

September 2007

# DEBT MANAGEMENT

Treasury Has  
Improved Short-Term  
Investment Programs,  
but Should Broaden  
Investments to  
Reduce Risks and  
Increase Return





Highlights of [GAO-07-1105](#), a report to the Committee on Finance, U.S. Senate

## Why GAO Did This Study

Growing debt and net interest costs are a result of persistent fiscal imbalances, which, if left unchecked, threaten to crowd out spending for other national priorities. The return on every federal dollar that the Department of the Treasury (Treasury) is able to invest represents an opportunity to reduce interest costs.

This report (1) analyzes trends in Treasury's main receipts, expenditures, and cash balances, (2) describes Treasury's current investment strategy, and (3) identifies options for Treasury to consider for improving its return on short-term investments. GAO held interviews with Treasury officials and others and reviewed related documents.

## What GAO Recommends

GAO suggests that Congress consider providing the Secretary of the Treasury with broader authority in the design of an expanded repo program. GAO also recommends that Treasury explore the reallocation of its short-term investments and, if provided the authority to do so, implement a permanent, expanded repo program that would help Treasury meet its short-term investment objectives while maintaining current minimal risk investment policies. Treasury agreed with our findings, conclusions, and recommendations and said it is committed to exploring ways to improve its short term-investment programs.

[www.gao.gov/cgi-bin/getrpt?GAO-07-1105](http://www.gao.gov/cgi-bin/getrpt?GAO-07-1105).

To view the full product, including the scope and methodology, click on the link above. For more information, contact Susan J. Irving at (202) 512-9142, [irvings@gao.gov](mailto:irvings@gao.gov).

## DEBT MANAGEMENT

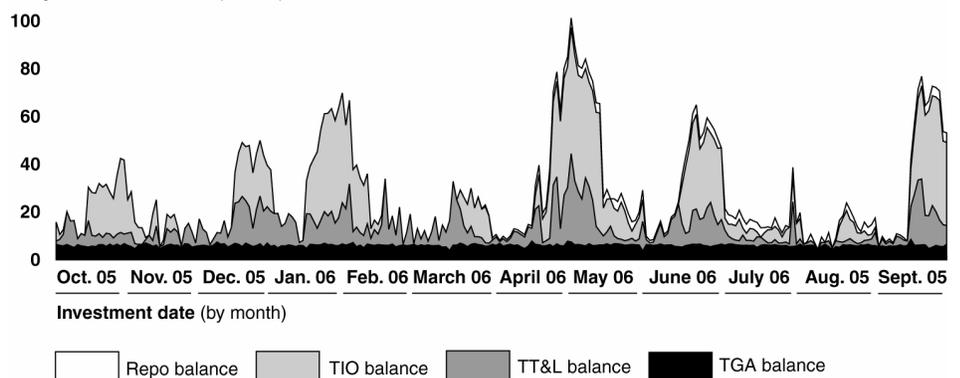
# Treasury Has Improved Short-Term Investment Programs, but Should Broaden Investments to Reduce Risks and Increase Return

## What GAO Found

In managing the funds that flow through the federal government's account, Treasury frequently accumulates cash because of timing differences between when borrowing occurs, taxes are received, and agency payments are made. Treasury often receives large cash inflows in the middle of the month and makes large, regular payments in the beginning of the month.

Treasury uses three short-term vehicles—Treasury Tax & Loan (TT&L) notes, Term Investment Option (TIO) offerings, and limited repurchase agreements (repo)—to invest operating cash. Before Treasury invests any portion of its operating cash balance, Treasury generally targets a \$5 billion balance in its Treasury General Account (TGA) which is maintained across the 12 Federal Reserve Banks. The TT&L program provides Treasury with an effective system for collecting federal tax payments while assisting the Federal Reserve in executing monetary policy, but it subjects Treasury to concentration risk and earns a return well below the market rate. The TIO program earns a greater rate of return but it also subjects Treasury to concentration risk. Both programs also present capacity concerns. Treasury began testing repos through a pilot program in 2006. Repos have earned near market rates of return, but because of the pilot's scope and the current, limited legislative authority under which it operates, the repo participants, collateral, trading terms, and trading arrangements are restricted.

**Allocation of Treasury's Operating Balance by Investment Type, Fiscal Year 2006**  
Daily balance in dollars (billions)



Source: GAO analysis of Treasury data.

A permanent, expanded repo program could permit Treasury to earn a higher rate of return, expand investment capacity, and reduce concentration risk. If given authority to design such a program, Treasury would need to tailor it to meet liquidity needs and to achieve a higher rate of return while minimizing risks that are associated with the selection of program participants, collateral types, terms of trade, and trading arrangements.

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## Abbreviations

BIC	borrower-in-custody
CM bill	cash management bill
DTS	Daily Treasury Statements
DVP	delivery-versus-payment
FRB	Federal Reserve Bank
FRS	Federal Reserve System
GFOA	Government Finance Officers Association
GSE	government-sponsored enterprise
OFPP	Office of Fiscal Projections
repo	repurchase agreement
SDI	Special Direct Investment
SOMA	System Open Market Account
TGA	Treasury General Account
TIO	Term Investment Option
TIP	Treasury Investment Program
Treasury	Department of the Treasury
TT&L	Treasury Tax & Loan

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United States Government Accountability Office  
Washington, DC 20548

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September 20, 2007

The Honorable Max Baucus  
Chairman  
The Honorable Charles E. Grassley  
Ranking Member  
Committee on Finance  
United States Senate

Growing debt and net interest costs are a result of persistent fiscal imbalances. In July 2007, the Office of Management and Budget projected that interest costs on debt held by the public will increase by almost 25 percent over the next 5 years to \$290 billion. If left unchecked, interest spending threatens to crowd out spending for other national priorities. The Department of the Treasury (Treasury) is responsible for managing the funds that flow through the federal government's accounts, which are maintained across the 12 Federal Reserve Banks and rolled into one account, the Treasury General Account (TGA), at the end of each day. Treasury frequently has funds available for short-term investment because government collections and disbursements do not always align. In fiscal year 2006, Treasury's operating balance averaged \$26.4 billion per day. The return on every federal dollar that Treasury is able to invest represents an opportunity for the U.S. government to reduce net interest costs.

Although there have been dramatic changes in financial markets that have allowed investors to increase their rate of return while reducing risk, Treasury's investment authority has not changed over the past three decades. Under current law Treasury is only permitted to invest in depository institutions and in obligations of the United States government.<sup>1</sup> In addition to the TGA, Treasury invests in three collateralized instruments with depository institutions—Treasury Tax & Loan (TT&L) notes, Term Investment Option (TIO) offerings, and limited repurchase agreements (repo). The introduction of TIOs in 2002 and of repos in 2006 were part of Treasury's effort to update its cash management practices and improve

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<sup>1</sup>31 U.S.C. § 323.

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earnings and capacity without increasing unacceptable risks.<sup>2</sup> In 2007, the Administration asked Congress to update Treasury's authority for selected short-term investments.<sup>3</sup>

This report is part of our ongoing work on Treasury's cash and debt management practices and was requested by the U.S. Senate Committee on Finance. The objectives of this report are to (1) analyze trends in Treasury's main receipts, expenditures, and cash balances, (2) describe Treasury's current investment strategy, and (3) identify options for Treasury to consider for improving its return on short-term cash investments.

To describe Treasury's cash management and short-term investment practices we analyzed trends in cash available for short-term investment with data collected from Treasury's publicly available Daily Treasury Statements. To evaluate Treasury's current investment strategy and identify options for improving Treasury's return while mitigating risk, we interviewed agency officials from Treasury, the Federal Reserve Board of Governors, Federal Reserve Bank of New York, and Federal Reserve Bank of St. Louis, and reviewed policies for managing short-term investments. With data provided by Treasury, we analyzed participation in and returns of Treasury's short-term investment programs. We also interviewed market analysts and officials from seven financial institutions, including participants in Treasury's short-term investment programs, to gain a market perspective. In addition, we obtained documents from foreign and state governments to learn about their short-term investment practices. We performed our review from March 2006 through July 2007 in accordance with generally accepted government auditing standards. See appendix VI for more details on how we calculated rates and potential return for Treasury's short-term investments.

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<sup>2</sup>In our 2006 report on Treasury's use of cash management bills (CM bills), we found that Treasury could run higher cash balances to avoid issuing high-cost CM bills, but that the interest earned on excess cash balances was generally insufficient to cover borrowing costs. We recommended that Treasury explore options, such as repos, to increase earnings on excess cash balances and thereby reduce the use of some CM bills. GAO, *Debt Management: Treasury Has Refined Its Use of Cash Management Bills but Should Explore Options That May Reduce Costs Further*, [GAO-06-269](#) (Washington, D.C.: Mar. 30, 2006).

<sup>3</sup>*Budget of the United States Government, Fiscal Year 2008—Appendix.*

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## Results in Brief

Treasury regularly has cash available for short-term investment because of frequent and predictable swings in its operating cash balance. Both the total amount and volatility of Treasury's operating cash balance have increased in recent years. Before Treasury invests any portion of its operating cash balance, Treasury generally targets a \$5 billion balance in the TGA. Treasury seeks to maintain a balance in the TGA large enough to protect against overdraft and attempts to keep it stable to avoid interfering with the Federal Reserve's implementation of monetary policy. Treasury earns an implicit return on TGA balances as part of the Federal Reserve's weekly remittance to Treasury, but the exact amount is difficult to identify because the Federal Reserve does not assign certain portions of its investment portfolio to Treasury's account. Although an account balance greater than \$5 billion would provide Treasury with increased overdraft protection, it could also increase borrowing, which would be costly whenever Treasury faces a negative funding spread.

Treasury invests any of its operating cash in excess of its TGA balance in three short-term programs—TT&L, TIO, and a repo pilot. The TT&L program provides Treasury with an effective system for collecting federal tax payments while assisting the Federal Reserve in executing monetary policy, but it subjects Treasury to concentration risk and earns a return well below the market rate.<sup>4</sup> By concentration risk, we mean the risk of a large share of Treasury's deposits being concentrated in relatively few depository institutions. The TIO program, established in 2003, earns a greater rate of return than the TT&L program, but it also subjects Treasury to concentration risk.<sup>5</sup> Both programs also present capacity concerns. By capacity concerns, we mean that Treasury's ability to invest all available cash may be hindered because of decreases in the number of participants or insufficient collateral available for depository institutions to secure Treasury's investments on days when Treasury has high cash balances. As a third short-term investment alternative, Treasury began testing repos through a pilot program in 2006, consistent with GAO recommendations.<sup>6</sup> Repos have earned near market rates of return, but because of the pilot's

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<sup>4</sup>In this report, when we refer to the TT&L program we are referring only to the tax collection services of depository institutions and additional investments that Treasury makes in accounts called TT&L Main Accounts, which we refer to as TT&L accounts. Although sometimes considered under the same umbrella, we do not include the TIO program in our definition of the TT&L program.

<sup>5</sup>The TIO program was piloted in 2002 and became a permanent program in 2003.

<sup>6</sup>[GAO-06-269](#).

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scope and the current, limited legislative authority under which it operates, the repo participants, collateral, trading terms, and trading arrangements are restricted.

A permanent, expanded repo program could permit Treasury to earn a higher rate of return, expand investment capacity and reduce concentration risk. If provided the authority for a permanent, expanded repo program, Treasury would benefit from considering industry investment practices, such as those used by the Federal Reserve. In designing the program's operational elements and managing risks that are associated with the selection of program participants, collateral types, terms of trade, and trading arrangements, Treasury will need to tailor the repo program to meet its liquidity needs and to achieve a higher rate of return while keeping risks at a minimum. In a permanent, expanded repo program, Treasury should consider both allowing broker dealers as counterparties and expanding acceptable collateral types to alleviate capacity concerns and increase rates of return. Treasury should also consider the effect of adopting an electronic trading platform and a triparty clearing and settlement system on rates of return, investment flexibility, and operational efficiency.

We recommend that the Secretary of the Treasury explore the reallocation of its short-term investments as discussed in this report and, if provided the authority to do so, implement a permanent, expanded repo program that would help Treasury meet its short-term investment objectives while maintaining current minimal risk investment policies. We also suggest Congress should consider providing the Secretary of the Treasury with broader authority in the design of an expanded program of repurchase agreements.

In written comments on a draft of this report, Treasury agreed with our findings, conclusions, and recommendations. The Fiscal Assistant Secretary's letter is reprinted in appendix VII.

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## Background

In managing the funds that flow through the federal government's account, Treasury frequently accumulates cash due to timing differences in when borrowing occurs, taxes are received, and agency payments are made. Treasury often receives large cash inflows in the middle of the month and makes large, regular payments in the beginning of the month. In general,

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Treasury seeks to maintain low cash balances and repay debt whenever possible, as the interest earned on short-term investments is generally insufficient to cover additional borrowing costs.<sup>7</sup>

As fiscal agents and depositaries for the federal government, the Federal Reserve Banks provide services related to the federal debt, help Treasury collect funds owed to the federal government, process electronic and check payments for Treasury, invest excess Treasury balances and maintain Treasury's bank account, the TGA, through which most federal receipts and disbursements flow. TGA funds are available for immediate disbursement and are one of Treasury's most liquid investments.

Over the past several decades, technological advances and global expansion have led to significant changes in financial markets. Lending institutions have developed greater capacity to increase returns and manage risks, and increased regulatory freedom has helped to spur new markets. Greater computer power and better telecommunications networks have reduced barriers that once limited investment opportunities. In particular, significant growth has occurred in the segment of the money market that includes the use of repurchase agreements, or repos. A repo is the transfer of cash for a specified amount of time, typically overnight, in exchange for collateral. When the term of the repo is over, the transaction unwinds, and the collateral and cash are returned to their original owners, with a premium paid on the cash.

The repo market has become one of the largest segments of the U.S. money market and is used by government and private institutional investors to invest short-term excess cash. In the first quarter of 2007, the average daily volume of outstanding total repos was \$3.6 trillion, according to information provided to the Federal Reserve by primary dealers that engage in repo transactions. Over \$114.3 trillion in repo trades involving U.S. Government Securities were reported in the first quarter of 2007, with an average daily volume of approximately \$1.8 trillion.<sup>8</sup> Repos were used by the Federal Reserve as early as 1917 and play

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<sup>7</sup>Paying down the federal debt would generally save the federal government more money than the government would likely earn on short-term investments. However, the short periods of time for which Treasury has excess cash make paying down the federal debt not an option. In 2006, GAO recommended that Treasury minimize its short-term borrowing. See [GAO-06-269](#).

<sup>8</sup>See Securities Industry and Financial Markets Association's May 2007 Research Quarterly report, available at [www.sifma.org](http://www.sifma.org).

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an important role in the conduct of monetary policy operations since the Federal Reserve uses repos to dampen transient fluctuations in the supply of reserves available to the banking system. For the past 20 years, large corporations have been shifting cash assets out of bank accounts into instruments such as repos, which have enabled them to increase the returns on their short-term cash assets with minimum risk to their funds.

Electronic systems have increased the speed of repo transactions and expanded the range of investors that can participate. Innovative arrangements for accepting collateral in the repo market, specifically triparty arrangements, have reduced transactions costs, credit risks, and operational risks. In a triparty repo an independent custodian bank acts as an intermediary between the two parties in the transaction and is responsible for clearing and settlement operations. The triparty structure typically reduces costs, minimizes operational and credit risks, and has the potential to increase returns. The Federal Reserve has been using triparty arrangements for its repos since 1999.

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## Treasury's Short-Term Cash Available for Investment Fluctuates According to a Predictable Pattern

Treasury's operating cash balance fluctuates according to a predictable pattern although the swings in daily cash balances have grown larger in recent years. Before Treasury invests any portion of its operating cash balance, Treasury generally targets a \$5 billion balance in the TGA.<sup>9</sup> Treasury seeks to maintain a balance in the TGA large enough to protect against overdraft and attempts to keep the balance stable to avoid interfering with the Federal Reserve's implementation of monetary policy. Balances held in the TGA earn an implicit rate of return.

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## Treasury's Cash Balances Available for Short-Term Investment Exhibit Predictable Cyclical Patterns

Patterns in receipts and disbursements cause frequent but predictable swings in federal cash balances, which regularly provide Treasury with cash available for short-term investment. Treasury's daily operating cash balance, the amount of cash remaining after receipts and disbursements are accounted for, averaged \$26.4 billion in fiscal year 2006.

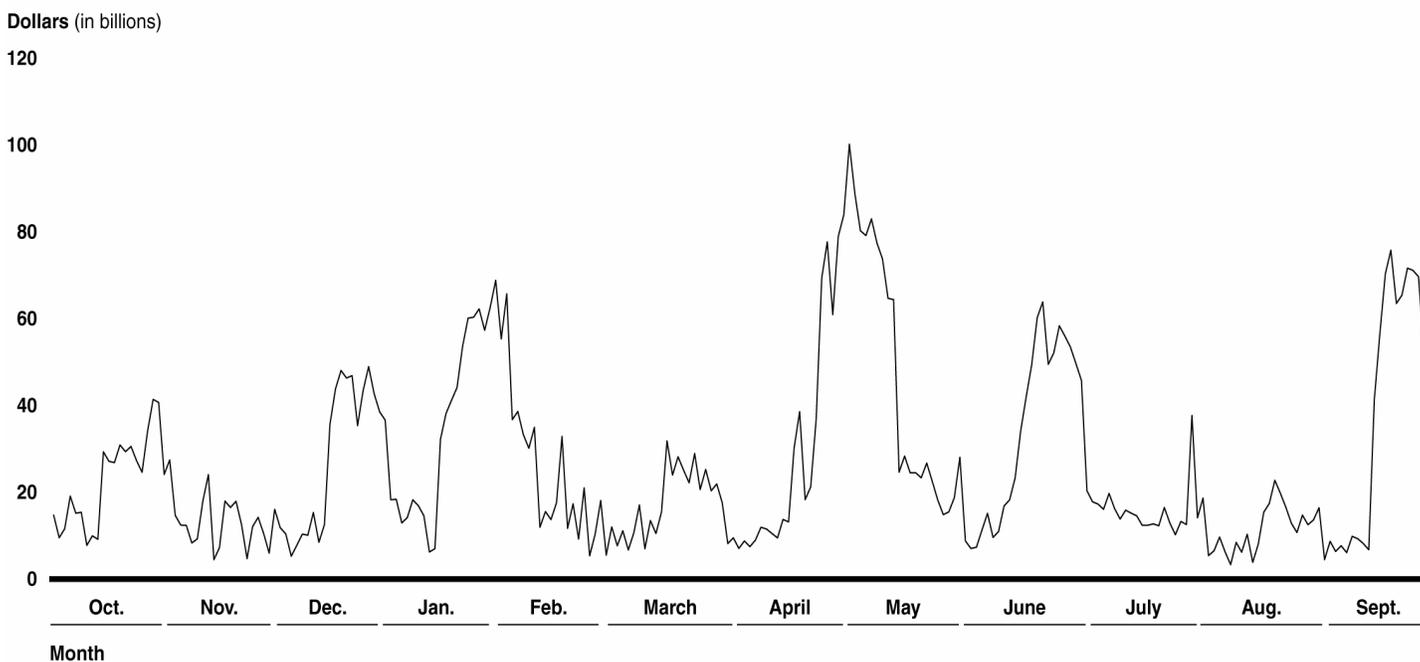
The receipts Treasury uses to finance federal expenditures come primarily from two sources: (1) tax revenues from sources such as personal and corporate income taxes, payroll withholdings, or other fees the federal

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<sup>9</sup>Between 1974 and 1978, the TGA was Treasury's only short-term investment and absorbed all excess cash. See app. III for more details.

government imposes; and (2) cash borrowed from the public through Treasury's regular auctions of debt securities. Treasury's daily operating cash balance is generally lower at the beginning of each month due to mandatory expenditures and then rises in the middle of each month upon the arrival of Treasury's scheduled receipts. (See fig. 1.)<sup>10</sup> Treasury's cash balances also fluctuate depending on the time of year, with mid-month increases that are particularly large in January, March, April, June, September, and December. Treasury receives major corporate or nonwithheld individual estimated tax payments, or both, in these months, which significantly increases Treasury's daily operating cash balance. Increases are highest in April, when Treasury receives and processes the prior year's individual income tax liability settlements and the first estimated payments of the current tax year from individuals and calendar year corporations.

**Figure 1: Trends in Treasury's Operating Cash Balance, Fiscal Year 2006**



Source: GAO analysis of Treasury data.

<sup>10</sup>In 2006, Treasury shifted its issuance date for a new 5-year note from mid-month to the end of the month. Over time this will decrease the mid-month spike in receipts. Tax deposit schedules, however, are set by either statute or regulation.

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Large payments for programs such as Medicare, Social Security, federal retirement, and veterans' compensation frequently occur during the first 3 days of each month, significantly lowering Treasury's daily operating cash balance at the beginning of each month.<sup>11</sup> One quarter of fiscal year 2006 outlays were paid in the first 3 days of the month.<sup>12</sup> Like the tax deposit schedule, the majority of the payment dates for these large benefit programs are statutory, which limits Treasury's flexibility in cash management.<sup>13</sup>

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### Treasury's Cash Balances Available for Short-Term Investment Have Both Increased and Grown More Volatile over Time

In fiscal year 2006, Treasury's average daily operating cash balance was \$26.4 billion, an \$8.5 billion increase from fiscal year 2003. (See table 1.) Swings in daily cash balances have also grown over time. Days with high cash balances—and hence significant amounts of short-term cash for investment—have more than quadrupled since 2003. (See fig. 2.) Cash balances tend to be highest at the end of the month before large mandatory payments are made. Over the past 3 years, cash balances have generally increased in both dollar volume and volatility for most parts of each month and for each business day of the week. Appendix I provides more details on these trends.

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<sup>11</sup>Social Security benefits for those who filed before May 1, 1997, are delivered on the 3rd of each month. Social Security benefits that were filed for on or after May 1, 1997, are assigned 1 of 3 new payment days based on the date of birth of the insured person, and are delivered on the second, third, or fourth Wednesday of every month. If the scheduled Wednesday payment day is a federal holiday, payment is made on the preceding day that is not a federal holiday.

<sup>12</sup>In total, Treasury made about \$750 billion in cash payments in the first 3 days of months in fiscal year 2006.

<sup>13</sup>Treasury must also repay regular bills that mature on Thursdays and notes that mature in the middle and end of each month. However, Treasury generally pays them by rolling over debt (i.e., issuing new debt to pay maturing debt).

**Table 1: Since 2003, Treasury’s Daily Operating Cash Balances Have Increased in Dollar Volume and Become More Volatile**

(Dollars in billions)

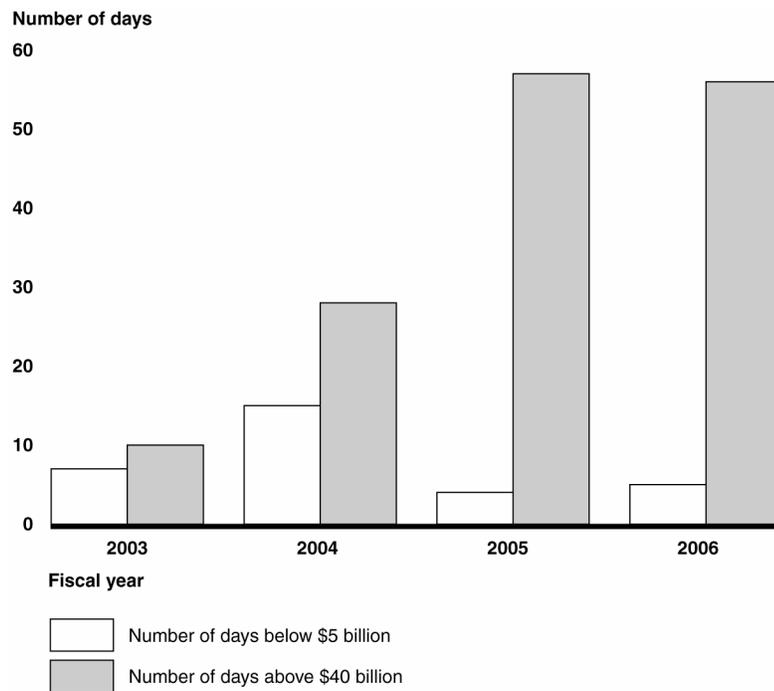
	Fiscal year 2003	Fiscal year 2004	Fiscal year 2005	Fiscal year 2006
Daily average cash balance	17.9	20.5	25.9	26.4
Standard deviation	10.8	13.8	18.3	21.0
Coefficient of variation <sup>a</sup> (percent)	60	67	71	80

Source: GAO analysis of Treasury data.

Note: Our calculations include only operating cash balances on business days, not weekends and holidays.

<sup>a</sup>Coefficient of variation is a measure of volatility, calculated by dividing the standard deviation by the mean. A larger percentage indicates greater volatility.

**Figure 2: Instances of High and Low Treasury Daily Operating Cash Balances, Fiscal Years 2003–2006**



Source: GAO analysis of Treasury data.

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## The TGA Protects against Overdraft and a Stable Balance Assists with Monetary Policy

Before investing any portion of its operating balance, Treasury generally seeks to maintain a stable \$5 billion balance in the TGA to protect against overdraft. An overdraft of the TGA could occur if the anticipated receipts for the day fall short of expectation or if there are unanticipated disbursements. Treasury cannot risk an overdraft because the Federal Reserve is not authorized to lend directly to Treasury, in part to preserve the Federal Reserve's independence as the nation's central bank. Before 1988, as federal payments became larger and the volatility of Treasury's operating cash balance increased, Treasury and the Federal Reserve increased the TGA target balance. According to Federal Reserve officials, improvements in the forecasting of receipts and expenditures have permitted them to not make any permanent increases to the TGA since 1988 despite continued increases in operating balance volatility. See appendix V for more detail on Treasury's modifications to the TGA target balance since 1988.

In the past, Treasury relied on compensating balances in depository institutions as a source of liquidity on rare occasions. For example, in the week of September 11, 2001, Treasury pulled \$12.6 billion from such compensating balances to cover a financing gap caused by the cancellation of a 4-week-bill auction. However, this source of liquidity has not been available since 2004.<sup>14</sup>

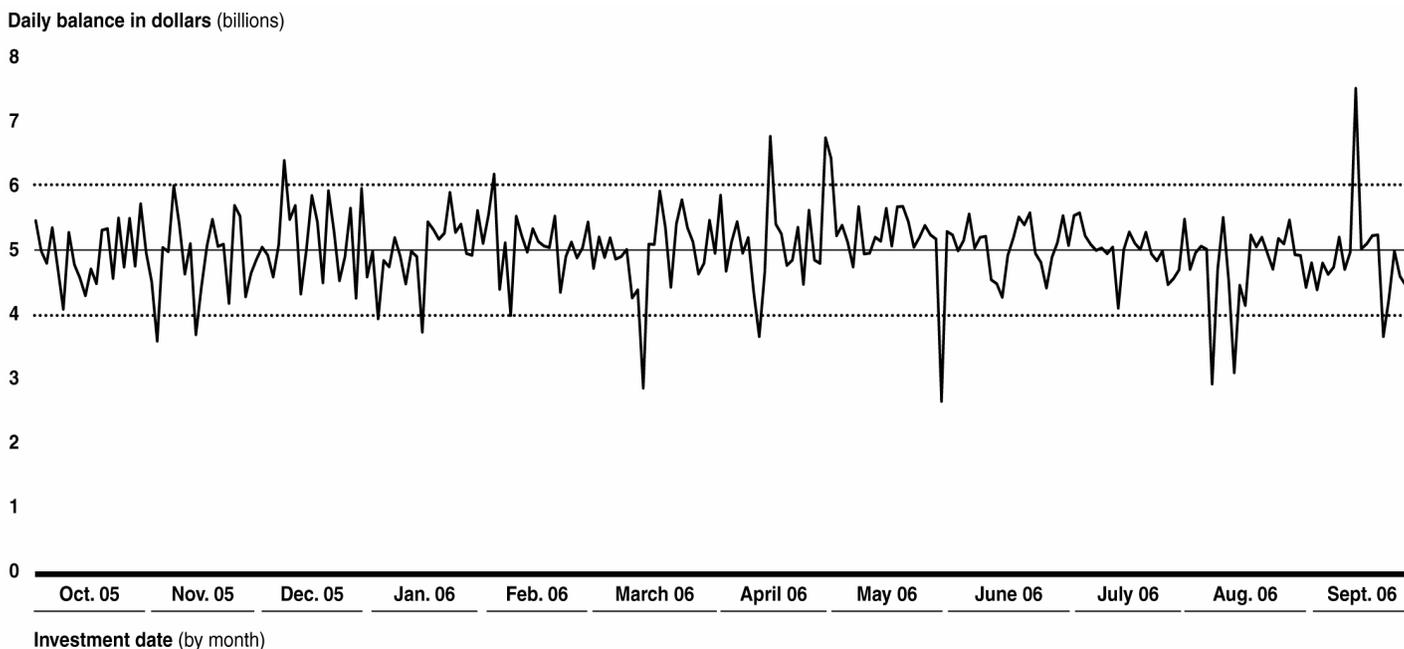
A stable TGA balance assists the Federal Reserve in its execution of monetary policy. If Treasury's TGA balance exceeds or falls short of its target, the Federal Reserve must neutralize its effect on bank reserves through open market operations. See appendix V for more details on how the Federal Reserve injects or withdraws cash from the banking system in response to changes in the TGA. As shown in figure 3, in 2006 the TGA balance deviated more than 20 percent from its \$5 billion target 17 times. In 9 of the 17 times, Treasury and the Federal Reserve had agreed in advance to target a balance other than \$5 billion. Treasury and the Federal Reserve sometimes decide to target different balances for reasons that

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<sup>14</sup>See GAO, *Debt Management: Backup Funding Options Would Enhance Treasury's Resilience to a Financial Market Disruption*, GAO-06-1007 (Washington, D.C.: Sept. 26, 2006). The Federal Reserve does not have general authority to provide immediate, short-term funding to Treasury except in very limited circumstances under 31 U.S.C. § 5301. GAO has recommended that Treasury explore other sources of emergency funding in case of a widespread financial disruption similar to the one caused by the terrorist attack on September 11, 2001.

include increased volatility on major tax due dates and the facilitation of short-term reserve management.

**Figure 3: The TGA Daily Balance, Fiscal Year 2006**



Source: GAO analysis of Treasury data.

## TGA Balances Earn an Implicit Return

Although Treasury does not earn explicit interest on the TGA, it does earn an implicit return as part of the Federal Reserve's weekly remittance to Treasury. However, the Federal Reserve told us that the amount cannot be easily identified.<sup>15</sup> The implicit return Treasury receives depends on whether the purchases the Federal Reserve makes to offset the TGA balance are permanent or temporary. In a stable TGA target environment, such as exists today, the implicit return is roughly equivalent to the rate earned by the Federal Reserve on its portfolio of Treasury securities. For temporary increases in the TGA, the implicit return is roughly equal to the rate the Federal Reserve earns on its overnight repos. According to the Federal Reserve, the return cannot be isolated because it does not assign

<sup>15</sup>Treasury recognizes that the government receives an implicit return on TGA balances from the Federal Reserve and used it as an official investment vehicle between 1974 and 1978. See app. III for more details.

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specific portions of its investment portfolio to the TGA. The Federal Reserve records the TGA on its balance sheet as a liability and offsets increases in the TGA by purchasing additional assets.<sup>16</sup>

While a higher TGA target balance would provide Treasury with increased overdraft protection and earn market rates of return, it could increase borrowing, which is costly whenever Treasury faces a negative funding spread. A negative funding spread occurs when the interest earned on cash balances is insufficient to cover the cost of the increased borrowing necessary to maintain these balances. Conversely, if the Treasury were to face a neutral or positive funding spread, increases would not be costly. When Treasury's cash balances are particularly low, it may have to raise funds by issuing additional debt in order to maintain a stable and sufficient TGA balance.

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## Treasury's Short-Term Investment Strategies Have Evolved over Time, but Restrictions Still Subject Treasury to Several Risks and Lower Returns

In order to maintain a stable TGA balance, Treasury must place operating cash above its \$5 billion target in depository institutions' TT&L accounts or into other short-term investments. The three short-term vehicles currently used by Treasury subject Treasury to high concentration risks and have limited capacity. TT&L provides Treasury with an effective system for collecting taxes but subjects Treasury to concentration risk and offers low rates of return. To improve returns, Treasury established the TIO program in 2003, which provides near market rates of return but still subjects Treasury to concentration risk and does not alleviate Treasury's capacity concerns. Treasury's repo pilot, introduced in 2006, provides a third limited investment option. Treasury earned near market rates of return in the pilot, but because of its temporary status and limits in Treasury's current legislative authority, the pilot's features—including participants, collateral, trading terms, and clearing and settlement arrangements—are restricted and prevent Treasury from accessing the broader repo market. Table 2 shows the number of participants, investment terms, relative performance, and concentration risk of these three investment programs.

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<sup>16</sup>Although it is certain that money held in the TGA earns a return, Federal Reserve officials caution that calculating precisely what share of the Federal Reserve's remittances to Treasury is associated with changes in the TGA balance is problematic. The Federal Reserve does not assign certain portions of its investment portfolio to the TGA. Instead, the portfolio reflects changes in the entire reserve balance sheet, of which the TGA is just a part. Changes in Treasury's cash held in the TGA may directly affect this balance sheet, but the total amount of money returned to Treasury can only be linked to changes in the Federal Reserve's overall portfolio, most of which are not related to the TGA.

**Table 2: Treasury’s Short-Term Investment Programs**

Investment program	Number of depositary institutions	Term	Rate	Basis points above TT&L rate of 4.90 <sup>a</sup>	Concentration by volume of top two participants (percent)
TT&L (established in 1978) <sup>b</sup>	953 <sup>c</sup>	Callable on demand <sup>d</sup>	Fed funds rate less 25 basis points	0	53
TIO (established in 2003)	60 <sup>e</sup>	1–32 days (legal maximum of 90 days)	Auction determines uniform rate	+ 18 basis points	50
Repo pilot (established in 2006)	2	Overnight	Auction determines rates	+ 21 basis points	100

Source: GAO analysis of Treasury data.

<sup>a</sup>Estimates use average rates for the period March 27, 2006, to March 26, 2007, the first 12 months of Treasury’s repo pilot.

<sup>b</sup>TT&L accounts were originally established in 1917, but the current program did not take shape until 1978.

<sup>c</sup>Includes retainers and investors accounts only. There were also 8,089 collectors that served as conduits for tax collection, but did not hold Treasury cash for investment. Retainer, investor and collector accounts are described below.

<sup>d</sup>Majority of funds called on same-day basis or with 1-day advance notice. Smaller banks, banks with less than \$100 million in tax payments or less than \$100 million in deposit liabilities are generally provided between 3 and 12 days advance notice.

<sup>e</sup>Number of TIO participants current as of February 2007.

## The TT&L Program Serves Key Functions but Has Significant Limitations

The TT&L program provides Treasury with an effective system for collecting federal tax payments and helps Treasury meet its target balance in the TGA, but it subjects Treasury to concentration risk and earns a return well below market rate. In addition, the TT&L poses capacity concerns. In 2006, Treasury invested about 30 percent of its operating cash in TT&L deposits, with a daily average of \$7.6 billion.

**TT&L Benefits:** The TT&L program represents a collaboration between Treasury and over 9,000 commercial depositary institutions that collect tax payments, about 1,000 of which also hold funds and pay interest to Treasury. (See table 2.) There are three categories of participation: collectors, retainers, and investors. The majority of TT&L participants are collectors—they receive tax payments from customers and transfer the payments to Treasury’s account at the Federal Reserve. Retainers perform the same tax collection functions but may also retain specified amounts of the cash in an interest-bearing account until the money is called by Treasury. Investors not only collect and retain cash, but also may accept funds from Treasury through different investment options. In one of these options, the depositary institution agrees to accept automatic direct deposits from Treasury made hourly throughout the day in the event that

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Treasury cash receipts are greater than anticipated. These automatic deposits—known as dynamic investments—are an important part of the TT&L program because they are currently Treasury’s only option for placing late-day cash and helping Treasury to meet its target TGA balance.<sup>17</sup>

**TT&L Participant Concentration:** TT&L deposits are highly concentrated among a few large depository institutions. For the past couple of years, Treasury has invested almost half of TT&L deposits with one depository institution. Reasons for this concentration include consolidation in the banking industry over the last two decades and the lack of investment caps. In 2006, the five largest TT&L participants accounted for 66 percent of the total funds invested in TT&L accounts, up from 62 percent in 2005. (See tables 3 and 4.) This creates not only concentration risk but also capacity concerns. If one or two of the largest depository institutions were to lower their TT&L balance limits or withdraw from the program entirely, Treasury’s investment capacity would fall far below that needed to accept the total amount of funds that Treasury needs to invest during peak tax collection dates. In addition, the number of depository institutions participating in the TT&L program and thus willing to accept Treasury cash has decreased over the past few years. According to Treasury, at times it has been unable to place all of the cash it wished to invest in part because of a reduction in the number of TT&L participants.

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<sup>17</sup>For purposes of this report, TT&L capacity includes only the collateral pledged to TT&L accounts. During periods of significant tax receipts, Treasury also invests cash in Special Direct Investments that are secured with collateral held by depository institutions in an off-premises collateral arrangement. For more information on Special Direct Investments, see app. II.

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**Table 3: Five Largest Participants in TT&L Program in Fiscal Year 2005 by Total Volume**

<b>Bank</b>	<b>Percent of total for all banks</b>
Bank A	46
Bank B	7
Bank C	4
Bank D	3
Bank E	3
Subtotal of top five banks	62
Remaining banks (981)	38
<b>Total (\$1.1 trillion)</b>	<b>100</b>

Source: GAO analysis of Treasury data.

Note: Banks A through E in this table are not necessarily the same depository institutions as in tables 4 and 5.

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**Table 4: Five Largest Participants in TT&L Program in Fiscal Year 2006 by Total Volume**

<b>Bank</b>	<b>Percent of total for all banks</b>
Bank A	43
Bank B	9
Bank C	8
Bank D	4
Bank E	3
Subtotal of top five banks	66
Remaining banks (920)	34
<b>Total (\$965 billion)</b>	<b>100</b>

Source: GAO analysis of Treasury data.

Note: Banks A through E in this table are not necessarily the same depository institutions as in tables 3 and 5.

**TT&L Rates of Return:** The interest rate earned on deposits in retainer and investor accounts is fixed at the federal funds rate minus 25 basis points.<sup>18</sup> TT&L deposits are an inexpensive source of funding relative to market alternatives for depository institutions, but Treasury can withdraw certain funds on short notice and funds are subject to strict collateral

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<sup>18</sup>One basis point is equivalent to 0.01 percent (1/100th of a percent) or 0.0001.

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requirements. See appendix II for a discussion of TT&L collateral requirements.

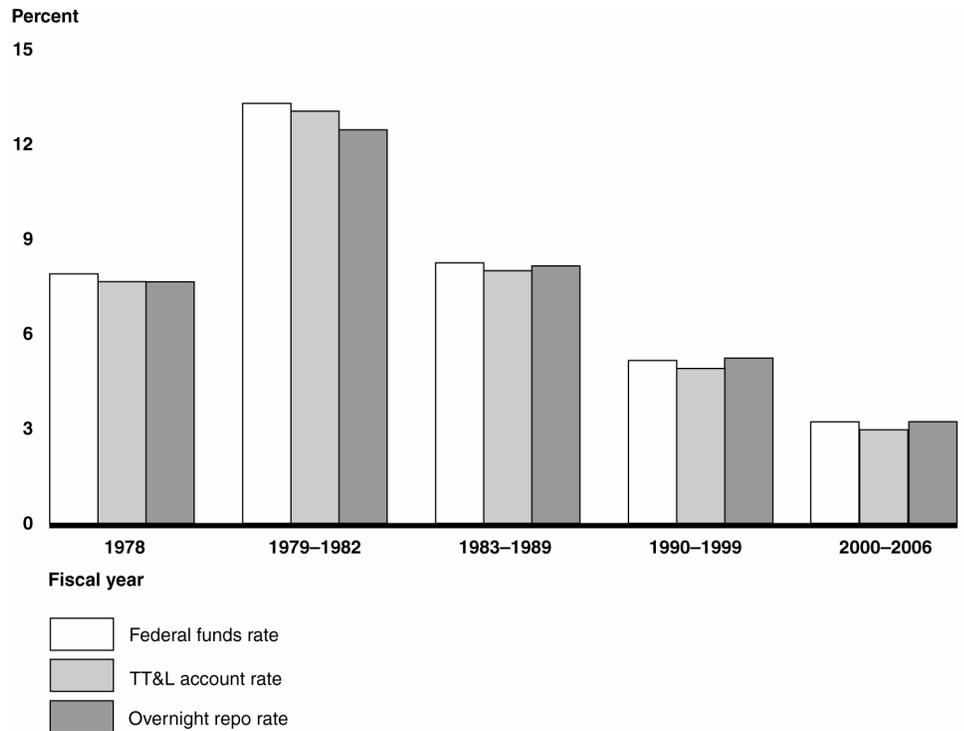
When Treasury set the TT&L rate in 1978, it was a close approximation of the overnight repo rate, which Treasury considered an economically similar transaction. Treasury elected to use a proxy rate at the time because information on the daily overnight repo rate was not widely available. The repo market has grown considerably, and information about repo rates is now readily available.<sup>19</sup> Since 1978 the spread between the federal funds rate and the repo rate has narrowed significantly from about 25 basis points to about 9 basis points in recent years.<sup>20</sup> As a result, the spread between the TT&L rate and the overnight repo rate has grown larger, leaving Treasury earning a fixed rate on TT&L accounts that is well below market rates. (See fig. 4.) In July 1999 Treasury proposed changing the interest rate on TT&L deposits to align it with the overnight repo rate since Treasury viewed TT&L deposits as overnight investments, similar to repo transactions. However, financial institutions opposed the rate change; in 2002 Treasury modified the proposal and began exploring the short-term investment alternatives discussed later in this report, specifically TIOs and repos.

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<sup>19</sup>The Federal Reserve began publishing data on repo transactions conducted with primary dealers in October 1980.

<sup>20</sup>Specifically, the spread was about 9 basis points between January 3, 2005, and May 19, 2006, with a standard deviation of 7 basis points. Source: Marcia Stigum and Anthony Crescenzi, *Stigum's Money Market*, 4th ed. (New York: McGraw-Hill, 2007).

**Figure 4: TT&L Rate Was Fixed at Federal Funds Rate Minus 25 Basis Points in 1978 as a Proxy for the Market Repo Rate, but Repo Rates Have since Increased Relative to TT&L Rates**



Source: GAO analysis of Treasury data.

**TIO Program Earns a Better Rate of Return Than TT&L but Exposes Treasury to Similar Risks**

Treasury’s TIO program, fully established in 2003, earns Treasury a higher rate of return than the TT&L program but shares the TT&L program’s concentration risk and Treasury’s capacity concerns in part because the same depository institutions participate in both programs.<sup>21</sup> TIO investments differ from TT&L deposits in two critical dimensions: (1) they are auctioned rather than placed at a fixed rate and (2) they are placed for a fixed number of days rather than being callable at will. Through the TIO program, Treasury auctions off portions of its excess cash at a competitive rate for a fixed number of days. The TIO program’s auction format allows Treasury to receive a competitive, market-based interest rate for its surplus cash. Meanwhile, the participating depository institutions benefit from knowing in advance the exact amount and timing of the investment.

<sup>21</sup>The TIO program was piloted in 2002 and became a permanent program in 2003.

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### How a TIO Auction Works

Like Treasury's debt auctions, TIO auctions are single-rate auctions where all successful bidders receive the same rate. Depository institutions submit bids specifying the amount of cash they are interested in and the rate they are willing to pay. Treasury awards funds beginning with the highest rate bid through successively lower rates until the offering amount is filled. All successful bidders are awarded their funds at the lowest accepted rate, or stop-out rate, and bids awarded at the stop-out rate are prorated. However, Treasury awards no more than 50 percent of the total auction amount offered to any one depository institution.

While depository institutions have no control over when funds are deposited or withdrawn from the TT&L accounts, they know exactly how long TIO funds will be deposited, and through competitive bidding have more direct influence over the amount of funds that they receive. By 2006, approximately 60 percent of Treasury's short-term investments were shifted into TIOs. In fiscal year 2006 Treasury invested \$500 billion through TIO auctions. As of February 2007, 60 TT&L depositories participated in the TIO program, up from 43 in 2004. The textbox provides additional details on how Treasury conducts TIO auctions.

**TIO Rates:** TIOs earn a higher rate of return than TT&L deposits. In fiscal year 2006, TIO auction rates were on average 17 basis points higher than TT&L rates over the same terms, increasing Treasury's gross return by approximately \$20 million.<sup>22</sup> The TIO rates were also about 3 basis points below Treasury's benchmark for a market rate, which is based on repo rates of similar terms and collateral. There are variations among TIO auctions regarding the length of the term and the amount of cash offered that affect rates. According to a Federal Reserve study, TIO rates are most competitive for TIO term lengths of 5 days or greater, and the larger the auction size, the lower the TIO rate.

**TIO Participant Concentration:** Although the TIO program has increased Treasury's rate of return, it has not lessened its concentration risk, in part because TIO investors must be TT&L depositories and they can receive up to 50 percent of funds offered by Treasury per auction. TIO investment concentration has increased in recent years. In fiscal year 2006, 50 percent of TIO funds were awarded to two depository institutions, up from about 40 percent in fiscal year 2004. (See table 5.)

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<sup>22</sup>See app. VI for more details.

**Table 5: TIO Funds Are Concentrated in Two TIO Participants**

Share of total TIO auction amounts awarded by top 10 participants					
Fiscal year 2004		Fiscal year 2005		Fiscal year 2006	
Bank	Percentage	Bank	Percentage	Bank	Percentage
Bank A	19	Bank A	35	Bank A	27
Bank B	18	Bank B	19	Bank B	23
Bank C	11	Bank C	8	Bank C	7
Bank D	7	Bank D	5	Bank D	4
Bank E	6	Bank E	4	Bank E	3
Bank F	6	Bank F	3	Bank F	3
Bank G	5	Bank G	2	Bank G	3
Bank H	5	Bank H	2	Bank H	2
Bank I	4	Bank I	2	Bank I	2
Bank J	3	Bank J	2	Bank J	2
All other banks (26)	14	All other banks (37)	16	All other banks (43)	23
<b>Total (\$237 billion)</b>	<b>100</b>	<b>Total (\$564 billion)</b>	<b>100</b>	<b>Total (\$495 billion)</b>	<b>100</b>

Source: GAO analysis of Treasury data.

Note: Banks A through J are not necessarily the same depository institution in each year nor are they necessarily the same depository institutions as in tables 3 and 4.

**TIO Collateral and Capacity:** TIO collateral restrictions are similar to those in the TT&L program, and because depository institutions participate in both programs, participants’ total capacity is divided between the two programs. Depository institutions transfer collateral between the TIO and TT&L programs in order to participate in upcoming TIO auctions, which depletes the amount of collateral and capacity in TT&L accounts. According to Treasury, TT&L account capacity declined between 2001 and 2006, but capacity has shifted from TT&L accounts to the TIO program such that total investment capacity remained in line with the average capacity from 2001 to 2006. This shift of capacity from TT&L accounts to the TIO program presents challenges to using all of the capacity when there is a sudden and significant increase in Treasury’s cash balance (e.g., if the balance spikes up for only 1 or 2 days). There have been a few instances in the last few years in which Treasury has raised or considered raising the target Federal Reserve balance because TT&L accounts were close to capacity. Appendix II provides additional information on the types of collateral pledged in TIO auctions and how they are valued.

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## Treasury's Repo Pilot Has Continued to Improve Overall Returns, but Is Currently Limited in Scope

Like the TIO program, the repo pilot provides Treasury with higher rates of return than TT&L deposits, but current legal restrictions and the pilot's limited scope prevent Treasury from accessing a broader repo market. At \$4 billion per day, Treasury's repo pilot is small relative to the \$1.8 trillion per day repo market.

In March 2006 as part of its initiative to modernize its cash management program, Treasury began operating a 1-year pilot program to invest excess cash into repos, consistent with GAO recommendations.<sup>23</sup> The objectives of the pilot were to (1) assess the effect of this type of investment operation on both Treasury and Federal Reserve operations, internal systems, and processes, and (2) explore the benefits of using repos to expand Treasury's investment capacity and increase the return on invested funds. Initially there was only one participant; a second participant was added in August 2006. In the first 12 months of the repo pilot program, Treasury conducted 235 repo transactions, and invested \$645 billion altogether. Treasury's repo investments in the second half of fiscal year 2006 made up 11 percent of its total short-term investment balance. In that first year of the repo pilot, rates were on average 21 basis points higher than TT&L rates and earned close to Federal Reserve repo rates. In its evaluation of the pilot, Treasury found that it can effectively conduct repo transactions with a limited number of counterparties without adverse effect on its or the Federal Reserve's operations, internal systems, and processes.

**Repo Participants:** Under current law, Treasury is limited to investing its excess cash in depositories maintaining TT&L accounts and in obligations of the United States. As a result, it cannot invest with securities dealers who play a prominent role in the repo market. The Federal Reserve conducts all of its repos with 21 securities dealers, who are selected based on their ability to make good markets, participate meaningfully in Treasury auctions, and provide market intelligence that is useful to the Federal Reserve in the formulation and implementation of monetary policy.<sup>24</sup> In 2006, the Federal Reserve had an average daily balance of \$25.3 billion in repos with selected securities dealers.

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<sup>23</sup>GAO-06-269.

<sup>24</sup>For a listing of primary dealers, see [http://www.newyorkfed.org/markets/pridealers\\_current.html](http://www.newyorkfed.org/markets/pridealers_current.html) (downloaded on July 9, 2007).

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**Repo Term and Frequency:** The repo pilot program offers only repos that have a term of 1 business day. Although this term comprises the largest share of the repo market, some participants invest in repos with longer terms. In addition, the repo pilot program conducts only a single daily auction at 9 a.m. Other repo participants conduct transactions throughout the day in the broader repo market, allowing them to place cash late in the day.

**Repo Bids:** Bidding for Treasury's repo pilot program is conducted by telephone, which is consistent with market convention for repos with a limited number of participants. Industry experts view telephone trading as an efficient way to conduct trades for offerings with a few counterparties. A greater number of counterparties may require an electronic trading system in order to prevent delays between the time rate quotes are made and accepted. Electronic trading systems also reduce trading costs and the risk of clearing errors. In 2006 the Federal Reserve upgraded to a new electronic trading system, FedTrade, to manage its repo trades with primary dealers. Treasury officials told us that they were exploring the capabilities of an electronic system similar to that used by the Federal Reserve and its application to an expanded repo program.

**Repo Collateral:** Because of its current investment authority, Treasury only accepts Treasury securities as collateral in its repo pilot program. Participants in the larger repo market, including the Federal Reserve, accept a wider range of collateral types including mortgage-backed securities and U.S. government agency securities.<sup>25</sup> Although repos backed by Treasury securities constitute the largest share of the repo market, there are some important limitations to demand for such repos. Most importantly for Treasury, the demand for repos backed by Treasury securities is lowest during times when Treasury has the most cash to invest. This happens in April and May, when, in response to high tax receipts, Treasury reduces the number of Treasury bills available in the market. Additionally, the rates received on repos backed by mortgage-backed securities and U.S. agency securities are typically higher than the rates for Treasury securities.

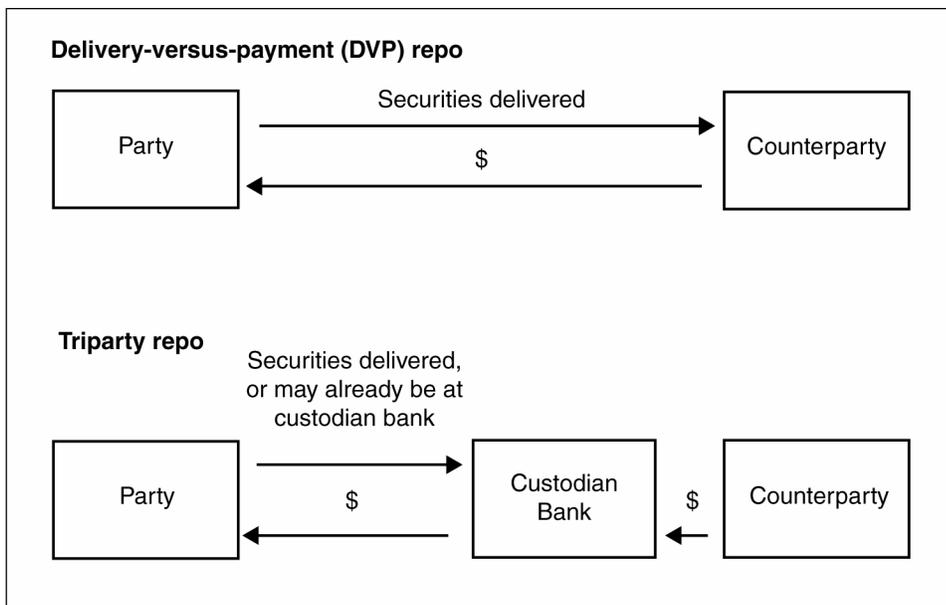
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<sup>25</sup>U.S. agency securities refer to securities issued or guaranteed by U.S. government corporations like the Government National Mortgage Association (Ginnie Mae) or by U.S. government-sponsored enterprises (GSE) like the Student Loan Marketing Association (Sallie Mae), Federal National Mortgage Association (Fannie Mae), and Federal Home Loan Mortgage Corporation (Freddie Mac). While some agency securities are backed by the full faith and credit of the United States government, GSEs are not.

**Repo Clearing and Settlement:** Clearing is the process of calculating the obligations of the counterparties to make deliveries of securities or payments of cash. Settlement is the transfer of cash and securities between the party and counterparty. For repo transactions, clearing and settlement are typically done through either a delivery-versus-payment (DVP) or triparty arrangement. In a DVP arrangement, as is used in the repo pilot program, the party and counterparty complete the clearing and settlement processes. In a triparty agreement, an independent custodial bank manages the clearing and settlement process.

As illustrated in figure 5 below, in a DVP transaction, cash is transferred to the party, and the securities are delivered to the counterparty or its fiscal agent. The delivery of securities is done over a secure transfer system operated by the Federal Reserve Banks, which allows the transfer of certain types of securities such as U.S. Treasury and U.S. government agency securities. In triparty repos, both counterparties maintain accounts at a third-party custodian bank that facilitates the transfer of cash and securities between accounts. A broader range of securities can be used as collateral because the securities are already in accounts at the independent custodial bank.

**Figure 5: Repo Clearing and Settlement Arrangements**



Source: Federal Reserve and Treasury.

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## Options Exist to Increase Treasury's Rate of Return and Reduce Risk on Short-Term Investments

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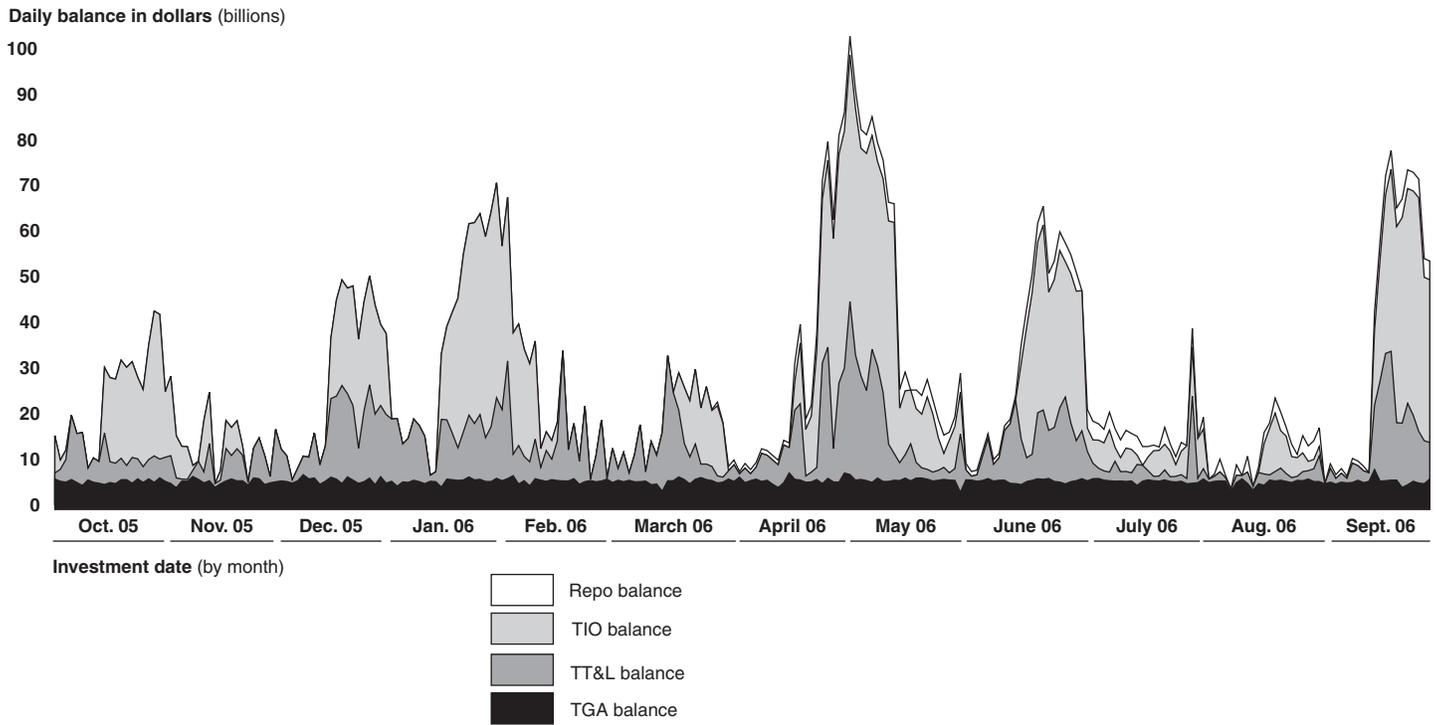
### Treasury Should Minimize TT&L Investments and Expand the Repo Program to Increase Returns and Reduce the Risks of Concentration and Constrained Capacity

Treasury could increase its return on investment by continuing to reduce funds in TT&L accounts and reallocate those funds to a mix of TIOs and repos. In 2006, Treasury invested an average of \$7.64 billion per day in the TT&L program. Treasury generally maintains at least \$2 billion in the TT&L program as a means of maintaining active participation in the program. Retaining some TT&L banks to take direct investments as part of a broadened array of investment options would likely be advantageous for Treasury, by helping to provide Treasury with a more diversified set of investment options and by presumably increasing overall investment capacity. As illustrated in figure 6, during certain times of the year, Treasury has large balances in TT&L accounts earning a below-market rate that could instead be invested in an expanded repo program. If Treasury had invested TT&L funds in excess of the \$2 billion floor in repo investments and earned the Federal Reserve's overnight repo rate, we estimate that Treasury could have earned an additional \$12.6 million in 2006.<sup>26</sup> Investing in repos could also reduce the high levels of concentration and alleviate the limited capacity in the TT&L and TIO programs by accessing the almost \$2 trillion broker-dealer repo market.

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<sup>26</sup>For additional details on the estimate of Treasury's additional earnings, see app. VI.

**Figure 6: Allocation of Treasury's Operating Balance by Type of Investment, Fiscal Year 2006**



Source: GAO analysis of Treasury data.

**Treasury Will Need to Consider Primary Investment Objectives If Given Authority to Design a Permanent, Expanded Repo Program**

In designing the operational elements of a permanent, expanded repo program, Treasury would need to consider industry investment practices in designing the program's operational elements and managing risks that are associated with the selection of participants, collateral types, terms of trade, and trading arrangements. Since the repo pilot was conducted under current limited authority, Treasury did not have the opportunity to consider design decisions, such as we discuss in this section.

**Primary Investment Objectives**

In establishing a permanent, expanded repo program, Treasury would benefit from the insights gained in its repo pilot program and from examining recommended investment practices and federal regulations of other repo operations. Three sources of recommended short-term investment practices are the Government Finance Officers Association (GFOA), an organization that advises state and local governments' finance officials, the Federal Reserve Policy on Payments System Risk, and the

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federal repo regulations issued by the Federal Deposit Insurance Corporation.<sup>27</sup> Guidance for recommended short-term investment practices cite three primary objectives, in order of priority: (1) risk management, (2) liquidity, and (3) yield.

**Risk Management:** According to the GFOA, the preservation and safety of principal is the foremost objective of short-term investments, which is accomplished by minimizing certain risks that are present in repo investments:

- (a) Credit Risk: The risk that a repo party will not fulfill its obligations to Treasury.
- (b) Concentration of Credit Risk: The risk of loss attributable to the magnitude of Treasury's investment in a single party.
- (c) Custodial Risk: The risk that, in the event of a failure of a repo, Treasury will not be able to recover the full value of collateral securities that are in possession of outside parties.
- (d) Interest Rate Risk: The risk that changes in interest rates will adversely affect the fair value of Treasury's investment.

In a permanent repo program, Treasury will need to establish criteria to select counterparties to minimize exposure to credit risk, consider its overall exposure to each party and any of its related parent companies, and to monitor its exposure to interest rate risk. In determining with whom Treasury would be willing to conduct repos, Treasury would need to monitor the possibility of losses due to the high concentration of investments with a few participants. Specifically, Treasury would need to consider its overall exposure to each counterparty and any of its related parent companies and subsidiaries in its investments. To reduce interest rate risk, Treasury already requires TT&L participants to provide a greater amount of collateral than the amount of cash received.<sup>28</sup> In a permanent repo program, Treasury will also need to monitor its exposure to

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<sup>27</sup>For copies of these see the GFOA's Web site, [www.gfoa.org](http://www.gfoa.org), the Federal Reserve's Web site at <http://www.federalreserve.gov/paymentsystems/psr/default.htm>, and the Federal Deposit Insurance Corporation *Policy Statement on Repurchase Agreements of Depository Institutions with Securities Dealers and Others*, Federal Register, vol. 63, no. 34 (Feb. 20, 1998).

<sup>28</sup>This requirement is called a "haircut." A haircut is the percentage that is subtracted from the market value of the collateral. The size of the haircut reflects the perceived risk associated with the pledged assets.

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market/interest rate risk that would arise from accepting a wider variety of collateral and investing at times for terms longer than overnight.

**Liquidity:** Recommended investment practices related to liquidity are designed to ensure availability of funds when needed. The GFOA identifies two elements: (1) setting the term of some repo investments to mature when cash needs are highest and (2) having some repo investments that allow the investor to obtain cash on short notice without penalty. For Treasury, cash needs are greatest on or near the beginning of each month. The ability to obtain cash on short notice might be accomplished by engaging in overnight repos that can be rolled over every day. Treasury's optimal mix of overnight and longer-term repos would depend on the patterns of Treasury receipts and cash available for short-term investments and on the timing and size of expected cash needs.

**Yield:** An expanded repo program has the potential to improve Treasury's return on investments relative to TT&L rates while maintaining current minimal risk investment policies. Treasury has already incorporated a recommended practice in its repo pilot program related to assessing the yield performance of a repo investment program. Specifically, Treasury compared the return on its repo pilot investments to an appropriate market benchmark.

## Design and Operating Decisions

In designing a permanent, expanded repo program, Treasury should consider the investment principles cited above in its selection of participants, collateral types, trading processes, and clearing and settlement arrangements.

**Repo Participants:** Expanding the repo program to include securities dealers, with whom Treasury does not currently invest, would increase Treasury's investment capacity and could reduce the concentration risk found in the TT&L and TIO programs. In its evaluation of the repo pilot program, Treasury raised the possibility of expanding the range of parties to include the 21 securities dealers selected by the Federal Reserve to conduct its monetary policy operations. Whether Treasury uses the same criteria used by the Federal Reserve or develops its own criteria to select an acceptable set of counterparties, expanding to securities dealers would give Treasury greater access to the repo market and expand its investment capacity.

**Repo Collateral:** Expanding the type of collateral acceptable in a permanent repo program could also increase Treasury's return and investment capacity. Treasury would benefit from adopting the practice of

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other participants in the repo market, including the Federal Reserve, which accepts a wider range of collateral types, such as mortgage-backed securities and U.S. government agency securities. For example, the Federal Reserve selects from participant's propositions across three different types of collateral. The rates it accepts depend on the attractiveness of participant bids relative to current rates in the financing market for each particular class of collateral.

**Repo Trading:** Treasury should consider adopting an electronic trading system if it expands beyond a small number of participants to ensure transparency and fairness. Trading in Treasury's repo pilot program is conducted by telephone, which is consistent with market convention for repos with a limited number of participants. However, a greater number of counterparties may require an electronic trading system in order to prevent time delays, lower the risk of operational errors, and reduce trading costs. According to Treasury, it is exploring the capabilities of an electronic system similar to that used by the Federal Reserve that would allow it to conduct repo operations with a large number of parties in a transparent and fair manner. The exact costs of such a system are currently unknown.

**Clearing and Settlement:** Treasury should consider the advantages and disadvantages of adopting a triparty clearing and settlement arrangement for an expanded repo program. A triparty arrangement would reduce clearing and settlement costs, facilitate the expansion of collateral, and increase investment flexibility. According to an industry expert, the primary benefit of triparty arrangements is that the securities are held by a commercial clearing bank, which reduces risk and administrative work for both repo counterparties. For Treasury, triparty arrangements would reduce the expenses of monitoring, clearing, and settlement. Triparty arrangements would also facilitate the use of a broader range of securities for collateral because custodian banks can hold classes of securities that cannot be transferred over Fedwire. In addition, triparty arrangements would expand Treasury's processing capacity, and allow Treasury to make additional repo investments later in the day to accommodate unanticipated excess cash.

Although there are certain disadvantages to triparty arrangements, there may be options that Treasury could explore to reduce them. Unsecured intraday exposure may exist because there is a time lag between when cash from a repo transaction is transferred from the counterparty's account and when the counterparty receives the collateral associated with the transaction. In addition, with a triparty arrangement, Treasury would

not take possession of the pledged securities as its fiscal agent, the Federal Reserve, does in a DVP arrangement. According to Treasury, there may be a number of ways to mitigate these risks. See table 6 for a summary of triparty advantages and disadvantages.

**Table 6: Advantages of Triparty Compared with Delivery-Versus-Payment (DVP) Trading Arrangements**

Advantages	Disadvantages
Accommodates a wider variety of collateral, potentially leading to higher returns.	Unsecured intraday exposure may exist because the cash is transferred from the counterparty's account earlier in the day and collateral is transferred later in the day.
Expands processing capacity of Treasury.	The counterparty does not take possession of the pledged securities.
Allows for increased investment flexibility and for Treasury to make repo investments later in the day.	The counterparty is unable to call back funds intraday.
Reduces the expense of participants doing their own monitoring, clearing, and settlement facilities.	

Source: GAO analysis.

## Conclusions

In the face of persistent federal deficits accompanied by growing net interest costs, and given the opportunities created by significant innovations in financial markets, further progress in Treasury's short-term investment practices is possible. Treasury is to be commended for its efforts to modernize cash management that have resulted in higher returns on short-term investments while maintaining current minimal risk investment policies, but it is possible to do more. Our analysis shows that a permanent, expanded repo program could increase earnings while maintaining current minimal risk investment policies.

## Matter for Congressional Consideration

Congress should consider providing the Secretary of the Treasury with broader authority in the design of an expanded program of repurchase agreements. Congress could note that it expects that in the selection of participants, decisions about acceptable collateral, and choice of other design features the Secretary will follow a process designed to mitigate various types of risks including concentration risk, credit risk, and market/interest rate risk. The decision not to legislate in detail how Treasury invests cash does not remove Congress's oversight authority or responsibility. To assist Congress with oversight, the legislation could

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require the Secretary to report annually on the Treasury investment program.

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## Recommendation for Executive Action

We recommend that the Secretary of the Treasury explore the reallocation of its short-term investments as discussed in this report and, if provided the authority to do so, implement a permanent, expanded repo program that would help Treasury meet its short-term investment objectives while maintaining current minimal risk investment policies. If provided the authority for a permanent, expanded repo program, Treasury should consider allowing broker dealers as counterparties and expanding acceptable collateral types to alleviate capacity concerns and increase rates of return. The effects on rates of return and operational efficiencies of an electronic trading platform and a triparty clearing and settlement system should also be considered. When making decisions about short-term investment programs, Treasury should follow a systematic process to identify and mitigate various types of risks including concentration risk, credit risk, and market/interest rate risk. Treasury should consider the costs and benefits of each alternative and determine whether the benefits to the federal government outweigh any costs. Treasury should also consider how its investment programs might be combined to produce outcomes that are more beneficial, and should consider the effect of its investments on similar Federal Reserve open market operations.

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## Agency Comments and Our Evaluation

We requested comments on a draft of this report from the Secretary of the Treasury. Treasury agreed with our findings, conclusions, and recommendations. The Fiscal Assistant Secretary's letter is reprinted in appendix VII. Treasury also provided technical comments, which we have incorporated as appropriate. We also received technical comments from the Federal Reserve, which we have incorporated as appropriate.

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As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution of it until 30 days from the date of this letter. We will then send copies of this report to the Chairman and Ranking Member of the House Committee on Ways and Means, the Secretary of the Treasury, the Chairman of the Federal Reserve Board of Governors, the Director of the Office of Management and Budget, and other interested parties. We will also make copies available to others upon request. In addition, the report will be available at no charge on GAO's Web site at <http://www.gao.gov>.

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If you or your staff have any questions about this report, please contact Susan J. Irving at (202) 512-9142 or [irvings@gao.gov](mailto:irvings@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff making key contributions to this report are listed in appendix VIII.



Susan J. Irving  
Director for Federal Budget Analysis  
Strategic Issues

# Appendix I: Trends in Treasury's Operating Cash Balance and Allocation of Short-Term Investments

## Trends in Treasury's Operating Cash Balance

We used publicly available Daily Treasury Statements to analyze the Department of the Treasury's (Treasury) availability of cash during times of the month and days of the week during fiscal years 2003–2006. Our analysis shows that cash balances tend to be highest at the end of the month before large mandatory payments are made. Over the past 3 years, cash balances have increased in both dollar volume and volatility for most parts of each month and for each business day of the week. (See tables 7 and 8.)

**Table 7: Since 2003, Treasury's Daily Operating Cash Balance Increased in Both Dollar Volume and Volatility for Most Parts of Each Month**

Days of month	Fiscal year 2003		Fiscal year 2004		Fiscal year 2005		Fiscal year 2006	
	Average daily balance (dollars in billions)	Coefficient of variation <sup>a</sup> (percent)	Average daily balance (dollars in billions)	Coefficient of variation <sup>a</sup> (percent)	Average daily balance (dollars in billions)	Coefficient of variation <sup>a</sup> (percent)	Average daily balance (dollars in billions)	Coefficient of variation <sup>a</sup> (percent)
1–7	13.6	60	12.7	60	19.5	90	21.5	109
8–14	10.8	37	9.5	53	13.9	75	18.0	100
15–21	21.5	55	26.3	47	32.0	50	29.7	57
22–end of month	23.6	47	29.9	47	35.0	53	33.7	63

Source: GAO analysis of Treasury data.

<sup>a</sup>Volatility is measured by coefficients of variation (standard deviation divided by the mean). A larger percentage indicates greater volatility.

**Table 8: Since 2003, Treasury's Daily Operating Cash Balance Increased in Dollar Volume for Each Business Day of the Week and in Volatility for Each Business Day of the Week**

Days of week	Fiscal year 2003		Fiscal year 2004		Fiscal year 2005		Fiscal year 2006	
	Average daily balance (dollars in billions)	Coefficient of variation <sup>a</sup> (percent)	Average daily balance (dollars in billions)	Coefficient of variation <sup>a</sup> (percent)	Average daily balance (dollars in billions)	Coefficient of variation <sup>a</sup> (percent)	Average daily balance (dollars in billions)	Coefficient of variation <sup>a</sup> (percent)
Monday	20.1	52	22.0	59	27.6	69	28.0	73
Tuesday	18.1	64	20.0	75	26.9	69	26.6	87
Wednesday	18.0	68	21.0	73	27.0	76	26.0	86
Thursday	18.5	53	21.1	62	25.3	65	26.4	72
Friday	15.0	63	18.5	67	23.2	74	24.9	82

Source: GAO analysis of Treasury data.

<sup>a</sup>Volatility is measured by coefficients of variation (standard deviation divided by the mean). A larger percentage indicates greater volatility.

## Trends in Treasury's Investment Allocation

Treasury's trend over the past 5 years has been to move cash available for investment out of the Treasury Tax & Loan (TT&L) Main Account and into Term Investment Option (TIO) offerings and recently into repurchase agreements (repo). Treasury piloted the TIO program in 2002, and the program became a permanent program in October 2003. The addition of the repo pilot program in March 2006 provided Treasury with an additional option for investment. (See table 9.)

**Table 9: Average Cash Operating Balance by Investment for Past 5 Years**

Dollars in billions

Fiscal year	Total operating cash balance	Treasury General Account	TT&L Main Accounts	TIO	Repo	Total investment balance
2002	27.2	5.6	20.9	0.8	0.0	21.7
2003	17.9	5.9	10.1	1.9	0.0	12.0
2004	20.5	5.3	9.0	6.2	0.0	15.2
2005	25.9	5.1	7.9	13.0	0.0	20.9
2006	26.4	5.0	7.6	12.4	1.3	21.4

Source: GAO analysis of Treasury data.

With the development of the TIO program and the repo pilot, Treasury's investments in TT&L accounts have declined as it began placing more and more of its operating balance in these programs, particularly TIO since the repo pilot did not begin until March 2006. Specifically, the share of Treasury's three investments (not including the balance in the Treasury General Account [TGA]) in TT&L accounts declined from 96 percent in fiscal year 2002 to only 36 percent in 2006. In contrast, the share of Treasury's investments in the TIO program grew to over 60 percent by 2005 and remained the largest program by share of volume in 2006 at almost 60 percent. (See table 10.)

**Appendix I: Trends in Treasury’s Operating Cash Balance and Allocation of Short-Term Investments**

**Table 10: Share of Investment Balance (i.e., Funds Excluding TGA) by Investment Type**

Percent				
Fiscal year	TT&L Main Accounts	TIO	Repo	Total investment balance
2002	96	4	0	100
2003	84	16	0	100
2004	59	41	0	100
2005	38	62	0	100
2006	36	58	6	100

Source: GAO analysis of Treasury data.

In the repo pilot’s first 6 months, Treasury allocated about 11 percent of its total investments to the repo pilot on average. (See table 11.) It appears that Treasury primarily allocated funds away from TT&L and into the repo pilot rather than from TIO. TIOs as a percentage of total investments were down only slightly from 62 percent for 2005 to 60 percent for the first 6 months of the repo pilot, while TT&L deposits decreased from 38 percent to 30 percent over the same periods.

**Table 11: Share of Investment Balance by Investment Type, March–September 2006**

Percent				
Period	TT&L Main Accounts	TIO	Repo	Total investment balance
March–September 2006 (first 6 months of repo pilot)	30	60	11	100

Source: GAO analysis of Treasury data.

Note: Figures do not sum to 100 because of rounding.

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# Appendix II: Acceptable Collateral in Treasury's Short-Term Investment Programs

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This appendix provides additional information on acceptable collateral for the Department of the Treasury's (Treasury) short-term investment programs. The first section discusses acceptable collateral in the Treasury Tax and Loan (TT&L) and Term Investment Option (TIO) programs. The second section discusses collateral distribution among Treasury's short-term investment programs. In the third section, we describe Treasury's Special Direct Investment (SDI) program, which provides additional capacity for Treasury in times when its operating cash balance is very high. Finally, in the fourth section we provide a table of "haircuts" that Treasury places on collateral depository institutions pledged in exchange for Treasury funds. A haircut is the percentage that is subtracted from the market value of the collateral. The size of the haircut reflects the perceived risk associated with the pledged assets. See figure 8.

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## Collateral in the TT&L and TIO Programs

Traditionally, Treasury has accepted a wide range of collateral in the TT&L program to ensure sufficient capacity and mitigate risk. To reduce risk, Treasury requires that a greater amount of collateral be pledged than the amount of cash received. Known as a "haircut," the excess amount pledged may increase depending on the maturity, quality, scarcity, and price volatility of the underlying collateral. In the late 1990s, faced with budget surpluses and a lack of sufficient capacity in the TT&L program, Treasury expanded the range of TT&L collateral to include asset-backed securities and also agreed to accept commercial loans in less restrictive arrangements in its SDI program. Depository institutions pay a uniform interest rate on all deposits regardless of collateral type for both regular TT&L investments and SDI investments.

Treasury restricts assets pledged in the TT&L and TIO programs to nine collateral categories. (See table 12.) While any of the nine categories of collateral may be pledged to secure TT&L funds, collateral pledged in the TIO program is restricted to collateral types specified in the TIO auction announcement. Certain assets are not acceptable in any of Treasury's short-term investment programs, such as mutual funds and obligations of foreign countries. (See table 13.) As discussed earlier in this report, collateral acceptable in the repo pilot program is restricted to Treasury securities.

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**Appendix II: Acceptable Collateral in  
Treasury's Short-Term Investment Programs**

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**Table 12: Acceptable Collateral in the TT&L and TIO Programs**

Category 1	Obligations issued and fully insured or guaranteed by the U.S. government or a U.S. government agency
Category 2	Obligations of government-sponsored enterprises and corporations of the United States that under specific statute may be accepted as security for public funds
Category 3	Obligations issued or fully guaranteed by international development banks
Category 4	Insured student loans or notes representing educational loans insured or guaranteed under a program authorized under Title IV of the Higher Education Act of 1965, as amended, or Title VII of the Public Health Service Act, as amended
Category 5	General obligations issued by the states of the United States and by Puerto Rico
Category 6	Obligations of counties, cities, or other U.S. government authorities or instrumentalities that are not in default on payments on principal or interest and that may be purchased by banks as investment securities under the limitations established by appropriate federal bank regulatory agencies
Category 7	Obligations of domestic corporations that may be purchased by banks as investment securities under the limitations established by appropriate federal bank regulatory agencies
Category 8	Qualifying commercial paper, commercial and agricultural loan, and banker's acceptances approved by the Federal Reserve System at the direction of the Treasury
Category 9	Qualifying and publicly issued asset-backed securities that are Aaa/AAA rated by at least one nationally recognized statistical rating agency and approved by the Federal Reserve System at the direction of the Treasury

Source: Treasury.

Note: Data are from [http://www.treasurydirect.gov/instit/statreg/collateral/collateral\\_acctaxandloan.pdf](http://www.treasurydirect.gov/instit/statreg/collateral/collateral_acctaxandloan.pdf), downloaded on July 18, 2007.

**Table 13: Examples of Collateral Not Accepted in TT&L and TIO Programs**

Common and preferred stock
Consumer paper or consumer notes
Foreign currency-denominated securities
Mutual funds
Construction loans
Obligations issued by the pledging bank or affiliates of the pledging bank
Obligations of foreign countries
Collateralized bond obligations, collateralized loan obligations, and collateralized mortgage-backed securities except as otherwise noted
Real estate mortgage notes (one-to-four family mortgages are acceptable only if held in a borrower-in-custody arrangement to secure SDIs)

Source: Treasury.

Note: Data are from [http://www.treasurydirect.gov/instit/statreg/collateral/collateral\\_acctaxandloan.pdf](http://www.treasurydirect.gov/instit/statreg/collateral/collateral_acctaxandloan.pdf), downloaded on July 18, 2007.

## Collateral Allocation in Treasury's Short-Term Investment Programs

Table 14 shows Federal Reserve data on the relative use of different collateral types pledged for the TT&L and TIO programs. The repo pilot only accepts Treasury securities. According to the Federal Reserve, mortgage-backed securities make up 60 percent of the collateral depository institutions pledged for TT&L funds. In the TIO program, commercial loans make up half of the collateral depository institutions pledged to secure Treasury funds.<sup>1</sup> (See table 14.) Forty percent or less of the collateral pledged in the TT&L and TIO programs is made up of acceptable collateral types other than mortgage-backed securities and commercial loans.

<sup>1</sup>Commercial loans must be held under an Off-Premise Collateral arrangement in order to be pledged as collateral in the TIO program. This arrangement is available to TT&L depositories qualifying for the Federal Reserve's Borrower-in-Custody (BIC) program. To qualify for the BIC program, an institution must be in sound financial condition, in the judgment of its primary regulator and the Federal Reserve. A commercial loan eligible to be placed under the BIC collateral program must meet a minimal/normal risk rating requirement.

**Table 14: Allocation of Collateral in Treasury's Short-Term Investment Programs**

Percent			
Type of collateral	Regular TT&L <sup>a</sup>	TIO <sup>a</sup>	Repo pilot <sup>b</sup>
Commercial loans	3	50	Not accepted
Treasury, agency, and corporate securities	10	25	Only Treasury securities accepted
Mortgage-backed securities	60	10	Not accepted
Other	27	15	Not accepted

Source: GAO analysis of Treasury documents and Warren B. Hrung, "An Examination of Treasury Term Investment Interest Rates," Federal Reserve Bank of New York, *Economic Policy Review*, vol. 13, no. 1 (March 2007).

<sup>a</sup>The TT&L and TIO distributions apply to January 2005.

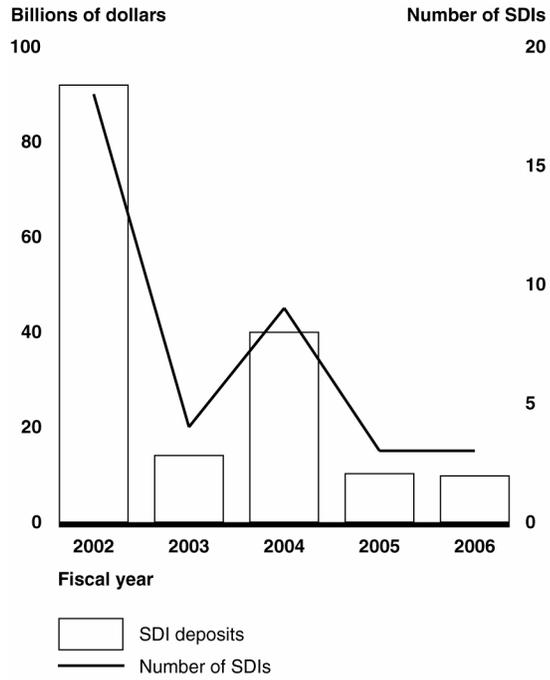
<sup>b</sup>The Treasury repo pilot, which began in 2006, is restricted to accepting only Treasury securities as collateral in transactions.

## Special Direct Investments

To address capacity limits in its operating cash balance, Treasury added the SDI program in 1982. This provides Treasury additional TT&L capacity when operating cash balances are unusually high. While collateral used to secure Treasury's cash in regular TT&L accounts must be held by a Federal Reserve Bank (FRB) or a Treasury-authorized FRB-designated custodian, in an SDI, the depository institution may use collateral retained on its premises in what is called an off-premises collateral arrangement. Acceptable collateral in the SDI program includes student loans, commercial loans, and one-to-four family mortgages, the last of which is only accepted in the SDI program. SDI balances earn the same rate of return as TT&L balances and may be withdrawn at any time by Treasury.

Since 2002, the number and dollar amount of SDIs have decreased, in part because of the establishment of the TIO program in 2003. (See fig. 7.)

Figure 7: Trends in SDIs, 2002–2006



Source: GAO analysis of Treasury data.

**Appendix II: Acceptable Collateral in  
Treasury's Short-Term Investment Programs**

**Figure 8: Treasury's Collateral Margins Table**

<b>Treasury Tax &amp; Loan (TT&amp;L) Program 31 CFR Part 203 Collateral Margins Table*</b>						
Effective: December 16, 2005 Last Updated: September 13, 2006						
Collateral Category	Collateral Value for Securities or Instruments with Market Prices <sup>/1</sup> (% of Market Value)			Collateral Value for Securities or Instruments if Market Price Not Available (% of Par or Outstanding Balance)	Collateral Value for Loans Individually Deposited <sup>/7</sup> (% of Market Value)	Collateral Value for Loans Not Individually Deposited <sup>/8</sup> (% of Outstanding Balance)
	DURATION BUCKETS					
	0 to 5	>5 to 10	>10			
<b>U.S. Treasuries:</b>						
<i>Bills, Notes, Bonds</i>	98%	97%	93%			
<i>Zero Coupons, STRIPS</i>	98%	95%	90%			
<b>U.S. Government Guaranteed Agencies:</b>						
<i>Bills, Notes, Bonds</i>	98%	97%	93%	90%		
<i>Zero Coupons</i>	98%	95%	90%			
<b>U.S. Government Sponsored Enterprises:</b>						
<i>Bills, Notes, Bonds</i>	97%	96%	92%	85%		
<i>Zero Coupons</i>	96%	94%	89%			
<b>International Agencies:</b>						
<i>Bills, Notes, Bonds</i>	97%	95%	93%	80%		
<i>Zero Coupons</i>	94%	92%	86%			
<b>Municipal Bonds</b>	97%	95%	92%	75%		
<b>Corporate Bonds <sup>/2</sup></b>	97%	95%	93%	80%		
<b>Asset-Backed Securities (AAA)</b>	98%	96%	93%	85%		
<b>Mortgage Backed Securities <sup>/3</sup></b>	98%	96%	93%	90%		
<b>Collateralized Mortgage Obligations (AAA)</b>	97%	95%	92%	80%		
<b>Bankers Acceptances <sup>/2</sup></b>				95%		
<b>Commercial Paper <sup>/2</sup></b>	97%			95%		
<b>Student Loans</b>						75%
<b>U.S. Government Agency Guaranteed Loans</b>					93%	90%
<b>Commercial and Agricultural Loans:</b>						
<i>Minimal Risk Rated <sup>/4</sup></i>					90%	80%
<i>Normal Risk Rated <sup>/5</sup></i>					87%	75%
<b>1-4 Family Residential Mortgages <sup>/6</sup></b>					91%	85%

\* This document is for informational purposes only and subject to change without notice.  
It is not binding on either the Treasury or the Federal Reserve System (FRS) in any particular transaction.

**Notes:**  
<sup>/1</sup> New issues are valued at 90 percent of par value until they are priced.  
<sup>/2</sup> Securities and Instruments are not acceptable if they are issued by the pledging bank or by an affiliate of the pledging bank  
<sup>/3</sup> U.S. Government or Guaranteed Agencies' and Government Sponsored Enterprises' (GSE's) only.  
<sup>/4</sup> Minimal Risk is defined as investment grade.  
<sup>/5</sup> Normal Risk is defined as below investment grade, however, considered a "pass-credit" from a regulatory standpoint.  
<sup>/6</sup> These assets are acceptable for Special Direct Investment (SDI) Participants only.  
<sup>/7</sup> Pledged loan data received using electronic files formatted according to the FRS's specifications at the direction of Treasury (Automated Loan Deposit - ALD) and certain loans held in vaults.  
<sup>/8</sup> Pledged loan data received using paper reports or electronic files in a format determined by pledging institution

**All pledged collateral must be transferable and owned by the depository free and clear of all liens, charges, or claims. A detailed list of acceptable collateral for the TT&L Program can be obtained from Treasury's Bureau of the Public Debt website ([www.treasurydirect.gov](http://www.treasurydirect.gov)).**

Source: Treasury.

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# Appendix III: The TGA Was Treasury's Only Investment between 1974 and 1978

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Although the Department of the Treasury (Treasury) receives an implicit return on Treasury General Account (TGA) balances from the Federal Reserve, the TGA is not considered an official short-term investment vehicle. However, between 1974 and 1978 a number of circumstances forced Treasury to hold the bulk of its total operating cash balance in the TGA.

Prior to 1977, Treasury Tax & Loan (TT&L) depositories were not authorized to pay interest on Treasury's deposits. At the time, Treasury placed cash in these depositories, which provided a number of services, such as handling subscriptions to U.S. securities, issuing savings bonds, and processing Treasury checks. However, a number of developments between 1964 and 1974 brought an end to this practice. Tax receipts grew significantly, increasing the size of TT&L accounts. Interest rates had risen considerably, providing significantly greater earnings potential on TT&L balances. There was a decline in the number of Treasury-related services that banks performed. In addition, there was no correlation between the level of service a bank provided and amount of funds it received. As a result, it was possible for banks that provided only a few services to receive large TT&L deposits for which they paid no interest while other banks that provided numerous Treasury-related services received too little interest on TT&L deposits to offset their costs.

In 1974 Treasury concluded that the benefits depository institutions received from holding TT&L funds substantially outweighed the aggregate value of the services that these institutions provided. In order to recoup some of its lost earnings, Treasury pursued what it described as a "stop-gap" policy. Treasury moved all of the funds it reasonably could from its non-interest-bearing TT&L accounts to its Federal Reserve account, the TGA. In turn, the Federal Reserve acted to offset the drain on reserves caused by increasing the size of its securities portfolio. This then led to larger weekly remittances to Treasury. In 1976 Treasury estimated that it received \$365 million in indirect earnings from the Federal Reserve in this way.

This shift of placing almost all excess cash in the TGA created problems for the conduct of monetary policy by increasing the volatility of the TGA. The average weekly swings in the TGA balance more than doubled from \$533 million to \$1,388 million between 1974 and 1975. As a result, the Federal Reserve had to make frequent large purchases of securities in order to reinvest the funds that the TGA was absorbing from the banking system. On some occasions the Federal Reserve was unable to offset the large swings in the TGA balance through temporary open market

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operations, and it had to request that Treasury redeposit funds in the TT&L accounts to avoid having to make outright purchases of securities in the secondary market. In 1977 legislation was enacted authorizing Treasury to earn interest on its short-term investments. Treasury began investing a greater share of its operating cash balance in interest-bearing accounts at commercial banks in 1978, leaving a smaller stable amount invested in the TGA.

# Appendix IV: Timeline of Key Treasury Actions for the Treasury Tax and Loan and Term Investment Option Programs

<b>Before</b>	<b>6:30 a.m.</b>	Department of the Treasury (Treasury) receives report on Federal Reserve Bank actual transactions from the previous day, and Treasury's four Regional Financial Centers report on the Automated Clearing House payments that will be settled out of the Treasury account that day.
<b>7:15 a.m. – 9:15 a.m.</b>		Lockbox institutions report the estimated amount of collections that will be deposited in Treasury's account that day.
<b>Before</b>	<b>8:45 a.m.</b>	Officials from Treasury's Office of Fiscal Projections (OFP) and Cash Forecasting Division and the Federal Reserve Bank of New York's Open Market Desk meet independently to calculate the day's anticipated cash flows, including tax receipts and disbursements.
<b>Before</b>	<b>9:00 a.m.</b>	OFP determines the Term Investment Option (TIO) amount, the Dynamic Investment amount, followed by the Reverse Repurchase Agreement (repo) amount based on the estimated cash position.
	<b>9:00 a.m.</b>	Officials from Treasury and the Federal Reserve compare their estimates of the next 3 business days' anticipated cash flow and decide what discretionary cash management actions need to be taken for Treasury to maintain its targeted account balance at the Federal Reserve.
	<b>9:20 a.m.</b>	The manager of the System Open Market Account (SOMA) discusses the decisions made by Treasury's and the Federal Reserve's cash managers with other members of the Federal Reserve System in order to determine what actions the Federal Reserve should take in the open market.
	<b>9:30 a.m.</b>	Depending on the anticipated level of reserves, the Federal Reserve either initiates repurchase agreements to increase reserves or reverse repurchase agreements to decrease reserves.
	<b>10:30 a.m.</b>	Treasury begins processing same-day investments or withdrawals from institutions' Main Accounts and Special Direct Investment (SDI) accounts.
	<b>10:45 a.m.</b>	Notification of withdrawal from institutions' Main Accounts or SDI accounts, or both, appear in activity reports by this time. Institutions are notified of Direct investments being placed in their accounts by this time each day.
<b>10:50 a.m. – 5:50 p.m.</b>		The Treasury Investment Program (TIP) monitors institutions' pledged collateral.
<b>On TIO Auction Date<sup>a</sup></b>		
	<b>11:00 a.m.</b>	All bids for the day's TIO auction are due.
	<b>11:20 a.m.</b>	Treasury posts the TIO auction results.
<b>12:15 p.m. – 5:15 p.m.</b>		Dynamic investments of Treasury's excess funds begin being transferred to participating institutions' accounts through TIP.
<b>On TIO Placement Date<sup>a</sup></b>		
	<b>12:00 noon</b>	Institutions receiving deposits post the required collateral.
<b>On TIO Placement Date<sup>a</sup></b>		
	<b>2:00 p.m.</b>	Treasury deposits amount awarded to each bank into its respective reserve account.
<b>On TIO Maturity Date<sup>a</sup></b>		
	<b>2:00 p.m.</b>	Treasury withdraws funds held in TIO accounts with interest.

Source: Treasury.

<sup>a</sup>Gray boxes indicate events that do not happen on a daily basis.

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# Appendix V: Changes in the TGA Target Balance and the Federal Reserve's Open Market Operations

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While the Department of the Treasury (Treasury) has not made permanent changes to the Treasury General Account (TGA) balance since 1988, Treasury continues to adjust the TGA balance and modify its target balance to accommodate major corporate and tax due dates. (See table 15.)

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**Table 15: Changes in the TGA Target Balance since 1988**

Date	Change in target balance
October 11, 1988	Increased from \$3 billion to \$5 billion
April 1992	December and March increased from \$5 billion to \$7 billion on the day after the corporate tax due date  January, April, June, September increased from \$5 billion to \$7 billion from the day after the major individual or corporate tax due date until generally the end of the month
April 1995	Accelerated the date of increase to the major corporate or individual tax due date from the day after
September 2004	Stopped increasing the balance from \$5 billion to \$7 billion on, and following, major corporate and individual tax due dates
September 2006	Began increasing the balance back to \$7 billion on major corporate tax due dates

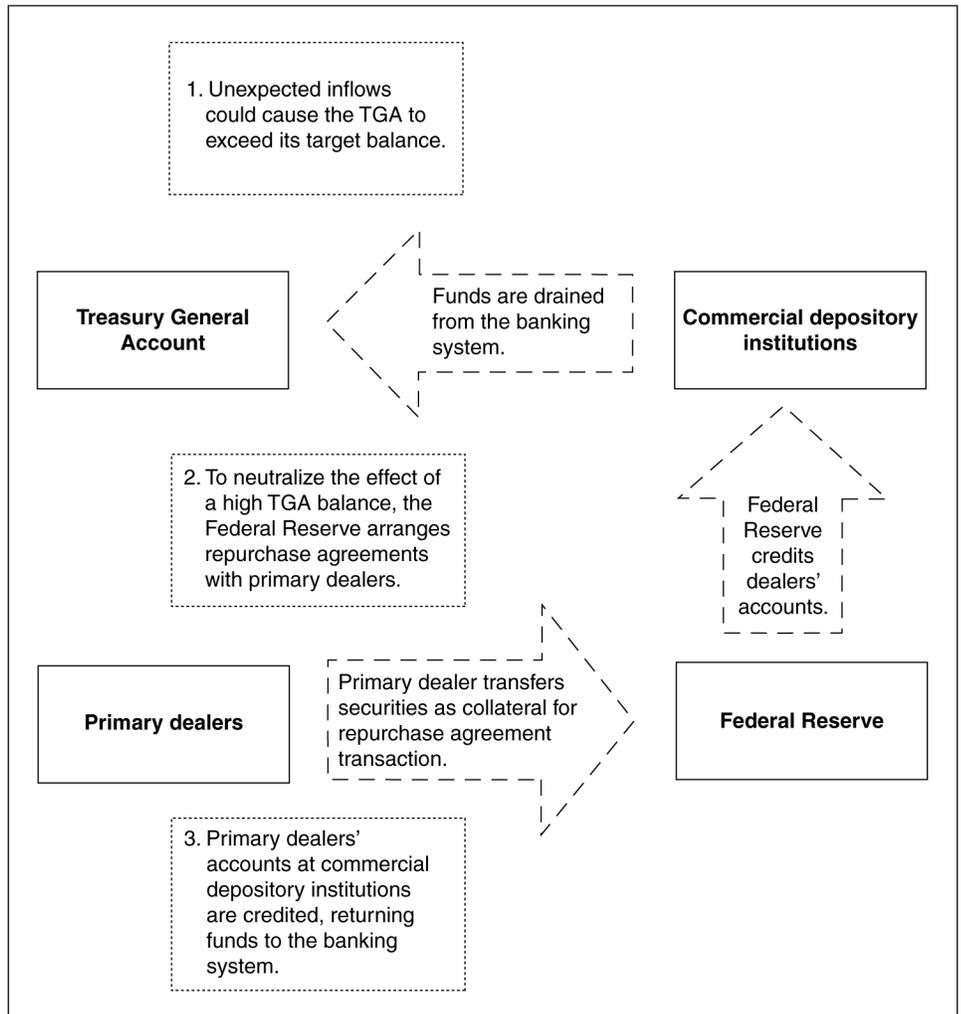
Source: Treasury.

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## The TGA and the Federal Reserve's Execution of Monetary Policy

Treasury also seeks to keep the target balance stable to assist the Federal Reserve in executing monetary policy. If Treasury's TGA balance exceeds or falls short of its target, the Federal Reserve must neutralize the change in overall reserves through market interventions. If Treasury has greater amounts of short-term cash than can be invested through other investment programs, the cash would have to be deposited into the TGA. If the TGA exceeded its \$5 billion target, the Federal Reserve would have to inject large amounts of reserves into the market. On the other hand, insufficient funds in the Treasury's total operating cash balance could cause the TGA to fall below its target, and the Federal Reserve would have to take reserves out of the system. (See fig. 9.)

**Figure 9: Neutralizing the Effect of the High TGA Balance**



Source: GAO analysis of Federal Reserve documents.

All depository institutions in the United States are required to maintain a certain percentage of their customers' checking account balances as reserves. A depository institution with a temporary shortfall in reserves can borrow funds from an institution with a surplus of reserves on a short-term basis. The interest rate that banks charge one another for this short-term lending is known as the federal funds rate. By adding or draining the level of reserves in the banking system, the Federal Reserve is able to influence the supply of reserves and thus the federal funds rate, which in turn has a significant effect on a wide range of short-term interest rates and, ultimately, the economy as whole.

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**Appendix V: Changes in the TGA Target  
Balance and the Federal Reserve's Open  
Market Operations**

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The two most common operations the Federal Reserve uses to intervene in the market are outright securities purchases and repurchase agreements (repo). To address a permanent increase in the demand for reserve balances, the Federal Reserve purchases securities outright in the secondary market. When the Federal Reserve purchases securities, it credits the account of the security dealer's depository institution, thereby increasing the aggregate level of reserves in the banking system. Securities purchased in these operations are kept in the System Open Market Account, or SOMA, portfolio. Currently, the SOMA portfolio contains only U.S. Treasury debt.

To make more frequent seasonal or daily adjustments to aggregate reserve levels, the Federal Reserve uses repos. To temporarily add (drain) reserve balances to (from) the banking system, the Federal Reserve makes a collateralized loan (borrows against collateral) for a period typically ranging from 1 to 14 days. For repo transactions, the Federal Reserve primarily accepts Treasury securities for collateral, but also accepts a small amount of federal agency securities.

# Appendix VI: Detailed Methodology of Calculations

## Value of Spread between TIO and TT&L Rates in 2006

In fiscal year 2006, the Department of the Treasury (Treasury) invested a daily average of \$12.4 billion in Term Investment Option (TIO) offerings, or almost 60 percent of its short-term investment balance. The rates earned through TIO investments were on average 17 basis points higher than the rates earned on Treasury Tax and Loan (TT&L) deposits over the same periods. We calculate that the value of this spread over the course of 2006 was about \$20 million.

To determine the value of this spread between TT&L and TIO rates, we compiled publicly available data on TIO auction award amounts, TIO auction rates, and average TT&L rates earned over the period of each TIO auction. Treasury conducted 103 TIO auctions in fiscal year 2006. To calculate the value of the spread between the TIO rate and average TT&L rate per auction, we first calculated the spread between the two rates for each auction. We then calculated the value of that spread in dollars by adjusting the rate for length of term, and multiplying it by the auction award amount.<sup>1</sup> We then added up the spread value in dollars for each of the 103 auctions to obtain a total. (See table 16 below.)

**Table 16: Average TIO Rate and Marginal Earnings in Fiscal Year 2006 Relative to TT&L Deposits**

Period	Total number of auctions	Average TIO rate (in percentage points)	Average TT&L rate per auction (in percentage points)	Average TIO-TT&L spread (in percentage points)	Dollar value of spread for all fiscal year 2006 auctions (in millions)
Fiscal year 2006	103	4.61	4.48	0.17	\$19.9

Source: GAO analysis of Treasury data.

## Estimated Return Treasury Could Earn by Reallocating Funds from TT&L to Repos

We estimate that if Treasury had earned an overnight repo rate on most of the funds that it invested in TT&L deposits in fiscal year 2006 instead of the TT&L rate, Treasury could have potentially earned an additional \$12.6 million. Treasury generally maintains at least \$2 billion in the TT&L program as a means of maintaining active participation in the program. We calculated that Treasury's balance in TT&L accounts exceeded this minimum balance threshold in fiscal year 2006 on 276 calendar days by an

<sup>1</sup>Repo rates are straight add-on interest rates calculated on a 360-day-year basis. To adjust for term, the rate is multiplied by the number of days the repo is outstanding and then divided by 360.

average of \$7 billion. Altogether, the amount of available operating cash in excess of this threshold totaled \$1.9 trillion in fiscal year 2006, about three times the amount necessary to meet the minimum balance.

When it set the current TT&L rate to 25 basis points below the federal funds rate in 1978, Treasury considered overnight repos to be an acceptable market-based comparison to TT&L deposits. The Federal Reserve conducts overnight repos with its primary broker-dealers. We estimate that if Treasury had invested this \$1.9 trillion in a higher yielding investment earning the same rate as Federal Reserve repos, Treasury could have earned an additional \$12.6 million in fiscal year 2006, or 5.4 percent of its return on available TT&L deposits. (See table 17.)

**Table 17: Treasury Could Increase Its Earnings by Investing in Repos**

	Total daily TT&L balance	Daily TT&L balance in excess of \$2 billion <sup>a</sup>	Return on TT&L balances in excess of \$2 billion	Return on TT&L balances in excess of \$2 billion at Federal Reserve repo rate	Additional return on TT&L balances in excess of \$2 billion at Federal Reserve repo rate	Percent increase of return on TT&L balances in excess of \$2 billion
Fiscal year 2006 total	\$2,597.36 billion	\$1,943.82 billion	\$234.52 million	\$247.11 million	\$12.59 million	5.4%
Fiscal year 2006 average	\$7.12 billion	\$7.04 billion	\$0.85 million	\$0.90 million	\$0.05 million	
Fiscal year 2006 days	365	276	276	276	276	

Source: GAO analysis of Treasury data.

<sup>a</sup>Includes only the amount above \$2 billion for days when the TT&L Main Account balance is greater than \$2 billion. For example, if the total TT&L balance was \$6.5 billion, then \$4.5 billion would be included.

To calculate this potential increase in gross return on Treasury’s short-term investments, we compiled publicly available data on short-term investments in fiscal year 2006 from Daily Treasury Statements (DTS) and the Federal Reserve. We calculated the daily balance invested in TT&L accounts, including Special Direct Investments (SDI), from DTS data as well as the effective TT&L rate. We also calculated the effective rate earned by the Federal Reserve on overnight repos for each available calendar day in 2006.<sup>2</sup> On days where rate data were not available because

<sup>2</sup>To calculate the effective rate, we created a weighted average for all overnight repos conducted by the Federal Reserve that day.

an overnight repo was not in effect, we assumed a rate by averaging the first available rates before and after the missing rate.<sup>3</sup> There were 276 calendar days in fiscal year 2006 where the daily TT&L Main Account balance exceeded \$2 billion. For each day, we determined (1) what Treasury actually earned from the residual balance over \$2 billion by multiplying the balance amount by the effective TT&L rate for that day, and (2) what Treasury could have earned from the residual balance by multiplying the balance amount by the actual or estimated Federal Reserve overnight repo rate. We then calculated the total dollar spread between these two returns for all 276 days.

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<sup>3</sup>This occurred on 102 of the 365 calendar days in fiscal year 2006.

# Appendix VII: Comments from the Department of the Treasury



DEPARTMENT OF THE TREASURY  
WASHINGTON, D.C.

ASSISTANT SECRETARY

August 23, 2007

Ms. Susan J. Irving  
Director, Federal Budget Analysis  
Strategic Issues  
United States Government Accountability Office  
441 G Street, N.W.  
Washington, D.C. 20548

Dear Ms. Irving:

We appreciate the opportunity to review and comment on the Government Accountability Office's (GAO) draft report entitled, *Debt Management: Treasury Has Improved Short-Term Investment Programs, but Should Broaden Investments to Reduce Risks and Increase Return*. The report makes two recommendations for improving the management of the government's short-term excess operating cash. Specifically, the GAO recommends that Treasury explore the reallocation of its short-term investments, and, if provided the authority by Congress to do so, implement a permanent, expanded repurchase agreement program that would meet Treasury's investment objectives while maintaining current minimal risk policies.

We agree with the report's conclusions and recommendations, and find them consistent with Treasury's plans to modernize our cash management processes. Treasury will maintain its current minimal risk management policies in its investment program, and will structure any expansion to the investment program to include a process to identify and mitigate various types of risks.

We would like to thank you and your staff for a comprehensive review of Treasury's cash management practices, for a thoughtful discussion of the advantages and disadvantages of current investment strategies, and for recommending options for Treasury to consider for improving return on its short-term investments. We appreciate the professional and efficient manner in which you and your team approached this engagement.

Sincerely,

Kenneth E. Carfine  
Fiscal Assistant Secretary

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# Appendix VIII: GAO Contact and Staff Acknowledgments

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## GAO Contact

Susan J. Irving, (202) 512-9142 or [irvings@gao.gov](mailto:irvings@gao.gov)

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## Acknowledgments

In addition to the contact named above, Jose Oyola (Assistant Director), Jessica Berkholtz, Amy Bowser, Tara Carter (Analyst-in-Charge), Richard Krashevski, Thomas McCabe, Matthew Mohning, Nicolus Paskiewicz, and Albert Sim made contributions to the report. Melissa Wolf, James McDermott, Dawn Simpson, and Dean Carpenter also provided key assistance.

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# Glossary

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Delivery-Versus-Payment (DVP) Arrangement	The repo trading arrangement in which the party and counterparty complete the clearing and settlement processes.
Dynamic Investment	Automatic deposits that occur when depository institutions agree to accept direct deposits from the Department of the Treasury (Treasury) when Treasury cash receipts are greater than anticipated. Dynamic investments are made hourly throughout the day and are Treasury's only option for placing late-day cash.
Haircut	The percentage that is subtracted from the market value of the collateral. The size of the haircut reflects the perceived risk associated with the pledged assets.
Repurchase Agreement (repo)	The transfer of cash for a specified amount of time, typically overnight, in exchange for collateral. When the term of the repo is over, the transaction unwinds, and the collateral and cash are returned to their original owners, with a premium paid on the cash.
Special Direct Investment (SDI)	An investment vehicle that provides Treasury additional Treasury Tax and Loan (TT&L) capacity when operating cash balances are unusually high. In an SDI, the depository institution may use collateral retained on its premises in what is called an off-premises collateral arrangement. Acceptable collateral in the SDI program includes student loans, commercial loans, and one-to-four family mortgages, the last of which is only accepted in the SDI program. SDI balances earn the same rate of return as TT&L balances and may be withdrawn at any time by Treasury.
Term Investment Option (TIO)	Deposits in depository institutions that allow Treasury to auction off portions of its excess cash at a competitive rate for a fixed number of days.
Treasury General Account (TGA)	Treasury's bank account, through which most federal receipts and disbursements flow. It is maintained across the 12 Federal Reserve Banks and rolled into one account at the end of each business day.
Treasury Tax & Loan (TT&L)	A collaboration between Treasury and over 9,000 commercial depository institutions that collect tax payments. About 1,000 of these depository institutions also hold funds and pay interest to Treasury.
Triparty Arrangement	The repo trading arrangement in which an independent custodian bank acts as an intermediary between the two parties in the transaction and is responsible for clearing and settlement operations.

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