appendix 2 to chapter 9

Measuring Bank Performance

To understand how well a bank is doing, we need to start by looking at a bank's income statement, the description of the sources of income and expenses that affect the bank's profitability.

Bank's Income Statement

The end-of-year 2001 income statement for the Big Six (Bank of Montreal, CIBC, National Bank, Royal Bank of Canada, Scotiabank, and TD Canada Trust) plus the Laurentian Bank of Canada and the Canadian Western Bank appears in Table 1.

Operating Income. *Operating income* is the income that comes from a bank's ongoing operations. Most of a bank's operating income is generated by interest on its assets, particularly loans. As we see in Table 1, in 2001 interest income represented 72% of commercial banks' operating income. Interest income fluctuates with the level of interest rates, and so its percentage of operating income is highest when interest rates are at peak levels. That is exactly what happened in 1981, when interest rates rose above 20% and interest income rose to 90% of total bank operating income.

Noninterest income, which made up 28% of operating income in 2001, is generated partly by service charges on deposit accounts, but the bulk of it comes from the off-balance-sheet activities, which generate fees or trading profits for the bank. The importance of these off-balance-sheet activities to bank profits has been growing in recent years. Whereas in 1980 other noninterest income from off-balance-sheet activities represented only 5% of operating income, it reached 20% in 2001.

Operating Expenses. *Operating expenses* are the expenses incurred in conducting the bank's ongoing operations. An important component of a bank's operating expenses is the interest payments that it must make on its liabilities, particularly on its deposits. Just as interest income varies with the level of interest rates, so do interest expenses. Interest expenses as a percentage of total operating expenses reached a peak in 1981, when interest rates were at their highest, and fell in recent years as interest rates moved lower. Noninterest expenses include the costs of running a banking business: salaries for tellers and officers, rent on bank buildings, purchases of equipment such as desks and vaults, and servicing costs of equipment such as computers.

The final item listed under operating expenses is provisions for credit losses. When a bank has a bad debt or anticipates that a loan might become a bad debt in the future, it can write up the loss as a current expense in its income statement under the "provision for credit losses" heading. Provisions for loan losses are directly related to loan loss reserves. When a bank wants to increase its loan loss reserves account by, say, $1 million, it does this by adding $1 million to its provisions for loan losses. Loan

Table 1 Income Statement for All Federally Insured Commercial Banks, 2002

	Amount ($ millions)		Share of Operating Income or Expenses (%)	
Operating Income				
Interest income		81 473		72.01
Interest on loans	60 856		53.79	
Interest on securities	16 898		14.94	
Deposits with other banks	3 719		3.29	
Noninterest income		31 665		27.99
Total operating income		113 138		100.00
Operating Expenses				
Interest expenses		53 451		53.72
Interest on deposits	41 994		42.21	
Bank debentures	1 804		1.81	
Other liabilities	9 653		9.70	
Noninterest expenses		40 168		40.37
Salaries and employee benefits	21 931		22.04	
Premises and equipment	8 712		8.76	
Other	9 525		9.57	
Provisions for credit losses		5 873		5.90
Total operating expenses		99 492		100.00
Net Operating Income		13 646		
Provisions for income taxes		–3 842		
Net Income		9 804		

Source: www.fdic.gov/banks/statistical/statistics/0106/cbr

loss reserves rise when this is done because by increasing expenses when losses have not yet occurred, earnings are being set aside to deal with the losses in the future.

Provisions for loan losses have been a major element in fluctuating bank profits in recent years. The 1980s brought the third-world debt crisis; a sharp decline in energy prices in 1986, which caused substantial losses on loans to energy producers; and a collapse in the real estate market. As a result, provisions for loan losses were particularly high in the late 1980s. Since then, losses on loans have begun to subside, and in 2001, provisions for loan losses dropped to only 5.9% of operating expenses.

Income. Subtracting the $99 492 million in operating expenses from the $113 138 million of operating income in 2001 yields net operating income of $14 066 million. Net operating income is closely watched by bank managers, bank shareholders, and bank regulators because it indicates how well the bank is doing on an ongoing basis.

One item, net extraordinary items, which are events or transactions that are both unusual and infrequent, is added or deducted to the net operating income figure to get the figure for net income before taxes. Net income before taxes is more commonly referred to as profits before taxes. Subtracting the $3 842 million of provisions for income taxes then results in $9 804 million of net income. Net income, more commonly referred to as profits after taxes, is the figure that tells us most directly how well the bank is doing because it is the amount that the bank has available to keep as retained earnings or to pay out to stockholders as dividends.

Measures of Bank Performance

Although net income gives us an idea of how well a bank is doing, it suffers from one major drawback: It does not adjust for the bank's size, thus making it hard to compare how well one bank is doing relative to another. A basic measure of bank profitability that corrects for the size of the bank is the return on assets (*ROA*), mentioned earlier in the chapter, which divides the net income of the bank by the amount of its assets. *ROA* is a useful measure of how well a bank manager is doing on the job because it indicates how well a bank's assets are being used to generate profits. At the end of 2001, the assets of the Big Eight banks amounted to $1 485.5 billion, so using the $9.8 billion net income figure from Table 1 gives us a return on assets of:

$$ROA = \frac{\text{net income}}{\text{assets}} = \frac{9.8}{1485.5} = 0.0066 = 0.66\%$$

net income\assets

Although *ROA* provides useful information about bank profitability, we have already seen that it is not what the bank's owners (equity holders) care about most. They are more concerned about how much the bank is earning on their equity investment, an amount that is measured by the return on equity (*ROE*), the net income per dollar of equity capital. At the end of 2001 equity capital for all the Big 8 banks was $70.6 billion, so the *ROE* was therefore:

$$ROA = \frac{\text{net income}}{\text{assets}} = \frac{9.8}{70.6} = 0.1383 = 13.88\%$$

Another commonly watched measure of bank performance is called the *net interest margin* (*NIM*), the difference between interest income and interest expenses as a percentage of total assets:

$$NIM = \frac{\text{interest income} - \text{interest expenses}}{\text{assets}}$$

As we have seen earlier in the chapter, one of a bank's primary intermediation functions is to issue liabilities and use the proceeds to purchase income-earning assets. If a bank manager has done a good job of asset and liability management such that the bank earns substantial income on its assets and has low costs on its liabilities, profits will be high. How well a bank manages its assets and liabilities is affected by the spread between the interest earned on the bank's assets and the interest costs on its liabilities. This spread is exactly what the net interest margin measures. If the bank is able to raise funds with liabilities that have low interest costs and is able to acquire assets with high interest income, the net interest margin will be high, and the bank is likely to be highly profitable. If the interest cost of its liabilities rises relative to the interest earned on its assets, the net interest margin will fall, and bank profitability will suffer.

Recent Trends in Bank Performance Measures

Table 2 provides measures of return on assets (*ROA*), return on equity (*ROE*), and the net interest margin (*NIM*) for the Big 6 plus the Laurentian Bank of Canada and the Canadian Western Bank from 1991 to 2001. Because the relationship between bank equity capital and total assets for those eight domestic banks remained fairly stable in the 1990s, both the *ROA* and *ROE* measures of bank performance move closely together and indicate that the early 1990s, there was an increase in bank profitability. The rightmost column, net interest margin, indicates that the spread between interest income and interest expenses declined throughout the 1990s.

The explanation of the weak performance of the eight domestic banks in the early 1990s is that they had made many risky loans in the late 1980s that turned sour. The resulting huge increase in loan loss provisions in that period directly decreased net income and hence caused the fall in *ROA* and *ROE*. (Why bank profitability deteriorated and the consequences for the economy are discussed in Chapters 9 and 11.)

Beginning in 1994, bank performance improved substantially. The return on equity rose to nearly 12% in 1994 and remained above 13% in the 1995–2001 period. Similarly, the return on assets rose from the 0.5% level in the 1991–1993 period to around the 0.66% level in 1994–2001.

Table 2 Measures of Bank Performance, 1980–2002

Year	Return on Assets (*ROA*) (%)	Return on Equity (*ROE*) (%)	Net Interest Margin (*NIM*)(%)
1991	0.68	13.08	2.86
1992	0.32	5.92	2.79
1993	0.47	8.72	2.65
1994	0.59	11.62	2.53
1995	0.67	13.2	2.34
1996	0.71	14.93	2.07
1997	0.71	16.37	1.92
1998	0.57	13.39	1.75
1999	0.71	15.69	1.81
2000	0.71	15.25	1.73
2001	0.66	13.89	1.80

Source: **www2.fdic.gov/qbp**