REDEFINING THE MONETARY AGGREGATES: A CLEAN SWEEP

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INTRODUCTION

The quantity of money plays a fundamental role across the different sectors of the economy. Practitioners, researchers, and policymakers use measures of the money stock to gauge and predict activity in financial markets and the macroeconomy. However, there is growing suspicion that the conventional monetary aggregates have become progressively less accurate in measuring money, and less reliable as a result.

This concern becomes particularly important, as a growing body of research calls for returning money to a more prominent role within monetary policy. Meltzer [1998] asserts that the view of persistent money growth as being the source of inflation is again widely accepted, perhaps more firmly by some central bank governors now than at any time in the twentieth century. Nelson [2002] provides evidence that base money has a significant effect on output relative to potential in the US and UK, even after controlling for the short-term real interest rate. Nelson [2003] argues that money growth governs the mean and the dynamics of inflation in present-day New Keynesian models. Leeper and Roush [2003] find evidence of an essential role for M2 within the transmission of monetary policy, even after controlling for the nominal interest rate.

This paper focuses on measuring money properly by correctly classifying sweep programs. We propose new simple-sum monetary aggregates that adjust the conventional measures – M1A (the sum of currency and coin held by the public, travelers checks, and demand deposits), M1 (the sum of currency and coin held by the public, travelers checks, demand deposits, and other checkable deposits), M2 (the sum of M1, savings deposits including money market deposit accounts, small denomination

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time deposits, and retail money market mutual funds), M2M (M2 minus small denomination time deposits), and MZM (M2M plus institutional money market mutual funds) – to account for funds in sweep programs. Using the best available data on balances of swept funds in retail sweep programs and commercial demand deposit sweep programs, we provide monthly time series data on our proposed sweep-adjusted monetary aggregates. These data can be employed to measure money within a wide variety of settings.

In a sweep program, banks move a portion of funds from customer demand deposits (DD) or other checkable deposits (OCD) into instruments with zero statutory reserve requirements. It has long been suspected that commercial demand deposit sweep programs have distorted the monetary aggregates, perhaps as far back as the 1970s (see, e.g., Simpson [1980]). More recently, the focus of attention has been on distortion due to retail sweeping.

Under retail sweep programs (see, e.g., Anderson [1997]), which began in January 1994, banks move funds into money market deposit accounts (MMDA). Customers have unrestricted checking privileges on both swept and unswept funds; in fact, the sweeping process is generally invisible to the customers. Anderson and Rasche [2001] state that retail sweep programs have led to an extraordinary unwinding of statutory reserve requirements in the US, reducing required reserves in December 1999 by an estimated $34.1 billion. Dutkowsky and Cynamon [2003] find that retail sweeps help to explain instability within the demand for M1 beginning in the mid-1990s.

This study also emphasizes the effects of commercial demand deposit sweep programs on measuring money. Under commercial DD sweeps, as explained in Treasury Strategies [2003], banks establish investment accounts with their customers that are linked to their demand deposits. Banks maintain a predetermined target balance in DD by sweeping funds to or from the linked investment account as needed. Though commercial DD sweeps have existed since the 1970s (see, e.g., Pozin [2002]), funds in these sweep accounts have increased sharply since the mid-1990s, to over $300 billion.

As discussed in Anderson [1997] and Dutkowsky and Cynamon [2003], retail sweep programs create distortion between reported M1 and the accurate measure of narrow, transactions-based money. Funds in these sweep programs provide exactly the same transactions services as DD and OCD. But since they are counted as part of MMDA, M1 underreports narrow money. This distortion has been cited as a cause of the well-known decline of nominal M1 during the 1990s. For the same reason, retail sweep programs cause underreporting of M1A. Retail sweeps do not affect the broader conventional monetary aggregates, because they all include MMDA.

In the next section, we contend that the presence of commercial demand deposit sweep programs results in further underreporting of transactions deposits. Written descriptions of DD sweep programs form a persuasive argument that the account holder views the entire balance, swept and unswept, as the relevant transactions account. This perception implies that these swept balances should be treated as checkable deposits within the monetary aggregates. Swept funds, though, are reported as part of the linked investment accounts rather than DD, resulting in further distortion.

Moreover, activity within commercial DD sweep programs leads to underreporting in the broader monetary aggregates. The linked investment accounts include instruments that lie outside of the set of components contained within M2, M2M, and MZM.

The subsequent section contains our "S measures," or sweep-adjusted measures of money. We propose the monetary aggregates M1AS, M1RS (M1 with retail sweeps), M1S, M2S, M2MS, and MZMS. Each of these measures adjusts the corresponding conventional monetary aggregate by adding swept funds within retail and commercial DD sweeps that are not already included in the measure. The section also provides a link to a website that we established which contains monthly average data for all the sweep-adjusted monetary aggregates. We construct these time series using Federal Reserve data on swept funds from DD and OCD within retail sweep programs along with proprietary data on swept funds in the different types of linked investment accounts, purchased from Treasury Strategies Inc.

Evidence from some previous research points to the importance of commercial DD sweep programs in measuring money. Jones, Dutkowsky, and Elger [2005] perform tests of weak separability, a key characteristic within the theory of monetary aggregation. They find evidence of weak separability for both narrow and broad groupings of monetary assets only when DD sweeps are placed within checkable deposits. Dutkowsky, Cynamon, and Jones [2006] examine M1RS, M1S, and the conventional money measures by conducting cointegration tests between the velocity of money and its corresponding opportunity cost. They find that M1S generates by far the strongest evidence of a long-run relationship.

Some investigation from this study indicates that swept funds in commercial DD sweep programs have created non-trivial differences between the conventional and sweep-adjusted measures. We find that by the twenty-first century, the underreporting due to DD sweeps for MZM is over 3 percent, with distortion of over 5 percent for M2 and over 6 percent for M2M. Distortion is noticeably larger in the narrow aggregates. The results indicate that by 2003, the underreporting of M1A has reached nearly 60 percent. In the same year, the distortion of M1 due to retail and DD sweep programs is close to 70 percent. Even adjusting M1 for retail sweep programs results in underreporting of 17 percent.

Other findings indicate that sweep accounts create non-trivial deviations in measured nominal money growth between the conventional and sweep-adjusted measures. The mean absolute deviation ranges from 33 basis points for MZM to over 50 basis points for M2, and approximately 400 basis points for M1A and M1. The final section concludes the paper.

COMMERCIAL DEMAND DEPOSIT SWEEP PROGRAMS

Institutional Characteristics

Under commercial demand deposit sweep programs, banks establish an investment account linked to their customer's commercial DD account. Banks then adjust DD balances to a predetermined target level by transferring funds to or from the linked investment account as needed. Based upon Treasury Strategies [2003], these linked investment accounts consist of four types: overnight instruments, which include repurchase agreements (RP), commercial paper, and federal funds; depository instruments, which consist of MMDA; offshore instruments, such as Eurodollars; and proprietary and third-party money market mutual funds (MMMF).

Banks benefit by recapturing lost funds when customers consolidate their accounts, eliminating some required reserves and FDIC premiums, and deriving income from fees. Customers receive interest on these accounts and added convenience in cash management. Although account-holders authorize the sweeping, banks sweep funds without their active intervention. Pozin [2002] states that sweep account customers benefit from same day access to invested funds. Treasury Strategies [2002] lists liquidity as a customer incentive to hold sweep accounts.

A number of online product descriptions from December 2003 of banks that offer commercial DD sweep accounts support the view that banks allow customers to write checks against the swept balances (copies are available from the authors upon request). DD sweeps into overnight and offshore instruments, and even MMMF in some cases, are generally transferred to the linked investment account as the last transaction of the business day, and returned to DD as the first transaction of the next business day (e.g., Citizens Bank, Bank One, Bank of America, Fleet). This timing makes the entire balance available for transactions during the business day.

For sweeping into MMMF, banks redeem just enough shares to cover disbursements (Bank of New York, Key). DD sweeps into MMDA, which has a maximum number of allowable transfers per month, operate similarly to retail sweeps. Excess funds above the target balance are swept into MMDA at the close of each business day. The bank sweeps funds back into DD to pay checks presented and replenish the target balance (Wachovia, PNC Bank). Banks reserve the last transfer of the month for sweeping the entire balance back to DD, if necessary.

Although swept funds are not checkable in a legal or regulatory sense, competitive pressures compel banks to make swept funds as liquid as possible. As a result, the customer likely perceives the entire balance, swept and unswept funds, as providing the same transactions services. On swept funds in overnight and offshore accounts, Bank of America and Key state that their accounts offer "full liquidity". Fleet offers "immediate access to funds when you need them." With DD sweeps into MMMF, the Bank of New York offers "unlimited check writing." Key states that "you can write checks on your account at any time." Regarding MMDA, PNC Bank writes that, "You always have immediate access to investment balances. Monies are automatically swept from your MMDA to your checking account to cover disbursement transactions, avoiding costly overdrafts."

Data on Swept Funds

Our series for swept funds within commercial DD sweep programs into the four types of linked investment accounts makes use of data that we purchased from Treasury Strategies, Inc., a financial consulting firm in Chicago. They have conducted their Annual Commercial Banking Sweep Account Survey since 1991. The survey gathers data on October balances within each type of linked investment account. The data capture information on commercial DD sweep programs only, and do not include retail sweep programs.

Treasury Strategies [2003] characterizes their data as expansive, following not only the growth and trends for the overall market, but for individual respondents

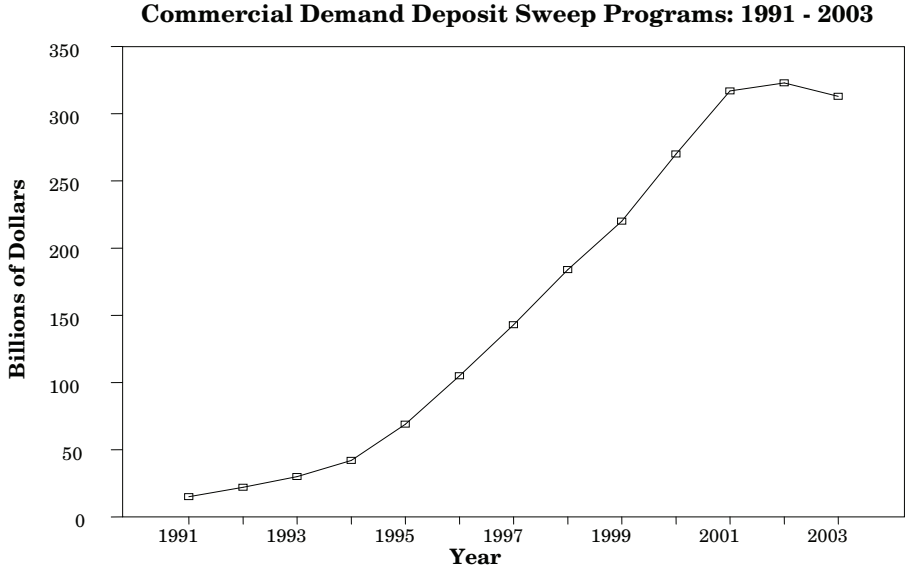
over the past decade as well. They state that the survey data for 2002 represent 51 percent of the US total sweep assets, or 77 percent of the US sweep assets for banks with more than $25 billion in bank assets. Participants comprise 38 percent of total US commercial bank deposits.

From their annual surveys, Treasury Strategies constructs a time series of estimated annual market totals of swept assets in US commercial demand deposit sweep accounts, from October 1991 to October 2003. Their construction seeks to establish and maintain consistent time series from the survey data.

The dataset contains annual aggregate swept balances in commercial DD sweep programs for each year from 1991-2003, based upon October of the given year. The data are plotted in Figure 1. Total swept funds have grown substantially over time, from $15 billion in October 1991 to $323 billion in October 2002. To put these levels in perspective, consider that reported DD for October 1991 and October 2002 equal $283 billion and $300 billion (based upon observations of not seasonally adjusted October data from FRED II). DD sweeps have leveled off from 2001-03, to around $300 billion.

The data also include annual series on the percentage allocation of DD sweeps into each of the four linked investment accounts. Treasury Strategies [2003] splits MMMF into those offered by the bank versus those serviced by outside vendors, but we do not make this distinction here. Overnight instruments and MMMF comprise the largest percentages of total DD sweeps, with MMDA the smallest.

FIGURE 1
Annual data on total swept funds in Commercial Demand Deposit Sweep Programs, 1991-2003 (October data)
Source: Treasury Strategies, Inc.



SWEEP-ADJUSTED MONETARY AGGREGATES

The Measures

Owing to the existence and growth of retail and commercial demand deposit sweep programs, M1A, M1, M2, M2M, and MZM do not contain all the relevant financial assets that capture the roles of money originally designed for each of these measures. Swept funds in retail sweep programs have the identical liquidity properties as DD and OCD. Swept funds in commercial DD sweep programs have nearly the same liquidity properties and from an operational standpoint, possibly even the same liquidity properties as DD. The transactions ability of swept funds makes a strong case for placing them alongside checkable deposits within the monetary aggregates.

However, the conventional monetary aggregates record swept funds in retail sweeps as part of MMDA and swept funds in DD sweeps as part of each of the linked investment accounts. Therefore, swept funds from DD sweeps into overnight and offshore instruments are not counted in any of the conventional aggregates. And swept funds in MMMF are counted only in MZM, because they make up part of institutional MMMF. In the sweep-adjusted aggregates we propose, we add swept funds in retail and commercial DD sweeps that are not contained within the existing components.

Table 1 reports these money measures. We include the M1RS and M1S aggregates of Dutkowsky, Cynamon, and Jones [2006]. M1RS accounts for the transactions ability of swept funds in retail sweep programs without considering commercial DD sweep programs. M1S focuses on the transactions ability of swept funds in both retail and commercial DD sweep programs.

TABLE 1
Definitions of Sweep-Adjusted Monetary Aggregates

M1AS = M1A + (Retail Sweeps From Demand Deposits) + (Total Demand Deposit Sweeps).
M1RS = M1 + (Total Retail Sweeps).
M1S = M1 + (Total Retail Sweeps) + (Total Demand Deposit Sweeps).
M2S = M2 + (Demand Deposit Sweeps into Overnight Instruments) + (Demand Deposit Sweeps into Offshore Instruments) + (Demand Deposit Sweeps into Money Market Mutual Funds).
M2MS = M2M + (Demand Deposit Sweeps into Overnight Instruments) + (Demand Deposit Sweeps into Offshore Instruments) + (Demand Deposit Sweeps into Money Market Mutual Funds).
MZMS = MZM + (Demand Deposit Sweeps into Overnight Instruments) + (Demand Deposit Sweeps into Offshore Instruments).

Notes to Table 1: Retail Sweeps denote total funds swept into money market deposit accounts (MMDA), within retail sweep programs. Demand Deposit (DD) sweeps into overnight instruments refer to total swept funds into overnight instruments as linked investment accounts, within Demand Deposit sweep programs. DD sweeps into offshore instruments and DD sweeps into money market mutual funds (MMMF) are defined in a corresponding fashion. Total Demand Deposit sweeps equal the sum of DD sweeps into overnight instruments, offshore instruments, MMMF, and MMDA.

Definitions of the conventional (non sweep-adjusted) monetary aggregates are as follows. M1A equals the sum of currency and coin held by the public, travelers checks, and demand deposits. M1 equals the sum of currency and coin held by the public, travelers checks, demand deposits, and other checkable deposits. M2 equals the sum of M1, savings deposits including MMDA, small denomination time deposits, and retail MMMF. M2M equals M2 minus small denomination time deposits. MZM equals M2M plus institution only MMMF.

The rest of the measures account for transactions ability of funds in sweep programs by adding swept funds in retail and commercial DD sweeps that are not already present within the corresponding conventional aggregate. To capture all funds associated with DD, M1AS adds to M1A swept funds in retail sweep programs from DD and total swept funds from commercial DD sweep programs. M2S and M2MS add to M2 and M2M swept funds from DD sweeps into overnight instruments, offshore instruments, and MMMF. MZMS adds to MZM swept funds from DD sweep programs into overnight and offshore instruments. The broader aggregates do not need to be adjusted for swept funds into MMDA, since M2, M2M, and MZM already contain these funds.

As far back as the 1970s the Federal Reserve considered the treatment within the monetary aggregates of overnight assets such as RP and Eurodollars. Simpson [1980] discusses whether funds invested in overnight RP and some overnight Eurodollar accounts mainly serve as liquid investments or transactions balances. Porter, Simpson, and Mauskopf [1979] argue, though, that it is difficult to substantiate claims that banks were able to convert DD late in the day into RP. They go on to assert that arrangements to automatically invest demand deposit balances into RP constituted only a small fraction of the total market. The Federal Reserve now includes total RP and Eurodollars (overnight and term) only in the non-M2 portion of M3.

More recently, Pozin [2002] writes that incorporation of automated sweeping software has led to substantial growth of swept funds beginning in the 1990s, including overnight and offshore instruments. Importantly, the data from Treasury Strategies enable us to separate the explicit, transactions-based swept funds into these instruments from the remaining balances.

Properties of the Sweep-Adjusted Money Measures

Table 2 reports the magnitude of underreporting due to commercial DD sweep programs. It presents the percentage deviation of the sweep-adjusted measure from its corresponding conventional aggregate. Formally, let M be a conventional monetary aggregate, S be the swept funds not within M, and $MS = M + S$ be the corresponding sweep-adjusted measure. Then at date t, the percentage deviation is given by $w_t = (MS_t/M_t) - 1 = S_t/M_t$. The deviation equals the ratio of the swept funds not included in the reported conventional aggregate to the aggregate itself.

We compute these statistics using the actual annual October data on swept funds in DD sweeps from Treasury Strategies. Swept funds within retail sweep programs from DD as well as total swept funds in retail sweeps consist of October data complied by the Board of Governors of the Federal Reserve System, Division of Monetary Affairs. We also use October values for 1991-2003 of not seasonally adjusted data for M1A, M1, M2, M2M, and MZM, formed with data taken from FRED II. We work with October observations to match the observational unit of the data from Treasury Strategies. Table 2 reports the percentage deviation of M1S relative to both M1 and M1RS.

The findings in Table 2 reveal underreporting in all the money measures, which has steadily grown over time. The distortion in narrow money due to sweep programs has become large. By 2002 the underreporting of M1A is over 60 percent. In the same

year the results for M1RS indicate a ratio of swept funds in retail sweeps to existing M1 of over 43 percent. The M1S measure in the same year indicates that M1 underreports narrow money in excess of 70 percent. M1S also carries a large deviation relative to M1RS, the measure adjusting M1 only for retail sweeping, approximately 17 percent in 2003.

TABLE 2
Percentage Deviation of Sweep-Adjusted Monetary Aggregate From Conventional Aggregate

Year	(M1AS,M1A)	(M1RS,M1)	(M1S,M1)	(M1S,M1RS)	(M2S,M2)	(M2MS,M2M)	(MZMS, MZM)
1991	2.71	0.00	1.72	1.72	0.44	0.64	0.46
1992	3.49	0.00	2.20	2.20	0.63	0.85	0.58
1993	4.25	0.00	2.70	2.70	0.85	1.10	0.76
1994	5.63	0.84	4.50	3.63	1.18	1.53	1.00
1995	8.97	3.62	9.71	5.88	1.87	2.51	1.58
1996	14.77	14.29	24.03	8.53	2.72	3.62	2.31
1997	24.32	23.65	37.18	10.94	3.48	4.61	2.89
1998	33.55	29.14	46.24	13.24	4.20	5.41	3.36
1999	41.05	33.29	53.38	15.08	4.68	5.90	3.29
2000	50.14	37.27	61.97	18.00	5.41	6.87	3.41
2001	54.43	39.05	66.50	19.74	5.77	7.10	3.15
2002	60.36	43.86	70.95	18.83	5.54	6.58	2.95
2003	59.47	44.21	68.73	17.00	4.95	5.72	2.99

Notes to Table 2: This table reports the percentage deviation of the sweep-adjusted monetary aggregate (MS) from the corresponding conventional money measure (M), for a given period, denoted in the heading of the table as (MS, M). The percentage deviation at date t equals $[(MS_t/M_t) - 1]$x100 percent. Data consist of annual observations for October. Definitions of the sweep-adjusted and conventional monetary aggregates appear in Table 1.

Table 2 reveals underreporting in the broader measures less dramatic but nontrivial. DD sweeps generate deviations in M2, M2M, and MZM during 1991-92 of less than 1 percent. But by 2001, the statistics point to distortion of more than 3 percent for MZM, close to 6 percent for M2, and over 7 percent for M2M. Due to the leveling off of swept funds in DD sweeps during 2001-03, the percentage deviations remain roughly the same as in 2000.

The underreporting due to sweep programs also has implications concerning money growth. Sweeps create a distinction between the growth in nominal money between the sweep-adjusted measure and the conventional aggregate. To examine this property more closely, let $\dot{X}_t = X_t / X_{t-1} - 1$ denote the growth in X_t. Given that $MS_t = M_t + S_t$, some algebraic rearrangement yields the relationship:

$$\dot{MS}_t - \dot{M}_t = \frac{w_{t-1}}{1 + w_{t-1}}(\dot{S}_t - \dot{M}_t). \tag{1}$$

During the 1990s through 2001, swept balances in the linked investment accounts have generally exhibited much higher growth than the existing money measures. Therefore equation (1) implies that the growth in the conventional monetary aggregate should understate the growth in the sweep-adjusted measure for this period. On the other hand, the leveling off of funds in DD sweeps during 2002-03 implies that

the growth in the conventional money measure should overstate the growth in the sweep-adjusted measure.

Table 3 reports October-to-October annual money growth for the conventional and sweep-adjusted money measures for 1991-2003. Particularly throughout the 1990s into 2000, the sweep-adjusted aggregate exhibits much higher money growth relative to the corresponding conventional aggregate. Indeed, several instances occur in which the conventional measure generates negative money growth, but the sweep-adjusted measure registers positive growth in the same period. In particular, M1S shows a positive upward trend in narrow money throughout the 1990s and 2000, as opposed to M1's reported decrease and subsequent leveling off. On the other hand, from 2002 to 2003 M2 and M2M report higher money growth than their sweep-adjusted counterparts. In 2003, the growth in M1 is over 130 basis points higher than the growth in M1S.

Table 3 also reports the mean absolute difference in annual money growth between the sweep-adjusted and conventional aggregate. Based upon this statistic, the growth in reported M1 deviates from the growth in narrow money by an average of 374 basis points relative to M1RS and 437 basis points for M1S. Even going from M1RS to M1S results in a mean absolute deviation of 166 basis points. The growth in reported M1A deviates from the growth in the measure with all swept funds from DD by an average of nearly 400 basis points. The growth in M2 and M2M differ in absolute terms from the growth in money based upon the sweep-adjusted money by an average of 52 and 67 basis points. The growth in MZM, which has the least amount of adjustment due to DD sweeps, deviates from the growth in the sweep-adjusted measure by an average of 33 basis points.

In order to utilize these sweep-adjusted aggregates within standard research or practice, we provide time series of monthly data for M1AS, M1RS, M1S, M2S, M2MS, and MZMS. These series are formed by adding estimated monthly time series of swept funds in retail and DD sweeps to monthly observations of not seasonally adjusted data for M1A, M1, M2, M2M, and MZM (taken from FRED II), according to the definitions in Table 1. Monthly estimates for funds in retail sweep programs from DD and OCD come from the Division of Monetary Affairs of the Federal Reserve System, and from Anderson [1997]. Our M1RS series matches exactly a series provided to us by the Division of Monetary Affairs, which they refer to as "Adjusted M1".

We construct monthly time series for DD sweeps within each of the four types of linked investment accounts by interpolating the annual October data. The procedure is the same as that used by Jones, Dutkowsky, and Elger [2005]. They apply a cubic spline interpolation method from de Boor [1978, 55-6] to the series from Treasury Strategies [2003].

This interpolation procedure has several favorable characteristics for our application. First, it preserves the existing information. The October data for 1991-2003 in the interpolated series equals the values from the Treasury Strategies dataset. Second, the sum of the interpolated disaggregated series equals the interpolated series of the sum. The sum of the monthly series for swept funds in each of the four linked investment accounts equals the interpolated series for total DD sweeps. Third, as new October observations become available, the interpolated series will only change in the

most recent two October-to-October intervals (the newest interval and the previous one). Thus, these series can be updated over time with minimal revision.

TABLE 3
Annual Growth of Monetary Aggregates (Percent)

Year/ Aggregate	M1A	M1AS	M1	M1RS	M1S	M2	M2S	M2M	M2MS	MZM	MZMS
1991	4.85	7.69	7.09	7.09	8.93	3.08	3.53	8.31	9.00	9.70	10.21
1992	13.96	14.82	14.51	14.51	15.05	1.96	2.16	11.84	12.07	12.90	13.04
1993	11.82	12.65	11.07	11.07	11.61	1.06	1.28	5.50	5.76	4.79	4.97
1994	5.69	7.09	3.25	4.11	5.05	0.79	1.12	0.93	1.36	0.71	0.94
1995	3.21	6.47	-1.33	1.39	3.59	3.54	4.24	-0.28	0.69	1.50	2.09
1996	3.47	8.98	-4.83	4.97	7.59	4.28	5.15	5.09	6.23	6.39	7.15
1997	2.12	10.62	-1.91	6.13	8.49	5.52	6.31	6.48	7.49	8.20	8.81
1998	2.58	10.20	1.80	6.32	8.53	8.11	8.86	11.04	11.89	13.47	13.98
1999	2.87	8.64	1.73	4.99	6.70	6.64	7.13	9.03	9.54	10.16	10.09
2000	-0.34	6.08	-0.17	2.82	5.42	6.18	6.92	5.26	6.23	8.24	8.37
2001	6.00	9.03	5.67	7.04	8.62	9.89	10.27	13.41	13.65	19.34	19.04
2002	1.67	5.58	3.25	6.82	6.00	6.96	6.73	10.85	10.31	8.53	8.31
2003	5.63	5.05	7.05	7.31	5.66	6.23	5.63	9.16	8.27	7.52	7.57
Mean		3.89		3.74	4.37[a]		0.52		0.67		0.33
Absolute Difference					1.66[b]						

Notes to Table 3: This table reports the annual (October-to-October) growth of the sweep-adjusted money measures and the conventional money measures. The Mean Absolute Difference is the sample mean of the absolute value of the difference in growth rates between the sweep-adjusted measure and the corresponding conventional measure. For the purpose of computing the Mean Absolute Deviations, conventional money measures corresponding to the sweep-adjusted aggregates are as follows: M1AS uses M1A, M1RS uses M1, M2S uses M2, M2MS uses M2M, and MZMS uses MZM. The reported Mean Absolute Differences for M1S with superscripts a and b refer to the statistics with M1 and M1RS as the conventional money measure. The sample size equals thirteen for all cases except for M1RS. Since retail sweep programs began in 1994, the sample size in this case equals ten. Definitions of the sweep-adjusted and conventional money measures appear in Table 1.

We provide monthly time series for the sweep-adjusted monetary aggregates on the website <www.sweepmeasures.com>. This website is patterned closely in format and style to the FRED II website from the Federal Reserve Bank of St. Louis. For periods prior to October 1991, the sweep-adjusted aggregate equals the corresponding conventional measure. M1RS deviates from M1 with the beginning of retail sweep programs in January 1994. We form the sweep-adjusted measures using not seasonally adjusted data for the conventional aggregates, so they are not seasonally adjusted. The website also includes a link to the X-12 procedure, for those who wish to work with seasonally adjusted data.

CONCLUSION

This study confronts the issue of the role of retail and commercial DD sweep programs in properly measuring money. This financial innovation results in highly liquid transactions balances appearing within instruments outside M1A, M1, M2, M2M, and MZM. As a result, these aggregates underreport the total money balances that they originally set out to record.

We offer a first step toward resolving this problem. This study introduces new monetary aggregates that maintain conceptual consistency with the aggregates prior to the accelerated growth in sweep programs. We provide estimated monthly time series for these sweep-adjusted monetary aggregates. Our preliminary investigation indicates that the distortion in gauging money due to sweeping has become substantial for M1A and M1, and non-trivial for M2, M2M, and MZM. Moreover, it may well continue to worsen over time due to the spread of this financial innovation.

The data limitations in this study point to the potential benefits resulting from the Federal Reserve collecting and reporting data on DD sweeps at regular intervals. In the meantime, though, our study puts forth a way to address this issue operationally. These data make it possible for practitioners and researchers who use money to replace the conventional aggregates with the more conceptually consistent measures presented here.

NOTES

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