FRBSF ECONOMIC LETTER

Number 2001-30, October 26, 2001

# Banking and the Business Cycle

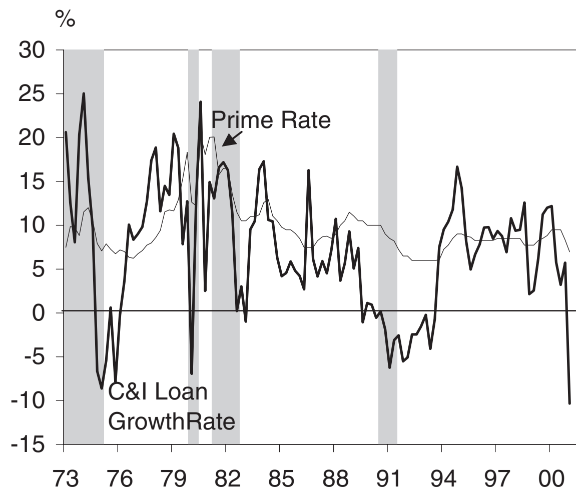
The banking industry performed exceptionally well during the strong economic expansion of the past five years. Strong demand for loans and banking services and the strong supply of quality customers helped boost bank earnings. But how will banks fare given the recent weakening of national economic conditions? Will we see a repeat of their performance in the last downturn, in 1991, when depressed earnings, high failure rates, and contracting loan portfolios inflicted significant damage on banks and the economy in general? So far this year, we have seen signs of a beginning of a contraction in bank lending. While earnings have held up through the second quarter, bank stocks have started to dip along with the rest of the market.

This *Economic Letter* addresses the question of how banks will fare during an economic slowing by revisiting bank performance over previous business cycles. The analysis shows that lending and bank earnings tend to droop during a downturn, but that the relationship between performance and macroeconomic variables, such as GDP growth, is not particularly strong at other points in the cycle. I also point out how the 1991 recession was a vastly different experience for the banking industry compared to previous recessions.

**Lending, pricing, and performance over the cycle**

In theory, banks can compensate for a riskier environment by tightening their lending standards—by charging higher interest rates on their loans, by demanding more collateral, and by simply refusing to lend to marginal customers. This behavior is fairly well documented over the business cycle (see Lown and Morgan 2001). The effects of credit tightening (as well as of lower demand, which, of course, also occurs during downturns) are shown in Figure 1. The quarterly (annualized) growth rate of commercial and industrial loans is quite volatile, but tends to dip when the economy enters into recession (marked with shaded bars). Like loan volumes, loan prices—proxied here by the prime rate—tend to rise as the economy enters into recession. These interest rate changes probably understate the price response by banks, as the spreads over prime charged to the riskiest borrowers can rise.

**Figure 1**
**Lending and pricing at U.S. commercial banks**




Source: Federal Reserve Board of Governors

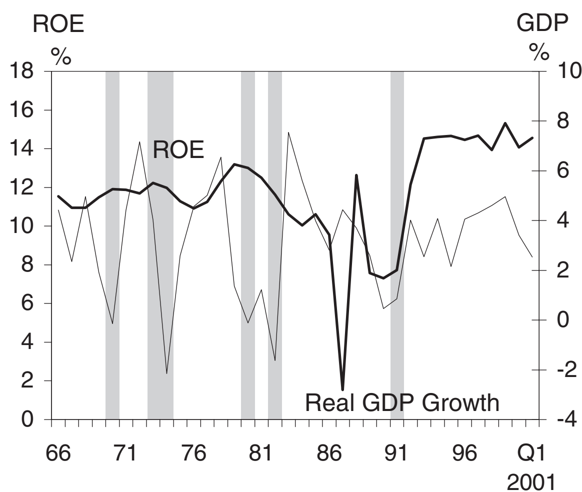
While the primary response of banks to a slowing economy is to adjust credit standards on new loans, the main impact on banks of a slowing economy is impaired credit quality of existing loans. Figure 2 plots return on equity (ROE) for the banking sector. This commonly used accounting measure of performance calculates the percentage of industry earnings to industry equity capital. Once again, ROE tends to dip during recessions. However, the contemporaneous correlation between ROE and real GDP growth is low—just 0.03. There are no leads or lags of real GDP growth with which this average ROE series is significantly correlated. (The relationship between performance and the economy is slightly stronger when we substitute the percentage changes in a banking stock index for the performance variable, indicating that market valuations tend to move more than accounting measures of earnings.)

Why is the relationship between bank performance and the economy not as strong as might be expected? First, although banks are likely to be exposed to the downside risks associated with economic fluctuations—as the economy slows and firms fail, the firms will default on their bank loans—the upside is capped for traditional banks, which depend

WESTERN BANKING *Western Banking* is a quarterly review of banking developments in the Twelfth Federal Reserve District. It is published in the *Economic Letter* on the fourth Friday of January, April, July, and October.

**Figure 2**

**U.S. commercial banks: return on equity vs. real GDP growth**




Source: Federal Reserve Board of Governors and FDIC

on earnings from debt instruments. Once a loan has been made, the best a bank can hope for is full repayment of interest and principal. Competition, market discipline from bank funding sources, and regulation all ensure that banks do not make wildly risky but possibly profitable loans in good states of the world.

Second, the performance of the banking sector over the 1980s and during the 1991 recession was vastly different from the performance over the course of other business cycles. The banking crisis of the 1980s was a protracted affair that left the sector in an extremely weak position to weather the recession. For example, the competitive environment for banks changed dramatically during this period (see Furlong 2001). Interest rates were deregulated, the prohibition on banking organizations expanding over state lines began to weaken, thrifts were allowed greater latitude to compete against banks, and capital markets emerged to draw away many of the banks' best customers. In addition, in the early 1980s, banking was buffeted by loan defaults from developing economies and, in the late 1980s, by the U.S. commercial real estate crisis. These trends culminated in a stunning number of bank failures, peaking at 280 in 1988 alone. As shown in Figure 2, the trend in ROE was downward for the entire decade of the 1980s. Not only did earnings drop, but bank capital positions had decayed to the point where some banks had difficulty making new loans, even after the economy had emerged from recession.

### The current environment

In the current banking environment, there already is some evidence of a tightening of conditions as reported in the Federal Reserve's senior loan officer survey (see Federal Reserve Board of Governors 2001). The percentage of domestic banks reporting a tightening of standards for commercial loans started to rise in the beginning of 2000 and remains at elevated levels. Approximately 60% of the large domestic banks surveyed reported that they were increasing their prices over their cost of funds. So far, industry earnings seem to be holding up; the ROE for the banking sector in the second quarter of 2001 was 13.7%. In addition, an important point to note in Figure 2 is that industry ROE is at a high level by historical standards. Following the 1991 recession, banks that survived the crisis emerged as much more productive and profitable enterprises. The banking sector has rebuilt its capital base and, perhaps just as important for the outlook, has embraced the push towards implementing risk management systems. Thus, while an economic slowing could lead to slower loan and earnings growth, there is no reason to expect the banking sector as a whole to encounter the same degree of difficulties experienced during the last downturn.

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## BANKS HEADQUARTERED BY REGION

**JUNE 30, 2001**

(NOT SEASONALLY ADJUSTED, PRELIMINARY DATA)

(BANKS WITH ASSETS LESS THAN OR EQUAL TO $1 BILLION ARE DEFINED AS SMALL)

| | | UNITED STATES | | | TWELFTH DISTRICT | | |
|---|---|---|---|---|---|---|---|
| | | ALL | SMALL | LARGE | ALL | SMALL | LARGE |
| **ASSETS AND LIABILITIES — $ MILLION** | | | | | | | |
| ASSETS | TOTAL | 6,305,979 | 1,015,370 | 5,290,609 | 630,013 | 94,531 | 535,482 |
| | FOREIGN | 757,649 | 920 | 756,729 | 4,800 | 21 | 4,778 |
| | DOMESTIC | 5,548,329 | 1,014,450 | 4,533,879 | 625,213 | 94,510 | 530,704 |
| LOANS | TOTAL | 3,828,262 | 656,231 | 3,172,031 | 398,436 | 62,888 | 335,548 |
| | FOREIGN | 282,486 | 1,026 | 281,460 | 3,739 | 46 | 3,693 |
| | DOMESTIC | 3,545,776 | 655,206 | 2,890,571 | 394,697 | 62,842 | 331,855 |
| | REAL ESTATE | 1,691,057 | 415,671 | 1,275,386 | 193,648 | 39,442 | 154,206 |
| | COMMERCIAL RE | 475,662 | 148,620 | 327,042 | 71,462 | 20,523 | 50,939 |
| | SINGLE FAMILY RES | 936,927 | 182,302 | 754,625 | 83,578 | 8,653 | 74,925 |
| | COMMERCIAL | 859,751 | 117,918 | 741,833 | 94,133 | 14,202 | 79,931 |
| | CONSUMER | 560,776 | 78,306 | 482,470 | 76,702 | 6,673 | 70,028 |
| | CREDIT CARDS | 251,122 | 10,208 | 240,915 | 55,284 | 1,775 | 53,509 |
| | AGRICULTURAL | 47,770 | 30,689 | 17,081 | 6,182 | 1,694 | 4,488 |
| | OTHER LOANS | 386,423 | 12,622 | 373,802 | 24,033 | 830 | 23,203 |
| INV. SECURITIES | TOTAL | 1,037,511 | 225,649 | 811,863 | 115,873 | 16,125 | 99,748 |
| | U.S. TREASURIES | 54,185 | 12,461 | 41,725 | 3,460 | 800 | 2,659 |
| | U.S. AGENCIES, TOTAL | 614,417 | 149,500 | 464,917 | 46,401 | 9,780 | 36,621 |
| | U.S. AGENCIES, MBS | 435,452 | 64,566 | 370,886 | 34,551 | 4,940 | 29,611 |
| | OTHER MBS | 74,967 | 3,542 | 71,426 | 21,123 | 545 | 20,578 |
| | OTHER SECURITIES | 293,941 | 60,146 | 233,795 | 44,889 | 4,999 | 39,890 |
| LIABILITIES | TOTAL | 5,745,118 | 912,750 | 4,832,368 | 565,967 | 84,011 | 481,956 |
| | DOMESTIC | 4,987,469 | 911,830 | 4,075,639 | 561,167 | 83,989 | 477,178 |
| DEPOSITS | TOTAL | 4,212,282 | 834,936 | 3,377,345 | 430,998 | 76,490 | 354,507 |
| | FOREIGN | 679,458 | 1,656 | 677,802 | 17,256 | 46 | 17,210 |
| | DOMESTIC | 3,532,824 | 833,280 | 2,699,543 | 413,741 | 76,444 | 337,297 |
| | DEMAND | 499,871 | 113,305 | 386,566 | 55,804 | 11,776 | 44,029 |
| | MMDA & SAVINGS | 1,543,559 | 224,056 | 1,319,503 | 225,112 | 26,296 | 198,816 |
| | SMALL TIME | 772,147 | 271,617 | 500,529 | 58,173 | 16,993 | 41,180 |
| | LARGE TIME | 567,709 | 138,449 | 429,260 | 65,154 | 16,420 | 48,735 |
| | OTHER DEPOSITS | 149,538 | 85,853 | 63,685 | 9,497 | 4,960 | 4,537 |
| OTHER BORROWINGS | | 451,385 | 22,515 | 428,870 | 38,841 | 1,083 | 37,758 |
| EQUITY CAPITAL | | 553,320 | 102,562 | 450,758 | 63,944 | 10,518 | 53,426 |
| LOAN LOSS RESERVE | | 65,362 | 9,277 | 56,085 | 8,826 | 1,213 | 7,614 |
| LOAN COMMITMENTS | | 4,667,167 | 583,389 | 4,083,779 | 738,215 | 284,263 | 453,952 |
| TIER1 CAPITAL RATIO | | 0.097 | 0.137 | 0.090 | 0.105 | 0.134 | 0.100 |
| TOTAL CAPITAL RATIO | | 0.124 | 0.148 | 0.120 | 0.131 | 0.147 | 0.128 |
| LEVERAGE RATIO | | 0.077 | 0.097 | 0.074 | 0.087 | 0.106 | 0.084 |
| LOAN LOSS RESERVE RATIO | | 1.707 | 1.414 | 1.768 | 2.215 | 1.928 | 2.269 |
| **QUARTERLY EARNINGS AND RETURNS — $ MILLION** | | | | | | | |
| INCOME | TOTAL | 143,161 | 22,482 | 120,680 | 16,054 | 2,443 | 13,611 |
| | INTEREST | 103,253 | 18,707 | 84,547 | 11,377 | 1,894 | 9,483 |
| | FEES & CHARGES | 6,703 | 1,085 | 5,618 | 592 | 76 | 516 |
| EXPENSES | TOTAL | 112,238 | 18,277 | 93,961 | 12,333 | 1,925 | 10,408 |
| | INTEREST | 50,558 | 8,743 | 41,815 | 4,753 | 732 | 4,021 |
| | SALARIES | 23,042 | 4,294 | 18,748 | 2,238 | 498 | 1,740 |
| | LOAN LOSS PROVISION | 8,764 | 810 | 7,954 | 1,427 | 159 | 1,268 |
| | OTHER | 29,874 | 4,430 | 25,444 | 3,916 | 537 | 3,379 |
| TAXES | | 9,950 | 1,155 | 8,796 | 1,337 | 181 | 1,156 |
| NET INCOME | | 19,012 | 2,953 | 16,059 | 2,169 | 337 | 1,833 |
| ROA (% ANNUALIZED) | | 1.219 | 1.182 | 1.225 | 1.425 | 1.456 | 1.420 |
| ROE (% ANNUALIZED) | | 13.744 | 11.518 | 14.250 | 13.570 | 12.804 | 13.721 |
| NET INTEREST MARGIN (% ANNUALIZED) | | 3.378 | 3.989 | 3.261 | 4.352 | 5.027 | 4.231 |
| **ASSET QUALITY — PERCENT OF LOANS** | | | | | | | |
| NET CHARGEOFFS (% ANNUALIZED) | | | | | | | |
| | TOTAL | 0.820 | 0.344 | 0.918 | 1.403 | 0.735 | 1.528 |
| | REAL ESTATE | 0.123 | 0.058 | 0.144 | 0.074 | 0.049 | 0.080 |
| | COMMERCIAL | 1.219 | 0.692 | 1.289 | 1.870 | 1.374 | 1.956 |
| | CONSUMER | 2.520 | 1.361 | 2.693 | 4.302 | 3.421 | 4.386 |
| | CREDIT CARDS | 8.586 | 9.976 | 8.527 | 9.602 | 18.347 | 9.311 |
| | AGRICULTURAL | 0.446 | 0.221 | 0.832 | 1.242 | 0.682 | 1.453 |
| PAST DUE & NON-ACCRUAL | | | | | | | |
| | TOTAL | 2.463 | 2.292 | 2.498 | 2.325 | 2.244 | 2.340 |
| | REAL ESTATE | 2.013 | 1.950 | 2.034 | 1.626 | 1.517 | 1.654 |
| | CONSTRUCTION | 2.080 | 2.194 | 2.041 | 2.702 | 2.122 | 2.903 |
| | COMMERCIAL | 1.634 | 1.740 | 1.586 | 1.173 | 1.209 | 1.159 |
| | FARM | 2.693 | 2.351 | 3.452 | 4.485 | 4.559 | 4.440 |
| | HOME EQUITY LINES | 1.241 | 1.173 | 1.250 | 1.346 | 1.054 | 1.399 |
| | MORTGAGES | 2.482 | 2.154 | 2.568 | 1.714 | 1.822 | 1.702 |
| | MULTI-FAMILY | 0.956 | 1.092 | 0.919 | 0.937 | 0.724 | 1.015 |
| | COMMERCIAL | 2.955 | 2.984 | 2.951 | 3.173 | 2.986 | 3.206 |
| | CONSUMER | 3.549 | 3.254 | 3.593 | 3.310 | 4.910 | 3.159 |
| | CREDIT CARDS | 4.231 | 6.385 | 4.140 | 3.733 | 10.671 | 3.503 |
| | AGRICULTURAL | 2.494 | 1.623 | 3.986 | 4.262 | 2.148 | 5.060 |
| NUMBER OF BANKS | | 8,158 | 7,775 | 383 | 581 | 508 | 73 |
| NUMBER OF EMPLOYEES | | 1,675,307 | 389,297 | 1,286,010 | 156,502 | 37,247 | 119,255 |

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**INTEREST RATES ON LOANS**

| TYPE OF LOAN | | MAY 1999 | AUG 1999 | NOV 1999 | FEB 2000 | MAY 2000 | AUG 2000 | NOV 2000 | FEB 2001 | MAY 2001 | AUG 2001 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| COMMERCIAL and INDUSTRIAL LOANS | | | | | | | | | | | |
| TOTAL | U.S. | 6.52 | 6.78 | 7.03 | 7.44 | 7.78 | 8.28 | 8.15 | 7.19 | 6.22 | 5.61 |
| | DISTRICT | 6.54 | 6.69 | 6.98 | 7.04 | 7.42 | 7.90 | 7.85 | 7.04 | 5.94 | 5.22 |
| BY RISK RATING: | | | | | | | | | | | |
| MINIMAL RISK | U.S. | 5.59 | 6.05 | 6.01 | 6.47 | 6.82 | 7.42 | 7.54 | 6.23 | 6.01 | 4.50 |
| | DISTRICT | 4.88 | 7.19 | 6.36 | 6.49 | 6.19 | 7.25 | 6.66 | 6.54 | 4.98 | 4.46 |
| LOW RISK | U.S. | 5.70 | 5.90 | 6.52 | 6.87 | 7.15 | 7.55 | 7.57 | 6.54 | 5.44 | 4.81 |
| | DISTRICT | 5.91 | 6.20 | 6.74 | 6.79 | 6.99 | 7.65 | 7.68 | 6.53 | 5.42 | 4.66 |
| MODERATE RISK | U.S. | 6.74 | 6.93 | 7.22 | 7.54 | 7.97 | 8.41 | 8.33 | 7.28 | 6.38 | 5.57 |
| | DISTRICT | 7.08 | 7.15 | 7.15 | 7.15 | 7.57 | 8.06 | 8.04 | 7.51 | 6.35 | 5.54 |
| OTHER | U.S. | 7.13 | 7.55 | 7.71 | 8.24 | 8.63 | 8.95 | 8.85 | 7.97 | 6.82 | 6.16 |
| | DISTRICT | 6.92 | 6.66 | 6.93 | 7.23 | 7.57 | 8.00 | 7.79 | 7.70 | 6.64 | 6.35 |
| BY MATURITY/REPRICING INTERVAL: | | | | | | | | | | | |
| DAILY | U.S. | 5.87 | 6.15 | 6.43 | 6.84 | 7.21 | 7.74 | 7.84 | 6.88 | 5.94 | 5.15 |
| | DISTRICT | 6.44 | 6.65 | 7.08 | 6.87 | 7.59 | 7.94 | 7.85 | 7.22 | 6.03 | 5.33 |
| 2 TO 30 DAYS | U.S. | 6.01 | 6.62 | 6.80 | 7.42 | 7.60 | 8.18 | 7.60 | 6.94 | 5.80 | 5.84 |
| | DISTRICT | 6.35 | 6.56 | 6.86 | 7.00 | 7.37 | 7.83 | 7.78 | 6.96 | 5.87 | 5.16 |
| 31 TO 365 DAYS | U.S. | 6.82 | 6.88 | 7.58 | 7.67 | 8.04 | 8.13 | 8.04 | 7.22 | 5.90 | 5.42 |
| | DISTRICT | 7.14 | 6.97 | 6.85 | 6.96 | 7.05 | 7.70 | 7.68 | 6.39 | 5.47 | 4.72 |
| OVER 365 DAYS | U.S. | 7.44 | 7.73 | 8.02 | 8.81 | 8.37 | 8.84 | 8.37 | 8.48 | 7.61 | 7.02 |
| | DISTRICT | 7.07 | 8.43 | 8.28 | 7.90 | 4.64 | 8.72 | 9.03 | 7.36 | 7.70 | 7.30 |
| CONSUMER, AUTOMOBILE | U.S. | 8.30 | 8.44 | 8.66 | 8.88 | 9.21 | 9.62 | 9.63 | 9.17 | 8.67 | 8.31 |
| | DISTRICT | 8.92 | 8.98 | 9.07 | 9.28 | 9.23 | 9.87 | 9.87 | 9.94 | 9.34 | 8.34 |
| CONSUMER, PERSONAL | U.S. | 13.26 | 13.38 | 13.52 | 13.76 | 13.88 | 13.85 | 14.12 | 13.71 | 13.28 | 13.25 |
| | DISTRICT | 12.83 | 13.62 | 14.45 | 14.41 | 14.89 | 13.25 | 13.25 | 13.67 | 12.48 | 13.22 |
| CONSUMER, CREDIT CARD | U.S. | 15.21 | 15.08 | 15.13 | 15.47 | 15.39 | 15.98 | 15.99 | 15.66 | 15.07 | 14.60 |
| | DISTRICT | 15.41 | 15.73 | 15.63 | 15.60 | 15.76 | 16.16 | 16.25 | 16.94 | 15.54 | 15.28 |

SOURCES: SURVEY OF TERMS OF BUSINESS LENDING AND TERMS OF CONSUMER CREDIT