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Japan's Flow of Funds Accounts: Main Characteristics and Measures for Enhancement

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Japan's Flow of Funds Accounts Statistics (J-FFA) is a comprehensive record of developments in financial assets and liabilities in major economic sectors. The main features of the J-FFA can be summarized as follows. First, the J-FFA shows both financial transactions and the corresponding balances outstanding of financial assets and liabilities. Second, as it is compiled in accordance with international standards, the J-FFA makes it possible to identify key features of financial activities in Japan by comparing them with those in other countries. Third, given that the J-FFA is divided into a large number of sub-categories for both transaction items and economic sectors, it can meet a variety of analytical needs of statistics users. In recent years, the Bank of Japan has been improving and enhancing the J-FFA. The amounts outstanding of securitized products have been released since December 2011, and "from-whom-to-whom" time-series data of domestic debt securities have been made available to the public since March 2012. The aim of these initiatives is to respond to the international awareness that existing data do not capture risks inherent in financial systems around the world; thus, it was deemed necessary to fill "data-gaps." The Bank of Japan aims to make further efforts to increase the usefulness of the J-FFA to a wide range of statistics users.

What Is Flow of Funds Accounts Statistics?

Japan's Flow of Funds Accounts Statistics (J-FFA), compiled by the Bank of Japan (BOJ), is a comprehensive record of developments in financial assets and liabilities in major economic sectors (i.e., households, corporations, and financial institutions). Its major features are as follows.

First, the J-FFA captures both the outstanding balances of financial assets and liabilities (stock) and financial transactions (flow) in each sector[1].

Second, the J-FFA is based on the System of National Accounts 1993, an international standard for national accounts, which sets up criteria for sectors and transaction items common across countries. The J-FFA thus makes it possible to identify key features of financial activities in Japan by comparing them with those in other countries[2].

Third, the J-FFA contains a larger number of sub-categories for both transaction items and sectors than the flow of funds accounts of the United States and the Euro area (Chart 1). Such detailed accounts mean that the J-FFA captures the flow of funds in greater detail and it therefore meets a variety of analytical needs of J-FFA users.

[Chart 1] Flow of Funds Accounts in Japan, the United States, and the Euro Area

	Japan	United States	Euro area
Name of Statistics	*Japan's Flow of Funds Accounts*	*Flow of Funds Accounts of the United States*	*Euro Area Accounts*
Compiler	BOJ	FRB	ECB
Number of Transaction Items	51	34	16
Number of Sectors	43	31	8
Starting Date	Annual data: 1954～ Quartely data: 1964 1Q～	Annual data: 1945～ Quartely data: 1952 1Q～	Annual data: 1999～ Quartely data: 1999 1Q～
Publication	11～12 weeks after the reference period	10 weeks after the reference period	17 weeks after the reference period

Source: FRB, ECB, and BOJ, "Japan's Flow of Funds Accounts."

While comprehensive, the J-FFA does not appear to be "user-friendly" for primary statistics users due to the complexity of its matrix structure. Against this background, the BOJ has taken several measures to improve the usefulness of the J-FFA, and to make it easier to understand, to a wider range of statistics users. Every quarter, the BOJ publishes, along with the data, the basic figures of the J-FFA, which intend to guide statistics users to focus on major developments in the most recent quarterly data. Moreover, the BOJ makes public on its website an explanation of the J-FFA and the way it is compiled[3].

As part of such efforts, this *Review* will present trends in the J-FFA from a long-term perspective. It will also discuss the efforts being made to further improve the J-FFA. In addition, this *Review* will present the BOJ's steps to address "data gaps," that is, the fact that existing statistical data are not sufficient to fully capture the risks inherent in financial systems around the world.

Financial Developments from the Perspective of the J-FFA

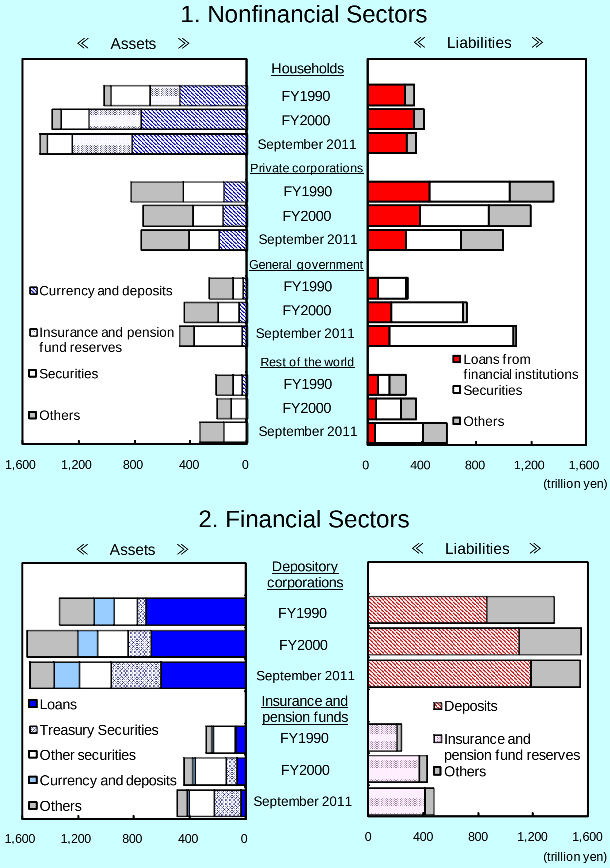
Stocks and flows

Chart 2 shows the outstanding balances of the financial assets and liabilities of the major sectors (i.e., households, private non-financial corporations, etc.), at the end of fiscal 1990 (March 31, 1991), fiscal 2000, and September 2011.

In the household sector, the total amount of financial assets has continued to increase, largely due to increases in currency and deposits, although the rate of increase has moderated in recent years. Meanwhile, at private non-financial corporations, fund raising (through borrowing from financial institutions and issuing of securities) has continued to decline. At the same time, fund-raising by the general government through the issuance of Japanese government bonds (JGBs) has increased at a rapid pace. At the end of September 2011, the amount raised by the general government through JGB issuance totaled 1,093 trillion yen -- 3.7 times as much as the amount at the end of fiscal 1990. Reflecting such financial developments, on depository corporations' assets side, holdings of JGBs have increased, while on the liabilities side, retail deposits have also increased. As a result, the size of their balance sheets reached 1,544 trillion yen at the end of September 2011.

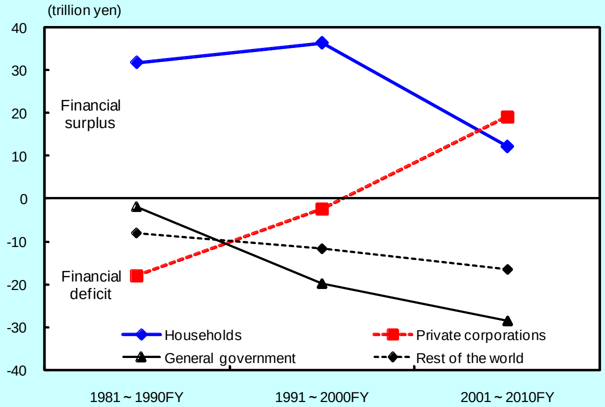
Another way of looking at financial developments is to examine financial surpluses or deficits, which are the difference between the amount of funds invested and raised. Doing so shows the savings and investment balance from the financial side. Because the J-FFA is released 11-12 weeks after the reference period, this provides much more timely information than the national accounts. The J-FFA also provides quarterly figures, which are not available in the national accounts. Chart 3 shows the financial

[Chart 2] Financial Assets and Liabilities of Main Sectors



Source: BOJ, "Japan's Flow of Funds Accounts."

[Chart 3] Financial Surplus or Deficit of Main Sectors



Source: BOJ, "Japan's Flow of Funds Accounts."
Note: Period averages on a fiscal year basis.

surplus/deficit for the 1980s, 1990s, and 2000s. Focusing on the 2000s, the chart shows the following. First, the financial surplus of households has declined; second, the financial position of private non-financial corporations turned from deficit to surplus, and the surplus now exceeds that of the household sector; and third, the financial deficits of the general government and the overseas sectors have increased. The decline in the financial surplus of households reflects the secular downward trend of the savings rate resulting from the aging of the population. Likewise, the surplus of private non-financial corporations reflects the secular decline in domestic investment, while the growing deficit of the general government reflects the expansion of the budget deficit. The overall balance of the financial surplus/deficit in these sectors manifests itself in the financial deficit of the overseas sector (surplus of outward investment = current account surplus).

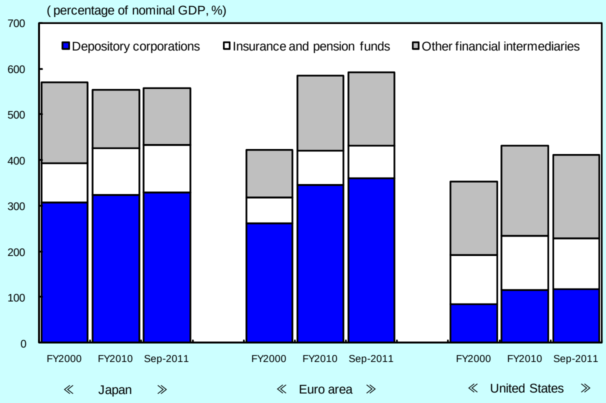
In sum, the financial stock and flow data provided in the J-FFA make it possible to examine economic developments in Japan from a financial perspective, and combined with other financial data, allow a richer analysis (An example of this is provided in the Box, which looks at the impact of the Great East Japan Earthquake of March 2011 as revealed in financial statistics).

International comparison

Next, differences in the structure of financial intermediation among different countries and regions are examined. To this end, Chart 4 shows the ratio of financial assets held by financial intermediaries to nominal GDP for Japan, the United States, and the Euro area at the end of fiscal 2000, fiscal 2010, and September 2011. In Japan, depository corporations hold a far greater amount of financial assets than insurance and pension funds and other financial intermediaries (e.g., securities companies). In the Euro area, too, since the end of fiscal 2010, depository corporations have held about the same amount of financial assets relative to nominal GDP as their counterparts in Japan. In contrast, in the United States, the amount of financial assets relative to nominal GDP held by financial intermediaries is relatively small, while the amount held by other financial intermediaries is high[4]. Looking at changes over time, in Japan, the amount of financial assets held by the different types of financial intermediaries remained more or less unchanged. In contrast, in the Euro area, the amount of financial assets held by depository corporations and other financial intermediaries increased notably in the 2000s, while in the United States, the amount of financial assets held by those financial intermediaries also increased in the 2000s.

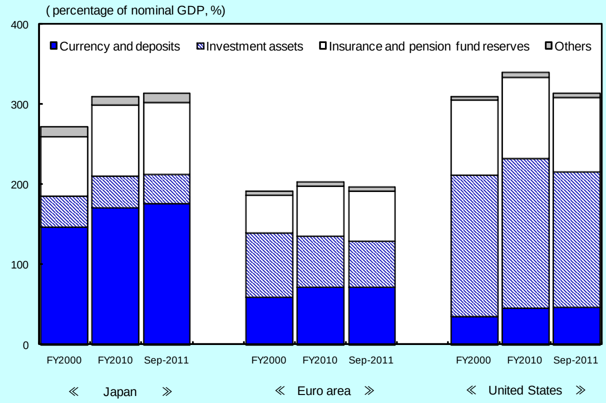
To examine the reason for the differences in the role of depository corporations, Chart 5 shows the pattern of financial assets held by households in the three economies. In Japan, deposits make up a large share of household financial assets, whereas in the

[Chart 4] Size of Financial Asset Holding by Different Financial Intermediaries



Source: FRB, ECB, and BOJ, "Japan's Flow of Funds Accounts."

[Chart 5] Type of Financial Assets Held by Households



Source: FRB, ECB, and BOJ, "Japan's Flow of Funds Accounts."
Note: For Japan, "investment assets" consist of equities, bonds, investment trusts and outward investments in securities. The same applies to the Euro area and the United States.

United States, deposits make up only a small share and instead investment assets such as equities and bonds account for the large share. This explains the substantial difference in financial assets held by depository corporations in Japan and the United States. In the Euro area, however, the amount of financial assets relative to nominal GDP held by depository corporations is more or less the same as that in Japan. Nevertheless, the amount of households' deposits relative to nominal GDP is much smaller than that in Japan. In fact, the total amount of funds raised through deposits at depository corporations in the Euro area stood at 22.7 trillion euro at the end of September 2011. Out of this, 5.8 trillion euro consisted of deposits by households, whereas deposits by depository corporations stood at 8.1 trillion euro, accounting for almost 40 percent of total deposits. Thus, whereas Japanese depository corporations raise funds primarily through deposits by households (i.e., through retail funding), their counterparts in the Euro area to a large extent depend on deposits from each other (i.e., through wholesale funding). Such reliance on wholesale funding has contributed to the expansion of the balance sheets of depository corporations in the Euro area[5].

As this brief analysis shows, the international comparison of flow of funds accounts statistics makes it possible to grasp differences in financial structures among different economies even though at first glance they may appear to be similar.

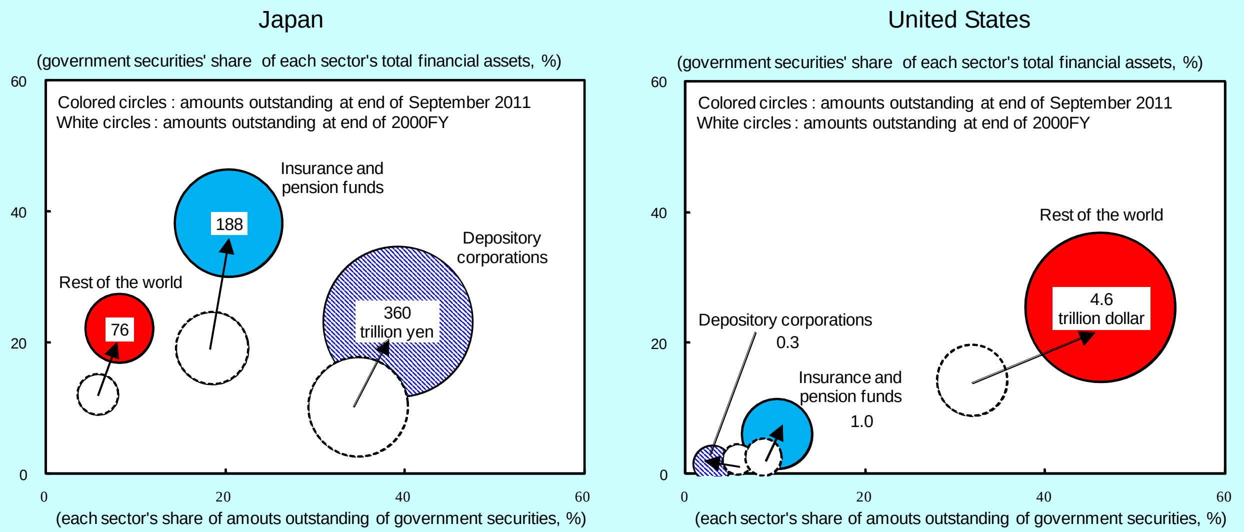
Detailed sub-categories of transaction items and sectors

Finally, this section looks at financial activity in Japan by examining the detailed sub-categories of transaction items and sectors.

In Japan, as the funds raised by the general government through JGB issuance have increased, the amount of JGBs held by each sector has grown as well. Chart 6 shows the outstanding balances of government securities (represented by the size of circles), the share that government securities make up in a particular sector's total financial assets (y-axis), and the share of total government securities held by each sector (x-axis). The chart shows that, in Japan, government securities holdings by depository corporations and insurance and pension funds have increased, reaching 360 trillion yen (39 percent of the total amount outstanding of the JGBs) and 188 trillion yen (20 percent), respectively. Holding by overseas investors has also gradually increased, and now stands at 76 trillion yen (8 percent). In the United States, overseas investors have become ever more important as the principal holders of government securities. With respect to the Euro area, sector-by-sector information on government securities holdings issued within the area is not available due to data constraints.

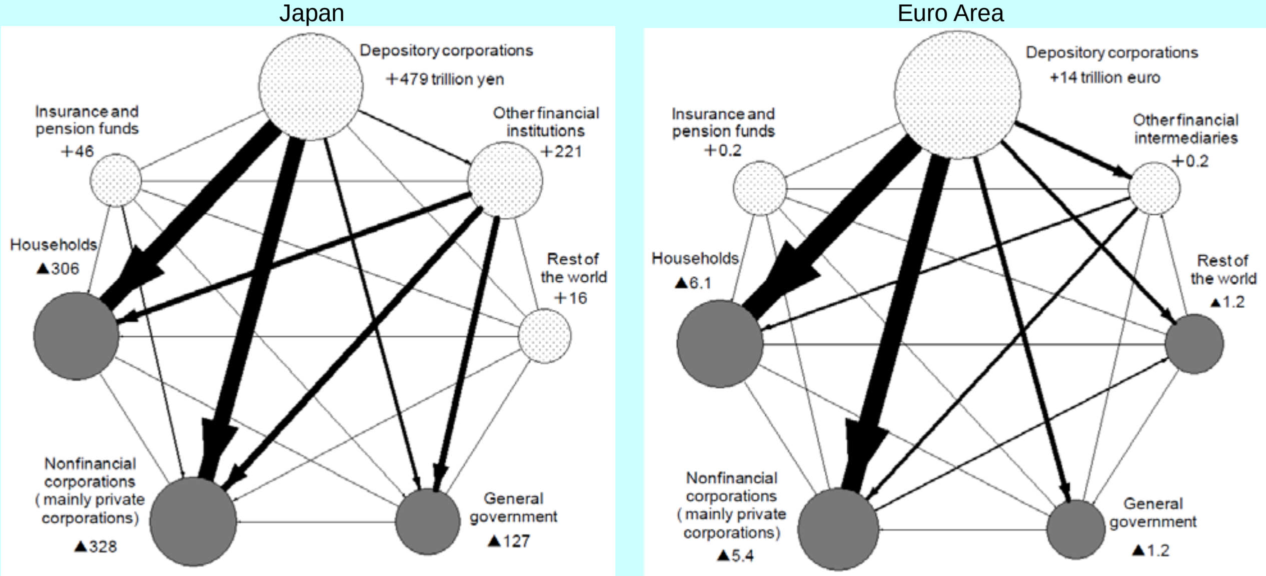
Next, the network of lending and borrowing relationships between different sectors is analyzed. For Japan, one can identify such networks by relying on the Detailed Flow of Funds Accounts (D-FFA), where the assets of one sector can be linked to the liabilities of another[6]. Chart 7 shows this network for Japan, as well as for the Euro area for comparison[7]. In Japan, loans from depository corporations to private non-financial corporations and households are the principal channels of funding. In this regard, the network in the Euro area is very similar. However, the chart also highlights differences between the two economies. In Japan, loans from other financial institutions -- primarily loans from public financial institutions – are also substantial, while this is not the case in the Euro area. With respect to the United States, these data are unavailable. While Chart 7 shows the network of lending and borrowing only for seven major sectors, the J-FFA makes it possible to examine such networks in greater detail for a larger number of sub-categories. In contrast, for the Euro area, this is not possible due to data constraints[8].

[Chart 6] Holdings of Government Securities by Main Sector



Source: FRB and BOJ, "Japan's Flow of Funds Accounts."
Note: For Japan, "government securities" consist of the total of treasury discount bills, central government securities, and Fiscal-Investment-and-Loan-Program bonds. For the United States, "government securities" consist of treasury bills and other treasury securities (excluding savings bonds, which are unmarketable). For the definition of financial intermediaries in the United States, please refer to "Flow of Funds - Overview of Japan, the United States and the Euro Area –".

[Chart 7] Who Lends to Whom by Main Sector



Source: ECB and BOJ, "Japan's Flow of Funds Accounts," "Detailed Flow of Funds Accounts."

Note: Dotted circles indicate sectors that lend more than they borrow, while gray circles indicate sectors that borrow more than they lend. The size of a circle and the figure next to it represent the amount of net lending. Arrows and their thickness indicate the direction and size of net lending from one sector to another.

The network for Japan is estimated as follows. First, data on loans by private and public financial institutions are taken from the D-FFA. Other loans (Bank of Japan loans, call loans and money, bills purchased and sold, loans by the nonfinancial sector, installment credit, repurchase agreements and securities lending transactions) were calculated by apportioning the outstanding loan assets of a particular sector based on each sector's liabilities outstanding taken from the J-FFA. Moreover, the values for "other financial institutions" consist of the sums for "other financial intermediaries," "financial auxiliaries," and "central bank." "Households" include "private nonprofit institutions serving households."

The network for the Euro area is taken from the "Who-to-whom detail" published in the Euro Area Accounts of the ECB.

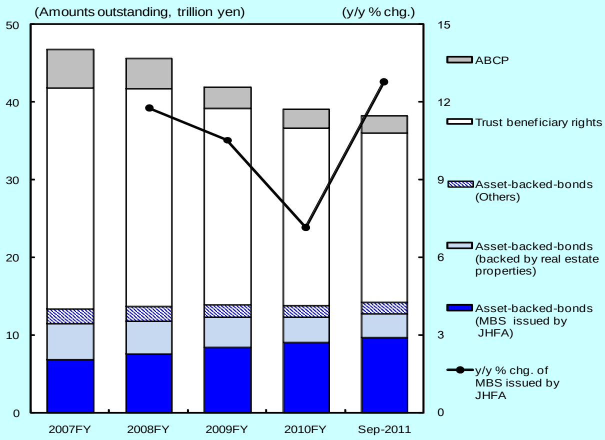
Thus, even when compared with similar data for other major economies, the J-FFA is a source of rich and detailed data that meet the needs of a variety of statistics users and make it possible to comprehensively capture economic activity in Japan from a financial perspective.

Further development and enhancement of the J-FFA

In response to the global financial crisis triggered by the collapse of the Lehman Brothers in September 2008, the G20 financial ministers and central bank governors in October 2009 adopted a report entitled "The Financial Crisis and Information Gaps." The report calls for the development of financial accounts by sector (i.e., statistics to identify the network relationship between sectors). Each country is now working on the compilation of such data. The Bank of Japan is also making various efforts for the further development and enhancement of the J-FFA, while cooperating with relevant parties.

First, securities statistics have been enhanced. By re-compiling basic data for the J-FFA, the BOJ started to release the amounts outstanding of securitized products in December 2011. Chart 8 shows that (a) the securitized products' market as a whole has been declining and (b) the only securitized product that has continued to grow is

[Chart 8] Amounts Outstanding of Securitized Products



Source: BOJ, "Amounts Outstanding of Securitized Products."

mortgage-backed securities issued by the Japan Housing Finance Agency (i.e., so-called JHF MBS).

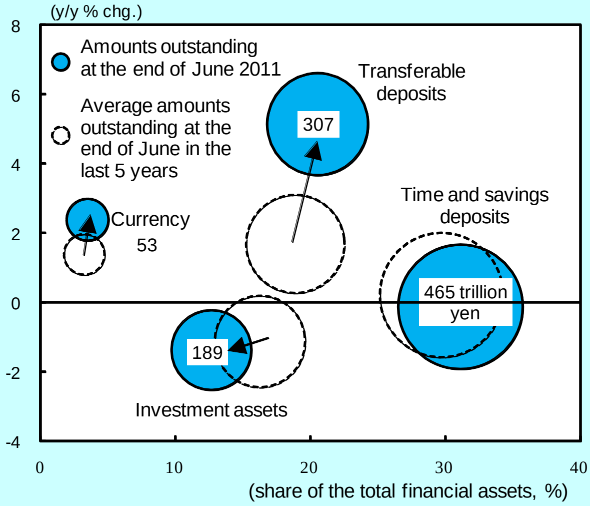
Second, the BOJ is working to develop data on bonds and loans by remaining maturity (time to maturity). The current J-FFA does not include statistics on bonds and loans classified by the remaining periods to maturity. Each G20 country is currently working on compiling sector-by-sector figures for bonds and loans classified into those with a remaining period of one year or less and those with a remaining period of more than one year, aiming to capture maturity mismatch in balance sheets. The target date for the release of such data is 2014, although some countries have already started. For example, the Euro area has put in place a framework in which since June 2010 loan data is to be reported to the European Central Bank (ECB) by remaining period, and publication of such data has begun. Japan plans to take similar steps with the help of reporting entities.

[Box] The impact of the Great East Japan Earthquake as revealed in financial statistics

Financial statistics allow one to examine the various ways in which the Great East Japan Earthquake of March 2011 affected households and private non-financial corporations.

(1) The J-FFA shows that following the earthquake, households' preference for liquidity intensified (Box Chart 1). The rate of increase in households' holdings of highly liquid assets rose sharply, with that of holdings of liquid deposits jumping to 5.2 percent year-on-year (against an average year-on-year rate of increase of 1.7 percent during the preceding five years) and that of holdings of currency reaching 2.4 percent year-on-year (against an average 1.4 percent year-on-year increase during the preceding five years). As a result, the share of liquid deposits in total financial assets rose to a new record of 21 percent (24 percent when currency is also included). On the other hand, the share of so-called "investment assets" (i.e., shares, bonds, investment trusts, and outward securities investment) in total financial assets declined, while there was no marked change in the share of time deposits.

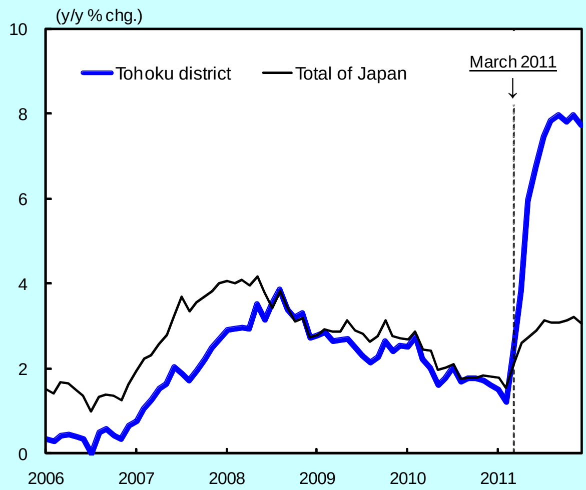
[Box Chart 1] Financial Assets of Households



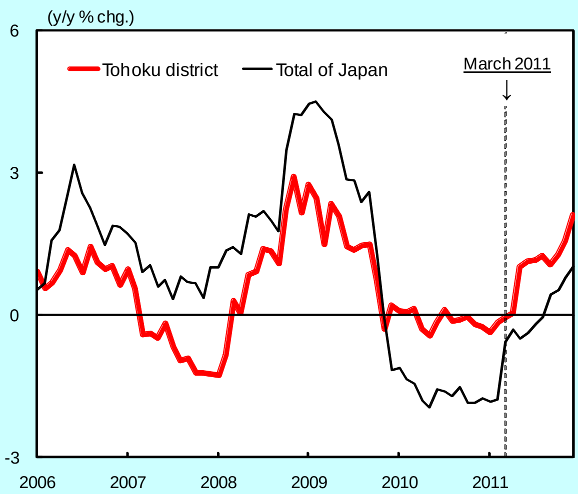
Source: BOJ, "Japan's Flow of Funds Accounts."
Note: "Investment assets" consist of equities, bonds, investment trusts, and outward investments in securities.

(2) Looking at deposits by area shows that after the earthquake, the outstanding balance of personal deposits rose much more sharply in the disaster-stricken Tohoku district than in Japan overall (Box Chart 2). This is attributable to the fact that while individuals increased liquidity in hand, there was also an inflow of donations and relief money to the region. Further, looking at loans by area shows that in the Tohoku district, loans are increasing at a faster pace than in Japan overall (Box Chart 3). How the rates of increase in deposits and loans behave as reconstruction demand fully takes hold will also be visible in those financial statistics.

[Box Chart 2] Personal Deposits by District



[Box Chart 3] Loans and Bill Discounted by District



Source: BOJ, "Deposits by Prefecture (Domestically Licensed Banks)," "Loans and Bills Discounted by Prefecture (Domestically Licensed Banks)."
Note: Figures for the Tohoku are the sum of personal deposits or loans handled by the branches of domestically licensed banks in Aomori, Iwate, Miyagi, Akita, Yamagata and Fukushima prefectures.

Conclusion

The Bank of Japan has been compiling the Flow of Funds Accounts Statistics for more than half a century. The J-FFA is a valuable source of data which makes it possible to comprehensively capture economic activity in Japan from a financial perspective. Using data such as those which show the network of lending and borrowing relationships between different sectors and applying them to simulation analyses, one can identify risks inherent in financial systems[9].

The Bank of Japan aims to make further efforts to increase the usefulness of the J-FFA to a wide range of statistics users.

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[1] In addition to the "Table of outstanding balances of financial assets and liabilities" (stock table) and the "Table of financial transactions" (flow table), the J-FFA contains the "Table of reconciliation," which can be used to estimate the latent losses and profits resulting from fluctuations in the prices of financial assets.

[2] The J-FFA is compiled in accordance with the following international standards:

EC, IMF, OECD, UN and World Bank (1993), *System of National Accounts 1993*.

IMF (2000), *Monetary and Financial Statistics Manual*.

IMF (2008), *Monetary and Financial Statistics Compilation Guide*.

[3] For details on the sectors and transaction items in the J-FFA, see the "Explanation of the Flow of Funds Accounts Statistics," and for details on the way the data were compiled, see the "Compilation Method of Japan's Flow of Funds Accounts" (http://www.boj.or.jp/en/statistics/sj/index.htm/). Time-series data are available from the "BOJ Time-Series Statistical Data Search" site (http://www.stat-search.boj.or.jp/index_en.html).

[4] For a more detailed comparison of Japan, the United States and the Euro area, see "Flow of Funds – Overview of Japan, the United States and the Euro Area –."

[5] In the Euro area, loans (which are on the assets side) by depository corporations are treated as deposits by the borrowers (which are on the liabilities side). This has greatly contributed to the increases in the financial assets and liabilities of depository corporations.

[6] For example, the table on the outstanding amounts of financial assets and liabilities in the J-FFA makes it possible to obtain the total outstanding amount of bank loans, but not the amount of loans to households, private non-financial corporations or public agencies. The data showing such financial links (so-called "from-whom-to-whom" data) are called the "Detailed Flow of Funds Account (D-FFA)." At present, it is not possible to show such links for shares, etc. due to a lack of basic data. It is possible, however, to show claim/debt relationships between sectors based on the D-FFA with respect to deposits and financial institutions' loans (including estimates), because the BOJ receives detailed data from these institutions. With respect to bonds issued in Japan, beginning with the preliminary report for the second quarter of 2011, the "from-whom-to-whom" data on issuers and holders are included as reference information. The BOJ plans to further develop these time-series data.

[7] As the FFA for the United States does not provide data on lending and borrowing relationships between sectors, the analysis here compares Japan and the Euro area.

[8] For example, in the FFAs of the Euro area, central banks are not represented as such and are included in the depository corporation sector. In contrast, in the J-FFA, the central bank is treated as an independent sector, making it possible to chart its relationships with other sectors.

[9] There have been many such analyses in other countries. See, for example, the following paper:

Be Duc, Louis and Gwenael Le Breton (2009), "Flow-of-Funds Analysis at the ECB: Framework and Applications," *Occasional Paper Series*, No. 105, European Central Bank.

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