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The Deutsche Bundesbank's Prudential Database (BAKIS)

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Introduction

Analyses and empirical studies of the banking sector and financial stability are becoming ever more important. Research using microdata, in particular, has gained in international significance in the past few years. The Bundesbank collects microdata on German banks which are also used for research purposes. Since the early 1990s, the Bundesbank has been electronically storing these data in its prudential information system (*Bankaufsichtliches Informationssystem*, hereafter BAKIS). These data are of interest for micro- and macroprudential research of the Bundesbank for the following reasons.

– Census: every bank in Germany is required to report its data to the Bundesbank. Compliance is reviewed regularly.

– Scope and relevance: for prudential purposes, the Bundesbank and the German Federal Financial Supervisory Authority (*Bundesanstalt für Finanzdienstleistungsaufsicht*, hereafter BaFin) collect information that not even experienced balance sheet analysts can infer. However, in most cases this is precisely the information needed for a comprehensive and precise assessment of a bank's situation.

– Reliability: since these data often have implications for supervisory action, supervisors and banks insist on particular care in the recording of these data.

The German Banking Act and the related regulations form the legal basis for the collection of data. The collection of these data enables the Bundesbank and BaFin to monitor banks in Germany effectively. These data have also been used for academic study since the end of the 1990s. A growing number of projects are based on these data. As these data contain sensitive information, there are restrictions associated with their use. For instance, these data can be used only at the Bundesbank, and the results may be published only after the data have been anonymised.

* The opinions expressed in this paper are those of the authors and do not need to reflect the opinions of the Deutsche Bundesbank.

Components of BAKIS

The data stored in the BAKIS information system consist of five main components: the annual accounts, the supplementary data schedules, the reports on solvency and liquidity (formerly Principle I and Principle II) and the monthly returns pursuant to section 25 of the Banking Act. BAKIS also contains the banks' master data and history.

1. Annual Accounts

Banks in Germany are required to submit their annual accounts (balance sheet, profit and loss account and a management report) to the Bundesbank and BaFin (section 26 of the Banking Act). However, these data are not proprietary; commercial databases (such as Bankscope) provide such information, too, even if they do not cover all German banks.

The quantitative annual accounts data are oriented to the usual information contained in the balance sheet and the profit and loss account. The information comprises traditional items such as "cash holdings", "claims on credit institutions", "capital" and "profit for the financial year". There are reports on up to 250 balance sheet items and up to 80 items of the profit and loss account per bank and year. This large number of items is caused by the breakdown by line of business and residual maturity; however, generally not all items are completed.

2. Data Schedule Pursuant to the Auditor's Report Regulation

Section 68 of the Auditor's Report Regulation (in conjunction with section 29 (4) of the Banking Act) stipulates that quantitative audit reports also need to be submitted using standardised forms (data schedules). These supplementary data schedules can be regarded as complementing the annual accounts. Banks have a number of recognition and measurement options when drawing up their annual accounts for public disclosure; it is only with the help of information from the data schedules pursuant to the Auditor's Report Regulation for the purpose of the off-site supervision that the banks' actual use of their options can be measured. For instance, banks can transfer securities from their current assets to their fixed assets, thereby avoiding the write-downs which would have applied to current assets according to the strict lower of cost or market principle. These hidden losses in the form of avoided write-downs are concealed in the annual accounts. The supplementary data schedules, however, reveal the full extent of hidden losses in the securities portfolios. These data schedules also contain detailed information on the quality of bank loans.

They contain around 300 items per bank and year; there can be some overlap with other BAKIS components.

3. Reports Pursuant to Principle I[1] (Solvency)

Until 2007, the Banking Act,[2] in conjunction with Principle I, governs the regulatory capital requirements for banks in Germany. Regulatory capital pursuant to the Banking Act is not the same as balance sheet capital.[3] Thus, on the one hand, parts of the hidden reserves and contingency reserves may be assigned to the regulatory cover fund;[4] on the other hand, items such as intangible assets have to be deducted from it. Risk-weighted assets are used to determine the regulatory capital ratio. The idea behind weighting assets is to take account of the riskiness of the transactions – even if only on a rough scale. For instance, a Federal bond in the banking book does not need to be backed by capital, and a loan to an industrial enterprise is counted at 100 % in the risk-weighted assets, which then require a regulatory capital charge of at least 8 %. For large banks, the weighting of assets means that the risk-weighted assets amount to only around one-third of the balance sheet total.

The regulatory capital ratios are often presented in the literature as being incomplete in that they do not adequately reflect the risks inherent in each individual transaction. This criticism is partly justified; all the same, these capital ratios are significantly more meaningful than ratios based on balance sheet values. In addition, upon the introduction of Basel II in 2008 at the latest, the risk content of the loan portfolio, in particular, will probably be reflected more accurately.[5] This would also make the information on risk-weighted assets more precise.

The components of regulatory capital and components of risk-weighted assets have been kept on file monthly for each bank since October 1998. Moreover, the market risk positions of trading book institutions are broken down and recorded quarterly.

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1 The Solvency Regulation superseded Principle I with effect from January 2007. The data starting 2007 cannot be easily compared with the data pursuant to Principle I. However, for research purposes, the time series of the now outdated data is of great interest, and therefore we concentrate our description on the data pursuant to Principle I.

2 Section 10 of the Banking Act lists the components of regulatory capital. Section 10a and 10b cover capital requirements for holding companies and conglomerates.

3 Section 10 (2) of the Banking Act defines regulatory capital – own funds – as the sum of liable capital and tier 3 capital. Liable capital, in turn, is composed of core (tier 1) capital and supplementary (tier 2) capital.

4 The special items for general banking risks pursuant to section 340 g of the Commercial Code are counted as core capital, whereas contingency reserves pursuant to section 340 f of the Commercial Code are supplementary capital. For real estate and securities, the percentage of hidden reserves that can be counted as supplementary capital is determined pursuant to section 10 (2b) of the Banking Act.

5 See Deutsche Bundesbank (2006).

4. Reports Pursuant to Principle II (Liquidity)

Section 11 of the Banking Act, in conjunction with Principle II and the liquidity regulation, addresses banks' liquidity risk.[6] In the wording of the first sentence of section 11 of the Banking Act, "Institutions must invest their funds in such a way as to ensure that adequate liquidity for payment purposes is guaranteed at all times." Principle II gives concrete and quantitative shape to this general requirement. It mandates that liquid assets must be at least sufficient to cover short-term liabilities. Weightings for each individual asset position should indicate their liquidity; the weighting is determined by residual maturity and tradability. On the liabilities side, weightings should make allowance for the volume of outgoing payments that may be expected over the short term. Short-term interbank liabilities are given a 100% weighting; by contrast, sight deposits are given a 10 % outpayment weighting.

The reliability of the liquidity ratio has often been called into question. As with the regulatory capital ratios, it must be said that the liquidity ratio contains much more information than the balance sheet ratios on their own.

The liquidity ratio and its components have been available for each bank on a monthly basis since July 2000. There has just been introduced a regulation allowing banks to apply their internal liquidity risk management model after the audit and agreement of the regulator which will amend the volume of available data.

5. Monthly Returns Pursuant to Section 25 of the Banking Act

Banks have to draw up a balance sheet (at least) once a year. At shorter intervals, they have to additionally report an abridged balance sheet to the Bundesbank (Section 25 of Banking Act). If the monthly balance sheet statistics (BISTA) have to be reported, this information is deemed as monthly returns accordingly.

This abridged version focuses on money claims and liabilities. Claims and liabilities are separated here by type of borrower (banks or non-banks) and origin of the borrower (resident or non-resident). They are also broken down roughly by original maturity. Research on monetary / credit developments or monetary transmission processes usually relies on this statistics.

Since 1995, around 100 balance sheet items have been available monthly for each bank.

[6] The Liquidity Regulation superseded Principle II with effect from 1 January 2007. See footnote 1.

6. Master Data

Current master data are kept on file for every bank. These master data include among others the name of the bank, its category, the town and state where the bank is domiciled, the year it was founded and further information (e.g. the address and number of branches). The bank's history is additionally archived. In this connection, mergers (including the date and the merging institution) and extraordinary occurrences are of special interest.

Structure of BAKIS Data

The Bundesbank assigns a unique ID number to each bank, a "creditor number". Together with the reporting period (balance sheet year, month or quarter of the report), the reporting form and the position on the form, an amount can be precisely located. Using a database program, the amounts can be rationally downloaded for all banks and all points in time in standard file formats (text-only or Excel files).

In principle, the reporting forms cover unconsolidated single entities. With some reporting forms, there is an additional form for the respective group pursuant to Banking Act or commercial accounting. Table 1 presents an overview of important reporting forms.

Table 1

Important reporting forms

BAKIS component	Important reporting forms[7]	
	Single entity	Group
Supplementary data schedules	**Son01, Son02, Son03**[8]	./.
Principle I	**GB1**[9] (overview), **SA3** (own funds)	**QG1** (overview), **QS2** (own funds)
Principle II	**LI1, LI2**[10]	./.

As already mentioned, the creditor number is used as a uniform identifier of banks in the Bundesbank. This enables BAKIS data to be linked to other Bun-

[7] These forms are available as PDF documents on the Bundesbank's website (http://www.bundesbank.de/meldewesen/mw_formbankenaufsicht_vordrucke.php).

[8] For most banks, auditors complete the Son01 supplementary data schedule. Exceptions: building and loan institutions (Son02) and mortgage banks (Son03). There was a break in key items of the supplementary data schedules from 1997 to 1998.

[9] Since 1998.

[10] Since July 2000. However, some institutions changed over to the new Principle II reports even before July 2000.

desbank databases such as the large loans from the MiMiK database (Schmieder, 2006) or the quarterly borrowers statistics.[11]

Table 2 below shows the institutions that have submitted a report for a certain type of reporting form. Since the reporting requirements vary with each form, the number of available reports varies as well. Specifically, in 1999 3,933 institutions submitted a balance sheet but only 2,983 a Principle II report. For narrowly defined credit institutions – banks in the three-pillar system – reports for all forms are generally available, however. The decline in the number of reports[12] since 1993 reflects the merger activity in the German banking industry. Among savings banks and credit cooperatives, in particular, the number of institutions dropped significantly owing to mergers (Koetter, 2005b).

Table 2

Number of reports for important reporting forms

Year	Number of reports per form and year			
	Balance sheet	Son01 / 02 / 03	SA3	LI2 (formerly GB2)
1993	3931	3432	./.	./.
1995	3698	3641	3668	./.
1997	3495	3452	3455	./.
1999	3933	3738	3387	2983
2001	3418	3329	3141	2687
2003	3065	3002	2877	2379
2005	2908	2834	2730	2229

Research Projects Using BAKIS Data

In the last few years, numerous research papers have been written using BAKIS data, some by Bundesbank staff and others by visiting researchers. However, such research has to comply with the strict legal claim regarding confidentiality of supervisory data which are therefore restricted from public awareness. The following is a selection of papers to illustrate the use of BAKIS data.

11 The borrowers statistics list loans to German borrowers on a quarterly basis; borrowers are broken down by sector of activity.

12 The fall in the number of reports from balance sheet and "Son01 / 02 / 03" between 1997 and 1999 is attributable to an increase in the statistical reporting population in 1998.

Porath (2004) estimates a rating model which can be used to forecast whether savings banks and credit cooperatives will encounter difficulties. Using a logit approach, he can calculate the probability of such an event occurring for each individual institution. The variables he uses to forecast difficulties are ratios calculated on the basis of supplementary data schedules (e.g. hidden losses), Principle I reports or annual accounts.

Koetter (2005a) and Bos et al. (2005) study the cost efficiency of German banks using the Stochastic Frontier Analysis (SFA) as their methodology. They use data from the annual accounts and data schedules to calculate banks' output and costs.

Kamp et al. (2005) and Hayden et al. (2006) study concentration in banks' credit portfolios. They combine BAKIS data with borrowers statistics and MiMiK database (loans of € 1.5 million or more), respectively. The latter two papers show the possibilities mentioned above for linking BAKIS data to other databases.

Outlook

Of the 33 papers published in the Banking Supervision series of discussion papers between 2004 and 2006, 18, i.e. 55 %, resort partly or completely to BAKIS data. This underscores the importance of microdata for research on the German banking industry. Although the introduction of Basel II and the changeover of accounting regulations are likely to cause breaks in the time series, this shortcoming will be mitigated in part by the fact that these changes will enhance the information content of regulatory figures.

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