

Microdatabase: Securities Holdings Statistics

A flexible multi-dimensional approach for providing user-targeted securities investments data

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Technical Documentation

November 2012

Quarterly security by security reporting system*

1 Introduction

The Bundesbank has collected data on securities holdings at financial institutions in Germany since 1962. The statistics were initially collected on an annual basis and comprised a limited quantity of condensed data. With granular security data becoming increasingly important in economic analysis, the European Central Bank (ECB) adopted a guideline (ECB/2004/15) in the area of balance of payments and international investment position statistics which provides for the mandatory collection of information on securities investments on the basis of securities identification number (security-by-security reporting). In addition, the ECB guideline amending ECB/2002/7 requires all financial accounts data to be made available on a quarterly basis. The changed legal basis prompted the Bundesbank to shift the securities holdings statistics to a quarterly security-by-security reporting system in 2005.

Against the background of rapidly growing demand for financial data of high granularity, not at least to cover a wide range of topics in the field of macroprudential analysis and research, this documentation aims to provide interested users with an overview of the securities holdings statistics and, through the wide range of evaluation options, to encourage further data analyses and research projects.

In the second chapter, we introduce the two relevant data sources and the set up of the database. On the one hand, the reporting institutions deliver securities' nominal values or number of units held in their own and customers' custodian accounts, and, on the other hand, the relevant price and master data come from the Centralised Securities Database (CSDB) of the European System of Central Banks (ESCB). Chapter 3 describes the construction of the multidimensional database and its analysis tool, which enables a flexible and timely data evaluation. Finally we show some fields of research based on securities holdings statistics data (chapter 4) and close with a short summary and some information on recent developments (chapter 5) in the field of the securities holdings statistics for Europe.

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2 Microdata on securities holdings

2.1 Reporting data

Following the above-mentioned guidelines of the ECB, the Bundesbank has collected microdata on securities holdings with depositors in Germany on a quarterly basis since December 2005. The securities holdings statistics are collected by means of a full census, i.e. all concerned financial institutions are included which can be divided into:

- Domestic banks (monetary financial institutions excluding money market funds)
Pursuant to Article 2 (1) of Regulation (EC) No 25/2009 of the European Central Bank of 19 December 2008 concerning the balance sheet of the monetary financial institutions (MFI) sector (Recast) (ECB/2008/32; OJ EC L 15 p 14), MFIs comprise resident credit institutions as defined in Community law, and all other resident financial institutions whose business is to receive deposits and/or close substitutes for deposits from entities other than MFIs, and, for their own account (at least in economic terms), to grant credits and/or make investments in securities. MFIs can be found in a list produced by the ECB which is also available on the internet.
- Domestic investment companies
According to section 6 (1) of the Investment Act (*Investmentgesetz*) these are construed to be enterprises, the business of which is oriented to managing domestic investment funds within the meaning of section 1 sentence 1 number 1 of the Investment Act and rendering services or ancillary services pursuant to Section 7 (2) of the Investment Act.
- “Other” domestic investment companies
These are credit institutions which conduct safe custody business pursuant to section 1 (1) sentence 2 number 5 of the German Banking Act (*Kreditwesengesetz*), but which are not MFIs.

The financial institutions provide the number of their customer safe custody accounts broken down by the customer’s home country and economic sector.² For each group, they list the securities holdings on a single security basis. In addition to their customers’ accounts, they also provide information on their overall proprietary holdings (irrespective from the account’s location). The provided information refers to both the reported security (negotiable bonds and debt securities, negotiable money market paper, equities, participating certificates and mutual fund shares) and to its holder (sectoral classification and investor’s country of domicile). For securities quoted as a percentage (eg bonds and debt securities), the nominal value is stated in the relevant nominal currency and for securities quoted as a number of units (eg equities, mutual fund shares) the number of units held is reported. Only securities which are in circulation and which can be assigned to an investor are included in the securities holdings statistics. On the contrary, global notes and securities in an issuance

² See securities holdings statistics reporting scheme (appendix) as well as Deutsche Bundesbank, Special Statistical Publication 1, Banking statistics guidelines and customer classification, pp 279-300, January 2012 (in German only).

securities deposit account (not issued items) are not included. To avoid double counting, the guidelines on securities holdings statistics provide information on who should report the holdings if reporting institutions hold safe custody accounts for other reporting agents. Furthermore, securities holdings which are passed on or acquired as part of a repo contract are to be marked separately (Box).

Box: Repo transactions and securities lending

The repo transactions recorded in the securities holdings statistics are contracts with which a holder of securities (transferor) sells these to a third party (transferee) upon payment of an amount for a limited period of time with repurchase obligation. If the transferee agrees to transfer the securities back at a specified time, which can also be determined by the transferor, this is a genuine repurchase agreement (repo). If the transferee is merely entitled to return the securities on a date specified or to be specified, the transaction in question shall be deemed to be a sale with an option to repurchase. In securities lending the borrower undertakes to return the security (as in the case of genuine repos of the transferee). Owing to the major similarity, securities lending transactions are treated in a similar fashion to genuine repos in the securities holdings statistics.³

The recording of securities repurchase and securities lending transactions plays an important role in securities holdings statistics, particularly in banks' own holdings. In some cases, however, these agreements are also reported for customer safe custody accounts. In order to identify the respective transaction, the reporting institutions mark the amount to be reported with a constituent element:

- B Positive
- B- Negative
- V Loaned or sold in a sale and repurchase agreement
- E Borrowed or repurchased in a sale and repurchase agreement

Thus, for example, an institution that acts as lender in securities lending records the holding with "B" and in addition with "V". By contrast, the borrower marks the amount with "E" in his contribution to the securities holdings statistics. If this bank sells the borrowed securities to another institution, then the holdings of the latter are marked "B". This means that both institutions report holdings. The second institution must record the transfer as a short sale to avoid duplicate entries in the aggregation. This is recorded using "B-". It is therefore generally possible that a separate examination of single-entity holdings, in this case in an analysis of the borrower's proprietary holdings, produces a negative value.

Having received the data, standardized quality checks look for any irregularities or implausibilities in the data structure. If necessary, the reporting institutions are asked to double-check or clarify specific data points.

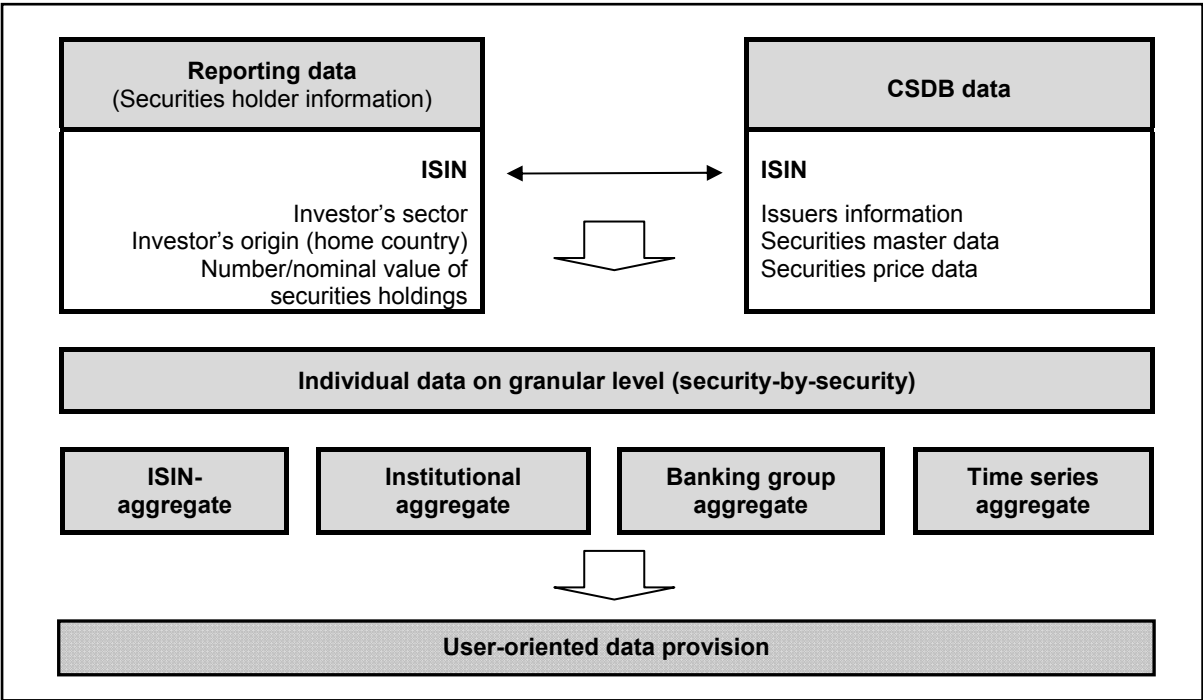
³ See Deutsche Bundesbank, Special Statistical Publication 1, Banking statistics guidelines and customer classification, pp 19-20, January 2012 (in German only).

2.2 Security prices and master data

In the following compilation process information on security ownership delivered by the reporting institutions is **linked to security price and master data from the CSDB** (Centralised Securities Database) via the primary key “ISIN”. The CSDB is a joint project of the ECB and the national central banks in the euro area. Its implementation was a basic prerequisite for the introduction of security-by-security systems throughout the ESCB. The common use of reference data is ultimately intended to ensure the consistency and comparability of securities statistics in the Eurosystem and increase the efficiency of data procurement. The CSDB basically contains information on all securities denominated in euro. Furthermore, all securities which are issued, held or traded by EU residents are also included. Therefore, securities holdings can be calculated by nominal or by market values. For the latter, the CSDB data on the reporting date are used. Securities listed in a foreign currency are available in the original currency and in euro. Currently, the CSDB covers the attributes of over five million debt securities, equities and mutual fund shares. The main data providers for the CSDB are the national central banks of the ESCB as well as some commercial data suppliers. The most important securities attributes for the ESCB statistics system in the CSDB can be classified into the following groups:⁴

- Issuer information (Issuer domicile country, Issuer ESA 95 sector, ...)
- Instrument information (ISIN code, Instrument ESA 95 class, ...)
- Price data information (Nominal currency, Quotation basis, Price value, ...)

Chart 1: Compilation process of the securities holdings statistics



⁴ Cf. Table A in the Appendix for an overview of the most important securities attributes for the ESCB statistics system in the CSDB.

3 Data structure and possible categorization

The roughly 2,000 reporting institutions (see Table 1) quarterly transmit approximately six million data records to the Bundesbank which refer to around 400,000 different securities. All in all, the securities holdings statistics database now comprises information for more than one million securities. Apart from a time-induced data structuring (there is continuous end-of-quarter data since the fourth quarter 2005) other possible data categorizations are discussed below and include divisions into types of security or sector which conform with the European System of Accounts (ESA 95).⁵

Dimension (a) – Reporting financial institutions

Using the bank code the database queries can be restricted to a single financial institution or to a freely chosen number of reporting agents (eg all systemically relevant banks). Furthermore, it is possible to evaluate the data according to category of bank (see Table 1).

Table 1: Number of institutions per category of bank (as at December 2011)

Category of bank	Number of institutions
Special purpose banks	18
Building and loan associations	23
The Bundesbank and the German Finance Agency	2
Regional institutions of credit cooperatives	2
Big banks	4
Investment companies	77
Cooperative banks	1.121
Landesbanken	10
Mortgage banks	18
Regional and other commercial banks	170
Savings banks	427
Securities trading banks	2
Branches of foreign banks	110

Dimension (b) – Investors

When reporting a holding, an enquiry is made about the security holder's country of residence. Details on residency are based on the provisions of the Foreign Trade and Payments Regulation (*Außenwirtschaftsverordnung*).⁶ Furthermore, Table 2 shows the categories of economic sector classification of the security holder.

⁵ See EUROSTAT, European System of accounts 1995 (ESA 95), June 1996

⁶ See Deutsche Bundesbank, Special Statistical Publication 1, Banking statistics guidelines and customer classification, p 653, January 2012 (in German only).

Table 2: Sectoral classification of issuers and holders in securities holdings statistics

Issuer sector (ESA Code)	Description	Holder sector (Internal codes)
S.11	Non-financial corporations	1100
S.120	Financial corporations	
S.121	Central bank	
	Deutsche Bundesbank	1210, 1211, 1213
	Foreign central banks	1212
S.122	Monetary financial institutions (MFI)	
	MFI in Germany – own holdings – direct investments	1221
	MFI in Germany – own holdings – own debt securities	1222
	MFI in Germany – own holdings – own shares	1223
	MFI in Germany – own holdings – excluding direct investments, excluding own debt securities and excluding own shares held	1224
	Foreign banks – excluding central securities depositories	1225
	Money market funds	1226
	Foreign central securities depositories	1299
S.123	Other financial institutions	
	Investment funds	1231
	Other financial institutions (except insurance corporations and pension funds) – excluding investment funds, excluding special-purpose vehicles and excluding central securities depositories	1232
	Special-purpose vehicles	1233
S.124	Financial auxiliaries	
	Investment companies	1241
	Financial auxiliaries – excluding investment companies and excluding central securities depositories	1242
S.125	Insurance corporations and pension funds	1250
S.13	General government	
S.1311	Central government	1311
S.1312	Federal states	1312
S.1313	Local government	1313
S.1314	Social security	1314
S.14	Households	1400
S.15	Non-profit institutions serving households	1500

Reporting institutions also provide data of the amount of safe custody accounts they conduct for their customers – broken down by economic sector.⁷

⁷ This data are regularly published in Statistik über Wertpapierinvestments, cf. www.bundesbank.de/download/statistik/stat_sonder/depot_aktuelle_daten.pdf (in German only).

Dimension (c) – Securities

Securities are identified by using the twelve-digit International Securities Identification Number (ISIN). Moreover, the securities holdings statistics data can be generally classified according to the security categories.

Table 3: Security categories in securities holdings statistics according to ESA 95

Type of security (ESA code)	Description
F.33	Securities (other than shares)
F.331	Money market instruments (short-term debt securities)
F.332	Capital market instruments (long-term debt securities)
F.51	Equity (without mutual fund shares)
F.511	Quoted shares
F.512	Unquoted shares
F.513	Securities other than shares
F.52	Mutual fund shares

The CSDB provides a number of issuer details which enable, for instance, a breakdown of securities holdings by **issuance sector**. In addition, the data can also be examined according to the **country of residence** of the security's issuer.

4 Use of data and research

4.1 Standardised versus customised data provision

The securities data are assigned to the financial accounts to depict the flow of funds in the German economy as well as to the net external position to depict the volume and structure of German external assets and liabilities. Furthermore, the data are used for the public finance statistics, which form the basis for the Bundesbank's calculation of the Maastricht debt level for Germany. In addition, securities information is provided for the preparation of the investment fund statistics and the insurance statistics in Europe. The International Monetary Fund uses the data for the Coordinated Portfolio Investment Survey (CPIS) for cross-border securities transactions and holdings.

After the completion of every reporting quarter, aggregated data of the securities holdings statistics are published in Statistik über Wertpapierinvestments.⁸ Table 4 is extracted from

⁸ The quarterly publication of securities holdings statistics can be found under: www.bundesbank.de/download/statistik/stat_sonder/depot_aktuelle_daten.pdf (in German only)

this regular publication and depicts investment of German investors in domestic and foreign securities.

Table 4: Safe custody account balances of German investors in securities of domestic and foreign issuers (market value in € million, as at December 2011)

Domestic investors	Total	Bonds	Equities	Mutual fund shares
Non-financial corporations	407,908	52,623	232,148	123,137
Insurance corporations	676,377	160,520	18,746	497,111
General government	130,105	104,295	15,428	10,382
Households	734,709	211,046	168,205	355,458
Non-profit institutions	82,918	36,084	7,414	39,420
Total	2,032,017	564,568	441,941	1,025,508

Whilst the standard statistical products are compiled via the regular production environment, the multidimensional database and the analytical procedure of securities holdings statistics available enable us to address *ad hoc* individual user requests. The securities holdings should be examined regularly for specific questions, for example political discussions on risks existing with regard to certain securities (eg real estate funds or asset-backed securities), issuers (eg Lehman Brothers) sovereigns (eg in the context of the current European debt crisis) and selected currencies.

4.2 Set up of a research project

To use the individual securities holdings data for research it is first of all necessary to submit a project description and a detailed data request to the Bundesbank's Research Centre. A confidentiality statement on the treatment of individual data must be signed together with the research application. After receiving approval, researchers may start working with the data. However, the rules governing the treatment of individual data stipulate that work can only be conducted on-site at Central Office of the Bundesbank in Frankfurt.

In order to facilitate and coordinate the scientific use of the data, the Research Centre organized a network of interested researchers. The combination of ownership and price information on the level of individual security and financial institution provides enticing research opportunities for household finance, capital market and banking research. It allows to tracing investment behavior of sectors over time or measure the effects of valuation changes. The entire scope of portfolio structure and returns for customer aggregates and banks' proprietary trading can be reconstructed over time, over risk classes or types of securities, over types of financial institutions and over regions.

From this, important research questions arise in a natural way: How does the investment behaviour of private households differ from those of investment funds? How did both sectors

fare during the crisis? How costly is households' bounded rationality really? What about home bias, sensitivity to news or investment recommendation, or inattention? Does indirect investment pay? Banks' own trade can be related to their customers' investment. Do customers follow the same investment rules as the bank itself? Or are banks able to sell off unwanted assets to their customers? Clients of large banks can be compared to what clients of piggy banks do, and it is possible to match with regional indicators, eg for human capital, borderline distance, urbanity. One can compare security holdings of different financial institutions. What is the structure of their portfolio now, their appetite for risk, and how did they fare during the crisis? Can the financial stability risk be quantified that comes from banks holding the same assets, such that the value of the portfolio of one bank may be impaired by the fire sales of the other? Some of these intriguing questions have already turned into projects and might be found in the discussion paper series of the Deutsche Bundesbank.

5 Summary and outlook

For the changeover of the securities holdings statistics to a quarterly security-for-security collection system, the Bundesbank focused on developing a modern, high-performance IT infrastructure. The idea was to ensure efficient preparation of the micro data on securities holdings transmitted by the reporting agents as well as information extracted from the CSDB on issuers, securities and prices. In order to enable a timely and flexible analysis of the large data volumes, it was necessary, moreover, to implement a multidimensional database as well as an appropriate analytical procedure.

Starting in January 2013, frequency of data collection will be shifted from quarterly to monthly. In addition, there are plans at the European level to collect the data of large financial conglomerates in a consolidated and thus group-wide manner. Finally, in cooperation with the ECB, the Bundesbank is developing a securities holdings database for the entire euro area (Securities Holdings Statistics Database (SHSDB)). In the future, all the central banks of the ESCB will deliver data on security ownership to this database. A number of new avenues for future analysis and research will open up following introduction of the SHSDB in Europe.

Appendix

Table A: Important securities attributes for the ESCB statistics system in the CSDB

Significant attributes of the CSDB			
1	ISIN code	14	Accrued interest
2	Instrument ESA 95 class	15	Accrued income factor
3	Nominal currency	16	Last coupon rate
4	Issue Date	17	Last coupon date
5	Maturity Date	18	Last coupon frequency
6	Issuer domicile country	19	Dividend amount
7	Issuer ESA 95 sector	20	Dividend amount type
8	Issuer NACE sector	21	Dividend currency
9	Amount outstanding	22	Dividend settlement date
10	Pool Factor	23	Last split factor
11	Quotation basis	24	Last split date
12	Price value	25	Monthly average price
13	Price value type		

Securities holdings statistics – virtual reporting scheme

Sample – not to be completed or submitted

I General information

A Reporting institution and reporting date

Bank ident number	Name	Reporting date (end of quarter)

B Contact for queries

Mr/Ms/Title	
First name	
Surname	
Tel	
Fax	
E-mail	
BBk ExtraNet ID	

C Type of report

Initial report	<input type="checkbox"/>
Complete correction	<input type="checkbox"/>
Nil report	<input type="checkbox"/>

II Number of customers' securities deposits accounts by sector

	Sector	Number of accounts
1100	Non-financial corporations	
1210	For Bundesbank's internal purposes	
1211	For Bundesbank's internal purposes	
1212	Foreign central banks	
1213	For Bundesbank's internal purposes	
1221	Monetary financial institutions in Germany – own holdings – direct investments	
1222	Monetary financial institutions in Germany – own holdings – own debt securities	
1223	Monetary financial institutions in Germany – own holdings – own shares	
1224	Monetary financial institutions in Germany – own holdings – excluding direct investments, own debt securities and own shares	
1225	Banks abroad	
	– excluding central securities depositories (CSDs)	
1226	Money market funds	
1231	Investment funds	
1232	Other financial intermediaries (except insurance corporations and pension funds)	
	– excluding investment funds, financial vehicle corporations and CSDs	
1233	Financial vehicle corporations	
1241	Investment companies	
1242	Financial auxiliaries	
	– excluding investment companies and CSDs	
1250	Insurance corporations and pension funds	
1299	Foreign central securities depositories (CSDs)	
1311	Central government	
1312	State government	
1313	Local government	
1314	Social security funds	
1400	Households	
1500	Non-profit institutions serving households	

Sample – not to be completed or submitted

III Securities-related data for customers' securities deposits accounts and own holdings (each security in the own portfolio or in customers' securities deposits accounts is to be reported on a separate Part III)

A Basic information on the security

ISIN known										
ISIN										
ISIN unknown										
Internal securities ID number	Security name	Security currency	Security price	Portfolio amount	Type of security	Security maturity	Interest rate	Coupon date	Issuer group	Issuer country

B Breakdown of the security listed under A by sector and depositor's domicile

Sector	Sector-country	Nominal currency/unit	Portfolio amount	"normal" stock		Repo/securities lending	
				positive	negative	Lender	Borrower
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(... lines to be continued)

Notes on Part III

Each security is to be reported on a separate Part III. A sector-country breakdown must be given under B for each security listed under A. The number of lines in the sector-country breakdown may vary. Aggregates are to be given for each of the sector-country combinations.

