## The Central Bank Balance Sheet



## FEDERAL RESERVE statistical release

## H.4.1 <br> Factors Affecting Reserve Balances of Depository Institutions and Condition Statement of Federal Reserve Banks

## 8. Consolidated Statement of Conditiorserve Banks

| Assets, liabilities, and capital | Wednesday May 28, 2014 |
| :---: | :---: |
| Assets |  |
| Gold certificate account | 11,037 |
| Special drawing rights certificate account | 5,200 |
| Coin | 1,864 |
| Securities, unamortized premiums and discounts, repurchase agreements, and loans | 4,254,380 |
| Securities held outright ${ }^{1}$ | 4,062,788 |
| U.S. Treasury securities | 2,370,724 |
| Bills ${ }^{2}$ | 0 |
| Notes and bonds, nominal ${ }^{2}$ | 2,259,446 |
| Notes and bonds, inflation-indexed ${ }^{2}$ | 96,068 |
| Inflation compensation ${ }^{3}$ | 15,210 |
| Federal agency debt securities ${ }^{2}$ | 44,082 |
| Mortgage-backed securities ${ }^{4}$ | 1,647,982 |
| Unamortized premiums on securities held outright ${ }^{5}$ | 209,412 |
| Unamortized discounts on securities held outright ${ }^{5}$ | -17,958 |
| Repurchase agreements ${ }^{6}$ | 0 |
| Loans | 137 |
| Net portfolio holdings of Maiden Lane LLC ${ }^{7}$ | 1,656 |
| Net portfolio holdings of Maiden Lane II LLC ${ }^{8}$ | 63 |
| Net portfolio holdings of Maiden Lane III LLC ${ }^{9}$ | 22 |
| Net portfolio holdings of TALF LLC ${ }^{10}$ | 91 |
| Items in process of collection | 129 |
| Bank premises | 2,271 |
| Central bank liquidity swaps ${ }^{11}$ | 174 |
| Foreign currency denominated assets ${ }^{12}$ | 23,954 |
| Other assets ${ }^{13}$ | 21,813 |
| Total assets | 4,322,654 |

Millions of dollars

| Assets, liabilities, and capital | Wednesday <br> May 28,2014 |
| :--- | ---: |
| Liabilities |  |
| Federal Reserve notes, net of F.R. Bank holdings | $1,237,978$ |
| Reverse repurchase agreements ${ }^{14}$ | 278,205 |
| Deposits | $2,742,018$ |
| Term deposits held by depository institutions | 27,575 |
| Other deposits held by depository institutions | $2,677,298$ |
| U.S. Treasury, General Account | 22,950 |
| Foreign official | 7,788 |
| Other | 6,406 |
| Deferred availability cash items | 951 |
| Other liabilities and accrued dividends ${ }^{16}$ | 7,162 |
|  |  |
| Total liabilities | $4,266,313$ |
| Capital accounts | 28,171 |
| Capital paid in | 28,171 |
| Surplus | 0 |
| Other capital accounts |  |
|  |  |
| Total capital | 56,342 |
| Note: Components may not sum to totals because of rounding |  |

## Commercial Banks Balance Sheet (in \%)

Assets (Uses of Funds)*

| Reserves and Cash Items | 1 |
| :--- | ---: |
| Securities |  |
| U.S. government and agency | 15 |
| State and local government and |  |
| other securities | 7 |
| Loans | 18 |
| Commercial and industrial | 35 |
| Real estate | 6 |
| Consumer | 11 |
| Interbank | 2 |
| Other | 5 |
|  | 100 |

*In order of decreasing liquidity.
Source: Federal Reserve Bulletin.

Liabilities (Sources of Funds)

| Checkable deposits <br> Nontransaction deposits <br> Small-denomination time deposits <br> $(<\$ 100,000)+$ savings deposits <br> Large-denomination time deposits | 10 48 11 |
| :---: | :---: |
| Borrowings | 23 |
| Bank capital | 8 |
| Total | 100 |

## Non-Banks (Public) Balance Sheet

Assets (Uses of Funds)*

MONEY
CASH (Notes + Coins) DEPOSITS

Other Assets

Liabilities (Sources of Funds)

LOANS

## (1) OPEN MARKET OPERATION

Note: Monetary Base $(H)=C U+R$
Purchase of securities (=gov. bonds) from commercial banks


Decrease of discount interest rate (on loans to commercial banks)

Commercial Banks

| Assets |
| :--- |
| Securities |
| Reserves |
| $\mathbf{+ \$ 1 0 0}$ |

Loans
Liabilities
Deposits
Discount
Ioan + \$100
Result: H $\uparrow \$ 100$
Conclusion: Fed can control $H$
Next step: H determines Ms

## (2) DISCOUNT LOANS <br> Note: Monetary Base (H) = CU + R



Result: H $\uparrow \$ 100$
Conclusion: Fed has better ability to control $H$

Next step: H determines Ms (Money Creations)

## (3) REQUIRED RESERVE RATIO ${ }_{(\theta=10 \%)}$

| Assets | First <br> National Bank <br> Liabilities |  |
| :--- | :--- | :--- |
| Reserves | $+\$ 100$ | Deposits |
| Securities | $-\$ 100$ |  |
| Loans |  |  |


|  | Bank A |  |
| :--- | :---: | :---: |
| Assets | Liabilities |  |
| Reserves | Deposits |  |
| Loans |  |  |

Bank B
Assets Liabilities
Reserves $\quad$ Deposits

Loans

## (3) REQUIRED RESERVE RATIO $(\theta=10 \%)$

| Assets | First National Bank Liabilities |  |  |
| :---: | :---: | :---: | :---: |
| Reserves | XXDOX | Deposits |  |
| Securities | - \$100 |  |  |
| Loans | + \$100 |  |  |
| Bank A |  |  |  |
| Assets |  | Liabilities | - |
| Reserves | + \$100 | Deposits | +\$100 |
| Loans |  |  |  |

Bank B
Assets
Liabilities
Reserves
Deposits
Loans

## (3) REQUIRED RESERVE RATIO $(\theta=10 \%)$

|  | First National Bank |  |  |
| :---: | :---: | :---: | :---: |
| Assets | Liabilities |  |  |
| Reserves | XXX0X | Deposits |  |
| Securities | - \$100 |  |  |
| Loans | + \$100 |  |  |
| Assets | Bank A |  |  |
| Reserves | XXXOX + \$ 10 | Deposits | +\$100 |
| Loans |  |  |  |
| Assets | Bank B |  |  |
| Reserves | + \$ 90 | Deposits | +\$ 90 |
| Loans |  |  |  |

## (3) REQUIRED RESERVE RATIO $(\theta=10 \%)$

| Assets | First National Bank <br> Liabilities |  |  |
| :---: | :---: | :---: | :---: |
| Reserves | XXDOX | Deposits |  |
| Securities | - \$100 |  |  |
| Loans | + \$100 |  |  |
| Assets | Bank A |  |  |
| Reserves | XXXO + \$ 10 | Deposits | +\$100 |
| Loans | + \$ 90 | - |  |
| Assets |  | Bank B |  |
| Reserves | +XSX90X + \$ 9 | Deposits | +\$ 90 |
| Loans | + \$ 81 | Deposit |  |

## Deposit Creation

Creation of Deposits (assuming 10\% reserve requirement and a $\$ 100$ increase in reserves)

| Bank | Increase in <br> Deposits (\$) | Increase in <br> Loans (\$) | Increase in <br> Reserves (\$) |
| :--- | :---: | :---: | :---: |
| First National | 0.00 | 100.00 | 0.00 |
| A | 100.00 | 90.00 | 10.00 |
| B | 90.00 | 81.00 | 9.00 |
| C | 81.00 | 72.90 | 8.10 |
| D | 72.90 | 65.61 | 7.29 |
| E | 65.61 | 59.05 | 6.56 |
| F | 59.05 | 53.14 | 5.91 |
| $\cdot$ | $\cdot$ | $\cdot$ | . |
| • | $\cdot$ | $\cdot$ | $\cdot$ |
| Total for all banks |  | 1000.00 | 1000.00 |

## Banking System As a Whole

Commercial Banks
Assets
Liabilities
Securities- \$100
Deposits + \$1000
Reserves + \$100
Loans + \$1000

Critique of a Simple Model
Deposit creation stops if

1. Proceeds from loan kept in cash
2. Bank holds excess reserves

## Money Multiplier (H => Ms)

Equations:

$$
\begin{array}{ll}
\text { Monetary base }(\mathrm{H})= & \text { Currency }(\mathrm{Cu})+\text { Reserves }(\mathrm{R}) \\
\text { Money }(\mathrm{Ms})= & \text { Currency }(\mathrm{Cu})+\text { Deposits }(\mathrm{D}) \\
\text { Reserves }(\mathrm{R}) / \text { Deposits }(\mathrm{D})=\theta \\
\text { Currency }(\mathrm{Cu}) / \text { Money }(\mathrm{Ms})=c
\end{array}
$$

Monetary base $(\mathrm{H})=\quad$ Currency $(\mathrm{Cu})+\operatorname{Reserves}(\mathrm{R})$
$=\mathrm{cMs} \quad+\theta \mathrm{D}$
$=\mathrm{cMs}+\theta(1-\mathrm{c}) \mathrm{Ms}$
$=[\mathrm{c}+\theta(1-\mathrm{c})] \mathrm{Ms}$
Money (Ms) = Monetary base (H) * Money Multiplier

$$
\text { Ms } \quad=H^{*} 1 /[c+\theta(1-c)]
$$



