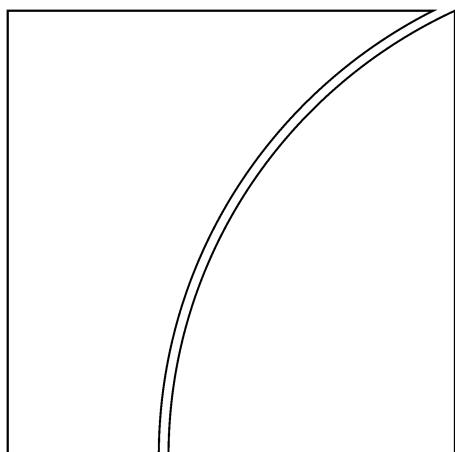




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## Guide to the international financial statistics

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## Table of Contents

I.	Introduction .....	1
II.	International banking statistics .....	4
1.	Locational banking statistics .....	4
2.	Consolidated banking statistics .....	7
3.	Signed syndicated credit facilities .....	11
4.	Publication of the statistics .....	12
III.	Securities statistics .....	13
1.	International debt securities .....	13
2.	International equities .....	16
3.	Domestic debt securities .....	16
4.	Publication of the statistics .....	17
IV.	Derivatives statistics .....	18
1.	Exchange-traded derivatives .....	18
2.	OTC derivatives .....	19
3.	Publication of the statistics .....	22
V.	Triennial central bank survey of foreign exchange and derivatives market activity .....	23
1.	Overall coverage .....	23
2.	Reporting countries and institutions .....	23
3.	Basic information .....	23
4.	Disaggregation .....	24
5.	Publication of the statistics .....	24
VI.	Joint BIS-IMF-OECD-World Bank statistics on external debt .....	26
VII.	Quality of the BIS international financial statistics .....	28
1.	Prerequisites of quality .....	28
2.	Integrity .....	29
3.	Methodological soundness .....	30
4.	Accuracy and reliability .....	31
5.	Serviceability .....	32
6.	Accessibility .....	34
VIII.	The uses of the BIS international financial statistics .....	35
1.	Overview .....	35
2.	Extension of monetary and credit aggregates .....	35
3.	Changes in financial intermediation .....	36
4.	Contribution to compilation of balance of payments and external debt statistics .....	37
5.	External vulnerabilities and risk exposures .....	40
6.	Future improvements to the BIS statistics .....	43

Annex:	Terminology used in the BIS international financial statistics .....	44
1.	General framework .....	44
2.	Locational banking statistics.....	44
3.	Consolidated banking statistics .....	44
4.	Securities statistics .....	45
5.	Foreign exchange and derivatives statistics.....	45
	References .....	46

## **Conventions used in this publication**

billion	thousand million
\$	US dollar unless specified otherwise

## I. Introduction

The origins of BIS activities in the field of international financial statistics go back to the mid-1960s and the emergence of the so-called eurocurrency markets that had sprung up to circumvent domestic regulations. At that time the key policy concern that gave rise to the joint data collection exercise by the central banks of the G10 countries under the aegis of the BIS was the need to monitor the rapid growth of these markets and its possible monetary implications. This led to the introduction of reporting by internationally active banks of their international positions in major individual currencies, with a geographical and partial sectoral breakdown. On the basis of these reports the central banks and the BIS compiled the so-called locational banking statistics for various lending and borrowing countries. In the subsequent years, the issue of recycling the current account surpluses of oil-producing countries shifted the emphasis in favour of a more detailed geographical breakdown and of flow data.

In the context of the deregulation of domestic financial systems and capital flows in the 1970s and 1980s these concerns abated, but in their place came others, notably the rise in the indebtedness of many developing countries to international banks in the early 1980s. This build-up was visible in the existing locational banking statistics collected and published by the BIS, but it was not possible to evaluate in a comprehensive way the risk characteristics of the exposures of national banking systems to individual borrowing countries. The need for such information therefore led to the reporting of a second set of international banking data on a fully consolidated basis. A maturity breakdown of the consolidated banking claims was also introduced at that time. In response to calls for more up-to-date information on the international lending activities of banks, the BIS began in the early 1990s to collect and publish data on signed syndicated credit facilities. More recently, with the objective of enhancing the analysis of country risk exposures, efforts have been made to achieve a more complete and detailed reporting of consolidated banking data on an ultimate risk basis, including off-balance sheet positions relating to bank's derivatives transactions.<sup>1</sup>

As a result of the increasing role of the international securities markets in global financial intermediation, the BIS was mandated in the mid-1980s to collect and publish statistics on these markets on the basis of data from commercial databases and information available to individual central banks. In the 1990s the BIS also became increasingly involved in the coordination of joint surveys that central banks carried out on a regular basis to monitor activity in global foreign exchange markets. Moreover, as derivatives markets expanded in the wake of financial innovation, central banks asked the BIS to collect and publish international data on exchange-traded and over-the-counter derivatives transactions. The development of the BIS international financial statistics thus reflects evolving central bank concerns relating to monetary and financial stability in the context of worldwide financial market deregulation, innovation and globalisation.

In addition to their use for policy-related monitoring purposes by central banks, the international financial statistics have meanwhile proved to be of interest to private sector market participants. The latter have come to recognise the unique value of the BIS data for tracking the borrowing by emerging market countries from the international banking and securities markets. The BIS data are also used by the IMF in the compilation of its international financial statistics and in its surveillance of individual economies. Moreover, the BIS data have proved to be useful for improving balance of payment statistics<sup>2</sup> and for measuring and monitoring developing countries' foreign debt. With respect to the latter, following the 1997 Asian debt crisis the IMF, OECD, World Bank and BIS pooled their respective statistics to collectively publish data from creditor and market sources on countries' foreign indebtedness.<sup>3</sup>

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<sup>1</sup> Methodologies for data collection and compilation have been developed to enable reporting of these statistics by the end of 2004.

<sup>2</sup> In the late 1980s an exercise took place to explain and correct the errors and omissions in the global balance of payments statistics. Given the consistency of the BIS banking data, these data played a key role in this exercise. Various countries use the data on an ongoing basis to improve their national balance of payment statistics (see also Chapter VIII).

<sup>3</sup> In many cases debt to foreign banks, as recorded in the BIS statistics, is a large component of external debt. Moreover, the BIS statistics provide information on the short-term component of a country's foreign debt to international banks and to holders of international securities (ie with a residual maturity of less than one year).

Apart from providing insights into the geographical distributions of international financial flows and external vulnerabilities and risk exposures of debtors and creditors, the international financial statistics collected and disseminated by the BIS contain important information on the structural developments in international financial markets. They can be used, for instance, to analyse the importance of individual financial centres (including so-called offshore centres), the emergence of new relationships between financial and non-financial firms, the level and concentration of activity in financial markets as well as spillovers between different market segments. Much of this is not easily available elsewhere. The statistics become even more valuable when they are combined with other sources covering financial asset prices, market liquidity and trading patterns, external ratings, and the activity of non-bank financial firms and non-financial companies. They then allow market participants and policymakers to make an assessment of credit and liquidity risks in domestic and international financial markets as well as of potential vulnerabilities to systemic disturbances in these markets.

The usefulness of the international financial statistics is, of course, potentially affected by the fact that the boundaries between international and domestic markets are becoming more blurred. This could, on the one hand, constitute a weakness of the statistics as it may become increasingly difficult to define and distinguish pure international financial market activity from that in domestic markets. On the other hand, as this guide explains and illustrates, the methodology of the international statistics has tried to keep pace with such developments and to ensure that financial analysts are aware of the limitations of the statistics. Moreover, given that financial innovations have often started in the competitive environment of the international financial markets and that market sentiments are becoming increasingly correlated internationally, the BIS statistics have been and continue to be a very useful tool to capture structural and market developments in global markets at an early stage.

The BIS, and the central banking community working through it, have also taken steps to complement the publication of the international financial statistics with a selection of highlights and analyses of major market trends. In the case of the BIS this applies to the press releases accompanying the release of new data; to the *BIS Quarterly Review*, which contains more in-depth analysis of specific issues, and to its *Annual Report*, which analyses long-term trends and emerging policy issues. The statistics are also mentioned and explained regularly in presentations by senior BIS officials to central banks, market participants and academics. Other initiatives to promote the use of the statistics include making them available in electronic form on the BIS website and updating the guidelines and methodological notes on a regular basis.<sup>4</sup>

Work on collecting, compiling and disseminating the BIS international financial statistics is closely related to, and guided by, the activities of the various Basel-based committees and expert groups as well as those of other international institutions. The Committee on the Global Financial System (CGFS) plays a key role in reaching a consensus on priorities to improve the BIS statistics. With respect to international banking data, the Basel Committee on Banking Supervision (BCBS) is consulted on methodological issues to help ensure the collection of adequate statistical information from internationally active banks on risk exposures. The Financial Stability Forum (FSF) has also formulated a number of recommendations to enhance statistics on international financial markets and capital flows that are taken into account by the BIS in its statistical work. As a result of the strong support of these groups it has been possible to improve on the reporting frequency and timeliness of the international financial statistics in recent years.

One of the major underlying objectives of the various Basel-based groups is to strengthen financial stability through transparency and market discipline. Increased public disclosure plays a key role in this and should, over time, lead to better quantitative and qualitative information on the activities and risk profiles of individual institutions as well as market infrastructures such as payment, settlement and trading systems. With respect to the functioning of domestic and international financial markets, various proposals have been made to complement the BIS statistics on banking, securities, foreign exchange and derivatives markets over time by improved aggregate information on liquidity, leverage and position-taking in these markets. More recently the IMF has been elaborating a methodology for the collection by individual countries of comprehensive financial soundness indicators, which should

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<sup>4</sup> An international initiative is currently under way by the BIS, IMF, ECB, Eurostat and the UN to develop standards and best practices for the exchange and dissemination of statistical data and metadata (for the so-called sdmx initiative see [www.sdmx.org](http://www.sdmx.org)). This should facilitate the dissemination of the BIS international financial statistics and make it easier for users to search and retrieve the data in a user-friendly form.

complement the BIS statistics.<sup>5</sup> The disclosure framework on the exposures and capital structure of internationally active banks proposed under the New Basel Capital Accord (its so-called Pillar III) should contribute to better balance sheet data of individual internationally active banks.

This Guide is structured around the three main areas of the BIS international financial statistics: the international banking statistics (Part II); the securities statistics (Part III); and the derivatives and foreign exchange statistics (Parts IV and V). It also provides a description of the joint BIS-IMF-OECD-World Bank statistics on external debt for which the BIS is a main contributor of data (Part VI). The guide provides a detailed description of the sources, compilation, transformation and publication of the data. Two separate chapters on the quality and the uses of the statistics (Parts VII and VIII) follow the description of the statistics. A more detailed description of the BIS international banking statistics and their underlying methodology is provided in a separate guide.<sup>6</sup>

This Guide has been prepared by Paul Van den Bergh, Rainer Widera, Karsten von Kleist, Jesper Wormstrup and others in the Monetary and Economic Department of the BIS. Chapter VIII draws largely on an article by Philip Wooldridge.<sup>7</sup>

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<sup>5</sup> The financial soundness indicators would provide an aggregated balance sheet for the banking system in individual countries. This would include balance sheet items covering banks' domestic activities, various types of risk exposures and some details on banks' capital structure.

<sup>6</sup> See BIS (2000).

<sup>7</sup> See Wooldridge (2002).

## **II. International banking statistics**

The BIS compiles the following three separate sets of quarterly statistics on international banking activity:

- international assets and liabilities of banks based on the location of reporting banks;
- worldwide consolidated international claims of reporting institutions; and
- signed international syndicated credit facilities.

The first two sets are collected indirectly, ie by individual central banks/monetary authorities, and are transmitted to the BIS after aggregation at the national level. They cover positions at reporting dates (end of quarter) and are expressed in US dollars. The third set of statistics differs from the first two insofar as the data are obtained from a single market source and refer to signings of syndicated loans during a given period. These may be only partially drawn, or used to replace earlier borrowing. The first two sets of statistics thus cover a much wider spectrum of banking activities.

The main purpose of the three sets of banking statistics is to provide a measure of:

- the role of banks in intermediating international capital flows (locational and syndicated credit statistics);
- the exposure of national banking systems to country, liquidity and transfer risks (consolidated statistics);
- the external debt owed to banks as reported from the creditor side (locational and consolidated statistics); and
- the importance of financial centres and offshore banking activity (locational and syndicated credit statistics).

### **1. Locational banking statistics**

#### **1.1 Overall coverage**

The locational banking statistics were introduced in the early 1960s to help monitor the development of international banking markets.<sup>8</sup> They provide quarterly information on the gross on-balance sheet asset and liability positions of banks in major banking centres vis-à-vis entities (banks and non-banks) located in other countries worldwide. The statistics are reported, in most cases, by banking institutions in each reporting country to their respective central banks or monetary authorities. They are aggregated at the national level and transmitted to the BIS. Since the locational statistics are based on residence and are not consolidated, they are in principle consistent with national accounts and balance of payments data.<sup>9</sup>

The five-way disaggregation of the data - by instrument, country, currency, sector and nationality of reporting institutions<sup>10</sup> - makes it possible to monitor various aspects of international banking activity. In addition, the currency detail allows the BIS to estimate exchange rate adjusted changes in stocks that can be used as proxies for flow data (see Section 1.5 below). The aggregates and main breakdowns of the locational banking statistics are available in electronic form on the BIS website as from end-1977.

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<sup>8</sup> They were known at that time as the "eurocurrency" statistics.

<sup>9</sup> However, the locational banking statistics deviate from balance of payments principles to the extent that they also cover banks' foreign currency positions vis-à-vis residents. These data are included to obtain a measure of banks' total foreign currency exposure.

<sup>10</sup> There is no breakdown by country of residence of counterparty for the breakdown by nationality of reporting institutions.

## **1.2 Reporting countries and institutions**

The locational banking statistics are reported by central banks and monetary authorities in those countries and centres that generally meet the following two criteria:

- the banking system conducts a large volume of international lending and borrowing or deposit-taking; and
- the statistics are sufficiently comprehensive and detailed to be aggregated in a consistent form with those of other reporting countries and centres.

To ensure the global comprehensiveness of the locational banking statistics, the BIS has gradually expanded the group of reporting countries and centres (currently 36 - see the table below), and this process is expected to continue as the BIS invites additional countries/centres with evolving international banking business to join.

<b>Countries and centres providing locational banking data</b> (first year of data availability in brackets)			
Australia (1997)	Chile (2002)	Isle of Man (2001)	Portugal (1997)
Austria (1977)	Denmark (1977)	Italy (1977)	Singapore (1983)
Bahamas (1983) <sup>1</sup>	Finland (1983)	Japan (1977)	Spain (1983)
Bahrain (1983)	France (1977)	Jersey (2001)	Sweden (1977)
Belgium (1977)	Germany (1977)	Luxembourg (1977)	Switzerland (1977)
Bermuda (2002) <sup>2</sup>	Guernsey (2001)	Netherlands (1977)	Taiwan, China (2000)
Brazil (2002)	Hong Kong SAR (1983)	Netherlands Antilles (1983)	Turkey (2000)
Canada (1977)	India (2001)	Norway (1983)	United Kingdom (1977)
Cayman Islands (1983)	Ireland (1977)	Panama (2002)	United States (1977)

<sup>1</sup> Semiannual reporting. <sup>2</sup> Envisaged.

The reporting institutions are deposit-taking banks and similar financial institutions. In some countries, specialised non-deposit-taking, trade-related financial entities also report. More rarely, the coverage extends to some international operations of a central bank office, or, for certain items only, the banking department of a central bank. For almost all countries, the reporting banks account for well over 90%, and in many cases virtually 100%, of the international assets and liabilities of all banking institutions operating within their borders.<sup>11</sup>

## **1.3 Basic information**

The statistics cover separate data on cross-border claims and liabilities in all currencies on the one hand and claims and liabilities vis-à-vis residents in foreign currency on the other. In addition, the data are typically broken down into three main components as follows:

### *(i) Loans and deposits*

Loans and deposits cover those financial assets and liabilities that are not evidenced by negotiable instruments. The data generally include repurchase transactions, financial leases, promissory notes, subordinated loans, foreign banknotes and coins and trade-related credit. For the latter, the country of residence of the drawee of the trade bill is the guiding principle for the geographical allocation of claims arising from suppliers' credits.

<sup>11</sup> See BIS (2000), Table G-4, pp 18-20.

(ii) *Holdings and own issues of debt securities*

Banks' holdings and own issues of international debt securities also represent international lending and borrowing.

(iii) *Other assets and liabilities*

Other assets mainly cover *equity holdings and participations*, ie portfolio and direct investment holdings of financial interests in enterprises. *Working capital* provided by banks' head offices to their branches is the major item included under other liabilities.

*Arrears of interest and principal* that have not been written down are in most instances included in the reported claims. Specific provisioning normally does not result in a reduction of outstanding claims. Derivative instruments are included in banks' international assets and liabilities to the extent that accounting rules in reporting countries require on-balance sheet reporting of the market value of these instruments.<sup>12</sup> Currently, *off-balance sheet items* are generally excluded from the reported statistics, with the major exception of the trustee business (conducted in a bank's own name but on behalf of third parties) of banks in Switzerland, which is reported separately to the BIS. In certain other countries, moreover, trustee business is treated as on-balance sheet business and therefore included in the reported figures.

While deposits and conventional loans are generally reported at face value, holdings and own issues of securities may be valued at cost price, face or book value, or market price. A distinction between investment and trading portfolios is often made in this context. Investment portfolios are generally valued at cost price, whereas trading portfolios are often marked to market. However, loans subject to trading, loans acquired in the secondary market or securitised loans held in the trading portfolio are often valued at face value or cost price.

#### **1.4 Disaggregation**

The three main components of international claims and liabilities are broken down by country of residence of counterparties (about 200 countries), by major currency (USD, EUR, JPY, CHF, GBP)<sup>13</sup> and by sector (banks and non-banks.)<sup>14</sup>

The currency and sectoral detail provided for holdings of securities is in some cases less complete than for the other components. In these cases, reporting gaps are typically filled by BIS estimates based on supplementary information provided by reporting central banks. On the liabilities side, reporting banks' own issues of securities are in general reported as an unallocated item since most banks cannot identify the ultimate holders of such securities.

Finally, total assets and liabilities are also broken down by nationality of ownership of reporting banks, with a further breakdown into three major currencies (USD, EUR and JPY) and a somewhat more detailed breakdown by sector (official monetary authorities, offices of the same banking group, other banks and non-banks).

The following table summarises the available breakdowns.

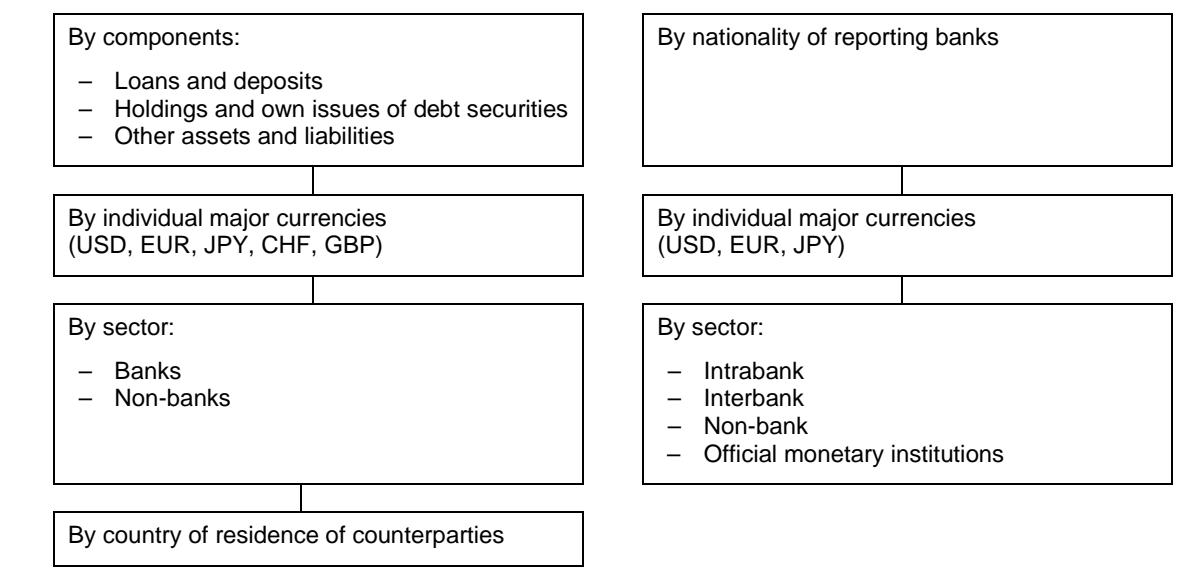
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<sup>12</sup> Ibid, Table G-10, p 27.

<sup>13</sup> Data on BEF, DEM, FRF, ITL, NLG and XEU were provided before the introduction of the euro in 1999.

<sup>14</sup> Foreign official monetary authorities are included under "banks". See BIS (2000), Table G-17, p 35.

## Disaggregation of banks' international assets and liabilities



### 1.5 Exchange rate adjusted changes in amounts outstanding

All international banking data are reported to the BIS with a breakdown by major currency in US dollar terms. Positions in non-dollar currencies are converted into US dollars either by the reporting banks themselves or by their central banks or monetary authorities at the exchange rates prevailing at the end of each quarterly reporting period.

Fluctuations in exchange rates impact the current US dollar value of non-dollar stocks and therefore the changes in stocks from one period to the next. The BIS uses the currency breakdown to estimate the size of the exchange rate valuation effect and to calculate exchange rate adjusted changes. Although these are not identical to actual flow data (because the actual transactions are distributed over the whole quarter during which exchange rates may fluctuate, and because other valuation effects may impact stocks), they provide a better approximation for actual flows than the simple difference in stocks between two periods.

The method employed by the BIS is to first convert positions at both the previous reporting date ( $T_0$ ) and the current reporting date ( $T_1$ ) into original currency amounts by applying the respective US dollar exchange rates. Consistent with international practice, the changes in original currency terms are then reconverted into US dollar amounts using period average exchange rates, ie the average of the exchange rate during the quarter between  $T_0$  and  $T_1$ .

## 2. Consolidated banking statistics

### 2.1 Overall coverage

The consolidated banking statistics were introduced in the early 1980s to help monitor the exposures of national banking systems vis-à-vis emerging market countries, whose indebtedness had risen considerably in the wake of the oil shocks in the 1970s. The statistics mainly provide information on international financial claims of domestic bank head offices on a worldwide consolidated basis, ie including the exposures of own foreign offices but excluding inter-office positions. In contrast to the residence or balance of payments principle of the locational statistics, the reporting of consolidated positions offers a more useful measure of the total risk exposure of a reporting country's banking system.

The consolidated statistics provide details of the credit risk exposures of major international banking centres to approximately 200 individual debtor countries. Furthermore, the data are disaggregated by maturity and sector. More recently, banks have also begun to report consolidated data based on the

residence of the party ultimately responsible for the repayment of an obligation (ultimate risk basis) in addition to total claims based on the residence of the immediate borrower (contractual claims). Claims on an ultimate risk basis are more compatible with information produced by banks' own internal risk measurement systems and are considered a more appropriate measure of country risk exposure.

The inclusion of additional reporting countries, ongoing enhancements to the scope of the underlying statistics and global banking consolidation, among other factors, have inevitably led to breaks in the statistical series. Nevertheless, the consolidated banking statistics are available in fairly consistent form on the BIS website, beginning in December 1983 on a semiannual basis and as a quarterly time series from March 2000.

## **2.2 Reporting countries and institutions**

The countries that report the consolidated banking statistics to the BIS comprise the largest international banking centres. A few offshore centres and developing countries have recently joined the reporting system, and several others have been invited to join. Thus the scope of the statistics - although already quite extensive (with 27 reporters - see the table below) - is set to expand further in the future.

<b>Countries providing consolidated banking data</b> (first year of data availability in brackets)			
Austria (1983)	France (1983)	Luxembourg (1983)	Sweden (1983)
Belgium (1983)	Germany (1983)	Netherlands (1983)	Switzerland (1983)
Brazil (2002)	Hong Kong SAR (1997) <sup>1</sup>	Norway (1994)	Taiwan, China (2000)
Canada (1983)	India (2001)	Panama (2002)	Turkey (2000)
Chile (2002)	Ireland (1983) <sup>1</sup>	Portugal (1999)	United Kingdom (1983)
Denmark (1983)	Italy (1983)	Singapore (2000) <sup>2</sup>	United States (1983)
Finland (1985)	Japan (1983)	Spain (1985)	

<sup>1</sup> Semiannual reporting. <sup>2</sup> Annual reporting.

The data are collected by central banks or monetary authorities from their resident commercial banks and transmitted to the BIS in an aggregated form.

For the purpose of monitoring the exposures of national banking systems, consolidated data are reported by:

### *(i) Banks with head offices in the respective reporting country (domestic banks)*

These banks provide consolidated reports on the international financial claims of their offices worldwide. For example, a bank with its headquarter in Japan will report its own positions to the Bank of Japan as well as those of its overseas offices,<sup>15</sup> with inter-office positions netted out (ie on a consolidated basis).

To provide additional creditor data of borrower countries' external indebtedness to banks, supplementary information on an unconsolidated basis is reported by offices of foreign banks:

<sup>15</sup> Branches and subsidiaries.

*(ii) Offices whose headquarters are located in another reporting country (inside area offices)*

These banks report unconsolidated claims on entities in their respective home country. For example, the branch or subsidiary of a bank in the United Kingdom with its headquarters in Turkey must report to the Bank of England its claims on Turkey only. This ensures the collection of cross-border claims otherwise excluded by domestic banks under the consolidation principle.

*(iii) Offices not headquartered in any of the reporting countries (outside area offices)*

These banks report unconsolidated claims on any entities outside their country of residence. For example, the office of a bank in Germany with its headquarters in Poland must report all its cross-border claims (including claims on Poland) to the Deutsche Bundesbank.

## **2.3 Basic information**

The reporting of the consolidated banking statistics comprises the following four components:

*(i) Contractual international claims*

These data cover cross-border claims of reporting banks in all currencies plus local claims of their foreign offices in non-local currencies. As in the locational statistics, the principal items are deposits and balances placed with other banks, loans and advances to banks and non-banks, holdings of securities and participations. The data are reported on an immediate counterparty basis, ie they are not reallocated as a result of guarantees or collateral provided.

*(ii) Local claims and liabilities in local currency of reporting banks' foreign offices*

These data are reported separately as a memorandum item, as a potential additional source of country transfer risk for the reporting banks if the assets are funded from abroad. A net positive position resulting from subtracting the liabilities (or domestic funding) from the assets would provide an indication of additional foreign lending. For example, a net local currency asset position of US banks in Mexico vis-à-vis Mexican residents implies that peso-denominated deposits by Mexican residents with the local US offices were insufficient to support the offices' peso-denominated lending activities; hence the gap in funding was probably financed from abroad.

*(iii) Legally binding undisbursed credit commitments and backup facilities*

These data are also reported separately as a memorandum item. In many cases they include guarantees provided by banks to third parties. Since loan commitments made by internationally active banks represent "potential" international credit, they may be used to gauge the size of available bank funds that a country can tap in the event of financial stress.

*(iv) Outward and inward risk transfers of international claims*

These data are reported separately in order to provide a measure of country risk exposure on an ultimate risk basis. Such data are consistent with banks' own internal risk management systems and are considered a more appropriate measure of country risk exposure than the data on international claims classified by country of the immediate counterparty to the lending operation. The Basel Committee on Banking Supervision defines the country of ultimate risk as "the country in which the guarantor of a financial claim resides and/or the country in which the head office of a legally dependent branch is located". In other words, ultimate risk claims identify the country of residence of the counterparty that will ultimately be held responsible for repayment of the claim.

The data on ultimate risk are captured in three separate breakdowns: (i) outward risk transfers (corresponding to a decrease in exposure); (ii) inward risk transfers (corresponding to an increase in exposure); and (iii) net risk transfers (the difference between inward and outward risk transfers). A positive net risk transfer towards country X implies that banks' risk exposure to that country has increased, either because X has provided a guarantee for country Y's borrowing or because it is home to the headquarters of a branch's overseas operations. In either case, country X is the counterparty ultimately responsible for repayment of the debt. Meanwhile, a negative risk transfer means that risk exposure has decreased. Furthermore, claims can be restated on an ultimate risk basis by simply adding or subtracting net risk transfers from total contractual claims.

The following provides a simplified example. A bank in the United States has outstanding claims (on a contractual basis) of \$50 million vis-à-vis Hong Kong and \$100 million vis-à-vis Japan. In the current

period, the US bank lends \$10 million to a manufacturer in Hong Kong, and this loan is guaranteed in turn by a bank in Japan. On an immediate counterparty (or contractual claim) basis, the US bank's exposure to Hong Kong rises by \$10 million to \$60 million while its exposure to Japan remains unchanged at \$100 million. However, the United States records a \$10 million outward risk transfer from Hong Kong and a \$10 million inward risk transfer to Japan. Assuming no other transactions in the period, the United States reports +\$10 million net risk transfers to Japan and -\$10 million net risk transfers from Hong Kong. Hence, on an ultimate risk basis, the United States' exposure to Hong Kong remains at \$50 million (\$60 million on an immediate basis less \$10 million net risk transfers) while its ultimate risk exposure to Japan increases to \$110 million (\$100 million on an immediate basis plus \$10 million net risk transfers).

In practice, a few reporting countries have yet to collect data on ultimate risk. Furthermore, among those countries that do report ultimate risk transfers, some do not conform fully to the definition recommended by the Basel Committee.

#### **2.4 Disaggregation**

All of the above four data sets provide for a full geographical breakdown of the data by individual country of residence of the borrower.

The data on contractual international claims are also provided with the following two additional breakdowns:

*(i) Remaining maturity of claims*

A maturity breakdown is provided for the consolidated banking statistics according to three categories: (i) up to and including one year; (ii) over one year and up to and including two years; and (iii) over two years. Financial claims are allocated on the basis of remaining or residual maturity instead of contractual maturity. For example, a five-year loan with a remaining maturity of six months would be classified as "up to and including one year". Any claims that cannot be classified by maturity, such as equity or property, are assigned to a residual "unallocated" category. For banks' assets in the form of rollover credits the residual maturity is, as a rule, calculated on the basis of the latest date on which repayment is due. Overdue interest and principal are included in the up to one-year category until payment, rescheduling or write-off occurs.

*(ii) Sector of the borrower*

Total contractual international claims are also disaggregated according to the sector of the borrower: (i) banks; (ii) public sector; and (iii) non-bank private sector. Claims that cannot be easily classified under one of the three identified sectors are assigned to the residual "unallocated" category. Under the recommendations in BIS (2000), official monetary authorities are allocated to the "bank" category while claims on publicly owned enterprises are included in the "public sector" category.

#### **2.5 Comparison with locational banking statistics**

The two sets of international banking statistics disseminated by the BIS are both based on information provided by creditor banks. A summary of their main similarities and differences is provided in the table on the next page.

#### **2.6 Future changes to the statistics**

In response to the recommendations of a working group of the CGFS, and in order to maintain the consolidated banking statistics as a key source of public information on international financial market developments, agreements have been reached with reporting central banks to improve the measurement of commercial banks' consolidated country risk exposures on an ultimate risk basis. Consequently, it is planned, as from end-2004, to collect and publish more detailed and comprehensive data on country risk exposures inclusive of derivatives and other off-balance sheet positions on an ultimate risk basis.

The BIS locational and consolidated banking statistics compared		
	Locational	Consolidated
Reporting basis	Residence of reporting bank (host country)	Nationality of reporting bank (home country)
Number of reporting countries	36 (20 developed countries and 16 other banking centres)	27 (19 developed countries and eight other banking centres)
Reported data	International claims and liabilities	Worldwide consolidated international claims
Availability of exchange rate adjusted changes	Yes	No
Inter-office netting-out	No	Yes
Type of counterparty	Immediate borrower	Immediate borrower and ultimate risk
Disaggregation of claims by:		
(1) Currency	Yes (USD, EUR, JPY, GBP, CHF)	No
(2) Type of instrument	Yes (loans, deposits, securities)	No
(3) Sector	Yes (banks, non-banks)	Yes (banks, non-banks, public)
(4) Country of residence of counterparty	Yes	Yes
(5) Maturity	No	Yes ( $\leq 1y$ , $>1y$ & $\leq 2y$ , $>2y$ )

### 3. Signed syndicated credit facilities

The third set of international banking data compiled by the BIS covers signed syndicated credit facilities and was introduced in the early 1990s. In contrast to the locational and consolidated banking statistics, these data include detailed information on individual borrowers (eg industry, rating) and facilities (eg maturity, purpose). They are collected from a single commercial data source (Dealogic Loanware) and aggregate data are published by the BIS one quarter earlier than the international banking statistics.

The aggregates published by the BIS relate to credit facilities that satisfy the following criteria:

- the facilities must be granted by syndicates consisting of at least two financial institutions acting as arranger/co-arranger, lead manager/co-lead manager, manager/co-manager, participant or member of a tender panel;
- the nationality of at least one of the syndicate banks must differ from that of the borrower;
- as regards the terms of the announced loans, only signed facilities with a maturity of at least three months are included;
- facilities must take the form of one or a combination of the following instruments: term loan, revolving credit, co-financing facility, export credit, bridge facility, construction loan, mezzanine loan or multiple options facility.

It is important to bear in mind that while the syndicated loans data provide an up-to-date picture of borrowing and lending conditions in an important segment of the international banking market, the series are not fully comparable with the main BIS international banking statistics. First, facilities may be used only as a backup for other types of fund-raising activity (such as commercial paper issuance) and may therefore remain undrawn or only partially used. Secondly, even when borrowers use the facilities, there may be a considerable time lag between the signing of the facility and the actual drawings. Thirdly, in some instances the funds are used to replace past banking debt, without any increase in borrowers' total banking indebtedness. Finally, syndicated loans are only one of the various forms of international bank lending. Other forms such as short-term interbank and trade credit as well as bilateral loans are not included.

The data are updated every quarter and the aggregates are published on a quarterly basis in electronic form on the BIS website as from the first quarter of 1992. The data are made available with a breakdown by nationality of the borrower in order to provide a measure of where the ultimate risk of lending lies.

#### **4. Publication of the statistics**

The BIS publishes the data on the international banking market in the statistical annex of the *BIS Quarterly Review*. For confidentiality reasons, not all details of the collected information can be provided. Thus, the BIS only publishes largely aggregated statistics in the following format:

**1 BIS reporting banks: summary of international positions**

**2 External positions of banks in individual reporting countries**

- A In all currencies vis-à-vis all sectors
- B In all currencies vis-à-vis the non-bank sector
- C In foreign currencies vis-à-vis all sectors
- D In foreign currencies vis-à-vis the non-bank sector

**3 External loans and deposits of banks in individual reporting countries**

- A In all currencies vis-à-vis all sectors
- B In all currencies vis-à-vis the non-bank sector

**4 Local positions in foreign currency of banks in individual reporting countries**

- A Vis-à-vis all sectors
- B Vis-à-vis the non-bank sector

**5 Currency breakdown of reporting banks' international positions**

- A Cross-border positions vis-à-vis all sectors
- B Cross-border positions vis-à-vis the non-bank sector
- C Cross-border positions vis-à-vis official monetary authorities
- D Local positions in foreign currency vis-à-vis all sectors and vis-à-vis the non-bank sector

**6 External positions of reporting banks vis-à-vis individual countries**

- A Vis-à-vis all sectors
- B Vis-à-vis the non-bank sector

**7 External loans and deposits of reporting banks vis-à-vis individual countries**

- A Vis-à-vis all sectors
- B Vis-à-vis the non-bank sector

**8 International positions by nationality of ownership of reporting banks**

- A Amounts outstanding
- B Estimated exchange rate adjusted changes

**9 Consolidated claims of reporting banks on individual countries**

- A Foreign claims by maturity and sector
- B Foreign claims by nationality of reporting banks
- C International claims by nationality of reporting banks

**10 Signed international syndicated credit facilities by nationality of borrower**

In addition, the BIS publishes a quarterly press release with the preliminary results of the consolidated banking statistics. More detailed data and a full set of historical time series are available on the BIS website under <http://www.bis.org/statistics/bankstats.htm>.

### **III. Securities statistics**

The BIS compiles the following three sets of quarterly statistics on securities markets:

- international debt securities;
- international equities; and
- domestic debt securities.

The data are mainly derived from various market sources and provide information on individual international securities issues and on aggregates of amounts outstanding and new issues of both international and domestic securities.

The main purpose of the three sets of statistics is to complement the quarterly international banking statistics so as to provide more comprehensive monitoring of international financial market activity. Analytical emphasis is placed on the stocks of securities outstanding, as well as new issues net of repayments. These data are broken down according to criteria similar to those applied to the banking statistics. However, in contrast to the international banking statistics only the borrower side of securities issues is covered. No detailed information is available on the actual ownership of these securities. The statistics are collected in particular for the following reasons:

- to assess the relative use of capital markets as opposed to banks in financial intermediation;
- to monitor the issuance in international markets by residents or nationals of different countries; and
- combined with pricing data, to assess supply and demand factors in asset markets and potential financial strains.

#### **1. International debt securities**

##### **1.1 Overall coverage**

The statistics on international debt securities issues were introduced in the early 1980s. They cover long-term bonds, notes and short-term money market instruments issued in international markets. The data are derived from various market sources: Dealogic (Bondware), Thomson Financial Securities Data (Platinum), ISMA (International Securities Market Association) and the Bank of England (for data before 1996) in the case of bonds, and Euroclear in the case of notes and short-term money market instruments. The added value of the BIS consists of integrating the information received from different data providers through a process of data reconciliation. Duplicates are identified and removed, mistakes are corrected and consistent classification of issuers is ensured across the different data sources.

The data collected from market sources contain detailed information on individual securities. In addition to the amount of funds raised and the dates of announcement, completion and maturity of deals, information is available on the name of the issuer, the sector of the immediate borrower (issuer), the sector of the ultimate borrower (parent company of the borrower or guarantor), country of residence and nationality of the issuer, the type of instrument, interest rate structure and market of issue and, for bonds, the terms (coupon, issue price, interest base etc), conditions (call and put options, conversion clauses etc) and rating of individual issues. At end-December 2002, information on more than 85,000 international bond issues and more than 408,000 international notes and money market instruments was available from these sources.

The BIS aggregates the detailed information on individual securities according to certain standard criteria, such as currency, type of issue, sector of the immediate borrower, sector of the ultimate borrower and country of residence and nationality of borrowers. The aggregated data are updated and published every quarter and they are available, with the main breakdowns, in electronic form on the BIS website from the fourth quarter of 1993 onwards. Partial aggregates for earlier periods are also available.

The BIS definition of international securities (as opposed to domestic securities) is based on three major characteristics of the securities: the location of the transaction, the currency of issuance and the residence of the issuer. International issues comprise all foreign currency issues by residents and non-residents in a given country and all domestic currency issues launched in the domestic market by

non-residents. In addition, domestic currency issues launched in the domestic market by residents are also considered as international issues if they are specifically targeted at non-resident investors. However, due to the lack of information from commercial data providers, notes and money market instruments issued by non-residents in a domestic market in the currency of that market (foreign issues) are not included.

Classification of BIS securities statistics		
	Issues by residents	Issues by non-residents
In domestic currency		
– Targeted at resident investors	Domestic	International
– Targeted at non-residents	International	International
In foreign currency	International	International

In some cases, it might be difficult to identify the targeted investors. Foreign participation in the group of intermediaries and underwriters arranging the deal or the absence of a withholding tax and of any registration requirement might then be taken as an indication of the international nature of the investor base. Moreover, global issues are often launched simultaneously in domestic and international markets. Due to the lack of information on the proportion that is issued in each market, global issues are considered in total as international issues in the context of the BIS securities statistics. Securities that are part of debt rescheduling packages, such as Brady bonds, are currently not included in the BIS securities statistics.<sup>16</sup>

## 1.2 Basic information

The BIS data on international debt securities distinguish between the following basic types of information:

- *Announced issues*: the volume of new announcements of securities offered in the market.
- *Completed issues*: the volume of new securities actually placed in the market.
- *Redemptions*: both scheduled repayments and early redemptions of outstanding securities.
- *Net new issues*: the difference between completed issues and redemptions in a given period.
- *Amounts outstanding*: the gross value of securities not yet repaid at the end of a given reporting period.

Data on amounts outstanding are provided in current US dollar terms. Announced and completed new issues of international bonds in non-dollar currencies are converted into US dollar amounts at the exchange rate prevailing at the time of announcement. Announced and completed issues of international notes and money market instruments in non-dollar currencies as well as redemptions are converted into US dollar amounts using the respective quarterly average dollar exchange rate. Because of valuation effects related to exchange rate movements there is a difference between changes in the stocks of securities outstanding valued at current exchange rates and net new issues.

The data can be used for various analytical purposes. Announcements provide an up-to-date picture of the conditions in the market at any given point in time. They are related to underlying economic and financial developments, such as interest rate and exchange rate movements. The figures for completions and redemptions provide a more accurate picture of the volume of actual gross credit flows through the bond markets. Net new issues measure the amount of new funds raised, while the data on amounts outstanding provide an indication of the indebtedness of different categories of borrowers.

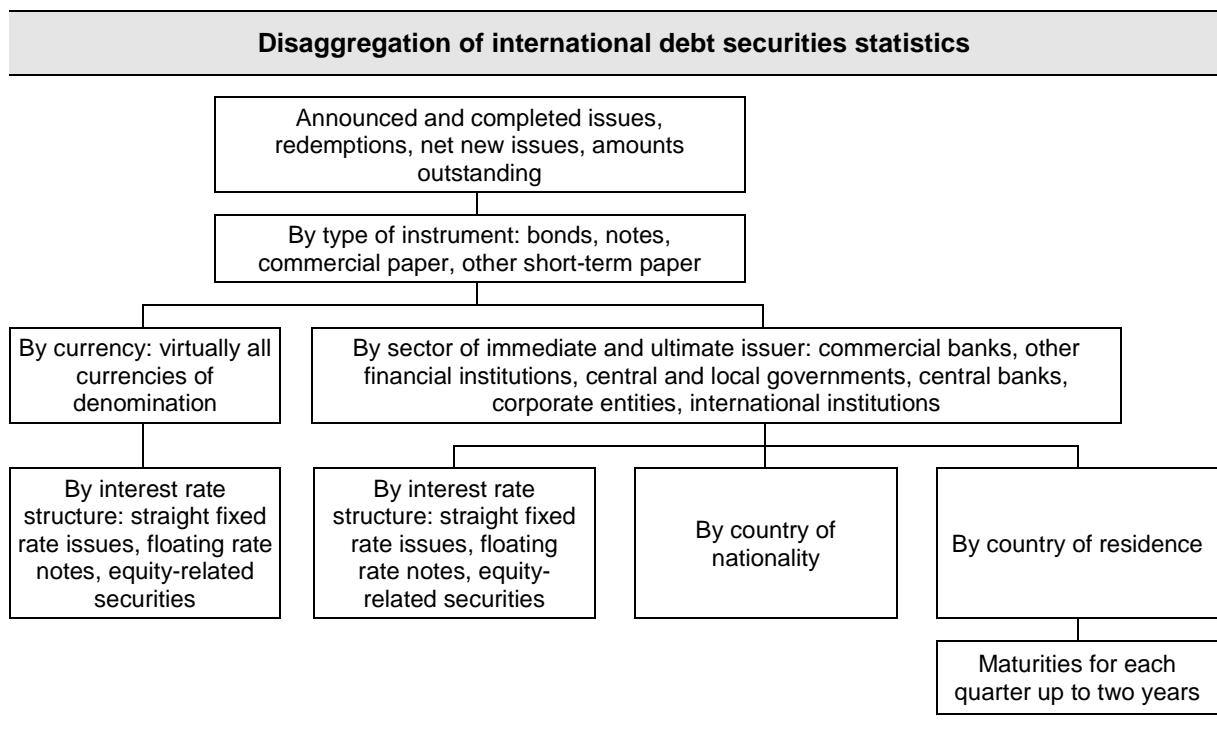
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<sup>16</sup> Work is currently being carried out to include such issues in the statistics.

### 1.3 Disaggregation

For each of the five basic types of information, the following standard breakdowns are available:

- *Type of instrument*: bonds, notes, commercial paper and other short-term paper.
- *Market of issue*: a distinction is made between foreign issues, ie domestic currency issues in a domestic market by non-residents (eg yankee and samurai), and all other international issues.
- *Interest rate structure*: distinction is made between straight fixed rate issues (securities bearing a fixed rate coupon with no equity or conversion element), floating rate notes (interest rate varies during the life of the note according to short-term reference rates, and has no equity or conversion element) and equity-related securities (carry an equity element in the form of a conversion clause or warrants to acquire shares).
- *Currency of issue*
- *Sector of the immediate borrower*: commercial banks, other financial institutions, corporate entities, central governments, local governments, central banks and international organisations.
- *Sector of the ultimate borrower*: the breakdown by ultimate borrower distinguishes the same type of issuers as the sectoral breakdown by immediate borrower; account is taken, however, of the fact that in some cases the ultimate borrower can be different from the issuer (eg issues by Ford Motor Credit Company are classified as issues by "corporate issuers" while they are classified as issues by "financial institutions" under the concept of the immediate borrower).
- *Remaining maturity of issue*: separate data are available on international securities outstanding with a remaining maturity to final repayment for each quarter up to two years.
- *Country of residence of issuer*: this geographical classification distinguishes borrowers according to their geographical location; this is consistent with the approach taken in the BIS locational banking statistics and, more generally, with balance of payments methodology.
- *Nationality of issuer*: identifies borrowers according to their nationality, where possible on an ultimate risk basis, ie the country of residence of the parent company of the borrower.



## **2. International equities**

### **2.1 Overall coverage**

The statistics on international equities were introduced in the late 1990s. They cover information on announced new equity issues by international syndicates in the international markets. The three main types of placement are: (i) offerings of common or preferred equity in the international market; (ii) issues targeted at particular foreign markets; and (iii) registered stocks traded on foreign markets as domestic instruments, such as American depositary receipts (ADRs). As with international debt securities, global issues that involve a combination of domestic and international tranches are considered in total as international issues. The international equities statistics are derived from market sources (Dealogic) and, as in the case of the international debt securities statistics, the BIS performs quality checks and ensures the consistency of the data.

### **2.2 Basic information**

Detailed information is collected on the amount of funds raised and the dates of announcement and completion of deals; the name and business sector of the immediate borrower; the business sector of the ultimate borrower; the country of residence and nationality of the issuer; the type of issue (ADR, initial public offering, privatisation etc); the type of offer (primary or secondary) and the market of issue. At end-December 2002, information on 9,812 international equity issues was available.

The BIS aggregates the information according to certain standard criteria. The data are updated and published every quarter. The aggregate data are available in electronic form on the BIS website from the first quarter of 1983 onwards.

### **2.3 Disaggregation**

Similar breakdowns are available on announced equity issues as for the international debt securities market.

## **3. Domestic debt securities**

### **3.1 Overall coverage**

The domestic debt securities statistics were introduced in the early 1990s. They cover data on long-term bonds and notes, treasury bills, commercial paper and other short-term notes issued in the domestic markets of currently about 40 countries (OECD members plus selected emerging market countries). The data are derived from various national sources, such as central banks, national statistical offices, securities registers etc.

In contrast to the international securities statistics, the domestic securities statistics cover only aggregated information on amounts outstanding and net new issues of securities. Currently, little or no detailed information is available on individual domestic securities issues and their characteristics.

Domestic debt securities are defined as those that have been issued by residents in domestic currency (with a few exceptions) and targeted at resident investors. The BIS endeavours to eliminate overlaps between its international and domestic securities databases as far as possible. This work mainly involves comparisons of detailed aggregated information; however, with regard to a few countries the work is carried out at the individual security level.

The aggregate data are published on a quarterly basis. They are available in electronic form on the BIS website as from the first quarter of 1994 and on an annual basis from end-1989 onwards.

### **3.2 Basic information**

The BIS database comprises the following two basic types of information:

- *Amounts outstanding*: national currencies are converted by the BIS into US dollar amounts at the exchange rate prevailing at the relevant reporting date.

- *Net issues* are approximated by changes in stocks, which are adjusted for exchange rate valuation effects by converting changes in amounts outstanding in national currency using the average US dollar exchange rate prevailing during the relevant reporting period.

### **3.3 Disaggregation**

The following four standard breakdowns are available on domestic debt securities:

- *Type of instrument*: bonds, medium-term notes, treasury bills, commercial paper and other short-term notes (mainly certificates of deposit).
- *Sector of issuer*: commercial banks, other financial institutions, corporate entities, central governments, local governments and central banks.
- *Remaining maturity of issue*: separate data are made available on securities issues with a remaining maturity to final repayment of up to one year.
- *Country of residence of issuer*: the statistics provide a geographical breakdown by country of residence of issuer for the approximately 40 countries currently covered.

## **4. Publication of the statistics**

The BIS publishes the data on securities markets in the statistical annex of the *BIS Quarterly Review*. For confidentiality reasons, not all details of the collected information can be provided. Thus, the BIS only publishes largely aggregated statistics in the following format:

### **11 International debt securities by country of residence**

### **12 International debt securities by nationality of issuer**

- A All issuers
- B Financial institutions
- C Corporate issuers
- D Governments

### **13 International debt securities by type, sector and currency**

- A Money market instruments
- B Bonds and notes

### **14 International debt securities by country of residence**

- A Money market instruments
- B Bonds and notes

### **15 International debt securities by nationality of issuer**

- A Money market instruments
- B Bonds and notes

### **16 Domestic debt securities by country of issuer and sector**

- A All issuers and governments
- B Financial institutions and corporate issuers

### **17 Debt securities with remaining maturity of up to one year**

- A Domestic securities
- B International securities

### **18 Announced international equity issues by nationality of issuer**

More detailed data and a full set of historical time series are available on the BIS website under <http://www.bis.org/statistics/secstats.htm>.

## IV. Derivatives statistics

The BIS compiles the following two sets of statistics on derivatives markets: quarterly data on exchange-traded derivatives statistics and semiannual data on over-the-counter (OTC) derivatives statistics. The data on exchange-traded derivatives are obtained from market sources, while those on OTC derivatives are based on the reporting to the BIS by central banks that in turn collect the data from reporting dealers in their respective countries.

The main purpose of the statistics is to provide a measure of the size and structure of derivatives markets and to monitor developments in these markets. In conjunction with the banking and securities statistics the data provide a more comprehensive picture of activity in global financial markets. With regard to derivatives markets proper, they allow a comparison to be made between exchange-traded and OTC markets; they permit the evolution of the various market segments to be monitored; and they provide an indication of gross market values of the contracts traded as well as of credit exposure in OTC markets, both before and after bilateral netting.

### 1. Exchange-traded derivatives

#### 1.1 Overall coverage

The compilation on a regular basis of the statistics on exchange-traded derivatives started in 1993. They cover turnover and contracts outstanding in a number of instruments as well as notional amounts for financial derivative contracts that are traded on exchanges. Prior to 1999, the data were mainly derived from the commercial database of the Futures Industry Association and from a number of exchanges themselves. Since 1999, the data have been mainly derived from the commercial database of *Futures & Options World* (FOW TRADEdata). The coverage of the FOW data is better and the data are more timely than those from the previous sources, and has enabled the BIS to substantially reduce the publication lags of aggregated data (by one quarter). An attempt is made to ensure the completeness of the data and most exchanges are included in the data set.

The statistics collected contain detailed information on individual derivatives contracts. In addition to contract turnover and open interest, information is available on the underlying instruments and the location of trading. At end-December 2002, trading in 3,155 individual derivatives contracts was recorded.

The BIS aggregates the information according to certain criteria, such as market risk category, type and location of trading. The aggregate data are published on a quarterly basis. They are available in electronic form on the BIS website from the fourth quarter of 1986.

#### 1.2 Basic information

The BIS statistics comprise the following four sets of data:

- *Turnover in number of contracts*: derived directly from the commercial database of FOW TRADEdata.
- *Turnover in notional amounts*: calculated using the turnover data on the number of contracts, the information on the face values of contracts, period average exchange rates and, for equity-linked contracts, the respective equity market index values.
- *Contracts outstanding in number of contracts*: also derived directly from FOW TRADEdata.
- *Contracts outstanding in notional amounts*: obtained using the number of contracts, the face value of the contracts, the information on open interest of contracts, end of period exchange rates and, for equity-linked contracts, the respective equity market indices.<sup>17</sup> Since the BIS

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<sup>17</sup> Thus, outstanding interest rate and currency contracts are calculated as follows: number of contracts X face value X exchange rate (currency/USD). Outstanding equity-linked contracts are calculated as follows: number of contracts X multiplier X index value X exchange rate. For example, suppose the open interest for the three-month sterling future is 100,000 contracts at the end of the quarter. The face value or underlying value of this contract is GBP 500,000, and we will

only collects data aggregated by contract, there may be some unavoidable calculation errors during periods where contract sizes are changed. These errors are small, as often only a limited number of the contracts will be redenominated. The BIS makes every effort to minimise these distortions in notional amounts during the transition periods.

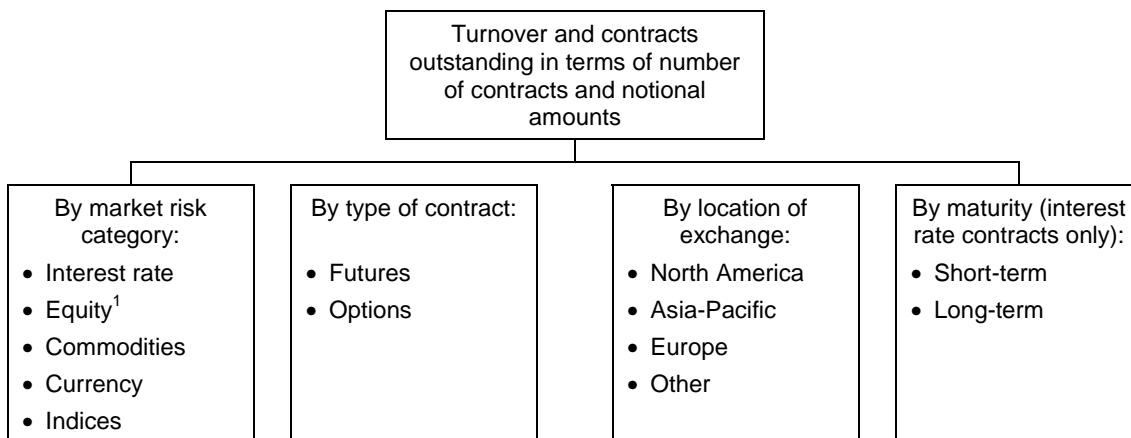
Data on turnover and contracts outstanding in notional amounts are only compiled for interest rate, currency and equity index futures and options. For commodities and single equity contracts, data are only provided on turnover in number of contracts.

### 1.3 Disaggregation

For each of the four sets of data an additional breakdown is available for:

- *Market risk categories*: interest rate, currency and equity-linked contracts (in addition, information is provided on commodity contracts as a memo item).
- *Type of contract*: futures and options.
- *Location of trading*: North America, Europe, Asia-Pacific and “other” areas.
- *Maturity*: for interest rate contracts only, a distinction is provided between short- and long-term contracts with an original maturity of up to one year on the one hand and over one year on the other.

### Disaggregation of exchange-traded derivatives statistics



<sup>1</sup> Number of contracts only.

## 2. OTC derivatives

### 2.1 Overall coverage

As from end-June 1998, the central banks of the G10 countries have collected statistics on OTC derivatives on a semiannual basis. The data are reported by major derivatives dealers, and compiled and published by the BIS (see BIS (1996)). Prior to that date, the BIS compiled and published OTC

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assume a sterling exchange rate of USD 1.5. This will give a notional amount of contracts outstanding of: 100,000 X 500,000 X 1.5 = USD 75 billion.

The calculation for equity index contracts is similar, except that the face value changes according to the level of the underlying index times a multiplier. The above methodology is the same for both futures and options. Where the underlying contract for an option is a futures contract, the face value of the futures contract is used as the face value of the option contract.

derivatives data based on information provided by the International Swaps and Derivatives Association (ISDA). The latter were limited to data on turnover and contracts outstanding in notional amounts of currency and interest rate swaps and swap-related transactions, such as caps, collars, floors and swaptions, as provided by a restricted number of reporting dealers.

The current semiannual OTC derivatives market statistics provide comprehensive data not only on notional amounts but also on gross market values outstanding of forwards, swaps and options of foreign exchange, interest rate, equity and commodity derivatives. However, in contrast to the exchange-traded derivatives statistics, data are only available on amounts outstanding and not on turnover of contracts.

The aggregate data from end-June 1998 onwards are available, with their main breakdowns, on the BIS website.

## **2.2 Reporting countries and institutions**

The regular OTC derivatives market statistics are currently reported by more than 60 major reporting dealers in the G10 countries. The overall coverage of the market is fairly comprehensive, as OTC derivatives activity is highly concentrated. Moreover, the reporting dealers are requested to report their transactions on a worldwide consolidated basis inclusive of the activity of their foreign affiliates. Deals between affiliates of the same institution are excluded.

## **2.3 Basic information**

The following three sets of OTC derivatives market statistics are available:

### *(i) Notional amounts outstanding*

Nominal or notional amounts outstanding are defined as the gross nominal or notional value of all deals concluded and not yet settled at the reporting date. For contracts with *variable nominal or notional principal amounts*, the basis for reporting is the nominal or notional principal amounts at the time of reporting.

Nominal or notional amounts outstanding provide a measure of market size and a reference from which contractual payments are determined in derivatives markets. However, such amounts are generally not those truly at risk. The amounts at risk in derivatives contracts are a function of the price level and/or volatility of the financial reference index used in the determination of contract payments, the duration and liquidity of contracts and the creditworthiness of counterparties. Gross market values provide a more accurate measure of the scale of financial risk transfer taking place in derivatives markets.

### *(ii) Gross positive and negative market values*

Gross market values are defined as the sums of the absolute values of all open contracts with either positive or negative replacement values evaluated at market prices prevailing at the reporting date. Thus, the gross positive market value of a dealer's outstanding contracts is the sum of the replacement values of all contracts that are in a current gain position to the reporter at current market prices (and therefore, if they were settled immediately, would represent claims on counterparties). The gross negative market value is the sum of the values of all contracts that have a negative value on the reporting date (ie those that are in a current loss position and therefore, if they were settled immediately, would represent liabilities of the dealer to its counterparties).

The term gross is used to indicate that contracts with positive and negative replacement values with the same counterparty are not netted. Nor are the sums of positive and negative contract values within a market risk category such as foreign exchange, interest rate contracts, equities and commodities set off against one another.

As stated above, gross market values supply information about the potential scale of market risk in derivatives transactions. Furthermore, gross market value at current market prices provides a measure of economic significance that is readily comparable across markets and products.

All data are reported to the BIS in US dollars. Positions in other currencies of individual segments or instruments are converted into US dollars by reporting dealers at the exchange rate prevailing at the end of each reporting period.

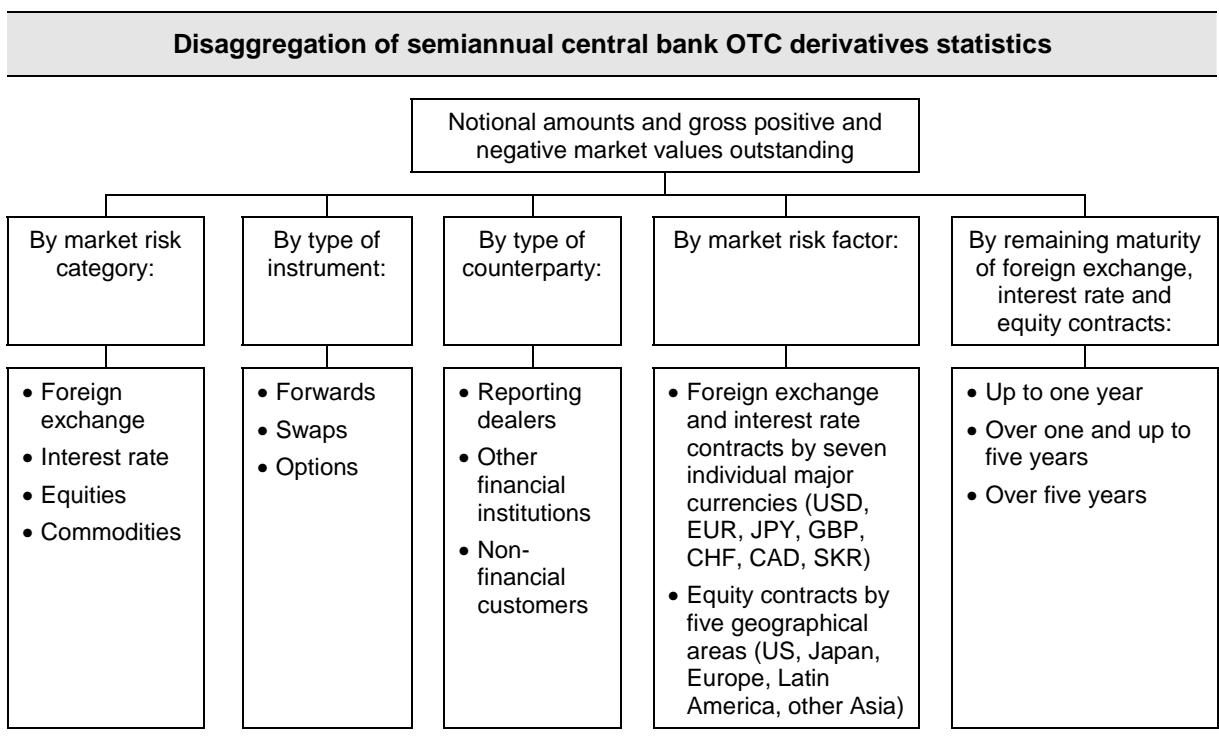
(iii) *Current credit exposure and liabilities*

Current credit exposure represents the gross value of contracts that have a positive market value after taking account of legally enforceable bilateral netting agreements. Liabilities arising from OTC derivatives contracts represent the gross value of contracts that have a negative market value taking account of legally enforceable bilateral netting agreements.

## 2.4 Disaggregation

For the first two sets of statistics (ie notional amounts outstanding and gross positive and negative market values), the following breakdowns are provided:

- *Market risk category*: foreign exchange, interest rate, equity and commodity with a further breakdown into gold, precious metals and other commodities.
- *Type of instrument*: forwards, swaps and options.
- *Type of counterparty*: reporting dealers, other financial institutions and non-financial customers (the separate identification of positions vis-à-vis reporting dealers allows the BIS to eliminate double-counting of positions between reporting dealers).
- *Market risk factor*: for foreign exchange and interest rate contracts, a breakdown is available by at least seven individual major currencies; for equity contracts, a breakdown is available by five major geographical regions relating to the location of issuance of the underlying instruments.
- *Maturity*: data on foreign exchange, interest rate and equity contracts are broken down by three bands of remaining maturity to expiry of the contracts (with a further breakdown by counterparty and instrument), ie up to one year, over one year and up to five years, and over five years.



### **3. Publication of the statistics**

The BIS publishes the data on derivatives markets in the statistical annex of the *BIS Quarterly Review*. For confidentiality reasons, not all details of the collected information can be provided. Thus, the BIS only publishes largely aggregated statistics in the following format:

- 19 Amounts outstanding of OTC derivatives by risk category and instrument**
- 20 Amounts outstanding of OTC foreign exchange derivatives**
  - A By instrument and counterparty
  - B By currency
  - C By instrument, maturity and counterparty
- 21 Amounts outstanding of OTC single currency interest rate derivatives**
  - A By instrument and counterparty
  - B By currency
  - C By instrument, maturity and counterparty
- 22 Amounts outstanding of OTC equity-linked and commodity derivatives**
  - A Equity-linked and commodity derivatives by instrument and counterparty
  - B Equity-linked derivatives by instrument and market
  - C Equity-linked derivatives by instrument, maturity and counterparty
- 23 Derivative financial instruments traded on organised exchanges by instrument and location**
  - A Notional amounts
  - B Number of contracts

In addition, the BIS publishes a semiannual press release with the preliminary results of the OTC derivatives statistics. More detailed data and a full set of historical time series are available on the BIS website under <http://www.bis.org/statistics/derstats.htm>.

## **V. Triennial central bank survey of foreign exchange and derivatives market activity**

### **1. Overall coverage**

The triennial central bank survey of foreign exchange and derivatives market activity provides comprehensive and internationally consistent information on turnover and amounts outstanding in these markets. It also serves as a benchmark for the semiannual OTC derivatives market statistics.

The first triennial survey covering information on derivatives markets was undertaken in the spring of 1995. Before that date, three surveys limited to the foreign exchange markets had been conducted.

The coverage of OTC markets and the number of participating countries have both increased with each new survey. The latest survey, which took place in the spring of 2001, had the largest number of participating countries (48) and the most detailed breakdown of individual currencies (28).<sup>18</sup>

The results of the surveys are available with all main breakdowns in separate hard copy publications and, since 1995, on the BIS website.

### **2. Reporting countries and institutions**

About 2,800 individual banking offices in 48 countries participated in the 2001 triennial survey of turnover in foreign exchange and derivatives markets. The foreign exchange and derivatives turnover part of the survey was carried out on a locational basis with transactions between offices of the same banking group reported on a gross basis. In contrast, the reporting of data on notional amounts and gross market values of derivative contracts outstanding was collected on a worldwide consolidated basis similar to the approach in the semiannual OTC derivatives statistics. The overall coverage was larger than in the semiannual exercise, however, with more than 800 institutions in 40 countries participating.<sup>19</sup>

### **3. Basic information**

The triennial survey encompasses the following three measures of foreign exchange and derivatives market activity:

#### *(i) Turnover in notional amounts*

Turnover is defined as the gross value of all new deals entered into during a given period and is measured in terms of the nominal or notional amount of the contracts. In addition to foreign exchange spot transactions, turnover data are requested for foreign exchange and interest rate derivatives. Turnover data provide a measure of market activity and can also provide an indication of market liquidity.

#### *(ii) Notional amounts of contracts outstanding*

Similar to the semiannual OTC derivatives market statistics, nominal or notional amounts outstanding are defined as the gross nominal or notional value of all deals concluded and not yet settled at the reporting date.

#### *(iii) Gross positive and negative market values of contracts outstanding*

In the same way as for the semiannual OTC derivatives market statistics, gross market values are defined as the sums of the absolute values of all open contracts with either positive or negative replacement values evaluated at market prices prevailing at the reporting date. All data are reported to

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<sup>18</sup> In addition, all participating countries report their domestic currency.

<sup>19</sup> As mentioned in Part IV above, around 60 dealers currently participate in the semiannual OTC derivatives statistics.

the BIS in US dollars. Transactions and positions in other currencies, and non-US dollar legs of transactions involving the US dollar on one side, are converted into US dollars by reporting dealers at the exchange rates prevailing at the end of each reporting period.

#### **4. Disaggregation**

For each of the three measures, the following breakdowns are provided:

(i) *Market risk category*

For turnover, data are only collected for two market risk categories: foreign exchange and interest rate contracts. For amounts outstanding, in principle the same market risk categories of contracts are distinguished as for the semiannual OTC derivatives statistics: foreign exchange, interest rate, equity and commodity, with a further breakdown into gold, precious metals and other commodities. In addition, the triennial survey provides separate information on credit derivatives and “other” derivatives.

(ii) *Type of instrument*

Separate data are in principle provided for the same instruments as in the semiannual OTC derivatives statistics: forwards, swaps and options. However, the triennial survey also provides separate information on “other” products in the foreign exchange and interest rate market risk category, such as products with multiple exposures that cannot be easily decomposed into separable market risk components.

(iii) *Type of counterparty*

The same types of counterparties are distinguished separately as in the semiannual OTC derivatives statistics: reporting dealers, other financial institutions and non-financial customers. However, for turnover data the triennial survey also provides for a breakdown between domestic and cross-border transactions. The separate identification of transactions and positions vis-à-vis reporting dealers is needed in order to allow the BIS to eliminate double-counting of transactions and positions between reporting dealers.

(iv) *Market risk factor*

For turnover of foreign exchange and interest rate contracts the triennial survey provides a very detailed currency breakdown of 28 and 16 individual currencies respectively. For amounts outstanding, the currency breakdown for foreign exchange and interest rate contracts includes five individual currencies. For equity contracts the breakdown is in five geographical areas and is, in principle, the same as for the semiannual OTC derivatives statistics.

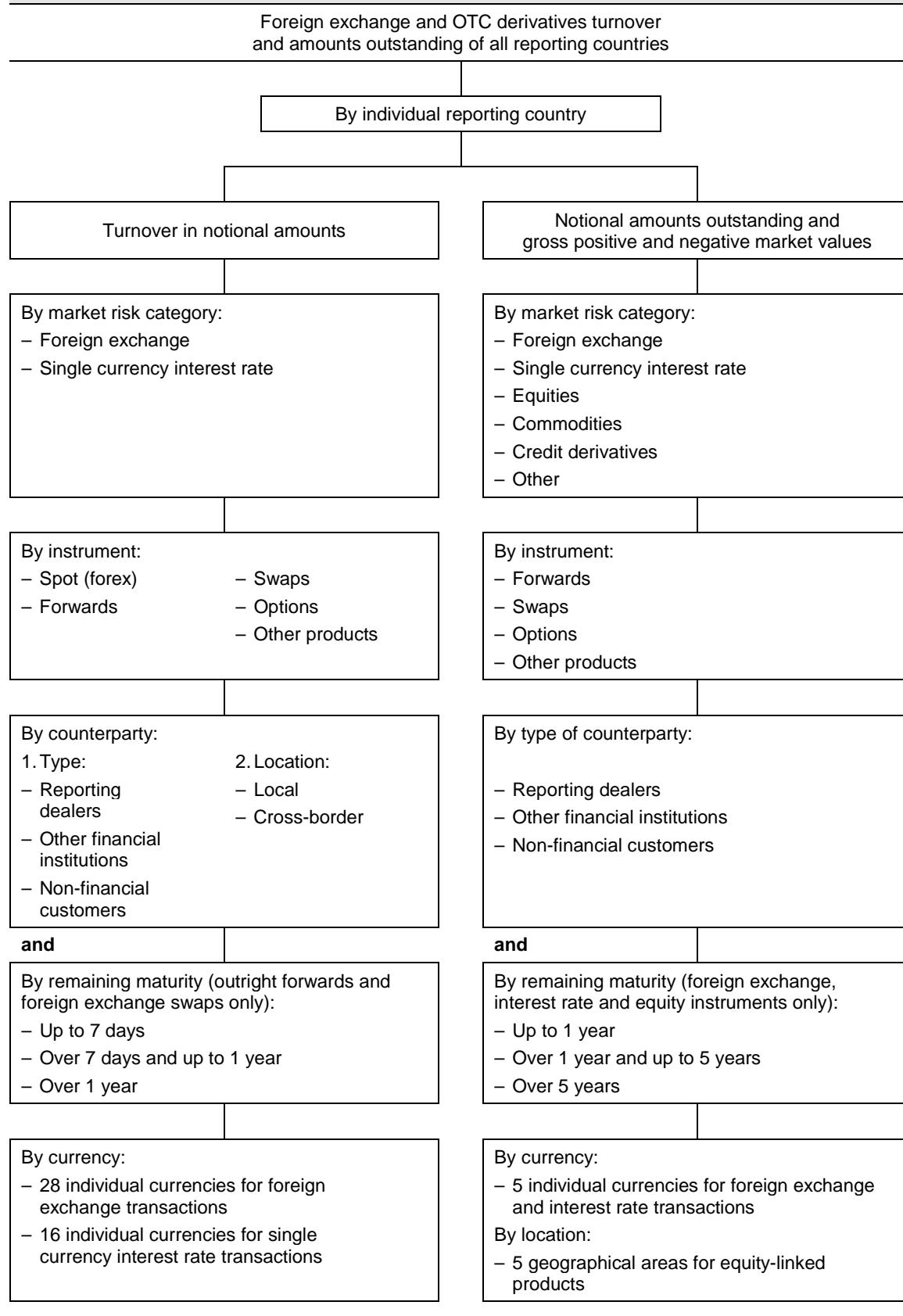
(v) *Maturity*

For amounts outstanding, data on foreign exchange, interest rate and equity contracts are broken down by the following three bands of remaining maturity to expiry of the contracts: up to one year, over one year and up to five years, and over five years. The maturity breakdown is available with a further breakdown by counterparty and type of instrument in the same way as for the semiannual OTC derivatives statistics. In addition, the triennial survey provides a breakdown of turnover data for outright forwards and foreign exchange swaps by the following three maturity bands: up to seven days, more than seven days and up to one year, and over one year.

#### **5. Publication of the statistics**

The BIS publishes the data on the triennial survey of foreign exchange and derivatives market activity in a separate press release and publication. The press release provides preliminary aggregates while the separate publication covers the final more detailed data.

## Disaggregation of the triennial central bank survey of foreign exchange and derivatives market activity in 2001



## VI. Joint BIS-IMF-OECD-World Bank statistics on external debt

These statistics are a product of the Inter-Agency Task Force on Finance Statistics.<sup>20</sup> They bring together quarterly and semiannual data that are currently compiled and published separately by the contributing international agencies on components of countries' external debt and international reserve assets. This should facilitate timely and frequent access by a broad range of users to a single data set.

These data are mostly from creditor and market sources, but also include some information provided by the debtor countries themselves. The data include debt to banks, international debt securities, so-called Brady bonds, non-bank trade credits, borrowing from multilateral organisations and official bilateral loans. The sources, definitions and coverage of individual series are explained in detail in the table below.

There are some gaps in coverage. The most important gaps relate to (i) non-officially guaranteed suppliers' credit not channelled through banks (eg direct investment debt); (ii) private placements of debt securities; (iii) domestically issued debt held by non-residents; and (iv) deposits of non-resident non-banks in domestic banks. There is also some overlapping coverage in the areas of official bank lending (see lines A and F in the table below), and in holdings of international debt securities in debt maturing within one year (see lines G and H in the table below). As a result, aggregates for individual countries may either underestimate or overstate total external debt.

At present, the statistics cover data for all individual developing countries and countries in transition as defined by the OECD's Development Assistance Committee (DAC) in its list of aid recipients (ie all non-OECD countries and territories plus the Czech Republic, Hungary, Korea, Mexico, Poland and Turkey).

The organisations collaborating on these statistics are working to improve their collection systems and to gradually enhance their content (in terms of quality, coverage, frequency and timeliness), as part of more general efforts towards greater transparency. In addition, the Inter-Agency Task Force on Finance Statistics is considering a project to provide official national external debt data alongside the creditor data in the joint table, to improve access to comparable, standardised debtor data.

The columns of the table cover:

- a. *Stocks* - the amounts outstanding at the end of each period; and
- b. *Flows* - disbursements net of repayments during the period. Flows are available for debt securities, Brady bonds, multilateral claims and bilateral loans (lines B, C, E and F). For the banking and trade credit figures (lines A, D, J, L and M), the change in stocks, adjusted for changes in exchange rates against the US dollar during the period, is given. For other series flow data are not available.

The statistics are disseminated in electronic format only through the websites of the four participating international organisations (see [www.bis.org/publ/r\\_debt.htm](http://www.bis.org/publ/r_debt.htm) or [www1.oecd.org/dac/debt/](http://www1.oecd.org/dac/debt/)).

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<sup>20</sup> The Inter-Agency Task Force on Finance Statistics is one of the inter-agency task forces endorsed by the UN Statistical Commission and the Administrative Committee on Co-ordination - Sub-Committee on Statistical Activities and was set up in 1992. It was reconvened in 1998 to coordinate work among the participating agencies to improve the quality, transparency, timeliness and availability of data on external debt and international reserve assets. The Task Force is chaired by the IMF and includes representatives from the four organisations that have collaborated to produce this data - the Bank for International Settlements, the International Monetary Fund, the Organisation for Economic Co-operation and Development, and the World Bank - as well as from the European Central Bank, the European Statistical Office and the United Nations.

External debt - all maturities			
A	Bank loans	BIS	Loans from banks <b>resident</b> in 36 economies.
B	Debt securities issued abroad	BIS	Money market instruments, bonds and notes issued in international markets by both public and private sector borrowers.
C	Brady bonds	World Bank	Bonds issued to restructure commercial bank debt under the 1989 Brady Plan.
D	Non-bank trade credits	OECD	Official and officially guaranteed non-bank export credits from 25 OECD countries.
E	Multilateral claims (African Development Bank, Asian Development Bank, Inter-American Development Bank, IMF, World Bank)	AfDB, ADB, IDB, IMF, World Bank	Loans from the African Development Bank, Asian Development Bank and Inter-American Development Bank, use of IMF credit, and IBRD loans and IDA credits from the World Bank.
F	Official bilateral loans (DAC creditors)	OECD	Concessional (aid) and other loans provided mainly for developmental purposes by the 21 member countries of the OECD Development Assistance Committee and Korea as of 2000.
Debt due within one year <sup>1</sup>			
G	Liabilities to banks	BIS	Liabilities to banks that are <b>nationals</b> of (ie headquartered in) 27 countries and who report their claims on a worldwide consolidated basis. The data include holdings of short-term securities that are also included in line H.
H	Debt securities issued abroad	BIS	Money market instruments, bonds and notes issued in international markets by both public and private sector borrowers. The data include securities held by foreign banks that are also included in line G.
I	Non-bank trade credits	OECD	Official and officially guaranteed non-bank export credits from 25 OECD countries.
Memorandum items			
J	Total liabilities to banks (locational)	BIS	Liabilities to banks <b>resident</b> in 36 countries (ie line A plus banks' holdings of debt securities that are partly included in line B plus other claims that are not loans or debt securities).
K	Total liabilities to banks (consolidated)	BIS	Liabilities to banks that are <b>nationals</b> of (ie headquartered in) 27 countries and who report their claims on a worldwide consolidated basis, both short-term (line G) and long-term liabilities.
L	Total trade credits	OECD	Official and officially guaranteed export credits from 25 OECD countries.
M	Total claims on banks (locational)	BIS	Claims on banks <b>resident</b> in 36 countries.
N	International reserve assets (excluding gold)	IMF	Monetary authorities' holdings of SDRs, reserve position in the Fund and foreign exchange assets.

<sup>1</sup> Liabilities with an original maturity of one year or less, plus repayments due within the next 12 months on liabilities with an original maturity of over a year, plus arrears.

## VII. Quality of the BIS international financial statistics

The following assessment of the quality of the BIS international financial statistics is largely based on the IMF's Data Quality Assessment Framework (DQAF).<sup>21</sup> One of the advantages of using this methodology is that it recognises and takes into account the multiple dimensions of data quality. Where previously data quality might have been essentially synonymous with accuracy, ie "getting the numbers right", it is today widely acknowledged that the concept is much broader and multidimensional.

The DQAF consists of six sections. In addition to a set of prerequisites of data quality (Section 1 below), it covers five dimensions of quality (Sections 2-6 below): integrity, methodological soundness, accuracy and reliability, serviceability, and accessibility.

### 1. Prerequisites of quality

#### 1.1 Legal and institutional environment

The designated central bank oversight body for the BIS international financial statistics is the Committee on the Global Financial System (CGFS), which is a BIS-based central bank forum for the monitoring and examination of broad issues relating to financial markets and systems. The CGFS is responsible for elaborating appropriate policy recommendations to support the central banks in the fulfilment of their responsibilities for monetary and financial stability.<sup>22</sup> Based on the recommendations of the CGFS, the BIS is given responsibility for the collection, production and dissemination of the statistics.

For the statistics based on data transmitted by the central banks or monetary authorities (the international banking statistics, the over-the-counter (OTC) derivatives statistics and the triennial central bank survey of foreign exchange and derivatives market activity), procedures for the efficient and timely flow of data are well established.<sup>23</sup> The confidentiality of individual reporting entity data is guaranteed and procedures to prevent disclosure of confidential data are in place. Access to confidential data is limited to staff members for whom such information is required for the performance of their duties. To ensure a proper understanding of data requirements, to discuss possible improvements to the statistics and to avoid duplication of effort, contacts between the BIS and the reporting central banks or monetary authorities are maintained through regular correspondence and meetings.

Participation in the OTC derivatives statistics is based on a mutual agreement between the participating G10 central banks. The reporting population for the BIS banking statistics extends beyond the G10 countries, and although participation is on a voluntary basis, the number of reporting central banks or monetary authorities has increased steadily over time and will most likely continue to do so in the future. Participation is encouraged partly by the provision of various kinds of support (eg technical and methodological guidance) from the BIS to potential new reporters and partly by the fact that new reporters are offered access - by reciprocal agreement - to the full data set of existing reporters.

#### 1.2 Resources

The allocation of resources is reviewed at regular intervals to ensure that sufficient resources for the performance of existing tasks are available. To ensure an optimal use of existing resources, new and more efficient technologies for the processing and/or dissemination of data are continuously reviewed. Proposals for changes to the statistics are always accompanied by cost/benefit analyses.

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<sup>21</sup> See <http://dsbb.imf.org/dqrsindex.htm>.

<sup>22</sup> Further information is available on: <http://www.bis.org/cgfs/index.htm>.

<sup>23</sup> In contrast to the banking, foreign exchange and OTC derivatives statistics, data for all other statistics are collected from commercial data sources.

For the maintenance and development of necessary staff skills and qualifications, resources are earmarked to provide on-the-job training in relevant areas such as statistical methods, financial markets and computer technology.

### **1.3      Quality awareness**

To ensure that the BIS international financial statistics remain a key source of public information on international financial market developments, studies are carried out from time to time by the CGFS and other international groups as well as BIS researchers to review the usefulness of the statistics and to identify any emerging data requirements.

The reporting central banks and monetary authorities, which are among the prime users of the data, have designated staff members as contact persons for the various sets of statistics. This group of people in practice acts as an advisory council for the BIS international financial statistics in view of the fact that any changes to the statistics are conditional on their approval.

## **2.       Integrity**

A number of measures are in place to ensure that the principle of objectivity in the collection, processing and dissemination of statistics is firmly adhered to.

### **2.1      Professionalism**

The BIS is an independent international organisation<sup>24</sup> and does not depend on financial support from any government or other public entity.

The legal and financial independence of the BIS prevent any improper external influence on the content or release of statistical information, ensuring the impartial compilation of the statistics with the choice of source data, statistical methods and definitions based purely on statistical and data quality considerations. To minimise the possibility of misinterpretation or misuse, the data are often accompanied by analyses and explanatory briefings when released to the public.

Within the organisation, professionalism is maintained and promoted through analytical work and staff participation in and organisation of lectures, conferences and meetings with other professionals.

### **2.2      Transparency**

The BIS international financial statistics are published in press releases and/or in the statistical annex of the *BIS Quarterly Review*, and are clearly identified as BIS products by both name and logo. In these publications, references are made to the BIS website, where more detailed statistical information and a full set of historical time series are available free of charge. When the statistics are used or reproduced attribution is generally requested, and in the case of joint publication (such as the Joint BIS-IMF-OECD-World Bank statistics on external debt; see Part VI), the contribution of the BIS is clearly identified.

No governmental organisations have access to the data prior to release to the public.<sup>25</sup>

Users are notified in advance through press releases or dedicated articles in the *BIS Quarterly Review* of major methodological changes, whereas minor changes to the statistical methodology are announced at the time of publication.

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<sup>24</sup> The Hague Agreements of 1930 established the BIS as an international organisation governed by international law with the privileges and immunities necessary for the performance of its functions. The international legal character of the BIS and the privileges and immunities that it has enjoyed in Switzerland since its foundation were confirmed in the Headquarters Agreement concluded by the BIS with the Swiss Federal Council in 1987. Further information can be found on the BIS website: <http://www.bis.org/about/legal.htm>.

<sup>25</sup> Reporting central banks/monetary authorities and selected news agencies have access to the data before release to the public; see Section 6.1 below.

## **2.3 Ethical standards**

The BIS Staff Regulations clearly specify the rules of conduct in general and the rules with regard to confidential information in particular. New staff members are made aware of these guidelines when they join the organisation, and all staff members are reminded periodically of the guidelines.

## **3. Methodological soundness**

To a large extent, the methodology of the BIS international financial statistics follows internationally accepted standards, guidelines or good practices.

### **3.1 Concepts and definitions**

The collection of the BIS international banking statistics is based on BIS (2000). Similarly, the OTC derivatives statistics and the triennial central bank survey of foreign exchange and derivatives market activity are collected and prepared according to the *Guidelines for the OTC derivatives statistics and the triennial survey*. These documents are prepared and maintained by statisticians at the BIS, in close consultation with central bank colleagues and CGFS analysts, and have been accepted as the relevant standards by the reporting institutions, which comprise a large number of the world's major central banks and monetary authorities.

Although no explicit standards exist for the other BIS international financial statistics, internationally accepted guidelines or good practices are generally observed whenever applicable.

The locational banking statistics are based on the principle of residency that is in line with the methodology of balance of payments and international investment position statistics. The consolidated banking statistics are largely based on bank supervision principles, ie where the reporting of a bank head office is inclusive of its foreign offices (branches and subsidiaries) worldwide with all inter-office accounts being netted out. This principle of consolidation also applies to the OTC derivatives statistics.

In more general terms, the guiding principle for the BIS international financial statistics is that existing standards and guidelines are used as far as possible to ensure consistency and minimise the reporting burden. Owing to the unique nature of the statistics, however, the development of some of the series has necessitated that the BIS itself develops and sets appropriate standards in close consultation with central bank experts.

### **3.2 Scope**

In principle, the scope of the BIS international financial statistics is to provide comprehensive coverage in their respective areas of focus. In practice, the actual coverage (see Section 4.1 below) must of course be balanced between costs and benefits as well as between feasibility and desirability. To illustrate this by an example, the reporting population for the BIS international banking statistics is made up of the world's most significant banking centres rather than all countries in the world.

### **3.3 Classification/sectorisation**

Where applicable, classification and sectorisation are broadly consistent with internationally recommended statistical guidelines such as the 1993 SNA (System of National Accounts) and the 1995 ESA (European System of Accounts). One exception worth mentioning is the treatment of central banks as part of the public sector rather than as part of the financial sector in the BIS securities statistics.

The applied country and currency codes follow the ISO classification.

### **3.4 Basis for recording**

To ensure consistency with other statistical systems such as balance of payments and international investment position statistics, the recommended basis for valuation of financial claims in the BIS international banking statistics is generally market prices. However, in the context of the consolidated banking statistics it is recommended that financial claims belonging to the banking book be valued at face values or cost prices in line with International Accounting Standards (IAS39). For the valuation of liabilities, contractual or nominal values are generally deemed more appropriate than market values.

In line with what is internationally accepted as best practice, exchange rate adjusted changes in the locational banking statistics are calculated by converting the stock data into their original currency and then converting the change in amounts outstanding to US dollars using period average rates.

In the BIS securities statistics, the information on stocks outstanding of issued securities is based on nominal values. For the data on international debt securities, net flows are calculated as the difference between completed issues (based on the payment date) and repaid issues calculated as the sum of early repayments (such as exercised put and call options or sinking funds) and scheduled repayments (based on the maturity date). The methodology for calculating exchange rate adjusted changes for the data on domestic debt securities is similar to the one applied in the locational banking statistics.

The recording basis for the OTC derivatives statistics and the triennial central bank survey of foreign exchange and derivatives market activity is market values (positive and negative) as well as notional amounts, whereas the exchange-traded derivatives statistics are valued only in terms of the notional principal calculated as the number of contracts multiplied by the face value of the derivatives contract. For the calculation of notional amounts of equity index contracts, the latest values of stock market indices are used.

In accordance with international practice, the BIS uses the US dollar as the numeraire in its statistics. Stock data are converted from national currencies into US dollars using end of period exchange rates.

#### **4. Accuracy and reliability**

Source data and statistical techniques are sound and statistical outputs are considered to portray reality in a suitable manner.

##### **4.1 Source data**

The available source data are considered to be timely and sufficient to provide an adequate basis for compiling global financial statistics. To ensure that data collection remains comprehensive, the data sources are reviewed periodically.

For the BIS international banking statistics, analyses suggest that the overall coverage of the data exceeds 95% of global foreign banking business. To ensure that the coverage remains high, efforts are made on a continuous basis to include countries/territories with evolving international banking business in the reporting population.

The coverage of the international debt securities statistics, where the data are merged from three markets sources each with its unique contents, is believed to be fairly comprehensive. The data on domestic debt securities, which are mainly collected from central bank sources, include the OECD countries plus selected major emerging market countries.

The triennial central bank survey of foreign exchange and derivatives market activity is estimated to cover at least 95% of global market activity, and by using this survey as a benchmark the coverage of the OTC derivatives statistics can be calculated as about 87% of the survey or 83% of the global size of the market. The current product coverage of the exchange-traded derivatives statistics is estimated to be in excess of 95% of total global activity, and efforts are made on a continuous basis to further improve coverage by including more contracts and exchanges.

##### **4.2 Statistical techniques**

Data management procedures are completely computerised and thoroughly documented.

Statistical methods are used to a limited degree to fill reporting gaps in the BIS international banking statistics. These estimation techniques conform to best practice statistical procedures. Examples of statistical methods used (in the context of the locational banking statistics) are:

- A few reporting economies provide only a sectoral or currency breakdown for total claims/liabilities with no further breakdown by individual debtor/creditor country. In this case, the latter is estimated by applying the percentage distribution of the totals to each individual country.
- A small number of reporting economies provide only a split between domestic and foreign currency with no further breakdown by individual foreign currencies. For the compilation of

- exchange rate adjusted changes, data for the missing currencies are estimated by applying the currency distribution of all industrial countries' positions vis-à-vis the reporting entity in question.
- One reporting centre (the Bahamas) only provides figures on a semiannual basis.<sup>26</sup> The statistical method used to estimate the missing quarters is to initially bring forward the figures from the preceding quarter<sup>27</sup> and later, when figures for the next quarter have become available, by interpolating between the two surrounding quarters.
  - In case of late reporting, data are estimated by bringing forward the figures for the previous quarter.

The estimation methods are communicated to the group of contributing central banks and monetary authorities on a regular basis and are made available to the general public on request.

Statistical methods are also applied to the results of the triennial central bank survey of foreign exchange and derivatives market activity in order to estimate reporting gaps. This procedure is based on information on coverage from each participating country and is described in the publication presenting the results of the survey.

#### **4.3 Assessment and validation of source data**

Source data are routinely assessed either as part of the data compilation process (BIS securities and exchange-traded derivatives statistics) or as part of the general statistical quality control (BIS international banking and OTC derivatives statistics, triennial central bank survey of foreign exchange and derivatives market activity). No sampling procedures are applied by the BIS.

#### **4.4 Assessment and validation of intermediate data and statistical outputs**

The final statistical outputs are subject to plausibility checks and are reviewed both internally at the BIS and by the contributing central banks and monetary authorities. Given the fully computerised workflow and the rigorous assessment of source data, this assessment procedure is considered sufficient.

#### **4.5 Revision studies**

Revision studies have shown that data revisions do not follow a sustained pattern. Consequently, revisions do not entail any information for statistical processes that could potentially be applied to and enhance the accuracy of the data.

### **5. Serviceability**

The BIS international financial statistics are considered to be relevant, timely and consistent. The revisions policy is believed to be appropriate.

#### **5.1 Relevance**

The relevance of the BIS international financial statistics is assessed at biannual meetings with the contributing central banks and monetary authorities, who are also among the principal users of the data. In addition to this, feedback from central banks and international organisations as well as from other users of the data is received on a continuous basis through written correspondence or in the context of meetings, seminars and conferences.

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<sup>26</sup> Figures for US banks in the Bahamas, which constitute about two thirds of the total, are available on a quarterly basis.

<sup>27</sup> This is considered best practice given the fact that the series does not show any clear trend over time.

The feedback received suggests that the BIS international financial statistics are considered relevant both for tracking global developments in financial markets and as input in other statistical systems.<sup>28</sup> Also, the BIS statistics constitute the principal input of the Joint BIS-IMF-OECD-World Bank statistics on external debt (see Part VI).

## **5.2 Timeliness and periodicity**

Being aware of the importance of providing regular and timely information, the BIS publishes its statistics as soon as possible after the end of the reference period. In cooperation with its reporting central banks, the BIS is also constantly trying to make improvements.<sup>29</sup> Recent examples of significant progress are the move from semiannual to quarterly periodicity for the consolidated banking statistics in 2000 and the gradual reduction of the publication time lag by two months to less than four months.

## **5.3 Consistency**

Due mainly to the continuous inclusion of new reporting economies, the BIS international banking statistics contain a number of breaks in series.<sup>30</sup> This has an inevitable effect on the stock figures, whereas the figures on exchange rate adjusted changes are unaffected, since the calculation of these figures takes these breaks in series into account. A complete list of breaks in series in the BIS banking statistics is available on the BIS website.

A major break in the consolidated banking statistics took place in 1999, when the reporting economies started to report claims vis-à-vis each other. This change in methodology had a large impact on the global total as well as the subtotals for claims vis-à-vis developed countries, whereas the figures on claims vis-à-vis offshore centres and developing countries were unaffected.

All reporting central banks and monetary authorities use the same report forms to report the BIS international banking statistics, which in principle ensures the internal consistency of the data. In practice, this is to some extent compromised by various gaps in reporting. Gaps in reporting also account for the lack of complete consistency between the locational banking statistics on a residency basis and the locational banking statistics on a nationality basis. A comprehensive description of reporting gaps is given in BIS (2000), and is available on the BIS website.

The international debt securities statistics are generally consistent back to 1996, when a substantial break in series occurred as a result of a change in commercial data sources. For the same reason, the consistency of the OTC derivatives statistics only goes back to 1998, whereas the exchange-traded derivatives statistics and the statistics on announced international equity issues are largely consistent for the whole history.<sup>31</sup> In contrast to this, the methodology used in the triennial central bank survey of foreign exchange and derivatives market activity has been continuously revised in order to enhance the coverage.

## **5.4 Revision policy and practice**

By long-standing tradition, revisions to the BIS international financial statistics are incorporated and published at the time of release of new data.

For the BIS international banking statistics, revisions are normally minor for even quarters, whereas they can be significant for the first and third quarters of each year due to the semiannual reporting of

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<sup>28</sup> Some countries use the BIS statistics to close gaps in their balance of payments and international investment position statistics.

<sup>29</sup> The collection, production and dissemination of statistics based on central bank reporting is normally a lengthy and tedious process. In the case of the consolidated statistics, the data need first to be aggregated and verified on the level of the head offices of the individual reporting institutions. The next step is the transmission of the data to central banks where they need to be aggregated and verified on the national level. The final step is the transmission of national aggregates to the BIS where the data are aggregated and verified on the global level before they can be released to the general public.

<sup>30</sup> New reporting economies are traditionally introduced in the fourth quarter of a given year.

<sup>31</sup> A change in data sources for the exchange-traded derivatives statistics took place in 2000, but the resulting break in series is minor.

one reporting economy<sup>32</sup> (the Bahamas) and the consequent estimation method applied (see Section 4.2 above).

For the BIS securities statistics, revisions can occasionally be substantial, mainly because of revisions in the source data, whereas revisions for the derivatives statistics are negligible.

## **6. Accessibility**

The data and metadata are easily available and assistance to users is readily available.

### **6.1 Data accessibility**

The BIS international financial statistics are made available as a hard-copy version in press releases and the *BIS Quarterly Review*, where the data are accompanied by analyses of current-period developments supported by illustrative tables and graphs. In addition to this, the statistics are published on the BIS website, where more detailed information and a full set of historical time series are available free of charge in machine-readable form for easy download and further analysis.

A schedule for data release is announced in advance on the BIS website. The data are released simultaneously to all interested users on the date and time specified in the release schedule.

Non-published sub-aggregates are made available upon request, provided that they are not confidential.

In addition to the contributing central banks and monetary authorities, selected news agencies are given access to the data before release to the public.<sup>33</sup>

### **6.2 Metadata accessibility**

Documentation of the BIS statistics is provided in Chapters II-V of this publication as well as in the form of explanatory notes in the different publications (press releases and the *BIS Quarterly Review*).

For the BIS international banking statistics, a more detailed and technical description is given in BIS (2000), which is available on the BIS website. Similarly, a thorough description of the methodology underlying the triennial central bank survey of foreign exchange and derivatives market activity is given in the publication where the results of the survey are presented.

### **6.3 Assistance to users**

All statistical releases are accompanied by contact details (telephone number and e-mail address). For each set of statistics, prompt and knowledgeable service and support is available to all users.

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<sup>32</sup> Until recently, another offshore centre (the Cayman Islands) also reported on a semiannual basis.

<sup>33</sup> In the press alert sent to the news agencies, it is clearly stated that the data are strictly confidential and that a breach of the embargo or disclosure of any details will result in exclusion from future releases of embargoed information.

## VIII. The uses of the BIS international financial statistics

### 1. Overview

This chapter provides a description of the main uses of the BIS international financial statistics, such as the extension of monetary and credit aggregates, the monitoring of financial markets, the contribution to balance of payments and external debt statistics and the assessment of risk exposures and vulnerability. The data are analysed on a regular basis in the *BIS Quarterly Review* under the heading of "International banking and financial market developments".<sup>34</sup> In-depth research using the BIS data is occasionally prepared and published.<sup>35</sup>

### 2. Extension of monetary and credit aggregates

The BIS statistics facilitate the extension of domestic monetary and credit aggregates to capture cross-border and foreign currency positions. Indeed, this was the motivation for introducing the locational banking statistics in the 1960s. The growth of the so-called eurocurrency markets (international deposit and loan markets) raised concerns among policymakers at the time about the possible macroeconomic consequences of the expansion of the money supply through these markets (Mayer (1979)). The BIS locational banking statistics greatly improved the monitoring of money and credit growth. Policymakers' concerns abated over time, as central banks reduced their focus on monetary targets and countries moved from closely regulated and administered financial systems to more open and competitive ones. Nevertheless, reference to broad measures of money and credit that include international positions remains as important today as in the 1960s for understanding domestic monetary and financial conditions. For example, according to the BIS locational banking statistics, in 1999 the foreign currency deposits of domestic non-banks amounted to 11% of broad money in the euro area, and to more than 50% of broad money in Switzerland and Hong Kong (McCauley and Mo (2000)).

What makes the BIS statistics useful for extending monetary aggregates is the availability of data on banks' international liabilities. In the locational banking statistics, commercial banks in 36 jurisdictions report their foreign currency liabilities to residents as well as their cross-border liabilities to non-residents. Moreover, they report the currency in which these stocks are denominated, and whether the counterparty is a bank or a non-bank. This facilitates analysis of different measures of the money stock. Monticelli (1993) uses the locational statistics to derive six different monetary aggregates for the European Union, such as monetary assets held by EU residents regardless of the residency of the issuer and the currency of denomination, and monetary assets issued by EU-domiciled intermediaries regardless of the residency of the holder and the currency of denomination.

For the purpose of extending domestic credit aggregates, it is the availability of data on the international fund-raising activities of corporations and other non-bank borrowers that makes the BIS statistics useful. Domestic credit aggregates typically do not include cross-border borrowing by non-bank residents. The locational banking statistics capture cross-border credit - loans, deposits, debt securities and other assets - provided directly by banks. The international banking market was for several decades the largest source of cross-border funding to non-bank borrowers, and as of end-June 2002 the outstanding stock of cross-border bank claims on non-banks accounted for approximately 10% of total - domestic plus cross-border - bank claims. In many countries, this percentage is considerably higher: for example, 28% in Mexico and 39% in Venezuela. Even in those countries where cross-border credit is not large as a proportion of total bank credit, it can be an important source of financing for specific sectors. Based on the locational statistics, McCauley and Seth (1992) estimate that in the early 1990s over 20% of total loans to commercial and industrial enterprises in the United States were booked offshore. From this, they conclude that banks supplied more corporate funding than was generally considered to be the case at the time.

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<sup>34</sup> In addition, special feature articles in the *BIS Quarterly Review* use BIS international financial statistics. See eg McCauley and Mo (2000).

<sup>35</sup> See eg research on determinants of international bank lending in Jeanneau and Micu (2002).

The BIS international financial statistics were expanded in the 1980s to include international issuance of money market instruments, bonds and notes and later to include outstanding stocks of domestically issued debt securities. The international and domestic debt securities data sets compiled by the BIS are adjusted for known overlaps in issuance and so are broadly comparable. The international data are compiled from three different market sources to ensure the broadest possible coverage. Users need to be aware that the data on domestic debt securities are supplied by national statistical offices and are thus compiled using different methodologies. The international debt securities statistics are based on individual issues, whereas the domestic debt securities statistics are based on aggregated data. In addition, the domestic debt securities do not cover all countries, although those covered are by far the largest markets.

Borrowers have increasingly turned to domestic and especially international capital markets to raise funds. Indeed, in 1999 the international debt securities market surpassed the international banking market as the most important source of cross-border credit to non-banks. The outstanding stock of international debt instruments issued by non-banks reached \$6.1 trillion by mid-2002, equivalent to 19% of debt securities issued worldwide by non-banks. Banks purchased a substantial proportion of these securities. These are reported separately and thus must be excluded to avoid double-counting when combining the various BIS statistical series to extend domestic credit aggregates (see below).

The BIS also publishes data on international issues of equity securities. These refer to announcements and so signal borrowers' efforts to raise equity financing. However, because announcements frequently differ from actual issuance and no information is available about share repurchases, these data do not provide precise estimates of net new financing raised in international equity markets.

### **3. Changes in financial intermediation**

Another use of the BIS statistics is to document changes in financial intermediation. Many of the statistics published by the BIS can be disaggregated by instrument, type of counterparty and residence of reporting institution. Therefore, in addition to monitoring the growth of various market segments, the BIS statistics allow changes within these segments to be examined, such as the relative importance of non-financial customers in derivatives markets or of offshore financial centres. The inter- and intramarket changes that could be examined are too numerous to discuss in detail, and so the following paragraphs focus on only a few possible ways in which the BIS statistics could be used to monitor changes in financial intermediation.

One obvious use of the BIS international financial statistics is to measure the size, growth and structure of different market segments. This is done regularly in the sections on market developments in the *BIS Quarterly Review*. Several analytical studies have used the BIS statistics to make a variety of other comparisons. Alworth and Andresen (1992) use the locational banking statistics to examine the linkages between the origin and destination of non-bank cross-border deposits. The Study Group on Fixed Income Markets (2001) combines the domestic and international debt securities statistics to compare and contrast the US dollar, euro, yen and sterling markets. Kambhu et al (1996) exploit the triennial survey to examine the role of derivatives markets in the transfer and trading of risk. The various statistical series published by the BIS are broadly comparable if account is taken of the different way in which each is compiled. Nevertheless, features or characteristics of different markets may complicate direct comparisons. For example, in exchange-traded derivatives markets, the reversal of an initial position leads to a decline in notional stocks because contracts are offset through a centralised counterparty. By contrast, in OTC markets, positions are usually reversed by writing a new contract, resulting in an increase in notional stocks.

Information about the constellation of players and strategies active in markets can also be gleaned from the BIS statistics. The importance of banks relative to non-banks as both borrowers and lenders in international markets can be derived using the BIS banking and securities statistics. The foreign exchange and OTC derivatives statistics can be disaggregated into dealers, other financial institutions and non-financial customers. If coupled with information from other sources, this may even make it possible to identify more precisely the types of players behind changes in activity. For example, Dixon (2001) illustrates how the BIS banking statistics can be used to help monitor intermediation via offshore financial centres, including borrowing by hedge funds. McCauley and von Kleist (1998) refer to the locational banking statistics to assess the importance of carry trade strategies.

The off-balance sheet activities of market participants can also be monitored using the BIS derivatives statistics. The quarterly exchange-traded derivatives statistics that are based on commercial data and

the semiannual OTC derivatives statistics that are taken from survey data collected by central banks measure the notional principal of the underlying contracts. Various breakdowns are available, including by type of instrument, category of risk, currency, or some combination of type, risk and currency. Market values and credit exposures, ie market values after taking into account legally enforceable bilateral netting agreements, are also available for the OTC statistics. Additional data on cash positions - which could offset exposures associated with derivatives positions - would be required to measure participants' ultimate exposures.

Another use of the BIS statistics is to measure changes in market liquidity. Turnover in exchange-traded derivatives markets is available from the exchange-traded derivatives statistics, and turnover in OTC derivatives and foreign exchange markets from the triennial survey. However, turnover is only one of several dimensions of liquidity and the data should be complemented by other indicators of market liquidity, such as pricing data.<sup>36</sup>

#### **4. Contribution to compilation of balance of payments and external debt statistics**

The use of the BIS statistics to extend domestic credit aggregates suggests a further key application: to improve the coverage of private sector non-banks' claims on and liabilities to foreign banks in national balance of payments accounts. This approach was recommended by an IMF working party following an enquiry into the principal sources of discrepancies in the global capital account (IMF (1992)). A number of national statistical agencies now regularly substitute data reported to the BIS for their domestic source data, leading to significant improvements in the coverage of non-banks' external positions (Bach (2001)).

In the wake of the Asian financial crisis the BIS, IMF, OECD and World Bank began to publish jointly creditor and market data on components of countries' external debt and international reserve assets<sup>37</sup> that the contributing international agencies had been compiling and publishing separately before.<sup>37</sup> This was to facilitate more timely and frequent access by a broad range of users to these data. The BIS contributes the data on bank lending and international debt securities to the joint series. Although the locational banking statistics are not compiled to monitor external debt, they are useful in this context because their reporting conventions are consistent with those of balance of payments and international investment position statistics.

There are gaps and overlaps in the external debt components of the joint statistics; therefore, they are not a substitute for data from national sources and no total creditor estimate of external debt is provided. Rather, they serve as a complement to national data. In addition, the joint statistics are sometimes more timely than national data and occasionally more comprehensive (eg for the external borrowing of non-banks - see below).

##### **4.1 External debt owed to banks**

The BIS publishes statistics on consolidated international banking activity. These also provide information about cross-border borrowing from banks, and consolidated data on short-term bank lending is provided in the joint statistics for comparative purposes.<sup>38</sup> However, since the consolidated data are collected to monitor the foreign exposure of reporting banks, their interpretation is different from that of conventional measures of external debt.

What makes the locational banking statistics more consistent with national accounts or balance of payments data is their compilation on the basis of the residency of the reporting bank. The locational statistics cover the cross-border positions of all banks domiciled in the reporting area, including positions vis-à-vis their foreign affiliates. By contrast, the consolidated statistics are based on the nationality of the reporting bank and net out intragroup positions. Cross-border lending to banks' own

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<sup>36</sup> See also CGFS (1999) and Galati (2001) for a discussion of the limitations of turnover data as an indicator of market liquidity.

<sup>37</sup> See Part VI above for a more detailed discussion.

<sup>38</sup> Users of the joint statistics are reminded that the consolidated data are collected under reporting conventions that differ from those applicable to external debt.

affiliates in the locational statistics is instead captured as lending to end borrowers in the consolidated statistics.

In countries with little international banking business, the difference between external debt owed to banks based on the locational statistics and the same stock based on the international component of the consolidated statistics is often not large. For example, cross-border (locational) claims on emerging economies are in aggregate no more than 5% larger than international (consolidated) claims. The international component of the consolidated statistics captures, in addition to reporting banks' cross-border claims, their foreign affiliates' local claims in foreign currencies.<sup>39</sup> In many countries, such claims are funded from abroad by head office and so are a reasonable proxy for cross-border inter-office positions.

However, the difference between cross-border and international claims can be significant in individual countries. In dollarised economies, a large proportion of banks' local claims in foreign currencies are funded locally, and so international claims tend to be much larger than cross-border claims. In international banking centres, funds channelled to own affiliates are typically on-lent to non-residents, and so international claims tend to be much smaller than cross-border claims. Cross-border claims on residents of offshore banking centres totalled \$1.5 trillion at end-March 2002, but international claims on offshore centres only \$675 billion; inter-office positions accounted for most of the difference.

Coverage of international banking activity in the BIS statistics is nearly complete. The largest centres of international financial activity all contribute to one or both sets of banking statistics and, moreover, the reporting area is continually expanding. Nevertheless, it should be noted that the locational statistics do not include positions booked in non-reporting countries, and the consolidated statistics only partially cover the positions of banks headquartered in such countries.<sup>40</sup> The locational and consolidated banking statistics will, therefore, underestimate debt owed to banks by individual countries. Korean banks, for example, reportedly purchased substantial amounts of Russian government securities prior to Russia's default in August 1998. However, such omissions are unlikely to be significant in most countries.

Banks contributing to the BIS locational and consolidated banking statistics report stocks, not flows. For the locational statistics, banks report the currency in which their claims and liabilities are denominated, and this allows quarterly stock changes to be calculated by adjusting outstanding stocks for currency movements during the quarter. Although actual flows will have taken place at different exchange rates, exchange rate adjusted changes in outstanding stocks can provide an approximation of data on flows. A currency breakdown is not available for the consolidated statistics, and consequently exchange rate movements can result in changes in consolidated positions reported in US dollars even when underlying positions remain unchanged. The currency breakdown from the locational statistics can be applied to the consolidated statistics to provide approximate estimated changes adjusted for exchange rate movements.

The BIS also provides syndicated loan statistics that can be used to monitor cross-border bank flows. Again, they are not a substitute for data on actual flows: they refer to signings, which may not be the same as disbursements, and information about repayments or outstanding stocks is not available.<sup>41</sup> Nevertheless, they are more timely than the other two sets of BIS banking statistics and provide details about the purpose, maturity and pricing of syndicated facilities, details that are helpful for understanding the nature of international bank lending. Gadanecz and von Kleist (2002) find that under certain conditions and for certain classes of borrowers, the syndicated credit data can also

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<sup>39</sup> Banks contributing to the consolidated banking statistics report international claims and local claims and liabilities in local currencies. International claims comprise reporting banks' cross-border claims in all currencies plus their foreign offices' local claims in foreign currencies.

<sup>40</sup> The consolidated banking statistics cover the worldwide consolidated claims of banks headquartered in the BIS reporting area, and the unconsolidated claims of offices domiciled in the reporting area but owned by banks headquartered in countries outside the reporting area.

<sup>41</sup> The syndicated credit statistics will tend to overestimate gross cross-border loan flows. First, facilities arranged as support for commercial paper programmes or standby credits may never be drawn down. Other facilities may be only partially drawn down because of changes in the borrower's investment plans or a breach of loan covenants. Second, the syndicated statistics include a mix of instruments, such as multi-option facilities that are part loan and part security. Third, international lending within a given tranche is sometimes not readily identified because the exact amount provided by each institution, and in particular that provided by banks domiciled in the same country as the borrower, is unknown.

provide some useful advance information about the consolidated statistics. Furthermore, the syndicated statistics are useful for monitoring borrowers' access to loan markets.

#### **4.2 External debt owed to non-banks**

Debt owed to international banks is of course only one of several components of external debt. Other types of investors, including pension funds, insurance companies, hedge funds and retail investors, have become more active in global financial markets over the past decade, and as a result hold an increasing proportion of external debt. Unfortunately, little information is available from creditor sources about debt owed by individual countries to these non-bank investors.

External debt owed to non-banks can be approximated by referring to data on debt securities issued to international investors. The BIS statistics on international debt securities are the most comprehensive source of such data. Announcements, completions, scheduled repayments and early repayments are all tracked. The repayments data collected by the BIS are especially valuable because they allow refinancing needs to be monitored and net new issues to be calculated.

Banks are large players in the international debt securities market, as investors, underwriters and issuers, and so there is some overlap between the BIS banking statistics and the international debt securities statistics. A breakdown of banks' international positions by instrument - loans, deposits and securities - is publicly available from the fourth quarter of 1995 for the locational banking statistics, so this overlap can nowadays be eliminated.

Issuance in the international debt securities market is no longer as reliable a proxy for cross-border portfolio flows as it once was. With more and more countries liberalising their capital accounts and financial markets, the distinction between international and domestic markets has become less meaningful over the years. As a result, the international securities statistics of the BIS could over- or underestimate residents' external obligations. On the one hand, if investors domiciled in the country of the issuer purchase debt securities sold in the international market, stocks of international debt securities will tend to overstate cross-border portfolio holdings.<sup>42</sup> Bond issues marketed to both residents and non-residents are in fact becoming more common. For example, whereas in 1995 less than 5% of net new issues by US government-sponsored enterprises such as Fannie Mae and Freddie Mac were classified as international in the BIS statistics, by 2001 nearly 50% were so classified. On the other hand, if non-residents invest in domestic securities markets, the stocks of international securities computed by the BIS will tend to underestimate cross-border holdings. For instance, while most government securities are issued locally and so are not included in the international securities database, in many countries a sizeable proportion of government debt is purchased by non-residents.

In its strictest sense, external debt refers to residents' contractual liabilities to non-residents.<sup>43</sup> It is necessary to supplement this strict definition of external debt with other measures that more clearly identify the risks to which a country or sector may be exposed, such as the liquidity risk associated with short-term debt.

In addition to loans, deposits and debt securities, financial derivatives make up an increasing (albeit in most countries still small) component of external debt. Futures, swaps, options and other types of derivatives give rise to contractual obligations that may involve cross-border settlement. For the purposes of measuring external debt, it is the market value (or net present value) of these contracts that is of relevance, not the value of the underlying instruments. The BIS publishes data on the gross market values of various types of derivatives traded in OTC markets; however, only a global aggregate is available because dealers contributing to these statistics are not required to report the residency of

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<sup>42</sup> The international debt securities database covers three types of instruments: securities denominated in a currency different from that of the market in which they are issued ("eurobonds"); securities denominated in the currency of the market in which they are issued, but issued by non-residents (foreign bonds, such as "yankee" bonds in the US market); and securities denominated in the currency of the market in which they are issued, issued by residents, but targeted to non-residents. For this last type of instrument, tranches targeted to domestic investors are sometimes identified separately from those targeted to international investors, in which case the BIS statistics on international securities issues would not necessarily overstate portfolio flows.

<sup>43</sup> The Inter-Agency Task Force on Finance Statistics uses the following definition: "Gross external debt, at any given time, is the outstanding amount of those actual current, and not contingent, liabilities that require payment(s) of principal and/or interest by the debtor at some point(s) in the future and that are owed to non-residents by residents of an economy" (BIS et al (2001), p 17).

their counterparties. These data are not intended to measure external debt of individual countries, but are meant to provide an indication of the potential global size of liabilities arising from derivatives positions. As of end-December 2001, gross market values for all types of OTC derivatives totalled \$3.0 trillion, equivalent to 8% of the outstanding stock of debt securities issued worldwide.

## 5. External vulnerabilities and risk exposures

### 5.1 Risks of external borrowing

Conventional measures of external debt can in some circumstances be an unreliable indicator of potential vulnerabilities. Through guarantees, collateral, derivatives and other off-balance sheet transactions, risk may be transferred from a debtor in one country - the immediate borrower - to a debtor residing elsewhere – the ultimate obligor. Moreover, data disaggregated by maturity, currency, sector or creditor can help to highlight risks that may not be apparent in the gross figures.

While balance of payments measures of external debt are based on the residency of the immediate borrower, measures based on the residency of the ultimate obligor may sometimes be more useful, such as to monitor rollovers or initiate a restructuring. For example, borrowing by a bank's foreign affiliate in London or some other international banking centre will not be captured by external debt statistics. Yet it could potentially result in problems at head office if the affiliate has difficulty rolling over its obligations. Alternatively, borrowing by the foreign subsidiary of a multinational corporation might be guaranteed by the parent, resulting in a contractually binding transfer of risk from one country to another. The consolidated banking statistics currently capture some of these risk transfers (see below) and more comprehensive coverage will be available as from end-2004.

Another important indicator of vulnerability is the maturity structure of a country's external debt. Financial crises in various emerging markets in the late 1990s demonstrated that a rapid build-up of short-term debt can undermine financial stability even in countries with moderate levels of external debt (Hawkins and Klau (2000)). More specifically, the ratio of short-term debt to banks relative to foreign exchange reserves can indicate external vulnerability. A maturity breakdown is available for the debt securities statistics and the international component of the consolidated banking statistics.<sup>44</sup> In fact, the consolidated banking statistics are one of the few sources of internationally comparable data on short-term external debt. The maturity breakdown for the consolidated statistics is reported on the basis of remaining maturity. The availability of a one- to two-year maturity bracket allows the proportion of short-term debt that was originally longer-term to be estimated.<sup>45</sup>

The currency breakdown available in the BIS international banking statistics also helps to highlight potential risks. External debts denominated in foreign currencies are more likely to expose borrowers to liquidity or even solvency risk than debts denominated in their local currency. For the international debt securities statistics, a full currency breakdown is available, making it possible to determine the proportion of international debt securities issued in the currency of the borrower. This proportion ranges from 86% for international issuers resident in the United States to almost zero for issuers resident in most developing countries. Banks contributing to the locational statistics do not report every currency in which their claims and liabilities are denominated, only the major currencies.<sup>46</sup> Using the available information, it is possible to estimate an upper bound on the amount of bank debt that might be denominated in the currency of the borrower, as well as to identify currency mismatches arising from, for example, the receipt of export revenues in one currency and the servicing of debts in another.

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<sup>44</sup> A maturity breakdown is not available for the locational banking statistics. The breakdown from the consolidated banking statistics could be applied to the locational banking statistics to arrive at a measure of short-term bank debt consistent with balance of payments reporting principles. Alternatively, the instrument breakdown from the locational banking statistics could be applied to the consolidated banking statistics to minimise overlaps with the international debt securities statistics. Neither option is likely to give reliable estimates, however.

<sup>45</sup> This method will tend to underestimate the proportion of short-term debt that was originally longer-term because Germany, Luxembourg and the United States do not report a one- to two-year breakdown and Hong Kong SAR does not report any maturity breakdown.

<sup>46</sup> Banks report seven currency categories: the currency of their country of residence, US dollar, euro, yen, pound sterling, Swiss franc and other currencies.

An important caveat when interpreting the currency breakdown available in the locational and debt securities statistics is that it covers only on-balance sheet liabilities. Issuers may hedge their foreign currency exposure with export revenues or external assets, or through derivatives. The BIS derivatives statistics show that OTC and exchange-traded foreign exchange contracts totalled \$16.8 trillion in notional principal at end-December 2001, equivalent to about 45% of the outstanding stock of debt securities issued worldwide. However, owing to the lack of information about the residency of counterparties, these data shed little light on hedging activity in individual countries.

The maturity and currency breakdowns can be further disaggregated by sector to identify those sectors most exposed to liquidity or foreign currency risk. The Asian financial crisis of 1997-98 highlighted the importance of monitoring the external positions of the financial and corporate sectors separately from that of the public sector (FSF (2000)). The locational banking statistics provide information about international banks' claims on the bank and non-bank sectors, and the consolidated banking statistics further split the non-bank sector into public and private sectors. The international debt securities statistics provide an even finer breakdown of the non-bank sector. While the maturity breakdown in the consolidated banking statistics cannot be combined with the sectoral breakdown, the breakdowns available for the other statistics can be disaggregated by sector.

A further source of potential debtor vulnerability is limited creditor diversification. A borrower that relies on a heterogeneous group of creditors for external financing may be less likely to be affected by contagion. The distribution of bank claims by nationality of bank is available from the consolidated banking statistics. The distribution of bank claims by residency of bank is available from the locational banking statistics, but residency is a less meaningful basis upon which to judge the heterogeneity of creditors than nationality. The heterogeneity of a country's creditors can also be assessed by comparing the amount of financing provided by banks to that provided through the international debt securities market.

Finally, liabilities alone give an incomplete picture of a country's potential vulnerabilities. Even if liabilities are small or stable, a country's external position can still be undermined by capital flight. In addition, residents frequently have foreign assets available to meet a sudden need for liquidity, although those holding the assets may differ from those borrowing abroad. Funds placed with banks abroad are covered by the locational banking statistics. Owing to such assets, countries with large external debts may in fact be net external creditors. For example, at end-March 2002 emerging economies' liabilities to international banks totalled \$856 billion, yet outstanding cross-border deposits and other assets placed with international banks by residents of the same countries totalled \$1.1 trillion.

## **5.2 Risk exposures of creditor banks**

What is a debt to a borrower is of course an asset to a creditor. Indeed, it was the desire to monitor banks' foreign assets that led to the introduction of the consolidated banking statistics following the Mexican debt moratorium of 1982. Changes in banks' foreign assets are visible in the locational banking statistics. However, owing to the residency principle on which the locational statistics are based, it is not possible to assess the exposure of national banking systems to individual countries. In particular, the locational statistics do not capture positions booked in non-reporting countries, and do not allow the breakdown by residency of the counterparty to be combined with the breakdown by nationality of the reporting bank. In contrast, the consolidated statistics were designed to focus explicitly on banks' foreign credit risk exposures, in that they measure on a worldwide consolidated basis the foreign claims of banks headquartered in the reporting area.<sup>47</sup>

At the time that the consolidated statistics were introduced, authorities in the reporting area were especially concerned about transfer risk, ie the risk associated with policy measures that have a territorial jurisdiction, such as capital controls or payments moratoriums.<sup>48</sup> As a result, the consolidated statistics measured only claims on an immediate borrower basis (also referred to as contractual

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<sup>47</sup> Foreign claims comprise BIS reporting banks' cross-border claims plus their foreign offices' local claims.

<sup>48</sup> The counterparty breakdown available in the consolidated banking statistics was at first limited to developing countries. This reflected monetary and financial authorities' concern about the large amount of bank lending to developing countries, a concern that heightened following Mexico's declaration in August 1982 of a moratorium on its external debt payments. In the second quarter of 1999, the statistics were expanded to cover all countries.

claims). Furthermore, the focus was on the international component of consolidated claims, ie reporting banks' cross-border claims in all currencies plus their foreign offices' local claims in foreign currencies. The other component of consolidated claims - local claims in local currencies - was typically funded locally and so was not seen to incur transfer risk. The rationale for including local claims in foreign currencies together with cross-border claims was that they were likely to be funded from abroad, and so would be subject to transfer risk.

Financial crises in Asia and other emerging markets in the late 1990s, and changes in the structure of international banking, led to a re-evaluation of the information conveyed by the consolidated banking statistics. Owing in large part to the growing globalisation and sophistication of banking and financial markets, contractual claims have become a less accurate measure of banks' credit risk exposures. Off-balance sheet transactions can significantly modify on-balance sheet claims. Derivatives are one such transaction. According to US data, the inclusion of derivatives claims boosted US banks' cross-border exposures by nearly 15% at end-March 2002. Owing to the way in which the value of derivatives claims is measured, the impact of derivatives may be even larger during periods of abnormal volatility in market prices. Between June 1997 and December 1997, following the flotation of the Thai baht, the amount owed to US banks by counterparties in Thailand via foreign exchange and derivatives products nearly quadrupled to \$2.5 billion, rising from 15% of on-balance sheet claims to 89% (US Congress Congressional Budget Office (2002)).

Another important way in which on-balance sheet claims can be altered is through guarantees, collateral and other credit risk transfers. For example, lending to the subsidiary of a foreign bank in London may be booked as lending to a UK counterparty, but the ultimate obligor is likely to reside elsewhere. Reallocation of claims from the immediate borrower to the ultimate obligor can significantly increase banks' exposures to some countries and reduce them to others. For instance, claims on Germany on an ultimate risk basis are 20% higher than contractual claims, whereas claims on the United Kingdom are nearly 20% lower.

In addition to the growing globalisation and sophistication of markets, cross-border mergers and acquisitions have altered the risks faced by banks. In particular, the growing share of locally funded business in banks' foreign claims shifts the balance of risks away from transfer risk and more towards country risk, ie the risk associated with the economic, business, political and social environment in which the debtor operates. Whereas transfer risk is associated with cross-border claims, all foreign claims - cross-border and local, foreign currency and local currency - are subject to country risk.<sup>49</sup> When the consolidated statistics were first introduced, local claims accounted for a small proportion of banks' foreign claims; this is no longer the case. In 1985 local claims in local currency accounted for only 6% of reporting banks' foreign claims on emerging economies. By March 2002 this proportion had risen to 40%. McCauley et al (2002) explore this shift from international to locally funded business.

The consolidated banking statistics were expanded in June 1999 to capture risk transfers. As currently reported, consolidated claims measured on an ultimate risk basis reallocate guaranteed claims to the country of residence of the guarantor and transfer claims on legally dependent bank branches to the country of residence of the parent bank. In accordance with the recommendations of the Committee on the Global Financial System (CGFS (2000)), the consolidated banking statistics will be further expanded by end-2004 to capture all relevant aspects of banks' credit risk exposures, including all off-balance sheet financial contracting.

### 5.3 **Systemic considerations**

Linkages between individual market participants have increased significantly in recent decades both within and across market segments. This has occurred at the domestic as well as at the international level. Increasing use of information technology, financial innovation and deregulation have been important factors in this respect. Whilst competition in the financial industry has increased there has also been a trend towards greater concentration, both at the level of individual firms and in terms of key financial market infrastructures.

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<sup>49</sup> The BIS recently changed the presentation of the consolidated banking statistics to give greater emphasis to country risk exposures and to enhance the comparability of the statistics across national banking systems. Whereas previously the focus was on BIS reporting banks' international claims, now the tables in which the consolidated banking statistics are presented focus on total foreign claims.

Strengthened financial linkages contribute to the efficiency of financial markets and help to diffuse pressures in individual markets by offering competing and alternative channels of financial intermediation. At the same time there is the possibility that uncertainties, as expressed in market volatility or changes in patterns of activity, can be reinforced rather than dampened and can be transmitted from one market segment to another (see BIS (1992) and Bernard and Bisignano (2000)).

The international financial statistics collected and disseminated by the BIS provide important information on the emergence of new relationships between financial and non-financial firms, the level and concentration of activity in financial markets, geographic distributions of financial flows, external vulnerabilities and risk exposures of debtors and creditors and spill-overs between different market segments. Much of this is not easily available elsewhere. Combined with other sources on market liquidity and trading patterns, external ratings, activity of non-bank financial firms and non-financial companies this allows market participants and policy makers to make an assessment of global financial vulnerabilities.

## **6. Future improvements to the BIS statistics**

The BIS statistics have evolved with the changing policy concerns of monetary and financial authorities and the changing structure of banking and financial markets. The first set of statistics - the locational banking statistics - focused on monetary stability, but subsequent series have gradually shifted towards a focus on financial stability. Improvements continue to be made to the statistics to reflect financial innovations. Consolidated banking statistics on an ultimate risk basis with a detailed sectoral breakdown and including off-balance sheet positions will begin to be published in 2005, providing a more comprehensive measure of the country risk exposures of internationally active banks. Efforts are also under way to expand the country and instrument coverage of the domestic and international debt securities databases.

Although the statistics were originally compiled with a specific purpose in mind, they nevertheless have a wide range of possible uses. These uses include extending monetary and credit aggregates, monitoring external debt, analysing banks' country risk exposures and documenting changes in financial intermediation. As markets change, so too will the possible uses of the statistics. It is not feasible to accommodate changes in markets and uses by constantly refining the way in which the statistics are compiled and disseminated. The costs to institutions contributing to the statistics of constant refinements would be too high and could discourage their participation. Providing that their intended purposes are taken into account, the currently available or planned statistics are sufficiently flexible to give insights into many aspects of banking and financial markets. In addition, other sources might be available to monitor specific innovations. However, when major changes in financial intermediation or techniques are identified, the BIS and the reporting central banks will continue to consider modifications to the statistics as for example the improvements in the consolidated statistics that will be implemented at end-2004.

## Annex: Terminology used in the BIS international financial statistics

A number of different terms, such as *cross-border*, *external*, *international*, *foreign*, *domestic* and *local* are used to describe the coverage and breakdown of various sets of data in the BIS international financial statistics. Unfortunately, precise internationally agreed definitions do not exist for most of them. The situation is further complicated by the fact that the different statistics have been collected to capture developments in specific markets, and the same terms are therefore not always used with exactly the same meaning in the different statistics. This annex tries to provide some clarity about the definitions used in the BIS international financial statistics both generally and with respect to individual market segments.

### 1. General framework

The terms *domestic* or *local* are used interchangeably to describe a financial relationship between entities that are located in the same country (ie residents) as well as to describe the currency of a given country. However, the two terms take on different meanings when used to describe different types of banks in the banking statistics: for a given country, *domestic* refers to a bank headquartered in the country in question, whereas the term *local* is used to define all banks located in a given country regardless of where their head office is located (ie domestic and foreign banks, see below).

The terms *cross-border* or *external* are always used interchangeably. *Cross-border* is defined in balance of payments methodology as describing a relationship between entities that are located in two different countries.

The terms *foreign* and *international* combine elements from the *cross-border* and *local/domestic* definitions, but the precise definition varies somewhat for the different sets of statistics, as described below. Apart from this, the term *foreign* is also used more generally to describe the currencies of other countries. With respect to types of banks, *foreign* is used, for a given country, to describe resident banks with headquarters located in another country.

### 2. Locational banking statistics

The locational banking statistics capture information on *international* claims and liabilities (jointly referred to as positions) of all banking offices located in a given country, regardless of whether they are *domestic* or *foreign*.<sup>50</sup> As shown in the matrix below, the term *international* covers the sum of *cross-border* (or *external*) positions and *domestic* (or *local*) positions in *foreign* currencies. *Domestic* positions in *domestic* currency are not included in the statistics.

Total claims of all banking offices (A + B + C)		
Domestic/local positions in domestic/local currency (C)	International positions (A + B)	
	<i>Domestic/local positions in foreign currencies (B)</i>	<i>Cross-border/external positions (A)</i>
Domestic/local positions (B + C)		

Note: Shaded areas indicate positions excluded from the BIS locational banking statistics; bold italics indicate claims published in the locational banking statistics.

### 3. Consolidated banking statistics

The consolidated banking statistics mainly capture consolidated claims of domestic banking groups, ie *domestic* banks (head offices) in a given country and their *foreign* offices (branches and subsidiaries). Since the focus, and consequently the reporting basis, for the consolidated banking statistics is on

<sup>50</sup> Hence, the methodological basis is equivalent to balance of payments and international investment position statistics.

measuring country risk exposures, some of the terms used have a somewhat different meaning, as visualised in the matrix below.

*International* claims comprise all *cross-border* claims of *domestic* banks and their *foreign* offices plus *local* claims of their *foreign* offices<sup>51</sup> in *foreign* currency. Moreover, a broader concept of *foreign* claims is used, which includes these *international* claims as well as *local* claims of reporting banks' *foreign* offices in *domestic* currency.

Total claims of the banking group (A + B + C + D)			
Domestic claims of the banking group's domestic offices (D)	Foreign claims (A + B + C)		
	Cross-border claims (A)	Local claims of the banking group's foreign offices (B + C)	
		Local claims in foreign currency (B)	<b>Local claims in local currency (C)</b>
	<b>International claims (A + B)</b>		

Note: Shaded areas indicate claims excluded from the BIS consolidated banking statistics; bold italics indicate claims published in the consolidated banking statistics.

#### 4. Securities statistics

The securities statistics separate *international* issues of securities from *domestic* issues. *International* issues cover issues by resident borrowers in *foreign* markets, issues by resident borrowers in *foreign* currency in the *domestic* market and issues of resident borrowers in *domestic* currency in the *domestic* market targeted at non-resident investors. Thus, the concept of *international* in the securities statistics is broader than in both sets of the international banking statistics, as illustrated below.

Total issues (A + B + C + D)			
Issues by residents in foreign markets (A)	Issues by residents in the local market (B + C + D)		
	In foreign currency (B)	In local currency (C+D)	
		Targeted to non-resident investors (C)	Targeted to resident investors (D)
<b>International issues (A + B + C)</b>			<b>Domestic issues (D)</b>

Note: Shaded areas indicate issues that are not published separately in the BIS securities statistics. Bold italics indicate data published in the securities statistics.

#### 5. Foreign exchange and derivatives statistics

In the foreign exchange and derivatives statistics, the terms *cross-border* and *local* are only used for turnover data in the context of the triennial central bank survey of foreign exchange and derivatives market activity. The meaning of the terms is fully consistent with the locational banking statistics.

<sup>51</sup> For example claims on Mexican residents of an affiliate or subsidiary of a US headquartered bank in Mexico.

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