

incurred and imputed costs.<sup>1 2</sup> In addition, the Reserve Banks impute a priced services return on capital (profit).<sup>3</sup> The imputed costs and imputed profit are collectively referred to as the private-sector adjustment factor (PSAF). Just as the PSAF is used to impute costs that would have been incurred and profits that would have been earned had the services been provided by a private business firm rather than the central bank, the Reserve Banks impute income that would have been earned on the investment of clearing balances that customers hold with the Reserve Banks as if those balances had been held with a correspondent bank. This imputed income, less the costs associated with the clearing balances, is referred to as the net income on clearing balances (NICB).

Calculating the PSAF includes projecting the level of priced-services assets, determining the financing mix used to finance the assets, and the rates used to impute financing costs.<sup>4</sup> Much of the data for the PSAF are developed from the "bank holding company (BHC) model," a model that contains consolidated financial data for the nation's fifty largest (based on deposit balances) BHCs. As part of this process, a core amount of clearing balances is considered stable and available to finance long-term assets.

The method for deriving the NICB is reviewed periodically to ensure that it is still appropriate in light of changes that may have occurred in Reserve Bank priced services activities, accounting standards, finance theory, regulatory practices, and banking activity.<sup>5</sup> The

current method for imputing investment income assumes that the Reserve Banks invest all clearing balances, net of imputed reserve requirements and the amount used to fund priced-services assets, in three-month Treasury bills. The imputed income on the Treasury bill investments net of the actual earnings credits granted to clearing balance holders based on the federal funds rate is considered income for priced-services activities. The net income associated with clearing balances is one component in pricing decisions and in evaluating cost recovery.

#### A. Clearing Balances

Depository institutions may hold both reserve and clearing balances with the Federal Reserve Banks.<sup>6 7</sup> Reserve balances are held pursuant to a regulatory requirement and are not a result of an institution's use of priced services.<sup>8</sup> Clearing balances are held to settle transactions arising from use of Federal Reserve priced services for institutions that either do not hold reserve balances or find their reserve balances inadequate to settle their transactions.<sup>9</sup> At year-end 2002, depository institutions held more than \$10 billion in clearing balances at Reserve Banks.

Clearing balances held at Reserve Banks are similar to compensating balances held by respondent banks at correspondent banks. Respondent banks hold compensating balances to support the settlement of payments, and to pay fees assessed by the correspondent bank. Reserve Banks and some correspondent banks establish a contracted balance level that the account holder must maintain on average over a specified period. Both Reserve Banks and correspondent banks provide compensation in the form of earnings credits to the holders of clearing or compensating balances. Historically, earnings credits provided by the Reserve Banks have been based on the federal funds rate. In May 2003, the Board requested comment on whether it should consider modifications to the Reserve Banks' earnings credit rate in the future, and, if so, what factors should be considered

in the evaluation.<sup>10</sup> One commenter stated that the Federal Reserve should evaluate the appropriateness of its earnings credit rate as part of its overall pricing of services, including a review of private sector practice. The Board recently changed the earnings credit rate to be based on a discounted three-month Treasury bill rate, which is now more consistent with market practice.<sup>11</sup>

#### B. Imputed Investment of Clearing Balances

The Reserve Banks impute income on the clearing balance investments rather than using the actual results from monetary policy investment activities.<sup>12</sup> The imputation of clearing balance income is analogous to assuming that the priced-services enterprise, which is essentially a "monoline" bank offering only payment services, also includes a treasury function. Income is currently imputed based on the assumption that all available clearing balances are invested in three-month Treasury bills.<sup>13 14</sup>

Historically, most of the net income on clearing balances was the result of imputed earnings on excess balances held, which have no associated cost. The practice of imputing clearing balance investments in three-month Treasury bills while paying earnings credits at the federal funds rate resulted in an average interest rate spread of negative 18 basis points over the past twenty years with a standard deviation over the same period of 23 basis points and ranged from 23 to -58 basis points.<sup>15</sup>

<sup>10</sup> 68 FR 32513, May 30, 2003.

<sup>11</sup> More specifically, the earnings credit rate will be 90 percent of a rolling 13-week average of the annualized coupon equivalent yield of three-month Treasury bills in the secondary market. See companion notice, Federal Reserve Bank Services, elsewhere in today's **Federal Register**.

<sup>12</sup> Decisions about monetary policy investment transactions are not motivated by profit objectives; therefore, the actual investment results are not applicable to priced-service activities.

<sup>13</sup> Clearing balances needed to meet an imputed reserve requirement (10 percent of clearing balances) and to fund assets used in the production of priced services (\$407 million in 2004) are not available for investment.

<sup>14</sup> The Board chose three-month Treasury bills as the imputed investment vehicle in 1982 because, at that time, the yield was considered to approximate the return that would be realized had clearing balance funds been held and invested by a correspondent bank. In addition to providing a short-term earnings rate consistent with creating a matched asset and liability structure with the short-term liabilities, the three-month Treasury bill yield data are easily verified by outside observers with publicly available data.

<sup>15</sup> The standard deviation measures the variance around the average and indicates the level of volatility of the rates. Two-thirds of the time the actual yield will fall in the range of the average plus or minus one standard deviation. Ninety-five percent of the time the actual yield is expected to

<sup>1</sup> Priced services include primarily check, automated clearinghouse, Fedwire funds transfer, and Fedwire securities services.

<sup>2</sup> Imputed costs include financing costs, taxes, and certain other expenses.

<sup>3</sup> The return on capital is imputed using the average of the results of three economic models: the comparable accounting earnings model, the discounted cash-flow model, and the capital asset pricing model.

<sup>4</sup> Equity is imputed based on the Federal Deposit Insurance Corporation's (FDIC) definition of a "well-capitalized" institution for insurance premium purposes.

<sup>5</sup> In 1994, the Board requested comment on a proposal to modify the method for imputing clearing balance income. The Board proposed replacing the three-month Treasury bill imputed investment with a longer-term Treasury investment based on the earning asset maturity structure of the largest BHCs. As a result of issues related to interest rate risk raised in the comments, the Board did not adopt the proposal. The proposal would have created an asset and liability mismatch that created interest rate risk exposure inappropriate for Federal Reserve priced services. In addition, Federal Reserve priced services would not have assumed the interest rate risk associated with longer-maturity investments because the imputed return would have been adjusted monthly to reflect current rates (59 FR 42832, August 19, 1994).

<sup>6</sup> Clearing balances were introduced when Reserve Banks implemented the MCA.

<sup>7</sup> Clearing balances, unless otherwise indicated, refer to total clearing balances, including contracted balances and balances in excess of the contracted amount, held by depository institutions with the Federal Reserve Banks.

<sup>8</sup> Regulation D, 12 CFR part 204.

<sup>9</sup> Many depository institutions also set their contracted clearing balance level to generate earnings credits needed to pay fees assessed for Reserve Bank priced services.