



Danmarks  
Nationalbank

# Denmark's balance of payments and international investment position

An overall presentation of the collection  
and compilation of data

January 2007

Denmark's balance of payments and international investment position  
– An overall presentation of the collection and compilation of data

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## Foreword

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This publication describes how Danmarks Nationalbank compiles Denmark's external financial transactions and external assets and liabilities (also known as the financial account of the balance of payments and the international investment position).

The publication marks the completion of extensive work to reform the collection of data and to change the compilation methods. This work was carried out over a period of four years, from the autumn of 2002 to the autumn of 2006. While previously the data collection was centred on a payments-based system originating in the foreign-exchange restrictions of earlier times, the statistics are now based on the most up-to-date statistical methods and reporting formats. This reform has taken place in order to both improve the quality of the statistics and reduce the reporting burden on the business community.

The publication is for those with a special interest in learning more about the statistics, what they are based on and how they are compiled.

The publication is also aimed at international organisations and fellow statisticians in other countries who might be considering similar reforms to the compilation of their balance of payments and international investment position. It is hoped that they may find this publication a source of inspiration, just as we have benefited greatly from particularly Dutch and Finnish experience from their reform of balance-of-payments systems.

The publication is in two parts. The first part is relatively brief and is intended to provide an overview, while the second part gives more detailed descriptions of the individual sources and compilation methods.

The author of the publication is Jens Hald, who has been the methodological driving force in the work of building up the new system. The final system is the result of the dedicated efforts and great commitment of the many employees involved in the transition process.

*Jens Dalsgaard*

## Denmark's balance of payments and international investment position

# PART 1

## A NEW SYSTEM – WHY AND HOW?

## Denmark's balance of payments and international investment position

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# 1. A New System: Why and How?

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This Chapter explains why Denmark's Nationalbank's payment statistics could no longer be used as the basis for compilation of Denmark's balance of payments and outlines the principles on which the new bop/iip<sup>1</sup> system is based.

## 1.1 WHY INTRODUCE A NEW SYSTEM?

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Until the turn of the year 2004/05, the compilation of Denmark's balance of payments was predominantly based on Denmark's Nationalbank's payment statistics<sup>2</sup>. The data was mainly provided by Danish banks, which reported payment transactions between residents and non-residents to Denmark's Nationalbank on an ongoing basis.

The payment statistics were part of the foreign-exchange restrictions introduced in 1931. After the last foreign-exchange restrictions were lifted in 1988, the weaknesses of the statistics gradually became more evident, cf. Box 1, and it became increasingly difficult to meet the statistical requirements of e.g. the IMF in its Balance of Payments Manual (BPM5), and later the ECB and Eurostat. For example, the payment statistics' classification by purpose was not sufficiently detailed, especially in relation to services, and more detail could not be achieved within the framework of the system. At times the classification by country was also incorrect (country of payment rather than country of transaction).<sup>3</sup>

At the same time this data collection method was also both expensive to administer and cumbersome for banks and business enterprises in general.

In the autumn of 2001, therefore, it was decided to look into an alternative reporting system that would be based on sampling supplemented with utilisation/expansion of the existing statistics. The investigation was completed in June 2002 and the *conclusion was that it was possible to design a system that would enhance the data quality and reduce the costs to society.*

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<sup>1</sup> Bop is the standard abbreviation for balance of payments. In this publication, however, bop is used solely to designate the financial account of the balance of payments. Likewise, iip is an abbreviation of international international position.

<sup>2</sup> Disregarding the foreign-trade statistics.

<sup>3</sup> The Bibliography includes descriptions of the payment statistics (Tryde, 1999) and the methodology for compilation of Denmark's balance of payments (Wildt, 1985).

## WEAKNESSES OF THE PAYMENT STATISTICS

Box 1

- Transactions not involving effective payments increased in volume. Significant examples are set-off, including netting arrangements, corporate acquisitions with "payment" in shares, reinvested earnings and trade credits. In practice the data material was not adequate.
- Danish enterprises increasingly used banks abroad as intermediaries, whereby the volume of direct reporting increased. In practice, the reports were not adequate.
- The threshold for registration of individual payment transactions was gradually raised, and the EU planned further increases (to approximately kr. 400,000), i.e. virtually no payments by households would be registered, and a proportion of the payments by the business sector, mainly payments for services and interest payments, would be poorly covered by the statistics.
- Payment flows changed, both within corporate groups, e.g. the introduction of centralised cash management (often abroad), and in banking groups, where even small changes to IT systems sometimes led to systematic errors in the reporting of external payments.
- The financial sector developed ever more complex products, and the resulting payment flows increasingly led to registration problems and errors.
- The method for linking payment statistics and foreign-trade statistics, cif/fob correction, broke down in the mid-1990s.
- Errors and omissions increased.

In addition to providing input for the compilation of the balance of payments, Danmarks Nationalbank has since the end of 1991 compiled Denmark's international investment position on the basis of the payment statistics and the annual reporting by the largest corporate groups in Denmark of their external assets and liabilities. Due to differences between the two reporting systems and populations, it was difficult to achieve cohesion between the financial transactions in the balance of payments and the changes in the financial assets and liabilities in the international investment position. Moreover, Danmarks Nationalbank faced new requirements for quarterly statistics, breakdown of external assets and liabilities by country, and better data for valuation adjustments.

Consequently, it was appropriate to merge the two reporting systems.

## 1.2 PRINCIPLES FOR THE NEW SYSTEM

The new system is intended to improve the data quality and reduce the costs to society. In order to achieve this, the system<sup>1</sup> is designed according to the principles outlined below.

<sup>1</sup> In connection with the transition to the new system, the division of responsibilities between Statistics Denmark and Danmarks Nationalbank was specified. Danmarks Nationalbank is responsible for the financial account of the balance of payments, the international investment position and investment income, while Statistics Denmark is responsible for the other current-account items.

To improve the data quality the following changes are made:

- From indirect bank-based reporting to direct reporting by business enterprises. Advantage: better contact with the enterprises undertaking the transactions.
- From payments to transactions related to enterprises' financial statements. Advantages: it is better to base reporting on enterprises' financial statements than on payment flows; better coverage (all transactions are included irrespective of size, and irrespective of whether effective payments are made); and compliance with BPM5.
- From two systems to one system. Advantages: cohesion between financial transactions and holdings, as well as valuation adjustments of and investment income from holdings; same reporting population and more frequent compilation of holdings.
- In the portfolio area, a shift to reporting by custodian institutions (VP Securities Services and custodian banks) at the most disaggregate level, i.e. security-by-security and holder-by-holder. Advantages: better quality (full data transparency and easier to detect errors and perform analysis); greater flexibility; and adaptable to future requirements in terms of the classification and grouping of data.

In order to reduce costs for the reporting enterprises, the new system is based on:

- Better utilisation of existing statistics and elimination of duplicate reporting, e.g. for goods. In the portfolio area, the reporting burden has been eased considerably because enterprises/banks no longer need to report securities transactions and holdings and custodian institutions only report unprocessed raw data. Even though the workload at Danmarks Nationalbank has been increased with a number of calculation and classification tasks, this method of generating securities statistics is, on aggregate, far more efficient.
- Sampling instead of counting the total population. The number of reporting enterprises (for both current and financial transactions) is only approximately 10 per cent of the enterprises that formerly filed reports for the payment statistics.
- Reporting forms that match the provisions and classifications of the Danish Financial Statements Act wherever possible (reporter-friendly).
- A reporting structure whereby Danmarks Nationalbank calculates data wherever possible, instead of requiring reports to be filed.
- Data consistency can be checked by the reporting enterprises themselves.
- A choice of various more or less automated IT reporting channels.

## Denmark's balance of payments and international investment position

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## 2. Structure of the Reporting System

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Data from all sources is reported using the same model, called the integrated reporting model. This ensures a uniform basis for compilation of the reported data, as well as consistency between the various statistics.<sup>1</sup>

The reported data comprises external financial stock data, flow data, valuation adjustments, etc. and external investment income by instrument and other variables (country, currency, etc.).

First the system and its sources are presented. Then follows a description of the structure of the integrated reporting model and the population of reporting enterprises and the grossing-up of data are outlined. Furthermore, the valuation of stock data is described (predominantly market value). Finally, the forecasting of certain data, mainly from annual reporting, is explained.

Reporting, irrespective of source, mostly takes place on a monthly basis. The reporting deadline is the 10th banking day after the expiry of the reported month. Annual reporting primarily concerns stock data for direct investments.

### 2.1 OVERVIEW OF THE SYSTEM AND ITS SOURCES

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The new system was planned on the basis of two existing sources: the securities statistics and the MFI statistics. The expansion of the two types of statistics in 2003-04 gave an opportunity to incorporate reporting requirements from the bop/iip statistics area. This strongly diminished the remaining areas without statistical coverage, cf. the blue field in Box 2. As regards the last two areas, General government and Households, data from Danmarks Nationalbank and Statistics Denmark could, after some adjustment, be used to cover these sectors.

The blue field (reporting by enterprises) comprises:

- Non-MFIs, i.e. non-financial enterprises, other financial intermediaries, etc., and insurance companies and pension funds.
- Instruments other than portfolio investments, i.e. direct investments, derivatives and loans and deposits. To the extent that enterprises have deposited securities (portfolio investments) with custodian institutions abroad – which are therefore not included in the securities statistics – information on such holdings must be included in the reporting by enterprises.

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<sup>1</sup> Danmarks Nationalbank's reporting guidelines, etc. are listed in the Bibliography. The statistics are available at Danmarks Nationalbank's website, [www.nationalbanken.dk](http://www.nationalbanken.dk) > Statistics.

STRUCTURE AND SOURCES OF THE REPORTING SYSTEM						Box 2
Sector	Instrument					
	Portfolio investments	Direct investments	Derivatives	Loans and deposits, etc. <sup>1</sup>	Reserve assets	
MFI's .....	MFI statistics (100 per cent)					
Other enterprises .....	Securities statistics (99-100 per cent)	Reporting by enterprises (95 per cent)			Not applicable	
General government .....		Danmarks Nationalbank and Statistics Denmark (100 per cent)				
Households.....		MFI statistics and calculations				

Note: Percentage coverage is stated in parenthesis.

<sup>1</sup> Equivalent to Other investments, cf. BPM5.

This ensures statistical coverage of all sectors and instruments. The individual sources are presented below.

### 2.1.1 Securities statistics

The securities statistics are the primary source for the compilation of portfolio investments between residents and non-residents. Reporting for the securities statistics takes place on a security-by-security and holder-by-holder basis. By cross-referencing the ISIN code<sup>1</sup> of the security with information from a securities database (issuer, currency, coupon, etc.) Danmarks Nationalbank calculates market values, valuation adjustments, transactions and accrued interest, and derives holder and issuer by sector.

The securities statistics consist of three elements:

- For Danish securities issued in Denmark and owned by non-residents, the primary source is VP Securities Services.
- Danish securities issued abroad are reported separately to Danmarks Nationalbank.
- For foreign securities owned by Danish residents, the primary source is custodian banks in Denmark.

If enterprises deposit securities abroad or in own custody, the information is included in the enterprises' reporting to Danmarks Nationalbank. It is assumed that households primarily deposit foreign securities with custodian banks in Denmark. Data is no longer collected directly from households.

<sup>1</sup> International Securities Identification Number.

### 2.1.2 MFI statistics

The MFI statistics comprise Danmarks Nationalbank, banks and mortgage-credit institutes, other credit institutions and money-market funds. The MFI statistics adhere to the ECB guidelines. The guidelines for external financial flows and stock generally correspond to the guidelines in BPM5. In a few areas it has been necessary to estimate breakdowns to compensate for the lack of detailed information. However, the basis for the estimates is satisfactory.

The compilation of non-residents' holdings of Danish securities issued by MFIs is based on the securities statistics, while the compilation of the MFIs' holdings of foreign securities is based on the MFI statistics. As a result, the securities on the MFIs' asset side cannot yet be broken down by security, but this will probably be amended in 2008.

### 2.1.3 Reporting by enterprises (bop forms)

The reporting population comprises non-financial enterprises, other financial intermediaries and auxiliaries, as well as insurance companies and pension funds.

Reporting takes place using monthly and annual forms. The forms are structured by instrument in much the same way as the financial items of an enterprise's financial statement, e.g. equity investments, bonds, trade credits, financial leasing, other loans and derivatives. Furthermore, instruments other than equity investments are specified by maturity. In addition, there is a special form for collateral that is used to adjust the breakdown by holder in the securities statistics<sup>1</sup>. Finally, there are forms for insurance provisions that are only required to be completed by insurance companies and pension funds.

On most monthly forms, all elements of the stock/flow identity are reported, cf. section 2.2. However, for trade credits only stock data is reported.

In the forms where stock data is not reported monthly, the data is forecast across the year by adding transactions and exchange-rate changes to the position at the beginning of the year. In these areas, the annually reported stock data is used for subsequent revision of the forecasts, cf. section 2.5.

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<sup>1</sup> The form e.g. includes data on securities received by the reporting enterprise from a non-resident as collateral for e.g. a loan. If the instrument is held by a custodian institution in Denmark, which reports to Danmarks Nationalbank (securities statistics), Danmarks Nationalbank will classify the instrument as owned by the enterprise in Denmark. This form is therefore used for adjustment of the breakdown by holder, so the correct non-resident holder appears from the adjusted securities statistics.

### 2.1.4 Statistics for General government and Households

The securities statistics are the source of information on non-residents' holdings of government bonds issued in Denmark (securities registered with VP Securities Services). Information on securities issued by the central government abroad, and the central government's other loans and derivatives, is collected from Danmarks Nationalbank, Government Debt Management, which manages the government debt on behalf of the Danish Ministry of Finance. Other external financial assets and liabilities held by the general government are reported by Statistics Denmark.

Data on households' external loans and deposits is compiled on the basis of Danish MFIs' foreign branches and subsidiaries. The households' securities holdings are covered by the securities statistics. In addition, the value of holiday homes abroad is based primarily on forecasting of accumulated payments from the earlier payments statistics.

## 2.2 THE INTEGRATED REPORTING MODEL

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Each source applies the integrated reporting model that is based on the stock/flow identity:

$$\begin{array}{l}
 \underline{\text{Stock, beginning of period (iip)}} \\
 + \text{Transactions during the period (bop)} \\
 + \text{Valuation adjustments, etc. during the period} \\
 \underline{= \text{Stock, end of period (iip)}}
 \end{array}$$

where the stock data corresponds to the international investment position and the transaction data corresponds to the financial account of the balance of payments.

The advantage of the integrated reporting model is that data consistency can be checked by the reporting enterprises themselves. This facilitates the work of both the reporting enterprises and Danmarks Nationalbank and ensures consistency between stock data, transaction data and data on valuation adjustments.

In the MFI statistics and most of the bop forms all elements of the identity must be reported.

Not all elements of the identity have to be reported in the rest of the bop forms and in the securities statistics. For the bop forms, Danmarks Nationalbank calculates the missing element(s), thus minimising the reporting burden (e.g. trade credits, cf. Chapter 6). For securities with an ISIN code net transactions are calculated by Danmarks Nationalbank, partly to minimise the reporting burden, and partly because the calculated data is considered to be more accurate.

Besides consistency between transaction and stock data, another result is an improved basis for quarterly compilation of the international investment position. An extra gain is better data for valuation adjustments, etc. The latter concerns changes in exchange rates and prices, as well as other changes e.g. due to reclassification between sectors or instruments. For example, an increase in a shareholder's interest from below 10 per cent to 10 per cent or more of an enterprise's equity capital is reclassified from a portfolio investment to a direct investment.

Finally, the reporting of investment income (interest, dividend on portfolio shares and profit on direct investments) has been incorporated into the reporting model since investment income is linked to stock data. Investment income can now be compiled to the same level of detail as stock data.

The home country of the non-resident counterparty and the currency of the external account must also be reported in the forms. Furthermore, in a few forms (for direct investments) the sector or industrial classification of the foreign counterparty must also be stated.

### **2.3 POPULATION AND GROSSING-UP**

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The reporting population comprises a sample of enterprises, primarily those with the largest external financial transactions up to the end of 2004. Enterprises are selected with a view to ensuring that the various subsegments, e.g. instrument and sector, are adequately represented. There are just over 700 monthly reporters, and just over 400 reporters with small transactions, but relatively large holdings. The latter report stock data only once a year. The stock data is forecast in the course of the year on the basis of exchange-rate changes. Under direct investments, equity capital is furthermore adjusted by reinvested earnings (the enterprise's undistributed profits). The forecast data is subsequently revised on the basis of the annually reported stock data.

The two samples together cover around 95 per cent of the historical external financial accounts. The coverage varies depending on instrument and sector. The reported data (stock data, flow data and valuation adjustments) is grossed up by an average of 5 per cent, varying between 0 and 15 per cent.

The coverage for General government is close to 100 per cent. Data is not collected directly from the household sector, but the households' holdings of foreign securities are to a high degree covered by the custodian banks' reporting. For other instruments the coverage is less than 100 per cent since the sole basis is data from Danish MFIs' units

abroad. Against this background, and because the uncovered amounts are considered to be relatively modest, there is no grossing-up.

## **2.4 VALUATION AND REINVESTED EARNINGS**

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As a main rule, stock data is compiled at market value, including interest receivable/payable or reinvested earnings, cf. below. Stock data in foreign currency is translated into Danish kroner at the exchange rate applying on the statement date.

The market value of listed shares, including direct investments, is compiled on the basis of listed prices. The value of equity capital in unlisted enterprises is compiled at book value (possibly after translation from cost price if this accounting principle is applied by the enterprise). Unlisted portfolio securities are reported at estimated market value or book value.

Loans and deposits are predominantly compiled at nominal value.

Interest receivable/payable or reinvested earnings are added to the value of the positions. Interest receivable/payable is interest accrued, but not paid out, from the beginning of the interest period to the statement date.

In the MFI statistics reported or calculated interest receivable/payable is added to all stock data.

Reinvested earnings relate to direct investments and comprise the enterprise's undistributed profits. Reinvested earnings are forecast using the enterprise's profit ratio and current information on disbursed dividends. Reinvested earnings are added to the most recently reported stock data for equity capital and reserves. The forecast is subject to uncertainty and subsequent revision when actual profits are reported.

## **2.5 FORECASTING**

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Forecasting is necessary for enterprises reporting solely on an annual basis, and for a few monthly forms without stock data.

For annual reporters reporting annual stock data only, the stock data is forecast using exchange-rate changes and, wherever possible, price changes. Monthly transactions are calculated as one twelfth of the change in the positions after valuation adjustments. For monthly reporters – in the forms without stock data – the stock data is forecast across the year by adding transactions, exchange-rate changes and, wherever possible, price changes to the position at the beginning of the year.

Box 3 describes the forecasting of the respective instruments.

## FORECASTING OF INDIVIDUAL INSTRUMENTS

Box 3

- *Direct investment, equity capital*: forecasting is carried out for monthly reporters as they only report stock data annually. No prices are available for unlisted equity capital, so the stock data is forecast "only" on the basis of reported transactions and exchange-rate changes. The yield on direct investments, broken down by dividends and undistributed profits, is forecast using previously reported data. As regards annual reporters, listed and unlisted equity capital is forecast in the same way as for monthly reporters, although neither transactions nor dividends are reported monthly. Instead, dividend is distributed across the year according to a key. It is possible to manually incorporate large transactions, e.g. new direct investments, in the forecasts.
- *Direct investment, intercompany debt (group loans)*: monthly reporters report stock and interest data on a monthly basis, so no forecasting is necessary. The stock data of annual reporters is forecast using the exchange rate, and it is also possible to manually incorporate large transactions during the year. Interest from the most recent annual reporting is distributed evenly across the year.
- *Portfolio shares*: monthly reporters report stock and dividend data for portfolio investments on a monthly basis, so no forecasting is necessary. Like equity capital, annual reporters' holdings of portfolio shares are forecast using a breakdown by listed and unlisted shares. Dividend from the most recent annual reporting is distributed across the year according to a key.
- *Bonds*: monthly reporters report bond holdings on a monthly basis, so no forecasting is necessary. This also applies to interest on bonds without ISIN codes. For monthly reporters, interest on bonds with ISIN codes is calculated on a monthly basis. The bond holdings of annual reporters are forecast, like portfolio shares, as bonds respectively with or without ISIN codes. For securities with ISIN codes interest is calculated and distributed evenly across the year. For securities without ISIN codes the annually reported interest is distributed evenly across the year.
- *Derivatives*: futures are subject to daily settlement of differences, so the stock is always zero. Futures are only reported by monthly reporters, so no forecasting is necessary. For derivatives excluding futures, stock and transaction data is reported on a monthly basis by the monthly reporters, and no forecasting is necessary. Stock data for OTC derivatives and options is subject to flat forecasting for annual reporters.
- *Other investments*: monthly reporters report stock data for other investments on a monthly basis, so no forecasting is necessary. Annual reporters' stock data is forecast using exchange-rate changes subject to the assumption of zero price changes. Interest is distributed evenly across the year. Furthermore, for long-term receivables and payables it is possible to manually incorporate large transactions during the year.
- *Insurance provisions*: both monthly and annual reporters report external stock data only once a year, and the stock data is forecast using exchange-rate changes. Transaction data is calculated residually. This can be done with reasonable accuracy for life insurance, but forecasts for non-life insurance, including reinsurance, are subject to greater uncertainty due to strongly fluctuating data as a result of storms, etc.

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## 3. What Do the BOP/IIP Statistics Show?

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This Chapter presents concepts and relationships in the bop/iip statistics and describes what the statistics show.<sup>1</sup> At the end of the Chapter some distortions and shortcomings of the statistics are pointed out.

### 3.1 CONCEPTS AND RELATIONSHIPS

---

The *balance of payments* is a flow statement showing the value, within a given period, of the economic transactions between a country (e.g. Denmark) and abroad. The balance of payments comprises three accounts:

- (a) Current account<sup>2</sup>
- (b) Capital account, etc.
- (a) + (b) = Net borrowing from/lending to abroad
- (c) Financial account

The *international investment position* is a stock statement showing the value of a country's external financial assets and liabilities at a given time.

The balance of payments is compiled according to the double book-keeping principle. This entails that the balance of the current account plus the capital account, etc. (net borrowing/lending) is set off by the balance of the financial account with the opposite preceding sign. For example, sale of goods on credit results in two entries: income (credited) to the account for sale of goods to abroad (current account) and expenditure (debited) from the account for external trade credits (financial account). Another possibility is two opposite financial transactions, e.g. if an enterprise borrows abroad (credit transaction) and sells the proceeds to a bank (debit transaction, i.e. the bank's external assets increase).

In theory the balance of payments must balance, i.e. the sum of net borrowing/lending and the financial account is, by definition, zero. In

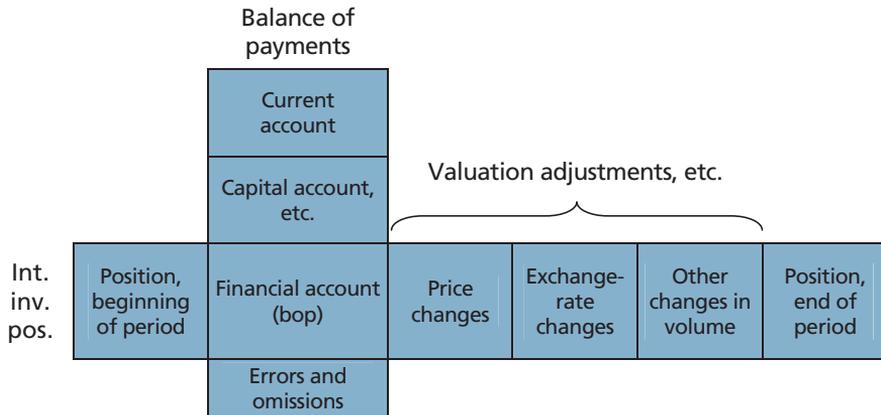
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<sup>1</sup> The statistics are also used to analyse various issues, e.g. the significance of capital flows to the exchange rate of the krone. Analyses performed by Danmarks Nationalbank are listed in the Bibliography.

<sup>2</sup> Current transactions include foreign trade in goods and services, income (mainly interest, dividends and undistributed profits) and current transfers.

## BALANCE OF PAYMENTS AND INTERNATIONAL INVESTMENT POSITION

Chart 1



practice this is not the case because two separate statistical compilations are involved. The difference between the two – the statistical discrepancy – is referred to as *errors and omissions*.

The system is based on the following relationship between the balance of payments and the international investment position, cf. Chart 1:

$$\begin{aligned}
 & \underline{\text{Stock, beginning of period (iip)}} \\
 & + \text{Financial transactions during the period (bop)} \\
 & + \underline{\text{Valuation adjustments, etc. during the period}} \\
 & = \underline{\text{Stock, end of period (iip)}}
 \end{aligned}$$

This relationship at the macro level corresponds to the integrated reporting model at the micro level. Consequently, there is a clear relationship between output and input data, broken down by the dimensions: asset/liability, instrument, sector/industry, country and currency.

Financial stock is stated at market value. In addition to transactions (volumes), stock is influenced by:

- Valuation adjustments as a result of changes in exchange rates and market prices,
- Other changes in volume, e.g. write-downs for losses on lending by MFIs<sup>1</sup> and reclassification from one instrument to another.

*Valuation adjustments, etc.* comprise valuation adjustments and other changes in volume.

<sup>1</sup> Losses on lending are registered separately in the MFI statistics. In the securities statistics and enterprises' reports, losses are not calculated/registered separately, but are included under valuation adjustments.

With a few exceptions, the current account of the balance of payments, including capital transfers, etc., corresponds to an enterprise's profit and loss account. In the same way, the international investment position corresponds to the balance sheet.<sup>1</sup>

### 3.2 PUBLICATION

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Danmarks Nationalbank publishes key figures in the statistical publication series *Nyt*<sup>2</sup>, which also includes comments on the data and a section on sources and methodologies. Further details are found in the Tables supplements. The data is also available in Danmarks Nationalbank's database, from which it can be retrieved. The database includes more data than the tables.

*Nyt* and the Tables supplements are published at Danmarks Nationalbank's website – [www.nationalbanken.dk](http://www.nationalbanken.dk) > Statistics.

The tables are grouped as follows:

- Financial account of the balance of payments (bop), monthly data
- Denmark's external assets and liabilities (iip), quarterly data
- Direct investments, quarterly flow data
- Direct investments, annual stock data

With a few exceptions, the tables comply with international standards.

One exception relates to the presentation of Danmarks Nationalbank's external transactions/accounts. As a general rule, Danmarks Nationalbank adjusts to the activities of other sectors, either via reserve assets or via other accounts. Consequently, *Danmarks Nationalbank* is presented on *an overall basis* in the overview tables and specified in a separate table, while the *rest of the Tables supplement describes other sectors than Danmarks Nationalbank*.

Another exception from the international standards relates to direct investments, which are broken down by assets and liabilities and not by direction (outward and inward less disinvestments/reverse loans). The asset/liability presentation has been chosen partly because it is expected to be the future international standard.

A third exception also concerns direct investments, of which the presentation focuses on direct investments excluding pass-through

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<sup>1</sup> One exception relates to valuation adjustments, which to a certain extent, cf. the Danish Financial Statements Act, are included in the profit and loss account, but not registered in the balance of payments. Another exception relates to tangible fixed assets, e.g. purchase of machinery, which is capitalised in the enterprise's balance sheet (and written off to operations), but statistically registered as a current transaction (purchase of goods), irrespective of its useful life.

<sup>2</sup> For *Nyt* comments are in Danish only. Tables and charts are also in English, as well as Sources and methodologies and Tables supplements.

investments, cf. section 3.5. The international statistics standards are expected to adopt this form of presentation.

The purpose of these relatively few exceptions from the present standards is to achieve a more relevant presentation of the bop/iip statistics for Denmark.

### **3.3 FINANCIAL ACCOUNT OF THE BALANCE OF PAYMENTS (BOP)**

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The financial account gives a detailed picture of capital flows between Denmark and abroad. Capital flows are specified as assets/liabilities broken down by instruments, sectors, countries and currencies. The most important specifications are shown in a Tables supplement available at Danmarks Nationalbank's website.

Since Danmarks Nationalbank's transactions are governed by other motives than the transactions of other sectors, cf. above, the capital flows are broken down into transactions by Danmarks Nationalbank and by other sectors, cf. Table 1, which corresponds to table 1 in the Tables supplement to "Balance of payments – financial account".

In the rest of the Tables supplement, capital flows excluding Danmarks Nationalbank are specified by instrument and sector. The tables are broken down by nine instruments, each of which is distributed on six sectors. The instrument and sector breakdown is described in the Appendix to this publication. In addition, there are separate tables for Danmarks Nationalbank and the banks.

A negative preceding sign in the tables indicates capital outflows ("money out of Denmark"), e.g. as a result of residents' purchases of foreign shares<sup>1</sup>.

The tables show the monthly volumes of e.g. residents' net purchases of foreign bonds and shares distributed on six Danish sectors (as well as Danmarks Nationalbank and the banks). In the same way, non-residents' net purchases of Danish bonds and shares are distributed on the (six) Danish sectors that have issued the securities. Bonds are furthermore broken down by krone-denominated bonds and bonds denominated in other currencies. This makes it possible to assess the non-resident role in the Danish bond market. In addition, Danmarks Nationalbank publishes data on e.g. non-residents' holdings specified by instrument.<sup>2</sup>

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<sup>1</sup> In general, a negative preceding sign indicates that residents have invested abroad/reduced foreign borrowing, while a positive preceding sign means that residents have reduced foreign investments/borrowed abroad.

<sup>2</sup> Available at Danmarks Nationalbank's website, [www.nationalbanken.dk](http://www.nationalbanken.dk) > Statistics > Download statistics – database > Securities statistics by ISIN codes.

BALANCE OF PAYMENTS								Table 1	
Kr. billion	Current account and capital account, etc., total	Capital inflow					Danmarks Nationalbank <sup>1</sup>	Total	Errors and omissions
		Total excl. Danmarks Nationalbank							
		Central government net borrowing in foreign currency	Banks	Other	Total				
2001 .....	41.6	-0.1	86.8	-129.6	-42.9	-27.5	-70.4	28.8	
2002 .....	35.3	-1.3	73.4	-42.1	30.0	-45.4	-15.5	-19.8	
2003 .....	48.3	0.3	67.0	-83.3	-15.9	-30.8	-46.7	-1.5	
2004 .....	44.9	0.7	-4.0	-106.7	-110.0	6.2	-103.8	58.9	
2005 .....	57.7	6.2	65.9	-126.6	-54.5	11.8	-42.7	-14.9	
okt 05 ....	4.1	1.2	14.0	-22.0	-6.9	15.9	9.0	-13.1	
nov 05 ....	6.5	-1.2	-0.2	-19.2	-20.6	5.3	-15.2	8.7	
dec 05 ....	1.1	0.1	-38.5	36.8	-1.7	-3.7	-5.5	4.3	
jan 06 ....	-1.3	-1.4	-40.7	48.9	6.8	-1.1	5.6	-4.3	
feb 06 ....	1.6	0.9	32.6	-53.2	-19.7	31.0	11.3	-12.9	
mar 06 ....	-2.3	0.4	-0.1	-12.2	-12.0	-0.5	-12.5	14.7	
apr 06 ....	-0.4	-0.8	18.1	-5.0	12.2	-0.2	12.1	-11.7	
maj 06 ....	6.6	0.8	15.9	-12.9	3.8	-0.9	2.9	-9.5	
jun 06 ....	6.2	1.9	-2.9	-2.7	-3.7	-1.3	-5.0	-1.1	
jul 06 ....	7.2	0.6	20.9	-12.0	9.5	0.9	10.4	-17.6	
aug 06 ....	8.5	0.1	10.6	-16.6	-5.9	2.0	-3.9	-4.6	
sep 06 ....	6.8	0.5	-3.6	-22.2	-25.4	0.2	-25.2	18.4	
okt 06 ....	...	-2.2	-2.2	19.6	15.1	0.9	16.0	...	

Note: A negative sign indicates that Denmark on a net basis has invested abroad/reduced foreign borrowings (capital outflow), while a positive sign indicates that Denmark on a net basis has reduced foreign investments/borrowed abroad (capital inflow).

<sup>1</sup> Deviates from the information in Danmarks Nationalbank's press release "Foreign exchange and liquidity" due to differences in compilation principles, cf. Sources and methodologies of the Tables supplement.

### 3.4 DENMARK'S INTERNATIONAL INVESTMENT POSITION (IIP)

The iip statistics give a detailed overview of Denmark's financial stock vis-à-vis abroad. The statistics are broken down in the same way as the capital flows.

For example, Table 2, which corresponds to table 1.2 in the Tables supplement to "Denmark's external assets and liabilities", shows which sectors invest or raise loans abroad. The instruments used are also shown. Finally, the tables show valuation adjustments, etc., i.e. wealth effects (gains and losses) for the various sectors of the economy, primarily as a result of changes in exchange rates and prices.

Considering the development over the last 15 years until mid-2006, it is seen that Denmark's external assets have quintupled and its liabilities more than tripled, while the gross domestic product (GDP) in current prices has not quite doubled, cf. Chart 2. This shows that the Danish economy increasingly relies on foreign money and capital markets. A similar trend is seen in other countries.

DENMARK'S ASSETS AND LIABILITIES AS WELL AS CHANGES THROUGH THE QUARTER BROKEN DOWN BY SECTOR<sup>1</sup>

Table 2

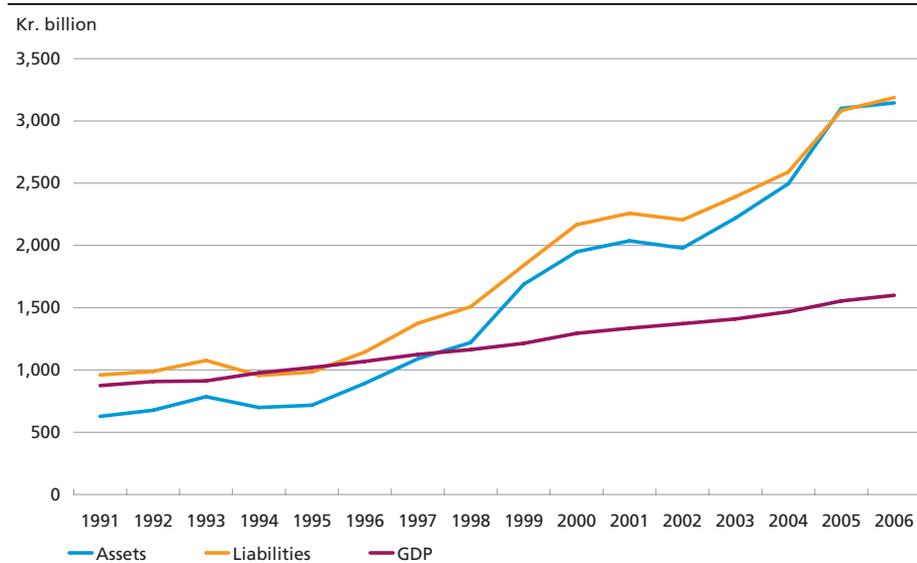
Kr. billion	Position at end-March 2006	Trans-actions	Valuation changes, etc.	Position at end-June 2006
<b>Assets, total</b> .....	3,178	54	-85	3,146
Assets, excl. Danmarks Nationalbank .....	2,992	51	-82	2,960
Non-financial corporations .....	877	16	-14	879
MFIs .....	917	18	-7	929
Other financial intermediaries, etc. ....	539	19	-37	520
Insurance corporations and pension funds	552	-6	-18	528
General government .....	25	-1	-1	23
Households, etc. ....	82	4	-5	82
Danmarks Nationalbank <sup>2</sup> .....	186	3	-2	186
<b>Liabilities, total</b> .....	3,166	64	-42	3,188
Liabilities, excl. Danmarks Nationalbank .....	3,165	63	-42	3,186
Non-financial corporations .....	1,201	14	-17	1,198
MFIs .....	1,621	53	-18	1,656
Other financial intermediaries, etc. ....	111	-2	-4	105
Insurance corporations and pension funds	34	-2	-1	31
General government .....	194	0	-2	192
Households, etc. ....	4	0	0	4
Danmarks Nationalbank <sup>2</sup> .....	1	0	0	1

<sup>1</sup> Broken down by domestic sector, i.e. sector of ownership for assets and sector for issuer or borrower for liabilities.

<sup>2</sup> Deviates from the information in Danmarks Nationalbank's press release "Foreign exchange and liquidity" due to differences in compilation principles, cf. Sources and methodologies of the Tables supplement.

## DENMARK'S EXTERNAL ASSETS AND LIABILITIES AND GDP, 1991 TO MID-2006

Chart 2



### 3.5 DIRECT INVESTMENTS

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Statistics for direct investments are a subset of the bop and iip statistics, respectively. Direct investments are selected as an independent statistical area and published separately due to the special interest in direct investments by country and industry. The statistics thus contribute to illustrating Denmark's participation in globalisation.

The published tables for direct investments focus on direct investments *exclusive of* pass-through investments broken down by country and industry, cf. Box 4. Pass-through investments are shown in a separate table. The separation of pass-through investments improves the information value of the statistics for direct investments.

In the bop/iip tables (financial account of the balance of payments and Denmark's external assets and liabilities), pass-through investments are included in accordance with international statistics standards.

In any case it should be remembered that direct investments in Denmark often take place via a holding company that reinvests in a non-holding company in Denmark. The same may apply to direct investments abroad. The industry breakdown shows the industry of the first enterprise in which an investment is made. Consequently, investments in holding companies are shown to be disproportionately large. A similar tendency (but on a smaller scale) applies to the breakdown by country, where countries that attract holding companies are over-represented.

In order to counter these inexpediciencies and against the background of similar international considerations, the long-term strategy may be to supplement the existing stock statistics for inward direct investments with statistics broken down by the industry of the underlying enterprise owned by the holding company. In addition, there are plans to also specify inward investments by the home country of the ultimate investor.

As regards outward direct investments at several levels (subsidiary of subsidiary), there is currently no basis for a breakdown by industry and

#### PASS-THROUGH INVESTMENTS

Box 4

Pass-through investments are direct investment from abroad in a holding company in Denmark, which reinvests the funds abroad. These intermediary holding companies have little or no economic activity in Denmark. Pass-through investments (stock data) in and out of Denmark amounted to approximately kr. 250 billion at end-2001. Three years earlier there were no pass-through investments, and by end-2005 they had fallen to just under kr. 100 billion.

country. Once the FATS<sup>1</sup> regulation has been implemented, Statistics Denmark will collect this information for majority-owned enterprises. This will provide a better picture of the presence abroad of Danish business enterprises.

### 3.6 INVESTMENT INCOME

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As stated above, investment income is part of the current account. It is also an important element of the compilation of the gross national product (GNP) in relation to GDP. GNP is particularly interesting since part of the EU's revenue is measured in relation to GNP.

The integrated reporting model makes it possible to relate investment income to the corresponding stock data. This provides a measure of the development in the returns on financial assets compared to the returns on liabilities. While the interest payable on Denmark's liabilities previously exceeded the return on its assets, the gap has gradually narrowed in the last 10 years, cf. Damgaard (2007).

### 3.7 REVISION

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The published data is revised concurrently with adjustments to previously reported data. The financial account is revised two months back on an ongoing basis. The quarterly flow statistics for direct investments are revised one quarter back. The same applies to the quarterly iip data, cf. the revision policy of Danmarks Nationalbank<sup>2</sup>.

Annual revisions take place in September when the annual reports from the monthly and annual reporters have been finally processed. In principle, data for the current and the preceding two calendar years is revised, since the new annual reports also include data from enterprises whose financial year does not follow the calendar year. The revisions concern the same instruments as the forecasts – i.e. all instruments for annual reporters, and direct investments and insurance provisions for monthly reporters. Technically, the revisions follow the same procedure as the forecasts for the individual instruments, except that the holdings as of end-of-period have now been reported and are linked to the holdings reported at the beginning of the period. If data for monthly transactions is available, this is taken into account, and changes in exchange rates and prices are calculated if these are known. For direct investments and shares, dividends have now been reported and are

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<sup>1</sup> FATS is an abbreviation of Foreign Affiliates Trade Statistics. These statistics will include details of ownership, industry and activity for subsidiaries and branches owned by non-residents.

<sup>2</sup> Available at Danmarks Nationalbank's website, [www.nationalbanken.dk](http://www.nationalbanken.dk) > Statistics > Revision policy.

distributed over the year. Profits are reported on an annual basis, which leads to revision of undistributed profits. In addition, new estimates of the profit ratios are made for the following year's forecasts. For bonds and other accounts for which interest is sometimes reported on an annual basis, this revision is spread evenly over the year.

There may be deviations from the above revision policy in the event of very large and/or systemic revisions. Deviations from the policy laid down are described in Danmarks Nationalbank's *Nyt* publication series.

## **3.8 DISTORTIONS AND SHORTCOMINGS**

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### **3.8.1 "Distorted" country breakdown of non-residents' holdings of Danish securities**

Non-resident holders of Danish securities issued via VP Securities Services have to a large extent deposited their securities with the custodian institutions Euroclear or Clearstream, which are domiciled in Belgium and Luxembourg, respectively. Consequently, VP registers that the holders are domiciled in these two countries. Since VP is the main source, Belgium and Luxembourg are highly overrated as holder countries.

The distribution of Danish securities issued abroad by holder country is not known, but (for lack of anything better) it is assumed that the holders are from the countries in which the securities were issued.

The "distorted" country distribution is an international phenomenon that the ECB seeks to address by building up a central securities database also containing holder information. In addition, every year the IMF collects information from more than 60 countries on their holdings of foreign portfolio investments. This survey can presumably be used to estimate a breakdown by country that is more in line with the actual distribution.

### **3.8.2 Large "seasonal fluctuations" in dividends and reinvested earnings**

Investment income from portfolio shares, etc. comprises distributed dividends<sup>1</sup>. In Danish enterprises, distribution primarily takes place in March and April, while for foreign enterprises it is spread more evenly over the year. Consequently, net outflows are typically registered in

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<sup>1</sup> According to BPM5. For investment associations, the forthcoming balance-of-payments manual will presumably include requirements that investment income be extended to include undistributed profits corresponding to investment income on direct investments. It would be desirable that this principle applied to all portfolio shares. The number of foreign portfolio shares owned by residents exceeds the number of Danish portfolio shares owned by non-residents. Consequently, net investment income in Denmark is currently underrated. *Ceteris paribus*, this is matched by larger capital gains for Denmark.

March and April and net inflows in the rest of the year, cf. Statistics Denmark's publication of the balance of payments.

Investment income from direct investments comprises the profit for the year. The profit, divided by 12, is included in the monthly compilation of investment income so that there are no "seasonal fluctuations" in investment income from direct investments. However, there are fluctuations in dividends and thus also in undistributed profits, the two categories in which investment income is specified. Since undistributed profits are equal to reinvested earnings in the financial account, this item also fluctuates significantly from month to month, cf. Table 2 of the Tables supplement to "Balance of payments – financial account". Besides the "financial statements season", the reason is that some enterprises from time to time decide to distribute very large dividends. Reinvested earnings therefore do not reflect the establishment of new enterprises/acquisitions, but rather changes in equity capital in the accounts as a result of retained earnings in existing enterprises.

### **3.8.3 Shareholdings and other equity investments are valued differently**

For listed companies, direct investments in equity capital are stated at market value, while other enterprises report the book value. The book value is often below the market value, and consequently the stock data is lower in Denmark than in countries where book values are converted into market values.

### **3.8.4 Shortcomings in household compilations and uncertainties in the compilation of small and medium-sized enterprises**

The households' bop/iip data is collected from indirect sources that do not fully cover the households, cf. Chapter 7. However, it is assumed that the unreported amounts are limited in size. Therefore no grossing-up takes place, which means that the data for households is underestimated<sup>1</sup>.

Small and medium-sized enterprises are not included in the current sample. Grossing-up takes place on the basis of the earlier payment statistics. Consequently, the aggregate data is subject to some, albeit limited, uncertainty, cf. Chapter 9. The aggregate data is broken down by instruments, sectors, countries, currencies, etc. This means that the *relative* uncertainty of the data breakdown may be substantial.

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<sup>1</sup> If new sources/better calculation methods should become available at a later time, they will naturally be used.

### 3.8.5 Errors and omissions

Errors and omissions are the shortfall when the registered income and expenses of the balance of payments are balanced.

In the short term – month by month – errors and omissions fluctuate considerably, often with opposite preceding signs.

This indicates:

- That in the short term errors and omissions primarily relate to financial transactions (and holdings), since the current account does not fluctuate to the same extent.
- That errors and omissions are typically the result of non-simultaneous entry of related transactions by two players. For example, an enterprise may report the purchase of foreign securities on the first day of a month, while the bank from which it bought foreign exchange may have booked this transaction on the last day of the preceding month. Together, the two months thus give the correct result.

Errors and omissions on a monthly basis may thus be an indication that financial transactions have been registered at the wrong time. It might therefore be a good idea to supplement analyses of monthly data of the aggregate financial transactions with analyses of averages for several months.

## Denmark's balance of payments and international investment position

## PART 2

# SOURCES AND METHODOLOGIES

## Denmark's balance of payments and international investment position

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## 4. Sources – Securities Statistics

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This Chapter mainly deals with portfolio investments between Danish residents and non-residents, compiled on the basis of the securities statistics.

In accordance with the ECB's recommendations, the statistics are based on data concerning issuers – security-by-security – and holders – holder-by-holder. This enables Danmarks Nationalbank to contribute to the ECB's Centralised Securities Database, CSDB, cf. Box 5.

The primary sources of the securities statistics, as well as "enrichment" and adjustment of the source data, are described below. Finally, an account is given of how transactions, valuation adjustments, interest and dividends are calculated.

### 4.1 OVERVIEW OF THE SECURITIES STATISTICS

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The securities statistics<sup>1</sup> in the balance of payments (bop) and the international investment position (iip) reflect residents' portfolio investments abroad and non-residents' portfolio investments in Denmark, as well as a small number of direct investments. Portfolio investments account for approximately 40 per cent of total stock data in iip.

Like the overall reporting system, the securities statistics are designed to minimise the reporting burden. This is possible since most of the required data is reported by VP Securities Services and Danish custodian banks on behalf of the issuers and holders of the securities. Reporting is based on raw data, i.e. security-by-security and holder-by-holder. Wherever possible, Danmarks Nationalbank then undertakes all necessary classification, grouping and calculation, which eases the burden on the reporters and ensures greater flexibility and consistency in the processing of raw data.

The following description of the securities area matches the flow chart in Box 6.

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<sup>1</sup> Danmarks Nationalbank's reporting guidelines for the securities area are listed in the Bibliography.

## CENTRALISED SECURITIES DATABASE, CSDB

Box 5

Security-by-security collection is the general international trend in securities statistics. In a European context, the pivotal instrument is the ECB's Centralised Securities Database – *CSDB* – containing master and price data on securities in all member states.<sup>1</sup>

The fundamental principle of CSDB is "cost and information sharing". This means that all national central banks in the EU contribute information on national securities issues to the database. Information on securities issued by residents outside the EU<sup>2</sup> is acquired from a number of commercial data providers.

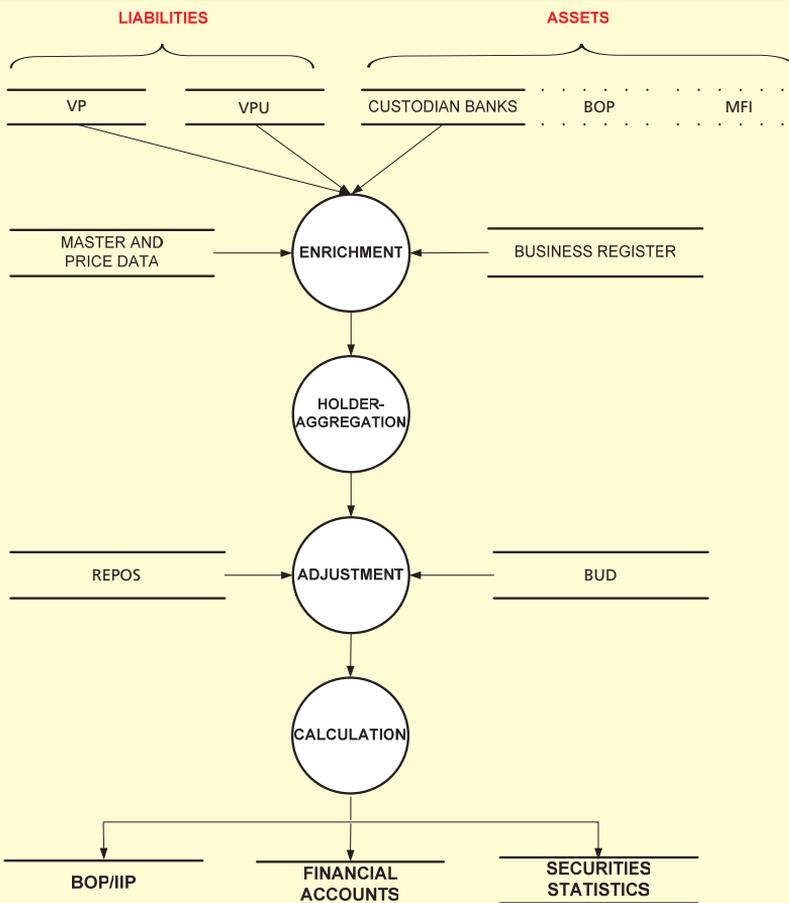
The aim is that the securities statistics of all EU member states should be based on CSDB in order to achieve substantial efficiency gains and savings, as well as consistency across the member states.

<sup>1</sup> The objective is to expand CSDB to include holder data. See the Bibliography (ECB 2006).

<sup>2</sup> And securities issued by EU residents on which the central banks are for various reasons unable to provide data to CSDB.

## OVERVIEW OF DATA FLOW IN THE SECURITIES AREA

Box 6



## 4.2 SOURCE DATA AND REPORTING SECURITY-BY-SECURITY

The securities statistics for bop/iip are based on the following sources:

- *VP Securities Services*: data on securities issued via VP, including information on issuers and holders. This subdatabase is called *VPDK* (*værdipapircentralen i Danmark*).
- *Residents' issues abroad*: information on Danish securities issued directly abroad, i.e. outside VP. This database is called *VPU* ("*værdipapirer udstedt i udlandet*").
- *Resident custodian banks*: information on ownership of foreign securities – not issued via VP – deposited with custodian institutions in Denmark. This source also includes a small number of Danish securities not registered with VP, e.g. mortgage deeds and share certificates. This database is called *KDE* ("*kundedepotstatistik*").
- *Bop reporters*: information on residents' holdings of foreign securities not deposited with a custodian institution in Denmark. This source also comprises data from, relatively few, reporters for Danish securities deposited with custodian institutions abroad (used for adjustment).
- *MFI reporters*: information on MFIs' holdings of foreign securities (irrespective of custodian location).

The sources supply information for the compilation of bop/iip to a varying extent depending on whether the information applies to the assets or liabilities side, cf. Box 7.

This Chapter solely describes data from VP, VPU issuers and custodian banks (primary sources). The MFI and bop sources are described in the following two Chapters, so they are only mentioned here when systemically relevant.

THE SOURCES AND THE ASSET/LIABILITY SIDES OF BOP/IIP			Box 7
	Issued via VP	Issued in Denmark, but not via VP	Issued outside Denmark
Liabilities (Danish securities)	VPDK	<ul style="list-style-type: none"> <li>• Held in custody account in Denmark: KDE</li> <li>• Otherwise: bop forms</li> </ul>	VPU
Assets (foreign securities)	VPDK	<ul style="list-style-type: none"> <li>• Non-MFI holdings in custody account in Denmark: KDE</li> <li>• Non-MFI holdings not in custody account in Denmark: bop forms</li> <li>• MFI holdings (irrespective of custodian location): MFI statistics</li> </ul>	

### 4.3 THE THREE PRIMARY SOURCES

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#### 4.3.1 Securities issued via VP, VPK

The monthly VP delivery comprises data for all securities issued via/registered with VP. The securities are primarily issued by residents (Danish mortgage-credit institutes, the central government, etc.). The delivery also comprises relatively small issues by non-residents (particularly Nordic credit institutions). The delivery includes a full breakdown by holder for all issues, i.e. data on all VP accounts.

For a given security, VP supplies information on the issuer (CVR (enterprise registration) number), and the characteristics of the security, including amount in circulation, type of instrument, repayment profile and interest (for debt instruments) and dividends (for equity or investment fund shares). VP also supplies price data collected from the Copenhagen Stock Exchange.

VP supplies information for identification of the holder, i.e. CVR number in the case of a Danish enterprise. A sector code is supplied for Danish households and a country code for non-residents.

For each combination of holder and security VP supplies information on nominal positions and gross transactions for the month.

#### 4.3.2 Danish residents' issues abroad, VPU

Each month, Danmarks Nationalbank collects data from the domestic financial and non-financial enterprises that directly issue securities abroad ("VPU securities"). The number of issuers may vary since the objective is to ask all enterprises issuing securities abroad. The most recent number of reporters was 41.

VPU securities are not issued via VP, but via central securities depositories abroad, e.g. Euroclear or Clearstream. So far, the direct foreign issues have only comprised debt instruments, i.e. no shares and other equity.

The delivery contains price and master data for each VPU security, as well as details of the place of issue. However, it does not contain information on ownership, except for the issuer's holdings of own issues, if any.

The remaining breakdown by holder is estimated on the basis of data reported via the custodian bank statistics and the enterprises' reported data on residents' holdings of VPU securities (identifiable via the ISIN codes). Finally, the MFIs' holdings of VPU securities can be estimated from the MFI statistics (but not by ISIN code). The securities not owned by residents according to the sources described above are owned by non-residents.

### 4.3.3 The custodian bank statistics, KDE

On a monthly basis, the custodian banks report information on customer holdings of securities issued outside VP. The custodian bank statistics predominantly relate to residents' holdings of foreign securities, but also include non-residents' holdings of Danish mortgage deeds and certain unlisted Danish shares.

In principle, the custodian banks for securities supply only an ISIN code<sup>1</sup>, which Danmarks Nationalbank uses to retrieve information on the issuer and the characteristics of the security, cf. the section on enrichment below. However, the custodian banks also supply a code for the currency in which the security is issued and traded, as well as the implicit market price of the security as of the end of the month.

For classification of ownership, the custodian banks supply CVR numbers for resident enterprises. For households, a sector code is supplied for residents and a country code for non-residents.

For each combination of holder and security, the custodian banks supply information on the position at month-end at nominal value and market value, respectively. This implicitly includes the market price of the security at month-end.

The reporting by custodian banks is considered to cover all foreign securities deposited with Danish banks (like the other securities sources). The number of reporters may vary over time. The most recent number of reporters for the custodian bank statistics was 20.<sup>2</sup>

### 4.3.4 Summary of the three primary sources

As a starting point for the following review of the data flow, Box 8 provides an overview of the required bop/iip information contained in the deliveries from the three primary sources, i.e. the elements subject to enrichment, adjustment and calculation, respectively.

## 4.4 ENRICHMENT

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Danmarks Nationalbank enriches reported data in two areas:

- Sector and industrial classification data for Danish enterprises.
- Master and price data for foreign securities.

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<sup>1</sup> For securities *without ISIN codes* the custodian banks supply the information required for Danmarks Nationalbank's classification of issuer and security, and calculation of transactions, valuation adjustments and investment income.

<sup>2</sup> The fact that a reporting population of 20 is sufficient to cover the custodian bank area in Denmark is attributable to the custodian banks' practice of redepositing. When small banks receive foreign securities deposited by their customers, they usually redeposit the securities with a major Danish bank since it is not cost efficient for them to act as custodian banks for foreign securities.

THE THREE PRIMARY SOURCES OF THE SECURITIES STATISTICS			Box 8
	VPDK	VPU	KDE
Master data on securities	Included in delivery	Included in delivery	Not included in delivery – ISIN codes are <i>enriched</i>
Breakdown by holder	Full breakdown by holder is included, but contaminated by repo/BUD – <i>adjustment required</i>	Breakdown by holder estimated	Holder information included in delivery, but contaminated by repos – <i>adjustment required</i>
Positions and prices	Nominal positions and prices are included; market values can then be calculated	Nominal positions and prices are included; market values can then be calculated	Positions are included at nominal and market value – implicit prices can be derived
Transactions	Gross transactions are included, but are somewhat contaminated by repo/BUD and corporate actions. In such cases, net transactions are calculated without using gross transactions	No transactions are included – calculation required	No transactions are included – calculation required
Interest	Calculated on the basis of data in the VP delivery	Calculated on the basis of data in the VPU delivery	Calculated on the basis of data in the KDE delivery and the enrichment
Dividends	Calculated on the basis of data in the VP delivery	Not applicable, debt instruments only	Dividend payments are included in the delivery

#### 4.4.1 Sector and industrial classification data for Danish enterprises

Each month, Denmark's Nationalbank receives an updated copy of Statistics Denmark's business register containing sector and industrial classification data for all Danish enterprises with a CVR and/or an SE (enterprise identification) number.

The information in the business register is used to classify the following entities (sector/industrial classification), provided that the entity in question has a CVR/SE number:

- Holders and issuers in the VP delivery
- VPU issuers
- Holders in the delivery from the custodian banks.

In other words, only a CVR/SE number for the above entities is reported by the primary sources. This enables Danmarks Nationalbank to undertake sector/industrial classification using the business register. It ensures that a given CVR/SE number is always classified in the same sector/industry, irrespective of the reporter/source.

#### 4.4.2 Master and price data on foreign securities

In future, the ECB's Centralised Securities Database, CSDB, will be the pivotal instrument for collection on a security-by-security basis at EU level, cf. Box 5.

Until CSDB becomes fully operational, Danmarks Nationalbank uses vp.FACT<sup>1</sup> as the source of master and price data on the reported foreign securities.

On the KDE and bop forms, only an ISIN code is, in principle, reported for each security, and a position at market value is reported for each holder. Danmarks Nationalbank then enriches the ISIN code via vp.FACT (subsequently CSDB) with the information required for instrumentation, classification of issuer and calculation of flows.

The reason why *price* data is retrieved from vp.FACT is that price data is not reported on the bop forms. Only positions at market value are reported. The calculation of transactions and valuation adjustments in the bop system thus requires prices at month-end. In the KDE system, on the other hand, prices are reported, so it is not necessary to retrieve price information from vp.FACT.

### 4.5 AGGREGATION OF THE HOLDER SIDE

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*Securities are not subject to aggregation*, i.e. they remain at ISIN code level all the way through the data flow in the securities area.

The holder side is, however, subject to a certain degree of aggregation:

- Non-residents are aggregated at country level.
- Danish households are aggregated at sector level.
- Danish sole proprietorships are aggregated at industry level.
- Other Danish enterprises remain at CVR number level, i.e. in principle no aggregation is made. However, aggregation is made via custodian institutions if an enterprise (a given CVR number) has spread its position in a given ISIN code over several custodian institutions.

After aggregation of the holder side, there is still a high level of detail in the data. Adjustments and calculations, as described below, are made at this level of detail.

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<sup>1</sup> vp.FACT is an independent unit under VP that sells information on financial instruments.

## 4.6 ADJUSTMENTS

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The breakdown by holder from VP and the custodian banks is in principle contaminated regarding:

- Repurchase agreements (repos), and
- Residents' holdings of VP-registered securities deposited with custodian institutions abroad (BUD).

### 4.6.1 Repos

For both statistical and accounting purposes, repurchase agreements must be treated as collateralised loans. This means that securities pledged as collateral in connection with a repurchase agreement do not change ownership, but remain with the original holder. In other words, repurchase agreements do not require registration of securities transactions.

The problem is that the *depository registration* of the ownership of a security at VP/the custodian banks changes, since VP and the custodian banks cannot distinguish between outright transactions (trades) and transfer in connection with repurchase agreements. The breakdown by holder reported by VP and the custodian banks is thus not statistically accurate (i.e. contaminated) to the extent that there are outstanding repurchase agreements at month-end.

Consequently, the gross transactions in the VP delivery are equivalently contaminated (inflated) by repurchase agreements.

This phenomenon applies not only to outright repurchase agreements, but to all types of transactions associated with the transfer of a security for custody purposes without the ownership of the security changing in balance sheet/accounting terms. Cases in point are securities lending by the central government and the Social Pension Fund, and the provision of collateral by the pension sector in connection with interest-rate swaps.

With a view to adjustment for these transactions, information is collected on a monthly basis from the banks that are most active in the repo market. Furthermore, information is collected from Danmarks Nationalbank, Accounting, on transactions concluded by Danmarks Nationalbank on its own behalf, and on behalf of the central government and the Social Pension Fund. Finally, the bop system includes a form for repurchase agreements and similar provision of collateral directly vis-à-vis non-residents. All information is collected at ISIN code level.

The breakdown by holder (positions at month-end at nominal and market value) is thus adjusted for repurchase agreements (in VPK and KDE) at ISIN code level. This is illustrated by a few examples in Box 9.

## EXAMPLES OF ADJUSTMENT

Box 9

**Adjustment of VP data**

If a bank in Denmark delivers VP-registered securities for an amount of kr. 100 million to a German counterparty in a repurchase agreement, the amount of kr. 100 million in the relevant ISIN code is moved in VP's records from the Danish bank to the custody account of the German counterparty. As a result, the holder data from VP is "contaminated" by this repo.

In its adjustment of VPDK, Danmarks Nationalbank moves kr. 100 million in the relevant ISIN code from Germany to the CVR number of the Danish bank. In terms of positions, the repurchase agreement has thus been eliminated after the adjustment.

The data for the adjustment in this example stems from the banks' repo reporting.

**Adjustment of KDE**

If an enterprise (bop reporter), using a bank in Denmark as custodian bank, receives foreign securities for an amount of kr. 200 million as collateral from a non-resident counterparty, the securities in question are registered to the enterprise's custody account with the bank. This means that the enterprise's (and thus Denmark's) position in the relevant foreign security is overvalued in the bank's KDE reporting.

The adjustment of KDE consists of deducting kr. 200 million under the relevant ISIN code from the enterprise's CVR number. In KDE, the counterparty's leg is not adjusted since this relates to a non-resident's holding of a foreign security, which is not relevant to Danmarks Nationalbank's statistics.

The data for the adjustment in this example stems from bop form S1.

**4.6.2 Securities deposited abroad, BUD**

If a resident deposits a VP-registered security with a custodian institution abroad, the security is registered in VP as owned by a non-resident. Securities not deposited with a Danish custodian institution will thus be deposited to an omnibus account with the foreign custodian institution, so that VP merely registers the location of the omnibus account, thereby losing track of the real holders. As mentioned, VP holds substantial amounts incorrectly registered as owned by Belgium (Euroclear) or Luxembourg (Clearstream).

With a view to adjustment, information is collected on a monthly basis from the largest banks on their holdings of VP-registered securities with custodian institutions abroad ("BUD reporting"). Furthermore, the bop reporters state any BUD holdings on bop forms A1 and A3. All BUD data is collected at ISIN code level.

Against this background, the breakdown by holder (positions at the end of the period at nominal and market value) is adjusted for BUD in VPDK, cf. the example in Box 10. The adjustment is made at ISIN code level.

## EXAMPLE – ADJUSTMENT OF VP DATA

Box 10

If a bank reports a position of kr. 300 million in a VP-registered security in Euroclear, the position will be registered in VPDK as owned by Belgium (before adjustment). In Danmarks Nationalbank's BUD adjustment of VPDK, an amount of kr. 300 million under the relevant ISIN code is moved from Belgium to the Danish bank's CVR number.

## 4.7 CALCULATION OF TRANSACTIONS, VALUATION ADJUSTMENTS AND INVESTMENT INCOME

In the securities area, flow data is, in principle, not collected but calculated.

The following is calculated for bop/iip:

- Net transactions and valuation adjustments
- Accrued interest and dividend payments (investment income).

In addition, certain types of corporate action (e.g. stock splits and bonus share issues) entail false liquidity effects, contaminating the gross transactions. Adjustment is made by Danmarks Nationalbank, cf. below.

In VPDK, KDE and VPU these calculations are made at the level of each security and for holders at the level of detail described in section 4.5.

### 4.7.1 Net transactions and valuation adjustments

The securities area is a closed circuit based on the following identity:

$$(1) \quad MV_t - MV_{t-1} = NT_{t-1,t} + PG_{t-1,t} + VG_{t-1,t}$$

where  $MV_t$  and  $MV_{t-1}$  are the repo/BUD-adjusted market value of the positions at time  $t$  or  $t-1$  respectively.  $NT_{t-1,t}$ ,  $PG_{t-1,t}$  and  $VG_{t-1,t}$  are respectively net transactions, price gains and exchange-rate gains from time  $t-1$  to  $t$ . All measures are in Danish kroner.

*In principle*<sup>1</sup> the net transaction is calculated as follows:

$$(2) \quad NT_{t-1,t} = (NB_t - NB_{t-1}) * \bar{V} * \bar{P}$$

where  $NB_t$  and  $NB_{t-1}$  are the repo/BUD-adjusted nominal position<sup>2</sup> at time  $t$  or  $t-1$  respectively.  $\bar{V}$  and  $\bar{P}$  are the average exchange rate and the average price, respectively. The method is based on the assumption that purchases and sales during the month have taken place at the average price and the average exchange rate. The averages are calculated as

<sup>1</sup> For shares that are not repo/BUD adjusted, the net transactions reported by VP Securities Services are used instead.

<sup>2</sup>  $NB$  is expressed as the number of shares and the nominal position in the quotation currency for bonds.

simple averages of exchange rates/prices at the beginning and end of the period.

Irrespective of the method of calculation of net transactions, the price and exchange-rate gains are calculated as follows:

$$(3) \quad PG_{t-1,t} = (NB_t * P_t - NB_{t-1} * P_{t-1}) * \bar{V} - NT_{t-1,t}$$

$$(4) \quad VG_{t-1,t} = MV_t - MV_{t-1} - NT_{t-1,t} - PG_{t-1,t}$$

In (3) the price gain is calculated as the difference between the market value of the position at the end and the beginning of the month less net transactions during the month. The change in market value is translated into Danish kroner in the same way as net transactions are translated in (2).

As appears from (4), the exchange-rate adjustment is calculated residually so the identity in (1) is always valid by definition.

It should be noted that all positions in the above calculations are repo/BUD adjusted. This implies that net transactions and valuation adjustments are also repo/BUD adjusted.

#### 4.7.2 Corporate actions in securities – VPDK

Certain corporate actions in securities entail "false transactions" in VPDK. For example, a bonus share issue entails transactions even though no new capital is injected into the issuing enterprise. Adjustment for these false liquidity effects in VPDK is made in connection with the transaction calculations.

As stated above, formula (2) is applied to repo/BUD-adjusted bonds and shares, while other net transactions are collected from VP. Depending on the type of corporate action, either method can entail false transactions, so that adjustment is required.

Adjustment is made *after* calculation of net transactions and valuation adjustments. Adjustment in VPDK takes place by deleting the net transaction calculated above and calculating a new net transaction using a modified version of formula (2). The modified version varies depending on the type of corporate action.

After recalculation of the net transaction, the price adjustment is recalculated residually, while the original exchange-rate adjustment is retained:

$$(5) \quad PG_{t-1,t} = MV_t - MV_{t-1} - NT_{t-1,t} - VG_{t-1,t}$$

For other types of corporate action the price adjustment is recalculated using a modified version of formula (3), and the exchange-rate adjustment is then recalculated residually using formula (4).

### 4.7.3 Corporate actions in shares – KDE

For foreign shares in KDE, stock splits/reverse splits are the main cause of false transactions. However, a robust module still needs to be developed for identification and treatment of corporate actions in foreign shares. Instead, a temporary solution, based on manual identification of stock splits, has been developed.

This solution entails that the position at the beginning of the period (number of shares) is multiplied by a split factor<sup>1</sup> *before* calculation of the net transaction (always formula (2) in KDE, i.e. no gross transactions have been reported here). This ensures that the positions (number of shares) both at the beginning and the end of the period correspond to the number after the split.

### 4.7.4 Accrued interest

For all debt instruments in VPDK, VPU and KDE<sup>2</sup> a number of interest expressions are calculated for bop/iip purposes.

The end result of the interest calculations is the following six measures for each position in debt instruments in VPDK, VPU and KDE:

1. Coupon interest accrued during the month
2. Coupon interest received and paid during the month
3. Accrued interest bought and sold during the month
4. Exchange-rate adjustment for the month of the accrued interest; may be positive or negative
5. Accrued coupon interest at the end of the period
6. Accrued interest, due to reduction of remaining maturity, during the month.

The first five interest measures, which are all associated with coupon interest, should add up to the following "interest identity", cf. Table 3:

The interest identity should be taken as:

$$5(t) = 5(t-1) + 1 - 2 + 3 + 4$$

Accrued interest due to reduction of remaining maturity is not included in the interest identity since it has nothing to do with coupon interest, but is included in the compilation of effective interest. Accrued interest due to reduction of remaining maturity implies that the difference between the redemption price (typically par) and the discounted issue price of a debt instrument should not be regarded as a price adjustment, but as a transaction (reinvestment in the security), cf. Chapter 8. The aim

<sup>1</sup> The split factor is the factor for increasing or reducing the number of outstanding shares.

<sup>2</sup> The same method is applied to debt instruments reported via bop forms, i.e. the bop enterprises' deposits of foreign debt instruments with custodian institutions abroad.

INTEREST IDENTITY					Table 3
Position at the beginning of the month, accrued interest (= end of previous month)	Accrued coupon interest	Received and paid coupon interest	Bought and sold accrued interest	Exchange-rate adjustment	Position at the end of the month, accrued interest
5 (t-1)	1	2	3	4	5 (t)

of calculating accrued interest is thus to extract this measure from the price change and treat it as a net transaction under investment income and the financial account of the balance of payments, respectively.<sup>1</sup>

#### 4.7.5 Dividends payments

Dividend payments for the bop/iip system stem from the three primary sources as follows:

- *VPDK*: VP reports the dividend payment per share for the month. In order to break down dividend payments by holder, the above measure is multiplied by the position of each holder (number of shares).
- *VPU*: not applicable, only debt instruments.
- *KDE*: reported by custodian banks as the month's dividend payments at ISIN code and customer custody account level.

<sup>1</sup> I.e. when including these transactions from the securities system in bop/iip, accrued interest is deducted from the price gain and added to net transactions.

## Denmark's balance of payments and international investment position

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## 5. Sources – MFI Statistics

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This Chapter describes the MFI population and gives an overview of the MFIs' external accounts. It also provides a more detailed description of the MFIs' reporting, outlining the extent to which data is reported and estimated.

### 5.1 THE MFI POPULATION AND EXTERNAL ACCOUNTS

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MFI is an abbreviation of monetary financial institution<sup>1</sup>. MFIs in Denmark comprise Danmarks Nationalbank, banks, mortgage-credit institutes, other credit institutions and money-market funds. The MFI statistics comprise parent enterprises in Denmark excluding branches and subsidiaries abroad. The statistics also cover the branches and subsidiaries in Denmark of foreign MFIs. In other words, the MFI population comprises units operating in Denmark and is thus in full accordance with the definition applied to bop reporters.

Furthermore, supplementary information is reported for non-resident branches and subsidiaries of the MFIs, cf. section 7.2.

The MFI population comprises 193 institutions (June 2006), cf. Table 4. All MFIs report, bringing the coverage to 100 per cent.

The largest institutions report very detailed data every month and are referred to as "full reporting institutions". The Danish reporting regulations for the full reporting institutions are designed so that – with a few exceptions – the data reported also corresponds to the international output requirements in the bop/iip area.

The full reporting institutions cover 98 per cent of the total MFI sector's external accounts.

The other institutions, known as "tail institutions", are smaller institutions. The largest of them are monthly reporters, whose external accounts at mid-2006 totalled 1.5 per cent of the MFI sector's total external accounts. Other credit institutions and the smallest tail institutions are quarterly reporters, cf. Table 4. Their external accounts represented 0.5 per cent of the MFI sector's total external accounts.

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<sup>1</sup> MFIs are credit institutions and other financial institutions whose main activity is to receive deposits and/or close substitutes for deposits from the general public and/or to issue bonds/money-market instruments to entities other than MFIs, and for their own account to grant credits and/or make investments in securities. The MFI statistics are based on the ECB's regulations and Danmarks Nationalbank's reporting guidelines, cf. the Bibliography.

MFI POPULATION, JUNE 2006				Table 4
	Number	Full reporters, monthly	Tail reporters, monthly	Tail reporters, quarterly
Danmarks Nationalbank .....	1	1	-	-
Banks .....	158	20	72	66
Branches of foreign banks .....	9	4	2	3
Mortgage-credit institutes .....	8	8	-	-
Other credit institutions .....	15	2	1	12
Money-market funds .....	2	-	-	2
<b>Total .....</b>	<b>193</b>	<b>35</b>	<b>75</b>	<b>83</b>

The tail institutions report far less information than the full reporting institutions. The unreported data is estimated using distribution keys derived from the data reported by the full reporting institutions.

The tail institutions' reporting solely comprises stock data (= balance sheet data), which is structured in the same way as for the full reporting institutions in terms of sector and maturity, although the breakdown is less detailed, especially for the quarterly reporters. Stock data is specified as accounts with residents and non-residents (subdivided into Danish kroner and foreign currency). In other words, the tail institutions *report* iip data broken down by assets/liabilities, instruments, sectors and maturities. The *estimates* therefore solely concern the breakdown of external accounts by country, the breakdown by net transactions and valuation adjustments, and the breakdown by currency (which is less important). Finally, monthly data is estimated for the tail institutions reporting on a quarterly basis.

The estimates in relation to the tail institutions mean that the overall MFI statistics are subject to a (very) small degree of uncertainty, mainly with regard to the breakdown by country.

## 5.2 MFI REPORTING

The reporting is fundamentally based on the stock/flow identity in the same way as the bop forms. For the key balance-sheet items, each element of the identity: positions, net transactions, price and exchange-rate changes and losses on lending<sup>1</sup> is reported separately, and the identity is checked. Investment income is also reported. Each of the elements is broken down by assets/liabilities, instruments, sectors, maturities and countries, so that the output requirements concerning

<sup>1</sup> In the Tables supplement losses on lending are combined with valuation adjustments under "valuation adjustments, etc.", which may also include reclassifications.

bop/iip are almost met. The regulations include detailed rules for compilation of each element and dimension.

Reporting concerning securities includes holdings at *market value*, net transactions and exchange-rate and price changes. For lending and deposits, reporting includes holdings at *nominal value*, net transactions, exchange-rate changes and losses on lending.

The following sections provide more detailed reviews of the data reported by the full reporting institutions and the data that is estimated.

### 5.2.1 Reported data

The balance sheet is broken down by instruments, of which the *most important balance-sheet items*<sup>1</sup> are:

#### *Assets*

- Lending
- Debt instruments
- Money-market instruments and shares and other equity issued by MFIs
- Shares and other equity
- Financial derivatives
- Other assets

#### *Liabilities*

- Deposits
- Issued debt instruments
- Money-market instruments issued by MFIs
- Financial derivatives
- Other liabilities
- Capital and reserves

Most of the balance-sheet items and related changes are also broken down by:

- The counterparty's *sector* – broken down by 10 sectors, including MFIs.
- The original *maturity* – including whether the maturity is short (up to and including 1 year) or long (more than 1 year).
- The counterparty's *home country* – broken down by 22 countries: all the "old" EU member states (14) as well as Norway, Switzerland, USA, Canada, Japan, Hong Kong, Singapore, Cayman Islands, and "rest of the world". Once every quarter, the most important balance-sheet items are specified for *all* countries and international organisations.

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<sup>1</sup> To this should be added cash in hand, currency in circulation, and money-market fund shares.

Finally, the balance-sheet items are broken down by the 7 major currencies (DKK, EUR, SEK, GBP, USD, CHF and JPY) and "other currencies". A full currency breakdown is not essential since the effect, in amounts, of all exchange-rate changes is reported.

### **5.2.2 Reported/estimated data for investment income (interest and dividends)**

Every month, the full reporting institutions report accrued interest broken down by three asset items and three liabilities items:

- Lending
- Debt instruments
- Money-market instruments and shares and other equity issued by MFIs
  
- Deposits
- Issued debt instruments
- Money-market instruments issued by MFIs

Accrued interest is also broken down by all countries.

Dividends paid/received are reported every month, broken down by portfolio shares (less than 10 per cent) and direct investments (10 per cent or more). Dividends are also broken down by all countries.

Accrued interest and reinvested earnings<sup>1</sup> are entered as investment income and set off as financial transactions, cf. BPM5.

Accumulated accrued interest (equivalent to interest receivable/payable) is also reported. The reported stock data in the MFI statistics is calculated excluding accumulated accrued interest and accumulated reinvested earnings. However, iip is compiled inclusive of these amounts (BPM5), which is possible due to the detailed MFI statistics.

Since the reported data for interest receivable/payable is not broken down by all of the available dimensions, it is necessary to estimate the missing dimensions. In relation to the outstanding balance-sheet amounts, the uncertainty related to this estimate is insignificant.

### **5.2.3 Estimated data**

#### *Country/sector/maturity*

In some areas, the MFI statistics are less detailed than the bop forms. This primarily applies to the countries in the "rest of the world" group (= other countries than the 22 mentioned above). At mid-2006, this group accounted for 8 per cent of the total external accounts. The four

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<sup>1</sup> Reinvested earnings are calculated as the difference between the profit for the year and dividends on direct investments. This data is reported by MFIs on the annual bop forms relating to direct investments.

most important balance-sheet items (lending, deposits, debt instruments, and shares, etc.) are, however, broken down by *all* countries in a special report that also includes a rough breakdown by sector (for example, the MFI sector is specified), but not by maturity. This special report relates only to stocks and not flows, etc., and reporting only takes place quarterly. The special report thus provides a basis for preparing distribution keys for the "rest of the world" countries with a rough breakdown by sector. The more detailed sector breakdown, including breakdown by maturity, is estimated on the basis of the data reported for the "rest of the world". The country distribution keys from the special report are then applied. Finally, data for the two "missing" months of the quarter is estimated using the same data as at the beginning of the quarter.

#### *Separation of direct investments*

Direct investments within the MFI sector solely comprise equity capital and reinvested earnings<sup>1</sup>. Direct investments are not stated separately in the MFI statistics, but included in one of the four balance-sheet items as share capital or branch capital, respectively:

- Shares and other equity (enterprise abroad)
- Capital and reserves (enterprise in Denmark)
- Lending (to own branch abroad, branch capital)
- Deposits (from parent enterprise abroad to branch in Denmark).

Danmarks Nationalbank is notified when a direct investment takes place. In addition, MFIs that have affiliates abroad or are under foreign ownership report detailed information once a year, cf. the footnote on p. 52. This enables separation of direct investments for *bop/iip*. The rest of the balance-sheet items in question then comprise portfolio investments<sup>2</sup>, cf. the first two items, and lending and deposits have been stripped of branch capital, cf. the last two items.

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<sup>1</sup> Accounts between MFIs within the same group are not classified as intra-group accounts, but as interbank accounts in accordance with BPM5. The reason is that lending from and deposits with other MFIs, irrespective of ownership, are an integral part of the MFIs' business activities and are therefore not seen as inter-company debt.

<sup>2</sup> If a foreign-owned MFI in Denmark has an ISIN code, the shares are also registered in VP and included in the securities statistics. It is therefore essential that Danmarks Nationalbank is aware of such investments for the individual enterprise so that they are not included twice.

## Denmark's balance of payments and international investment position

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## 6. Sources – BOP Forms

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The reporting forms used by other enterprises than MFIs are presented in this Chapter<sup>1</sup>. The introduction comprises a general overview of the structure of the forms, followed by descriptions of first the monthly forms and then the annual reporting forms. However, the monthly forms for derivatives are presented in conjunction with the annual reporting forms, and equivalently for insurance provisions.

### 6.1 OVERVIEW

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The forms are designed according to *the integrated reporting model*, i.e. the "heading" of the forms is divided into position at the beginning of the period, transactions<sup>2</sup>, valuation adjustments, and position at the end of the period, as well as interest/dividends. The data is also classified by country and currency<sup>3</sup>. Securities are furthermore classified by ISIN code. Finally, some forms include classification by sector or industry abroad.

The forms are filled in by enterprises that are not MFIs or investment associations. The forms comprise monthly and annual reporting forms.

There are 24 *monthly reporting forms*, cf. Box 11. The forms by and large match the structure of the balance sheet of an enterprise. The first part of the forms concerns the enterprise's assets (marked by "A"), and the second part concerns its liabilities (marked by "P" (= "passiver" in Danish)). The individual forms correspond to the instruments in the balance sheet, e.g. equity investments, bonds, trade credits, financial leasing and other loans. Debt instruments and loans/deposits are classified by maturity.

There are also special forms for derivatives<sup>4</sup> and collateralised securities, and forms for insurance provisions that are only to be filled in by insurance companies and pension funds.

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<sup>1</sup> Denmark's Nationalbank's reporting guidelines for reporting by enterprises are listed in the Bibliography.

<sup>2</sup> Transactions are reported on a net basis – apart from direct investments (equity capital), that are reported on a gross basis (purchase and sale).

<sup>3</sup> Currency information is used in its own right, as well as to isolate the part of the valuation adjustment that is due to the change in the exchange rate when the exchange-rate changes are not reported separately.

<sup>4</sup> The derivatives forms are only marked "A", even though derivatives contracts can be on both sides of the balance sheet.

The derivatives forms described and the related method currently cover a large proportion of the derivatives holdings, and the plan is to implement this solution for all reporting enterprises. In the original forms the holdings of OTC derivatives were not reported monthly, which is inexpedient for both Denmark's Nationalbank and the reporting enterprises.

OVERVIEW OF THE BOP FORMS		Box 11	
	Monthly reporters		Annual reporters
	Monthly forms	Annual forms	Annual forms
Shares and other equity investments with ISIN code .....	A1		A1Y
Shares and other equity investments without ISIN code .....	A2		A2Y
Bonds and money-market instruments with ISIN code .....	A3		A3Y
Bonds and money-market instruments without ISIN code .....	A4		A4Y
Trade credits granted with maturities within 1 year .....	A5		A5Y
Lending and deposits with maturities within 1 year .....	A6		A6Y
Other assets with maturities within 1 year .....	A7		A7Y
Trade credits granted with maturities of more than 1 year ....	A8		A8Y
Lending in connection with financial leasing .....	A9		A9Y
Lending and deposits with maturities of more than 1 year ....	A10		A10Y
Other assets with maturities of more than 1 year .....	A11		A11Y
Derivatives excl. futures .....	A12		A12Y
Futures concluded abroad and settled in daily diff. settlements	A13		
Shares and other equity investments without ISIN code .....	P1		P1Y
Trade credits received with maturities within 1 year .....	P2		P2Y
Loans received with maturities within 1 year .....	P3		P3Y
Other liabilities with maturities within 1 year .....	P4		P4Y
Trade credits received with maturities of more than 1 year ...	P5		P5Y
Loans received in connection with financial leasing .....	P6		P6Y
Loans received with maturities of more than 1 year .....	P7		P7Y
Other liabilities with maturities of more than 1 year .....	P8		P8Y
Ownership int. in subsidiaries, associates and branches abroad		A1A	A1AY
Foreign investors' ownership interest in enterprises in Denmark		P1A	P1AY
Collateral security form .....	S1		
<i>Insurance forms:</i>			
Provisions for life insurance and pension schemes .....	F1	F1A	F1Y
Provisions for non-life insurance and provisions for outstand. claims and provisions for sickness and accident insurance .....	F2		
Life insurance and pension scheme provisions for premiums and outstanding claims, etc. ....		F2A	F2Y
Provisions for non-life insurance companies .....		F3A	F3Y

The monthly reporting forms are filled in by just over 700 reporting enterprises comprising the enterprises with the largest external financial transactions. The population is described in more detail in Chapter 9.

Besides the monthly reporting forms the reporting structure comprises *annual reporting forms* in two versions.

*The first version is for the monthly reporting enterprises.* As the monthly reporters state most data on a monthly basis only certain supplementary data is required to be reported annually. This involves 5 forms: an assets and a liabilities form concerning ownership interests of 20 per cent or more (direct investments) and three insurance provisions

forms. The forms are numbered equivalently to the monthly reporting forms, with the addition of A (A for Annual reporting).

The second version is for the just over 400 annual reporting enterprises that have substantial external accounts but relatively small transactions. There are 25 annual forms for annual reporters. Most of these correspond to the monthly reporting forms, but are simplified in that transactions and valuation adjustments are not reported. The rest of the forms by and large correspond to the annual reporting forms that are completed by the monthly reporters. The forms are numbered equivalently to the monthly reporters' monthly and annual reporting forms, with the addition of Y (Y for Yearly), cf. the list of forms in Box 11.

## 6.2 SECURITIES FORMS, MONTHLY, A1-A4 AND P1

### 6.2.1 Common features of the forms

The forms concern securities that are *not* deposited with a custodian institution in Denmark. The forms thus concern all other types of safe-keeping than with custodian institutions in Denmark, i.e. directly with a custodian institution abroad, in own strongbox, safe-deposit box in a bank, etc. Securities deposited by residents with custodian institutions in Denmark are reported by the custodian institutions, cf. the description in section 4.3.3. Since most of the securities are deposited with custodian institutions in Denmark the reporters themselves do not have the burden of reporting the securities.

A1, A2 and P1 concern shares and other equity investments, and A3 and A4 concern bonds and money-market instruments respectively.

### 6.2.2 The individual forms

A1 comprises the reporting enterprise's holdings of Danish and foreign shares and other equity investments *with* ISIN codes which are not deposited with custodian institutions in Denmark. Danish securities must also be included because this information is used to correct data from Danish custodian institutions (VP Securities Services and custodian banks in Denmark) concerning holdings of Danish securities that appear to be

ASSETS – Danish and foreign shares and other equity investments with ISIN codes not deposited with a custodian institution in Denmark

Form A1

	ISIN code	Position at the beginning of the month	Changes during the month				Position at the end of the month	Dividend
			Transactions		Revaluations			
			Purchases	Purchases	Exchange-rate changes	Price changes		
Voting rights >= 20% (Line 1)								
Voting rights < 20% (Line 2)								



**ASSETS – Danish and foreign bonds and money-market instruments with ISIN codes not deposited with a custodian institutions in Denmark**

Form A3

	ISIN code	Position at the beginning of the month	Changes during the month		Position at the end of the month	Interest
			Net transactions	Revaluations		
Bonds (maturity > 1 year)						
Money-market instruments (maturity <= 1 year)						

changes at the close of the financial year, and this change is covered by the enterprise's annual reporting.

In principal line 2 (less than 20 per cent of the voting rights), comprising portfolio investments in shares and other equity investments, e.g. equity investments in foreign investment associations without ISIN codes, all elements of the stock/flow identity are reported (as well as dividends and country code). The background is the lack of ISIN codes, cf. the remarks under principal line 1, as well as the volatile prices and often unknown securities that make it difficult for Danmarks Nationalbank to calculate transactions and valuation adjustments. Some of these securities are infrequently traded, which also makes it difficult for the reporter to calculate the amounts exactly. Reporting this data is therefore subject to some uncertainty.

A3 comprises debt instruments *with* ISIN codes that are not deposited with a custodian institution in Denmark. Bonds (debt instruments with an original maturity of more than 1 year) are listed in principal line 1, and money-market instruments (debt instruments with an original maturity of 1 year or less) are listed in principal line 2. Like A1, A3 concerns Danish and foreign securities. A reporter is only required to state ISIN code and positions, after which Danmarks Nationalbank will derive the other data.

A4, like A3, concerns debt instruments, but *without* ISIN codes. It is therefore necessary for the reporter to state all elements of the stock/flow identity (as well as interest, country and currency codes). The reason is stated under A2.

P1 comprises shares and other equity investments *without* ISIN codes issued by the reporting enterprise, owned by non-residents and not deposited with a custodian institution in Denmark.

**LIABILITIES – Shares and other equity investments without ISIN codes issued by the reporting enterprise, owned by non-residents and not deposited with a custodian institution in Denmark**

Form P1

	ISO country code for foreign investor	Position at the beginning of the month	Changes during the month				Position at the end of the month	Dividend paid to foreign owner
			Transactions		Revaluations			
			Issues/sales to non-residents	Purchases from non-residents	Exchange-rate changes	Price changes		
Voting rights >= 20% (Line 1)								
Voting rights < 20% (Line 2)								

Like the other securities forms the form is a supplement to the securities statistics concerning Danish shares and other equity investments owned by non-residents, i.e. external liabilities. The form mirrors A2.

A distinction is made – as in A2 – on the basis of the voting rights of the foreign investor. If 20 per cent or more of the voting rights are held, this is stated in principal line 1, and if less than 20 per cent of the voting rights are held, this is stated in principal line 2.

For direct investments (principal line 1) only residents' sales to non-residents and residents' repurchases from non-residents<sup>1</sup> (as well as dividends and country codes) are stated, while positions are not required to be stated. The reason is stated under A2. It can sometimes be difficult for the enterprise to ascertain the purchase sum. However, normally the enterprise will be informed of the change of ownership as the new owner will make itself known in order to receive dividends and have access to exercise voting rights<sup>2</sup>. It is not necessary to state the currency code as Danish shares are (almost always) denominated in Danish kroner.

For portfolio investments (less than 20 per cent, principal line 2) data is reported in all columns of the form.

## 6.3 LOAN FORMS, MONTHLY, A5-A11 AND P2-P8

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### 6.3.1 Overview

There are 14 forms for reporting deposits, loans and other receivables/payables. Two of the forms concern financial leasing. When a lease is given an asset is created, and when a lease is taken a liability arises. Financial leasing is isolated because leasing is a specific type of financing that is normally specified in an enterprise's annual financial statement, and because leasing (previously) was reported incorrectly. As financial leasing normally has an original maturity of more than 1 year there is only one form for assets (A9) and one form for liabilities (P6).

The other 12 loan forms cover respectively trade credits, loans and other receivables, which again are categorised by maturity (within 1 year and more than 1 year), and as assets and liabilities. The categories correspond to the form of the Danish Financial Statements Act for balance sheets in account form. Maturity is compiled as original maturity (requirement in BPM5), which deviates from the accounting regulations' requirement of compilation by remaining term to maturity.

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<sup>1</sup> On a non-resident's purchase/sale from/to another non-resident in another country the country code must be changed.

<sup>2</sup> To be on the safe side Danmarks Nationalbank subscribes to a database that among other things has details of non-resident owners of enterprises in Denmark.

**ASSETS – Lending and deposits with maturities within 1 year**  
 (including positive balances on overdraft accounts)

Form A6

	ISO country code for foreign debtor 1	ISO currency code 2	Position at the beginning of the month 3	Changes during the month		Position at the end of the month 6	Interest 7
				Net transactions 4	Revaluations 5		
To parent enterprises and associates in ascending line (Line 1)							
To subsidiaries and associates in descending line and sister enterprises (Line 2)							
Deposit in credit institutions abroad (Line 3)							
To others (Line 4)							

### 6.3.2 Common features of the forms

The forms are structured according to the integrated reporting model, except that the forms concerning trade credits are simplified. In addition, in all forms (the forms' first column) a distinction is made by counterparty.

To serve as an example, form A6 "Lending and deposits with maturities within 1 year" is reviewed below.

#### *The columns*

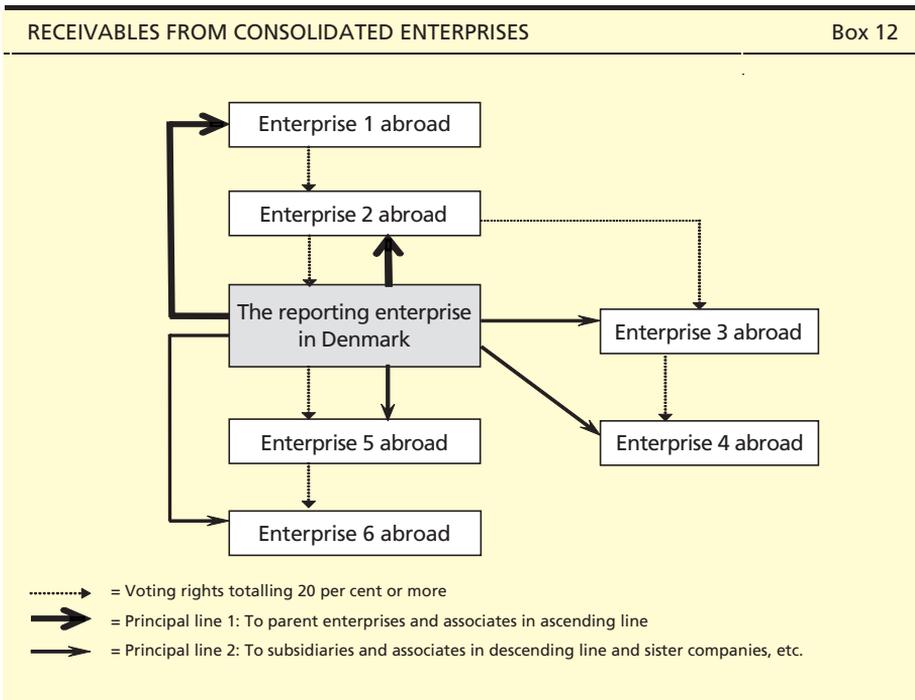
- 1 ISO country code for foreign debtor designates country.
- 2 ISO currency code designates currency.
- 3 Position at the beginning of the month. The position is reported at current fair value. If this is not available, a best estimate is reported, cf. the regulations of the Danish Financial Statements Act (amortised cost or nominal value for small short-term receivables).
- 4 Net transactions during the month, e.g. lending minus repayments.
- 5 Valuation adjustments due to changes in prices and exchange rates are reported as one amount. As price changes for loans are normally zero the total valuation adjustment is assumed to be due to exchange-rate changes. The currency code can be used to test whether the reported valuation adjustment is correct. However, there may be write-downs for losses on lending that reduce the outstanding amount. These losses must be reported as negative valuation adjustment. Pursuant to BPM5 such losses should be registered separately and entered under the separate item "other changes in volumes". So as not to complicate the forms, Danmarks Nationalbank has not added a separate column<sup>1</sup>.
- 6 Position at the end of the month. See under 3.

<sup>1</sup> It will be assessed later whether losses can be estimated and thereby separated from valuation adjustments.

7 Interest. The Danish Financial Statements Act allows for a certain degree of choice between nominal and effective interest rates, and between received/paid and accrued interest. For long-term receivables that are expected to be held until maturity interest is compiled as effective interest and must be accrued. This is also the BPM5 requirement and applies in principle to all receivables. As the difference between nominal and effective interest rates is not so great for short-term receivables, and since there are many receivables distributed over the year, for all receivables taken as one there is no great difference between received/paid and accrued interest. This means that enterprises are free to report their booked interest, regardless of whether it is compiled at nominal or effective interest rates, or as received/paid or accrued interest.

*The principal lines of the form*

Principal lines 1 and 2 concern lending to foreign enterprises in the same group. Principal line 1 concerns loans to parent enterprises and associates in ascending line, while principal line 2 comprises loans to subsidiaries and associates in descending line, and sister enterprises. This distinction is due to BPM5, which requires lending back to the parent enterprise and associates (reverse loans) to be separated from other (ordinary) group loans (intercompany debt). The distinction is illustrated in Box 12.



ASSETS – Trade credits granted with maturities within 1 year							Form A5
	ISO country code for foreign debtor	ISO currency code	Position at the beginning of the month	Changes during the month		Position at the end of the month	Interest
				Net transactions	Revaluations		
To parent enterprises and associates in ascending line							
To subsidiaries and associates in descending line and sister enterprises							
To credit institutions abroad							
To others							

Principal lines 3 and 4 concern assets with respectively credit institutions (deposits) and other enterprises than credit institutions (loans). This distinction is found in the Danish Financial Statements Act and is used to operationalise (unclear) manual requirements for the division of assets into deposits and loans. Credit institutions are chosen since in contrast to MFI this is a familiar concept for the reporting enterprises. In addition, there is no list of MFIs outside the EU, and since MFIs only include a few other institutions besides credit institutions the latter is a reasonably good approximation for MFIs.

### 6.3.3 Trade credits, forms A5, A8, P2 and P5

The four forms are simplified compared to the other loan forms. Transactions, valuation adjustments and country codes are not reported, cf. the grey columns of form A5, shown as an example.

This simplification is first and foremost made to reduce the reporting burden, which would be considerably greater if the many – mainly short-term – trade credits were to be reported as on the other loan forms. Secondly, in the case of this instrument simplification is more acceptable in view of the relatively small outstanding amounts. Instead, the missing information is estimated. Estimated exchange-rate changes can be calculated on the basis of the currency code, and price changes are assumed to be zero (any losses are disregarded here). Transactions are calculated on a residual basis. The breakdown by country is calculated on the basis of the breakdown of foreign trade by country.

## 6.4 DERIVATIVES FORMS, MONTHLY, A12-A13, AND ANNUAL, A12Y

Derivatives – also called derivative financial instruments – are rather more difficult to define clearly than the other instruments in the balance of payments.<sup>1</sup>

<sup>1</sup> There is therefore a more detailed guideline for this area, with concrete examples of types of derivatives and how they should be reported, cf. the Bibliography.

DERIVATIVES: ASSETS AND LIABILITIES – Derivatives excluding futures					Form A12
	ISO country code for foreign counterparty	Position at the beginning of the month	Changes during the month		Position at the end of the month
			Transactions	Revaluations	
Assets					
Liabilities					

DERIVATIVES: ASSETS AND LIABILITIES – Futures concluded abroad and settled in daily difference settlements					Form A13
	ISO country code for foreign counterparty	Position at the beginning of the month	Changes during the month		Position at the end of the month
			Transactions	Revaluations	
Futures					

In overall terms, transactions that affect the market value of the positions are reported, while (unrealised) valuation adjustments are not reported as transactions. Examples of transactions are option premiums or current interest payments on swaps.<sup>1</sup>

Positions are reported at market value, i.e. typically a discounted future payment flow on the contract. If the market value is positive this is an asset position, while if the market value is negative it is a liability position.

Only transactions/positions for which the direct counterparty is a non-resident are reported. The country code of the non-resident counterparty is reported. As the non-resident counterparty is often a stock exchange the breakdown of derivatives by country is not necessarily accurate.

#### 6.4.1 The forms

The monthly reporting forms are divided into futures and derivatives excluding futures.

A12 comprises all derivatives excluding futures, and both transactions and positions are reported. Derivatives are divided into assets and liabilities.

A13 comprises futures concluded abroad and settled in daily difference settlements of gains or losses (also called variation margins). Such futures are normally stock-exchange listed.

The value of futures settled in daily difference settlements is "equalised" to zero value. Therefore neither monthly nor annual positions are reported, cf. below.

<sup>1</sup> Payment of commission and fees, etc. or pledging of collateral are not reported as transactions on the derivatives forms. The former are stated in the current account, while the latter are stated on form A6 or P3.

DERIVATIVES: ASSETS AND LIABILITIES – Derivatives excluding futures			Form A12Y
	ISO country code of foreign counterparty	Position at the beginning of the financial year	Position at the end of the financial year
Bought options			
Sold options			
OTC derivatives, assets (excluding options)			
OTC derivatives, liabilities (excluding options)			

The net transactions are gains minus losses accumulated in the course of the month.<sup>1</sup>

As the monthly forms include details of both transactions and positions, only one annual form for annual reporters is required (A12Y). The report covers the positions as assets and liabilities and is divided into options and OTC derivatives respectively.

## 6.5 COLLATERAL SECURITY FORM, MONTHLY, S1

This is an auxiliary form used to correct information received by Danmarks Nationalbank from custodian institutions in Denmark or from VP Securities Services concerning respectively residents' holdings of foreign securities and non-residents' holdings of Danish securities.

The form is to be filled in if all three of the following conditions are satisfied:

- The property right to the collateral asset is transferred and the recipient has an obligation to return the securities to the counterparty on a fixed date (and normally also at a fixed price). An example is repo transactions, whereas the pledging of securities as collateral (without simultaneous agreement of the date, etc. of return delivery) is not reported.
- Collateral is granted directly to a non-resident counterparty<sup>2</sup>.
- Securities are received as collateral directly from a non-resident counterparty and are now deposited with a custodian bank in Denmark (KDE) or with VP, or securities are granted as collateral directly to a non-resident counterparty, and, before the agreement, were deposited with a custodian institution in Denmark or with VP.

<sup>1</sup> It is specified in the derivatives guideline that receipt of funds (gains exceeding losses) is stated with a positive preceding sign, and payment of funds (losses exceeding gains) is stated with a negative preceding sign.

<sup>2</sup> Collateral granted via a resident financial intermediary (typically a bank in Denmark) is not reported as Danmarks Nationalbank receives reports from the MFI statistics. The scope of the reporting and the number of reporting enterprises (that are not banks) is thus limited to insurance companies and pension funds, and a small number of other enterprises.

**COLLATERAL SECURITY – Securities received/granted as collateral directly from/to a non-resident and deposited/originally deposited with a custodian institution in Denmark** Form S1

	Place of deposit	ISIN code 1	ISO country code for foreign counterparty 2	ISO country code for issuer 3	ISO currency code 4	Sector code for foreign issuer 5	Securities received/granted	
							Position at the beginning of the month 6	Position at the end of the month 7
Securities received as collateral from a non-resident (Line 1)	Deposited with a custodian institution in Denmark	With ISIN code						
Securities received as collateral from a non-resident (Line 2)	Deposited with a custodian institution in Denmark	Without ISIN code						
Securities granted as collateral to a non-resident (Line 3)	Originally deposited with a custodian institution in Denmark	With ISIN code						
Securities granted as collateral to a non-resident (Line 4)	Originally deposited with a custodian institution in Denmark	Without ISIN code						

Principal lines 1 and 2 of the form concern securities received as collateral directly from a non-resident counterparty that are deposited with a custodian institution in Denmark. Principal lines 3 and 4 concern securities granted as collateral directly to a non-resident counterparty that were originally deposited with a custodian institution in Denmark.

The market value of the portfolio at the beginning and the end of the month and the country code of the non-resident counterparty are stated. No further information is reported for securities with ISIN codes, cf. the grey cells in principal lines 1 and 3, while further information is reported for securities without ISIN codes, cf. the white cells in principal lines 2 and 4, crossed with columns 3, 4 and 5.

Section 4.6.1, securities statistics, describes why it is necessary to adjust the securities statistics for repo transactions, and how this is done, cf. Box 9.

As repo transactions are loans against securities pledged as collateral, loans granted are stated on asset form A6 or A10, depending on whether the original maturity is within or more than 1 year. In the same way, loans received are stated on liabilities form P3 or P7.

Pursuant to the accounting regulations and statistics manuals lending "replaces" the securities portfolio that is temporarily received as collateral (bought). This means that even if the securities have been transferred to the enterprise's custody account abroad they are not to be included on forms A1-A4.

On the other hand, if the enterprise is in the opposite situation of having raised a loan from a non-resident against securities temporarily pledged as collateral (sold) the securities must still be included on forms A1-A4 if they are deposited with a custodian institution abroad or have even been transferred to the custody account of the counterparty or a third party. The securities "replace" the proceeds from the loan because the securities are only temporarily pledged as collateral.

These rules for reporting to the loan forms are thus intended to ensure that securities pledged as collateral, typically for repo transactions, are registered as loans, and to determine whether securities that are not deposited with custodian institutions in Denmark are to be reported on forms A1-A4.

## **6.6 ANNUAL REPORTING FORMS, A1Y-A11Y AND P1Y-P8Y**

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*A1Y and A2Y* concern shares and other equity investments that are not deposited with a custodian institution in Denmark, with (*A1Y*) and without (*A2Y*) ISIN codes. The forms concern shares and other equity investments for which the voting rights are less than 20 per cent of the equity capital of the enterprise concerned. The forms thus correspond to principal line 2 of the monthly reporting forms A1 and A2. Principal line 1 of these monthly reporting forms corresponds to *A1AY* (where a distinction is made between whether the enterprise has an ISIN code or not; therefore only one form). In addition to positions, net transactions are stated because the net transactions can be difficult to calculate due to fluctuating prices and exchange rates and positions during the year. Exchange-rate and price changes are not requested. The sum of these changes is derived from the change in positions less transactions. In *A1Y* the currency and price are known from the ISIN code, whereby the breakdown is calculated by Danmarks Nationalbank. In *A2Y* (without ISIN code) the currency is assumed to be equivalent to the currency in the issuer's home country. Hereafter the exchange-rate change is calculated by Danmarks Nationalbank, and the price change is the residual.

*A3Y-A11Y* and *P1Y-P8Y* correspond to the monthly reporting forms *A3-A11* and *P1-P8* except that transactions and valuation adjustments are not reported. Below, the consequences of the limited information are described.

For *A3Y* (bonds, etc. with ISIN codes) exchange-rate and price changes for foreign bonds and money-market instruments are calculated on the basis of ISIN codes. Hereafter the net transactions are calculated residually.

For *A4Y* (bonds, etc. without ISIN codes) the currency code is stated. This enables Danmarks Nationalbank to calculate the exchange-rate change, but not the price change. The price change will therefore be included in the net transactions. Since there are very few bonds, etc. of this type this deficiency is considered to be insignificant.

Apart from transactions and valuation adjustments the loan forms *A5Y-A11Y* and all liabilities forms (*P1Y-P8Y*) correspond to the monthly

ASSETS – Lending and deposits with maturities within 1 year  
(including any positive balances on overdraft accounts)

Form A6Y

	ISO country code of foreign debtor 1	ISO currency code 2	Position at the beginning of the financial year 3	Position at the end of the financial year 4	Interest during the financial year 5
To parent enterprises and associates in ascending line (Line 1)					
To subsidiaries and associates in descending line and sister enterprises (Line 2)					
Deposit with credit institutions abroad (Line 3)					
To others (Line 4)					

reporting forms. One of the forms, A6Y, is shown as an example. The currency code is stated<sup>1</sup>, so that the exchange-rate change can be calculated. Since the price change is zero or negligible the net transactions can be calculated residually with a good degree of accuracy. With regard to losses on lending the same remarks as under the monthly reporting forms apply.

*The forms concerning ownership interests of 20 per cent or more<sup>2</sup>, A1AY and P1AY, are the basis for detailed compilations of equity capital concerning direct investments on respectively the assets and liabilities sides. Transactions in these ownership interests are reported since they are difficult to derive from the positions. (In the monthly reporting forms the monthly reporters have reported transactions, so that the transactions are not to be reported again on the monthly reporters' annual reporting forms A1A and P1A. In all other respects the two forms for annual and monthly reporters are identical).*

A1AY concerns ownership interests in subsidiaries, associates and branches abroad where the ownership interests are 20 per cent or more. In columns 1-6 the enterprise abroad is identified by name, ISIN code (if it exists), country, currency code of the equity capital, industrial classification code, and type of enterprise (company or branch). In column 7 it is stated whether the ownership interest is deposited with a custodian institution in Denmark (VP Securities Services or custodian bank = KDE)<sup>3</sup> or not. In columns 8-9 the investor states the percentage ownership interest in the foreign enterprise at the beginning and close of the financial year. In columns 12-13 the value of any transactions is

<sup>1</sup> For P1Y (Danish shares, etc.) the currency code is not stated as virtually all Danish shares are denominated in Danish kroner.

<sup>2</sup> Concerning the estimate of direct investments in the range of 10-20 per cent reference is made to the remarks to form A1 in section 6.2.2.

<sup>3</sup> In the (few) cases where the ownership interest is held with the custodian institution in Denmark the enterprise is also included in the securities statistics. The information in column 7 is thus used to avoid duplicate inclusion of the enterprise.

## ASSETS – Ownership interests in subsidiaries, associates and branches abroad Form A1AY

Information on the foreign enterprise					
Name of foreign enterprise	ISIN code	ISO country code	ISO currency code	Danish industrial classification code	Type of enterprise: Company (C) or Branch (B)
1	2	3	4	5	6

*(continued)*

Information on the investor in Denmark			Information on the equity capital of the foreign enterprise at the beginning of the financial year		Acquisition and divestment of equity investments in the financial year	
Custodian institution: "Custodian institution in Denmark" (YES) or "not with custodian institution in Denmark" (NO)	Percentage ownership interest at beginning of financial year	Percentage ownership interest at close of financial year	Book value of equity capital at beginning of year	Stock-exchange market value at beginning of year	Acquisition of equity investments/ capital augmentations	Divestment of equity investments/ capital reductions
7	8	9	10	11	12	13

*(continued)*

Information on the equity capital of the foreign enterprise at the end of the financial year						Financial statement of the foreign enterprise		
Valuation principle: (A) No subsidiaries and/or associates; (B) Net book value; (C) Acquisition cost	Contributed capital at year-end	Net revaluation according to the equity method at year-end	Other reserves at year-end	Book value of equity capital at year-end	Stock-exchange market value at year-end	Result for the year after tax	Net extraordinary revenue or expenditure in the financial year after tax (revenue - expenditure)	Dividend distributed in the financial year
14	15	16	17	18	19	20	21	22

stated, i.e. acquisition/divestment or capital augmentations/reductions. If the reporting Danish enterprise has (exceptionally) traded with another resident, Danmarks Nationalbank must be contacted so that the ownership can be changed. Such transactions are of no relevance to Denmark's overall bop/iip, but can affect the domestic breakdown by sector and industrial classification. In addition, this information can be used for control purposes.

The rest of the columns give information on the foreign enterprise, with figures from the annual financial statement of the enterprise in question. In columns 10-11 the book value of the equity capital at the beginning of the financial year and the stock-exchange value (if the

enterprise is stock-exchange listed) at the beginning of the financial year are stated.

Columns 14-22 report the equity capital of the foreign enterprise at the end of the financial year and the financial statement of the foreign enterprise. First it is stated whether the foreign enterprise itself (1st level) has subsidiaries/associates (2nd level). If so, it is stated whether the enterprise at the 1st level applies the valuation principle of equity method or acquisition cost to its subsidiaries/associates. Hereafter the book value of the equity capital at year-end divided into paid-up capital, reserves valued according to the equity method (where relevant) and other reserves is stated. This breakdown facilitates the enterprises' reporting. For enterprises that apply the acquisition cost principle Danmarks Nationalbank can gross up to the value according to the equity method. The basis includes the enterprises that apply the equity method to the compilation of equity capital. This grossing-up entails some uncertainty and will be reassessed. In addition, the stock-exchange value is stated where relevant. The result (profit or loss) for the year and dividend distributed<sup>1</sup> in the financial year are stated in columns 20 and 22, and net extraordinary revenue or expenditure in column 21. The result for the year after net extraordinary revenue or expenditure is a better expression of underlying earnings and is the basis for more realistic forecasting of earnings.

*Branches* are treated as wholly-owned subsidiaries. The guidelines describe in more detail how foreign branches are reported.

*P1AY* concerns foreign investors' ownership interests of at least 20 per cent in enterprises in Denmark. The form has 21 columns and mirrors *A1AY* with regard to 20 of the 22 columns. Danmarks Nationalbank can derive the industrial classification code of the Danish enterprise invested in from the enterprise's CVR (enterprise registration) number, and the currency code is typically Danish kroner, so that this information is not required to be reported.

Column 4 states the country of the ultimate foreign investor. To supplement the information on the home country of the immediate foreign investor, this information shows the home countries of the ultimate foreign investors.

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<sup>1</sup> Dividend distributed is the dividend actually disbursed, not the dividend declared at the Annual General Meeting of the enterprise. Since the Annual General Meeting can also authorise the disbursement of dividend on account, within certain limits, the distributed = disbursed dividend is a more practical concept than the declared dividend. In BPM5 use of declared dividend is recommended.

## 6.7 INSURANCE FORMS, MONTHLY, F1 AND F2, AND ANNUAL, F1Y-F3Y

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The purpose of the forms is to obtain information on the external liabilities of insurance companies in Denmark<sup>1</sup>. In the insurance area, these liabilities are termed insurance reserves (ESA) or provisions (insurance accounting).

In the European System of Accounts, ESA95 (but not BPM5) insurance provisions are required to be identified and categorised as

- Net equity of households in life insurance reserves and in pension funds reserves, and
- Prepayments of insurance premiums and reserves for outstanding claims, etc.

For life insurance and pensions most of the provisions are related to the policyholders' accumulated savings (net equity of households) while a small proportion concerns provisions for premiums and outstanding claims, especially in relation to premium provisions for sickness and accident insurance. Provisions for premiums are the element of the premium that corresponds to the remaining term of the insurance period. Provisions for outstanding claims are amounts to cover actual incidents for which damages have not yet been paid.

*F1Y and F2Y* concern provisions for life insurance and pension schemes allocated as provisions excluding provisions for premiums and outstanding claims (F1Y) and provisions for premiums and outstanding claims (F2Y). The last-mentioned provisions especially concern sickness and accident insurance that is also written by non-life insurance companies.

*F3Y* concerns the provisions of non-life insurance companies. These are primarily provisions for premiums and outstanding claims. Therefore the structure and reporting requirements, etc. are identical in F2Y and F3Y. Only the reporting populations differ (life versus non-life).

In all forms the individual gross provisions are distributed by country according to the home country of the policyholder. Other provisions must/cannot be distributed, but are allocated to countries in proportion to the individual provisions by Danmarks Nationalbank.

In the same way the reinsurers' share (in the forms called reinsurance percentage) is required to be distributed by country in F2Y and F3Y,

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<sup>1</sup> Enterprises in Denmark with receivables from insurance companies abroad must report these receivables under "Other assets". Prepaid premiums is an example. On the other hand, private individuals in Denmark are not covered by the statistics, but this deficiency is considered to be insignificant since private individuals make very little use of insurance companies abroad, among other reasons due to the special tax rules in Denmark.

**INSURANCE PROVISIONS – Provisions for life insurance and pension schemes excluding provisions for premiums and outstanding claims, etc.** Form F1Y

	ISO country code	Position at the beginning of the financial year	Position at the end of the financial year	Return
Individual provisions (gross)				
Other provisions (gross)				
Reinsurance percentages written abroad				
Accrued interest and dividend during the year concerning non-residents' individual provisions				

while the reinsurers' share written abroad in F1Y is stated only as one total amount. The reason is that the figure is negligible.

On F1Y (and only F1Y) accrued interest and dividends during the year concerning non-residents' individual provisions are stated.

To avoid burdening the insurance companies, and as there is no requirement in BPM5 (but in ESA95) for specification of insurance provisions under "Other assets and liabilities", the forms are simplified in two respects.

- There is no requirement for separate reporting of transactions and valuation adjustments, but only positions. In practice this implies the sum of the liabilities items for which provisions are compiled. Provisions are defined in the executive orders on annual accounts issued by the Danish Financial Supervisory Authority.
- There is no requirement for monthly reports with specification of provisions concerning non-residents. *The monthly reports* solely comprise two figures: one is for gross provisions, and one is for the reinsurers' share, where no distinction is made between resident and non-resident outstandings. The forms are available on Danmarks Nationalbank's website, cf. the Bibliography.

**INSURANCE PROVISIONS – Provisions for non-life insurance companies** Form F3Y

	ISO country code	Position at the beginning of the financial year	Position at the end of the financial year
Individual provisions (gross)			
Other provisions (gross)			
Reinsurance percentage			

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## 7. Sources – Public Sector and Households

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### 7.1 STATISTICS FOR GENERAL GOVERNMENT

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Data concerning the general-government sector is reported by Danmarks Nationalbank and Statistics Denmark.

*Danmarks Nationalbank*, Government Debt Management, manages government debt on behalf of the Ministry of Finance. Most of the central government's external liabilities comprise debt instruments denominated in Danish kroner issued via VP Securities Services, and subsequently purchased by non-residents<sup>1</sup>. In recent years, the central government has also issued euro-denominated bonds via VP, and these have to a large extent been purchased by non-residents. Debt instruments denominated in foreign currency can also be issued abroad. The securities statistics (VPDK and VPU) are the sources for this information.

A small proportion of the central government's external liabilities comprises long-term bank loans raised many years ago. They are reported on bop form P7.

In addition, the central government concludes derivatives transactions. These are reported on derivatives form A12, cf. the description of the derivatives forms in section 6.4.

*Statistics Denmark*, which already compiles statistics for government finances, collects external transactions/accounts for the rest of the general-government sector on behalf of Danmarks Nationalbank, i.e. the rest of the central government and local government. On the liabilities side, the amounts are not particularly large, partly because bonds issued abroad are covered by the securities statistics (VPU).

Statistics Denmark ensures that the coverage ratio remains 100 per cent (if possible), e.g. by annually reviewing the specifications of lending and receivables/payables in the central-government accounts, as well as in the local-government accounts.

### 7.2 STATISTICS FOR HOUSEHOLDS

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Statistics for the households are compiled solely from indirect sources. At present these statistics are deemed to provide relatively satisfactory

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<sup>1</sup> Note that this definition deviates from the definition of Denmark's foreign debt, which is the central-government debt denominated in foreign currency, cf. Danish Government Borrowing and Debt 2005.

coverage. It is therefore assessed that the gain from supplementary direct reporting by the households would not match the costs. However, this area will be continuously monitored with a view to supplementing the data with selected surveys at a later date, if deemed necessary.

### **7.2.1 Securities**

When households wish to acquire and hold foreign assets in the form of securities, the most common procedure is to purchase shares in Danish investment funds and similar, which invest the proceeds in foreign bonds, shares, etc. (indirect ownership). This is covered by the reporting by Danish custodian banks, cf. section 4.3.3.

Households that acquire and hold foreign securities directly to a large extent deposit the securities with custodian banks in Denmark for reasons of convenience and cost. These securities are also subject to reporting by Danish custodian banks.

On the other hand, the households' deposits of securities with foreign custodian banks are not covered; nor are the households' physical securities holdings that are not deposited with a Danish custodian bank, but rather kept "under the mattress". Physical securities are, however, rare nowadays, so that the amounts not covered are insignificant.

Since households do not issue bonds and shares, non-residents' holdings of securities issued by Danish households (liabilities) solely comprise mortgage deeds. Non-residents' holdings of mortgage deeds deposited with Danish custodian banks are reported directly via the banks (KDE).

### **7.2.2 Danish banks abroad**

Danish banks have a number of branches and subsidiaries abroad. They report their balance-sheet items, including deposits from and lending to residents (in Denmark). Residents are broken down by sectors, including households. It is assumed that Danish households' deposits and lending abroad are to a large extent covered by this source.

Residents also hold deposits with and loans from other banks than Danish branches and subsidiaries. The scale of these accounts may be examined via the MFI statistics of other EU member states and the BIS banking statistics. However, these statistics are not as detailed and homogeneous as could be wished. Further investigation and development of an estimation method are therefore required.

### **7.2.3 Holiday homes abroad**

Households' purchases and holdings of real property for non-commercial use (holiday homes) have been estimated on the basis of payments in

the earlier payments statistics (payments exceeding kr. 250,000) for purchase and sale of holiday homes abroad. In order to estimate a market value, the transactions (net purchases) are accumulated over time and the holdings thus calculated are written up by a price index that reflects the general level of inflation in Denmark. The methodology and sources will be reassessed.

## Denmark's balance of payments and international investment position

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## 8. Sources and Methodology – Investment Income and Relationship with BOP/IIP

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This Chapter begins with a theoretical description of investment income, including the accrual principle, and the relationship between investment income on the one hand and financial transactions, valuation adjustments and the international investment position on the other. Hereafter an account is given of how investment income is reported in practice (in accordance with the reporting guidelines).

### 8.1 WHAT IS INVESTMENT INCOME?

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Investment income is a collective term for interest, dividends and other returns on investments, e.g. profits on direct investments.

According to BPM5, investment income is stated according to the accrual principle. Accrued investment income is entered to the current account of the balance of payments and set off in the financial account (reinvested investment income). Reinvested investment income is thus a financial bop "transaction" (in quotation marks because no purchase/sale, but solely a book entry, has taken place).

The "transaction" explains the increase in the value of iip since the value of e.g. debt instruments in iip must be stated at "dirty prices". This means that the value of e.g. a bond is stated at the price at which it can be sold, which is equivalent to its market value in "clean prices" (= listed price) plus accrued and paid interest, cf. Chart 3. A stylised example is found in Box 13.

If the bond was issued below par, its price increases over time (accrued interest due to the reduction of remaining maturity). When the effective interest rate is unchanged in relation to the time of issue, the price increase will correspond to the accrued interest. For example, if the effective interest rate has declined, the price is higher than the bond price would have been had the effective interest rate remained unchanged. The additional increase is the actual capital gain.

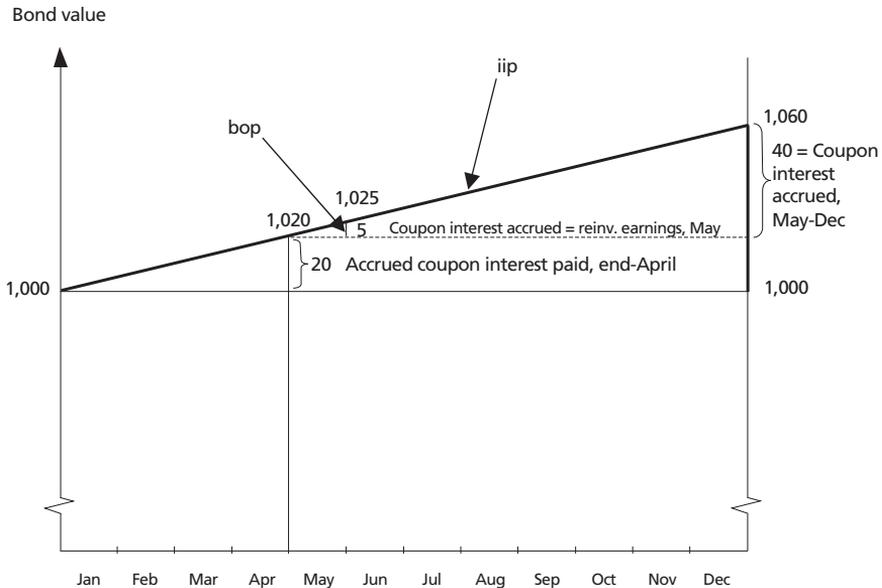
### 8.2 HOW IS INVESTMENT INCOME REPORTED/CALCULATED?

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Accrued interest and dividend payments from portfolio investments are described in Chapter 4. MFIs report investment income as described in Chapter 5.

BOND VALUE

Chart 3



## A STYLISED EXAMPLE FOR BONDS

Box 13

The starting point is a bond with a nominal value of kr. 1,000. It pays an annual coupon, and interest payments follow the calendar year. The coupon rate is 6 per cent, which gives annual interest of kr. 60, i.e. the holder accrues interest of kr. 5 every month, and likewise the value of the bond increases by kr. 5 per month.

The reporting enterprise purchases this bond at the end of April. It is assumed that the market yield is equivalent to the nominal interest rate, so the price is kr. 1,020, comprising a market price of kr. 1,000 and kr. 20 in paid interest. The holdings of bonds of the enterprise have increased by the value of the transaction (= 1,000 + 20), equivalent to the decline in "cash in hand".

At end-May, the enterprise has accrued interest of kr. 5, which is entered (by Danmarks Nationalbank) as investment income (accrued coupon interest) and as reinvested capital (as if it were a bond purchase). The value of the position also increases by kr. 5 to kr. 1,025, and so forth for the rest of the year.

At end-December, the monthly procedure is repeated for December. At the same time, the enterprise receives coupon interest of kr. 60. The kr. 60 has been registered as investment income at kr. 5 per month for eight months, plus the value of the paid interest (kr. 20). The coupon interest is debited to cash in hand and this entry is set off by a credit entry to the bond account, i.e. a "sales transaction" of kr. 60 is registered and the enterprise enters kr. 1,000 as the value of the bond at year-end.

In the bop forms, investment income from debt instruments is calculated using ISIN codes in the same way as in the securities statistics, cf. section 4.7.4. The calculations for debt instruments provide data for the coupon interest accrued during the month, including accrued interest due to reduction of remaining maturity (flow data), as well as the outstanding value of accrued coupon interest at the beginning and end of the month (stock data). The calculated coupon interest data complies with the stock/flow identity for interest. The monthly flow data is used in the balance of payments, while the stock data is used in the international investment position.

For other instruments than debt instruments with ISIN codes, investment income is reported as follows:

- Dividends on portfolio shares and direct investments are reported when paid/received.
- Profits on direct investments are accrued gradually, but cannot be determined and reported until the end of the financial year. Undistributed profit is calculated as the difference between the profit (result for the year) and the dividends paid out during the year in which the profit was earned. Undistributed profit is booked as investment income, and as an increase in the equity capital of the enterprise in question (reinvested earnings).
- For loans and deposits, enterprises have a choice of four reporting methods (to make it easier for the reporting enterprises), cf. Box 14.

### 8.3 SUMMARY

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The accrual principle is applied to most external accounts, i.e. direct investments (profit on equity investments), most portfolio investments and the MFI sector. Interest on loans raised/granted by enterprises is entered according to the accrual principle in certain – typically large – enterprises. On their valuation of accounts these enterprises book effective, accrued interest in the profit and loss account and the equivalent amortised cost in the balance sheet. The – typically small – enterprises that do not apply the accrual principle report nominal interest, and not necessarily on an accrual basis. Consequently, the interest is slightly under-reported and is often reported when paid. The latter means that there is no offsetting entry under the instrument in question in the financial account of the balance of payments, and that stock data for loans/deposits (iip) does not include interest receivable/payable. Since the outstanding loans of non-MFIs are relatively small, this under-representation does not constitute a significant problem. The non-accrual of interest on the individual loan is also of little con-

## REPORTING METHODS FOR LOANS AND DEPOSITS, ETC.

Box 14

**Method 1: Effective and accrued interest**

Most large enterprises apply the accrual principle to interest, and this interest is typically set off to the individual accounts according to their charts of accounts. In addition, interest is calculated as effective interest. An example can be found in Hasselager et al. (2001), pp. 1026-29. This is the ideal situation, cf. the manual requirements.

**Method 2: Nominal interest and interest paid**

This method is typically applied by small enterprises or (large) enterprises that have small financial accounts where it is not deemed essential to apply method 1.

The method entails that the enterprise slightly under-reports interest (nominal rather than effective interest) and applies the payments principle, rather than the accrual principle. Furthermore, the transactions and holdings reported do not include reinvested interest within the current coupon period.

**Method 3: Nominal and accrued interest****Method 4: Effective interest and interest paid**

These two methods are hybrids of methods 1 and 2. The methods entail that the data reported deviates partly from the manual's requirements.

sequence since there are many small loans spread over the year, with varying interest payment dates.

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## 9. Methodology – Population, Sampling and Grossing-Up

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The statistical coverage of the three sectors: Other financial intermediaries, etc. (than MFIs); Insurance companies and pension funds; and Non-financial enterprises<sup>1</sup> is based on a sample which is then grossed up to the total population. This entails a number of methodological choices, as described below.

### 9.1 POPULATION

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The population consists of all enterprises in the following sub-populations<sup>2</sup>:

- *Other financial intermediaries (than MFIs) and financial auxiliaries.* In mid-2005 there were 6,814 enterprises, of which 335 were investment associations that are fully covered by the securities statistics. The number of enterprises is highest in the residual group Other financial intermediation (2,517), followed by the subgroups Auxiliaries (850) and Financial leasing (418).
- *Insurance companies and pension funds.* This is a well-defined sector with a relatively small population (451 enterprises). The number of enterprises by far exceeds the number of groups. The sector is characterised by relatively large enterprises in balance-sheet terms.
- *Non-financial enterprises.* The number of active enterprises in this sector is approximately 280,000, of which 120,000 are companies that report accounts data to the Danish Commerce and Companies Agency. Most of the enterprises are rather small with no external accounts. A few decades ago the Danish business community was characterised by a large number of small and medium-sized enterprises. This has changed over time to a greater concentration of the business community.

Together the three sectors account for around 30 per cent of the bop/iip data. The direct investments of the three sectors make up the largest share of the total direct investments.

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<sup>1</sup> Cf. the blue field (reporting by enterprises) in Box 2 of Chapter 2. Enterprises use the bop reporting forms described in Chapter 6.

<sup>2</sup> Source: the Danish Commerce and Companies Agency. The breakdown by subpopulation is based on the industrial classification of the enterprises in the Central Business Register.

## 9.2 SAMPLING

The preferred sampling method is the cut-off method, rather than stratified random sampling. Enterprises are selected mainly on the basis of the earlier payments statistics and the earlier annual questionnaire survey of enterprises' external assets and liabilities (in the following called SSU). The sampling method ensures a high coverage ratio for all instruments and sectors.

### 9.2.1 Sample and uncertainty in general

Sample-based statistics will always be subject to a degree of uncertainty. In principle, the uncertainty can be divided into random (non-systematic) uncertainty and systematic uncertainty (bias), cf. Box 15.

When designing and maintaining a sample, it should be sought to minimise the overall uncertainty – regardless of whether it is random or systematic.

Random uncertainty cannot be avoided unless all data for the entire population is known. Using auxiliary variables in the sampling process – in this case actual external payments and holdings – can considerably reduce the sampling uncertainty. The auxiliary variables must be correlated with the amounts to be covered by the statistics.

#### SAMPLE UNCERTAINTIES

Box 15

$$\text{Total uncertainty} = \underbrace{\text{Sample uncertainty}}_{\text{random}} + \underbrace{\text{selection error} + \text{coverage errors} + \text{measurement error} + \text{no-response errors}}_{\text{systematic}}$$

#### Sample uncertainty

A random sample is subject to uncertainty. In the absence of further information about the population, it is only possible to reduce the sample uncertainty by increasing the sample size. On the other hand, if an auxiliary variable is available, it is possible to reduce the sample uncertainty. This type of uncertainty occurs "within" the sample and is always random.

#### Systematic uncertainty

*Selection errors* occur if the actual selection of reporters is not based on a random sample (e.g. if the largest enterprises are always chosen as in the cut-off method). As a result, estimates may be biased. *Coverage errors* occur if the population on which the sample is based is not identical to the total relevant population. *Measurement errors* typically occur if the enterprises' responses do not relate to the question. *No-response errors* occur if selected enterprises fail to respond.

### 9.2.2 Justification of the cut-off strategy

The background to selecting the cut-off method, cf. Box 16, is that the payments statistics and SSU gave a fairly representative picture of the enterprises' actual external payments and holdings. This made it possible to achieve a very high coverage ratio for all instruments and sectors (90-95 per cent on average) and to limit the initial sampling uncertainty. Furthermore, it was possible to identify the sample frame – the part of the population on which the sample is based. The sample has since been maintained as described in section 9.2.4, but in the longer term a new, more sustainable maintenance method is required.

For quality purposes, wherever possible the reporting unit is a given group. This minimises the loss of relevant information in the event of restructuring within the group and makes the sample less vulnerable to enterprise demographics.

Furthermore, Danmarks Nationalbank seeks to prevent measurement errors by checking the reports for objective and analytical errors. The errors are discussed with the reporting enterprises, and in some cases meetings are held with the enterprises in order to clarify the reported data.

No-response errors are kept to a minimum by regular contact with the enterprises. The response rate is close to 100 per cent for the major enterprises and more than 95 per cent for other enterprises. For the few enterprises that fail to respond before the deadline, despite receiving reminders, Danmarks Nationalbank estimates an additional amount based on the enterprise's holdings in the previous report. Transactions are added – calculated as the average of the reporter's transactions in the last three months.

### 9.2.3 Selection of enterprises for the sample

The sample must cover both transactions and holdings. Analyses have shown that enterprises with large transactions do not necessarily have

#### CUT-OFF VERSUS STRATIFIED SAMPLING

Box 16

The cut-off strategy entails a greater selection error since the largest enterprises are not representative of the small enterprises (bias). A stratified sample with random selection does not give rise to selection errors. However, in this case the higher overall coverage ratio was the prevailing consideration. Furthermore, a cut-off strategy is far less complicated and less vulnerable to e.g. outliers. In addition, the cut-off strategy entails fewer measurement and no-response errors than a stratified sample since – all other things being equal – the large enterprises provide more disciplined responses and correct reports due to their more advanced and automated registration systems.

large holdings, and vice versa. Enterprises in Denmark owned by non-residents often have sales and financial transactions (except for equity capital) that are based in Denmark. These enterprises are not relevant to the balance of payments, but are significant to the international investment position. Two samples have therefore been constructed; one for enterprises with large transactions, and one for enterprises with relatively small transactions, but large holdings.

In one sample the enterprises report on a monthly basis. This sample is mainly bop-related, but considerable holdings are also reported. In the other sample the enterprises report on an annual basis, as this sample is iip-related. The holdings are forecast across the year, as described in section 2.5.

#### 9.2.4 Maintenance of the sample

The coverage ratio represented by the selected sample will decline over time due to liquidation or growth of small enterprises. The population is monitored on an ongoing basis in order to maintain the high coverage ratio. This maintenance is currently based on various auxiliary registers and monitoring of the financial news media. Improvement of the maintenance process is considered on a continuous basis. In the longer term relevant dynamic auxiliary registers may contribute to the maintenance. Such registers are being developed. A key register in this connection is Bureau van Dijk<sup>1</sup> (BvD), which is already being used for registration of new reporters and grossing-up of equity capital under direct investments.

Furthermore, restructuring of the cut-off sample to a stratified sample will be considered. A stratified sample entails selection of reporters at various strata. A prerequisite for stratification is that the enterprises can be divided into homogeneous strata, i.e. homogeneous in the sense that the enterprises at each stratum are by and large identical in terms of external economic activity.

### 9.3 SAMPLE SIZE AND COMPOSITION

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As stated above, the population of bop/iip reporters is selected at group level. If a group is selected for reporting, the entire group as defined in Box 17 is in principle selected to report. In practice, not all enterprises in

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<sup>1</sup> BvD is a global commercial provider of standardised accounts data, among other things. Besides accounts data, the BvD register contains details of ownership by residents and non-residents. This makes the register interesting in terms of the international investment position and the balance of payments.

## DEFINITION OF A GROUP

Box 17

A group is defined here as the ultimate enterprise in Denmark and its subsidiaries in which the ultimate enterprise in Denmark directly or indirectly owns more than 50 per cent of the voting rights.

the group have external accounts, and the reporting obligation only applies to enterprises with external accounts.

The group can choose between various options when establishing its reporting structure. Enterprises in the same group can report on a consolidated or individual basis, or a combination of the two. However, the enterprises which report on a consolidated basis must belong to the same sector. Enterprises in different sectors must as a minimum report on a sector-by-sector basis. Consequently, a reporter can be responsible for reporting data for its own enterprise, or for its own enterprise as well as a number of other enterprises in the same group.

Groups selected to report are registered in Danmarks Nationalbank's business register, where master data on the group and the individual group enterprises is entered. This information is used in the production process and concerns the reporter's sector and industrial classification, and the group's chosen reporting method.

The total sample of annual and monthly reporters in December 2006 consists of 831 groups. The groups in turn comprise 709 monthly reporters and 412 annual reporters. The 709 monthly reporters represent 1,131 enterprises, while the 412 annual reporters represent 522 enterprises.

The groups comprise a total of 3,151 enterprises in Denmark, of which approximately 1,500 are not subject to bop/iip reporting since they have no significant external accounts. The structure of the sample is outlined in Table 5.

## 9.4 GROSSING-UP

Grossing-up means that amounts are added to the sample to "capture" the full population. Grossing-up respects the stock/flow identity.

### 9.4.1 Method – equity capital

Equity capital under direct investments is grossed up on the basis of information from a dynamic auxiliary register – Bureau van Dijk (BvD) – which is used for ongoing updating of the grossing-up factors. The entire population is extracted from BvD. The total holdings of assets and liabilities are estimated, and the sample ratio is derived. The result is an amount that is not covered by the sample. This is added to the holdings

SAMPLE AS AT DECEMBER 2006		Table 5
	Number of actual reporters	Number of enterprises subject to reporting
<b>Monthly reporters</b>		
Non-financial enterprises .....	648	1,012
Other financial enterprises, etc. ....	33	55
Insurance companies and pension funds .....	28	64
Monthly reporters, total .....	709	1,131
<b>Annual reporters</b>		
Non-financial enterprises .....	374	479
Other financial enterprises, etc. ....	21	26
Insurance companies and pension funds .....	17	17
Annual reporters, total .....	412	522
Total .....	1,121	1,653
<b>Memo:</b>		
Number of groups in the sample .....	831	
Number of enterprises covered by the statistics ..	3,151	

every month on both the assets and the liabilities sides. These amounts currently total approximately 10 per cent of the holdings. The grossed-up transactions and valuation adjustments are not calculated directly, but derived on the basis of the change in the grossed-up holdings.

#### 9.4.2 Method – other instruments than equity capital

For other instruments than equity capital (under direct investments) two grossing-up factors are estimated, i.e. one based on payments (transactions) and one based on SSU (holdings), cf. the example in Box 18.

Grossed-up amounts for investment income – in this case for interest – are estimated by multiplying the grossed-up amounts for holdings by a calculated interest rate. The grossed-up amounts for interest are distributed evenly across the year and added every month.

The grossing-up factors are broken down by instrument and sector and applied to the entire stock/flow identity. In addition, there are initial absolute grossed-up amounts for holdings. The initial grossed-up amounts at the launch of the system at end-2004 correspond to approximately 10 per cent of the holdings at that time. The amounts vary by instrument and sector. Furthermore, the grossed-up amounts are broken down by the dimensions: maturity, country, currency, etc. in proportion to the actually reported amounts.

The ongoing grossing-up corresponds to approximately 5 per cent of total transactions and holdings, varying between 0 and 15 per cent, depending on instrument and sector.

## EXAMPLE OF GROSSING-UP: GROUP LOANS – PAYMENTS AND HOLDINGS

Box 18

In concrete terms, the grossing-up is divided into ingoing and outgoing group loans (intercompany debt). Two time series are then constructed on the basis of the payments statistics. The first series encompasses all group loans, while the second consists of group loans from the enterprises in the sample. The result is the following regression:

$$Y_i = \beta X_i + \varepsilon_i$$

where  $Y_i$  is all group loans in a given month, while  $X_i$  is group loans from the enterprises in the sample<sup>1</sup>. This makes  $\beta$  the estimated grossing-up factor. In future the grossing-up factor  $\beta$  is applied to holdings and transactions, to comply with the stock/flow identity.

Exactly the same procedure is carried out on the basis of the holdings of group loans and SSU. The difference between the grossing-up estimate for payments and SSU is added to the holdings as a constant amount. This takes into account the varying coverage of holdings and payments, but in future the grossing-up of payments is predominant.

<sup>3</sup>  $\varepsilon_i$  is an error element which is to vary randomly around 0 and be normally distributed in order for the "grossing-up estimate" model to be applied.

## Denmark's balance of payments and international investment position

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## Appendix: Instruments and Sectors in BOP/IIP

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The same breakdown by instrument and sector is applied to both the balance of payments (bop) and the international investment position (iip) (as well as valuation adjustments and investment income).

### INSTRUMENTS

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The breakdown by instrument is generally in accordance with BPM5. The following instruments are applied, of which some are subdivided, cf. below:

- *Direct investments comprise equity capital including reinvested earnings and intercompany debt, etc.* Equity capital under direct investments consists of shares and other equity capital in cases where an investor holds at least 10 per cent of the equity capital or voting rights of an enterprise. Reinvested earnings are an enterprise's undistributed profits. Direct investments also include other capital than equity (called intercompany debt, etc.) between directly or indirectly affiliated enterprises (e.g. sister enterprises).

Direct investments include pass-through investments, i.e. direct investments from abroad in a holding company in Denmark that reinvests the funds abroad. Another characteristic of pass-through investments is that the holding company does not have any activity in Denmark (no significant employment) and does not normally own enterprises in Denmark. Danmarks Nationalbank's *Nyt* publications concerning direct investments show direct investments excluding pass-through investments in most of the tables and pass-through investments in the last table.

- *Portfolio investments* comprise shares and other equity securities excluding direct investments, and debt instruments. The latter are bonds (original maturity more than 1 year) and money-market instruments (original maturity up to and including 1 year).
- *Derivatives* are financial derivatives, e.g. options, futures and OTC contracts (non-standardised contracts).
- *Other investments* comprise trade credits, loans, deposits and other accounts.

*Reserve assets* are a separate instrument in the BPM5 classification. They comprise the central bank's external liquid assets denominated in foreign exchange. Danmarks Nationalbank publishes all of its external accounts, which are broken down in a separate table as reserve assets and other external accounts.

## SECTORS

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The classification by sector follows the European System of Accounts (ESA95), i.e. the following sectors apply:

- *Non-financial enterprises.*
- *Danmarks Nationalbank.*
- *Other MFIs.* Comprises banks and mortgage-credit institutes as well as other credit institutions and money-market funds. Banks are shown in a separate table.
- *Other financial intermediaries, etc.,* including investment associations and other investment enterprises, leasing enterprises and enterprises providing consumer credit, as well as financial auxiliaries.
- *Insurance companies and pension funds, including ATP* (Danish Labour Market Supplementary Pension Scheme). Before end-2004, ATP was classified under General government.
- *General government.* Central and local government.
- *Households, etc.,* including non-profit institutions serving households.

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<sup>1</sup> Available at Danmarks Nationalbank's website, [www.nationalbanken.dk/balance\\_of\\_payments](http://www.nationalbanken.dk/balance_of_payments).

<sup>2</sup> External debt is short for external assets and liabilities.

<sup>3</sup> Currently available in Danish at Danmarks Nationalbank's website, [www.nationalbanken.dk](http://www.nationalbanken.dk) > Regelsæt > Statistik – Indberetningsforskrifter.

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## Terms and Abbreviations

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<b>Accounts</b>	Assets and liabilities compiled at a given time; equal to holdings/positions/stock
<b>Accrual principle for investment income</b>	Ongoing (daily) accrual of investment income, e.g. accrued interest. In contrast to the payment principle whereby interest is not registered until the expiry of the interest payment date
<b>Balance of payments</b>	See "Bop"
<b>Bonds</b>	See "Debt instruments"
<b>Bonus share issue</b>	A part of an enterprise's free reserves is transferred to the share capital. Existing shareholders receive a number of new shares. (The share denomination is unchanged. The share price falls, so that the enterprise's market value remains unchanged).
<b>Bop</b>	<u>B</u> alance <u>o</u> f <u>p</u> ayments, i.e. transactions between residents and non-residents. <i>In this publication bop means the financial account of the balance of payments</i> , see the definition in section 3.1
<b>Bop forms</b>	Forms used by enterprises for reporting of data for bop/iip, see Chapter 6
<b>BPM5</b>	The IMF's balance of payments manual, 1993, 5th edition
<b>BUD</b>	Residents' holdings of VP-registered securities deposited with custodian institutions abroad ( <u>b</u> eholdninger af VP-registrerede papirer opbevaret i depot i <u>u</u> dlandet)
<b>Clearstream</b>	International custodian institution in Luxembourg

<b>Corporate action</b>	E.g. bonus share issue and stock split, see the relevant terms
<b>CSDB</b>	<u>C</u> entralised <u>S</u> ecurities <u>D</u> atabase, see Box 4
<b>Custodian banks</b>	Banks in Denmark that report data concerning customers' custody accounts, KDE ( <u>K</u> undedepo- <u>t</u> er)
<b>Custodian institutions</b>	Custodian banks and VP Securities Services
<b>Debt instruments</b>	Securities other than shares, etc. comprise bonds (original maturity more than 1 year) and money-market instruments (original maturity up to and including 1 year). Also called bonds, etc.
<b>Deposits</b>	Defined here as claims on credit institutions and other MFIs.
<b>ECB</b>	<u>E</u> uropean <u>C</u> entral <u>B</u> ank
<b>Enterprise reporting</b>	See "Bop forms"
<b>Errors and omissions</b>	The shortfall when the registered income and expenses of the balance of payments are balanced. See the definition in section 3.1
<b>ESA95</b>	The European System of Accounts, 1995
<b>Euroclear</b>	International custodian institution in Belgium
<b>Eurostat</b>	The EU statistics office
<b>Exchange-rate change</b>	See "Valuation adjustments"
<b>FDI</b>	<u>F</u> oreign <u>D</u> irect <u>I</u> vestment, see the Appendix
<b>GDP</b>	Gross Domestic Product
<b>GNP</b>	Gross National Product, i.e. GDP less net investment income, etc. vis-à-vis abroad
<b>Group enterprises</b>	In BPM5 all directly or indirectly affiliated enterprises in a group with ownership interests of 10 per cent or more. The bop reports set a limit of 20 per cent, corresponding to associated enterprises

<b>Holdings</b>	Assets and liabilities compiled at a given time; equal to accounts/positions/stock
<b>lip</b>	<u>I</u> nternational <u>i</u> nvestment <u>p</u> osition. Also called Denmark's external assets and liabilities. See the definition in section 3.1
<b>IMF</b>	<u>I</u> nternational <u>M</u> onetary <u>F</u> und
<b>Instruments, financial</b>	<p>Consist of:</p> <ul style="list-style-type: none"> <li>• Direct investments</li> <li>• Portfolio investments</li> <li>• Financial derivatives</li> <li>• Other investments, e.g. loans and deposits</li> <li>• Reserve assets</li> </ul> <p>See the Appendix for further details</p>
<b>Integrated reporting model</b>	Reporting model that comprises the stock/flow identity and other information such as investment income, country, currency and industrial classification
<b>Interest, effective</b>	Nominal interest plus accrued interest due to reduction of remaining maturity
<b>Interest, accrued</b>	See "Accrual principle"
<b>Investment income</b>	Return on holdings, excluding valuation adjustments, i.e. interest (including accrued interest due to reduction of remaining maturity), dividend on portfolio shares, and profits on direct investments (dividend and undistributed profits)
<b>ISIN code</b>	<u>I</u> nternational <u>S</u> ecurities <u>I</u> dentification <u>N</u> umber
<b>ISO country code</b>	International standard for countries
<b>ISO currency code</b>	International standard for the currency of a given country
<b>KDE</b>	Database of customers' custody accounts ( <u>k</u> und <u>e</u> poter) reported by custodian banks
<b>Lending</b>	Defined here as claims on non-MFIs

<b>Maturity, original</b>	Original maturity is the period from the establishment to the settlement of an account
<b>MFI</b>	<u>M</u> onetary <u>f</u> inancial <u>i</u> nstitution – comprising banks and mortgage-credit institutes, other credit institutions and money-market funds
<b>MFI statistics</b>	Statistical reporting by MFIs, see Chapter 5
<b>Money-market instruments</b>	See "Debt instruments"
<b>Netting arrangements</b>	Set-off of payables and receivables between several parties, normally within a group
<b>Non-resident</b>	Natural person or legal entity resident abroad
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>Other changes in volume</b>	Changes in the value of holdings not attributable to transactions or price or exchange-rate changes, e.g. write-downs for losses on lending or reclassification from one instrument to another
<b>Payments statistics</b>	Statistics for payments between residents and non-residents, see Tryde (1999)
<b>Positions</b>	Assets and liabilities compiled at a given time; equal to accounts/holdings/stock
<b>Price changes</b>	See "Valuation adjustments"
<b>Reinvested earnings</b>	A part of direct investments (= undistributed profits)
<b>Repo</b>	Repurchase agreement or collateralised loan
<b>Resident</b>	Natural person or legal entity resident in Denmark

<b>Sectors</b>	<p>Comprise:</p> <ul style="list-style-type: none"> <li>• Non-financial enterprises</li> <li>• Danmarks Nationalbank</li> <li>• Other MFIs</li> <li>• Other financial intermediaries, etc.</li> <li>• Insurance companies and pension funds</li> <li>• General government</li> <li>• Households, etc.</li> </ul> <p>See the Appendix</p>
<b>Securities statistics</b>	The statistics comprise securities on a security-by-security and holder-by-holder basis. The statistics comprise three subdatabases: KDE, VPDK and VPU, see Chapter 4
<b>Set-off</b>	Set-off of payables and receivables between two accounts in a financial statement or between two parties
<b>SSU</b>	Annual questionnaire survey ( <u>spørge</u> kemaundersøgelse) of enterprises' external assets and liabilities; the last SSU was conducted at the end of 2003
<b>Stock</b>	Assets and liabilities compiled at a given time; equal to accounts/holdings/positions
<b>Stock/flow identity</b>	<p>Stock, beginning of period (= iip)</p> <p>+ Financial transactions during the period (= bop)</p> <p>+ Valuation adjustments, etc. during the period</p> <p>= Stock, end of period (= iip)</p>
<b>Stock split</b>	Change in the nominal value of a share whereby the shares are divided by a split factor, i.e. a share of kr. 100 is split into five shares of kr. 20 each (split factor 5). If the split entails a smaller number of shares, it is a reverse split
<b>Trade credit</b>	Outstanding amounts related to sale/purchase of goods and services on credit.
<b>Transactions, financial</b>	For example purchase/sale of securities, or loans; also called financial flows

<b>Valuation adjustments</b>	Changes in the market value of holdings due to price (e.g. listed prices) and exchange-rate changes. Also called revaluations in the bop forms
<b>Valuation adjustments, etc.</b>	Valuation adjustments + other changes in volume
<b>VP</b>	VP Securities Services
<b>VPDK</b>	Database of securities issued via VP Securities Services
<b>VPU</b>	Database of Danish securities issued abroad

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