

## Developments in the Money Stock in Japan

Monetary Affairs Department  
Kinuko Kyoso and Hideki Takada

January 2007

(A translation of the original Japanese issue, 2006-J-1, published in January 2006)

In Japan, the growth rate of the money stock (M<sub>2</sub>+CDs) has been relatively high since the latter half of the 1990s, exceeding that of nominal GDP, even when the growth rate of the economy remained generally low and prices continued moderate declines. As a result, the amount outstanding of the money stock reached extremely high levels relative to the size of the economy (i.e., nominal GDP) in Japan. There are two main factors contributing to this. First, while the rate of return on financial assets other than bank deposits dropped significantly, the decline in interest rates on bank deposits, which were approaching close to the zero bound, was limited, thereby making them relatively attractive. And second, in this situation, the Japanese financial system experienced successive disturbances, and as a result significant amounts of funds were shifted to bank deposits, as they were under a blanket guarantee by the deposit insurance system. Recently, the Japanese economy is continuing its recovery process and financial institutions' lending attitude is becoming positive, both inducing increase in the growth of the money stock. However, with the Japanese financial system regaining stability, funds are gradually shifting back from bank deposits to other financial assets, constraining the growth of the money stock. Given this tendency, growth of the money stock is unlikely to accelerate in the near future. Overall, such modest growth of the money stock seems compatible with moderate price increases and sustainable economic growth when the underlying factors described above are taken into account.

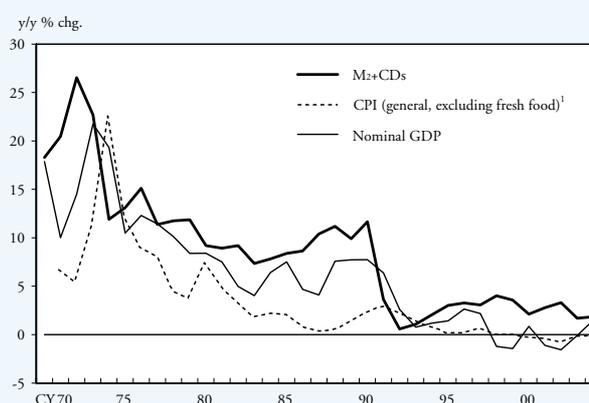
### Introduction: Growth of the Money Stock since the 1970s

The money stock is defined as the aggregate amount outstanding of bank deposits and currency held by "money holders," which comprise mainly households and firms, that is economic entities other than financial institutions and the central government.<sup>1</sup>

M<sub>2</sub>+CDs is a widely used indicator of the money stock in Japan. Year-on-year changes in M<sub>2</sub>+CDs since the 1970s show that the relationships between the growth rate of M<sub>2</sub>+CDs and those of economic activity and prices have changed gradually (Chart 1). First, from the 1970s through around the mid 1980s, these relationships were relatively stable, as similar movements were observed between the growth rates of M<sub>2</sub>+CDs and of nominal GDP and also between the growth rates of M<sub>2</sub>+CDs and of the

consumer price index (CPI), although the degree of time lags varied.

**Chart 1: M<sub>2</sub>+CDs, Economic Activity, and Prices**



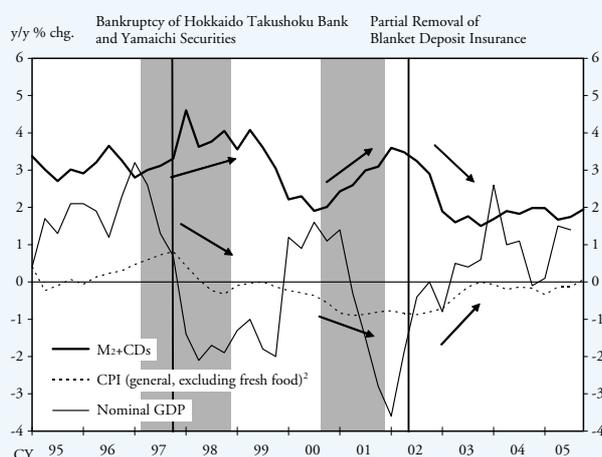
Note: 1. Adjusted to exclude the effects of changes in the consumption tax rate.

However, from the latter half of the 1980s, when Japan experienced the period of the bubble economy, the relationship between the growth rates of M<sub>2</sub>+CDs and of the CPI gradually became unstable: during the period of the bubble economy, M<sub>2</sub>+CDs continued to grow at about 10 percent on a year-on-year basis, while the rate of increase in the CPI remained generally modest. Moreover, the relationship between the growth rates of M<sub>2</sub>+CDs and of nominal GDP, which was relatively stable until the early 1990s, became unstable thereafter. From the latter half of the 1990s, in particular, the growth rate of M<sub>2</sub>+CDs started to move in the opposite direction compared with the growth rates of both nominal GDP and the CPI, and thus these relationships became more unstable.

The following three points summarize the key characteristics since the latter half of the 1990s.

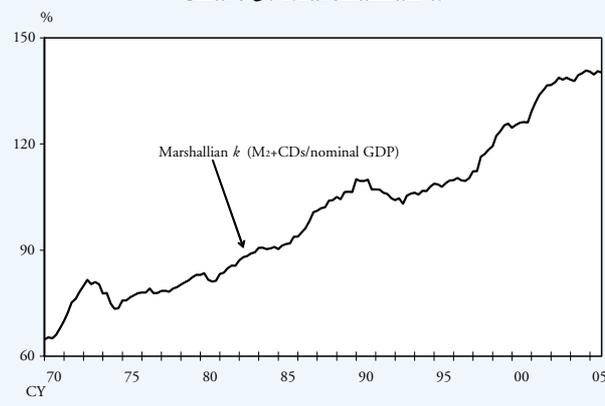
First, the growth rate of M<sub>2</sub>+CDs generally moved in the opposite direction to the growth rates of the economy and of prices (Chart 2). Second, the ratio of M<sub>2</sub>+CDs to nominal GDP reached historically high levels (Chart 3). These two characteristics show that the money stock continued to grow at a relatively high pace even when economic growth remained sluggish and prices continued to decline. And third, in the current recovery phase, the growth rate of the money stock has not accelerated despite the improvement in economic activity.

**Chart 2: M<sub>2</sub>+CDs, Economic Activity, and Prices in the Last Ten Years<sup>1</sup>**



Notes: 1. Shaded areas indicate recession periods.  
2. Adjusted to exclude the effects of changes in the consumption tax rate.

**Chart 3: Marshallian *k***



In the following sections, various factors affecting the growth rate of the money stock are summarized, followed by background explanations of the uniqueness of the recent growth of the money stock.

### Basic Factors Determining the Growth Rate of the Money Stock

The growth rate of the money stock is determined, in theory, by the interaction of factors affecting demand for money (i.e., firms' and households' desire to hold money such as bank deposits and currency) and the supply of money (i.e., financial institutions' inclination for credit creating activities via extending loans).

Demand for money can be separated into two different aspects depending on the purpose: one is for economic transactions and the other is for savings.

The transactions demand for money is determined mainly by the size of the economy. For example, when the volume of transactions increases in line with economic growth, demand for bank deposits and currency, which are the means of settling transactions, increases, thereby accelerating growth of the money stock.

Money is also a means of saving wealth. Besides money such as bank deposits and currency, there are various other types of financial assets, for example, bonds, equities, and trust funds. From these options, households and firms choose instruments or forms of savings, taking into account not only the "profitability" but also the "liquidity" (i.e., the ease of converting the financial assets into cash) and the inherent risk (i.e., whether they are "safe" assets such as principal-guaranteed assets).

The most distinctive feature of holding money compared with other types of financial assets is the "liquidity." Interest rates on bank deposits are usually lower than yields on bonds and equities.

---

Such a divergence in the "profitability" can be justified by considering it as the cost of obtaining "liquidity." This implies that the smaller the divergence, the lower the cost will be of obtaining liquidity by holding money, thereby boosting demand for money. The "profitability" of money is determined mainly by interest rates on short-term bank deposits, while that of other financial assets such as bonds and equities is determined by future payments of interest or dividends and capital gains.

Another unique characteristic of money is that it is a highly secure and thus "safe" financial asset. The face value of cash is, needless to say, guaranteed. In the case of bank deposits, the amount exceeding the principal is guaranteed, regardless of interest rate conditions. Furthermore, some types of bank deposits are under a blanket guarantee by the deposit insurance system.<sup>2</sup> Therefore, firms and households might prefer holding money to other types of financial assets given the low inherent risk of money, even when they think that the "profitability" of money is low.

Households' and firms' preference for assets in terms of "liquidity" and risk-taking changes in accordance with the economic and financial conditions. For example, when concern about financial system stability or the availability of funds is increasing, households and firms tend to hold financial assets with higher "liquidity" and lower risk (i.e., higher "safeness") compared with periods of more stable financial circumstances. During such periods, demand for money as a means of savings, therefore, is likely to increase even when the "profitability" of financial assets remains unchanged.

Furthermore, when households and firms are making decisions concerning deposit holdings, they choose not only the types of financial assets but also the volumes of deposits relative to their debts such as borrowings. Households' and firms' inclination for borrowing funds and repaying debts, therefore, influences the level of bank deposits. For example, if firms consider that they have excess debts and accordingly proceed to repay debts, the amount of bank deposits will be reduced as bank deposits are the main financial source for repayment.

Turning to the supply-side factors, deposits are created through financial institutions' credit extension, such as bank lending. Therefore, financial institutions' willingness to extend credit has an impact on the growth of deposits, or the money stock. The creation of deposits through extension of loans by financial institutions is called credit creation.

Although the determining factors behind financial institutions' credit extension activities are complex, they seem to include the following: first, earnings from lending after deducting loan losses and other costs incurred; second, the cost for banks to procure funds, including payment of interest on deposits and deposit insurance premiums;<sup>3</sup> third, conditions under which financial institutions carry out liquidity management, for example, the accessibility of acquiring funds by taking deposits; and fourth, the adequacy of the capital acting as a buffer against the risk of loan loss.

### **Factors Contributing to the Growth of the Money Stock since the Latter Half of the 1990s**

This section explains the mechanism behind the aforementioned unique developments in the growth rate of the money stock since the latter half of the 1990s, taking into account the basic factors affecting the money stock described above.

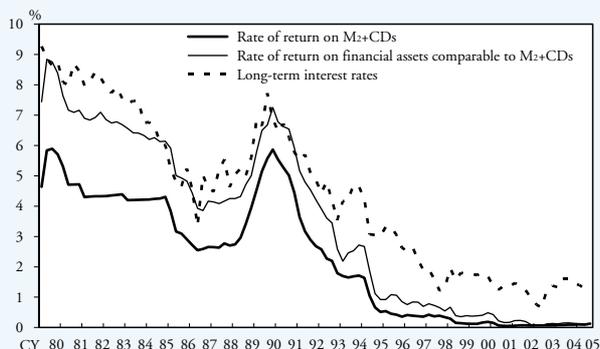
#### ***Background to the Continued High Growth of the Money Stock Relative to Economic Activity***

As economic activity was sluggish, demand for money for conducting transactions was low, and this seems to have placed downward pressure on the growth of the money stock. Firms' reductions of their excess debts also placed downward pressure on the growth of the money stock, since these reductions decreased deposits on the asset side of firms' balance sheets.

On the other hand, demand for bank deposits as a savings instrument increased significantly since the latter half of the 1990s due to the following two factors. First, although interest rates on bank deposits fell to nearly zero, the relative attractiveness of bank deposits in terms of "profitability" increased. This was because the declines in the profitability of other types of financial assets were greater in a situation where the expected rate of both economic growth and inflation declined due to the sluggish economic activity (Chart 4). Especially since the late 1990s, when there was little room left for interest rates on bank deposits to go lower while prices continued to decline moderately, the effective "profitability" of bank deposits, which factors in price falls, seems to have further risen. And second, during this period the Japanese financial system experienced successive disturbances, leading to a large-scale shift of funds to bank deposits, which had high "liquidity" and low risk as they were under a

blanket guarantee by the deposit insurance system.

**Chart 4: Rates of Return on M2+CDs and Other Financial Assets**

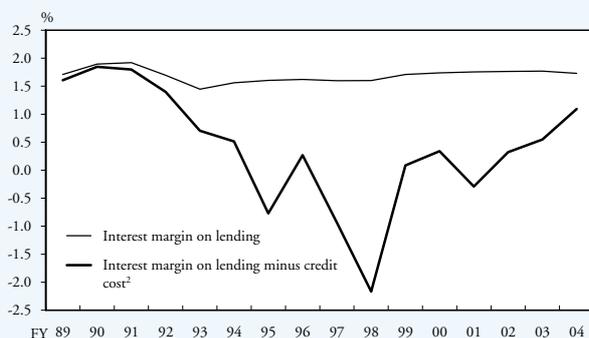


Notes:

1. The rate of return on M2+CDs is calculated as the weighted average of the interest rates on deposits included in M2+CDs, where the rate of return on cash is assumed to be zero and the weights are the amounts outstanding of individual assets.
2. The rate of return on financial assets comparable to M2+CDs is calculated as the simple average of the following seven interest rates and yields: subscribers' yield on 5-year interest-bearing bank debentures, money trusts with 5-year maturities, loan trusts with 5-year maturities, postal savings certificates with maturities of 3 years or more, money market funds (MMFs), medium-term government securities funds, and repurchase agreements with 3-month maturities.

Turning to the supply-side factors, the lending attitude of banks became increasingly negative from the latter half of the 1990s because banks' risk-taking capability decreased due to concerns over the adequacy of their capital, and also because the profitability of bank lending after being adjusted for credit risk declined significantly, reflecting the increase in credit risk caused by the higher bankruptcy risk of borrowers (Chart 5).<sup>4</sup> Such a negative lending attitude, coupled with sluggish demand for borrowing, seems to have exerted a negative impact on the credit creation process, and this in turn lowered the growth rate of the money stock.

**Chart 5: Interest Margin on Lending<sup>1</sup>**



Notes:

1. The average of the interest margins of major banks and regional banks.
2. Credit cost is defined as losses stemming from disposal of non-performing loans, such as loan write-offs and provisioning for loan losses.

During this period, financial institutions generally took a cautious approach to their liquidity

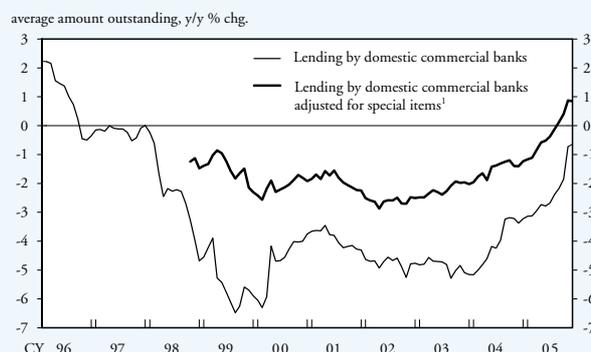
management, taking account of higher liquidity risk given the concern about the stability of the financial system. In this situation, they continued to accept deposits, passively accommodating the higher demand of households and firms for holding deposits, even though the amount of their loans was decreasing. As a result, financial institutions held excess funds as the amount outstanding of loans decreased while that of deposits grew. The financial institutions generally invested these excess funds in safe assets, mainly in Japanese Government Securities (JGSs).

In sum, although the lending attitude of financial institutions became significantly less accommodative in the late 1990s, demand for bank deposits surged, as they had advantages in terms of "liquidity" and "safeness" compared with other financial assets, especially in a situation where the financial system was unstable. A surge in demand for bank deposits led to a shift of funds from other financial assets to these deposits, resulting in fast growth in the money stock relative to the pace of economic activity.

### ***Factors Restraining Growth of the Money Stock in the Current Economic Recovery Phase***

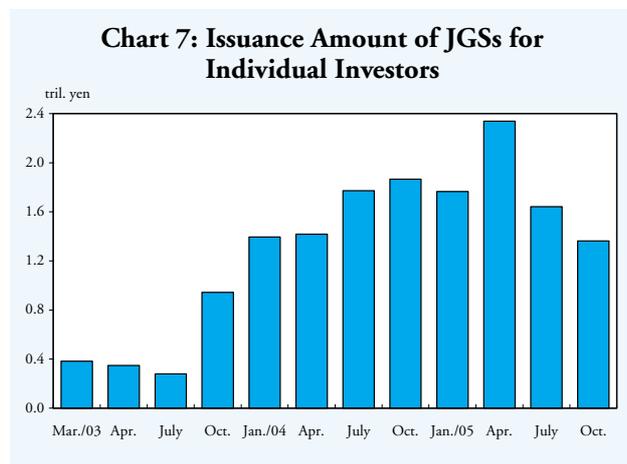
As the economy continues to recover, higher demand for money for the purpose of carrying out transactions should contribute to pushing up growth of the money stock. Similarly, the recent moderation in firms' efforts to reduce their excess debts could be viewed as another factor contributing to growth of the money stock. However, it is not yet clear that firms' demand for bank lending has started rising, since they have ample cash flow given the high level of corporate profits. Therefore, it is premature to judge that lending by banks has started boosting the growth of the money stock (Chart 6).

**Chart 6: Lending by Domestic Commercial Banks**



Note: 1. Adjusted figures exclude fluctuations from liquidations of loans, loan-write-offs, etc.

On the other hand, demand for money as a savings instrument has generally been decelerating, putting downward pressure on the growth of money. This deceleration in demand for money could be attributed to the following factors. First, households and firms have become less eager to secure "liquidity" and "safeness" of financial assets, reflecting the regained health of the Japanese financial system. And second, reflecting the continued economic recovery, the profitability of financial assets other than bank deposits is increasing on the whole. In addition, with the introduction of JGSs for individual investors,<sup>5</sup> which are not components of M2+CDs, the outflow of funds from bank deposits has been proceeding, reducing demand for bank deposits (Chart 7).

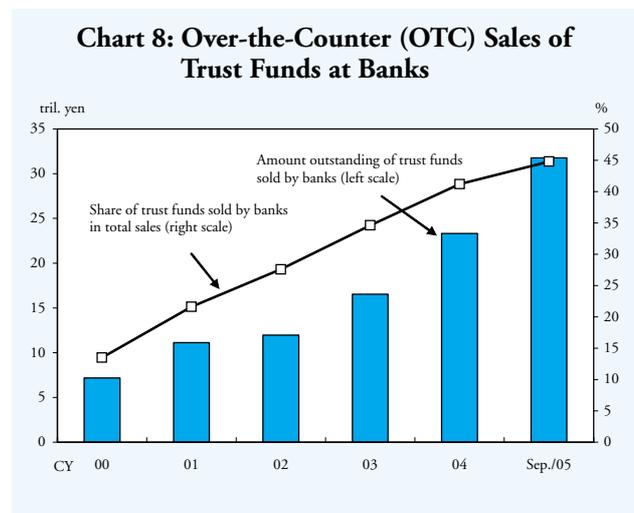


Turning to the supply-side factors, financial institutions' lending attitudes have become more positive, since their capital position has recovered and the profitability of bank lending after factoring in credit risk has improved with a decline in credit risk (Chart 5). This change in financial institutions' lending attitudes may be contributing to mitigating negative effects on the credit creation process, thereby reducing downward pressure on the growth of money.

In the meantime, banks have been placing emphasis on providing financial products other than deposits, such as trust funds, in order to increase commission income (Chart 8). This change in banks' business focus could be acting as a restraint on the growth of money.

In sum, in the current economic recovery phase, the lending attitudes of financial institutions have become more positive with the improvement of economic activity, and the amount outstanding of bank loans has started to grow. However, the growth rate of the money stock has not accelerated, mainly reflecting weaker demand for bank deposits as a

savings instrument, with concern over the health of the Japanese financial system receding.



### *The Balance-Sheet Approach to Illustrate Factors Contributing to Changes in the Money Stock*

It is difficult to quantify the aforementioned supply and demand factors affecting changes in the growth rate of the money stock. There is, however, an alternative approach, called the "balance-sheet approach," which quantitatively analyzes factors contributing to growth of the money stock from a different perspective.

This approach decomposes changes in the money stock into the following factors. First is the "fund-shift" factor, which represents shifts of funds between bank deposits and other types of financial assets. Second is the "fund-raising" factor, which mainly reflects firms' borrowing activity. And third is the "fiscal" factor, which indicates changes in fiscal expenditures on a net basis, or put differently, net fiscal transactions by the central government with the private sector, which are equivalent to fiscal expenditures minus fiscal revenues such as tax revenues.

Under this approach, the factors affecting the growth rate of the money stock can be summarized as follows. Since the latter half of the 1990s, the "fund-raising" factor has put downward pressure on the growth of money, as firms' funding needs receded while some of them were repaying their debts and also financial institutions were reluctant to extend loans in a situation where economic growth remained low. On the other hand, both the "fund-shift" factor, driven by growing concern about the stability of the financial system, and the "fiscal" factor, supported by the expansion in net fiscal

expenditures, significantly pushed up the growth rate of the money stock. Recently, however, although the negative impact stemming from the "fund-raising" factor has been reduced, growth of the money stock is being restrained as the positive effects of the "fund-shift" factor and the "fiscal" factor have mitigated (for a more detailed explanation, see Box 1).

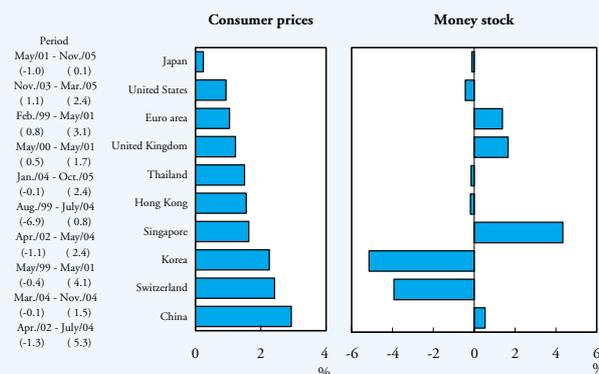
## Concluding Remarks: Outlook for Future Growth of the Money Stock

In the Outlook for Economic Activity and Prices published in October 2005, the Bank presented its view that "the Japanese economy is likely to experience a sustained period of expansion." If the economy follows the Bank's projection, the following two opposite factors are likely to influence growth of the money stock. First, the economic recovery will contribute as a positive factor to growth of the money stock through increases in demand for borrowings by households and firms and also through the more positive lending attitudes of financial institutions. Conversely, the developments whereby the Japanese financial system has regained stability and the profitability of financial assets other than bank deposits (such as bonds and trust funds) is generally increasing will result in outflows of funds from bank deposits to other types of financial assets. Furthermore, increases in tax revenues reflecting the economic recovery will result in a decrease in fiscal expenditures on a net basis. These will contribute as negative factors to the growth of money. Taken as a whole, it is unlikely that the growth rate of the money stock will rise significantly in the near future, given the continued high growth rate of the money stock relative to the growth of nominal GDP in recent years. Taking these factors into account, however, the slow pace of growth in the money stock seems compatible with moderate price increases and sustainable growth of the economy.

As described above, the relationships between the growth rate of the money stock and the growth rates of economic activity and prices seem to have become weaker in recent years in Japan. This phenomenon, however, is also observed in many economies overseas (Box 2). More specifically, there has been no stable relationship between the growth rate of the money stock and changes in the basic trend of inflation rates in many economies in recent years: there are cases where the growth rate of the money stock increased and others where it decreased during the process of changes in the basic trend of prices

from downward to upward (Chart 9). This point should be borne in mind when assessing developments in the growth rate of the money stock in the near future.

**Chart 9: Developments in the Money Stock during Periods of Price Increases**



**Notes:**

1. The periods begin when year-on-year changes in the CPI marked the lowest level and end when their growth leveled out. The above chart shows the annualized changes in the CPI and the money stock on a year-on-year basis during the specified period.
2. Numbers in the parentheses below the start and end of the period indicate the rates of change in the CPI on a year-on-year basis.

### References:

- Bank of Japan, Policy Planning Office (the predecessor of the Monetary Affairs Department) (2003), "The Role of the Money Stock in Conducting Monetary Policy," Quarterly Bulletin May 2003.
- Bank of Japan, Research and Statistics Department (2004), "Guide to Japan's Money Stock Statistics," June 2004.

## [Box 1] The Balance-Sheet Approach to Analyzing Changes in the Money Stock

As the money stock is part of financial assets held by money holders, such as households and firms, when the money stock increases or decreases there is a corresponding change in financial assets other than money, or in liabilities on money holders' balance sheets. This relationship is employed in the balance-sheet approach when analyzing changes in the money stock (Chart 1 for Box 1). Based on this approach, an increase in the money stock reflects either of the following cases: an increase in the total amount of financial assets held by households and firms (Case A), or a shift of funds from assets outside the definition of money (Case B), which causes no change in the total amount of financial assets.

The former (Case A) consists of two sub-cases, depending on the corresponding changes on the liability side of the balance sheet. The first is when there is an increase in the financial liabilities of households and firms, and the second is when there is an expansion of the net financial assets of households and firms. The former sub-case could be considered as a "fund-raising" factor whereby households and firms procure funds by borrowing from banks or issuing corporate bonds. The latter sub-case arises when households and firms make savings from their income revenues. According to the relationship indicated in the IS balance, an increase in savings by households and firms coincides with an increase in investment by economic entities other than households and firms, such as the government sector and entities overseas. To be more specific, for example, a budget deficit or current account surplus could induce higher income among households and firms, and this, in turn, could increase savings. These channels could be summarized as a "fiscal" factor and an "overseas" factor, respectively.

Case B could be summarized as a "fund-shift" factor. Specifically, this factor includes the inflow/outflow of funds between financial assets which are not included in M2+CDs, such as trust funds and JGSs, and those which are included, such as demand deposits and time deposits.

As explained above, in the balance-sheet approach changes in the money stock correspond to one of the following factors:<sup>6</sup> a fund-raising factor, a fiscal or overseas factor, and a fund-shift factor. It is important to remember that the balance-sheet approach is designed to show the background factors to changes in the money stock by using the relationship derived from the identity equation, and is not intended to demonstrate causality.

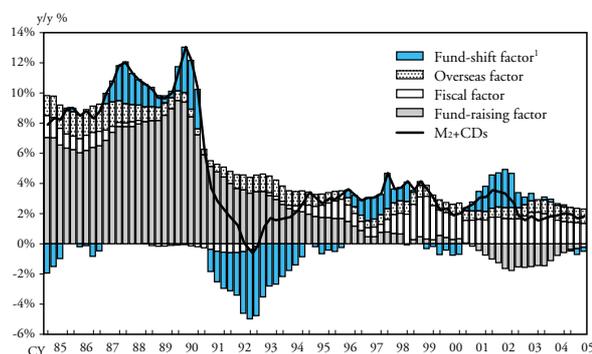
Using the balance-sheet approach to examine developments in the growth of the money stock in the recent years, the following background factors can be noted (Chart 2 for Box 1).

**Chart 1 for Box 1:  
Financial Assets and Liabilities of Money Holders**

Financial assets	Financial Liabilities
Increase/decrease in M2+CDs	Case A-1: Increase/decrease in financial liabilities, such as loans
Case B: Increase/decrease in financial assets other than M2+CDs, such as JGSs and equities	Case A-2: Increase/decrease in net financial assets (i.e., net savings by money holders) <sup>1</sup>

Note: 1. Equivalent to non-money holders' net investment (mainly in the form of a budget deficit or current account surplus).

**Chart 2 for Box 1:  
Factor Decomposition of Changes in M2+CDs**



Source: Bank of Japan, "Flow of Funds Accounts."

Note: 1. Fund-shift factor includes residuals.

First, the "fund-shift" factor pushed up the growth rate of the money stock significantly during the periods from the end of 1997 to 1998 and from 2001 to 2002 when concern about the Japanese financial system heightened, as demand for deposits and currency rose, reflecting their attractiveness in terms of "liquidity" and "safeness." In addition, a shift of funds from trust funds was observed at the end of 2001, inducing a further rise in the growth rate of the money stock as prices of money market funds (MMFs) fell below their face value due to the bankruptcy of Enron. Recently, however, the "fund-shift" factor has become a slightly negative factor for the growth of the money stock, since funds are shifting from the money stock into other financial assets, such as JGSs for individual investors, in a situation where concern about the financial system has almost abated.

Second, the "fund-raising" factor has been exerting downward pressure on the growth of the money stock since the later part of the 1990s due to firms' efforts to reduce their holdings of interest-bearing liabilities. Lately, however, the extent of the negative contribution from this factor is diminishing significantly, reflecting the fact that year-on-year changes in lending by financial institutions have started to show modest growth.

And third, the "fiscal" factor has been contributing to increases in the growth rate of the money stock throughout this period. Around 1998, in particular, its contribution was significant as there was a surge in fiscal expenditures under fiscal stimulus packages. In recent years, however, the extent of the positive contribution from the "fiscal" factor has declined gradually, reflecting the government's efforts to promote fiscal consolidation.

#### **[Box 2] The Role of the Money Stock in Conducting Monetary Policy at Central Banks in the United States and the Euro Area**

Increasing instability in the relationships between the growth rate of the money stock and the growth rates of economic activity and prices has also been observed in economies overseas. Various factors are responsible for this, including those specific to individual economies. There are, however, also common backgrounds such as deregulation of the financial system and innovations in financial products. To be more specific, deregulation of the financial system and innovations in financial products facilitate the emergence of new financial products with relatively high liquidity, and this, in turn, causes more frequent shifts of funds between the money stock and other financial assets. As factors affecting the growth of the money stock have become more diverse, the growth rate of the money stock is tending to deviate from what is consistent with developments in economic activity and prices.

Currently, the Federal Reserve System (FRS) in the United States and the European Central Bank (ECB) in the euro area have neither attached importance to short-term movements of the money stock nor taken policies aiming to achieve a certain growth rate of the money stock.

Since 1993, the FRS has made clear that it will not attach importance to the growth of money and rather regards the growth rate of the money stock as one of many economic indicators. Furthermore, in June 2000 the FRS decided to discontinue publishing its objectives for the growth of money, given that the Humphrey-Hawkins Act (the Full Employment and Balanced Growth Act of 1978), which stipulated that the FRS publicly announce its objectives for the growth of money, was repealed at the end of 1999.

The ECB, on the other hand, employs analysis of quantitative monetary indicators, including those for the growth of the money stock, as one of the two pillars of its economic assessment, although the main emphasis of the analysis is to monitor price developments over the medium to long term, rather than over the short term. The ECB also announces a reference value for the growth rate of the money stock ( $M_3$ ), although this is not a policy target but is considered as the growth rate of the money stock consistent with price stability over the medium term.

---

<sup>1</sup> The definition of money, such as the coverage in terms of the liquidity of financial assets, varies among countries as well as the time when the statistics were prepared. Bank of Japan currently compiles the following money stock data: M<sub>1</sub> which comprises currency and demand deposits; M<sub>2</sub>+CDs which adds time deposits to M<sub>1</sub>; and M<sub>3</sub>+CDs which consists of M<sub>2</sub>+CDs, post office deposits, and investment trusts. For a more detailed explanation, see "Guide to Japan's Money Stock Statistics," Bank of Japan (2004).

<sup>2</sup> The Japanese deposit insurance system introduced a special protection program in June 1996 which provided a blanket guarantee for all types of deposits. In April 2002, the coverage of the guarantee was limited to demand deposits including ordinary deposits. For time deposits and other financial assets, such as money trusts under the guarantee of principal and certain types of bank debentures, the guarantee was provided only to the principal not exceeding 10 million yen in total and the accompanying interest payments. Since April 2005, the protection has been limited to the principal of demand and time deposits and other instruments up to 10 million yen in total and the accompanying interest payments, and to the entire amount of deposits for payment and settlement purposes which satisfy certain conditions, including bearing no interest.

<sup>3</sup> The current insurance premium rates are 0.115 percent for payment and settlement deposits, and 0.083 percent for other types of deposits.

<sup>4</sup> Strictly speaking, the lending activity of financial institutions should be affected by the marginal rate of return on lending expected by financial institutions at the time of extending loans. In Chart 5, however, the *ex post* average interest margins on stock-based bank loans are shown, due to the limited availability of data.

<sup>5</sup> There are two types of JGSs offered to individual investors, namely 10-year floating-rate bonds and 5-year fixed-rate bonds. The former, which have been offered since the introduction of JGSs for individual investors, have the following basic features. First, their interest rates are linked to the yield on 10-year fixed-rate bonds. Second, a lower bound on their interest rates is set at 0.05 percent. And third, they can be redeemed from one year after issuance.

<sup>6</sup> For a more detailed explanation on the balance-sheet approach, see Box 3 in "The Role of the Money Stock in Conducting Monetary Policy," Bank of Japan (2003).

Please contact below in advance to request permission when reproducing or copying the content of this report/paper for commercial purposes.  
Monetary Affairs Department, Bank of Japan  
C.P.O. Box 203, Tokyo 100-8630, Japan  
Facsimile: +81-3-5201-6525  
e-mail: [satoshi.yamaguchi@boj.or.jp](mailto:satoshi.yamaguchi@boj.or.jp)  
Please credit the source when reproducing or copying the content of this report/paper.

---

*Bank of Japan Review* is published by the Bank of Japan to explain recent economic and financial topics for a wide range of readers. This report, 2007-E-1, is a translation of the original Japanese issue, 2006-J-1, published in January 2006. The views expressed in the *Review* are those of the authors and do not necessarily represent those of the Bank of Japan. If you have comments, questions, or requests for hard copies, please contact Satoshi Yamaguchi, Senior Economist, Monetary Affairs Department ([satoshi.yamaguchi@boj.or.jp](mailto:satoshi.yamaguchi@boj.or.jp)). *Bank of Japan Review E-series* and *Bank of Japan Working Paper E-series* can be obtained through the Bank of Japan's Web site (<http://www.boj.or.jp>).