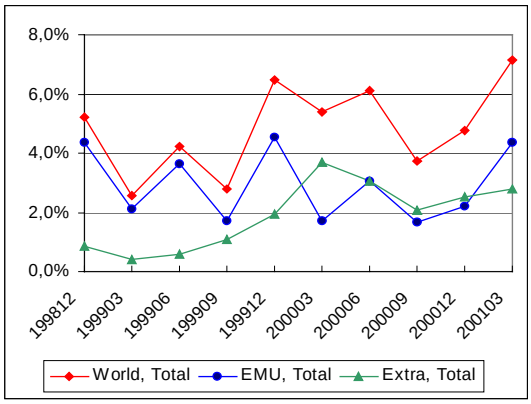
Results of the study

2. (i) Ratio (in percentage) of repo positions to total stocks of securities

Broken down by counterpart sector



Broken down by counterpart country

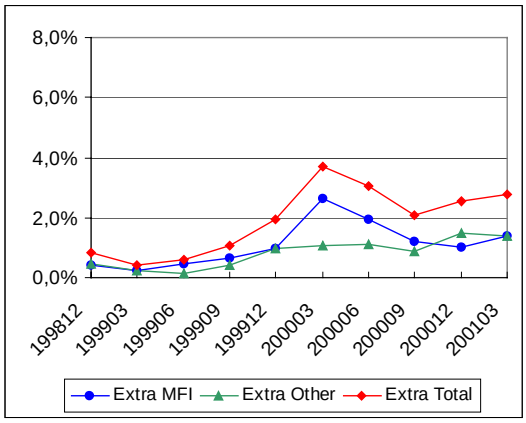


38. Since end-1998, repo positions have increased substantially reaching 7% of the total amount of securities held by MFIs at the end of March 2001.

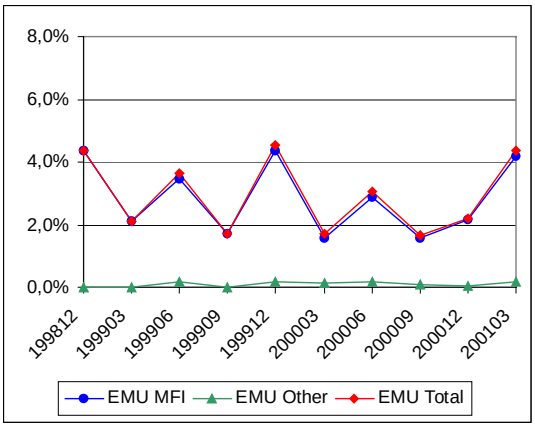
39. Repo positions with counterparts other than MFIs are clearly on an upward trend. The same occurs with repo stocks vis-à-vis extra EMU counterparts.

3. (ii) Ratio (in percentage) of repo amounts to total amount of securities crossing counterpart sectors and countries:

Extra EMU counterpart



Intra EMU counterpart



40. On the one hand, *for extra-EMU counterparts* significant changes occur in repo positions. Starting from almost negligible positions, as from end-1998 onwards repo positions with non-MFI counterparts have continuously increased. In general, we may also notice an upward trend with MFI counterparts.

41. On the other hand, repo positions with intra-EMU counterpart are quite stable, whatever the sector. Furthermore, Repo positions with intra-EMU non-MFI sector are insignificant.

Data used in the study

Volume of repos in Luxembourg MFIs' balance sheets

EUR millions

End of month	*EMU*			*Extra EMU*			*World*		
	MFI	*Other*	*Total*	*MFI*	*Other*	*Total*	*MFI*	*Other*	*Total*
199812	5 521	12	5 534	506	572	1 078	6 027	584	6 612
199903	2 829	1	2 830	290	278	568	3 118	279	3 397
199906	4 892	236	5 128	646	180	825	5 538	415	5 953
199909	2 358	0	2 358	929	565	1 495	3 287	565	3 853
199912	6 576	248	6 824	1 445	1 472	2 916	8 021	1 719	9 741
200003	2 377	174	2 551	4 008	1 586	5 595	6 386	1 760	8 146
200006	4 304	276	4 579	2 895	1 699	4 594	7 199	1 974	9 174
200009	2 390	167	2 557	1 830	1 342	3 172	4 220	1 509	5 730
200012	3 349	76	3 425	1 609	2 305	3 914	4 958	2 381	7 339
200103	6 358	277	6 635	2 126	2 115	4 241	8 484	2 392	10 876

III. Contacts with custodians

France

General overview

42. In order to seek whether local custodians would be able to elaborate data on repos, a questionnaire was sent to four French banks chosen for the significance of their activity on the repo market. This questionnaire concerns five major aspects:

(i) Availability of information on repo-type transactions/ positions conducted by the banks on their own account;

(ii) Availability of information on repo-type transactions/positions on behalf of banks' clients;

(iii) Degree of detail of the available data;

(iv) Periodicity and delay to report;

(v) Additional information on the subsequent use of the securities repoed (like new repos, outright sales to third parties, etc.).

43. The main conclusions of the answers to the questionnaire are the following:

(i) Data on repos conducted by the banks on their own account are generally available whilst information on repos performed on behalf of their clients is generally poor or not available at all;

(ii) it seems more difficult to get information on flows than on stocks;

(iii) data on repos are generally on a security-by-security basis;

(iv) the information is most frequently available on a monthly basis;

(v) none of the respondent banks seems to be able to provide additional information on the subsequent use of securities acquired under repo transactions.

44. It must be noted that some banks underlined that even if the details on repo positions/transactions are available somewhere in there databases, the provision of such information would require heavy IT developments.

Detailed results

	Data on flows (transactions)		**Data on stocks**	
	Repos for the banks' own account	*Repos on behalf of the clients*	*Repos for the banks' own account*	*Repos on behalf of the clients*
Identification of repos	A large majority of respondents is able to identify repo transactions	A wide majority of the respondents are not in position to give any information on repo transactions	All respondents are able to identify repo positions	Only two banks out of the 4 questioned could identify repos
Details of the data available: *1) security-by-security basis versus aggregated data*	Only half of the banks interviewed can provide data on repos transactions on a security-by-security basis		For all the respondents, data on repos are available on a security-by-security basis.	
2) instrument , country of residence and institutional sector of the issuer	In case of aggregated data, the characteristic that the banks could most easily provide is the instrument breakdown. None of them is in a position to identify the country of residence and the sector of the issuer		Following the answers to the former question, a complete geographical and sector breakdown on the issuer side is possible though the ISIN code and the use of a security data base	
3) country of residence and institutional sector of the counterpart	None (except one) of the respondents is in a position to identify the institutional sector and the country of the counterpart		No possibility to identify the sector of the counterpart	
Periodicity	The most frequent periodicity envisaged by the respondents is monthly			

Delay	One or two months (in case of monthly data)
Use of repos[2]	None of the banks enquired is able to give any information on the subsequent use of the securities acquired under repo agreements (outright sales, new repos…). This information does not exist in the current data processing systems.

2 Repos are often mixed with other operations, like outright sales, or new repos or securities lending. This second level of transactions has, in its turn, an impact on the portfolios that have, in theory, to be taken into account (see explanations in the former chapter).

Spain

Introduction

45. In the first six months of 2001, the Banco de España Balance of Payments department arranged three meetings (in March, April and July) with the "Securities Technical Committee" of the Spanish Banking Association. The major banks and savings banks are members of the Committee. All of them act as custodians in relation to their customers. The meetings were organised for the purpose of obtaining information on tradable securities that local custodians could report to the Banco de España. The aim is to change, as soon as possible, the current data collection system for Portfolio Investment based on settlements. During the meetings, local custodians were asked to give details about securities exchanged under repo-type agreements and the related reporting practices.

46. The responses obtained from the local custodians can be divided into information about their own securities account, on the one hand, and information about the securities accounts of their customers, on the other.

Own securities accounts

47. In the balance of their own securities accounts, "repo-type transactions/positions" can be separately identified from outright sales/purchases.

48. Information available: information is available for repos between residents and non-residents involving any type of securities, and for repos between residents involving foreign securities. The repo information is available on a security-by-security basis (each security is identified by its ISIN code), so they can distinguish between foreign and domestic issues and also on the basis of the counterpart involved (resident or non-resident). When the securities are issued by residents, other information can be provided, such as the name of the issuer and the "fiscal identification number". With this "fiscal identification number" the Banco de España can obtain the resident institutional sector. Thus, the information available can be broken down by resident sector (MFI's, general government and other resident sectors) and by country of residence of the non-resident counterpart. There are no other breakdowns (e.g. by type of financial instrument). In the future, when the Centralised Securities Database (CSD) is in place, it will be possible with the ISIN code to detail other characteristics of the issues, including most notably the sector of the non-resident issuer and the country of the issuer. Moreover, the CSD will allow a full and more correct geographical breakdown to be obtained.

49. How are repos recorded in the accounts: repurchase agreements, sale/buy backs, securities lending and similar transactions are recorded as "collateralised loans". The securities

repoed out/lent and those repoed in/borrowed are recorded in a similar manner. However, a repurchase agreement, sale/buy backs, etc., involving cash are treated differently from securities/bond lending where no cash is involved. In transactions involving cash, no movement in securities is recorded in the accounts, and only the cash received, or given, and the corresponding liability, or asset, is posted. In transactions not involving cash, the securities given are removed from the accounts and the securities received are recorded.

Customers' securities accounts

50. In the balance of the securities accounts of their customers, the custodians cannot provide separate information corresponding to customers' repos. Only in a few cases, when the customer orders a repo transaction in the same bank where the securities are deposited, would it be possible to know specific features (e.g. whether it is a repo or an outright sale/purchase) of the transaction. In all other cases there is no information available on repos.

51. For the Spanish local custodians it is not necessary to know whether a security is held as a consequence of a repo or of an outright sale/purchase. The relevant data are the securities involved in the transactions in order to record them correctly in the customer's securities account.

52. In conclusion, the information obtained from custodians does not allow repo transactions/positions to be identified in the balance of the securities accounts of their customers. Thus, correctly estimating portfolio investment transactions/positions can prove to be a significant problem.

Luxembourg

Preliminary remarks

53. In the framework of the ongoing investigations to determine whether information on repo-type transactions and positions can be readily available to custodians, the most important custodians in Luxembourg have been contacted. All in all, it appears that in most cases this type of information is not included in the security accounts.

54. The availability of information on repo-type transactions depends on the specific type of transactions to be considered. For this reason, repurchase agreements and bond lending have been treated in an independent manner.

Repurchase agreements

55. All custodians answered that theoretically all information corresponding to their own accounts is available at ISIN code level, but in practice the information is stored in paper and/or in different databases that are built up for their specific purposes (i.e. not adapted to statistical reports).

56. One of the custodians consulted is able to distinguish cash transactions associated to repo transactions carried out by their customers, but not the securities movement. When there is a movement in the securities accounts, its securities database provides information on the depository (the next step in the chain of custodians).to which the securities are moved. Depositorys' changes could give an approximation of repo transactions, but there are two problems associated to this approximation: (i) if a security moves from one to another custodian, it could involve either an outright sale or a repo-type transaction; (ii) on the other hand, a repo type transaction do not necessarily involve a change of custodian.

57. Another custodian stated they very rarely deal with repo-type transactions for client accounts. It happened in one occasion, when they had to register two operations on their own account (a reverse repo with a client and a repo with the counterpart). In this case, the collection of information for statistical purposes from the own bank accounts may include one or two distinct operations, according to the residency of the counterparts and the sector to which the transactions are attributed could be incorrect since the custodian is just the intermediary of the deal.

58. Another one is not able to distinguish repo-type transaction/positions within the security accounts of their customers when the own custodian is not involved in the transaction. *That custodian assumes this kind of transactions is exceptional.*

59. The availability of information depends on custodians' IT systems, which are more adapted to frequent transactions than to infrequent ones. Custodians get sophisticated software to

manage repo transaction in such cases where these operations are numerous, but this is not often the case.

60. For instance one custodian registers a small number of repo/reverse repo transactions (about 10 a day) amounting to 10 to 100 EUR millions each. They do not dispose of specific software or an ad hoc database for the management of these operations.

Securities lending

61. Custodians are members of security-lending programs set up by (foreign or national) International Centralised Securities Depositories (ICSDs). The ICSD manages this service and the custodian does not need information on a daily basis, but just controls the positions on a monthly basis. There appears no security movement in the custodian account. Consequently, *the custodian does not dispose of easily accessible information on bond-lending transactions*. Information on the positions is mostly in paper. The frequency of reporting positions security-by-security depends on the ability to perform a work that has to be done manually. Some of the custodians are able to report on a monthly basis, while other ones think it is burdensome even on a quarterly basis. The task is also burdensome at an aggregated level of security.

62. It seems that ICSDs manage security-lending programs under general agreements, which do not require the customer's (custodian's) authorisation for each specific operation. When the custodian needs a security that has been lent by the ICSD, the agreement entitles him to receive back the security as soon as needed/required.

63. Although security-borrowing programs exist, the interviewed custodians are not members of these kinds of programs.

64. Another local custodian has developed dedicated software in order to offer a security-lending service to its customers, which dispose of a large and stable portfolio. However, for statistical reporting, this software would have to be adapted.

Conclusions

(i) where custodians are not involved in repo transactions carried out by their customers, in general they are not able to distinguish repo-type transactions from outright purchases/sales of securities;

(ii) even more difficulties are found for the distinction of securities lending, since this type of transactions are often linked to automated programs;

(iii) the reporting of transactions would be much more burdensome than reporting positions (specially in the case of securities lending);

(iv) The availability of information depends on custodians' IT systems. The more custodians enter into repo agreements, the more sophisticated their internal systems are. However, active participation in the repo market is not the most usual case.

(v) In general, these IT systems are not adapted to statistical reporting.

IV. Outcome of the questionnaire

Introduction

65. The questionnaire was intended to gather different views as regard the potential problems derived from the fact that the balance of the securities accounts held by custodians' customers could be distorted by securities temporarily acquired/borrowed, which cannot be readily distinguished from the account holders' outright portfolios.

66. It was also intended to deliver an overview of the information sources currently in place in member states for repo-type transactions/positions. The underlying idea behind the information obtained through the questionnaire was to identify "best practices" for the collection of information on repos, which could fit into the overall framework of a comprehensive "data collection model" (that could be based, for instance, on the information available from local or global custodians, provided that the "repo" problem may be sorted out).

67. Fifteen replies were received corresponding to all members of the European Union. Even Portugal, which is not directly represented in the Task Force, kindly participated in the exercise.

68. The answers obtained through the questionnaire have been sketched in the tables included in Annex1. The contents of the tables derive from the whole set of replies, which have been sometimes re-interpreted to put them in line with the motivation behind each specific question and get a fairly consistent overall picture.

Synopsis of the replies to the questionnaire

69. The following paragraphs are trying to condense the main ideas deriving from the replies to the questionnaire. They can be sketched as follows:

Question 1

Do you collect/plan to collect information on portfolio investment stocks/flows, assets/liabilities from domestic custodians? Does this information merely refer/will refer to own transactions/positions (i.e. of the custodians) or does the (planned) reporting cover also transactions/positions on behalf of their customers?

70. A wide majority of respondents (13 out of 15) do collect or plan to collect in the near future stock information from custodians. In addition, 8 of these countries also receive (will receive) information on transactions from custodians, while the rest derive portfolio investment flows from the information sources integrated in the general collection system (normally, from resident banks' settlements).

71. Out of the 13 countries that receive (either at present or in the near future) portfolio investment stocks from custodians, 10 b.o.p. compilers receive (all or part of) both custodians' own positions and positions accounted for on behalf of customers; two countries only receive banks' own positions, whereas the last one will receive in the future only custodians' holdings and positions corresponding exclusively to those customers falling in the category of households.

72. Regarding the information reported by custodians on transactions, out of the eight countries receiving (nowadays or in the future) this type of information, all of them collect (all or part of the) transactions corresponding to both custodians and customers (in one case, only for households).

73. This question was intended to evaluate whether a majority of member states could be potentially affected by the possible distortions caused by the existence of repo positions. The answers prove that actually these problems concern a wide majority of MSs.

Question 2

Regarding the information on custodians' own transactions/positions with securities, which of the following options applies:

1) do you receive this information adjusted from repo transactions/positions?;

2) do you receive from them separate information corresponding to their repo transactions/positions?;

3) no information on own repo transactions/positions is available from the reporting by custodians;

4) other (please, specify)

Transactions

74. Only two countries (ES and NL) reveal resident custodians' willingness to report information on own repo-type transactions in their respective future collection systems for portfolio investment. In the case of the remaining six countries collecting flows from custodians, custodians directly exclude repo transactions from outright purchases and sales of securities reported to the NCB, which receives the final information directly adjusted for repos. Only in the case of BE, the information is not adjusted at all either by the reporter or the compiler.

Positions

75. As regards the thirteen countries that collect (will collect) information on custodians' holdings, seven receive this information directly adjusted for reversible transactions (i.e. only outright portfolios are reported); three countries currently receive or will receive in the future separate information on repos from custodians (again NL and ES, in addition to FR). DK also receive separate information, though only for the MFI sector. Regarding GR and BE, due to the

unavailability of information securities holdings cannot be adjusted for securities temporarily borrowed/acquired.

Question 3

In the case that custodians also provide information on their customers' security accounts, which of the following options apply:

1) do you receive this information adjusted from repo transactions/positions?;

2) do you receive from custodians separate information corresponding to customers' repos?;

3) is the information on repo transactions/positions directly available to the custodian or does it require them to maintain additional contacts with their customers?

4) no information on customers' repo transactions/positions is available from the reporting by custodians;

5) other (please, specify)

Transactions

76. The conclusions that can be drawn upon the answers referring to information on repo business of the custodians' customers might be deemed much more clear-cut than those referring to the previous question (i.e. on custodians' own transactions/positions). None custodian seems to be able to provide separate information concerning their customers' repos, even in the future systems still underway. Six countries theoretically receive information on portfolios directly adjusted for repo transactions, but none of them has expressed absolute certainty on the accuracy of such adjustments. Furthermore, the remaining three countries (BE, ES and NL) cannot adjust these transactions for the repos of the custodians' clients merely with the information provided by custodians (alternative information sources would be necessary).

Positions

77. As regards clients' holdings, five countries receive this information from domestic custodians directly adjusted for reversible transactions (still some doubts could remain on the reliability of the knowledge of the custodians on their customers' positions). Five countries cannot apply any adjustment to clients' positions due to the lack of information. Only in one country (FR) custodians seem to be able to report separate information on customers' repos, though again the completeness of this information casts serious doubts.

Question 4

Which of the following information sources are being used to collect information on repo-type transactions/positions. Please, specify which of them are used to adjust the portfolio investment flows/stocks respectively (if relevant):

1) Bank balance sheets

2) Direct reporting by resident investors

3) Settlements

4) Reporting by custodians

5) Information provided by domestic Centralised Securities Depositories (please, specify which types of securities would be covered)

6) Information from the stock exchange

7) Other/s (please, specify)

Transactions

78. Although reporters are in any case instructed to classify themselves repo-type transactions (with exchange of cash) as collateralised loans under other investment, six countries do not receive any separate information on repo transactions. Settlements deliver some figures on repos in the case of seven countries, while bank balance sheets are used to derive notional flows for the MFI sector in three cases. Three countries receive or plan to receive information on repo transactions directly reported by either resident investors or domestic banks. Finally, one country will receive (in the future collection system for portfolio investment) this information from resident custodians. The fact that reporters classify themselves repos under other investment beforehand does not mean that the b.o.p. classification is wrong, but just that no separate information on repos is available to the compiler for the correction of stocks reported by custodians.

Positions

79. Four countries do not receive any separate information on repo transactions. The rest of the countries collect these figures from one or more of the following sources: (i) bank balance sheets, eight countries; (ii) direct reporting, five countries; (iii) cumulated flows (settlements), three countries; and (iv) custodians, two countries (one in the future). Some other potential sources (such as Centralised Securities Depositories or stock exchanges) are not currently exploited.

Question 5

For each of the information sources mentioned in question 4, at which frequency and with which delay would such information be available

80. Generally speaking, there seems to be no major problems regarding the timely availability of information to comply with the deadline for the reporting of the monthly key items and the contribution to the euro area international investment position. The frequency at which these data are received is also high enough to ensure the fulfilment of these requirements.

81. Nevertheless, it should be borne in mind that there must be a non-negligible lag between the delivery of the information by reporters and the moment at which the statistical product will come to a final stage. Additional time should be required first to check the information in order to ensure its accuracy and later on to apply the necessary corrections to both flows and stocks. Due to the complexity of these operations, this lag may be worth considering.

Question 6

For each of the information sources mentioned in question 4, at which level of detail would such information be available:

1) security by security

2) only aggregate categories are available [please, specify the available breakdowns, e.g.:

- *a) type of financial instrument (shares, other equities, bonds and notes, money market instruments);*
- *b) residency of issuer (foreign and domestically issued)*
- *c) issuer sector (general government/MFIs/Other resident sectors)]*

3) the residency of both parties involved is available;

4) the sector of both parties involved is available;

5) Other (please specify as much as possible)

Transactions

82. Only in two cases the information on repo transactions can deliver some information related to the nature of the collateral exchanged (type of securities, residency of the issuer, etc.). The residency of the counterpart is in virtually all cases available, but no more details can be derived (generally speaking) from this information.

Positions

83. Five countries either currently receive or plan to receive in the future information on the collateral exchanged in these types of transactions (type of securities, residency and sector of the issuer, etc.) thus enabling the correction of stocks that could be collected from custodians without being previously adjusted for repo positions. The counterpart's residency is accessible in most cases.

Question 7

Regarding the information sources (and details) mentioned in questions 4 and 6, is that information available only for repos between residents and non-residents or also for repos between residents (e.g. involving foreign securities):[3]

Transactions

84. Only in one case are repo transactions between residents at hand from the information sources available to the b.o.p. compiler, whereas another country will receive this information in the future collection system for portfolio investment. In the rest of the countries, if there are domestic repo transactions with foreign securities collateral between different sectors of the economy, transactions with securities reported by domestic custodians could not be corrected for repo positions due to the lack of information.

Positions

85. Five countries have access (or do have plans to access in the future) to information on repo positions among residents. However, this information is only available for the MFI sector in two of these cases. For the rest of the b.o.p. compilers, it would be impossible to adjust themselves the positions reported by custodians on behalf of their clients.

Conclusions

86. In short, the following ideas could summarise the outcome of the questionnaire:

- The magnitude of the problem seems indeed relevant, since a wide majority of member states either collect or plan to collect information on portfolio investment stocks/flows from domestic custodians and most of them recognise that custodians are not able to easily identify repo positions/transactions in the balance of the securities accounts of their customers.

- Apparently there are not many potential sources currently exploited for the provision of information on repo positions/transactions. Among them, banks' balance sheets are

most often used to adjust portfolios of the MFIs sector, whereas banks' settlements and direct reporting by resident investors are the most common information sources for repos of the other resident sectors. This stands against the plans to discard one of the few existing sources for flows (namely domestic banks' cross-border settlements) in the short-medium term.

- The situation is even more critical as regards the correct allocation of portfolio investment assets among resident sectors, since the information on domestic repos is more difficult to capture by means of pure b.o.p. sources.

- A large number of countries currently rely on adjustments directly performed by domestic custodians to the portfolio investment transactions/positions reported to the b.o.p. compiler (held on their own behalf or on behalf of their clients).

- However, such an approach offers little (if any) opportunity for checking the validity of adjustments performed by custodians. Furthermore, the general impression expressed was that custodians may to a large extent lack the information on repos carried out by their customers and thus the accuracy of such adjustments might be questionable.

3 This information is necessary to adjust Portfolio Investment stocks to obtain the correct breakdowns by resident sectors

V. General conclusions

87. In a nutshell, the following might be highlighted from the work of the follow-up group:

- **Working in a completely independent manner, the outcome of the investigations performed in the three countries participating in the group (i.e. France, Spain and Luxembourg) was remarkably coincident.**
- **This should ensure the validity of the conclusions reached, which could most likely be extrapolated to most of the countries. The outcome of the questionnaire does reinforce this idea.**
- **Undoubtedly, the high significance of the repo market constitutes a major problem for the collection of portfolio investment figures from custodians.**
- **Given the usually rather short maturity of these contracts and, thus, the large volume of gross flows involved, the distortions are more significant for portfolio investment transactions than for positions;**
- **In some countries, most repo-type contracts are carried out by MFIs. The proportions corresponding to resident sectors other than MFIs are in those countries relatively limited (being more prominent for stocks than for flows);**
- **In principle, end-investors are able to provide the compiler with separate information on their repo-type transactions. Thus the distortions detected by the TF-PICS mainly affect indirect reporting systems based on custodians, with less direct distortions on direct reporting systems and indirect systems based on settlements (in which communication channels need to be established between MFIs and clients beforehand);**
- **Custodians can identify their own repo-type transactions and positions, i.e. generally speaking, MFIs' repos should not constitute a problem;**
- **Custodians cannot identify customers' repos;**
- **The relevance of the problem for indirect reporting depends on the participation of resident sectors other than MFIs in the repo market (rather limited so far in the countries investigated by the TF-PICS, i.e. France, Spain and Luxembourg) and on the fact that indirect reporting is based on custodians;**
- **At present many countries do only get valuable information on repo-type transactions from settlements. The future availability of this information source stands against some ongoing developments (e.g. forthcoming European legislation on cross-border settlements);**

- **Other sources for the relevant adjustments to the information provided by custodians on customers' holdings could be reported directly by end-investors and/or asset managers (which are normally fully aware of the final destination of their clients' funds);**
- **In an indirect reporting scheme, only resident institutions within sectors potentially active in the market (e.g. institutional investors) could require monthly reporting for these adjustments to correct the information provided by custodians;**
- **Other market participants could report at lower frequency (e.g. quarterly or annually) to monitor that their participation in the market can still be deemed not substantial. The provision of the required information very frequently (e.g. monthly/quarterly) and within the appropriate timeliness could be uncertain in some countries;**
- **In addition to the possible corrections needed in the field of portfolio investment, separate reporting on repos may also be useful for analytical purposes and to cover potential future output requirements (e.g. ongoing discussions concerning BPM6 on separate disclosure of repos). It should be borne in mind that in any case it will always be necessary to show repo transactions as loans/deposits in the other investment account.**

Annex 1: replies to the questionnaire. summary tables

Question 1

Do you collect/plan to collect information on portfolio investment stocks/flows, assets/liabilities from domestic custodians? Does this information merely refer/will refer to own transactions/positions (i.e. of the custodians) or does the (planned) reporting cover also transactions/positions on behalf of their customers?

Answer

	Transactions	**Positions**
AT	Yes (own transactions and customers')	Yes (own positions and customers')
BE	Yes (own transactions and customers')	Yes (CPIS): own positions and customers'(only assets)
DE	Yes (own transactions and customers')	Yes (own positions and customers')
DK	No (settlements instead)	Only own positions (banks)
ES	As from January 2002, yes (own transactions and customers')	As from January 2002, yes (own positions and customers')
FI	Yes (own transactions and customers')	Yes (own positions and customers')
FR	No (settlements + banks' balance sheets)	Yes (own positions and customers')
GR	No	Yes (own positions and customers')
IE	No	No
IT	No (settlements instead)	Partly yes (1997 CPIS + cumulated flows)
LU	No (settlements instead)	Only banks' own positions
NL	Nowadays: no (settlements); future: only own transactions + households'	Nowadays: yes; future: only own positions + households'
PT	Yes (own transactions and customers')	Yes (own positions and customers')
SE	Partly (only redemptions and interest payments for domestic debt securities denominated in SEK)	Yes (Liabilities: only debt securities in SEK)
UK	No (at least for the time being)	No (at least for the time being)

Question 2

Regarding the information on custodians' own transactions/positions with securities, which of the following options applies:

1) do you receive this information adjusted from repo transactions/positions?;

2) do you receive from them separate information corresponding to their repo transactions/positions?;

3) no information on own repo transactions/positions is available from the reporting by custodians;

4) other (please, specify)

Answer

	Transactions	**Positions**
AT	Repo transactions directly excluded from portfolio by custodians.	Own portfolio investment positions directly adjusted by custodians.
BE	No separate info (together with other loans)	No separate info (together with other loans)
DE	Repo transactions directly excluded from portfolio by custodians.	Own portfolio investment positions directly adjusted by custodians.
DK	N.A.	Separate info on repos in MFI statistics
ES	(Future) Separate info reported by custodians	(Future) Separate info reported by custodians
FI	Repo transactions directly excluded from portfolio by custodians.	Own portfolio investment positions directly adjusted by custodians.
FR	Repo transactions directly excluded from portfolio by custodians.	Repo positions reported separately by custodians only if not directly adjusted
GR	N.A.	Positions not adjusted from repos
IE	N.A.	N.A.
IT	N.A.	Own portfolio investment positions directly adjusted by custodians.
LU	N.A.	Own portfolio investment positions directly adjusted by banks
NL	Present: N.A.; future: separate info reported by custodians	Present: no adjustment; future: separate info reported by custodians
PT	Repo transactions directly excluded from	Own portfolio investment positions

	portfolio by custodians.	directly adjusted by custodians.
SE	Repo transactions directly excluded from portfolio by custodians.	Own portfolio investment positions directly adjusted by custodians.
UK	N.A.	N.A.

Question 3

In the case that custodians also provide information on their customers' security accounts, which of the following options apply:

1) do you receive this information adjusted from repo transactions/positions?;

2) do you receive from custodians separate information corresponding to customers' repos?;

3) is the information on repo transactions/positions directly available to the custodian or does it require them to maintain additional contacts with their customers?

4) no information on customers' repo transactions/positions is available from the reporting by custodians;

5) other (please, specify)

Answer

	Transactions	**Positions**
AT	Repo transactions directly excluded from portfolio (no separate information).	Customers' portfolio positions directly adjusted by custodians (no separate info).
BE	No adjustment	No adjustment
DE	Repo transactions directly excluded from portfolio (no separate information).	Customers' portfolio positions directly adjusted by custodians (no separate info).
DK	N.A. (Few customers involved in repos)	N.A. (Few customers involved in repos)
ES	No info available from custodians	No info available from custodians
FI	Repo transactions directly excluded from portfolio (no separate information).	Customers' portfolio positions directly adjusted by custodians (no separate info).
FR	Repo transactions directly excluded from portfolio by custodians.	Customers' repo positions reported separately by custodians (low coverage)
GR	N.A.	Positions not adjusted from repos
IE	N.A.	N.A.
IT	N.A.	Customers' portfolio positions directly

		adjusted by custodians.
LU	N.A.	N.A.
NL	Present: N.A.; future: no adjustment to households'	No adjustment either at present or in the future (to households' positions)
PT	Repo transactions directly excluded from portfolio (no separate information).	Customers' portfolio positions directly adjusted by custodians (no separate info).
SE	Repo transactions directly excluded from redemptions (no separate information).	Positions not adjusted from repos
UK	N.A.	N.A.

Question 4

Which of the following information sources are being used to collect information on repo-type transactions/positions. Please, specify which of them are used to adjust the portfolio investment flows/stocks respectively (if relevant):

1) Bank balance sheets

2) Direct reporting by resident investors

3) Settlements

4) Reporting by custodians

5) Information provided by domestic Centralised Securities Depositories (please, specify which types of securities would be covered)

6) Information from the stock exchange

7) Other/s (please, specify)

Answer

	Transactions	**Positions**
AT	No separate information on repos	No separate information on repos
BE	No separate information on repos	No separate information on repos
DE	No separate information on repos	No separate information on repos
DK	Settlements + bank balance sheets	Bank balance sheets + direct reporting by some few resident investors
ES	Settlements, bank balance sheets and custodians (in the future)	Cumulated flows, bank balance sheets and custodians (in the future)

FI	Direct reporting by resident investors	Direct reporting by resident investors, bank balance sheets (checking)
FR	No separate information on repos	Bank balance sheets and custodians
GR	Separate information from settlements	Direct reporting by resident enterprises
IE	Resident investors classify themselves repos under other investment (no separate info on repos available)	Resident investors classify themselves repos under other investment (no separate info on repos available)
IT	NCB's balance sheet, settlements	Bank balance sheets, accumulation of flows
LU	Settlements (only separate info for customers' repos with cash collateral)	Bank balance sheets (only repos; neither reverse repos nor securities lending)
NL	Present: settlements; future: direct reporting by end-investors	Present: settlements (no info on collateral); future: direct reporting by end-investors
PT	Bank balance sheets, settlements and direct reporting	Bank balance sheets, accumulation of flows
SE	No separate information on repos	Direct reporting (only if collateral in SEK)
UK	Direct reporting by banks (only securities acquired under reverse repos and on-sold)	Bank balance sheets

Question 5

For each of the information sources mentioned in question 4, at which frequency and with which delay would such information be available:

Answer

	Transactions	**Positions**
AT	N. A.	N. A.
BE	N. A.	N. A.
DE	N. A.	N. A.
DK	daily, coincident with repo inception and maturity	MFIs: monthly / 8 working days other investors: quarterly / one-month lag

ES	Settlements: monthly / 6 weeks	Balance sheets + cumulated flows: quarterly / 4 months
FI	monthly, 15 working days after end-period	monthly, 15 working days after end-period
FR	N. A.	Bank balance sheets: quarterly / 2 months custodians: yearly / 1 year (including the checking and processing of the info)
GR	Monthly / 45 days	yearly / six months
IE	N. A.	N. A.
IT	monthly / 2/3 weeks	cumulated flows: 5-month lag
LU	monthly / 5 working days	monthly / 10 working days
NL	monthly / 15-20 working days	yearly / 4-5 months after end-year
PT	monthly / ten working days	MFIs: monthly / 10 working days ORS: quarterly / two months
SE	N.A.	Monthly, 15 days
UK	Quarterly / one month	Monthly / seven working days

Question 6

For each of the information sources mentioned in question 4, at which level of detail would such information be available:

1) security by security

2) only aggregate categories are available [please, specify the available breakdowns, e.g.:

3) type of financial instrument (shares, other equities, bonds and notes, money market instruments);

4) residency of issuer (foreign and domestically issued)

5) issuer sector (general government/MFIs/Other resident sectors)]

6) the residency of both parties involved is available;

7) the sector of both parties involved is available;

8) Other (please specify as much as possible)

Answer

	Transactions	Positions
AT	N. A.	N. A.
BE	N. A.	N. A.
DE	N. A.	N. A.
DK	Settlements: individual transactions	Banks: residency and sector of both parties; Other investors: sec-by-sec
ES	initially sec-by-sec; finally, only aggregates by sector and NR counterpart (in the future, ISIN available)	MFIs: no breakdowns; ORS: accumulation of flows (see flows) (in the future, ISIN available)
FI	No detailed breakdowns available	No detailed breakdowns available
FR	N. A.	Custodians: ISIN + residency of counterparty + sector of resident (not that of non-resident)
GR	No answer	Aggregates (no further specification)
IE	N. A.	N. A.
IT	Only residency of the counterpart available (no info on collateral)	Counterpart's residency/sector (MFI/non-MFI); no info on collateral
LU	Only residency of the counterpart (customers' repos)	Sector and residency of the counterpart (bank balance sheets)
NL	• present: settlements (residency of counterpart; no info on collateral) • future: direct reporting (either ISIN or counterpart's sector and residency)	• present: only settlements (residency of counterpart; no info on collateral) • future: direct reporting (either ISIN or counterpart's sector and residency)
PT	ORS: no security details (aggregates by sector, currency and counterpart country) MFIs: no breakdowns	Same breakdowns (see flows)
SE	N.A.	Issuer resident sector + type of collateral (B&N / MMI)
UK	On-selling broken down by debt and equity securities. No counterpart details	Both repos and reverse repos; resident/non-resident; only sector of the counterpart available (for domestic positions)

Question 7

Regarding the information sources (and details) mentioned in questions 4 and 6, is that information available only for repos between residents and non-residents or also for repos between residents (e.g. involving foreign securities):[4]

Answer

	Transactions	Positions
AT	N. A.	N. A.
BE	N. A.	N. A.
DE	N. A.	N. A.
DK	Repos between residents with foreign securities also reported	MFIs: also repos with residents; other investors: only repos with non-residents
ES	Only repos residents/non-residents (in the future, both will be reported)	Only repos residents/non-residents (in the future, both will be reported)
FI	Only repos residents/non-residents	Only repos residents/non-residents
FR	N.A.	Custodians: all repos
GR	Only repos residents/non-residents	Only repos residents/non-residents
IE	N. A.	N. A.
IT	NCB: all repos; other sectors: only with non-residents	Balance sheets: all repos; other sectors: only with non-residents
LU	Only repos residents/non-residents	All repos
NL	Only repos residents/non-residents	Only repos residents/non-residents
PT	Only repos residents/non-residents	Only repos residents/non-residents
SE	N.A.	Only repos residents/non-residents
UK	N.A.	Also domestic positions included

[4] This information is necessary to adjust Portfolio Investment stocks to obtain the correct breakdowns by resident sectors

SUPPLEMANTARY DOCUMENT III

SAMPLING AND GROSSING UP*

I. Introduction

1. The use of sampling and grossing up techniques for the collection of b.o.p. statistics is currently not a widespread practice in the EU[1]. These techniques are mainly in use in some of the countries running collection systems based on surveys directly addressed to the relevant reporting agencies (i.e. not passing through other indirect reporters like e.g. domestic MFIs).

2. More specifically, the question arises in how far this technique would be applicable for the collection of portfolio investment figures given the specific nature of the business of cross-border trading of securities. Apparently, aspects such as of the high volatility or degree of concentration, would require detailed investigation how the characteristics of sampling techniques (e.g. identification of the frame population, sample design, references for grossing up the figures, information sources to update the relevant registers) would have to be adapted to portfolio investment.

3. Although it was not possible in the course of the discussion during the work of the TF-PICS to cover all these questions in a comprehensive way this document tries to shed some light on two topics. As a starting point for the discussion the first section reviews some aspects associated with the use of sampling techniques from a general viewpoint. In the second section the feasibility of grossing up portfolio investment figures on a security-by-security basis is explored, testing the applicability to the compilation of portfolio investment statistics in an empirical exercise and considering the envisaged quality of the product.

* By Simon Humphries, Harri Kuussaari, Robert Zorzi, Peter Neudorfer.

1 In contrast to the USA, Canada or Australia

II. Sampling and grossing-up – A general framework[2]

Designing a survey

4. Essentially the survey design starts with the specific user requirements, which determine the detailed breakdown of data to be collected from each respondent. For Portfolio Investment data this may include a breakdown by financial asset and liability, by geography (region, area or country), by sector, etc. A questionnaire design (paper or electronic) has to be decided and discussed with the respondents in a way that could minimise the overall burden.

5. The frequency of the survey (i.e. monthly, quarterly or annually) will be determined by the user requirements. However, it will also be determined by other key factors such as the frequency of availability of the data from respondents, the ease of access to the data within the respondent, the amount of detail required and the cost of processing the data. Monthly surveys tend to collect high level, relatively straightforward variables - information readily available within a business because it needs the data for its own purposes. However large companies, for instance, may be able to supply detailed monthly data if their internal accounting systems process the required information in a convenient way.

6. The resources available to the compiler to support and process the survey results are also important. They must be quantified realistically beforehand and a survey should not start unless adequate resources are guaranteed. In practice the whole survey design must be a realistic balance between (a) meeting the needs of all the main users with reliable, detailed and timely statistics and (b) affording the set-up and running costs of compiling the statistics in terms of burdens on the respondents and the resources need to process and analyse the data.

The register of the target population

7. A good register is crucial to any successful survey. Any sample (even a 100% sample) is selected from a list (or business register) of the target population (of enterprises). Ideally the register should have the following characteristics:

i) complete

ii) up to date

iii) separately identify the target population

iv) include information on each enterprise closely related to (or associated with) the main data targeted at in the survey, the so-called *auxiliary information or auxiliary variables*

---

[2] This section is based on three sources:
1) Direct reporting TG - Business registers and surveys progress report (Eurostat), March 2001
2) Note on Finnish experience on Identification and update of survey reporting population in Bank of Finland's BOP/IIP surveys (annex A)
3) Note by ONS on UK's Portfolio Investment assets surveys (annex B)

8. (i) and (ii) are necessary to ensure that there will be no bias in the results (e.g. missing some enterprises in the survey because they were not included on the register). (iii) is needed to avoid spending effort and resources in selecting and approaching enterprises/respondents, which turn out to be irrelavant for the survey. (iv) can also help to target the survey, but essentially this information is necessary to stratify the sample properly (including the identification of enterprises/respondent in the top stratum) and to calculate valid grossed-up estimates within each stratum. In practice no register meets all the characteristics in full all the time. Judgement and experts' opinions are needed to decide if a register is fit for purpose and to assess the effects of any inadequacies.

9. Characteristics (i) to (iv) are met reasonably well in national accounts surveys (the auxiliary information for in the latter case is usually turnover or employment). (iii) and (iv) are less easy provided for portfolio investment surveys, which need auxiliary information such as value of portfolio investment assets held or the value of foreign direct investment. However the data on the main business register can be cross-checked with b.o.p.-specific information at the enterprise level to identify a potential association. These data could then be used to target a portfolio investment survey without using the whole register as a base.

10. Thus various macroeconomic data collection systems may provide registers for different institutional sectors of an economy. These sources may also include some b.o.p.-relevant information that would be useful surveys on cross-border statistics. Table 1 describes the most common sources relevant for general financial account figures. Also the press and other media can provide information to supplement and update these registers, although this can be a resource-intensive, continual exercise.

11. Targeting can also be achieved by including a relevant filter question on a large-scale, general survey. The register for the large survey would need to include all the target population. For example a large, multi-purpose business survey based on the single register could include a filter question on the total values of foreign assets and liabilities. The practical experience is that if a complete register of a subset of the whole population with relevant auxiliary information is accessible (e.g. banks, trusts), it should be used. Separate surveys can be devised to cover the remaining population.

Table 1: Sources for identifying the frame population

Institutional sector		Definition of frame population
S.11	Non-financial companies	General business registers combined with balance sheet information; FDI registers and other variable indicating relevant cross-border investment activities
S.122	Other MFIs	ESCB
S.123	Other financial intermediaries - Investment trust - Securities-dealer companies	Supervisory and trade association sources
S.124	Financial auxiliaries	Supervisory/regulatory sources
S.125	Pension funds and insurance companies	Regulatory and trade association sources
S.13	General government	Administrative sources
S.1311	*Central government*	
S.1312	*State government*	
S.1313	*Local government*	
S.1314	*Social security funds*	
S.14	Households	
S.15	Non-profit institutions serving households	

Sample design

12. The structure of the population defined by the register needs to be studied as part of the sample design process. The design and size of the sample is dependent on the level of accuracy required in the estimates and the level of detail for the production of the estimates, as well as the funding and resources available.

13. Generally surveys will adopt a stratified random sample approach using the relevant auxiliary information on the register as the stratification variable. Ideally the survey variables themselves would be used but these are not known. (If they were, it would not be necessary to do the survey). The compiler assumes a close and stable relationship between the survey and auxiliary variables. Sampling is then usually based on an optimal allocation across the strata to get an effective balance between costs and accuracy. Grossed-up estimates are produced for each stratum separately.

14. Normally a sample design in the top stratum approaches all enterprises (i.e. the stratum containing the largest enterprises with respect to the particular survey). Businesses within the smaller-size strata are sampled. The sample in these smaller strata in most inquiries is rotated to ensure the

form-filling burden is spread evenly among the smaller businesses. This minimises the burden placed on respondents and ensures an acceptable level of quality in the population estimates.

15. In the case of large economies a b.o.p. compiler should be able to design efficient surveys with small risk for bias because they have large, "nicely" shaped populations, which allow sophisticated sampling. In smaller countries, smaller populations and highly skewed distributions of target variables within the reporting populations may limit the scope for probability sampling: it may be more important to reduce the risk of serious bias by using some form of non-probability sampling.

16. In a Direct Reporting Company (DRC) system the surveys of small and medium sized enterprises (SME's) may still approach all enterprises in the top strata. A top stratum would not include any DRCs, but the enterprises might still be large with respect to the particular survey (though not large enough to qualify as a DRC). It would depend how the country defines its DRCs.

17. An advantage with statistically designed surveys based on random samples is that it should enable the calculation of sampling errors for particular variables to be made, giving an indication of the level of quality of the estimates, which should be useful (or even essential) to the users. However, where the population characteristics do not facilitate formal sampling procedures and subjective (cut-off) selection is employed, the level of precision cannot be measured. On the other hand, non-sampling errors such as frame, coverage and measurement errors are generally found to be much larger than the measurable sampling errors.

18. As a conclusion stratified random sampling is certainly an accepted statistical method. However, it should only be adopted after testing other ad-hoc methods for the selection of the sample, using criteria such as the size, the type of the activity of the company etc. These criteria may allow identifying specific thresholds, below which the effect of disregarding all respective entities may be insignificant. In addition, coverage errors among entities above the threshold may be reduced by the use of some simple econometric methods. [3]

[3] For further details see: Karapappas A. and Milionis A. (1999) "Estimation and Analysis of External Debt in the Private Sector", Economic Bulletin, Bank of Greece, 14, p 43-54.

III. Applicability of sampling techniques to portfolio investment

Grossing up on a security-by-security basis

19. It is in general well accepted that from a conceptual point of view data collection of transactions and positions on basis of individual securities is the most advantageous approach, e.g. in terms of flexibility for the production of statistics or the options for quality controls. However, it is less straightforward whether this approach can be applied to or matched with general sampling and grossing up procedures.

20. The following section tries to shed some light on the issue of grossing up portfolio investment data on a security-by-security level. The underlying assumptions are the following:

- Data collection is done on a sec-by-sec basis. This implies that the respondents only report ISIN-codes with nominal values/numbers for stocks and/or transaction values for flows. The individual reporting form comprises the complete range of securities holdings. No classification and, at least for stocks, no valuation or classification is done by the respondent. Rather these steps are part of the compilation process on the compiler's side, which implies the existence of a reference securities database (SDB).
- The collection and grossing up of data refers only to holdings of securities by the respondents. These holdings may also comprise resident issues held with resident and/or non-resident custodians, depending on the type of calculation method for the liabilities side (mixed or residual approach). Grossing up on a security-by-security level is not applied to estimate the outstanding amount of resident issues. Instead the latter may have to be collected directly from issuers, unless they can be derived from a reference SDB.
- Data are collected directly from respondents, no custodian information is used.
- No census is conducted as far as the regular data collection is concerned. Questionnaires are sent to stratified samples of respondents and the results are grossed up. Grossing up in this context does not refer to a mere "cutting-off-the-tail" where only a comparatively small percentage is added in order to compensate for data below a certain reporting threshold. It is assumed that a major part of the potential reporting population is not approached and has therefore to be covered by way of estimation.

Scenarios

21. There are two scenarios how the data can be grossed up in such a collection system:

(1) The sec-by-sec data is only used for classification/valuation/checking-purposes on the respondents' level and the grossing up is then done based on the aggregates received from the respondents. In this case the usage of sec-by-sec data basically stops at the level of the respondent. The intermediate and final aggregates do not have any sec-by-sec breakdowns.

(2) The sec-by-sec data itself is grossed up with the underlying assumption that either the portfolios of respondents are very "similar" (even on the level of individual securities) or that the sample is so big that such a grossing up can be made with high accuracy. The overall aggregates would still be available broken down by individual securities, if needed.

Scenario 1: Collection on sec-by-sec basis and grossing up of aggregates

22. In this scenario the sampling and grossing up process is not very different from a collection system based on aggregated data. The difference between sec-by-sec and aggregated data collection in this context would be limited to the level of the reporting form sent to the respondent.

23. Thus, the advantages and disadvantages of sec-by-sec data collection for individual respondents apply in this context, too. Consequently the quality of the collected data which serve as a starting point for further compilation procedures could be higher. However, once the respondents' data have been classified, checked and, if necessary, corrected the compiler "leaves" the security-by-security world and continues working on aggregated data. In other words, after this aggregation step there is no particular difference to a system where the data have been collected from respondents on an aggregated basis in the first place. Neither the selection of the sample nor the grossing up would have to be much different whether sec-by-sec or aggregated data collection is used. In an ideal case the outcome at the respondent's level should be the same.

24. It could be concluded that in a scenario where the data is collected security-by-security but grossed-up on an aggregated basis, some advantages (e.g. quality and consistency checking at the level of individual securities, high analytical value, etc.) would be lost. Given the proper IT-infrastructure, such as storing the data on the respondents' level some other advantages would remain though, (e.g. ability to obtain new breakdowns and to adapt to new requirements). However, the flexibility of this approach has its limits whenever new samples were needed in order to derive new breakdowns. Only if the same sample were also valid to obtain new breakdowns, then the security-by-security approach could still be worth, as it could offer more flexibility than the aggregated approach.

Scenario 2: Collection on sec-by-sec basis and grossing up on the level of individual securities

25. The second scenario tries to avoid the insufficiencies of the first scenario by grossing up every single security and computing the final aggregates. Grossing up procedures would consequently have to be detailed enough to be applied on the level of every single security. The question is whether it is possible to conduct such a procedure with sufficient accuracy.

26. In any sampling and grossing up procedure the quality of the outcome depends mainly on the following aspects:

- The register of the potential reporting population
- The selection procedure for the sample
- The size of the sample
- The grossing up procedure

27. Regarding the selection procedures it mainly depends on the availability and quality of register information. At best it can be expected that it would provide some clues about the overall importance of portfolio investments of potential respondents but not about how "representative" the individual portfolios at any point in time might be. Therefore it can be assumed that no special provisions can be made in the stage of sample selection to ensure or improve the quality of grossing up on a security-by-security level.

28. Regarding the size of the sample a general rule is: "the bigger the sample the better the overall quality and the more detailed the breakdowns of the final result". In other words, the more breakdowns for outputs required (country-by-country, instruments etc.), the bigger the sample would have to be.

29. The most detailed breakdown imaginable would be a split of the output by individual security. Consequently the conclusion would be that a meaningful grossing up on the level of the individual security would require a very big sample, which might easily be close to a census.

30. One general big advantage of collecting data on a sec-by-sec basis in this context would be the fact that the questionnaire itself would not have to be made detailed and complicated for the respondent. The linkage between the ISIN-code given by the respondent and a reference securities database would for instance automatically provide all the classifications included in this database.

31. In this context it can in general be argued whether it is actually necessary to consider sampling and significant grossing up for all resident sectors in the field of portfolio investment. As far as companies from the financial sectors are concerned, it is safe to assume that most countries will try to reach a fairly extensive coverage of respondents. The same will probably apply to non-financial enterprises in the field of portfolio investment since the number of relevant investors or issuers in this sector is also usually limited. Therefore, carrying out an (almost) census (incl. some cutting-off-the-

tail) may very well be a feasible option. The most prominent exception may be the household sector, at least as long as direct reporting is considered.

Empirical evidence

32. In order to collect empirical evidence an ad-hoc exercise was performed with a data set form Austrian b.o.p./i.i.p. on data retrieved from non-financial direct reporters on securities deposited with custodians abroad. The aim of this exercise was to find out whether the respondents' portfolios were "representative enough" to allow a grossing up even on the level of individual securities.

33. According to the Austrian bop/i.i.p. reporting requirements securities deposits of non-banks held with custodians abroad have to be reported annually by Austrian (end-of-year stocks) in case the deposits abroad are above the threshold of 2,5 Mio €. For the year 2000 a total number of 140 non-bank respondents reported assets in non-resident issues worth 8,7 billion €, which equals 7 % of total portfolio investment assets. An additional volume of 1,2 billion € concerned holdings of resident issues with custodians abroad, which are relevant for the calculation of the liabilities side according to the residual approach.

34. However, these direct reports only account for a comparatively small part of the overall assets of Austrian residents. Nevertheless these data are available on a security-by-security basis and the coverage of this survey addressed to a particular reporting population can be considered as very complete. Thus some tentative conclusions regarding the topic of grossing up and sampling may be drawn based on these data.

35. The non-bank reports for the year 2000 were analysed with a view to the distribution of individual securities among reporting agents. The aim of this exercise was to find out whether the respondents' portfolios were representative enough to allow a grossing up even on the level of individual securities.

Distribution of individual securities

36. The first analysis was made to find out how often a certain security has been reported. In other words, what was the average number of respondents per security. The following results were obtained:

Number of different securities directly reported:	1.447
Number of reporting agents:	140
Average number of respondents per security:	1,44
Standard deviation:	1,56
Maximum number of respondents per security:	35
Minimum number of respondents per security:	1

Note: 1138 of 1447 securities were only reported once

These results show that the portfolios of respondents were very diverse on the level of the individual security. A grossing up on this level does not appear to be possible in the sense to get an overall picture.

Distribution of securities per country of issuer

37. A second exercise was made to analyse the number of securities and reports (combination of respondent and security) per country of issuer in order to find out how good a sampling and grossing up on the level of aggregated country data might work for this reporting population:

Number of countries of issuer in the reported data:	55
Average number of reports (respondent * security) per country:	37,87
Standard deviation:	89,36
Maximum number of reports per country:	464
Minimum number of reports per country:	1
Average number of securities per country:	26,02
Standard deviation:	61,29
Maximum number of securities per country:	314
Minimum number of securities per country:	1

Note: 9 countries appeared in at least 50 different reports: BE, CH, DE, FR, GB, JP, LU, NL, US. The securities of these 9 countries amounted to 7,5 billion € out of 8,4 billion € of total holdings reported directly.

38. Further exercises analysing the number of securities and reports per nominal currency and per type of security produced results, which were very similar to those of the country analysis.

The conclusion to be drawn from this could be that the portfolios on the levels of country of issuer, currency, type of security and other output oriented variables may still show some diversity. However, there are clear preferences for distinct variables throughout the portfolios of respondents that would allow to a certain degree a grossing up of such breakdowns for aggregated levels (scenario 1).

Distribution by volume of portfolios held

39. A third analysis was done to determine how well suited this reporting population would be in principle for sampling and grossing up. Only the possibility to gross up on an aggregate level, i.e. without any further breakdowns such as sec-by-sec), was considered here. The importance of the largest respondents in relation to the total value reported was examined for that purpose.

Size of the "reporting population":	140
Number of securities (ISIN codes) reported:	1447
Share of the top 10 respondents of the stocks at market value:	81 %
Number of securities reported by top 10 respondents:	380 (26 %)
Share of the top 20 respondents of the stocks at market value:	91 %
Number of securities reported by top 20 respondents:	510 (35 %)
Share of the top 30 respondents of the stocks at market value:	97 %
Number of securities reported by top 30 respondents:	832 (57 %)

40. It is obvious that a relatively small sample of respondents already gives a very good coverage of over 80 to 90 %. For an aggregated approach this "reporting population" would be very well suited for sampling and grossing up. However, even the sample that covers 97 % of the stocks at market values of the end result only covers 57 % of the total number of individual securities reported. This again indicates that a grossing up on the level of individual securities based on a selected sample of biggest respondents would probably lead to an overestimation of the values for some ISIN-codes and to completely leaving out other ISIN-codes.

Leaving aside the necessity of detailed breakdowns (sec-by-sec, country, instruments etc.), it can be concluded that the total holdings of the reporting population may be determined by a small sample, respectively a small cutting-off-the-tail could be employed.

Summary and conclusions

41. Based on the experience and the data set available for empirical investigations the following recommendations can be made regarding the issue of sampling and grossing on a security-by-security level from the viewpoint of Austrian b.o.p./i.i.p. data:

- Even in a survey system based on sampling and grossing up, the primary data collection from the respondent could be done on a security-by-security level. Survey systems do not necessarily have to be based on aggregated data collection. All advantages and disadvantages of either approach at the basic data collection level apply for a direct reporting/survey system as well as for any indirect reporting/census system
- There should be no apparent problem in grossing up output oriented aggregates that were originally collected on a security by security basis.
- Many, though not all, advantages of a security-by-security system are lost if the grossing up in the course of the compilation process cannot be done on a security-by-security, but only on an aggregated level.
- Some empirical evidence, though not totally conclusive, suggests that a meaningful grossing up of the results of sample surveys at the level of individual securities is not feasible. The diversity of respondents' portfolios broken down by ISIN may be too high. Thus it is highly unlikely that a meaningful grossing up can actually be carried out at the level of individual securities. The

size of the sample to enable such a detailed grossing up would be close to a census. For some sectors of the economy the latter may actually be a feasible option due to the usually limited number of relevant players.

Annex A –survey reporting population in Bank of Finland's BOP/IIP surveys

This annex reviews experience and procedures applied in defining the frames and selecting respondents for BoP/IIP surveys in Finland. The approach is to look at each sector separately.

Financial institutions

Defining the survey register for financial institutions is quite straightforward. The financial sector is well regulated and complete lists of existing institutions are available from supervisory authorities. Financial institution surveys are often census but there are good possibilities to select the major players only and employ partial coverage collection.

For MFIs balance sheet data includes breakdowns for assets and liabilities against non-residents. Selecting BoP/IIP survey respondents with this type of supplementary information is easy.

In case of insurance companies there are also balance sheet data available but without separate breakdown with non-resident counterpart. The size of the balance sheet, however, gives a good indication on who the potential BoP/IIP survey respondents are.

For other financial institutions such as mutual funds, asset management companies and investment firms the availability of regular balance sheet information from the supervisory sources varies. In these cases market changes may be quicker and the compiler has to pay attention to keeping the survey register up to date and selecting the relevant institutions to be included in the survey.

General approach in Finland has been to include all MFIs in the regular BoP/IIP surveys. For other financial institutions a cut-off method has been applied with an aim to survey regularly all significant institutions.

Enterprises

Enterprise sector is the most challenging with respect to defining a survey register for BoP/IIP surveys. Usually, in each country, there is a general enterprise register maintained by statistics office or some other authority. General enterprise register, which basically includes all existing companies, is way too large to be considered a frame for BoP/IIP surveys as such and it therefore has to be broken down with existing additional information. Useful supplementary information is e.g. lists of companies engaged in foreign trade and registers of foreign ownership or foreign subsidiaries. This type of information is typically not available in a centralised manner and the compiler has to gather it from several sources.

Despite the fact that a lot of useful indicative information is available, the practical experience in Finland has proved that there exists no directly usable register information on the enterprises, which hold foreign assets or liabilities. The general enterprise register therefore has to be combined with available financial information in order to be able to sort the companies according to their size. Databases containing enterprises' balance sheet information are commercially available.

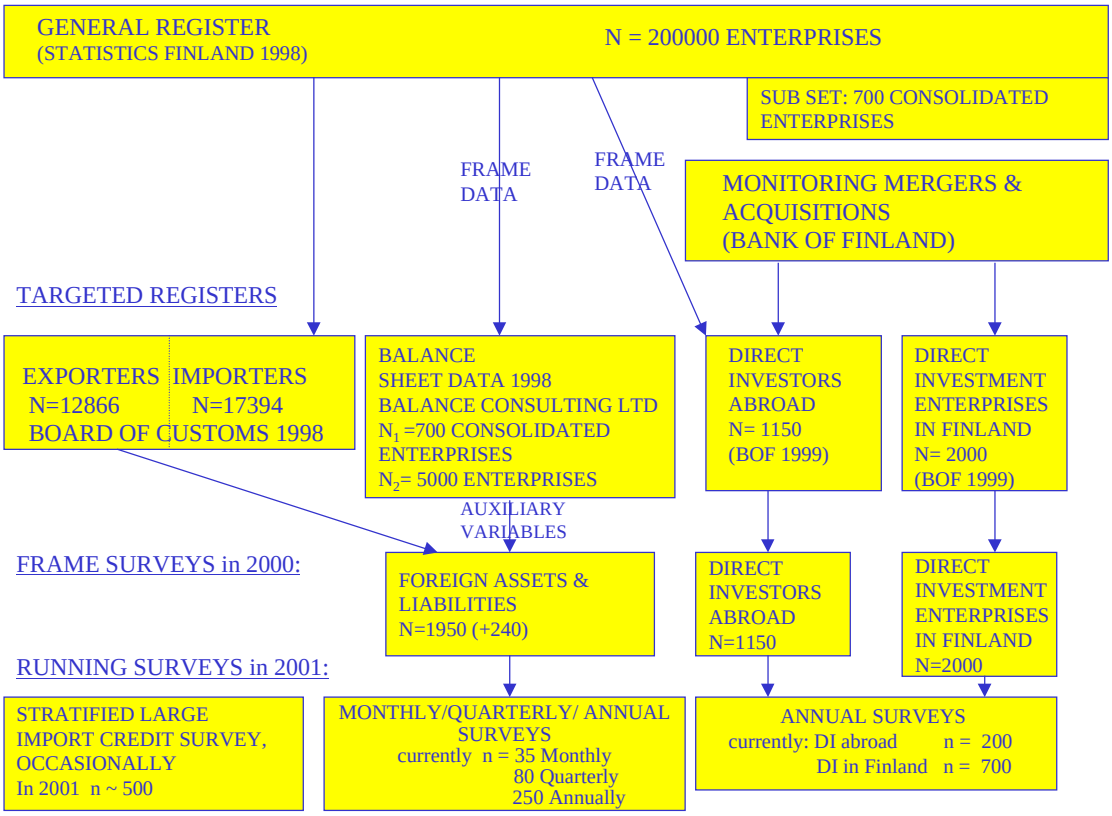
The potential enterprises to be included into the BoP/IIP survey register can be sought by sorting the enterprises according to various auxiliary variables obtained from the balance sheet. The idea simply is that e.g. the enterprises that have large security investments as a whole are also potential to have significant foreign investments. The lists of enterprises constructed in this manner can be used as a respondent population in occasional frame surveys. The results of these frame surveys define which enterprises are included into the running high frequency or annual surveys. In Finland survey registers and respondent populations are checked annually but extensive frame surveys are conducted only, say, every fifth year. (For registers and other information available as well as for the limiting process, see the chart below.).

Central and local government

Potential central and local government respondents are fairly easily identifiable. For central government major part of the data is received centrally from the State Treasury. There are also some other reporting institutions and they are often identified with the help from the State Treasury. On the whole, the general government reporting population has been rather stable in Finland.

Local government survey frame comprises basically all cities and municipalities. The Finnish BoP/IIP survey is cut-off type and it includes the largest units of the frame. A large check-up survey (close to a census) is carried out every 3-5 years and all respondents having significant foreign assets or liabilities are included in the regular monthly or quarterly survey.

THE BOF BOP SURVEY FRAME PROJECT (ENTERPRISE SECTOR)



Annex B – ONS Surveys Collecting Portfolio Investment Asset

The insurance companies, pension funds, trusts and securities dealers inquiries are used to collect aggregate portfolio investment asset information alongside information for the domestic sectors of the national accounts. Broadly financial and current account data are collected quarterly with balance sheet information annually though there are a number of variants to this. Often a business is selected for all inquiries (quarterly income and expenditure, quarterly transactions and annual balance sheet) though the annual inquiry sometimes has a larger sample size. There are largely no alternative sources for the overseas sector though some inquiry aggregates including domestic sector figures can be compared to regulatory and trade association sources.

Sample surveys collecting aggregate data are used to keep costs to a minimum whilst producing information which is fit for purpose.

Direct investment information is generally collected separately though these inquiries provide a register source for that. Direct investment inquiries are generally selected according to foreign net book value whereas the portfolio investment inquiries are based on a variety of variables which depend on the industry but always include the domestic element.

Universe Creation & Sample Design

The insurance companies, pension funds, trusts and securities dealers inquiries are treated as separate surveys though there is much commonality in the approach. They are based on registers compiled and updated from a combination of regulatory and trade association sources. Each is stratified according to available size information: all larger businesses are selected and the sample of smaller businesses is rotated.

Insurance companies: the quarterly and annual inquiries are based on stratified designs with the value of premium income as the size variable. This information is provided by the regulatory body, the Financial Services Authority, and is used since employment (the main size variable on the central register) is a poor indicator of activity in the sector - many businesses with small employment have a great deal of economic activity.

Pension funds: the sample design is a stratified random sample by total membership. The membership list of the National Association of Pension Funds (NAPF) is the main register source but this is topped up with non-NAPF members from the Occupational Pensions Regulatory Authority (OPRA) regulatory data. Like insurance inquiries membership is taken as a better indicator of size than employment since very large pension funds are often managed by only a few people. In addition all local authority schemes are sampled.

Trusts: there is stratified random sampling of investment trusts and unit trusts by market value of funds under management. The trust inquiries are sent to a selection of fund managers, updated where possible to account for population changes (births, deaths and mergers) using information from the

relevant trade associations: the Association of Unit Trust and Investment Funds (AUTIF), the Association of Investment Trust Companies (AITC) and the Association of Property Unit Trusts. The results are grossed to population totals using the total assets data compiled by the three associations.

Securities Dealers: the sample design is stratified by the type of securities dealer and total liabilities which are taken from regulatory sources, the Securities and Futures Authority. Liabilities are taken as a better indicator of economic size than employment.

Results

The methodology used is the same for all inquiries whether they collect transactions, stocks or income. It comprises imputation of non-responders, identification and winsorisation of extreme returns and raising to the population using ratio estimation. Each of these processes is applied within the individual strata of the separate inquiries.

For the quarterly inquiries non-responders for the current period are generally imputed for by taking the movements in matched pairs of returns and applying the aggregate movement (after trimming for extreme relationships) to the response in the previous period. The matched pairs are taken from the current and previous period and also for the same periods a year earlier. The latter helps to stabilise the imputation procedure particularly for early results runs when response is not as high. For the annual inquiries, imputation is based on quarterly returns where these are available.

Grossing to the level of the population is based on ratio estimation using the size variables described earlier. Extreme returns are winsorised to reduce their effect on the grossed data. This procedure effectively reduces the grossing factor applied to extreme returns depending on how extreme they are in relation to the sample. In the most extreme cases the return might not be grossed but would simply be aggregated into the total assuming that it was correct and not an error either on the part of the form-filler or processing staff.

Results are available subject to confidentiality considerations at the level of the data items collected in each inquiry. Geographical breakdowns are not collected at present. If they were to be introduced then the size of the sample might have to be increased in order to maintain an acceptable level of accuracy in the resulting estimates.

SUPPLEMENTARY DOCUMENT IV

THE ISSUE OF STOCK/FLOW REPORTING AND DERIVATION OF FLOWS FROM STOCKS*

I. Introduction

The purpose of this note is to examine the procedures and problems in connection with the derivation of flows from stocks in the area of portfolio investment. In the first part of the paper the conceptual aspects of the derivation of flows are highlighted, while the second part tries to make an empirical evaluation of potential problems and deficiencies of the process of deriving notional flows.

II. Conceptual issues

Theoretical background

The concept of deriving flows from stocks for b.o.p. as examined here is based on the following assumptions:

- There is no data available about actual transactions (e.g. no settlements, no directly reported flows etc.).
- It is possible to collect stocks with appropriate frequency, timeliness and breakdowns. With reference to the general topic of the sub-group it is assumed that these stocks are primarily collected indirectly from custodians.
- There is no information available about the distribution of individual transactions in the reference period and statistical estimates about average prices and exchange rates have to be applied.

Some of the above mentioned assumptions will be discussed in more detail later on in this paper (especially the questions of timeliness and frequency of stock reports). As a starting point, it is necessary to recall the factors that have to be considered in any reconciliation of flows and stocks:

Stock at the beginning (S_{t-1}):

For this exercise stocks are assumed to be available either in aggregated or disaggregated form and either valued marked-to-market (S^{MV}_{t-1}) or nominal values (S^{NV}_{t-1}). The index "t" refers to the reference period for which the data is compiled. Marked-to-market basically means valuation using mid-point exchange rates (x_{t-1}) and closing market prices (p_{t-1}) of the

* By Robert Zorzi.

last (trading) day of the previous period. Nominal values can either refer to face values in terms of original (nominal) currency of the instrument (usually for debt securities) or they can refer to number of securities held (usually for shares). The relation between marked-to-market and nominal values is: $S^{NV}_{t-1} = S^{MV}_{t-1}/(x_{t-1} * p_{t-1})$. In any case, the nominal value is a measure of the unvalued quantity of securities.

Stock at the end (S_t):

The definitions and constraints of St-1 are, of course, applicable to St, too. Exchange rates (xt) and prices (pt) refer to the last (trading) day of the reference period.

Other adjustments (O_t):

This element of the stock-flow reconciliation is particularly difficult to implement in the case of derived flows. Unlike the remaining transactional and non-transactional changes, other adjustment can hardly be derived or calculated. The following cases could be distinguished in this context:

- Reclassifications from portfolio investment to direct investment (or vice versa): These kind of changes might be taken from stock and/or transaction data available in other parts of a b.o.p. collection system (i.e. direct investment surveys). In any case, the data about reclassifications have to be collected from respondents, either explicitly by asking the respondent to report such reclassifications or implicitly by "connecting" data between different sets of reports (e.g. using ISIN-codes both in direct investment and portfolio investment reporting).

It should be noted that reclassifications can also arise between portfolio investment and other investment/reserve assets. It can, however, be assumed that these cases will be either insignificant or event-driven (i.e. changes in the composition of the monetary union). The latter would require ad-hoc treatment by the compiler, anyway.

- Reclassifications within the portfolio investment account:

Changes of the sector or country of the issuer or changes of the instrumental category of an asset (e.g. from non-quoted to quoted shares) would require reclassifications between portfolio investment sub-accounts (sectoral and instrumental) or between certain breakdowns of portfolio investment (e.g. extra/intra-split). These reclassification data could be either collected directly from respondents or in case of security-by-security reporting in connection with a CSDB the reclassification could be automatically "detected" by the compiler.

- Other changes:

Write-offs and transfers of deposits may fall under this category. The former can be seen as hardly relevant in case of portfolio investment, since the price of the security would in the end reflect a write-off situation. The latter will be treated as a special business case at a later stage.

In mathematical terms other adjustments can be considered at marked-to-market values (O^{MV}_t) or at nominal values (O^{NV}_t), whereas it is not entirely clear whether these other adjustments should be

valued a prices and exchange rates at the end of the reference period or at average prices. The IMF model to reconcile flows and stocks prefers the former approach. In Austria the latter approach has been chosen based on the assumption that non-transactional changes in form of other changes, just like transactional changes, may take place at any point in time of the reference period and not necessarily at the end of the period. For the sake of simplicity and consistency it is assumed that other adjustments are valued at average prices. Ideally, the compiler would have nominal values or quantities available and could apply any appropriate valuation on a case-by-case basis.

Transactions (T_t):

This is the unknown flow value to be derived. The most common equation to calculate flows from stocks is:

$$T_t = (S^{MV}{}_t / (x_t * p_t) - S^{MV}{}_{t-1} / (x_{t-1} * p_{t-1})) * (x^{\mu}{}_t * p^{\mu}{}_t) - O^{MV}{}_t \quad \text{for market values}$$

or

$$T_t = (S^{NV}{}_t - S^{NV}{}_{t-1} - O^{NV}{}_t) * (x^{\mu}{}_t * p^{\mu}{}_t) \quad \text{for nominal values}$$

where $x^{\mu}{}_t$ and $p^{\mu}{}_t$ represent average exchange rates and average prices of the reference period. Additional thoughts about the nature of average prices will be given in section 2.2.

The equations for marked-to-market stocks and nominal stocks are mathematically identical, but they differ very much in their practical implementation. In essence, in order to derive notional flows, marked-to-market stocks have to be "recalculated" into nominal stocks. This step would not be necessary, if nominal stocks were collected in the first place.

Price adjustments (P_t):

In theory there would be two ways to compile price adjustments:

- Collection of price adjustments from the reporting agent (analogous to the current strategy of Money&Banking statistics to derive flows from MFI Balance Sheet data).

  In this case the formula for the calculation of transactions T_t would change to

$$T_t = S^{MV}{}_t * x^{\mu}{}_t / x_t - S^{MV}{}_{t-1} * x^{\mu}{}_t / x_{t-1} - O^{MV}{}_t - P^{reported}{}_t$$

From a practical point of view this strategy could only be seen as justified in an aggregated collection system. The burden to compile valuation adjustments in order to eventually derive flows would be transferred from the compiler to the respondent. Under the assumption that capturing flows is considered at least as important (or even more important) as capturing stocks in a PI collection system, it might be more efficient to directly collect flows from respondents in the first place.

- Calculation of price adjustments based on the stocks and derived flows.
  In this scenario price adjustments as such would not be necessary to derive flows, since the transactions would be calculated directly from stocks using the equations given above. To achieve a complete reconciliation of flows and stocks with all its analytical values, it is however necessary to make some calculations for P_t. Two different formulas will be presented here:

- The "IMF-model" (without Other adjustments):
  $P_t = S^{MV}_{t-1} * (p_t / p_{t-1} - 1) + T_t * (p_t / p^{\mu}_t - 1)$ for market values
  or
  $P_t = S^{NV}_t *(p_t - p^{\mu}_t) * x^{\mu}_t - S^{NV}_{t-1} *(p_{t-1}* x_{t-1} + p_t* x^{\mu}_t - p_t* x_{t-1} - x^{\mu}_t * p^{\mu}_t)$ for nominal values

- The "Austrian model" (with Other adjustments):
  $P_t = S^{NV}_t *(p_t - p^{\mu}_t) * x^{\mu}_t - S^{NV}_{t-1}*(p_{t-1} - p^{\mu}_t) * x^{\mu}_t - O^{NV}_t * p^{\mu}_t*x^{\mu}_t$ for nominal values

  This formula has successfully been implemented in the Austrian PI collection system since 1997. The differences in the results in comparison to the IMF equation are not overly significant. In addition this equation can be seen as somewhat more intuitive and it is much easier to implement when dealing with nominal stocks in a security-by-security system.

Exchange rate adjustments (X_t):

Analogously to price adjustments there would be two ways to explicitly calculate X_t:

- "IMF-model":

  $X_t = S^{MV}_{t-1} * (x_t / x_{t-1} - 1) + T_t * (x_t / x^{\mu}_t - 1)$

  The drawback of this approach is the fact that a small residual adjustment (R_t) will always arise when using the IMF formulas for X_t and P_t (the so-called "compound effect):

  $R_t = S^{MV}_t - T_t - P_t - X_t - O^{MV}_t - S^{MV}_{t-1}$

  This residual will in practice be either attributed to X_t or P_t by default. This leads to the

- "Austrian model": A simplified approach would be to calculate X_t as the remaining adjustment after T_t, P_t and O^{MV}_t have been calculated:

  $X_t = S^{MV}_t - T_t - P_t - O^{MV}_t - S^{MV}_{t-1}$

  This is equivalent to attributing the residual "compound effect" to X_t and it reduces the complexity of the calculations. In practice, the Austrian approach to X_t and P_t proved to be advantageous because the results were somewhat more balanced than using the IMF-model (e.g. in case that prices and exchanges rates would rise by 10 % for a certain security the Austrian model would divide the total non-transactional (and non-other) adjustments more equally between prices and exchange rates than the IMF approach. However, as mentioned above, the differences between the two approaches would not be significant and would be limited to the distribution of total

adjustments to prices and exchange rates (i.e. there would be no effect on the derived flows as such).

Practical implementation

The derivation of flows from stocks depends in practice on the structure and valuation of the available stocks. Two dimensions, which are strongly interrelated can be considered in this context:

- Aggregation level: Collection of aggregated figures or security-by-security collection
- Valuation: Collection of nominal or marked-to-market stocks

The first dimension largely determines the second one.

Aggregated approach

In an aggregated system the only reasonable way to collect the data is to ask respondents for market valuation. An aggregated figure consisting of summed up nominal values and/or number of securities would be of little use, unless detailed information about the structure of the respondent's portfolio were available.

However, all formulas to derive flows from marked-to-market stocks basically depend on the transformation of these stocks into nominal quantities which are used to calculate the notional nominal flows which in turn are transformed into market values. Therefore the accuracy of the derivation of flows from stocks in an aggregated approach depends on two aspects:

- The breakdown of the aggregated stocks by currency, country of issuer and/or market of issuance and instrument.
- The availability of consistent aggregated average and end-of-period price indices and exchange rate indices for these available breakdowns.

The more detailed the collected breakdowns, the better the calculated flows will be. The higher the breakdowns, however, the more difficult it may be to get appropriate aggregated indices for the valuation.

As far as **exchange rate adjustments** are concerned, it is clear that a breakdown by major currencies (Euro, USD, GBP, JPY, CHF etc.) would be a minimum requirement to derive flows. Ideally a complete currency breakdown should be collected in order to ensure accuracy and flexibility with a view to future market developments. The appropriate average and end-of-period exchange rates should be available relatively easily to the compiler.

The correct application of **price adjustments** will be more difficult to implement due to the potentially big number of markets to be covered. A minimum requirement would, of course, be the breakdown into equities, short- and long-term instruments. Further instrumental breakdowns would be certainly advantageous (e.g. quoted/unquoted shares, registered bonds, treasury bills etc.). It is, however, difficult to assess, whether the respondents would be able to produce such breakdowns with

appropriate quality. Very important would also be an exact geographical breakdown, whereas the country of issuer would be primarily important for the correct geographical allocation of the final results on the asset side. For the valuation and derivation of flows, however, additional information about the market of issuance could be helpful.

For the collection of the required aggregated price indices two scenarios could be considered:

- Using index information from stock exchanges and/or data providers. The problem with this approach is that the compiler has to rely on the assumption that the portfolio of respondents coincides with the proportions of securities used in the calculation of these indices. Since no information about individual securities would be available, this assumption could hardly be verified.
- Collecting the information from the respondents themselves: It could be imagined to ask respondents to report the average end-of-period prices used to value the stocks for every reported category. Especially in the case of indirect data collection through custodians this could be seen as a feasible option. This information would very likely be available in the database of the custodian, anyway, since the respondent would need it to calculate the requested data. Ideally, the compiler would have a price index available for every portfolio of every reporting agent, allowing him not only to calculate very exact derived flows, but also enabling a high degree of plausibility and consistency checks. However, it is also likely that the burden for the respondent to produce such detailed information would be very high. Therefore, it would probably be more efficient to collect actual flows instead.

It is clear that even a very detailed derivation of flows from aggregated stocks would still have to rely on a number of assumptions and would be less accurate than a disaggregated security-by-security approach. This has also been documented in a recent IMF study[1].

Security-by-security approach

In case of security-by-security reporting the most reasonable strategy would be to ask for stocks in nominal values (nominal currencies or number of securities) . Under the assumption that a CSDB with comprehensive information about quotations would be available, both the stock valuation and the derivation of flows could be done in a consistent and accurate manner.

One prerequisite for this procedure would also be the availability of average and end-of-period exchange rates. In comparison to aggregated reporting this requirement may be more demanding, because it would not be possible to limit the needed exchange rate time series to some major currencies. In practice almost all currencies would be needed for a comprehensive security-by-security calculation (in the year 2000 69 nominal currencies were used and recorded in the Austrian portfolio investment compilation procedure).

[1] IMF Working Paper „Effects of volatile asset prices on b.o.p. and i.i.p. data“, Marco Committeri, Nov 2000

A collection of marked-to-market stocks could be seen diametrical to the principle of security-by-security collection to collect detailed information and to do as much as possible in terms of classification and compilation on the side of the compiler. However, it could be necessary to collect market values even for individual securities, if no reliable quotation information were available in a CSDB. Just like aggregated reporting, the quality of the data and, hence, of the notional flows would very much depend on the availability of average price indices and on the correct valuation of stocks by the respondent. Therefore, it would be more reasonable in such a situation to ask both for nominal and marked-to-market valuation or to ask the respondent for additional quotation information. Apart from the more accurate derivation of flows, this would enable the compiler to apply detailed consistency and plausibility checks.

Potential difficulties and caveats

Frequency and timeliness

In order to fulfil current and potential ECB requirements, a PI collection system will have to deliver PI flows with an instrumental and sectoral breakdown on a **monthly level** with a timeliness of **30 working days.** For a system based on derived flows these requirements entail the collection of monthly stocks with a BPM5 instrumental and sectoral breakdown within a relatively short time-lag.

In order to answer the question whether this is feasible with a special view to indirect reporting, it may be possible to draw on the **Austrian experience in this field**. Since 1992 monthly securities stocks have been collected on a security-by-security basis from local custodians in Austria. It has to be noted that these stocks were not used to derive flows, but to cross-check and complement (with a sectoral breakdown) flows collected through a settlement system. Nevertheless, the following conclusions can be drawn out of our national experience:

- Given a high degree of automation on both the compiler's and the respondents' side it is possible to receive such stock reports **within 7 working days** after the end of the month. Even a faster delivery of these data in a future system was seen possible by custodians. In order to reach this high degree of automation two prerequisites have to be fulfilled:
  - a very thorough technical design in close co-operation with the respondents and
  - the availability of the requested data in the accounts of the respondents without the need of manual interference or complex automatic compilation procedures for the respondent. Security-by-security data collection has proven to be very advantageous in this context.

  The latter condition of little or no manual treatment of reports by respondents is often endangered by the need to correctly record repo and securities lending operations. Serious delays because of late reporting have occurred very rarely in Austria in recent years (on average once or twice a year for one major respondents). For a newly built system, however, it should be expected that a phasing-in of 1 to 2 years would be necessary to reach stability in reporting.

- In case of security-by-security data collection the **time to get the necessary data for the securities database** also has to be taken into consideration. This includes the delivery of the "static" securities data, quotation information and exchange rates from data providers. Currently all these data are usually available within 4 to 7 working days after the end of the month in Austria. In some cases it may take up to two weeks after first trading to get the data of newly issued securities. Therefore a constant (daily!) updating of the securities database has proven to be very advantageous. The consequences of relying on a CSDB, as currently projected by the ECB, on these delivery time-lags would have to be closely examined for a future system.
- Apart from the delivery of the data from respondents and data providers it is also necessary to take into account **a considerable time for the compilation, processing and checking of the data.** Results of these checking procedures will induce inquiries with respondents and consequently corrections and recompilations of the data. This iterative process to ensure the data quality and to correct implausible information may take several weeks depending on the available technical and personnel resources. **A high dependence on the stability and the performance of the IT-system** is another consequence of such a procedure.
- Based on the above mentioned experiences it was concluded in Austria that the delivery of monthly stocks from custodians in order to derive flows would be feasible, but it would nevertheless be very challenging in terms of timeliness. The problems faced in terms of timeliness and accuracy of data are, however, not expected to be bigger than those faced in the current settlement system or in a direct reporting/ survey system based on the collection of flows. On the contrary, it is believed that the collection of securities stocks from custodians would actually be less demanding and less risky in terms of timeliness than the collection of flows from direct reporters.

Gaps of indirect reporting

It is necessary to take into account that the stocks to derive flows can in practice not only be collected from custodians. Securities deposits abroad are gaining more and more importance and can only be captured by direct reporting and/or by bilateral exchange of data (third party reporting). In systems where no flows are captured directly or indirectly (e.g. through settlements) it has to be concluded that there is a need for high frequency direct reporting or data exchange. In the former case it can be assumed that for major investors a monthly reporting about securities deposits abroad would be necessary in order to avoid considerable gaps in the monthly data. The following aspects would have to be carefully examined:

- Consequences for the timeliness of monthly data
- Structure of the non-custodian reports should be, as far as possible, consistent with the structure of the custodian reports. In order to reduce the complexity of the system and to ensure consistency, a mixture of security-by-security and of aggregated reporting should, for instance, be avoided.

Special business cases

There are some special business cases in the context of deriving flows from stocks which may not occur regularly but can cause some problems in the data compilation if no provisions are made to deal with them.

- Transfers of securities deposits due to the change of the central depository of the security:

  Experience has shown that such cases can arise more frequently than one might expect and that stock reports can "disappear" or "suddenly emerge" just because the residency of the depository has changed. On the liabilitiy side a cross-border movement of central securities depository (CSD) can be of particular importance when the "mixed-approach" is used to calculate the PI liabilities. In this approach the number of securities issued abroad (to be reported by issuers or data providers) and the number of securities held with custodians abroad (to be reported by resident custodians or resident direct reporters) are important variables. Only if all reporting agents change (or initiate) their reporting simultaneously, a correct calculation can be achieved. For a transition period there would likely be some problems.

  In any case it is recommendable to keep track of such changes of the CSD either by reports of issuers or by information received from data providers (CSDB). Whenever such a case arises a special check of plausibility and consistency of the reported data should be done for several periods.

- Transfers of deposits which have the character of transactions:

  Changes in ownership can occur which do not trigger transactions in the sense of payments but induce a transfer of a deposit from one entity to another. This transfer may be

  - between residents and non-residents and therefore effect the overall position of the reporting country
  - or between residents and consequently effect the sectoral distribution of holdings

  In either case there should be flows recorded in balance of payments. It is worth noting that such PI-flows would be much easier to record in a system that relies on the derivation of flows from stocks than, for instance, in a settlement system. These cases only cause changes in the size or classification of stocks which should not be a problem for a custodian to report, but they would not always be reflected by actual payments.

  Typical examples for such business cases are: mergers, restructuring of multinational conglomerates and migration. The main problem in connection with these events is the proper recording of the counter entry to the derived PI-flow. Usually the correct balancing entry would occur in the capital account. Without additional information received through direct reporting or ad-hoc inquiries with respondents, these counter entries will likely be missing, causing errors and omissions. For custodians it would be very difficult to identify such cases in their reported stock data.

III. Empirical analyses of the derivation of flows from stocks

When flows are not captured directly but are indirectly derived from stocks, then there are two major quality concerns that are usually raised especially in the context of portfolio investment:

- The lack of "gross" flows, representing sales and purchases within a reference period
- The usage of average stock prices to derive and value flows.

In the course of this exercise it has been attempted to examine these alleged effects in an empirical way using the actual data from the current Austrian PI collection system.

Actual "gross" flows versus derived "net" flows

In that context the following deficiencies are often mentioned:

- that securities are either very actively traded within a reporting period
- at prices that can change considerably during this period
- or issued and redeemed within less than one month.

This could result in actual transactions, which might not be appropriately captured by the differences in stocks at the end and stocks at the beginning valued at average prices.

According to the rules of BPM5 a security that is bought at a price of, for instance, 1000 € and sold at a price of 1200 € within the same month should cause a net transaction of 200 € in this month. The respective stock reports with a monthly frequency, however, would show no change in stocks and therefore no flows would be derived and recorded. Assuming that the counter entry under other investment were captured correctly, errors and omissions of 200 € would occur out of this transaction.

This problem could, in theory, be avoided by stock reports at a higher frequency (i.e. weekly or daily). However, in practice a monthly frequency is seen as the highest feasible and justified reporting frequency. Therefore the possibility of even higher frequencies is not considered here. It should be noted in this context that the lower the frequency of reporting, the bigger the problem will become. Quarterly reporting, apart from the fact that it would not satisfy the monthly requirements of the ECB, could be considered as particularly problematic in this context, but even a monthly frequency may lead to distortions.

The biggest concern of missing gross flows is for **quoted shares**, where the volatility of asset prices is considered to be much bigger than for other instruments. In addition, the trading patterns (i.e. frequent buying and selling) are potentially also more volatile for equity securities than for bonds. In order to assess the magnitude of the problem using actual data from the Austrian PI collection system, it was therefore decided to concentrate on equity instruments, especially on quoted shares. A small additional exercise was carried out for short-term instruments.

Measuring gross flows for equity securities

Gross flows captured by the Austrian settlement system for equity instruments in the years 1999 and 2000 were extracted from the database. **A calculation was done to find out for how many equity securities gross flows were actually registered and what share they had on the total gross turnover of the respective years.**

On the **asset side** the exercise was limited to quoted shares in order to reduce the data volume to be handled. In 1999 flows for approximately 11000 quoted shares issued by non-residents were recorded. In 2000 this figure amounted to around 11500.

On the **liability side** all equity instruments could be taken into consideration due to the smaller number of securities involved. In 1999 the number of resident equity securities involved in cross-border trading amounted to 1350. In 2000 this number had risen to 1475.

The results are summed up in the tables below. The fifth column "average share .. in relation to the monthly gross turnover" is defined as the proportion that those securities which are actually sold and purchased in a month have in relation to the total monthly gross turnover (=purchases + sales):

Assets, quoted shares

Year	Monthly average number of securities traded (1)	Monthly average number of securities sold and purchased within a month (2)	(2) in % of (1)	Average share of (2) in relation to the monthly gross turnover
1999	**3743**	**2396**	**64 %**	**96 %**
2000	**4865**	**3213**	**66 %**	**97 %**

Liabilities, all equity securities

Year	Monthly average number of securities traded (1)	Monthly average number of securities sold and purchased within a month (2)	(2) in % of (1)	Average share of (2) in relation to the monthly gross turnover
1999	**737**	**430**	**58 %**	**96 %**
2000	**919**	**591**	**64 %**	**98 %**

of which:

Liabilities, equity securities, quoted shares

Year	Monthly average number of securities traded (1)	Monthly average number of securities sold and purchased within a month (2)	(2) in % of (1)	Average share of (2) in relation to the monthly gross turnover
1999	**128**	**86**	**67 %**	**99 %**
2000	**137**	**93**	**68 %**	**99 %**

Liabilities, equity securities, non-quoted shares

Year	Monthly average number of securities traded (1)	Monthly average number of securities sold and purchased within a month (2)	(2) in % of (1)	Average share of (2) in relation to the monthly gross turnover
1999	**22**	**10**	**47 %**	**54 %**
2000	**23**	**11**	**46 %**	**59 %**

Liabilities, equity securities, mutual funds with debt sec.

Year	Monthly average number of securities traded (1)	Monthly average number of securities sold and purchased within a month (2)	(2) in % of (1)	Average share of (2) in relation to the monthly gross turnover
1999	**230**	**145**	**63 %**	**92 %**
2000	**235**	**162**	**69 %**	**92 %**

Liabilities, equity securities, mutual funds with equity sec.

Year	Monthly average number of securities traded (1)	Monthly average number of securities sold and purchased within a month (2)	(2) in % of (1)	Average share of (2) in relation to the monthly gross turnover
1999	**146**	**79**	**54 %**	**80 %**
2000	**246**	**151**	**61 %**	**87 %**

Liabilities, equity securities, mutual funds with mixed portfolio

Year	Monthly average number of securities traded (1)	Monthly average number of securities sold and purchased within a month (2)	(2) in % of (1)	Average share of (2) in relation to the monthly gross turnover
1999	**203**	**104**	**52 %**	**73 %**
2000	**231**	**137**	**59 %**	**78 %**

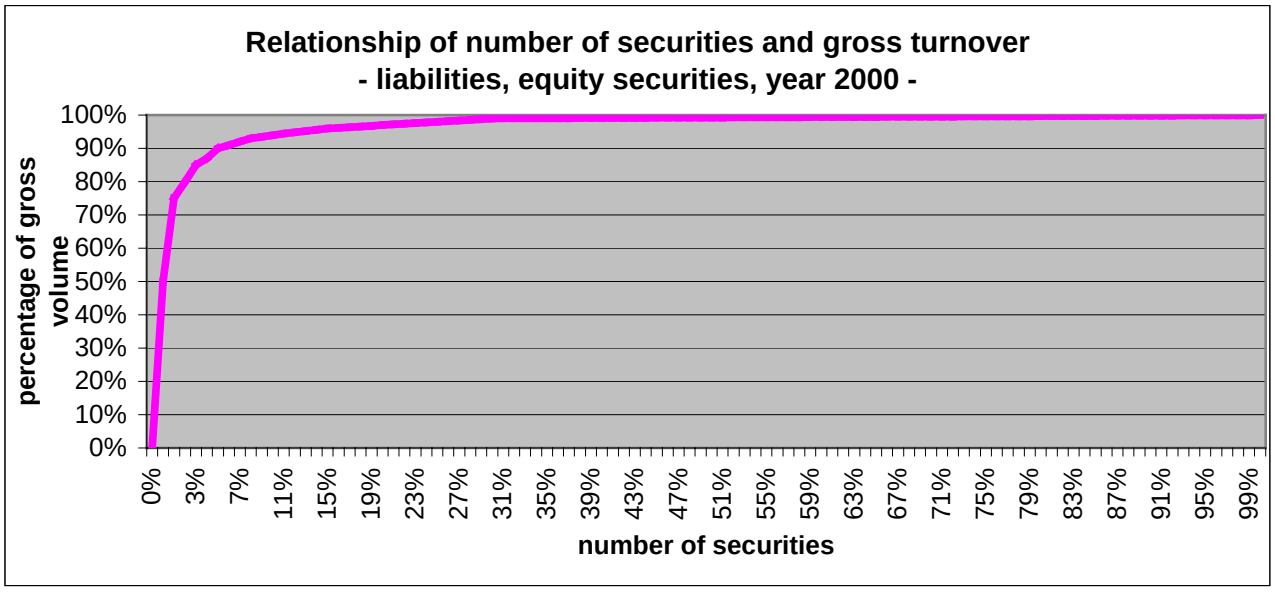
Liabilities, equity securities, money market funds

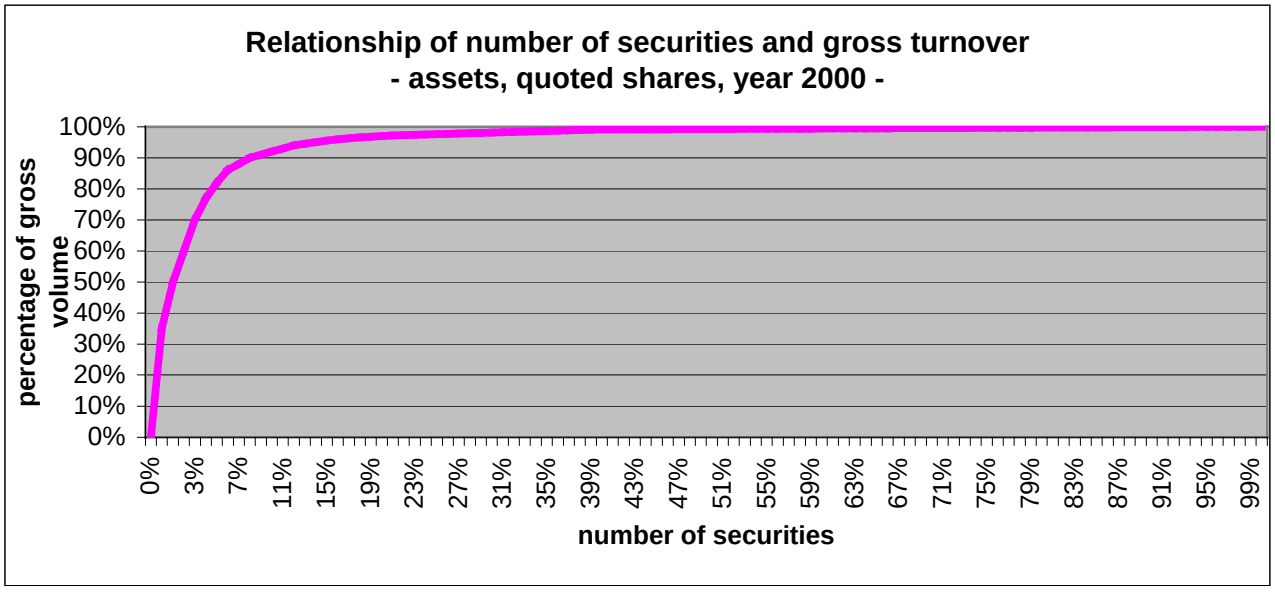
Year	Monthly average number of securities traded (1)	Monthly average number of securities sold and purchased within a month (2)	(2) in % of (1)	Average share of (2) in relation to the monthly gross turnover
1999	**737**	**430**	**58 %**	**96 %**
2000	**919**	**591**	**64 %**	**98 %**

These results show a clear and not unexpected picture:

For approximately two thirds of quoted shares involved in cross-border trading intra-month trading (sales and purchases within the period) occurs. Such heavily traded quoted shares usually account for more than 95 % of the gross turnover (cross-border sales plus purchases) of a month.

For equity securities other than shares, these relationships can be expected to be similar, but a bit less significant. This high importance of securities sold and purchased within a month in relation to the gross turnover is due to the fact that despite the high number of securities traded, the biggest part of the trading volume is explained by a relatively small number of securities. The Austrian data for the year 2000 showed that 10 % of all securities on the liabilities side accounted for 90 % of the liability gross turnover, while 10 % of the securities on the assets side accounted for 80 % of the asset gross turnover. The following charts for 2000 illustrate these relationships (the results for 1999 are very similar):





It is not possible to immediately conclude from these results that calculating flows from stocks will always lead to substantial mistakes. It only demonstrates the fact that intra-period gross flows can be expected to be of some relevance. The size of the inaccuracy in derived flows will in the end always depend on the actual volatility of asset prices and the distribution of transactions over the month.

Assessing actual and derived flows for selected securities

For a number of selected non-resident quoted shares an assessment has been made of what would have been the difference between the actual flows and the derived flows in the year 2000. In the above mentioned first exercise it was concluded that intra-period sales and purchases could be a problem under "unfavourable" circumstances. The aim of this second exercise was to get an indication for the true inaccuracy based on a couple of actual examples.

Sixteen non-resident quoted shares, ranking among the twenty securities most heavily traded by Austrian residents, were chosen for this analyses.

For each security and for each month the following values were calculated:

- Actual net transactions using the collected "gross" data on transactions in market values
- Notional flows that would have been derived from security-by security stocks in market values

In order to limit the resulting differences to price effects, the **exchange rate** valuation was done using the same average monthly exchange rate for both methods. It is clear that differences between daily and average exchange rates may also be problematic for the derivation of flows from stocks. However, the exchange rate problem of deriving flows from stocks is neither limited to quoted shares nor to securities as a whole. This exercise, however, concentrated on the price effects and not on the exchange rate effects.

Two indicators were calculated to measure the difference between actual and derived flows:

- Monthly difference between actual and derived flows as a percentage of the monthly actual flows. This indicator shows the mistake in every month, but it does not say anything about the absolute value of the mistake. If the actual net transaction is very small in a certain period, then even a small absolute error can cause a seemingly high relative difference (6)
- Annual absolute difference between actual and derived flows (columns 3 and 4) as a percentage of the annual actual flow (column 5). This indicates the "final" mistake in the aggregated annual net data. The following table shows the results for the examined securities ordered by the coefficient of variance of prices which indicates the average volatility of the corresponding share price over the year (column 7):

ISIN-Code (1)	Company (2)	Actual flows in market values Year 2000 EUR (3)	Derived flows in market values Year 2000 EUR (4)	Difference between actual and derived flows in % (5)	Average relative difference per month (6)	Coefficient of variance (7)
GB0003717849	Glaxo Wellcome	- 12.143.569	-13.482.709	11,0%	3,8%	3%
DE0008022005	Hypo	- 2.055.121	-2.188.014	6,5%	4,8%	6%
NL0000009470	RoyalDutch	- 12.559.351	-12.080.953	-3,8%	4,6%	8%
CH0008470921	UBS	- 94.183.837	-82.570.366	-12,3%	2,3%	9%
DE0005140008	Deutsche Bank	- 2.561.706	-2.832.903	10,6%	5,5%	9%
CH0004458847	Novartis	19.238.617	14.239.243	-26,0%	15,6%	10%
DE0007236101	Siemens	25.098.841	18.746.405	-25,3%	7,7%	11%
FI0009000681	Nokia	- 58.188.334	-56.871.357	-2,3%	8,7%	12%
US17275R1023	Cisco	- 28.673.593	-28.019.457	-2,3%	9,7%	12%
DE0007664005	Volkswagen	21.752.265	20.983.366	-3,5%	6,6%	12%
GB0007192106	Vodafone	- 98.751.448	-103.721.286	5,0%	5,2%	12%
DE0007100000	DaimlerChrysler	- 69.296.593	-67.962.649	-1,9%	26,4%	13%
CH0002137682	Nestle	31.633.986	34.261.271	8,3%	17,9%	13%
US5949181045	Microsoft	- 64.527.910	-64.070.812	-0,7%	9,2%	18%
DE0006231004	Infineon	7.464.425	12.569.613	68,4%	6,1%	21%
DE0005557508	Deutsche Telekom	- 106.211.468	-109.466.514	3,1%	8,7%	31%

This exercise delivers a relatively uneven picture. On the one hand, it is obvious that the annual difference in net transactions can be substantial, especially if the overall net volume traded is not very high (e.g. Novartis, Siemens, Infineon). On the other hand, there are securities with relatively high differences in the monthly data, which largely cancel each other out in the annual aggregate (e.g. Nokia, DaimlerChrysler, Microsoft). There seems to be a certain correlation between the coefficient of variance of share prices and the average monthly differences. The higher the volatility of the prices, the higher the potential difference in the monthly data. This, however, does not translate to the annual data, where the monthly differences may cancel each other out or not. The latter does not appear to depend on the volatility of the individual share prices.

One could also draw the conclusion from these results that the differences between the actual and the derived flows are not overly significant in the majority of the cases, **since most of the annual differences for the sample were below 10 %**. In a few instances, however, the flows from stocks method may lead to noticeable differences, especially for high frequency (monthly) data and in periods of very volatile asset prices. In the long run (i.e. for annual aggregates) the mistakes are likely to cancel each other out, though this is not to be taken for granted.

Nevertheless, derived flows seem to be quite acceptable in the overall statistical framework, but in order to gain a more accurate picture of financial flows it could be considered to collect actual flow data for volatile instruments like quoted shares. In the framework of an indirect reporting system with mainly custodian respondents this could be implemented at least in theory, since the necessary information is likely to be available. From a cost/merit perspective it seems to be questionable whether the better accuracy gained by collecting additional gross flows justifies the considerable costs both for compilers and respondents. The basic question to be answered in this context is: What quality level in terms of accuracy has to be fulfilled in a portfolio investment collection system?

The case of very short-term instruments

One possible concern for calculating flows from stocks is **that short-term instruments with a maturity of less than one month might not be captured at all**. Though, unlike equity securities, the volatility of prices and secondary market trading is probably not very substantial for such instruments, there could be some gaps in the flow data due to exchange rate fluctuations or due to missing accruals calculated from stocks which simply might be not be available.

The following small exercise was carried out to get at least an indication for the magnitude of this problem: The Austrian securities database was analysed to **find out how many securities issued after the 1st of January 1999 were registered with a maturity of less than one month**, bearing the danger that the compiler will not receive any reports in case of end-of-month reporting of stocks. It was also analysed whether these **securities were issued and redeemed in the same month or in different months**. In the latter case even with a maturity of less than one month a stock report could be expected and no problem in the derivation of flows and/or accruals would arise. This analyses resulted in the following indicators:

- 59.253 resident and non-resident short-term debt securities issued after the 1st January 1999 were registered in the database. All securities available in the database were taken into consideration, regardless whether they were actually traded in Austria. It is reasonable to assume that the coverage of this database is comprehensive enough to serve as an example not only for the situation in Austria.
- 10.404 of these securities had a maturity of less than one month (18 %).
- 2.155 of which were issued and redeemed within the same month (4 %).

Though no data about the actual flows of these securities were extracted, it is possible to conclude that with only 4 % of all securities issued within the last 27 months (01/1999 to 03/2001) being potentially problematic, it is not necessary to invest more into this issue.

IV. Potential inaccuracies in the derivation of flows from stocks

Introduction

One of the major concerns in connection with deriving flows from stocks is the danger that the application of average prices (quotations) to value derived notional flows could cause distortions in times of volatile asset prices. Any average price could reflect the actual transaction price in an unsatisfactory way under the following conditions:

- the actual transaction dates are very unevenly disbursed over the period and/or
- the prices have been extremely volatile during the period.

This could cause asymmetries both in the b.o.p. data of a compiler and between the data of different compilers. The more flexible the compilation process is, however, the easier it will be to deal with such differences.

The type of instruments that could be most affected are quoted shares, because these instruments usually show both the highest volatility of prices and the highest frequency of secondary market trading. Consequently the empirical analyses presented below concentrated on this type of securities.

The aim of the exercise was to assess the potential magnitude of the above-mentioned problem and to examine whether it is possible to reduce the potential differences by using more accurate average prices under a merits-and-costs perspective.

First of all, it is necessary to emphasise that the question of the choice of the relevant average price "per se" is not directly related to the discussion of "true" gross flows vs. net flows derived from stocks. The problem that differences in stocks may not adequately reflect frequent intra-period sales and purchases of securities at volatile prices can, by definition, not be solved with the application of a "better" average price. The only possible advantage of such a more accurate average price is the fact that it might be a better statistical approximation to the unknown actual transaction prices, assuming beforehand that pure transactions cannot be available.

Empirical Exercise

In this exercise, those resident and non-resident quoted shares that played a major role in Austrian b.o.p. flows in 2000 have been considered, being traded either in Austria or in other foreign markets. For the selected resident and non-resident quoted shares an assessment has been made, whether the application of average prices with different accuracy would make a substantial difference in the derivation of flows. **Three average prices** were calculated for these securities:

- the "mean" price as (price at end of the period + price at the end of the previous period) divided by two.
- the unweighted average price as the simple average of all daily closing prices of a period.
- the weighted average price as the average of all daily closing prices weighted with the respective daily volumes.

Two steps were taken in the context of this exercise: i) mere comparison of the three average prices; and ii) comparison between actual b.o.p. flows and notional flows derived using the three average prices

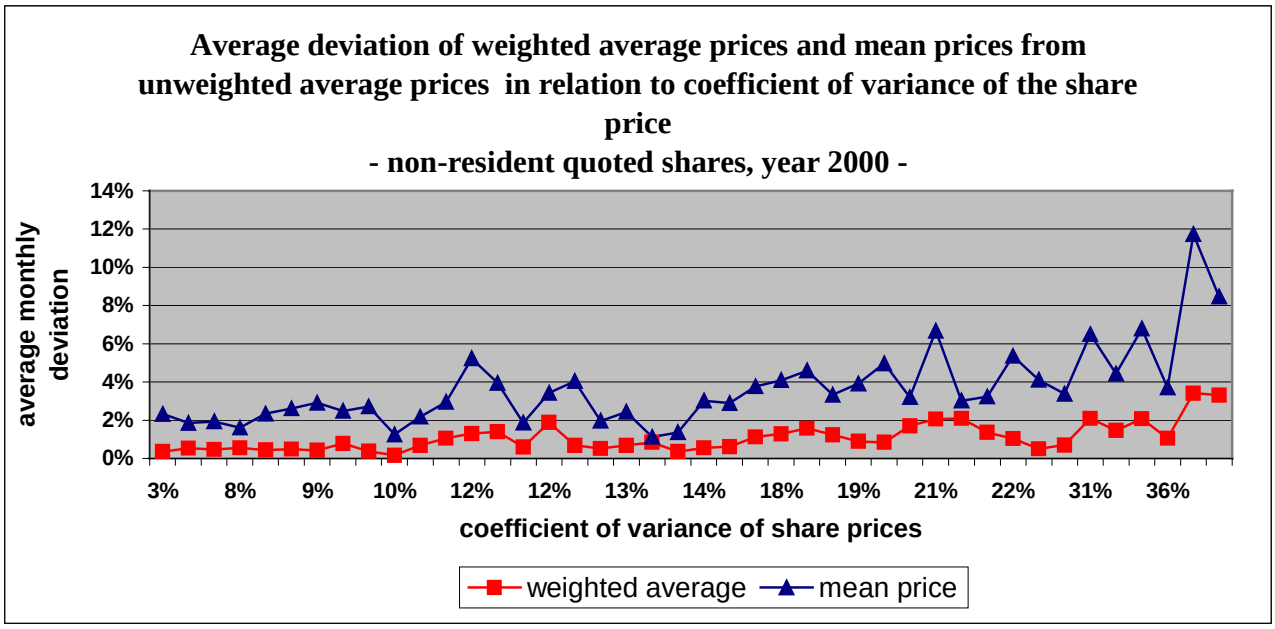
First step of the exercise: comparison of the average prices

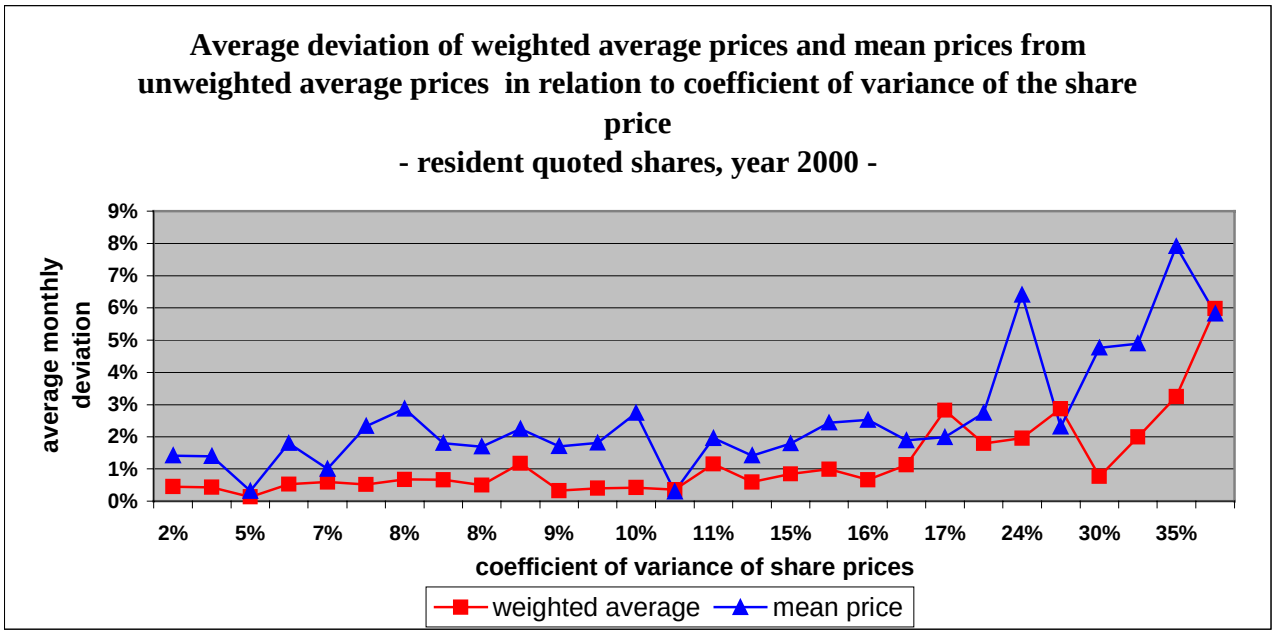
For presentational reasons, the difference between the three prices is shown in the charts, taking as the basis for the comparison the unweighted average price, thus assessing the departure of the other two averages (the mean price and the weighted average price) from this reference. The differences were put in relation with a measure for the overall price stability of the respective security: the coefficient of variance (standard deviation divided by the unweighted average of the daily prices during the year).

It has to be stressed that there was no comparison made between actual and derived flows in this first step.

The exercise was carried out for 28 securities with Austrian issuers and for 42 securities with non-resident issuers. The data about the daily prices and trading volumes were mainly taken from the home stock exchanges of the securities. It is clear that, ideally, all the markets where these securities were traded should have been taken into account. For practical reasons and for reasons of data availability the exercise was limited to using the quotations and volumes of those markets where the shares were originally issued and where the highest trading volume can be expected. It is reasonable to assume that an individual security will in general not show substantially different trends on other markets, specially for reasons of active arbitrage, and that the home stock exchange can be used as an approximation for the behaviour of the markets in relation to a selected security. From a data collection point of view it has to be stated that it is almost impossible to find out, on which market or on which markets the actual or derived external flows recorded for a particular instrument have really taken place.

The securities analysed on the liability side accounted for approximately 75 % of the gross volume of external flows in Austria in the year 2000. For the securities on the asset side the corresponding figure was approximately 50 %.

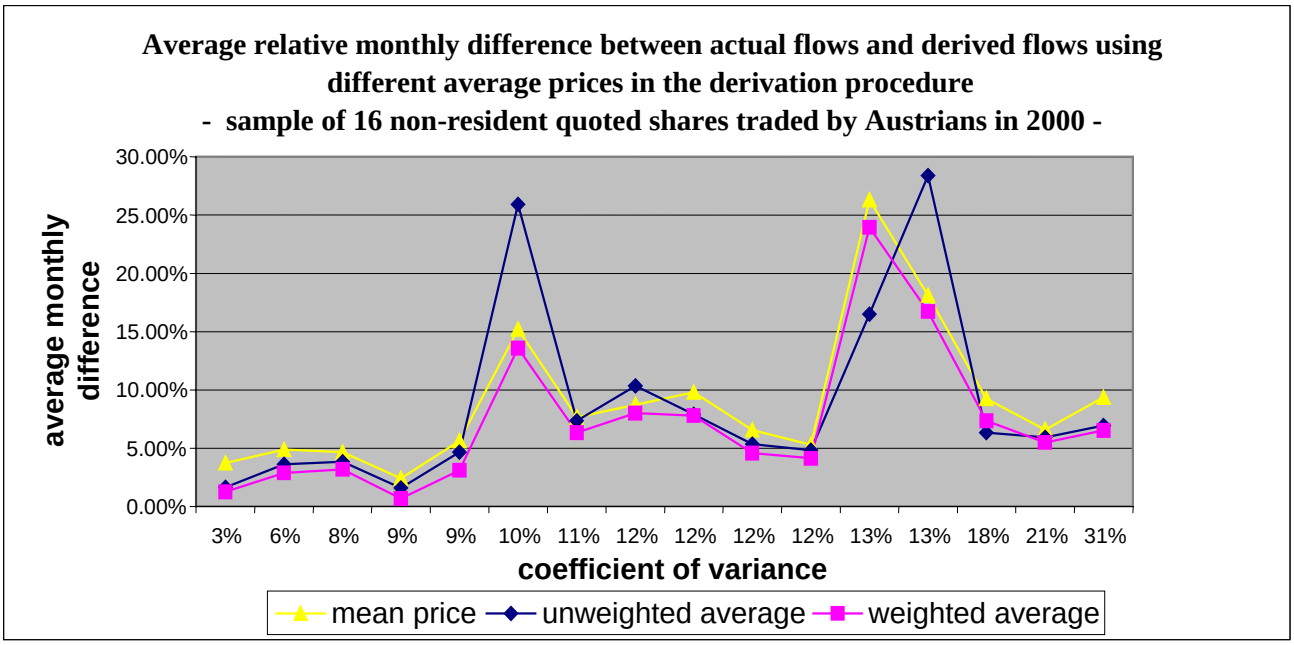




The unweighted average price was seen as the compromise between the two extremes and was therefore used as the basis for the comparison. The basic assumption, which the exercise seems to confirm, was that the weighted average price should be the most exact one, while the mean price should be the least accurate.

Second step of the exercise: actual b.o.p. flows versus notional flows derived from stocks

A second exercise was done for 16 selected non-resident securities. For this small sample a comparison was made between actual b.o.p. flows of the year 2000 (captured by a settlement system) and derived notional flows using the three above-mentioned average prices. The purpose was to get an impression, whether the assumption of the weighted average price being the most accurate one, can be translated to real data. The results are given in the following chart:



The chart above gives support to the assumption that the weighted average price would be the most accurate average price, though the differences between the three kinds of derived flows were not particularly high for most of the selected shares. Nevertheless, it can be concluded that the differences and therefore the inaccuracies in the derived flows would be a little bit higher for unweighted average and mean prices. There is some correlation between the volatility of the individual share price and the differences in the average prices: The higher the volatility of the prices, the bigger are the differences and, hence, the potential inaccuracies of using less detailed average prices like the mean price or the unweighted average price.

In combination with the fact that the gross volumes of flows are usually dominated by a relatively small number of securities, the following conclusion could be drawn:

For those quoted shares (both assets and liabilities) which are both

- *very important in cross-border trading (e.g. the 30 most important ones)*
- *and show volatile prices (e.g. a coefficient of variance bigger than 20 %)*

the application of an average daily price weighted with daily trading volumes in the derivation of flows appears to be recommendable, especially if security-by-security data collection is implemented.

The costs of collecting and compiling the necessary data about quotations for this limited number of securities seems to be justified in comparison to the potential improvements in the derived flows. It is, however, also clear that it may not be justified from a cost/merit perspective to carry out such sophisticated calculations for the majority of shares involved in cross-border trading. Most of these shares do not have a particular importance for the total aggregate and not all of them are necessarily so volatile that the application of mean prices in the case of security-by-security data or mean price indices in the case of aggregated data collection would differ significantly from weighted average prices. In addition, the difficulties to get and process such detailed data for thousands of securities would be very hard to overcome. Several years of experience in security-by-security data collection have shown that is already very challenging to get accurate end-of-month prices for all securities, especially if these securities are not commonly traded or quoted on different markets.

SUPPLEMENTARY DOCUMENT V

THIRD PARTY REPORTING*

Introduction

1. In the course of the discussion in the Task Force Portfolio Investment Collection Systems (TFPICS) the issue of filling gaps in national recordings via exchange of data that were collected by partner countries was considered. Obviously such "Third party reporting" (TPR) would, depending on the design of such a system, require a high degree of harmonisation and synchronisation of compilers participating. Thus a recommendation to launch such an initiative on the EU or euro area level could involve high costs in adapting the different national data collection systems. Consequently a careful assessment of the potential benefits is needed as well.

2. A separate follow-up group was set up to conduct an investigation on the potential gains of retrieving missing information for national compilers and the supra national aggregates via TPR. Similar the fact-finding exercise should reveal indications of the feasibility and costs of introducing a TPR. To this end a questionnaire was developed and sent to b.o.p. compilers in the EU.[1] As any investigation of the feasibility of TPR would have to address the question of correctly integrating the information, (i.e. avoid double counting) the feedback[2] received was in particular examined against the possibilities of identifying end-investors (in particular households).

3. The structure of the paper is the following. Section 1 reviews the most prominent issues that are connected with the concept of TPR. Whenever possible it includes a reference, which particular part of the questionnaire referred to that specific subject. Section 2 summarises the results of the questionnaire whereas section 3 presents the conclusions of the investigations.

---

* Gunnar Blomberg, Andreas Karappapas / Alexandros Milionis, Matthias Ludwig , Peter Neudorfer

1 See annex.

2 All 15 EU countries completed the questionnaire, including Portugal that is not represented in the TFPICS.

Section 1: "Third party reporting" – open issues

Rationale behind TPR

1. A classical challenge (or even "blind spot") of national b.o.p. data collection systems (DCS) are holdings (transactions) by residents in (or using) accounts held abroad, in particular in DCS that are based on indirect reporting channels (for instance reports by banks on behalf of their customers). The traditional solution (in the latter systems) is the introduction of a supplementary direct reporting (DR) schema. However, the direct collection of the respective information includes some problematic areas, among them the fact that in particular non-institutional investors and households are in general hard and costly to cover with direct reporting tools. Consequently one theoretical idea is to collect (pieces of this information) via third parties (i.e. non-resident compilers) and exchange them (on a reciprocal basis).

2. TPR is in several ways connected to "indirect" data collection. On the side of the "investing" residents the problem are the potential missing reports in indirect DCMs; on the side of the "host" countries it implies to approach reporting agents[3] and require them to report on behalf of their non-resident clients (that can usually not be addressed directly).

3. Figure 1 illustrates the how TPR could in theory supplement traditional b.o.p. collection systems or even substitute parts of them.

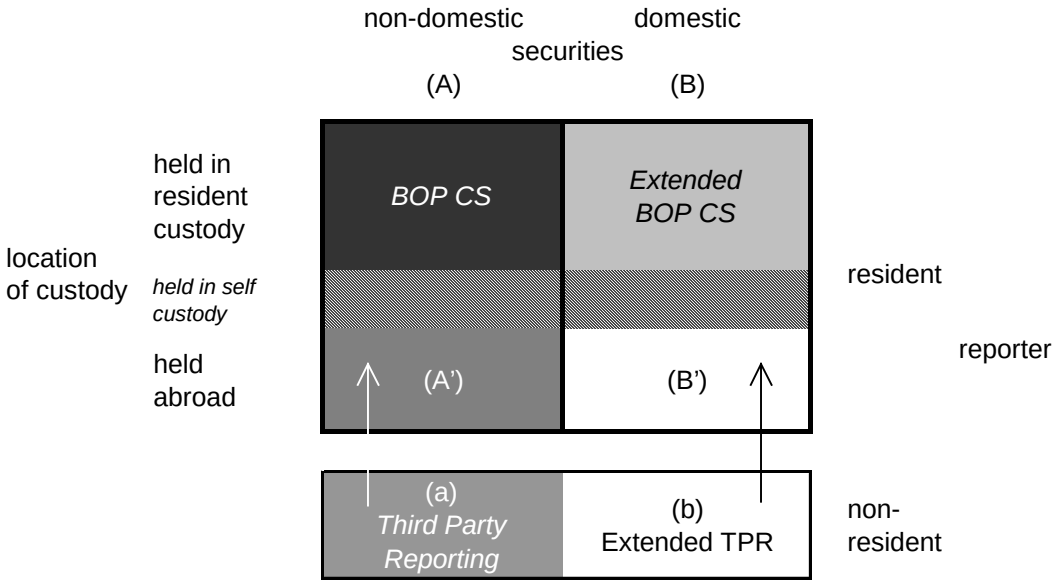
- The asset side of Portfolio Investment statistics (column A) comprises securities issued by non-residents that are held by residents.
- Usually the data collection also covers the residents holdings of domestic securities (column B) as the investment of non-residents (i.e. the liabilities side) is typically compiled using the "residual" approach, deducting domestic holdings from the outstanding amount.

As stated above, the portion of these holdings that are *not* in custody of resident custodians represent the weak point of any indirect DCS. These securities might either be subject of safekeeping at non-resident custodians or held in self-custody ("at home" or " abroad"). TRP models can (theoretically) cover the first part only.

↳ *One interesting question in this context is therefore whether self-custody – defined as "physical storing of non-dematerialised securities outside any deposit or register run by a bank or custodian to administer the holding" – plays a significant role in security holdings of residents in the Member States of the EU.* **[Q2]**

[3] Note: The focus of the questionnaire was rather the *creditor* than the *debtor* side. In other words, the holdings of the *investing entity* and ways to retrieve this information were addressed. The perspective of the *issuer* and the information about the holders that would be available via Central Depositories (book entry systems) were not (explicitly) covered.

FIGURE 1 - Securities held by residents



A	"classical" scope of B.O.P. collection systems (CS) necessary for exact calculation of assets
B	necessary for compilation of liabilities as residual (I.e. determine exact holdings of domestic securities by residents)
A', B'	problem areas, either directly collected or extracted from the reports of (a) and (b) in other countries (double counting !)

Scope and addressees of TPR

4. The aim of TPR is to produce the information that a "partner country" in a multilateral data exchange would actually be able to integrate. The starting point is that a compiler would retrieve the holdings (transactions) of non-residents that are carried out by resident institutions, broken down by the residency of their clients. Furthermore the minimum prerequisite for a consistent reconciliation of the results later on is the identification of end-investors among the clients of resident institutions (see next section). Alternatively the *minimal solution* would be the identification of private households, that may serve as a proxy for a group of investors that can safely be interpreted as end-investors ("Household approach"[4]). The opposite *maximal solution* would be the ability to identify end-investors and classify them into the usual institutional sectors of b.o.p. or even better SNA ("Multi-sector approach[5]).

5. Above all a full integration of the information received from partner countries would require that the provided data are broken down in the exact same way than the originally compiled b.o.p. statistics, i.e. a breakdown by residency (and sector) of the debtor and by instrument would be needed.

↳ *Table 1 gives an overview on data elements that could have to be covered in a DCS that comply with the TPR requirement of (multilateral) data exchange. It is necessary to learn, whether TPR can be integrated in or added to different national system. Are there already adequate data collection models in place and what are their capabilities?* **[Q3, 5 & 6]**

6. Finally the functions and services that the institutions addressed by TPR schemas are offering to their non-resident clients may go beyond traditional "safekeeping" of securities. Instead resident intermediaries could perform a broader range of financial activities on behalf of their clients, such "broker/dealer functions" or (within limits) the free management of the assets of their clients.[6]

↳ *Is there a common experience within EU countries and in how far could these features disturb the concept of collection and integration of data retrieved via TPR systems?* **[Q4]**

---

[4] See "Third Party Holdings – Possible Approaches and Methodological Issues", note prepared by G. Blomberg for the meeting of the Task Force for the CPIS, June 14-16 2000 [TF-00-2-12]

[5] See [TF-00-2-12]

[6] See [TF-00-2-12]

TABLE 1	Aggregate	Security-by-security +
	Reporting	
Residency of holder	*To be identified*	
Institutional sector of holder- identification of - *End-investor / intermediary* - *Households only ("Household approach")* - *All sectors ("Multi-sector approach")*	*to be identified*	
Residency of issuer - *Domestic* - *Non-resident (intra/extra or detailed)*	*Additional reporting requirement*	✓ ✓
Institutional sector of issuer		✓
Instrument		✓

+) assumption: supplemented by a CSDB

Integration of collected information

7. Most critical issue in the context of TPR is, how to avoid double counting. The fact that a particular custodian in country (A) that would report securities holdings (transactions) on behalf of non-residents is not sufficient for any "partner" country (B) to receive information that can actually be integrated in their b.o.p. statistics in a consistent way. In case the non-resident entity resident in (B) would again act on behalf of clients from yet another country (C) this could – if not identified and cancelled out – create two entries in the b.o.p. of country (B) and country (C). The result of such custodian-chains could be that the overall aggregate of several countries was wrong and country (B) did not receive and process economically useful information.

↳ *Thus a core question is whether any DCS in the EU has the capability and experience with identification of end-investors among the non-residents that are using the services of resident custodians or other institutions that would be able to report on these activities. Following the minimum requirement outlined above, the ultimate question would be if at least households could be identified?* **[Q7 & 8]**

8. The question of integrating any TPR results that would be correctly classified by resident and sector of end-investor would in theory lead to the investigation of numerous combinations of aggregated figures that would be bilaterally exchanged and matched with the bop statistics of receiving countries. Alternatively the option of collecting and exchanging theses data on a security-by-security level can be addressed, as in this case all type DCS could benefit from TPR results in an optimal way.

↳ *Again the question is therefore, what the chances or experiences of EU countries concerning the PI data collection on a security-by-security basis are – at least when addressing the holdings of non-residents at domestic custodians.* **[Q9]**

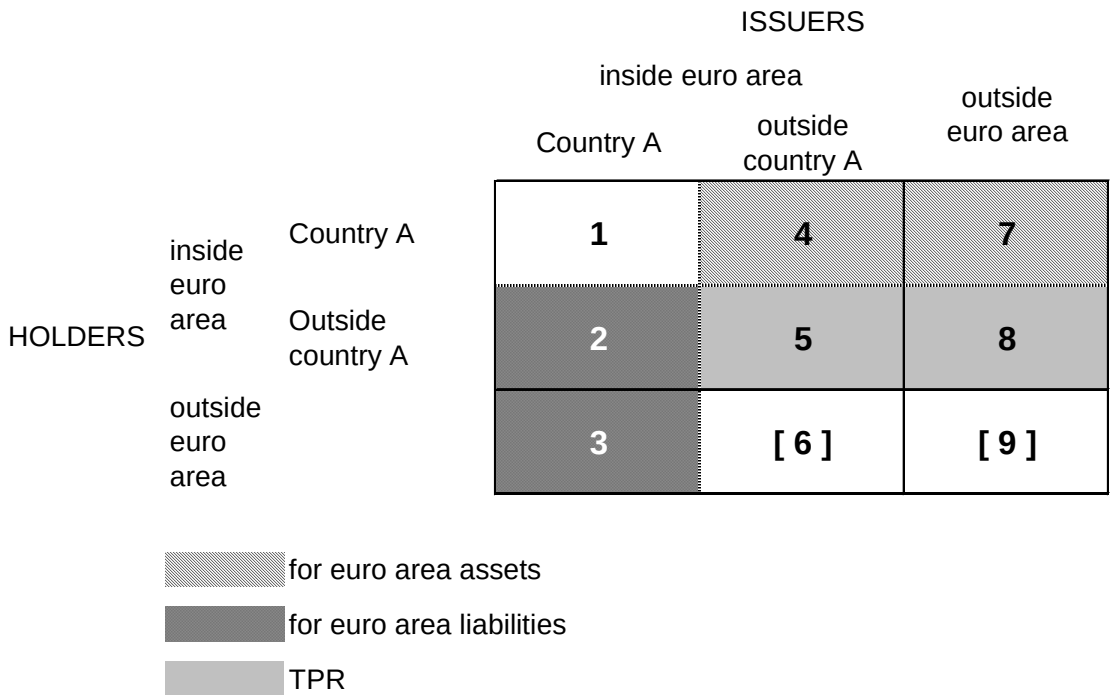
9. Conceptually the process of data collection and exchange within a TPR system that would in particular cover the needs of the compilation of euro area aggregates would work as follows (figure 2).[7] Using an indirect data collection system based on reports by domestic custodians a compiler in country (A) would collect the residents' holdings of securities issued by non-euro area residents (7). These figures would be added to aggregate assets of the *euro area.* Together with item (4) they represent the asset side of the *national* b.o.p.

10. Similarly, the deduction of the residents' holdings of securities issued by residents (1) from the total amount of issues of residents (i.e. virtually the sum of 1+2+3) will give the *national* b.o.p. liabilities. The latter will in a first step be added to the *euro area* liabilities. In a second step, item 4 (the intra-euro holdings) will be subtracted to derive the *euro area* liabilities.

11. Via a TPR system country (A) would, however, be able to supply the following additional information. Item (8), the holdings of euro-area residents, other than from country (A), of securities issued outside the euro area would have to be added to the euro area assets. In analogy to the algorithm above, item (5) would have to be subtracted from the overall euro area liabilities as it represents euro area securities that were – like item (4) - actually in the position of euro area residents. However, this also illustrates an important limit and caveat of this approach, namely the prerequisite that the contribution (5) of country (A) should only include holdings of end-investors so that any double counting is avoided.

[7] See "Methods to compile the liablities side of Portfolio Investment at the euro area level. Third party reporting", note presented at the 3rd meeting of the TFPICS, 26-27 April 2001 [Item1_ES]

FIGURE 2 - Holdings reported by custodians of country (A)



Potential limits for TPR

12. One general drawback is inherent to the idea of TPR. How perfect a TPR schema between a group of countries (e.g. the EU or euro area) might ever become, it would by definition never (or at least hardly) give a *comprehensive* picture as there is always a part of the "rest of the world" that would be missing.

- *It is, however, again an empirical question, in how far the bop compilers in the EU countries would consider holdings of residents abroad to be an intra-EU (euro area) phenomenon and thus theoretically manageable within the EU countries – at least to an extent that would provide reasonable satisfying results.***[Q5 & 13]**

13. Another constraint might be that the introduction of TPR would require that (almost) all EU/euro area member states would have to introduce it simultaneously to produce meaningful results.

↳ *Does the status-quo in indirect reporting combined with the presumable geographical concentration of the phenomenon of securities holdings abroad allow assessimg whether there would be a "critical mass" of countries to justify the investment in TPR? Are the interests and therefore cost-sensitivities balanced over the EU/euro area or at least bilaterally between member states willing to introduce TPR?*

14. Concerning the role of intermediaries or custodians in the acquisition of deposition of securities it might be the case that the "indirect" investment channel via mutual funds (investment trusts) represent a special problem (or rather chance?) in the identification of a comprehensive and competent source for "indirect" reports on securities holdings. In first place it would be necessary to get an overview on the national supervisory or institutional set-up of mutual funds, i.e. on any constraints for end-investors to directly buy/sell mutual fund shares from/to issuers of mutual funds. Conversely, any obligations to employ custodians or other intermediaries would allow using these institutions to report reliable figures on holdings of mutual fund shares.

↳ *Would end-investor be required to use the service of a custodian to acquire and hold mutual fund shares?* **[Q10]**

15. Another possible distortion could be that the holdings of residents at non-resident custodians are subject to repo or bond lending activities.

↳ *A separate question aimed at revealing the current state-of-play in the EU countries. With the background of the minimum/maximum approaches for TPR it would be interesting whether specific sectors may be more heavily involved in these activities than others.* **[Q11]**

16. Finally one can argue that the concept of TPR would be rather applicable for collection information on positions than on transactions. The reason is that in the case a custodian in country (A) who reports that a non-resident (of country B) is selling a security issued by a resident of the same country (B) would have to identify the residency of the buyer of this security. In other words, while the common challenge for a b.o.p. compiler is to identify the transactions in domestic securities with non residents, the case of TPR would require a similar identification of the tripple "issuer/seller/buyer" for all other countries participating in the TPR system. Thus any considerations concerning flows in the context of TPR might be rather limited to the derivation of flows from stocks.

Note: Legal requirements

17. At this early stage of fact-finding on the feasibility of a TPR for the EU / euro are countries it seems fair working under the assumption that in case a sufficiently efficient model could be presented the necessary legal framework would be provided later – at least in the euro area.

18. However, looking closer at the issue several questions would have to be answered. In general the legal instruments of the ESCB in the area of b.o.p./i.i.p. is solely covering cross-border relations of euro area residents with non-euro area residents (i.e. intra relationships are excluded). However, the only exception (up to now) is precisely portfolio investment where – for the sake of conducting the euro area liabilities side – also national liabilities against other member states are requested.

19. It is hardly possible to derive a complete picture on this issue at this stage and a conservative guess could be that the respective regulation (EC 2533/98 (12) and ECB Guideline (ECB 2000/4 article 1) would prevail in the future. Again the experience and state-of-play in EU / euro area countries are the natural starting point.

- *Would there be any difficulty to switch from the "national" to the "euro area" concept for defining the reporting population? And what would be the expected changes in the national legislation with respect to b.o.p./i.i.p. reporting?* **[Q12]**
- *Would there be any way to oblige / convince member states to collect information from extra-euro are residents in order to provide outside partner countries with this information?* **[Q13]**

Section 2: Results of the questionnaire

20. The difficulty in interpreting and condensing the results of the questionnaire is the need to adequately cover the fact that TPR has in principle a twofold meaning for each compiler, namely the *investor's perspective* or the *custodian perspective*. On the one hand the respondents were asked to answer from the perspective of investing entities (i.e. residents holding assets abroad) on the other hand from the intermediary's perspective (i.e. non-residents holding assets at resident custodians).[8] However, only an integrated view on the results will allow an assessment of the relevance and feasibility of the issue for a potential common PI DCM.

21. Figure 3 is an attempt to present the results of the most important questions in one picture while trying to take account of the twofold aspects of the issue. The two dimensions of representing the view of an "investing country" (i.e. holdings of residents at non-resident custodians) and a "host country" (holdings of non-residents at domestic custodians) are assigned to the lines and columns of the first (upper left) quadrant of the figure.

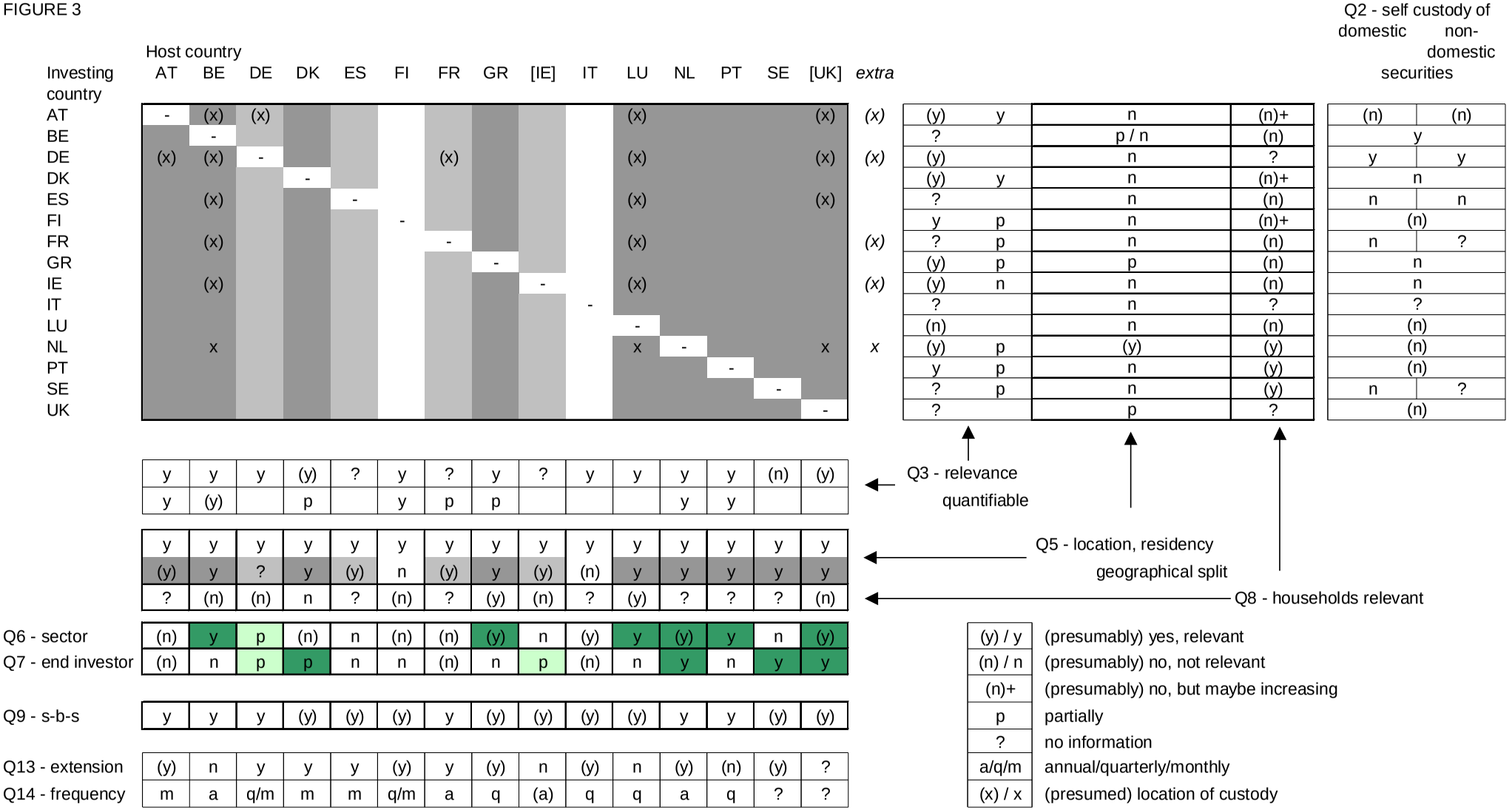
22. Following the lines for each country across the answers indicate the assessment of the relevance and problems encountered when trying to trace the holdings of residents' abroad. The response to questions 2, 3, 5 and 8 from this perspective thus shed some light on the questions, what could be gained by solving or diminishing these problems, for instance via TPR. The second quadrant may therefore be interpreted as the potential benefits that could be retrieved from TPR.

23. Likewise, following the columns down the answers relate to the experience or chances of individual countries when collecting information about securities deposited by non-residents at domestic custodians. Thus the response to question 3, 5, and 8 as well as 6, 7, 9 reveal the state-of-play and/or the potential chances to retrieve this type of information. The answers to question 9, 13 and 14 supplement this picture. The third quadrant may therefore be interpreted as the potential costs or feasibility of TPR.

24. Figure 2 covers 9 out of the 14 questions. The results of the remaining are be discussed separately.

[8] There were two explicit categories in Question 3, 4, 5 and 8

FIGURE 3



	AT	BE	DE	DK	ES	FI	FR	GR	[IE]	IT	LU	NL	PT	SE	[UK]	extra
AT	-	(x)	(x)								(x)				(x)	(x)
BE		-														
DE	(x)	(x)	-				(x)				(x)				(x)	(x)
DK				-												
ES		(x)			-						(x)				(x)	
FI						-										
FR		(x)					-				(x)					(x)
GR								-								
IE		(x)							-		(x)					(x)
IT										-						
LU											-					
NL		x									x	-			x	x
PT													-			
SE														-		
UK															-	

	AT	BE	DE	DK	ES	FI	FR	GR	[IE]	IT	LU	NL	PT	SE	[UK]	Q2 domestic	Q2 non-domestic	Q3 relevance quantifiable	Q5 location, residency geographical split	Q8 households relevant
	y	y	y	(y)	?	y	?	y	?	y	y	y	y	(n)	(y)	(y)	y	n	p / n	(n)
	y	(y)		p		y	p	p				y	y			(n)	(n)	(y)		?
	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	y	(y)		?
	(y)	y	?	y	(y)	n	(y)	y	(y)	(n)	y	y	y	y	y	(n)	(n)	(y)		(y)
	?	(n)	(n)	n	?	(n)	?	(y)	(n)	?	(y)	?	?	?	(n)	(n)	(n)	?		?
Q6 - sector	(n)	y	p	(n)	n	(n)	(n)	(y)	n	(y)	y	(y)	y	n	(y)					
Q7 - end investor	(n)	n	p	p	n	n	(n)	n	p	(n)	n	y	n	y	y					
Q9 - s-b-s	y	y	y	(y)	(y)	(y)	y	(y)	(y)	(y)	(y)	y	y	(y)	(y)					
Q13 - extension	(y)	n	y	y	y	(y)	y	(y)	n	(y)	n	(y)	(n)	(y)	?					
Q14 - frequency	m	a	q/m	m	m	q/m	a	q	(a)	q	q	a	q	?	?					

(y) / y	(presumably) yes, relevant
(n) / n	(presumably) no, not relevant
(n)+	(presumably) no, but maybe increasing
p	partially
?	no information
a/q/m	annual/quarterly/monthly
(x) / x	(presumed) location of custody

Relevance of the problems - potential "benefits" of TPR

25. As a starting point it is interesting that self-custody of investors (i.e. not using the service of professional institutions for holding/managing assets) seems not of much relevance [Q2]. However, one has to distinguish two aspects. The phenomenon of non-dematerialised securities (i.e. bearer paper) is obviously of negligible relevance (except maybe for one MS). Thus all (relevant) securities seem to be at least registered in book-entry systems. On the other hand one MS indicated that in particular big (institutional) investors are actually managing their assets themselves. Their assets would therefore neither be covered by any national or cross-national (TPR) reporting system. (The relevance of this phenomenon in other MS might be further investigated.)

26. Nevertheless the starting point would be that for the majority of countries the idea to secarch for holdings of residents at non-resident custodians seems plausible. This is strongly supported by the answers on the relevance of these holdings abroad [Q3]. Only one MS (LU) indicated that this would presumably be not relevant. The importance of these holdings is also highlighted by the fact that roughly half of the MS have developed methods for at least approximating or estimating the amount of these holdings.

27. The supposed weakness of these statistics is revealed when looking at the potential locations of these holdings [Q5]. Only four MS claim to have some partial information about where their residents might have deposited their holdings. Figure 3 (first quadrant) indicates the presumed locations (x), a picture that is supported by the general assumption of respondents that cross-border depositing/custodian activities are not (bilaterally) "balanced [Q5]. Instead specific countries within the EU (and outside) are the preferred locations - in many case neighbouring countries.

28. Finally there is no clear evidence, whether the holding of assets abroad would be of particular relevance for portfolio investments of private households [Q8]. Only three MS (NK, PT, SE) agree to this question, the majority denies it. However, at least three MS indicate that this might become a more important issue in the future.

29. All in all from the perspective of the problems and inaccuracies that b.o.p. compilers EU / euro area have in coping with the structure of portfolio investment of their residents would in principle justify that a bilateral exchange of information, i.e. a TPR system could be considered to fill gaps in national statistics.

Experience with "indirect" reporting – feasibility and potential "costs" of TPR

30. As explained above the basis of a TPR system would be that the compiler in the "host" country would engage in a indirect data collection system, in which resident institutions offering custodian functions would have to report on behalf of their non-resident clients. In fact the pre-requisite of such a system are in place, as practically all compilers seem to have already some experience with such a data collection or can theoretically imagine that such a system could be established. Only two countries (UK and IE) indicated in the respective part of the questionnaire [Q1] that they lack any experience with "indirect" reporting and therefore relied in their response on assumptions and feedback from reporting agents.

31. In 11 EU countries the business of domestic custodians offering services to non-residents is considered to be of significant importance, 7 compilers can (at least partially) quantify this phenomenon [Q3].

32. Moreover all compilers claim that (in theory) the relevant reporting agents (i.e. custodians) could identify the non-resident clients. Most important, in the vast majority of (12) countries these entities are (potentially) in the position to provide a breakdown by residency of the holder of the assets [Q5].

33. But in contrast to the geographical split – the basic pre-requisite for any data exchange on these holdings – any further requirements for TPR are less comprehensively covered. The most significant gap is certainly that only 3 countries (NL, SE, UK) claim that their reporters would be able to identify the end-investors among the non-resident clients of domestic custodians, in three additional cases (DE, DK, IE) this might at least be partially possible [Q8].

34. A full or partial breakdown by institutional sector [Q6] would only be available in 7 countries. On the potential role of households as clients of domestic custodians' [Q8] most (7) compilers can give no clear information, only in two cases it is indicated that this would be a relevant phenomenon. Conversely 6 compilers assume or confirm that households would not play a significant role.

35. In contrast to these gaps another technical prerequisite that would in theory allow a consistent integration of information that a compiler would receive from TPR partners – the collection of PI statistics from custodians on a security-by-security level – seem at least theoretically imaginable in all EU countries [Q9].

36. In terms of the frequency of a potential data provision within a TPR system, the answers diverge strongly, with a relative majority of 6 compilers favouring a quarterly data transmission [Q14].

37. The idea of extending the (reciprocal) exchange of data to countries outside the EU /euro area would in principle be seen as acceptable (only 4 clear rejections), however all respondents are aware of the legal problems that are considered to be almost unbridgeable [Q13].

Additional aspects

38. The overall result of the investigations on the role that custodians play in the context of managing assets of non-residents revealed that these institutions are likely to perform a broader range of functions for their clients than simple safe-keeping of the securities entrusted [Q4]. In this respect the answers were consistent, irrespective if looked at from the angle of the investing or the host country.

- Although for cost saving reasons the securities are normally kept where they are traded or acquired value added functions (such as investment accounting, performance measurement, repo/bond lending, etc.) are seen as a means to develop competitive advantages.
- The particular role of a specific custodian in the custody chain plays a prominent role. Global custodians for instance are assumed to be merely engaged in "simple" safekeeping only.
- It is also believed that the services offered by custodians would differ according to the institutional sector of the investor; there would be special arrangements for institutional investors or by dedicated financial service centres. On the other hand mandate-systems with guidelines for actively adapting a portfolio might be particular relevant for private households.

39. The answers with respect to the institutional set-up of acquiring and holding mutual funds certificates differ widely among the countries [Q10]. (This might either be a sign that the situation is indeed far from homogenous or indicate that the questionnaire did not adequately explain the issue.) One category of answers explains that the situation depends on the specific fund or on the (institutional sector of) the investor. Only four countries indicate that private investors would (usually) not have the opportunity to directly buy/sell back mutual fund shares from/to the issuer. The majority of answers seem to point out that mutual fund shares should – by nature of its institutional framework – not be treated differently than any other securities (in cross-border investment relationships).

40. Two third of countries reported that they would not have sufficient information whether Repo/bond lending activities were of particular relevance in the context of holdings on behalf of non-resident clients [Question 11]. However, half of the respondents assume that it might indeed be of (critical) importance i.e. a source for distorting any indirect reporting schemas. (Only two countries explicitly denied its significance.) Due to the lack of information the presumed correlation between the degree of relevance and the institutional sector of clients could not be reconfirmed (or rejected).

41. The issue of potential legal provisions to be taken when considering the implementation of a TPR system covers both the aspect of definition and addressing a reporting population that would go beyond the traditional national b.o.p. reporting and the question of data exchange and potential confidentiality problems [Q12]. The first seems to be easier to assess, although the answers range from "complete redraft" of national statistical legislation to "only minor adjustments necessary" and yet others cast some doubt on the overall chances to make TPR (and the reciprocal) data exchange legally binding.

Section 3: Conclusions

42. The following points can be raised in favour of the idea of including a TPR schema in the future portfolio investment DCM of the EU/ euro area:

(i) Virtually all countries indicated that the holdings of residents abroad – in particular non-institutional investors – represent a weak point in the national b.o.p. statistics. In several cases it was argued that the importance of this phenomenon might even increase in the future. (The overall trend towards introduction of direct reporting models might not dampen this effect, as the most critical investors are also most difficult to cover in theses systems.)

(ii) The first pre-requisite, namely an actual experience with indirect reporting – or at least the conceptual discussion with potential reporting entities – seems to be fulfilled or technically feasible, thus the indirect data collection on activities of non-residents might actually be an option.

(iii) Furthermore another pre-requisite to ensure an efficient data exchange within TPR, that is the potential reporting security-by-security level, seems to be equally fulfilled.

43. However, the status-quo in and the present assessment of the EU countries includes features that are equally pointing against the implementation of TPR system:

(iv) The interest or relevance of coverage problems in national b.o.p. seems to be an unbalanced phenomenon. Not all "investing" EU countries report the same degree of negative impact in the statistics and the geographical structure of potential "host" countries is obviously biased. This indicates that it might be difficult to design a TPR model with a balanced sharing of costs and benefits between participating countries. In addition the use of information retrieved via TPR for national purposes and for supra-national aggregates is not identical.

(v) The issue of geographical concentration is in addition connected to the missing part in any TPR system focusing on the EU / euro area, i.e. the holdings outside the EU / euro area ("r.o.w"-gap).

(vi) The most significant question mark, however, is the difficulty for indirect reporting system to correctly identify the actual end-investor among the non-resident clients or even their institutional sector. It is on the other hand remarkable that this problems seem to be in particular connected to the classification of non-resident clients, or at least significantly differ from the analogous problem of identifying end-investors among resident clients of domestic custodians.

44. According to the present results of the investigations problems/costs seem to outbalance the potential benefits, leading to the preliminary conclusion that a new general DCM in the area of PI should refrain from integrating a comprehensive TPR schema. This holds in particular if a final assessment of the differences in identifying resident and non-resident clients of custodians would be reconfirmed.

45. On the other hand, in case the idea of TPR would be dropped the TFPICS would have to consider alternative ways to cover gaps in (supra) national b.o.p. statistics. It might therefore be worth to at least keep the idea of a "minimal" model alive that would (possibly on a low frequency) produce useful statistics on investment positions that private households have within the EU / euro area, possibly also, depending on international initiatives, on a global scale.

Annex 1

TFPICS - FACT-FINDING EXERCISE ON

DATA COLLECTION ON BEHALF OF PARTNER COUNTRIES – "THIRD PARTY REPORTING"

Introduction

The concept of (supplementary) data collection via "Third-Party-Reporting" (TPR) is obviously related to "indirect" reporting schemes. Due to the fact that member states of the EU / euro area are currently running different reporting systems, the following questions would have to be interpreted in two ways:

Compilers using indirect reporting systems could answer the questions on the basis of the experience collected so far with "custodians" or other reporting agents providing information on behalf of their customers. In addition, they may address selected indirect reporters to explicitly discuss specific issues with them.

For compilers operating direct reporting systems twofold investigations would be required:

- How difficult / costly would a switch to / complementary introduction of reporting via "custodian" be [Question 1]?

- Identify, who would be the potential reporting agents with whom the feasibility of the technical details of TPR [Questions 2 to 14] could be assessed?

Please specify in the following items - whenever indicated in the question - whether the answer relates to the perspective of investing entities (residents holding assets abroad) or from the intermediary's perspective (non-residents holding assets at resident custodians) i.e. the *investor's perspective* or the *custodian perspective*.

QUESTION 1

If you do NOT collect any information in the area of portfolio investment indirectly, e.g. via custodians (i.e. if you rely more or less completely on direct reporting), please indicate:

(i) what are the most significant difficulties your potential intermediary reporting agents (banks, custodians, etc.) would face by introducing indirect reporting and

(ii) try to give a tentative answer to the rest of the questionnaire.

QUESTION 2

*Do you experience a significant volume of **self-custody**?* [9] *How can this be quantified? If relevant, are there issues being made in your country that are particular aimed at self-custody or are domestic investors investing abroad in such instruments? Are there any preferences, such as for listed/unlisted shares or issues of specific sectors?*

[9] Defined as physical storing of non-dematerialised securities outside any deposit or register run by a bank or custodian to administer the holding.

QUESTION 3

Do you have any indication on the quantitative relevance of securities holdings of (non-bank) residents' abroad, i.e. held directly for safekeeping with non-resident custodian? How are these volumes derived / estimated? In which cases is information lacking?

Do you have any indication on the quantitative relevance of securities holdings of non-residents at resident custodians? How are these volumes derived / estimated?

QUESTION 4

Do you have any indication that the securities holdings of residents abroad are constraint to "safe-keeping" functions or do non resident intermediaries perform a broader range of financial activities on behalf of your residents, such as "broker/dealer functions" or do (within limits) freely manage the assets of their clients?

Do you have any indication that the securities holdings of non-residents at resident custodians are constraint to "safe-keeping" functions or do resident intermediaries perform a broader range of financial activities on behalf of non-residents, such "broker/dealer functions" or do (within limits) freely manage the assets of their clients?

QUESTION 5

Do you have any indication on the geographical distribution of residents' holdings abroad?

Are the resident custodians / asset managers able to correctly identify the residency (including a geographical breakdown) of their clients?

Would you assume that cross-border custody is a bilaterally "balanced" phenomenon (i.e. that there is more or less an equal incentive for inflows and outflows) or is it safe to say that holdings abroad concentrate on certain countries? Are you aware of any preference of investors to keep securities in intra- or extra-euro area countries?

QUESTION 6

Are the resident custodians / asset managers able to correctly identify the institutional sector of their non-resident clients? Would a reliable breakdown be available according to the details of the BMP5 or the ESA / SNA (see annex for details)? Or could at least some specific sectors be identified?

QUESTION 7

Are the resident custodians / asset managers at least able to correctly identify the "end investors" (and their specific sectors) among their non-resident clients? This would imply to identify and exclude cases where custodians act in a chain of custodians, i.e. keep the holdings on behalf of another (non-resident) custodian.

QUESTION 8

Is asset keeping abroad of particular relevance for the resident ***household sector****? Are quantitative assessments available?*

Is asset keeping at resident custodians of particular relevance for the non-resident ***household sector****? Are quantitative assessments available?*

QUESTION 9

Are the resident custodians / asset managers able to provide the relevant information on a security-by-security level?

If security-by-security is NOT possible, please indicate whether the resident custodians / asset managers would be able:

– *to correctly identify the residency of the issuers of the securities held for non-resident clients?*

– *to correctly identify the institutional sector of the issuer of the securities held for non-resident clients?*

QUESTION 10

Does the supervisory or institutional set-up of mutual funds in your country allow end-investors to directly buy/sell mutual fund shares from/to issuers of mutual funds (unit trusts)? In other words, would any end-investor instead be required to use the service of a custodian to acquire and hold mutual fund shares? (The latter would imply that these custodians would be able to report reliable figures on holdings of mutual fund shares.)

QUESTION 11

Are repo/bond lending activities of any relevance in the context of holdings on behalf of non-resident clients? Is there a correlation with the institutional sector of the client?

QUESTION 12

Which / how many legal provision(s) in your national (b.o.p./i.i.p.) statistical reporting system would be affected by the introduction of TPR, i.e. switch from the "national" to the "euro-area" concept for defining the reporting population for b.o.p/i.i.p.? (Please be aware that this issue would anyway have to be tackled in a joint approach of all member states.)

QUESTION 13

Could you imagine to extend the scope of TPR to residents outside the EU / euro area, i.e. CPIS participants incl. Switzerland, PACs etc.?

QUESTION 14

What would be the highest frequency for a TPR reporting schema (monthly / quarterly / annual)?

What would be the minimum time necessary to produce TPR results (in weeks)?

OTHER COMMENTS / REMARKS

Annex 2

Institutional sectors according to ESA 95

S.11	Nonfinancial corporations
S.121	Central bank
S.122	Monetary financial institutions
S.123	Other financial intermediaries (exc. S.125)
S.124	Financial auxiliaries
S.125	Insurance corporations and pension funds
S.1311	Central government
S.1312	State government
S.1313	Local government
S.1314	Social security funds
S. 14	Households
S. 15	Nonprofit institutions serving households