in other checkable deposits from all other sources from the level of M-1B should pro-
duce adjusted figures more consistent with the 1981 target-growth ranges.7 Specifically,
to calculate the adjusted level of M-1A each month, the estimated fraction shifted from
demand deposits is multiplied by the monthly change in the level of non-seasonally adjusted
other checkable deposits, less the estimated trend growth in this component; this monthly
value is cumulated and added to observed M-1A after seasonal adjustment by the de-
mand-deposit seasonal factor. To calculate the adjusted M-1B level, the estimated fraction from non-M-1B sources is multi-
plicated by the monthly change in the level of non-seasonally adjusted other checkable deposits,
except for policy actions if allowance is made for savings deposit seasonal factor, subtracted
from observed M-1B.8

Although the nationwide authorization of NOW accounts on December 31, 1980, has had a marked impact on the observed
levels of the narrow M-1 aggregates, these money measures are still useful guidelines for policy actions if allowance is made for
the unusual deposit shifts. Adjusting ob-
served levels may be preferable to adjusting
M-1A~

TARGET-SETTING IMPLICATIONS

Either of the adjustment alternatives alleviates the distortion of the non-M-1B aggregates caused by introduction of nation-
wide NOW accounts. This makes it possible to compare incoming money data with the
Federal Open Market Committee targets for the year.

Another complication that arises in inter-
preting the money-supply statistics and money-
stock growth in a longer-run context is base
shifts. This is the "let-bygones-be-bygones" practice that bases the target-growth range
for the current period on the actual, rather than
expected, final value of the previous period.
This issue may not be relevant to day-to-
day Fed-watching, it is meaningful for long-
range monetary policy considerations.

The 1981 targets for the narrow aggregates indicate that the observed level of M-1A is
unrelated to NOW accounts and can be
illustrated by reviewing the target ranges for 1980 and 1981. The upper limit of the target
growth for M-1B was 6% percent for 1980
and is 6 percent for 1981. The maximum
expansion desirable for that aggregate over
the two years is 6.44 percent, implying a

1. Other checkable deposits include ATS (auto-

motive transfer serv ice) accounts and NOW

balances at Federal Reserve Banks and in non-

banking institutions. Instructions, credit union share

draft balances, and demand deposits at mutual

savings banks.

NOTE: Other symbols are defined in fn. 5.

maximum 1981:IVQ level of $434.4 billion.

However, the 1981 M-1B target is based on the
actual (above-target) $412.5-billion level of M-1B in 1980:IVQ, implying a maxi-
mum 1981:IVQ level of $437.3 billion and a
growth rate over two years of 6.82 percent.
The figures used in this illustration obviously
would be different if the calculations were
made from the midpoint of the announced
money-growth ranges.

A second form of base drift has been in-
troduced through inclusion of a portion of
other checkable deposits in the M-1B base.
A portion of other checkables repre-
sents funds shifted from other deposits,

NOTE: Other symbols are defined in fn. 5.

which with which they can be compared
are already established for the entire year.

Target-setting implications

7. In notation form,

\[
M_{1A}(t) = \left(1 - P_i\right) \left(M_{1A}(t - 1) + DSF_t\right)
\]

where

\(M_{1A}(t)\) = the adjusted level of M-1A (M-1B) at month (t),

\(P_i\) = the fraction of increase in other checkable deposits, assumed to seem from de-

mand deposits at month (t),

\(DSF_t\) = the seasonal factor for demand deposits at month (t).,

\(M_{1A}(t - 1)\) = the observed level of M-1A (M-1B) at month (t - 1),

\(M_{1A}(t - 2)\) = the fraction of increase in other checkable deposits, assumed to seem from de-

mand deposits at month (t - 1),

\(P_i\) = the fraction of increase in other checkable deposits at month (t - 1),

\(\text{Correct as shown}

8. An example may be useful. In January 1981, the observed level of M-1A was $385.6 billion (373.3 + 0.775 [16.2 + 1.091]). If the remaining 22.5 percent of the increase stemmed from non-
M-1B sources and the observed level of M-1B was $416.0 billion, then adjusted M-1A was $412.3 billion (416.0 + [0.225 (16.2) + 0.995]). In February, if M-1A was $366.5 billion, and 72.5
percent of the $8.6 billion non-trend growth in other checkables came from demand deposits,
then adjusted M-1A would be $342.9 billion (340.9 + [0.225 (16.2) + 0.725 (8.6)]) = 0.989.

Address correction requested

Correct as shown

Remove from mailing list

Please send mailing label to the Research Department,
Federal Reserve Bank of Cleveland, P.O. Box 6387, Cleveland, OH 44101.
The NOW shifts. There are two assets. See Kenneth J. Kopecky, "The Relationship between Reserve Ratios and the Monetary Aggregate M-1A and M-1B; or (2) M-1A target ranges: possible ways to relate current money-supply figures with the money-stock figures with the attractive broader or narrower percent for M-1A and 3% for M-1B, making the targets narrower aggregates. However, the Federal Reserve does not set targets for this variable, making it regulations. Other analysts have turned to narrower aggregates such as the monetary base, the 1980 target ranges, reflecting System policy to slow the construction of the restated target ranges, then even those restated annual ranges may lead to misinterpretation of short-run money-stock growth relative to recent experience.

Moreover, neither the rate of growth of NOW accounts nor the source of the funds can be expected to be steady over the year. Growth of other checkable deposits is likely to slow after the initial adjustment to the nationwide introduction of NOW accounts. The unexpectedly large increase in the first four months of the year, much as was expected. In February the lower end of the M-1B target range for January 1981 was $414.9 billion; non-M-1B balances, then adding this portion, after seasonal adjustment, to targets would make the appropriate lower end of the M-1B target range $416.8 billion. In February the lower boundary of the M-1B long-run target range was $416.1 billion, non-seasonally adjusted other checkable growths, the ratio of the increase in other checkable deposits from non-M-1B sources and the increase in other checkables in excess of trend, if the proportion of the increase in other checkables stemming from demand deposits over the M-1B range to average 33 percent, and the expected increase in other checkables over the year is that assumed in the adjusted Hamdi money-supply figure, all M-1B target ranges should converge to the endpoints of the 6 percent to 8 percent range. Adjusting the Money-Supply Figures

A second method for evaluating current money-stock levels for the estimated impact of other checks. Actual and Adjusted M-1B Targets and Ranges

<table>
<thead>
<tr>
<th>Year</th>
<th>Actual M-1B</th>
<th>Adjusted M-1B</th>
<th>Original target</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>$390 billion</td>
<td>$410 billion</td>
<td>$420 billion</td>
</tr>
<tr>
<td>1981</td>
<td>$420 billion</td>
<td>$480 billion</td>
<td>$500 billion</td>
</tr>
<tr>
<td>1982</td>
<td>$500 billion</td>
<td>$600 billion</td>
<td>$650 billion</td>
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The restatement of the targets depends on forecasts and tentative assumptions about the possibility of NOW accounts. Recent information based on survey and sample sources, although necessarily qualitative, suggests that a somewhat greater portion of incoming NOW account funds in early 1981 represents transfers from de-
The NOW shifts. There are two gates under Reserves and Federal Funds Rate Op-%
that contain a greater proportion of reservable
component, the monetary base
justed on the basis of incom-
control generally is strengthened with aggregates
with the path of money targets as
sistent with the actual path of
December 1978).
fect incoming information
about shifts of funds into
portions without adjusting for
NOW-account-related sh ifts in
account- and other checkable deposits. Consequently, the actu-
NOW-account-related shifts in
savings and other asset balances to
serves. Based on pre-1981 experience with NOW
accounts, the Federal Reserve believes that a small propor-
tion of existing savings and other asset balances to
NOW accounts.2
The restatement of the targets depends on forecasts and tentative assumptions
about the popularity of NOW accounts. Recent information based on survey and
sample sources, although necessarily quali-
tative, suggests that a somewhat greater propor-
tion of incoming NOW account funds in early 1981 represents transfers from de-
regulation account, perhaps 75 percent to 80 percent.4
If that estimate is more reliable than the 67 percent assumption used in the
construction of the restated 1981 target ranges, then even those restated annual
ranges may lead to misinterpretation of short-run money-stock growth relative to
reference aggregates. Moreover, neither the rate of growth
of NOW accounts nor the sources of funds can be expected to be
steady over the year. Growth of other checkable deposits is likely to slow
after the initial adjustment to the nationwide intro-
duction of NOW accounts. The unexpectedly large in-
crease in the first months of the year reflected the growth of 420
mone-y-market funds and savings and small-denomination time deposits at all deposi-
tory institutions; and 6 percent to 9 percent for M-3, the aggregate that
consists of M-2 plus large-denomination time deposits and term RTs at all deposi-
tory institutions. The 1981 target-growth ranges for both of the M-1
measures represent a 5 percent point reduction from the 1980 target ranges, reflect-
ing System policy to slow the growth of the money stock gradually over time. Ranges for M-2 and M-3 remain unchanged from 1980.

The new money-growth targets provide a basis for inter-
months of the year front-
loads the growth of other checkable deposits. The monthly target-range
levels implied by the annual target ranges do not reflect this front-end loading. Without an adjustment to the actual, target
levels for the entire year, much as was expected. In
January 1981, the lower
boundary of the M-1 long-run target range was $414.9 billion; non-
seasonally adjusted M-1B balances, then adding the increase in other checkable deposits from non-M-1 sources and the increase in other checkables in excess of trend. If the propor-
tion of the increase in other check-
ables stemming from demand deposits over the course of 1981 were to average 33 percent, and the expected in-
crease in other checkable deposits over the year is that assumed in the adjusted
Monetary Policy Objectives for 1981.

Adjusting the Money-Supply Figures

Adjusting for the introduction of NOW accounts.

Actual and Adjusted M-1B Targets and Ranges

<table>
<thead>
<tr>
<th>Year</th>
<th>Original</th>
<th>Adjusted</th>
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</thead>
<tbody>
<tr>
<td>1980</td>
<td>418.6</td>
<td>416.1</td>
</tr>
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<td>418.6</td>
<td>416.1</td>
</tr>
</tbody>
</table>

5. This may be done by using the formula below:

\[
R_{M-1B,t} = R_{M-1B,t} - \left( 5.2 \times SSF_{t} \right)
\]

where

- \( R_{M-1B,t} \) = the restated M-1B target range at month (t),
- \( R_{M-1B,0} \) = the original M-1B target range at month (0),
- \( SSF_{t} \) = the fraction of increase in other checkable deposits from non-M-1B sources at month (t),
- \( \delta \) = the maximum increase in non-

seasonally adjusted other checkable deposits, as estimated for the month (t), in calendar year (1981)

6. Some difficulty arises in seasonally adjusting other checkable deposits, because those funds that stay in the M-1A aggregate or subtract the increase

7. The Federal Reserve is required by the Full Employ-
ment and Balanced Growth Act of 1978. Presented by Paul
Volcker, Chairman, Federal Reserve Board, in Monetary Policy Objectives for 1981.

8. Actual M-1B

<table>
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The Monthly Target-Range Levels for the Month

- \( R_{M-1B,t} \) = the restated M-1B target range at month (t),
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The NOW shifts. There are two operating Targets,” Staff Economic Studies 100 assets. See Kenneth J. Kopecky, “The Relationship component, the monetary base just adjusted on the basis of incoming information about shifts of funds into M-1A and M-1B; or (2) M-1A and currency; 3Y2 percent to 6 percent for M-1B, which includes M-1A and other checkable deposits at banks and thrift institutions; 6 percent to 9 percent for M-2, which includes M-1 plus overnight RP’s and Euro-dollar deposits, money-market fund shares and savings and small-denomination time deposits at all depository institutions; and 6 percent to 9 percent for M-3, the aggregate that consists of M-2 plus large-denomination time deposits and term RP’s at all depository institutions.

The 1981 target-growth ranges of 3 percent to 5 percent for M-1A and M-1B, 6 percent to 9 percent for M-2, and 27.5 percent of the trend-adjusted increase in other checkable deposits over the year is that assumed in the adjusted Humfrey-Hawkins target ranges, then the adjustment would be made. The monthly increase in the lower end of the M-1B target range for January was $416.1 billion. In February the lower boundary of the M-1B long-run target range was $416.1 billion, non-seasonally adjusted other checkables grew 7.9 billion, and trend growth amounted to $700 million. If 27.5 percent of the trend-adjusted increase came from non-M-1B balances, then adding the January and February portions, after correcting for the appropriate lower end of the M-1B target range $422.1 billion. Target-growth levels are adjusted for past months as data become available. Reated target levels for the remainder of the year can be estimated from assumptions about the timing and size of the increase in other checkable deposits from non-M-1B sources and the increase in other checkables in excess of trend. If the proportion of the increase in other checkables stemming from demand deposits over the year is that assumed in the adjusted Humfrey-Hawkins target ranges, then the adjusted M-1B target-range levels should converge to the endpoints of the 6 percent to 8 percent range.

### Adjusting the Money-Supply Figures

A second method for evaluating current money-stock data is to adjust actual money-stock levels for the estimated impact of other checkables. The trend-adjusted levels use those adjusted levels to gauge growth relative to the 3 percent to 5 percent and 27.5 percent of the trend-adjusted increase in other checkable deposits over the year is that assumed in the adjusted Humfrey-Hawkins target ranges, then the adjustment would be made. The monthly increase in the lower end of the M-1B target range for January was $416.1 billion. In February the lower boundary of the M-1B long-run target range was $416.1 billion, non-seasonally adjusted other checkables grew 7.9 billion, and trend growth amounted to $700 million. If 27.5 percent of the trend-adjusted increase came from non-M-1B balances, then adding the January and February portions, after correcting for the appropriate lower end of the M-1B target range $422.1 billion. Target-growth levels are adjusted for past months as data become available. Reated target levels for the remainder of the year can be estimated from assumptions about the timing and size of the increase in other checkable deposits from non-M-1B sources and the increase in other checkables in excess of trend. If the proportion of the increase in other checkables stemming from demand deposits over the year is that assumed in the adjusted Humfrey-Hawkins target ranges, then the adjusted M-1B target-range levels should converge to the endpoints of the 6 percent to 8 percent range.

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Economic Commentary
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May 4, 1981

Interpreting the Ms after the NOWs
by Theresa Gwazdauskas

The nationwide introduction of negoti-
table order of withdrawal (NOW) accounts
on December 31, 1980, has led to large
shifts of funds from other assets into these
interest-bearing transaction accounts. The
deposit shifts distort standard money-supply figures compiled by the Federal Reserve
System, adding to the difficulty of inter-
preting money growth. The bulk of the $3.5 billion increase in other checkable
deposits in the first four months of the year
appears to have been transferred from regu-
lar transactions accounts, thus tending to de-
press growth of the narrow definition of
money, M-1.3 NOW accounts also have
boosted M-1B expansion, because the re-
maining portion of the increase in other
checkable deposits originated in funds
previously held in savings accounts and other
instruments not included in this aggregate.
As a result, growth of these two mon-
ey aggregates has deviated signifi-
cantly from the normal patterns. Moreover,
the money-supply measures are not directly
comparable with figures reported for periods
prior to the introduction of NOW accounts.
Distortions in the aggregate figures in-
frequently aggregate pose problems for the Fed-
eral Reserve in setting and achieving money-
growth targets. These distortions also pose
problems for monetary-policy observers and
market participants whose decisions are in-
flected by expectations about short-run
System operations in the money market.
This Economic Commentary examines
possible methods to help gauge and evaluate
the NOW-account phenomenon and its
impact on the money-supply statistics. It is
important to note, however, that the intro-
duction of NOW accounts, and the large
shifts of funds that have resulted, has had
a sharp impact on the statistics. Although
adjustments are necessary, they are bound to
be less than fully satisfactory.

Interpreting the Money-Supply Figures
Because the narrower M-1 aggregates are
distorted more than either M-2 or M-3, some
analysts have turned to the broader aggre-
gates for policy insight. However, data for
these aggregates are only available on a monthly basis, and it is difficult to gauge
policy intentions in the short term.

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in other checkables shifted from all other sources from the level of M-1B should pro-
duce adjusted figures more consistent with the 1981 target-growth ranges.2 Specifically,
to calculate the adjusted level of M-1A each month, the estimated fraction shifted from
demand deposits is multiplied by the monthly change in the level of non-seasonally adjusted
other checkable deposits, less the estimated growth trend in this component; this monthly
value is cumulated and added to observed M-1A after seasonal adjustment by the de-
mand-deposit seasonal factor. To calculate the adjusted M-1B level, the estimated fraction
multiplied by the monthly change in the level of non-seasonally adjusted other checkable
deposits, in excess of trend growth, this monthly value is cumulated and, after sea-
sonal adjustment by the commercial-bank savings deposit seasonal factor, subtracted from
observed M-1B.

Although the nationwide authorization of NOW accounts on December 31, 1980, has had a marked impact on the observed levels of the narrow M-1 aggregates, these money
measures are still useful guidelines for interpreting growth-rate targets in a longer-
term framework and have tended to receive less emphasis than in the past. However, an understanding of the sources of base drift is useful for interpreting growth-rate targets in a longer-
range context.

Target-Setting Implications

Either of the adjustment alternatives alleviates the distortion of the current periods
aggregates caused by introduction of nation-
wide NOW accounts. This makes it possible
to compare incoming money data with the
Federal Open Market Committee targets for the
year.

Another complication that arises in inter-
preting Federal Reserve money policy and money
stock growth in a longer-term context is base
shift. This is the "let-bygones-be-bygones"
practice that bases the target-growth range for the current period on the actual, rather than
targeted, final value of the previous period. While this issue may not be relevant to day-
today Fed-watching, it is meaningful for longer-
run monetary policy considerations.

The 1981 targets for the narrow aggregates integrated in the M-1A (M-1B) definition,
which is unrelated to NOW accounts and can be
illustrated by reviewing the target ranges for 1980 and 1981. The upper limit of the growth target for M-1B was 6 percent for 1980 and is 6 percent for 1981. The maximum expansion desirable for that aggregate over the two years is 6.4 percent, implying a

7. In notation form:

M-1A = \left[ \frac{M-1A}{1-P} \right] \cdot \left( \frac{DSF}{1-P} \right)

M-1B = \left[ \frac{M-1B}{1-P} \right] \cdot \left( \frac{DSF}{1-P} \right)

where:

\text{M-1A}\text{(M-1B)} = \text{the observed level of M-1A(M-1B) at month (i)}

\text{M-1A(M-1B)} = \text{the adjusted level of M-1A(M-1B) at month (i)}

\text{1-P} = \text{the fraction of increase in other checkable deposits, assumed to stem from de-

mand deposits at month (i)}

\text{DSF} = \text{the seasonal factor for demand deposits at month (i)}

\text{Other checkable deposits at month (i)}

NOTE: Other symbols are defined in fn. 5.

maximum 1981:IVQ level of $434.4 billion. However, the 1981 M-1 target is based on the
actual (above-target) $412.5 billion level of M-1B in 1980:IVQ, implying a maximum
1981:IVQ level of $437.3 billion and a growth rate over two years of 6.82 percent. The figures used in this illustration obviously would be different if the calculations were made from the midpoint of the announced money-growth ranges.

A second form of base drift has been in-
troduced through inclusion of a portion of
other checkable deposits in the M-1B base.
A portion of other checkables repre-
sents funds shifted from aggregates previ-
ously included in M-1B. One reason for above-target growth of M-1B in 1980 was that other checkable deposits increased by a significantly larger amount than had been anticipated when 1980 targets were set. Because of the impending introduction of NOW accounts, banks began to market ATS accounts aggressively in the latter part of the year, causing a greater diversion of funds into other checkable M-1B accounts than had been expected. If approximately one-third of the unforeseen growth of these accounts represents portfolio shifts from non-M-1B assets, then the 1980:IVQ mea-
sured level of M-1B was distorted in the same way that currently observed M-1B is distorted. Removing this distortion from the 1980:IVQ level of M-1B suggests that actual M-1B growth targets are constructed might as consistently be set at $410.6 billion rather than $412.5 billion. This second form of base drift, like the more familiar form, is not relevant to short-
term evaluation of money growth relative to annual targets. However, an understanding of the sources of base drift is useful for interpreting growth-rate targets in a longer-
range context.

Conclusion

Both policymakers and market partici-
pants are dependent on the accuracy of
money-stock data to reflect current eco-
nomic conditions. Although the introduction of nationwide NOW accounts has greatly
complicated the interpretation of the money-
supply statistics and growth ranges, the dis-
torsion is likely to diminish as the introduc-
tory phase passes. Allowance for these changes is necessary and appropriate for interpreting money-supply statistics and growth ranges.

The nationwide introduction of nego-
tiable order of withdrawal (NOW) accounts on December 31, 1980, has had a significant
impact on the statistics. Although the introduction of nationwide NOW accounts has greatly
boosted M-1B expansion, because the re-
maining portion of the increase in other
checkable deposits originated in funds previously held in savings accounts and other
instruments included in this aggregate. As a result, growth of these other checkable
deposits has deviated significantly from the normal patterns. Moreover, the money-supply measures are not directly comparable with figures reported for periods prior to the introduction of NOW accounts. Distortions in the money-supply aggregates pose problems for the Fed-
eral Reserve in setting and achieving money-
growth targets. These distortions also pose problems for monetary-policy observers
and market participants whose decisions are in-
fluenced by expectations about short-run
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Economic Commentary

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