

services.⁹ Clearing balances were introduced when Reserve Banks implemented the MCA of 1980, which required the Federal Reserve to price its payment services and broadened direct access to those services to include institutions that previously did not have a Federal Reserve balance requirement. 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. 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, as well as for other purposes. Reserve Banks and some correspondent banks establish a contractual 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. Earnings credits provided by the Reserve Banks are based on the federal funds rate and the contracted level of clearing balances. Reserve Bank earnings credits are not paid on any clearing balances held in excess of the contracted amount, they can only be used to pay fees for priced services, and they must be used within one year or they are forfeited. Correspondent banks use a similar approach to calculate earnings credits as compensation for respondent balances. Correspondent bank earnings credits are determined based on a variety of rates, including Treasury bill, federal funds, and others. Recognizing that Reserve Banks may compensate for balances at a different rate than correspondent banks, the Board requests comment on whether the Board should consider modifications to the Reserve Banks' earnings credit rate in the future, and, if so, what factors should be considered in the evaluation.

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.¹⁰ 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.¹¹ The Board chose three-month Treasury bills as the imputed investment vehicle 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 private business firm. In addition to providing a short-term earnings rate consistent with creating a matched asset and liability structure with the short-term liabilities, the ninety-day Treasury-bill yield data are easily verified by outside observers with publicly available data.

II. Discussion

Table 1 presents the spread of the three-month Treasury bill rate compared to the federal funds rate for the past twenty years. As the table shows, the current practice of imputing clearing balance investments in three month Treasury-bills while paying earnings credits at the federal funds rate has resulted in an average negative interest rate spread of 27 basis points over the past twenty years with an average standard deviation over the same period of 28 basis points.¹² The spread of the earnings rate imputed on clearing balances versus the rate for the cost of earnings credits has ranged from 8 basis points to -88 basis points over that period.¹³ As a result of the average negative spread, most of the net income on clearing balances recognized during these years was the result of imputed earnings on excess balances held, which have no associated cost.

¹¹ 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 (\$504 million in 2003) are not available for investment.

¹² 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 fall in the range of the average plus or minus two standard deviations.

¹³ Although not represented here because of simplifying assumptions, some of the volatility in actual NICB is a result of changes in rates and changes in contracted and excess clearing balance levels.

TABLE 1.—SPREAD FROM FEDERAL FUNDS

Year	T-bills (current)
1983	-0.23
1984	-0.27
1985	-0.27
1986	-0.50
1987	-0.72
1988	-0.88
1989	-0.79
1990	-0.29
1991	0.08
1992	0.08
1993	0.05
1994	-0.05
1995	-0.15
1996	-0.13
1997	-0.28
1998	-0.38
1999	-0.26
2000	-0.30
2001	-0.06
2002	0.01
Average	-0.27
Standard deviation	0.28

Although basic finance theory suggests a direct relationship between risk and earnings where earnings increase, on average, with the amount of risk incurred, a minor change to the current imputed investments could significantly increase earnings and decrease volatility. For example, investing in a simple portfolio of overnight loans to financial institutions (federal funds) would simultaneously eliminate the interest rate spread and reduce the volatility, as expressed by the standard deviation, to zero.¹⁴ The results of an investment in federal funds demonstrate that the current investment assumption imputes less income than could be easily achieved with a low-risk alternative. Consequently, the Board believes that the current method may impute an inappropriately low NICB to priced services. The Board notes that financial institutions, such as correspondent banks and bank holding companies (BHCs), invest in a much wider array of instruments than that imputed by the Federal Reserve, including loans, Treasury securities with longer maturities, government agency securities, federal funds, commercial bonds, commercial paper, money market mutual funds, asset-backed securities, gold, foreign

¹⁴ While reducing interest rate risk, a change in investment from Treasury bills to federal funds would increase credit risk. As a practical matter, however, banks have not incurred losses due to default in federal funds transactions.

⁹ Regulation D, 12 CFR part 204.

¹⁰ Decisions about monetary policy investment transactions are not motivated by profit objectives; therefore, the actual investment results are not applicable to priced-service activities.