Recession...There, we said it! Not that we are predicting one, mind you, but we've noticed that the R-word is rarely used in Federal Reserve publications and we just wanted to get it into print. Now that we have your attention, we can discuss what recessions are and what you should know about them.
Some working economists have adopted a quick-anddirty benchmark for gauging recessions: two consecutive quarterly declines in the real value of the gross domestic product. The most widely accepted arbiter of business cycle peaks and troughs-the Business Cycle Dating Committee of the National Bureau of Economic Research, or NBER (a private, nonprofit, educational organization)-defines a recession as "a recurring period of decline in total output, income, employment, and trade, usually lasting from six months to a year, and marked by widespread contractions in many sectors of the economy."

Of necessity, the NBER's cycle-dating deliberations occur at some time after the period in question. Economic data are received after varying lag times and undergo significant revisions as more complete information becomes available. Experience with data revisions shows that observers who rely on contemporary data alone can be very seriously misled about a current situation's true nature. Consequently, the NBER's cycle-dating process is designed less for current economic policy purposes than for better understanding business cycle dynamics.
The NBER's definition of a recession should make clear that the cycle-dating process requires two kinds of judgments: First, has economic activity actually declined? Second, can the aggregate decline be attributed to a broad range of industries and locations? During the mid-1980s, for example, economic conditions in the Midwest were quite poor due to surging imports of manufactured goods and declines in agricultural exports. Had the rest of the country been struggling too, the NBER might well have labeled the period a recession, but conditions elsewhere were more buoyant. The early 1990s provided a nice counterpoint, in which the Midwest led the nation out of recession because there was strong demand for its manufactured products. The national recession might have lasted longer had manufacturing conditions in the Midwest not improved so quickly.

To reflect for a moment on the current situation, it is not yet plain whether the pullbacks announced in certain industries will trigger declines in other sectors. The structure of the U.S. economy has changed in the 10 years since the last recession. Fewer employees
work in manufacturing industries, import and export activity are both more prominent, and high-tech sectors account for a much greater share of overall investment spending. In addition, supply-chain management has become more sophisticated, reducing the risk of major, unintended stockpiling of inventory. This development is significant because the process of inventory buildup and liquidation has amplified smaller disturbances leading to previous recessions. The modern economy may not be recession-proof, but future recessions could very well generate different warnings and follow different patterns.

Recessions can be regarded as extreme versions of a relatively common economic phenomenon, that is, a temporary market mismatch between supply and demand, caused by an unexpected disturbance. Left unfettered, prices, wages, and interest rates generally adjust quickly enough to clear out excess supply in the affected markets without transmitting the initial disturbance into other, unrelated markets. Recessions, then, are those rare occasions on which many people are unable to adjust and coordinate their plans without serious disruptions.

How our economy's evolving structure might affect its ability to respond to disturbances remains to be seen. Certainly it responded far better than most analysts expected in 1998 to shocks emanating from international capital markets. But history shows that economic activity propelled by booms-which rely heavily on widespread confidence and leverage during the upsurge-can become similarly vulnerable to decline when broad-based retrenchments set in.

Policymakers face difficult obstacles in heading off recessions, whose seeds are often sown during the prior boom. Experience shows how hard it is for policymakers to counsel restraint during periods of exuberant growth, let alone to take actions that are regarded as antigrowth. The difficulties are compounded because no one can be certain what the propagating impulse for a recession might be or when it might occur.

The U.S. economy has demonstrated a remarkable resilience during the past several decades, as its leaders have relied on markets to deliver lasting noninflationary growth. Whatever the economy's short-term performance, the long-term benefits of this strategy should not be forgotten.

## Monetary Policy




 a. Constant maturity.

SOURCES: Board of Governors of the Federal Reserve System; and Chicago Board of Trade.

The Federal Open Market Committee (FOMC) maintained the intended federal funds rate at $6.5 \%$ on December 19, its final regular meeting of 2000. However, as this issue was going to press, the FOMC cut the intended rate 50 basis points (bp) to $6.0 \%$ in an intermeeting move on January 3, 2001. In a related action, the Board of Governors approved a 25 bp decrease in the discount rate. The FOMC maintained its stance, adopted in December, that the balance of risks facing the U.S. economy is
"weighted mainly toward conditions that may generate economic weakness in the foreseeable future."

Federal funds futures markets began to build in the possibility of future rate cuts in September, causing the implied yield curves to slope downward. This slope has steepened remarkably in recent weeks, vividly illustrating market participants' heightened expectations that policymakers would lower the intended federal funds rate. On December 28, the May contract was trading 71 bp below the current target rate and

17 bp lower than on the day before the FOMC meeting.

Yields on government securities also fell sharply over the last month. For the week ending December 22, yields on 3-month and 1-year T-bills fell around 69 bp and 65 bp (to $5.67 \%$ and $5.44 \%$, respectively) from a month earlier. Despite this decline, the spread between 3 -month and 1 -year T-bills held fairly stable, and yields remained inverted. Long-term interest rates also declined significantly ( 55 bp on the 10 -year Treasury

## Monetary Policy (cont.)


a. Last plot for M2 is estimated for December 2000. Dotted lines for M2 are FOMC-determined provisional ranges.
b. Growth rates are percentage rates calculated on a fourth-quarter over fourth-quarter basis. The 2000 growth rate for M2 is calculated on an estimated December over 1999:IVQ basis. Data are seasonally adjusted.
SOURCES: U.S. Department of Commerce, Bureau of Economic Analysis; U.S. Department of Labor, Bureau of Labor Statistics; Board of Governors of the Federal Reserve System; and Federal Reserve Bank of Cleveland.
bond and 28 bp on the 30-year Treasury bond) through December 22.

Can policymakers extract any relevant information from the monetary aggregates? Before the early 1990s, changes in M2 velocity (the ratio of nominal GDP to M2) were closely related to M2 opportunity cost (the difference between the rate of return on M2-denominated assets and a riskless alternative asset). This provided a basis for judging what money target or interest rates would be consistent with noninflationary economic growth. The relationship between M2 velocity and opportunity
cost broke down in the early 1990s, and standard models of money demand became less reliable.

Since 1993, the historical link between velocity and opportunity cost seems to have reasserted itself. Indeed, when the money demand relationship is adjusted to account for the early 1990s, the model tracks actual money about as well as before the change. More intriguing, statistical evidence suggests that when actual M2 exceeds (falls short of) predicted M2, inflation rises (falls).

Some might point to the much slower growth rates in the narrow
monetary aggregates, particularly currency and the monetary base, as a sign that policy has been too contractionary, but this would be somewhat misleading. Currency, which accounts for about $90 \%$ of the monetary base, is supplied according to demand, making it less useful as a policy indicator. In addition, year-to-date growth rates are calculated relative to elevated pre-Y2K levels, which clearly were expected to decline once the event had passed without incident. Finally, seasonal adjustment (the process of removing regular fluctuations associated with recurring
$\frac{4}{\text { Monetary Policy (cont.) }}$




Dollars per share


[^0]events such as holidays) is particularly difficult after a one-time event of this magnitude. Annualized year-todate growth over a two-year horizon arguably provides a less biased picture of currency growth.

The stock market provided plenty of thrills and chills in 2000, rising sharply in the winter and staying relatively high through much of the summer, then falling precipitously for the rest of the year. Broad indexes like the S\&P 500 and the Wilshire 5000 ended the year down about $10 \%$ and $12 \%$, respectively. Much of
the excitement focused on the technology sector, which dominates the NASDAQ stock index. By year's end, the NASDAQ had fallen to around half its March peak.

Despite the recent drop, stock prices are still four times higher than in 1990. And in retrospect, this year's experience is not so surprising. The economy seems to be in transition from a high-some say unsustain-able-growth rate of near $5 \%$ to a trend growth rate that is lower than the recent pace but higher than the trend rate experienced in 1973-95.

A transition was expected, but its timing and the magnitude of the slowdown remain highly uncertain. Such details become known only in retrospect and only then have clear implications for near-term earnings growth and stock prices.

The decade-long rise in broad stock indexes like the S\&P 500 was largely supported by fundamental factors such as earnings growth, which showed persistently high rates over much of the past 10 years. Moreover, the index's price/earnings ratio ( $\mathrm{P} / \mathrm{E}$ ) reached a peak of about (continued on next page)

## Monetary Policy (cont.)



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a. Oil prices are West Texas intermediate. Natural gas prices are from Henry Hub.
b. British thermal units.
SOURCES: U.S. Department of Commerce, Bureau of Economic Analysis; Standard and Poors Corporation; and Wall Street Journal.
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33 in 1999, with the 18 largest tech stocks hitting a P/E peak above 125 . The P/E implicitly measures the prospect for future earnings growth. When it is high, investors are willing to pay high prices because they expect that earnings will grow faster than historical trends so that the P/E will fall to some norm-now thought to be somewhere between 15 and 25.
Analysts' estimates of individual firms' earnings growth prospects have confirmed this view. Recently, however, near-term earnings projections
have been revised downward because of evidence that the anticipated transition is under way. Nevertheless, earnings projections over three to five years still exceed historical trends and so remain broadly consistent with the current $\mathrm{P} / \mathrm{E}$.

High U.S. stock prices in the late 1990s also reflected their attractiveness relative to assets abroad. Foreign holdings of U.S. securities jumped in 1998 after the Russian default, when global investors sought a safe haven. The dollar's recent weakness relative to the euro raises
concerns that foreign investors may now seek better prospects outside the U.S. And although oil prices receded substantially in December (not shown), the price of natural gas accelerated late in 2000 when temperatures in North America dropped well below normal. Earnings growth prospects for some sectors could thus be depressed further as households cut discretionary expenditures to pay their heating bills. Transition, a reality of a market economy, is rarely an unmixed blessing.

International Developments




a. Foreign currency per dollar, daily data.
b. Blue Chip forecast.

SOURCES: Board of Governors of the Federal Reserve System; Blue Chip Economic Indicators; and Wall Street Journal.

The dollar's trade-weighted value has slipped in recent weeks. The Major Currency Index is down more than $4 \%$ and the Broad Dollar Index more than $2 \%$ since their peaks in late November. Depreciation against the British pound and the Canadian dollar has been consistent with the two indexes, but the U.S. dollar has continued to appreciate against the yen as the outlook for the Japanese economy seemed to soften a bit. More dramatic has been the dollar's change relative to the euro, which has appreciated $10.4 \%$ against the
dollar since its October low of 0.827. Changing expectations about U.S. economic growth and financial market performance are said to be largely responsible for the dollar's depreciation.

The downward revision to thirdquarter U.S. GDP was small, but it appeared to confirm market sentiment that growth is slowing more in the U.S. than in Europe. Faster European growth could eventually pull foreign investment away from the U.S. Market participants appear to have factored lower profit growth into prices of U.S equities already.

Falling equity prices make American assets less attractive to foreigners and reduce capital inflows to the U.S.

The dollar's rise relative to the euro over the past few years has been associated with stronger-thanexpected U.S. economic growth, stronger growth in the U.S. than in Europe, and large inflows of foreign capital. As U.S. growth slows relative to Europe, inflows of foreign capital may slacken and reduce demand for the dollar relative to the euro.

## . 7. <br> Interest Rates




a. All yields are from constant-maturity series.
b. Average for the week ending on this date.
c. Shaded areas indicate recessions.
d. Real GDP growth for the succeeding four quarters.

SOURCES: Board of Governors of the Federal Reserve System, "Selected Interest Rates," Federal Reserve Statistical Releases, H.15; and Bloomberg Financial Information Services

As 2000 closed, the yield curve was inverted, with a 3-year, 3-month spread of -78 basis points (bp) and a 10-year, 3 -month spread of -74 bp . The inversion's proximate cause was an increase in short rates combined with a decrease in long rates. The curve starts sloping upward again at five years, although 7 -year yields continue to exceed adjacent maturities somewhat.

Long-term real interest rates-as measured by Treasury inflationindexed securities (TIIS), which
adjust both principal and interest payments for inflation-show a related pattern. Both 10-year and 30-year TIIS fell throughout most of 2000 , although 30 -year yields were generally lower. This is evidence of an inflation premium in nominal rates, for which the 30 -year premium exceeds the 10-year.

An inverted yield curve is commonly thought to signal an incipient recession. How valid is this claim? One way to check is to plot the 10-year, 3-month spread (historically,
the best spread for predicting recessions) along with GDP growth for the year ahead. The spread was negative (even if only slightly) before the past five recessions, although the lag between inversion and recession varied, and at least once (in 1966) a negative spread was not followed closely by a recession. Generally, a wide spread indicates high growth and a narrow spread indicates low growth, but this relation was strained in two low-inflation eras, the 1960s and the 1990s. While


a. Bloomberg composite rate for dealer-placed commercial paper. NOTE: For all charts on this page, the last data point is December 29, 2000. SOURCE: Bloomberg Financial Information Services.
a cause for concern then, the current inversion should not be taken as a definitive indicator.

Another recent source of concern has been risk spreads-spreads between bonds of different riskiness. The commercial paper market has seen a particularly large spike in the spread between paper rated A1/P1 (the highest grade) and A2/P2. This spike tops levels that were reached in earlier times of financial concern, such as the Long Term Capital Management crisis and Russian default of late 1998 and the Y2K preparations of a year ago.

Although spreads on both 30- and 90-day commercial paper have risen, higher A2/P2 rates account for most of the rise in the 30 -day spread, whereas declines in the safe A1/P1 rate also contribute to the 90-day spread. Perhaps less noticeable, both spreads have recently fallen as sharply as they had risen: From their peaks of 119 bp and 107 bp for the week of December 22, 2000, 30- and 90 -day spreads dropped to 22 bp and 38 bp as of January 2, 2001.

Other sorts of risk spreads also have increased recently: The spread of BAA corporate bonds over Treasuries has reached high levels, as has the spread of B3 corporates over BAAs. Along with commercial paper rates, this may signal some tightness in the lending market: A decline in outstanding federal debt might account for the increasing spread over Treasuries, but it cannot explain the spread between different grades of corporate bonds.

## Inflation and Prices





a. Annualized.
b. Mean expected change in consumer prices as measured by the University of Michigan's Survey of Consumers
c. Calculated by the Federal Reserve Bank of Cleveland.

SOURCES: U.S. Department of Labor, Bureau of Labor Statistics; Federal Reserve Bank of Cleveland; and University of Michigan

The Consumer Price Index rose 2.1\% (annualized) in November, replicating the growth rate for October. Despite two consecutive months of moderate growth, CPI has grown at 3.5\% (annualized) since September, just above the $3.4 \%$ average rate for the past 12 months. Consumer prices for 2000 are expected to register a substantially larger increase than the annual advances experienced in 1995-99.

Two months of relatively modest price growth have helped to moderate household inflation expectations. From a peak of more than $4 \%$ in October, the latest Survey of Consumers showed the mean year-ahead anticipation of pricelevel growth at the year's lowest; it is now just below the actual 12-month growth rate of the measured price index.

CPI volatility over the course of 2000 intensifies uncertainty about the price outlook. Despite recent moderation in the growth of the overall index, the median CPI and the CPI excluding food and energy compo-nents-both alternative measures of so-called "core" inflation-have continued to drift upward, with the trend in the median especially noticeable. Furthermore, an increasing number of components registered annualized growth rates above $3 \%$.

Inflation and Prices (cont.)




a. Through November 2000.
b. Blue Chip panel of economists.
c. Shaded areas show economic recessions.
d. Calculated by the Federal Reserve Bank of Cleveland.

SOURCES: U.S. Department of Labor, Bureau of Labor Statistics; Federal Reserve Bank of Cleveland; and Blue Chip Economic Indicators, January 10, 2000, and December 10, 2000.

The dynamics of prices in 2000 clearly have been influenced by energy developments, and the recent reversal of oil prices has contributed to the decline in both measured inflation and inflation expectations. However, the overall energy price outlook is far from settled: Rapid accelerations in oil and energy prices have been a characteristic of most downturns in the past 25 -plus years (especially if 1980-82 is considered a single episode). Some observers interpret current
signs of softening in real activity as a classic energy-related supply shock.

If this is true, we should not jump to the conclusion that any developing weakness in the economy will inevitably bring a quick diminution in long-term price pressures. It is true that CPI growth tends to fall sharply in recessions, along with oil price inflation. Core measures of inflation, however, do not typically improve prior to the recovery phases of the business cycle.

What is most troubling is that core inflation since the 1981-82 downturn has not generally responded to energy-related declines in the overall CPI, except during the 1990-91 recession. In fact, evidence from this period suggests an asymmetric relationship: Declines in the relative price of energy have no effect on trend inflation-except, it seems, when they follow an acceleration prior to short-run economic decline. Not a pretty picture.

| Real GDP and Components, 2000:IIIQ ${ }^{\text {a,b }}$ (Final estimate) |  |  |  |
| :---: | :---: | :---: | :---: |
|  | Change, | Percent | e, las |
|  | billions of 1996 | Quarter | $\begin{aligned} & \text { Four } \\ & \text { quarters } \end{aligned}$ |
| Real GDP | 50.6 | 2.2 | 5.2 |
| Consumer spending | 69.2 | 4.5 | 5.3 |
| Durables | 16.5 | 7.7 | 9.3 |
| Nondurables | 21.5 | 4.7 | 5.4 |
| Services | 32.6 | 3.7 | 4.3 |
| Business fixed |  |  |  |
| investment | 26.3 | 7.7 | 13.1 |
| Equipment | 15.8 | 5.6 | 13.2 |
| Structures | 9.6 | 14.6 | 12.6 |
| Residential investment | -10.3 | -10.6 | -1.5 |
| Government spending | -5.5 | -1.4 | 2.6 |
| National defense | -8.9 | -9.7 | -1.2 |
| Net exports | -24.3 |  |  |
| Exports | 37.0 | 13.9 | 11.1 |
| Imports | 61.2 | 17.0 | 14.5 |
| Change in private inventories | -6.1 | - | - |




a. Chain-weighted data in billions of 1996 dollars.
b. Components of real GDP need not add to totals because current dollar values are deflated at the most detailed level for which all required data are available. NOTE: All data are annualized and seasonally adjusted.
SOURCES: U.S. Department of Commerce, Bureau of Economic Analysis and Bureau of the Census; and Blue Chip Economic Indicators, December 10, 2000.

In 2000:IIIQ, gross domestic product (GDP) grew at a $2.2 \%$ annual rate, its slowest in four years. This final estimate, released late in December, is 0.2 percentage point below the preliminary estimate of a month earlier and fully 0.5 percentage point lower than October's advance estimate. Downward revisions were common to all sectors except imports and government, with a major contribution ( -0.15 percentage point) from a lower export estimate. The slowdown in real GDP from the second quarter to the third primarily reflected
lower inventory investment and less federal government spending, as well as deceleration in nonresidential fixed investment. These negative changes were partly offset by a noticeable rebound in personal consumption expenditures. After slowing markedly in the second quarter, personal consumption spending rose at a healthy $4.5 \%$ annualized rate in the third. Disposable personal income is still growing more slowly than consumption expenditures, and the personal saving rate dipped below zero in the third quarter.

Blue Chip forecasters expect GDP growth to rebound only slightly and to remain below the 30-year average throughout 2001. Of course, Blue Chip forecasters have a history of underprediction. December Blue Chip median forecasts of the next year's annual GDP growth rate underestimated actual GDP growth in eight of the past 11 years; in each of the last five years, they were more than a full percentage point too low.

Despite ever-smaller personal saving rates over the last decade, the household sector's ratio of net worth

Percent change from previous quarter


a. Annual data excluding the last observation, which is for 2000:IIIQ.
b. Profits with inventory valuation and capital consumption adjustments. c. Billions of current dollars.

NOTE: All data are seasonally adjusted and annualized.
SOURCES: U.S. Department of Commerce, Bureau of Economic Analysis; and Board of Governors of the Federal Reserve System.
to disposable income has increased dramatically. The National Income and Product Account's measure of personal savings is simply the difference between disposable personal income and total personal consumption of all outputs except residential construction. By this measure, personal savings have fallen significantly over the decade. However, if consumers' purchases of durable investment-type goods such as automobiles and household appliances are included, the drop in personal savings is less pronounced. But even
this would not account for the rapid increase in household net worth. Holding gains on investments in equities and real estate reached extraordinary levels between 1994 and 1999. These capital gains, whether realized or not, are responsible for the swift rise in the net worth/disposable income ratio. The stock market retrenchment of the past year may eliminate holding gains as a dominant source of increased net worth in 2000, but the level of the net worth ratio is likely to remain high. There should be little question why consumers have had
no apparent qualms about choosing negative personal saving rates.

Growth in nonfinancial corporate profits (with inventory and capitalconsumption adjustments) came to a halt during the third quarter. While profit growth rates typically are volatile, declining profits were widespread. Profits fell in transportation, nondurable goods, and four of five durable-goods sectors. Only the machinery sector showed an increase in profits. Such a widespread drop has not occurred since the first quarter of 1997.

## Labor Markets



| Labor Market Conditions |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | Average monthly change (thousands of employees) |  |  |  |  |
|  | 1997 | 1998 | 1999 | 2000 | $\begin{aligned} & \hline \text { Dec. } \\ & 2000 \\ & \hline \end{aligned}$ |
| Payroll employment | 280 | 251 | 229 | 160 | 105 |
| Goods-producing | 48 | 22 | 4 | 0 | -78 |
| Mining | 1 | -3 | -3 | 1 | -3 |
| Construction | 21 | 37 | 25 | 14 | -13 |
| Manufacturing | 25 | -12 | -18 | -15 | -62 |
| Durable goods | 27 | -2 | -6 | -5 | -36 |
| Nondurable goods | -2 | -11 | -12 | -10 | -26 |
| Service-producing | 232 | 229 | 225 | 159 | 183 |
| TPU ${ }^{\text {a }}$ | 16 | 20 | 16 | 14 | 23 |
| Retail trade | 24 | 30 | 36 | 25 | 8 |
| FIRE ${ }^{\text {b }}$ | 21 | 22 | 10 | 4 | 19 |
| Services | 141 | 120 | 124 | 95 | 81 |
| Government | 17 | 28 | 28 | 13 | 56 |
|  | Average for period (percent) |  |  |  |  |
| Civilian unemployment | 4.9 | 4.5 | 4.2 | 4.0 | 4.0 |



a. Transportation and public utilities.
b. Finance, insurance, and real estate.
c. Vertical line indicates break in data series due to survey redesign.

NOTE: All data are seasonally adjusted.
SOURCE: U.S. Department of Labor, Bureau of Labor Statistics.

Despite signs of weakening in the overall economy, labor markets held steady, albeit with slower job growth than earlier in 2000. In December, nonfarm payrolls rose 105,000 , which exceeds the downwardly revised figures for October $(66,000)$ and November $(59,000)$, but is much lower than the average monthly gain for the first nine months of the year $(187,000)$. Other labor market measures remained strong: The unemployment rate was unchanged at $4.0 \%$, and the employment-to-population ratio increased $0.1 \%$ to $64.5 \%$.

The aggregate labor market's apparent stability masked wide variations in payroll growth across industries. The private sector's weak employment growth in December resulted in a net gain of only 49,000 jobs. Moreover, there were significant net losses in goods-producing industries such as construction $(-13,000)$ and manufacturing ( $-62,000$ ), as well as in temporary help services $(-58,000)$. On the other hand, many service industries, notably computers and data processing and health services, registered strong gains. Also, a large gain in government employment $(56,000)$ reversed a similar-sized loss in November.

Why has the unemployment rate remained low when other economic indicators have deteriorated rapidly? The unemployment rate is generally considered to be a lagging indicator, which means that it takes awhile for slowing economic activity to affect it adversely. However, declining employment in temporary help over the last 15 years seems to have led-not lagged-weakening in overall economic activity. Indeed, the data show that temporary help employment has declined precipitously since April 2000 and is now at its lowest level since the 1991 recession.

Long-Term Federal Budget Projections

Percent of GDP



NOTE: All data are for calendar years. SOURCE: Congressional Budget Office.

Percent of GDP


Percent of GDP


The Congressional Budget Office's projections suggest that, if current policies remain in place, federal revenues will grow at the same pace as GDP and will stay at just below $20 \%$ of GDP through 2070 (under mid-range economic and demographic assumptions). However, federal expenditures as a percent of GDP will begin to rise after 2013. The increase will be sustained over several decades, reaching one-third of GDP by 2070.

This means that near-term surpluses, however large, will be
converted into long-term deficits that are larger still. As a result, it is projected that federal debt will be paid off by 2010 and the Treasury will hold positive cash balances through the year 2050-again assuming that current policies remain unchanged.

The chief reason for the projected growth in federal expenditures relative to GDP is baby boomers' transition from middle age to retirement, which will swell outlays on Social Security, Medicare, and Medicaid. Among these, Social Security is expected to have the slowest growth
in outlays as a percent of GDP (from $4 \%$ now to nearly $6 \%$ by 2070). Medicare and Medicaid will grow faster relative to GDP. For example, Medicare expenditures, currently at just over $2 \%$ of GDP, are expected to escalate to $9.6 \%$ by 2070.

The more rapid rise in health care outlays may be explained by increases in the unit costs of providing care, which are likely to occur as better but more expensive procedures become available and the use of health care services intensifies over time.

## Defined-Contribution Pension Plans




Percent of plans


a. Includes defined-contribution and defined-benefit plans. Employees covered by both types are counted only once in the "all plans" category.
b. For plans not accounted for, the number of choices was either zero or indeterminable.
c. Or up to the IRS dollar limit.
d. Contribution limits were indeterminable for $2 \%$ of plans.

NOTE: All data are for 1997.
SOURCES: U.S. Department of Commerce, Bureau of Labor Statistics; and Employee Benefits Research Institute.

For 25 years, employers increasingly have turned to defined-contribution (DC) pension plans, partly because they are cheaper to administer and reduce their risks of funding pension coverage. But DC plans benefit employees as well. In nominal terms they provide a less stable replacement of preretirement earnings than do defined-benefit (DB) plans, but they offer more flexible funding methodsfor example, they can protect against real-income erosion through inflationhedged portfolios. Because DC plans are fully funded and have simpler benefit-payout rules, they make annual pension wealth accrual more
transparent and predictable than do DB plans. In addition, DC plans can more easily allocate assets according to workers' desires to make bequests and buy annuities.

Almost 80\% of U.S. workers have some type of pension. In the 1990s, as the share of full-time employees covered by DC plans rose, the share covered by DB plans fell. Most DC plans offer five or more investment choices. The law caps total contributions (employer plus employee) at $\$ 30,000$ or $25 \%$ of compensation, whichever is less, and caps employees' (elective) contributions at $\$ 10,500$. Limits imposed by employers tend to
be more restrictive; most allow maximum contributions of $15 \%$ of earnings or less; only $10 \%$ permit contributions to exceed $20 \%$ of earnings.

DC plans can be a flexible way to seek retirement security, but their success depends on how they are used. Penalty-free withdrawals before age 59.5 are legally permissible only if based on a long-term schedule. Most plans permit discretionary withdrawals before age 59.5 , albeit with a penalty. Many accept only hardship reasons (like home purchases, medical costs, or unexpected legal expenses), but a significant fraction accept any reason.

## 401(k)-Type Plans



NOTE: All data are for 1997. They combine 401(k) plans with 403(b) plans and supplemental retirement annuities.
SOURCES: U.S. Department of Commerce, Bureau of Labor Statistics; and Employee Benefits Research Institute.

Redressing Social Security's funding shortfall by cutting benefits or hiking payroll taxes is likely to make returns on past contributions barely, if at all, positive. Workers with access to defined-contribution (DC) pension plans, however, might improve their retirement income by investing more in stocks than in bonds. Historical experience suggests that over investment horizons of 20 years or longer, stocks in general are likely to yield much higher returns than bonds with only modest (or no) increased risk of capital loss. How much an individual in a DC plan can
invest in stocks rather than bonds depends on the number and scope of investment choices the plan offers.

Investment patterns among people with access to $401(\mathrm{k})$-type plans show that a large fraction of those in lowincome families invest primarily in bonds rather than stocks. The opposite is true for high-income families. One explanation is that low-income families are more risk averse or have less access to information about the risk-return trade-offs for stocks versus bonds over longer horizons. Alternatively, they may be aware that they are more likely to withdraw $401(\mathrm{k})$-type
accumulations over shorter horizons and may rationally invest more heavily in bonds than stocks. Or high earners may work for larger firms that offer 401(k)-type plans with a sufficiently wide range of investment choices. This permits better portfolio diversification and therefore greater exposure to stocks.

The data suggest that more educated individuals and whites tend to invest more heavily in stocks than others do. Except for those older than 75 , there is little evidence that the fraction invested in stocks varies significantly by age.




a. Net income equals net operating income plus securities and other gains and losses.
b. Net operating revenue equals net interest income plus noninterest income.
c. Interest and dividends earned on interest-bearing assets minus interest paid to creditors, expressed as a percent of average earning assets. NOTE: All charts refer to FDIC-insured institutions.
SOURCE: Federal Deposit Insurance Corporation, Quarterly Banking Profile, 2000:IIIQ.

Consistent with the slowing economy, conditions for the nation's FDIC-insured depository institutions remained mixed in the third quarter. After a disappointing second quarter, commercial banks' earnings rebounded in the third, approaching the record-setting levels reached in the first quarter. Third-quarter net income totaled $\$ 19.3$ billion, up 31.6\% from the second quarter, but still $1.32 \%$ off the $\$ 19.5$ billion posted in the first. Gone were large banks' sizable restructuring and credit-related
charges, which sapped the industry's second-quarter results.

Average return on assets (ROA) tells a similar story. Third-quarter ROA recovered to $1.28 \%$, following $0.99 \%$ in the second quarter, but remained significantly lower than the 1999:IIIQ peak of $1.41 \%$. Higher short-term rates caused commercial banks' net income to slip $1.4 \%$ below that of a year ago. Earnings strength remained widespread, however, with $62.9 \%$ of commercial banks reporting an ROA of $1 \%$ or more for the third quarter.

Although securities losses and other gains and losses narrowed, some signs pointed to the possibility of lower profits to come. Noninterest income as a percent of net operating revenue, which has grown robustly over much of the last four years, has stalled of late, particularly for small banks. Furthermore, net interest margins continued their long decline, which began in 1993.

In addition, loan quality seems to be slipping. Noncurrent loans and leases and net charge-offs have

18
Bainking Conditions (cont.)


Billions of dollars


Percent of assets


Percent of net operating revenue ${ }^{e}$

a. Ratio of prudential reserves to total loans and leases.
b. Ratio of prudential reserves to noncurrent loans and leases.
c. Net income equals net operating income plus securities and other gains and losses.
d. A major cause of the sharp decline in 1996 was a special insurance assessment on savings institutions' deposits.
e. Net operating revenue equals net interest income plus noninterest income.

NOTE: All charts refer to FDIC-insured institutions.
SOURCE: Federal Deposit Insurance Corporation, Quarterly Banking Profile, 2000:IIIQ.
been rising since 1998, increasing $\$ 2.2$ billion and $\$ 0.4$ billion in 2000:IIIQ. Unfortunately, prudential reserves continue to grow more slowly than noncurrent loans and total loans. The reserve ratio (prudential reserves as a percent of total loans and leases) and the coverage ratio (those same reserves as a percent of noncurrent loans and leases) have edged downward. Net chargeoffs of banks' credit-card loans caused the largest loan losses, with
net charge-offs of $\$ 2.4$ billion (4.27\%) in the last quarter.

Banks have been able to offset some of the decline in loan quality by boosting the ratio of net loans and leases to total assets, thus generating more earnings per asset dollar. Also, assets rose $\$ 80.9$ billion during the third quarter, topping $\$ 6$ trillion for the first time and giving banks more to lend. They found willing borrowers for the additional capital, much of which has gone to depository institutions (up 12.5\%), home equity lines of
credit (up 5.8\%), and real estate construction and development loans (up 4.6\%). In sum, the nation's banks remained fairly healthy. This is reflected in their equity capital, which increased to $8.59 \%$ of assets because of profit retention arising from securities holdings' improved market value and higher retained earnings.

Conditions for FDIC-insured savings institutions weakened as earnings fell for the second consecutive quarter to $\$ 2.6$ billion, down $\$ 186$ million from the second quarter and (continued on next page)

## Banking Conditions (cont.)




a. Net income equals net operating income plus securities and other gains and losses.
b. Ratio of loan-loss reserves to noncurrent loans.

NOTE: All charts refer to FDIC-insured institutions.
SOURCE: Federal Deposit Insurance Corporation, Quarterly Banking Profile, 2000:IIIQ.
down $\$ 273$ million from a year ago. Profitability remains a concern because almost $10 \%$ of savings institutions reported losses in 2000:IIIQ and just $27 \%$ had an ROA higher than $1 \%$. Their average ROA fell to $0.86 \%$ from $1.00 \%$ a year ago.

As with banks, the inverted yield curve has put downward pressure on thrifts' net interest margins. Higher short-term rates have increased funding costs, but the yield on earning assets has not kept pace. Unlike banks, thrifts' noninterest income continues to rise at a fairly stable rate.

Savings associations' credit quality, while still far better than it was during the savings and loan crisis, has been slipping since 1998. For the first time in a year, loan-loss reserves did not keep pace with the increase in noncurrent loans. Noncurrent loans rose $\$ 253$ million in the third quarter, while reserves increased only $\$ 239$ million, lowering the coverage ratio to $132 \%$. The percent of loans that were noncurrent increased for commercial and industrial loans (up 13 basis points to $1.39 \%$ ), credit cards (up 10 bp to $1.33 \%$ ), and real estate construction and land loans (up 5 bp to $0.79 \%$ ).

Savings associations' assets rose $\$ 25$ billion over the quarter, led by a $\$ 16$ billion increase in home mortgages. Securities were the only major asset category to decline. Although deposits grew a robust $\$ 13.6$ billion, one-third of this increase came from a single institution that completed the purchase of a large branch network from a commercial bank. On another positive note, equity capital climbed to $8.32 \%$ of assets from $8.16 \%$ in 2000:IIQ as a result of capital infusions, retained earnings, and lower losses on available-for-sale securities.


[^0]:    a. Growth rates are percentage rates calculated on a fourth-quarter over fourth-quarter basis. The 2000 growth rate for currency is calculated on an estimated December over 1999:IVQ basis. Data are seasonally adjusted.
    b. One-year annualized year-to-date growth rates are calculated from the fourth quarter of the previous year through the given month. Two-year annualized year-to-date growth rates are calculated from the fourth quarter two years previous.
    SOURCES: Board of Governors of the Federal Reserve System; Standard and Poors Corporation; and Wall Street Journal.

