

# Measuring the services of commercial banks in the NIPA

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The pivotal role of the financial sector has raised interest in measuring its role in the economy. Unfortunately, the finance sector is one of the more poorly measured sectors in national accounts. Until the 1993 update of the System of National Accounts (SNA), banks, for example, made no direct contribution to GDP and their output was simply an intermediate product.<sup>4</sup> This paper discusses how the United States measures banking services, especially those that are un-priced. It also discusses the next steps in better accounting for this complex and pivotal industry.<sup>5</sup>

## 1993 System of National Accounts

In recognition of the important final and intermediate contributions of the banking sector to the economy, the 1993 SNA changed the treatment of banking services. It recommended measuring implicit financial services to depositors using the difference between a risk-free “reference rate” and the average interest rate paid to depositors, and measuring implicit services to borrowers using the difference between the average interest rate paid by borrowers and the reference rate. To implement this approach, the Bureau of Economic Analysis (BEA) measures the reference rate by the average rate earned by banks on US Treasury and US agency securities.<sup>6</sup> Measured in this way, the reference rate is consistently above the average rate of interest paid to depositors and consistently below the average rate of interest paid by borrowers.

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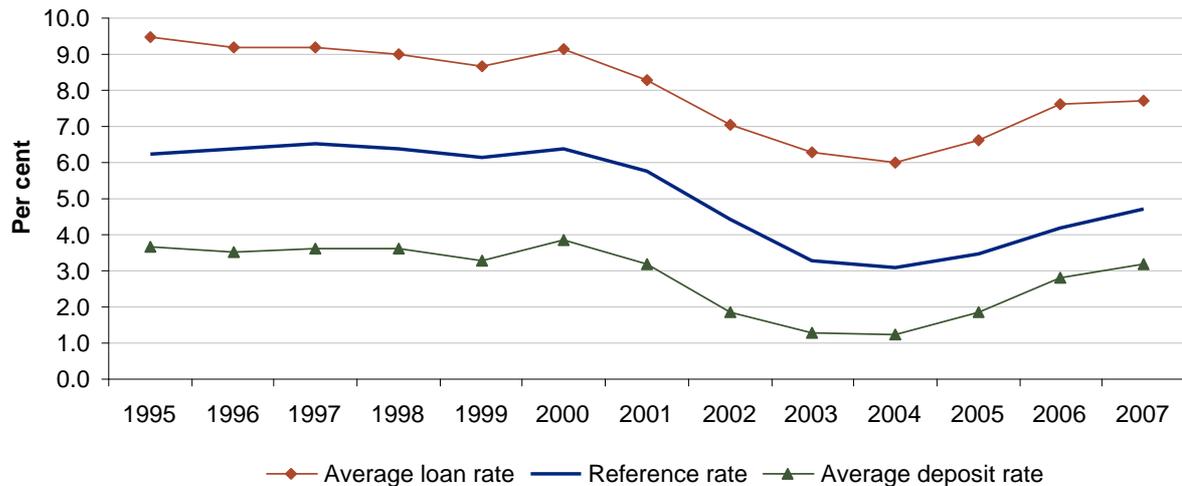
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<sup>4</sup> Unlike most nations, until 2003, the BEA attributed the entire consumption of implicit financial services to depositors, which was included in final expenditures and GDP.

<sup>5</sup> For a more detailed discussion of the US method of measuring the implicit services of commercial banks, including the theoretical framework of the methodology, the particle measurement of interest rates and the effects on national aggregates, see the September 2003 *Survey of Current Business* articles “Measuring services of commercial banks” and “Preview to the 2003 Comprehensive Revision to the National Income and Product Accounts” available on the BEA’s website: <http://www.bea.gov/scb/pdf/2003/06June/0603NIPArevs.pdf> and <http://www.bea.gov/scb/pdf/2003/09September/0903banking.pdf>.

<sup>6</sup> As of 2005, in order to reduce volatility, mortgage-backed agency securities are excluded in the calculation of the reference rate.

Figure 1  
Reference rate and average rates on loans and deposits



Source: Federal Reserve Board tabulations of commercial bank call report data.

## Valuation of bank output

How to value bank output has been a topic of much discussion in the national accounts literature because banks do not explicitly charge for all the financial services that they provide, relying instead on net receipts of interest for much of their revenue. In national income accounting, interest payments are generally treated as a distribution of income by businesses to investors who have provided them with funds, not as a payment for services. In particular, the domestic portion of the “net interest” component of national income is defined as interest paid by private business less interest received by private business. Applied to banks, the usual treatment of interest flows would yield a negative contribution to the interest component of national income by the banking sector. Moreover, much of the value of the services that banks provide to their customers would be missed by the National Income and Product Accounts (NIPA) and the productivity of the banking sector (as measured by output per worker) would be understated. To avoid these results, an imputation for implicit financial services produced by banks is included in the NIPA. Depositors purchase these implicit services with imputed interest income that eliminates the gap between the total interest received by banks and the total interest paid by banks.<sup>7</sup>

The NIPA imputation, however, is not restricted to depositors; it also accounts for the implicit services of commercial banks to borrowers in their role as financial intermediaries. In particular, banks provide services related to the provision of credit that overcome problems of asymmetric information and that transfer risk to the bank. Banks devote staff time and other resources both to activities that serve depositors, such as clearing cheques, and to activities that serve borrowers, such as making loan underwriting decisions. Historically, banks were virtually the only source of credit for many households and businesses; the burgeoning needs for credit services were a major impetus for the growth of this industry. Accordingly, a measure of bank output should reflect borrower services along with depositor services.

<sup>7</sup> Until recently, many European countries treated the implicit financial services of banks as an intermediate input to a fictitious sector, thereby excluding them from GDP.

## Interest margins as values of implicit bank services

By treating banks' net interest income as imputed sales of services, the NIPA recognise that adjustments to interest rates are substitutes for explicit fees to cover the cost of providing services to bank customers. If the reference rate represents the rate that banks earn on their investments after deducting expenses of providing services to borrowers, banks could, in principle, charge depositors explicitly for services and pay them the reference rate of interest. Similarly, banks could charge borrowers explicitly for services that they receive and reduce the rate of interest on loans to the reference rate. Indeed, over the last two decades, banks have substituted fee income for net interest income: in 1980, net receipts of interest constituted 80% of commercial banks' gross income (which does not reflect taxes, non-interest expenses, loan loss provisions, and gains or losses on sales of securities), but in 2007, it constituted 59% of their gross income.<sup>8</sup> Therefore, the exclusion of implicitly priced services would result in a substantial overstatement of banks' output growth.

Taking this logic one step further, depositors could dispense with banking services entirely and keep their money in securities, thus paying the reference rate of interest. Depositors who forgo the opportunity to earn the reference rate in order to obtain banking services choose to pay an implicit price for depositor services equal to the margin between the reference rate and the deposit rate.

The reference rate represents an opportunity cost in the banks' investment decisions. If a highly liquid security with no credit risk is available to banks, the banks forgo the opportunity to earn this security's rate of return – assumed to be the reference rate – when they invest in loans instead. The spread between this reference rate of return and the lending rate is the implicit price that the bank receives for providing financial services to borrowers, which includes the cost of bearing risk. The spread must equal the marginal cost of providing borrower services if the bank is indifferent at the margin between investing in the reference rate asset and investing in higher-yielding loans. In a marketplace where competition keeps loans from being priced at levels that yield economic profits (profits in excess of a normal return on capital), we can expect an equilibrium where banks are indifferent between investment opportunities at the margin.

Borrowers from banks are willing to pay a margin over the reference rate because they require or want lender services that issuers of credit market instruments bearing the reference rate of interest do not receive. For many, borrowing in capital markets is very costly or impossible because of the problems of asymmetric information noted above, and liquidating financial assets as an alternative to borrowing is also impossible. However, for marginal loan customers, liquidating assets that earn the reference rate or borrowing at approximately the reference rate in capital markets are alternative ways of obtaining needed funds. In particular, both household and business borrowers often choose to hold financial assets when they could liquidate those assets and reduce their loan balances. For the marginal users of the borrowed funds, the difference between the loan rate and the reference rate represents the net marginal cost borne by borrowers for liquidity management, inducing the bank to accept their risk and any other services provided by the lender. This difference can therefore be viewed as an implicit price paid for credit services.

Finally, if the bank's net return on investments funded by deposits equals the reference rate, then the implicit price that the bank receives for providing services to depositors equals the spread between the reference rate and the rate paid on deposits. This spread equals the

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<sup>8</sup> The percentages are calculated using data from the Federal Deposit Insurance Corporation (FDIC) at [www2.fdic.gov/hsob/](http://www2.fdic.gov/hsob/). The growth of fee income partly reflects banks' entry into new kinds of activities, but the trend predates the repeal in 1999 of the Glass-Steagall Act's restrictions on bank activities.

marginal cost of providing services to depositors if the bank is indifferent to marginal changes in amounts on deposit. In the short term, regulatory constraints on a bank's growth based on the amount of its equity capital could prevent it from accepting deposits until it reaches the point of indifference; however, in a long-term competitive equilibrium for the industry, deposit rates will just permit banks to cover their costs. In addition, large banks that are perceived as very safe are able to borrow at approximately the reference rate in securities markets, thereby avoiding the costs of providing services to depositors. If these banks are indifferent at the margin between raising funds from depositors and raising funds in securities markets, the spread between the reference rate and the rate paid on deposits must approximately equal the marginal cost of providing services to depositors.

## **Next steps**

The current financial crisis has raised a number of challenges for national accounts beyond the estimation of commercial bank services. The massive changes in the structure of the US and international financial sector have required regular monitoring and updating of the source data to ensure that newly emerging gaps and double-counting are detected, as institutions change their reporting status from reports to the SEC and the Treasury as investment banks to reports to the FDIC as commercial banks. Adjustments to remove capital losses from financial profit data have also been a considerable challenge. The crisis has also revealed significant gaps in our domestic and international financial data relating to detailed accounting by type of instrument, maturity and ownership. Finally, statistical agencies need to work with regulators and industry on valuation issues, ranging from derivative instruments to the real value of bank output.