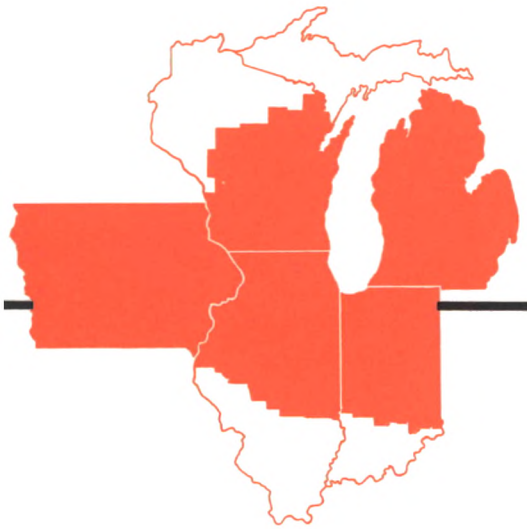
A review by the **Federal Reserve Bank of Chicago**

Business Conditions



1965 November

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THE Trend OF BUSINESS

Personal income: its regional cyclical variations

Economic activity in the Seventh Federal Reserve District has greater cyclical swings than in the nation. Primarily, this is because of the preponderance of the durable goods industries—primary metals, transportation equipment, electrical and nonelectrical machinery—which account for sizable portions of activity in Illinois, Indiana, Michigan and Wisconsin. In Iowa, agriculture tends to dominate the pattern of economic activity.

Personal income trends

The flow of personal income, which consists of total wage and salary payments, unincorporated business profits, transfer payments, interest and rents, is a fairly comprehensive, although not all-inclusive, measure of economic activity. It accounts for about 96 per cent of national income. The other major sources of national income are undistributed corporate profits and contributions to social insurance.

Each measure of economic activity varies somewhat from other measures. For example, the effect of the recessions of 1954, 1958 and 1961 upon personal income was to slow its rate of increase. This is in contrast with total nonagricultural employment, which declined in each of the recessions.

Personal income in the United States during the 1953-64 period increased at an average annual rate of nearly 19 billion dollars, but the annual increase has varied from a low of 2 billion dollars from 1953 to 1954 to a high of 29 billion dollars from 1963 to 1964. Measurement of changes in personal income about its trend line helps to place the annual changes in perspective. A trend line,

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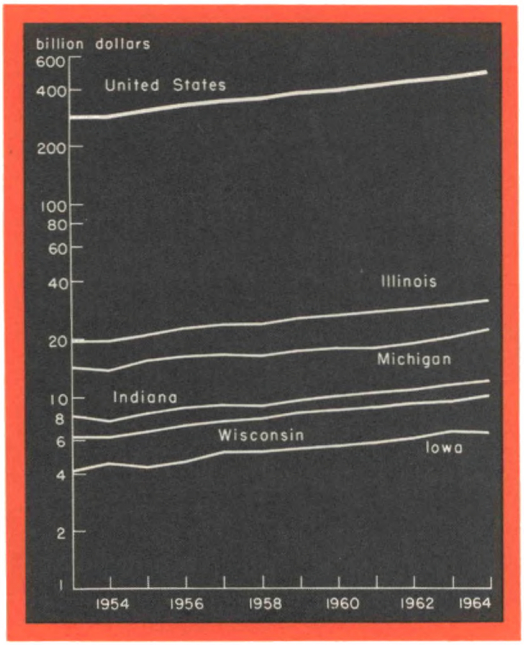
or rate of growth line, was fitted to the annual data from 1953 to 1964. If personal income is below the trend, as from 1958 to 1962, it is lagging behind its average compounded rate of growth. The converse is true if personal income is above the trend, as from 1963 to 1964. The variations about the trend reveal the cyclical patterns in personal income.

Regional variations

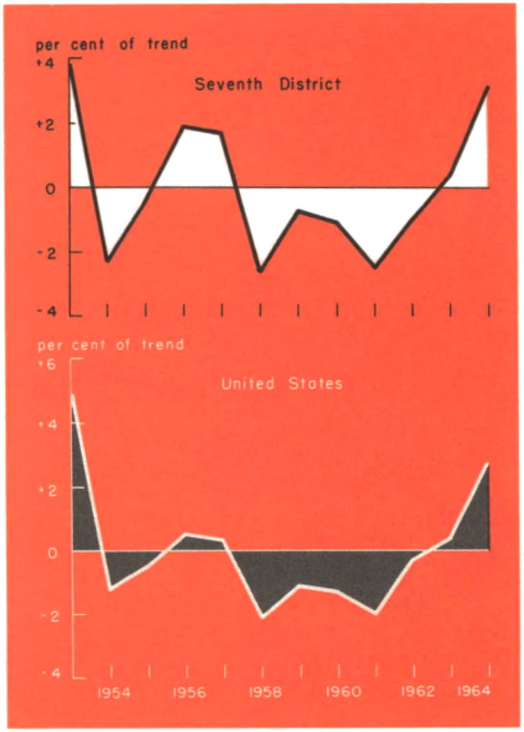
Personal income, of course, fluctuates more widely for individual states and regions than for the United States. The state and regional patterns reflect differing regional rates of economic and population growth, as well as differences in the economy of each region. Although every period is unique in some respects, each broad swing of economic activity in the United States tends to be associated with somewhat similar, but not identical, changes in personal income of individual regions.

One characteristic of the cyclical economic expansion periods since 1953 has been the less rapid increase of personal income in the older, more highly industrialized regions than the average for the nation. In New England, the Mideast (New York, New Jersey, Pennsylvania, Delaware and Maryland) and the Great Lakes states (Illinois,

Personal income
in the District states
has increased since 1953



Cyclical swings
in District personal income
greater than in the nation



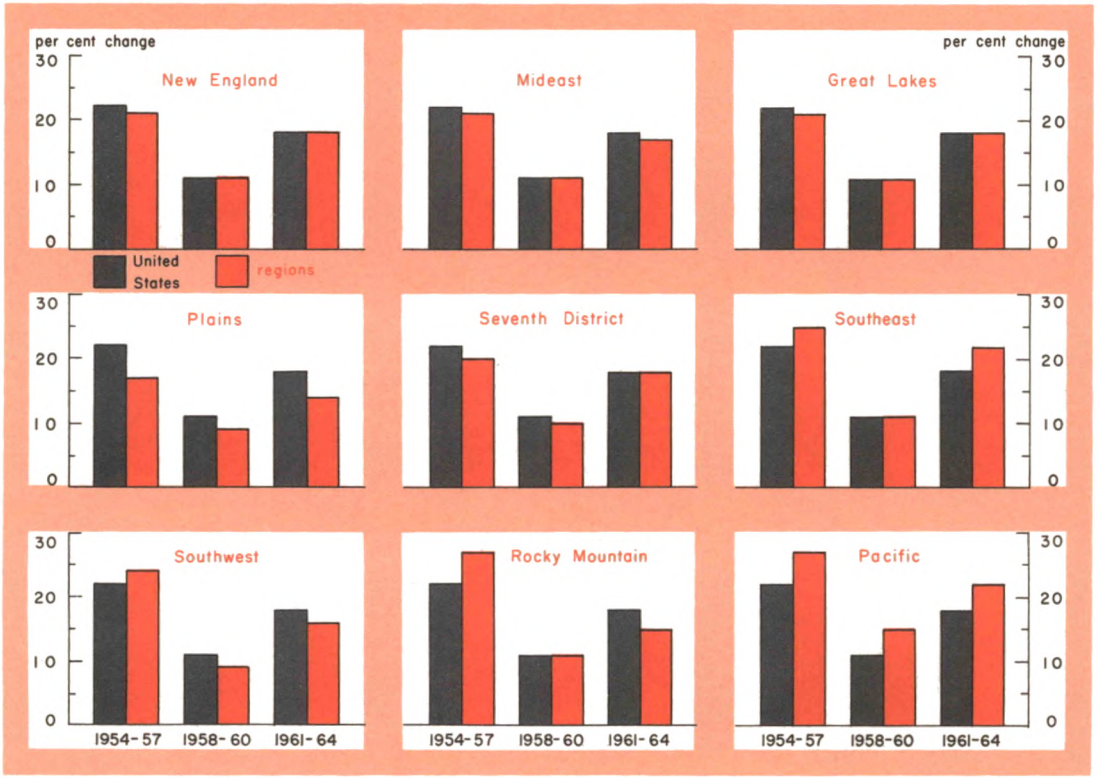
Indiana, Michigan, Wisconsin and Ohio), there have been relatively smaller increases of personal income than the average rise for the United States during the last three business cycles. In the last two expansion periods, New England and the Great Lakes states have matched the national growth recovery rate in personal income. The Mideast matched national growth only in the 1958-60 upturn. Although increases during the expansions have approached the national rate, cyclical declines in these regions have been greater than in the nation. Consequently, personal income in these regions has increased less rapidly than in the nation as a whole.

Industry variations

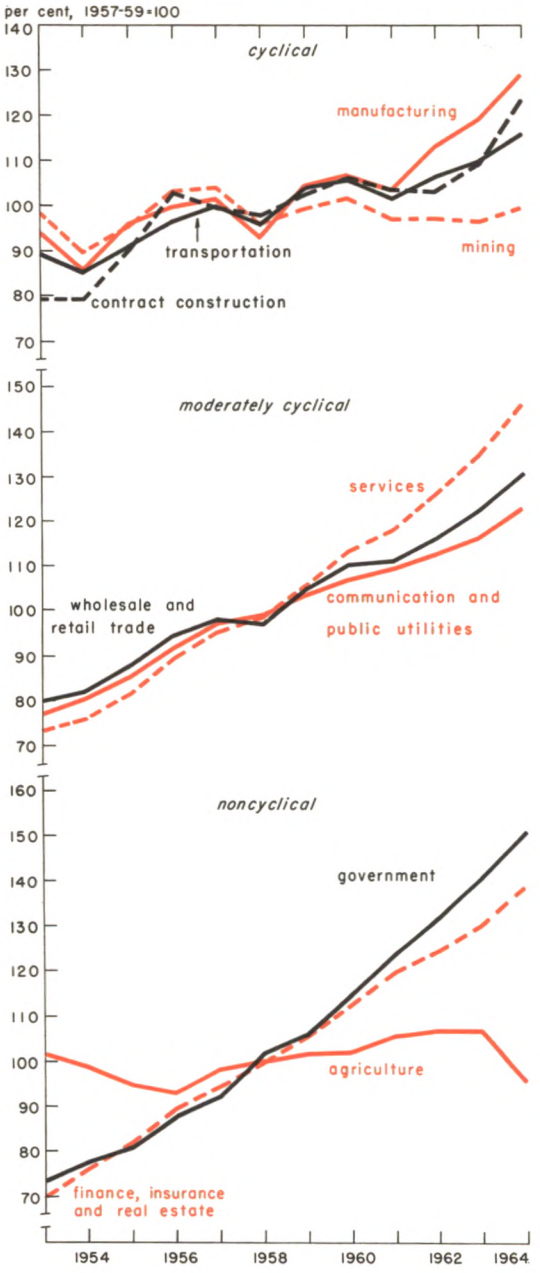
Wages and salaries account for about two-thirds of total personal income in each of the District states. Personal income from this source is estimated by the U. S. Department of Commerce for ten broad occupational groups. These groups have been combined into three classes, based upon their pattern of cyclical variation for the District states —cyclical, moderately cyclical and noncyclical industries.

Cyclical industries include those for which

Personal income has increased less rapidly during periods of expansion in the older industrial areas



Annual wage and salary payments in District industries grouped by cyclical patterns



Wage and salary payments from cyclical industries have declined in importance

	Cyclical industries	
	1953	1964
	(per cent of total personal income)	
Illinois	39	34
Indiana	44	41
Iowa	23	23
Michigan	49	41
Wisconsin	39	35
United States	35	29

salary and wage payments declined during recessions. Mining, contract construction, manufacturing and transportation generally experienced declines during the downturns of 1954, 1958 and 1961.

The moderately cyclical industries include those for which salary and wage payments normally increase throughout the business downturn, but at reduced rates. In this group are communications and public utilities, wholesale and retail trade and service.

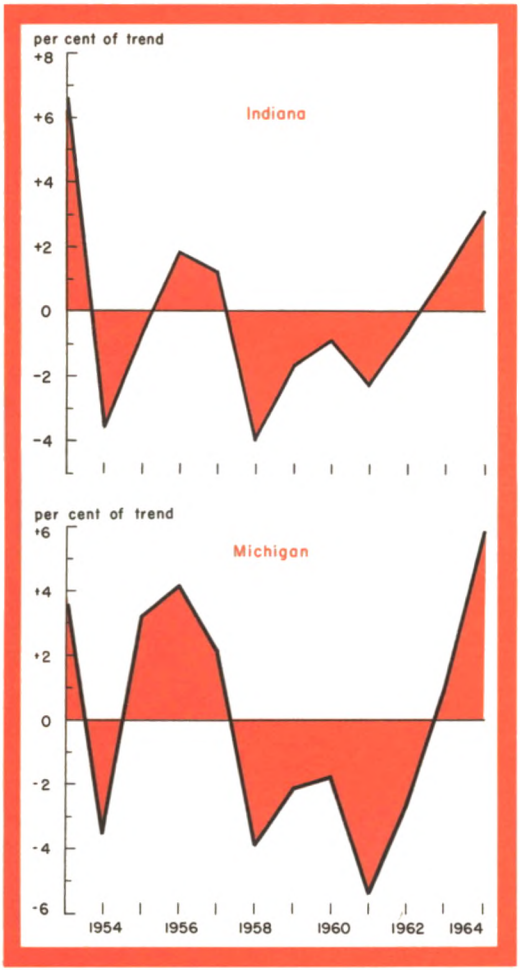
The third class, the noncyclical industries, includes those for which wage and salary payments have varied in different cycles, sometimes even rising during a recession. There appears to be little relation between fluctuations of wage and salary payments in these industries and the business cycles. Agriculture, the finance, insurance and real estate group and government are included in this sector.

As would be expected, District states with a large proportion of personal income from cyclical industries have relatively larger fluctuations in income. In Michigan and Indiana, about 41 per cent of total personal

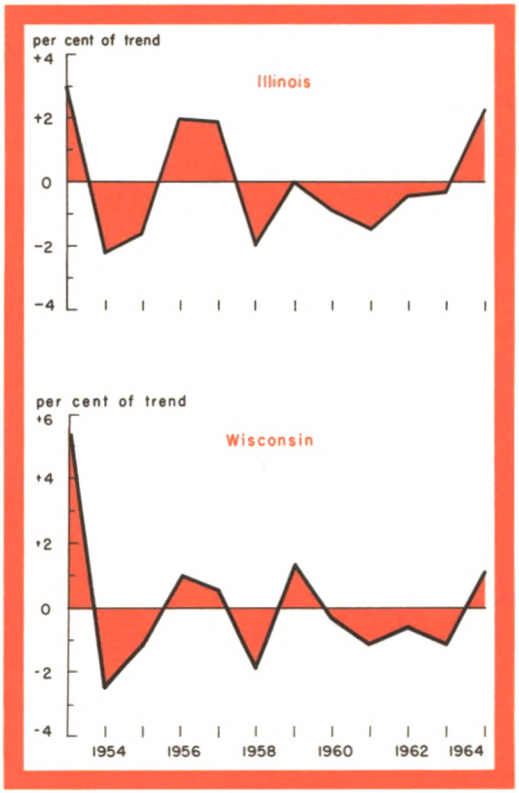
income is from the cyclical industries; as a result, personal income was far below the respective trend lines during the downturns of 1954, 1958 and 1961.

In Iowa, on the other hand, only about 23 per cent of personal income is derived from manufacturing, mining, transportation and contract construction. Net farm income rose in 1954 and caused personal income to rise.

Personal income fluctuates more in states with large proportions of income from cyclical industries



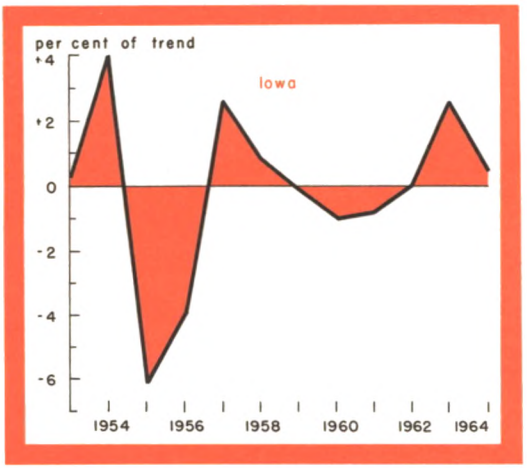
Where income from cyclical industries is less important, fluctuations are moderate



District trends shifting

During the past ten years, the position of the cyclical industries relative to the moderately cyclical and noncyclical industries appears to have shifted noticeably. A greater percentage of 1964 total personal income in each of the District states and in the nation was derived from the moderately cyclical and noncyclical industries than in 1953. Con-

Cyclical pattern
of personal income
affected by net farm income



versely, in each case except Iowa, a smaller percentage of total personal income originated in the cyclical industries.

This provides at least a partial explanation of the decreased severity of recent downturns. As the dependence on cyclical industry income has decreased, the District states have experienced smaller declines in personal income in recessions—measured as deviations from trend. For example, in 1953, just prior to the 1954 downturn, 49 per cent of Michigan personal income originated from the cyclical industries while 17 per cent was derived from moderately cyclical industries. From 1953 to 1954, Michigan income declined from nearly 4 per cent above the trend to 4 per cent below the trend line. In 1960, just prior to the 1961 downturn, however, 41 per cent of Michigan's personal income originated in the cyclical sector. In this downturn, Michigan personal income decreased 4 per cent relative to its trend level.

If activity in the District states continues to shift, with the cyclical industries becoming relatively less important, economic activity and personal income flows would be expected to become more stable.

Loan losses up in Sixties

Bank loans have risen 70 billion dollars or 60 per cent since economic activity began to rise in 1961. This is a much larger increase than in other recent periods of rising activity. The larger loan growth, in part, reflects the longer duration of the current business expansion, but the annual gains also have been greater. Net additions to outstanding loans during the past four years averaged 15 billion dollars, almost double the annual gains in the two previous periods of rising activity. Furthermore, bank loans have risen relative to total deposits. At the end of last year, aggregate loans for all commercial banks were equal to about 60 per cent of total deposits—up from about 40 per cent ten years ago.

This rapid growth of bank loans, along with a few spectacular business failures and the rise of personal bankruptcies, has raised questions about the quality of outstanding loans. Occasionally it is asserted that the rapid expansion of credit, under the aegis of a monetary policy of credit ease, must inevitably have been accompanied by an easing of lending standards and an increasing proportion of "unsound" loans. Such concern was underscored by the sharp contraseasonal rise in bank loans in the early months of 1965.

The final measure of credit quality is whether a loan is repaid as scheduled. This criterion cannot be applied in advance of maturity, except where the borrower becomes bankrupt. While the incidence of potential losses that the banking system will incur on outstanding loans cannot be determined in advance, the trend in the amounts actually charged-off in recent years provides some clue about changes in loan quality. As measured by this criterion, the quality of loans, although high in any absolute sense, may be somewhat lower than during the Fifties.

Loan loss experience

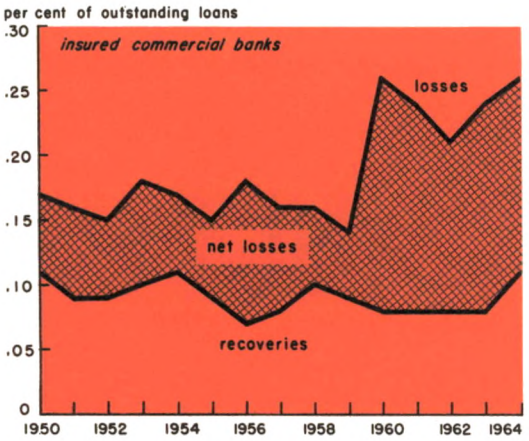
Despite rising incomes and the prolonged favorable economic climate, loan losses during the current expansion have climbed sub-

Accounting for loan losses

Commercial banks are permitted for income tax purposes to deduct a loan from gross income when it becomes worthless. As an alternative, a bank may set up a reserve against possible future bad debts and make annual transfers of gross income to that reserve in reasonable amounts. In this case, actual losses incurred in a particular year are charged against the reserve. About two-thirds of the banks, accounting for 95 per cent of outstanding loans, use the reserve method. Loss reserves at these banks average slightly over 2 per cent of their loans.

Loan loss statistics in this article include losses charged against profits and against reserves. Transfers to reserves are excluded. The information is obtained from statements of income and dividends published annually in the *Federal Reserve Bulletin*. Ratios of losses to outstanding loans are computed from dollar aggregates of individual bank figures.

Losses on loans sharply higher in the Sixties



stantially. Last year, losses charged against income or reserves amounted to more than 400 million dollars at insured commercial banks compared with 80 million in 1950. Since the volume of outstanding bank loans has risen to nearly four times the 1950 level, a large absolute increase in loan losses would be expected. Gross losses at all insured commercial banks amounted to .26 per cent of outstanding loans in 1964, about one and one-half times the 1950 ratio. In the Fifties this ratio varied within a narrow range of .14 to .18 per cent. But in 1960 losses rose to .26 per cent of loans and, except for a slight dip in 1962, have remained at this higher level.

Loans actually charged-off are sometimes recovered later as financial conditions improve for the borrower or some settlement is made. These collections may not occur for some time so that losses in one year may be recovered in a subsequent year. Recoveries, nevertheless, are an important offset to loan losses. During the Fifties recoveries were over half as great as gross losses. When losses swelled in 1960, however, recoveries did not rise correspondingly. As a result, *net* losses (gross losses less recoveries) as a per cent of loans outstanding in the past four years have been about double those experienced during the Fifties.

Net losses on loans in recent years have been at a record high for the postwar period. In the mid-Forties recoveries had exceeded losses. During the late Twenties and the depression years in the Thirties, of course, banks encountered widespread loan delinquencies.

Averages often conceal substantial variations. Despite the larger net losses incurred in recent years by the banking system, the vast majority of banks have very low losses. More than half of the banks included in a survey by the U. S. Treasury Department in 1963 reported net loss rates under one-tenth of 1 per cent of loans outstanding and only 5 per cent had net loss rates as high as 1 per cent of their loans.[1]

Loss experience varies somewhat by geographic location. Differences between regions arise from the characteristics of the local economy as well as changes in the business climate. For example, loss data indicate that generally higher net losses on loans have been sustained by banks in the Dallas and Atlanta Federal Reserve districts. The average net loss ratio over the past ten years in these districts was half again as high as the ratio for all member banks in the United States. Several districts, comprising mainly the North Central part of the United States, experienced slightly lower net losses than the nation as a

[1] The 1963 survey was part of a Treasury Department study of loan loss experience and reserves at all insured commercial banks in the years 1961 through 1963. The results of the study have been presented by Paul M. Horvitz and Sherman Shapiro in *The National Banking Review*, September, 1964.

whole during the same period.

The rise in losses in the Sixties has been fairly general, with the net loss ratio about doubling—compared with the previous five years—in all districts except Boston and Philadelphia. Some unusually high losses were sustained in certain areas. Charge-offs were high at Seventh District banks in 1956 due to substantial losses on a few large business loans which were partially recovered in subsequent years. The widely publicized "salad oil" case of two years ago resulted in sizable losses for some large banks; in addition, the sharp increase in the loss rates in New York and some other areas in 1960 probably reflect charge-offs resulting from the Cuban revolution.

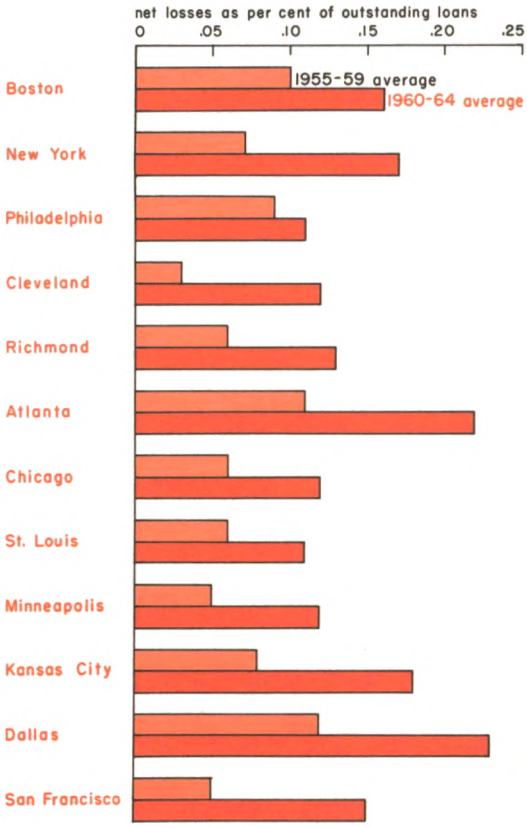
Loss experience also has varied between large and small banks. Over the past ten years, net loan losses at small banks (those with total deposits under 10 million dollars) have averaged about .15 per cent of outstanding loans. Net losses were somewhat lower at medium-sized banks (10-100 million dollar deposits) and the largest banks (over 100 million dollar deposits), .13 and .08 per cent, respectively. The largest banks, however, accounted for most of the sharp rise in loan losses at commercial banks in 1960.

Losses and asset distribution

The Treasury survey indicated a fairly consistent relationship between the size of the loan-loss ratio and the proportion of a bank's resources devoted to loans. In the three years 1961-63, net loan losses as a per cent of loans were greatest—about .20 per cent—for those banks with loan-deposit ratios above 70 per cent. Banks with loan-deposit ratios of less than 30 per cent had net loan losses as a per cent of loans of about .13 per cent. The percentage of banks with loan-deposit ratios above 70 per cent more than doubled during the three years covered by the study, and the proportion with such ratios above 50 per cent rose from 38 to 51 per cent.

Loss rates as well as loan income are affected by the kinds of loans a bank makes. Unfortunately, there is little statistical information on losses by type of loan. A study of loan losses of member banks in the Seventh District (about 1,000 banks) during 1957 and 1958 indicated that the composition of the loan portfolio—the relative importance of var-

Member banks in all districts have had higher loan losses in the Sixties



ious types of loans—was a determinant of a bank's overall loss rate.[2] During those years, net losses on consumer and business loans were considerably higher than on other types of loans. Consequently, banks with a high proportion of these loans had greater overall net loss rates.

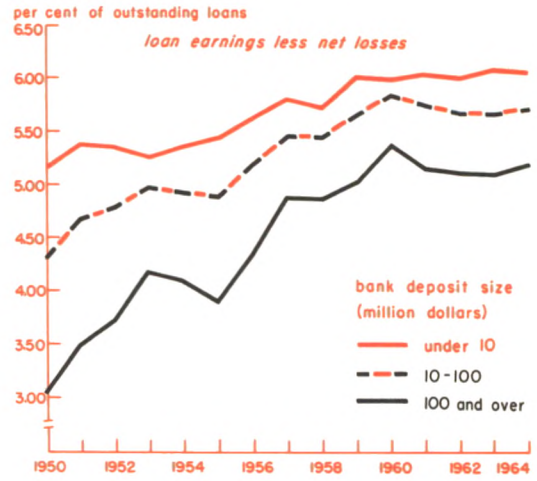
Business loans ranked second to consumer loans in terms of the aggregate amount of losses for the two years. In 1957 an additional breakdown of business loan losses showed loss rates on loans to retail trade firms (particularly the small borrowers with total assets less than 50,000 dollars) were much higher than for any other industry classification. While many banks reported losses on consumer loans, losses on business loans occurred at relatively few banks.

Only 5 per cent of the banks reported net losses on real estate loans during 1957 and 1958. The practice of making special arrangements for home buyers to stretch out mortgage payments during difficult times is fairly common, partly because the liquidation of delinquent mortgage debt usually is costly and time consuming. Such efforts help to avoid realization of losses on these loans, especially since real estate prices have been rising throughout most of the postwar years and banks typically make less liberal loans on real estate than do other lenders.

More recent evidence tends to confirm that there is a positive relationship between loss ratios at individual banks and their concentration in consumer loans. Thirty-four Seventh District member banks (3 per cent of the number of banks reporting earnings figures during 1964) had consumer loans equal to 50 per cent or more of their outstanding loans. These banks—ranging from under 2 million dollars to over 100 million dollars in deposit size—experienced an overall net loss rate of .20 per cent of outstanding loans, compared with the lower rate of .15 per cent experienced by the banks with less than half their portfolio in consumer loans. Twenty-two District banks

Net loan losses were at higher levels in the Sixties for banks of all sizes . . .

this was one factor causing a leveling in loan yields



[2] Results of this study were summarized in a booklet by Mary T. Petty and Theodore H. Schneider, "Loan Loss Experience at Member Banks of the Seventh Federal Reserve District."

reported net losses over 1 per cent of outstandings last year, and more than half of these banks had consumer loans equal to 30 per cent or more of total loans outstanding. Consumer loans accounted for slightly more than 20 per cent of the total for all District member banks.

As suggested earlier, however, some of the special problems that are known to have boosted losses at some large banks—where the increase in loss rates in the Sixties has been relatively greatest—involved business loans.

Earnings on loans

Loss experience is only one aspect of the general evaluation of loan policy. Banks should be expected to anticipate the cost of probable losses in establishing interest rates on different kinds of loans. Higher interest or lower servicing costs may more than compensate for higher loss rates on classes of loans known to have higher risk.

During the decade of the Fifties, earnings on loans at commercial banks rose steadily while loan losses remained relatively stable. As a result, the net loan yield (loan earnings less net losses as a per cent of outstandings) rose from 4.27 per cent in 1950 to 5.78 per cent in 1960. In the past four years, however, the net loan yield has leveled off at small banks (those with deposits under 10 million dollars) as rising net losses have kept pace with the increase in earnings on loans. At the large- and medium-size banks (those with deposits over 10 million dollars), the net loan yield has actually declined since 1960 as loan earnings fell and net losses continued to be relatively high.

While the evidence on loss experience lends some support to apprehensions about trends in loan quality, it should be stressed that loss information, by itself, does not provide a conclusive answer to the question of whether banking practice with respect to lending is improving or deteriorating. Coupled with loan earnings data, the loss statistics seem to indicate some inability to balance increased risk with higher rates of return in recent years. But for the great majority of banks, the loss ratio is still nominal.

Interest rate patterns in prosperity

Yields on long-term securities have been only slightly higher in recent months than those on shorter-term securities. At the end of September, for example, long-term U. S. Treasury bonds were priced in the market to yield about 4.30 per cent, or approximately 30 percentage points above the yields on three-month Treasury bills. Four years earlier the situation was quite different. While bonds yielded 4 per cent, only slightly less than at present, the yield on bills was only 2.25 per cent, or 1.75 percentage points below the yield on bonds. This represented a spread almost six times as great as in 1965. The changes are consistent with the changes in the pattern of rates that may be expected in a period of rising business activity.

Interest rates reflect difference in maturity and risk

	September 1965 (per cent)
3-month Treasury bills	3.92
Prime bankers' acceptances	4.25
Finance company paper	4.25
Prime commercial paper	4.38
3-5 year Treasury securities	4.24
Long-term Treasury bonds	4.25
State and local bonds Aaa[1]	3.25
State and local bonds Baa[1]	3.61
Corporate bonds Aaa	4.52
Corporate bonds Baa	4.91
Corporate bonds—public utility	4.64
Corporate bonds—industrial	4.65
Corporate bonds—railroad	4.77

[1]Interest exempt from Federal income tax.

The pattern of interest rates among securities as opposed to the average level of interest rates is determined by four factors: 1) term to maturity, 2) risk of default, 3) expectations and 4) market preferences. Term to maturity and risk of default determine what may be considered the basic pattern. The longer is the term to maturity, the greater is the lender's uncertainty about future business conditions and interest rates and the higher is the interest rate needed to attract funds. Similarly, the greater is the probability of default on the part of the borrower, the higher is the interest rate.

This pattern may be seen from the accompanying table which shows rates on a wide variety of securities at the end of September. Yields are lowest on three-month Treasury bills which are generally considered the most liquid and highest quality of the securities listed.[1] Yields on other securities rise as maturity increases and quality decreases.

Expectations and market preferences modify the basic rate pattern over the business cycle. If interest rates are expected to rise, long-term rates—which reflect expected short-term rates—will rise relative to short rates. If rates are expected to decline, long-term rates will decline relative to short rates.

[1] Market rates on U.S. Treasury bills and other short-term paper are generally shown as a discount from face value and tend to understate the rate of return in comparison to longer-term issues which are stated as interest yield on face value.

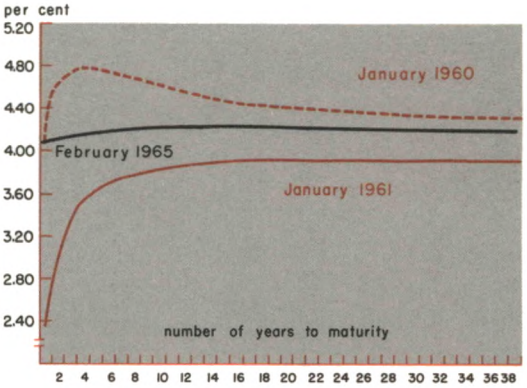
Market preferences exist because some borrowers and lenders prefer to synchronize their borrowing and lending activities with their needs, irrespective of current market rates. Thus, they tend to borrow or lend funds for specific periods of time and with specific degrees of risk. Life insurance companies and pension funds, for example, which largely hold long-term funds generally prefer to make long-term investments thereby minimizing both transactions costs and uncertainties. Commercial banks, which hold demand liabilities, and nonfinancial business firms, which hold temporary cash balances, generally prefer to lend for shorter periods of time. On the borrowing side, the preferred maturity depends largely on the use to be made of the borrowed funds. Firms planning to expand plant and equipment usually prefer long-term loans while those in need of funds to finance inventories prefer to borrow short.

Pattern over the cycle

In periods of business recession, short-term interest rates typically tend to decline sharply because of a drop-off in business demands for inventory financing and increases in the supply of short-term funds by both commercial banks and nonbank firms. The availability of bank funds is increased at least partially as a result of Federal Reserve contracyclical monetary policy. Long-term rates also decline but not as much as short rates, in part, because rates are not expected to remain depressed.

As the economy begins to expand and then gains momentum, business demands for short-term funds rise while business supplies of surplus funds tend to diminish. Concurrently, the Federal Reserve slows the rate of growth of bank reserves. Short-term rates tend to rise faster than long-term rates and, as expectations of further increases subside, approach long-term rates.

Structure of interest rates varies over the business cycle



In the final stages of the boom, short- and intermediate-term rates occasionally rise above long rates, as the demand for short-term funds, often including demand for speculative uses, increases sharply and expectations that rates will remain at the advanced levels very long diminish. This rate pattern is probably reinforced by Federal legislation which prohibits the Treasury from issuing bonds at coupon rates higher than 4.25 per cent, thereby confining sales of new securities at such times to short- and intermediate-term issues.

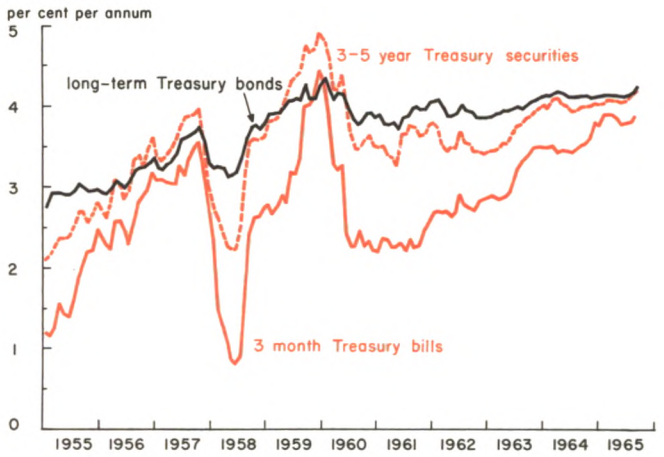
As noted, the current pattern of rates and the changes in recent years conform with the pattern that is to be expected during a period of business expansion. While long-term interest rates have climbed slowly since 1961, short rates have risen more rapidly, substantially narrowing the spread between the two. The rise in short-term rates was encouraged by the Federal Reserve for balance of payments purposes. Demand for long-term securities was strengthened and supplies of short-

term securities available to the banks were increased somewhat as greater emphasis was placed on purchases of long-maturity securities in open market operations and reductions in reserve requirements. In addition, interest rates that commercial banks are permitted to pay on time and savings deposits were raised. Partly as a result of the lower reserve requirements and the ability to pay higher rates, banks tended to make longer-term investments while bidding up rates on shorter-term funds.

Not all market participants limit their borrowing or lending to specific maturities. Some act as arbitragers and offset differences in interest rates they consider to be greater than those justified by the current and prospective business situation. As a result, rate changes in any one sector of the market are transmitted to other sectors. Rate changes are also transmitted throughout the rate structure because some borrowers in need of long-term funds may borrow short repeatedly if they believe long-term rates are relatively high, while some lenders with long-term funds may lend short continuously if they believe rates are too low and will soon rise.

The degree and rapidity at which interest rate changes in any one sector are transmitted throughout the market depends upon the "linkages" connecting the sectors. The tighter are the linkages, the greater and more quickly will changes in the supply and demand for funds in one sector affect other sectors.

Interest rates tend to move in the same direction but by different amounts



Rates move together

Interest rates on selected important securities differing in risk and maturity for the period since 1955 are plotted on the accompanying chart. On the whole, the rates tend to move together although, as noted above, short-term rates fluctuate more widely than long rates.

The relationship among changes in rates on different securities may be measured more precisely by statistical means. Correlation analysis is a statistical technique for measuring the degree of association between two or more sets of numbers. If changes in the numbers in the respective sets are perfectly associated in the same direction, the coefficient of correlation is $+1$. If the changes are perfectly associated in opposite directions, the correlation is -1. If there is no regular association whatsoever, the correlation is zero.

Correlations were computed for monthly changes in the market yield on three-month Treasury bills and monthly changes in yields on each of 12 other groups of securities differing in maturity and risk for the period 1955 to 1964. As would be expected, changes in bill yields are found to be more closely related to changes in yields

on other short-term securities, such as commercial paper and bankers' acceptances, than to yields on longer-term issues. For example, the correlation between bill rates and rates on prime bankers' acceptances is .84, between bill rates and rates on intermediate-term Treasury securities .68 and between bill rates and long-term Treasury bond rates only .48. Statistically, this implies that 70 per cent of the changes in acceptance rates may be attributed to the same forces causing changes in bill rates, while only one-quarter of the changes in bond rates may be attributed to these same forces.

By correlating changes in bill rates with changes in other rates in subsequent months and comparing correlation coefficients, it is possible to estimate the time it took on the average for the forces affecting bill yields to have their greatest impact on the other sectors of the market. With only one exception, changes in bill yields were more closely related to changes in rates on other securities in the same month than in subsequent months. Changes in finance company paper tended on the average to lag changes in bill yields, with the closest relationship occurring after one month.

All rates tend to change at the same time but in varying amounts

Simple correlation coefficients of changes in rates on three-month Treasury bills and	Monthly, 1959-64		
		Lag	
	Same month	One month	Two month
Prime banker's acceptances	.84	.70	.28
Finance company paper	.69	.79	.25
Prime commercial paper	.79	.75	.23
3-5 year Treasury securities	.68	.28	—.04
Long-term Treasury bonds	.48	.11	—.11
State and local bonds Aaa	.42	.14	—.14
State and local bonds Baa	.44	.17	—.15
Corporate bonds Aaa	.51	.31	—.03
Corporate bonds Baa	.34	.26	.14
Corporate bonds—			
Public utility	.55	.38	.02
Industrial	.46	.40	—.07
Railroad	.45	.31	.03

These findings indicate that all sectors of the market respond quickly to the forces causing changes in bill rates, although not to the same degree as bills. The greater are the similarities in both risk and maturity, the more closely do changes in other rates approximate those in bills.