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**ESTABLISHING AN
INTERNATIONAL DATA ARCHIVE
ON FREE BANKING**

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Global Health, and Study of Business Enterprise



Establishing an International Data Archive on Free Banking

by Kurt Schuler

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About the series

The *Studies in Applied Economics* series is under the general direction of Professor Steve H. Hanke, Co-Director of the Institute for Applied Economics, Global Health, and Study of Business Enterprise (hanke@jhu.edu).

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Summary

In the past 40 years, enough work has been done on historical cases of free banking to show that it was a widespread phenomenon. There has been no concerted effort, however, to draw all this material together. The Internet, which did not exist when the revival of interest in free banking began, offers the chance to create an open international research hub to bring together a mass of statistical, legal, and other material on the various cases of free banking. I describe the advantages of a research hub, what components it should include, and an existing research hub that provides a model. The postscript announces progress toward a research hub.

Acknowledgments

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It cannot be sufficiently emphasized that a book that is rare, out of print, or available only on the shelves of a few libraries, or an article published in an old issue of a scholarly journal, is for the great majority of readers utterly inaccessible. Ninety-nine times out of a hundred, the reader who is curious to learn more, but who lacks time and the little bag of tricks familiar to the professional scholar, is, whether he likes it or not, at the mercy of popularizing works chosen almost at random—of which the best, themselves never being reprinted, become in turn inaccessible. What we call our culture is, more than we think, a culture under lock and key.

Marguerite Yourcenour (1974 [1958]: 358n-359n, my free translation)

Historical research on free banking has not penetrated into the mainstream of thinking in monetary economics or economic history. By the mainstream I mean what is taught to students, not what a few erudite professors know. The historical performance of historical free banking systems constitute a far-reaching challenge to the mainstream view of that central banking is superior to other monetary authorities. So far, the challenge has been largely ignored rather than answered. Look in a money and banking textbook for U.S. college students and you will be lucky to find anything on free banking beyond a box referring to the highly regulated version that some northern U.S. states had in the mid 1800s. You will not find reference to the dozens of cases of free banking around the world. Look in a textbook on monetary economics for graduate students and you will generally find no reference at all to the experience of free banking, because graduate textbooks focus on abstract models with little reference to existing or especially former institutions. Read the work of economic historians on, for instance, the gold standard, and you will rarely find acknowledgement that before World War I, half the world or more by GDP, population, or number of countries had free banking or other monetary authorities besides central banks. The free banking systems of a century ago have rich source documentation available, but in practice they are barely better known than the second century A.D. that is the subject of Marguerite Yourcenour's historical novel quoted in the epigraph above, which I happened to read as I was writing this paper.

What can we do to promote greater recognition of historical free banking episodes and the challenge they should pose to mainstream thinking? My answer is that we should make better use of the Internet. We can do much more than we have so far to broaden the base of documentary sources and statistics available online. Making those materials readily available in a single location—a research hub—for anyone with a computer will greatly increase the number of people who may have something interesting to bring to the history of free banking, whether contribution or criticism.

The Old Practices Were Suited to the Informational Constraints of the Time...

Recent research on free banking began with Lawrence H. White's *Free Banking in Scotland* (1981). White showed that Friedrich Hayek's argument for *Choice in Currency* (1976), or as it was later titled, *Denationalisation of Money* (1978), was more than a theoretical possibility: it

had been a historical reality. White's work was the first in this vein since Vera Smith's *The Rationale of Central Banking* (1936). (There was however a partial forerunner in Hugh Rockoff's [1972, 1975] work on mid 19th century U.S. "free banking." U.S. "free banks" could obtain charters without a special act of the legislature but were subject to stringent regulations about branching—generally forbidden—and portfolios—they were required to hold certain state government bonds.) White's book prompted other researchers to investigate other neglected cases of free banking for details. *The Experience of Free Banking*, edited by Kevin Dowd (1992), collected a handful of case studies and gave an idea of the range of historical free banking episodes.

Since then, though, research on the history of free banking has merely percolated rather than bubbled. There have been several dissertations and a number of journal articles on the subject. The group of researchers is certainly larger than it was a generation ago, but it remains small. The research I have seen retains some practices that were essential ten years ago and perhaps even as late as five years ago but are now out of date.

A salient characteristic of historical scholarship from ancient times until just a few years ago was the high cost of making background material available for readers. To use an example from the other paper I have written for this conference (Mardini and Schuler 2014), a history of the privately owned 19th-century commercial bank Banque de Belgique that made use of its annual reports could not easily make the annual reports available. The reports are available at few libraries in Belgium and apparently none outside of Western Europe. Anybody wishing to check the author's statements would have to go to one of those libraries, which might be thousands of miles away.¹ The same considerations applied with even more force to archival materials, which are often available only one place in the world. It would have been prohibitively costly to print source material whose audience would have been even tinier than the audience for a specialized subject such as the history of the Banque de Belgique.

Under such circumstances, historical scholarship tends to remain narrowly national. Only scholars who have frequent, prolonged access to the books and manuscripts in the national library and the national archives are likely to be able to produce authoritative historical research based on them. Even where many foreign researchers know the language in question, they cannot contribute substantially to scholarship unless they are lucky enough to obtain visiting appointments or travelling fellowships. There are, I would guess, 100 or more scholars at various levels with some interest in free banking who read Spanish, but only those few living in Colombia have easy access to the books and manuscripts that form the base for research on the history of free banking in Colombia.

¹ Yes, interlibrary loan was a possibility, but some libraries have a policy of not lending material such as this.

...But Recent Digital Technology Has Nearly Obviated the Informational Constraints

Within perhaps the last ten years and certainly the last five years, the informational constraints to making source material widely available have fallen nearly to zero. The technologies that have made it possible are digital photography, the falling cost of digital storage, and the Internet.

Digital cameras have fallen in price and improved in quality to such an extent that they are now affordable to any researcher except perhaps those in the very poorest countries. Even the digital cameras on cellphones are now of good enough quality to take acceptable photographs of most printed material and manuscripts. Photographs can easily be converted into JPG, PDF, or other formats that have nearly universal acceptance at present and for the foreseeable future.

Digital storage has fallen in cost to such an extent that memory sticks for digital cameras can store hundreds or thousands of photographs, and services such as Google Docs offer for free the online space to store them.

The Internet has continued to increase average download speeds. Large photographic files that once would have taken hours to download now only take minutes or seconds.

The consequence of these developments is that at least for material that is out of copyright, posting it for everyone to see on the Internet has a low cost. As an example I offer one of my own historical projects, though not on free banking. In 2010 I discovered unpublished transcripts of the 1944 Bretton Woods financial conference. With a co-editor I shaped the transcripts into a book. When the e-book was published (Schuler and Rosenberg 2012) we simultaneously released our digital photographs of the original transcripts plus hundreds of pages of companion documents that had been released at the conference but were deemed too unimportant for publication in the conference proceedings published in 1948. The online material has been used in at least two subsequent books by other writers on Bretton Woods.

Other, more ambitious projects have already been successful, such as the papers of Dwight Eisenhower, 21,000 fully digitized pages placed online with a fine index and search capability (Chandler and others 2003). The Eisenhower papers project is a fee-based project. I offer my own project as an example that had essentially no budget and that offers the material for free. The only drawback I see of my project compared to the Eisenhower papers is that in mine, the pages are not fully digitized, meaning that readers cannot search the digital photographs for words.

The technological conditions are therefore favorable for an international data archive on free banking, with contributions from multiple researchers scattered across the world.

Advantages of an International Data Archive on Free Banking

Gathering together material on free banking that is currently scattered and putting it online in a data archive would have several advantages.

One is that, to repeat, scholarship on free banking tends to be narrowly national because some or all of the primary sources are unavailable outside of the country of origin. By making material available online, a data archive would broaden the pool of potential researchers substantially. If enough primary source material were available, economists from outside the country of origin would be able to contribute to the analysis of the free banking system. In particular, greater availability of source material might attract economists from countries that have never had free banking, which includes most of Africa, the Middle East, and current or former communist countries. The pool of researchers on free banking could benefit from enlargement. There would still be a problem concerning secondary sources, many of which remain under copyright and could not legally be posted online, but the problem is less severe because so much recent scholarship is available as freely available working papers or dissertations.

At present, scholarship on free banking is not as cumulative as it could be. A researcher who wants to build on the work of a previous researcher on, say, the balance sheets of free banks currently may have to start from scratch to accumulate the balance sheets. Google Books and the Internet Archive have helped historical researchers tremendously by making many old books available; for free banking, an especially important aspect of their digitization programs is that they have digitized many collections of statutes, which facilitates research into the legal frameworks of free banking systems. There are still mountains of old source material that are not online, though.

Similar considerations apply for statistics. Statistics in printed volumes were useful in the days before the personal computer, and they permit the reader to run his eyes over them to spot trends, but they are far inferior to spreadsheets or other machine-readable files. A data archive would enable researchers to work on segments of statistics and pool the results for a systemic picture. For instance, if there were seven banks in a free banking system and each of seven researchers works on digitizing the balance sheet statistics of one bank, the result when gathered together is the aggregate balance sheet statistics of the system. Economists like to work with existing data rather than to go out and collect data. If there were more historical statistics of free banking available for econometric analysis, free banking might attract more attention from econometricians, leading to more published articles and greater visibility as a research topic.

A data archive would also promote replication, the key characteristic of any scientific discipline. In economic history, replication means that other researchers can use the historical materials and the thought process of a researcher to arrive at the same results he did, and that they agree that the results are reasonable. Currently, if a researcher on free banking has explained himself

well enough, we can follow his thought process, but we lack access to the primary source material that constitutes the foundation fact he is supposed to be describing and analyzing.

What Should an International Data Archive on Free Banking Include?

I envision a research hub on free banking as having the following components.

(1) Legal material. Laws and regulations are at the foundation of how free or unfree various historical episodes were. For the freest cases, the applicable laws consisted only of general laws that also applied to nonfinancial businesses, such as laws specifying the monetary standard and coinage (which seems to have been a government monopoly in all a few cases), or laws about financial transactions that also applied to institutions other than banks, such as laws about liability for bills of exchange. For less free cases, there were special laws applying to banking such as those establishing the order of priority of creditors for liquidation; bank charters; minimum capital requirements; limits on note issue, often to a multiple of paid-in capital; restrictions on assets, such as limits on mortgage lending; and so on.

For many countries, old statutes are now readily available through published collections that are now out of copyright and have been digitized on Google Books or the Internet Archive. Often it suffices to go to those sites and look for the keywords “[country name]” and “laws [or the equivalent term in the local language].”

(2) Legislative history. A legislative history is a summary of the source material in (1). For an example, though not from a free banking case, see Weintraub and Schuler (2013: Appendix A). A legislative history is particularly useful in cases where there were many laws over time, even if they were often modest emendations of prior law.

(3) Financial statements of banks. In a number of countries, banks were required to publish detailed financial statements annually or quarterly and statements of key balance sheet items monthly or even weekly. The statements were typically published in the government gazette.

(4) Narrative accounts to accompany the financial statements of banks. Many banks issued annual reports, either as free-standing publications or as advertisements in newspapers, offering a narration of their activities to accompany their financial statements. Published narration did not become standard until the late 1800s in many countries, though, so even finding a narrative in such cases involves a more elaborate search through bank archives. Another primary source of narrative information is the autobiographies of bankers. It is also possible, of course, to read the financial press day by day and search for stories on banks.

(5) Accounts by government monetary authorities or financial regulators. As mentioned, in most free banking systems coinage was a government monopoly—a significant limitation on overall monetary freedom, especially since there were often laws restricting banks from issuing small-denomination notes that might compete with government-issued coins. The annual report of

the mint might contain information important for an overall understanding of the monetary system. Some countries (or, in federal systems, states) had departments of bank supervision that issued reports annually, or sometimes more often, containing statistics and narration on the banking system.

(6) Spreadsheets of digitized statistics. Unless compiled in spreadsheets or a similar machine-readable form, statistics nowadays are of little use. Every economist uses spreadsheets and every economist expects to be able to analyze data by machine, not just by eyeballing. This is an area in which historical research on free banking has especially far to go. For government note issue, currency boards, and central banks, financial statements sheet exists in one place and is easy to find. For free banks, in some cases banks published financial statements in the government gazette, while in others it is necessary to comb through a variety of sources for statements of multiple banks, a task that can be an order of magnitude harder.

Spreadsheets should always include both the raw data in something close to its original format. For comparisons across time and space, it is also desirable to standardize data on bank balance sheets, income and expenditure statements, and perhaps other categories of data. The appendix offers my idea for standardization. My proposals may however be too complicated or otherwise unsuited for the purposes of most free banking research, so I welcome other proposed schemes. Where spreadsheets show raw data and a standardization, there should be a clear explanation of the mapping between the raw and standardized data. A forthcoming paper Nicholas Krus and I are writing (Krus and Schuler 2014) will have some examples as they apply to currency boards.

The hard part of compiling raw statistics is entering them by hand in a spreadsheet if they cannot be cut and pasted. I have found that typically, statistics in sources that were not “born digital” cannot be converted into text or cut and pasted from PDF or other output files into spreadsheets without significant loss of accuracy. Text conversion programs such as ABBYY Finereader are not accurate enough for the standards of economic historians, in my experience. The short-term solutions are to find ways to make data entry by hand more efficient. Voice recognition programs such as Dragon NaturallySpeaking can enable those of us who are slow, bad typists to enter data faster and more accurately. There are also commercial services in some poor countries, where labor is cheap, that digitize large quantities of data; the going rate seems to be about 1 U.S. cent per data point. Over the long term the ideal solution is improvement in text conversion programs. I have been told that efforts exist to improve the capacities of these programs to convert old printed tables accurately into spreadsheet files.

(7) A bibliography or bibliographies. To my knowledge, the only bibliographies on free banking are those by Pamela Brown (1982); my more modest effort (Schuler 1988); John Zube’s (1990, updated 2010) pre-Internet microform series “Peace Plans,” later on the Internet; and George Selgin and Lawrence H. White’s (1994) survey article, which emphasizes articles in academic economic journals.

Bibliographies need to include two main streams of writing. One stream, of which the bibliographies mentioned above are examples, concerns scholarly writing on free banking, which by and large consists of secondary accounts to the degree that they are historical rather than purely theoretical. The bibliographies just mentioned are quite good for that stream. The other stream concerns the primary sources in publications by and archives of banks; government documents and archives; newspapers; etc. The existing bibliographies of scholarly writing, and any master bibliography based on them, are international bibliographies. A bibliography of primary sources will be a set of national bibliographies, because almost all of the most authoritative statistics and contemporary commentary were issued locally. Occasionally the foreign press, such as *The Economist* or *The Banker* (London) may contain useful material, but it is often reproduced from a local primary source.

There are programs such as Zotero that could reduce the labor of generating bibliographies. Bibliographies should be searchable by keywords, especially geographical keywords in the case of country studies, and by date.

(8) Possibly a wiki for each country offering advice on questions that may arise about peculiarities of its laws, accounting conventions, business practices, and other features that might give difficulty to researchers knowledgeable about free banking but not that particular case.

(9) A “who’s who” of current researchers, their recent work, work in progress, and work they are thinking about. This area of the research hub would be a place for researchers to show what they are working on, post generalized queries for suggestions from other researchers, and describe their longer-term research interests. Knowing the interests of other researchers can help both to strengthen collaboration, where researchers have complementary contributions on a subject, and to avoid overlap, where researchers are thinking closely along essentially similar lines.

(10) Possibly a repository for scholarly writing. Recent working papers are generally available through the online repository RePEc (Research Papers in Economics) and may be placed in a centralized repository with the permission of the author. Old scholarship, from before the early 20th century, is out of copyright and may likewise be placed in a centralized repository. Scholarship since the early 20th century published in books or journal articles is generally copyrighted by the publisher rather than the author and is hard to obtain permission to reproduce. These points naturally lead to...

Copyright Considerations

Most historical episodes of free banking were sufficiently long ago that copyright on the primary source material has expired. Copyright on the older secondary material has also expired. Copyright remains in effect on the newer secondary material.

To the list above, then, it would be desirable to add a posted summary of the period of copyright in all countries where material on free banking has been published. Copyright often differs for works produced by government as opposed to those produced privately. In many countries, the period of copyright is shorter for works produced by governments or the material is in the public domain from the start.

In many countries there is a copyright exception allowing reproduction of works for individual research. One possibility for including copyrighted works in a data archive on free banking would be to keep digital copies on file at the sponsoring institution for onsite use only. It would be comparable to having a large cabinet of paper files. Whether the digital equivalent would be as legal as the paper equivalent would, however, be a matter requiring the opinion of a qualified legal authority before proceeding.

To encourage the sharing of research, new data, such as spreadsheets produced by researchers, should be available for sharing under standard terms that permit noncommercial reproduction provided that the source is acknowledged, such as the Creative Commons license. Individual authors may wish to permit *commercial* reproduction without payment of a fee, but I think if we band together it may be possible to bargain with commercial producers and to get them to release some of their old data into the public domain—likely to be a more generally useful and successful approach than trying to obtain cash payment. For instance, if you have daily exchange rates for the Belgian franc going back 100 years before Bloomberg and Bloomberg wants them, why not let the editors of the site bargain and try to get Bloomberg to release into the public domain its daily exchange rate data for the portion of the 20th century that its data cover? As is the case with the Historical Financial Statistics data set that I edit, researchers who contribute data should be have the right to withdraw the data if they wish.

Researchers would retain copyright of their own writings to the repository for scholarly writing mentioned at the end of the previous section, and would be able to withdraw it from the repository of they wished.

File Formats

Files will consist mainly or entirely of photographs, words, and statistics. The long-term stability and readability of the file formats is worth considering at the start, because converting one format to another later when the first format has become obsolete may result in loss of data. I have encountered this problem with old Lotus 1-2-3 spreadsheet files on floppy disks, and who is to say that it will not occur in the future if Microsoft Office loses its current dominance.

For photographs, the format that is currently easiest to use is Adobe Acrobat PDF. Pictures can be converted into pages that can then be easily arranged into large files. The most commonly used source format is JPG. PDF seems to be a format that will have a long life into the future. My judgment is that the archive should use PDF for photographs but, where possible, have as backup the underlying JPG files that most digital cameras produce, and store them offline.

The photographs, by the way, need not be of professional quality. As long as they are easily readable they will be useful. We can leave the professional digitization to Google Books and the Internet Archive. I doubt that any reader currency has a Kirtas book digitization machine, though perhaps a decade hence they will have fallen so much in price that, like cell phones, they make the transition from a luxury product to a mass market product.

PDF should also be the preferred format for files produced by word processing programs, because it can be used for converting a wide range of programs that include text and graphics. The underlying files in Microsoft Word, WordPerfect, etc., should not appear on the site nor does there seem to be any need to store them.

For statistics, Microsoft Excel is currently the most widely used spreadsheet program. It can now hold a lot of data; a single sheet has the capacity for more than 1 million data points. Spreadsheets should be posted in Excel, but also in a format that has a better history of reliability and longer expected life. My suggestion is comma-separated value (CSV) format. A disadvantage of CSV is that multiple sheets cannot be combined into a single workbook; rather, each file can only be a single page. Another disadvantage is that formulas are converted into text rather than retained as formulas.

Output from computer programs, if included in the archive, should be in a format like text (txt) that is robust and durable. I do not however envision that many computer programs will be submitted.

A Near Model for the Archive Already Exists

Given the detailed description I have given, it may not surprise you to know that I have a model in mind for a free banking data archive. I have been involved in creating the Digital Archive on Currency Boards (<http://krieger.jhu.edu/iae/digitalarchive/>) on the Web site of the Institute for Applied Economics, Global Health and the Study of Business Enterprise at Johns Hopkins University. We have addressed many of the issues that a free banking data archive would encounter. Not all of our experience would carry over, but much would. I invite you to look at the site. It is the result of the work of a number of Johns Hopkins University students, mainly undergraduates, over several years, owing a large debt in particular to the efforts of one former student (Nicholas Krus).

The Digital Archive on Currency Boards focuses on primary sources, whereas the data archive on free banking could also include secondary sources that are out of copyright. Most of the important secondary literature on currency boards is still under copyright, whereas for free banking there is more that is out of copyright.

Links with Other Data Sets

A number of data sets (collections of spreadsheets) or databases (data that can be searched and downloaded in a customized way) have come online in recent years, and the free banking data archive could benefit from having a connection to them.

The University of Pittsburgh's Col*Fusion (Collaborative Data Fusion) project is, in its own words, "an advanced infrastructure for systematic accumulation, integration and utilization of *historical data*. It aims to support large-scale interdisciplinary research, where a comprehensive picture of the subject requires large amounts of historical data from disparate data sources from a variety of disciplines." The CLIO World Tables, a political science data set that will contain a substantial amount of economic data, is being uploaded into Col*Fusion. The CLIO World Tables are directed by John Gerring and James Mahoney.

Historical Financial Statistics, a data set I edit, is a would-be counterpart to the International Monetary Fund's International Financial Statistics database of macroeconomic data. International Financial Statistics has no pre-World War II data, which is the particular focus of Historical Financial Statistics. Historical Financial Statistics, like Col*Fusion, is free and noncommercial. Over the next 12 months I will try to expand considerably the amount of data in the data set.

The Clio-Infra project is the beginning of a worldwide set of interlinked data hubs on social, economic, and institutional indicators. It is the brainchild of the Dutch economist Jan Luiten van Zanden and is separate from the CLIO World Tables.

Among the kinds of research that could be undertaken by combining the data in these data sets would be long-term comparisons of free banking with not free banking.

What Are Your Thoughts?

I have written this paper to present a detailed picture of what an international data archive of historical data on free banking would look like. It is based on a combination of my research on free banking, most of which predates the Internet, and my more recent involvement with Internet data and Web sites for subjects other than free banking.

Now it is the turn of you, the readers, to instruct me. I would especially appreciate thoughts about what I propose that has already been done, but that I did not know about; what else a research hub on free banking should include (or, less likely, exclude); how to organize it most efficiently; and whether any of you are potential editors of the archive or whether your institutions are potential sponsors. I have already approached people at a couple of institutions that might act as sponsors but have not yet received definite answers. Much remains to be done but the benefits are clear. Let's make this idea a reality in some form.

Postscript (October 2014)

One of the participants at the conference where this paper was presented is in course of arranging to establish a digital archive on free banking. An announcement will be made at the appropriate time on the Free Banking Web site and elsewhere.

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Appendix: Standardized Formats for Bank Balance Sheets

A standardized format for individual and aggregate bank balance sheets would be highly useful for comparing data across countries. The current standard for aggregate cross-country comparisons is the International Monetary Fund's *International Financial Statistics* database, which contains monetary, financial, and macroeconomic statistics stretching back as far as 1948. Statistics usually begin the year a country became a member of the IMF, and since there were no countries that still had free banking when they became members, *International Financial Statistics* contains no statistics of free banking episodes.

For data similar to but preceding the era covered by *International Financial Statistics*, I have created a database called Historical Financial Statistics at the Center for Financial Stability (<http://www.centerforfinancialstability.org/hfs.php?>). I have used the IMF's data template as a starting point. Below I offer suggested standardized templates for the monetary portions of the data.

Template for an ideal set of aggregate data

The template lists an ideal set of annual or higher-frequency data series for a country. *In practice, many series will be lacking, and some may differ from those in the template.* I welcome ideas for a simpler template.

Exchange rate

Main official rate (parity)

Official market rate 1

Official market rate 2, 3, etc. (for countries with multiple rates)

Parallel or black market rate

Monetary authority (quasi central bank, Treasury, etc.) [separate entries for each entity]

Assets

Foreign assets

—Precious metals

—Gold

—Silver

—Unspecified

—Cash (notes, token coins)

—Securities and deposits held

—Other or unspecified

Domestic assets

—Claims on the other monetary authority (e.g., its notes and coins), if applicable

—Claims on national government

—Claims on subnational governments

—Claims on nonfinancial public enterprises

- Claims on deposit money banks
- Claims on other banking institutions
- Claims on nonbank financial institutions
- Claims on other sectors
- Other or unspecified (including all assets not specifically identified as foreign)

Liabilities

Foreign liabilities

- Deposits
- Securities
- Other or unspecified

Domestic liabilities

- Reserve money
 - Notes issued (paper money)
 - Held by banks
 - Held outside banks
 - Unspecified
 - Coins issued
 - Held by banks
 - Held outside banks
 - Unspecified
- Current accounts of financial institutions
- Other or unspecified
- Time, savings, and foreign currency deposits
- Restricted deposits
- Other liabilities to deposit money banks
- Other liabilities to other banking institutions
- Other liabilities to nonbank financial institutions
- Deposits of national government
- Liabilities to other sectors
- Securities issued
- Other or unspecified (including all liabilities not specifically identified elsewhere)

Net worth (capital accounts)

- Paid-in capital
- Reserve and surplus
- Other or unspecified

Off balance sheet assets

- Need to develop appropriate categories

Off balance sheet liabilities

- Need to develop appropriate categories

Income

Income from investments

- Interest
- Foreign

- Domestic
- Unspecified
- Capital gains or losses
- Foreign
- Domestic
- Unspecified
- Unspecified

Fees

Other or unspecified

Expenditures

Staff

Office expenses (premises, equipment, etc.)

Currency issue

—Notes (one line for monetary authority and another for Treasury if both issued)

—Coins

—Unspecified

Net transfer to or from general assets

Net transfer to or from government (as owner)

Taxes

Shareholders' dividends

Other or unspecified

Deposit money banks (free banks; these categories apply to individual banks and to the system as a whole)

Assets

Foreign assets

—Precious metals

—Gold

—Silver

—Unspecified

—Cash (notes, token coins)

—Securities and deposits held

—Other or unspecified

Domestic assets

—Claims on the other monetary authority (e.g., its notes and coins), if applicable

—Claims on national government

—Claims on subnational governments

—Claims on nonfinancial public enterprises

—Claims on deposit money banks

—Claims on other banking institutions

—Claims on nonbank financial institutions

—Claims on other sectors

—Other or unspecified (including all assets not specifically identified as foreign)

Liabilities

Foreign liabilities

Domestic liabilities

—Notes issued (paper money)

—Coins issued

—Deposits of national government

—Demand deposits

—Time deposits

—Foreign currency

—Other or unspecified deposits

—Owed to deposit money banks

—Owed to other banking institutions

—Owed to nonbank financial institutions

—Deposits of national government

—Liabilities to other sectors

—Securities issued

—Other or unspecified (including all assets not specifically identified elsewhere)

Net worth (capital accounts)

—Paid-in capital

—Reserve and surplus

—Other or unspecified

Off balance sheet assets

—Need to develop appropriate categories

Off balance sheet liabilities

—Need to develop appropriate categories

Income

Interest and capital gains or losses

—Interest

—Capital gains or losses

—Unspecified

Fees

Other or unspecified

Expenditure

Staff

Office expenses (premises, equipment, etc.)

Currency issue

—Notes

—Coins

—Unspecified

Paid to depositors

Paid to bondholders

Net transfer to or from general assets

Net transfer to or from stockholders

Taxes

Other banking institutions (savings banks, etc.)

[Similar to deposit money banks]

Other financial institutions (these may be institutions such as finance companies in some circumstances)

[Similar to deposit money banks]

Monetary aggregates

Notes in circulation

Coins in circulation

Monetary base (M0)

Money of zero maturity (MZM)

M1

M2

M3

M4

Interest rates

Policy rate

Money market rate

—Local currency

—Foreign currency (e.g., gold where the local monetary standard is paper)

Treasury bill rate

Deposit rate

—Local currency

—Foreign currency

Lending rate

—Local currency

—Foreign currency

Government domestic bond yield—2 year or closest

Government domestic bond yield—10 year or closest

Government domestic bond yield—other benchmark

Government foreign bond yield—benchmark issue #1

Government foreign bond yield—benchmark issue #2