An Estimation System for the End-user
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Abstract
An IBM ISPF menu-driven dialog provides the foreground for SAS® programs that generate demand deposit ownership estimates from survey data. The input screens are fully documented with tutorials and easy for the end-user to execute.

The programs retrieve micro data, trace an IMS data base for mergers and acquisitions, resolve structure changes, produce data analysis diagnostics, generate strata summaries with estimates and standard errors, and table the results.

DDOS Survey
The Demand Deposit Ownership Survey (DDOS) provides estimates of the components of demand deposits held by individuals, partnerships and corporations at commercial banks. Five depositor components are identified in the Survey: financial business, nonfinancial business, consumer, foreign, and all other. Based on data reported by a sample of banks, Board staff constructs national estimates quarterly (March, June, September, and December) for two target populations:

a. all insured commercial banks (about 14,500);
b. weekly reporting banks (about 170 very large banks)

Stratified random samples of sizes about 200 and 90 are used to estimate populations a and b respectively.

Reported data are assumed to represent an average over the survey month. However, respondents have the option of reporting an average of daily data, single-day data for the second and third Wednesdays of each month, or single-day data for each Wednesday. Data reported by the latter two methods are averaged to provide estimates of daily average balances.

Some important uses of DDOS data at the Board include:

- to estimate the short-term interest rate elasticity in the Board's monthly money market model;
- to pinpoint the source of large unexpected deviations of the monetary aggregates from projections;
- to construct series in the Flow-of-Funds and National Income accounts; and
- to experiment with more effective means of seasonally adjusting the demand deposit component M-1.

Software Objectives
The objectives of the estimation system are:

- Make the reports easy to generate. Give the data technician a series of data entry screens for inputting parameters and include tutorial screens.
- Put a secondary level of data quality checking on the initial editing procedures by printing survey data on all respondents, indicating when the survey total is much different from the covariate. Also, show the percentage of an item a bank holds to the total of the size stratum to which it belongs.
- Print estimation report by deposit item and size stratum showing population and sample counts, ratio estimation components and standard errors.

Data Flows
The survey is the only source of data on demand deposit components. However, all commercial banks report gross demand deposits four times a year for the last day of each quarter on the Report of Condition (Call Report). Moreover, the weekly reporting banks survey form contains an entry for demand deposits. For estimation purposes, we have the pleasure of a covariate that approximates the sum of components on DDOS, and whose values exist for the target populations. Thus we use ratio estimation to produce component estimates using gross demand as covariate, base period data from the Call Report for universe a, and an average of daily data in the Survey month for universe b.

The banking system represents a constantly changing universe. From the base period to the survey date, respondent banks could acquire other banks thus distorting the natural relationship between the covariate at the base period and survey data. To bring covariate data in line with survey data, two SAS macros, ARCTRACE and XRESOLVE, were developed. The first macro reads an IMS data base of bank structure changes and outputs the survey banks involved in the mergers and the banks they acquired. The second macro then adjusts the base covariate file.

Input Screens
The data technician need only be familiar with the Board's archival data files and the base period concept used in ratio estimation to begin running reports. A Micro Data Reference Manual indexes all bank deposit series and a TSO Clist "ARCHINFO" gives file names. Next, another Clist "DDOSRPT" begins displaying input screen panels for the user to enter.
Some of the screens written for the system appear as:

```
DDOS REPORT SELECTION MENU

COMMAND -->

Enter one of the following options on the command line above:
1) DDOS/RCRI (Call) - access DDOS/RCRI report menu
2) DDOS/WRBI (Weekly) - access DDOS/WRBI report menu
3) BOTH of the above

Press: HELP Key = Information on DDOS
       ENTER Key = Continue
       END Key = Terminate
```

```
DDOS/RCRI REPORT SELECTION MENU

COMMAND -->

Enter the date for the DDOS reporting period desired: -->
RCRI (Use YYMMDD format, i.e: 841231)

Enter the date for the DDOS tape to be used: -->
RCRI (Use YYMM format)

Enter the beginning and ending dates of the interval period to be
resolved for mergers: -->

Press: HELP Key = Tutorial
       ENTER Key = Continue
       END Key = Terminate
```

```
DDOS/WRBI REPORT SELECTION MENU

COMMAND -->

Enter the date for the DDOS reporting period desired: -->
(RCRI (Use YYMMDD format, i.e: 841231)

Enter the date for the DDOS tape to be used: -->
RCRI (Use YYMM format)

Enter the beginning and ending dates of the interval period to be
resolved for mergers: -->

Press: HELP Key = Tutorial
       ENTER Key = Continue
       END Key = Terminate
```
SAS Programs

A summary of the programs and steps necessary to produce the estimation is given below. We include some report examples from the program output.


Step 2: Retrieve the structure file information for merger activity. A macro INGETTRACF with parameters

INDATA
OUTDATA
STARTDATE
STOPDATE

is used to access the IMS data base for structure

changes and output all mergers within the specified time period.

Step 3: Resolve the merger activity, with macro RESOLVE. Accumulate deposit items for merged banks and output new figures for the successor bank. Delete all banks no longer in existence.

Step 4: Merge DDOS and covariate Call Report files and list the micro data indicating significant differences between Survey and covariate demand totals. See table 1.

Step 5: Compute stratum totals to show the contribution of a bank's item to the stratum as a whole. This indicates banks with significant weight in the stratum estimate. See table 2.

Step 6: Compute ratio estimates and standard errors by stratum and total for each demand component. Finally, table the results by item and stratum. See table 3 for financial business.

Table 1

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<th>BANK</th>
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<th>FOREIGN</th>
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<th>M</th>
<th>RCON240</th>
<th>DIFF.RATIO</th>
<th>FLAG</th>
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</table>
### Table 2

**ODDS BANKS - 1ST LINE: INDIVIDUAL ITEM VALUES**
- 2ND LINE: SURVEY ITEM TOTALS BY STRATUM
- 3RD LINE: RATIO OF (INDIVIDUAL ITEM VALUES/SURVEY ITEM TOTALS BY STRATUM)

**NOTEMMI**

If \( M \) is equal to \( M \), then \( RCON2240 \) has been set equal to \( DDOS2240 \)

<table>
<thead>
<tr>
<th>STRATUM</th>
<th>CALL</th>
<th>PDOC</th>
<th>FINANCIAL</th>
<th>NON-FINANCIAL</th>
<th>CONSUMERS</th>
<th>FOREIGN</th>
<th>ALL OTHER</th>
<th>DOCS</th>
<th>TOTAL</th>
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<td>1 (1&lt;10M)</td>
<td>1.56</td>
<td>105.404</td>
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<td>58.130.772</td>
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</table>

**Acknowledgment**

We would like to thank Mike Cushman for developing the SAS macro %GETTRACE.

*SAS is the registered trademark of SAS Institute Inc., Cary, NC, USA.*

### Table 3

**ALL COMMERCIAL BANKS (USES 850331 CALL DATA)**

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<th><strong>FINANCIAL BUSINESS</strong> (DDOS2273) DOCS DATE 850630</th>
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**References**

