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# 7. The Influence of Credit Quality and the Business Cycle on Credit Experience

The preceding chapters suggest that certain features of instalment credit terms and certain characteristics of the borrowers are directly related to subsequent performance. Since substantial changes have occurred from time to time in both credit terms and borrower characteristics, it should be possible to demonstrate that some of the changes in delinquency, repossession, and loss experience described earlier are attributable to the alterations in terms granted or in characteristics of credit users. But it is also clear from our analysis that due allowance must be made for the economic conditions prevailing in the periods being compared, for changes in such conditions themselves exert a powerful influence on credit experience.

We shall restrict ourselves to an examination of the effect of changes in credit terms because of the lack of adequate time series data on borrower characteristics that can be related to subsequent credit experience. Moreover, even the analysis of credit terms, which we further restrict to automobile paper, poses difficulties that can be surmounted only by rather arbitrary expedients, as will be seen. These are conditions that need not persist, however, if attention is given to the need for appropriate statistics.

To begin with, one inference is plain from the materials presented above. When loans made at about the same time are compared with one another, the longer-maturity contracts on new cars generally experience higher repossession and loss rates. This was true in the 1920's and 1930's as well as in the 1950's. Since maturities in the 1950's were substantially longer than in the 1920's and 1930's, one might expect to find higher repossession or loss rates in the later period. But there is no evidence that this is the case. Over-all loss rates show little change in level over this period (see Chapter 1, Table 15). Apparently

the risk associated with a given length of maturity has diminished. A two- or three-year sales contract is not the hazard it was in the twenties. A variety of factors may account for this, one of them being the fact that autos have become more essential to the earning of income. We must, therefore, be aware that long-term changes of this sort do occur, and that a risk relationship that seems valid now will not necessarily remain so indefinitely.

Nevertheless, the relationships shown above between loan terms and collection experience on different groups of loans made at about the same time, especially those between down payment percentages and repossession or loss rates, have persisted over many years, and it would be surprising indeed to find that a substantial shift *within a short period* in the proportion of cars sold on low down payments or long maturities was not reflected in repossession or loss rates. Let us look, then, at the period since 1948, for which better statistics are available and during which substantial changes in credit terms did take place, in connection both with the imposition and expiration of Regulation W (in effect from September 1948 to June 1949, and from September 1950 to May 1952) and with the general relaxation of terms since 1954–55.

Our specific objective is to derive, from information on the maturity or down payment provisions of new-automobile credit contracts, an estimate of the risk of delinquency, repossession, or loss. That is, what rate of repayment difficulty is implied by the distribution of contracts according to maturity, down payment, or both? Further, we wish to compare this implicit risk with the rate of repayment difficulty that actually developed, and to make the comparison over a period of time in order to show whether the change in risk is similar to that in the actual rates. If the calculation passes this test, we can have some confidence that the method of translating data on contract terms into an index of credit quality is reliable. The available data, while lacking a desirable degree of comparability, do permit two independent sets of calculations, one for sales finance companies and the other for commercial banks.

## REPOSSESSION RISK, SALES FINANCE COMPANIES, 1948–65

The following annual data on contract terms of sales finance companies can be used for the first calculation:

1. Percentage distribution of new-car contracts by maturity, reported for a group of nineteen companies by the First National Bank of Chicago, can be utilized for this purpose. Two maturity groups are reported, but the dividing line between them changed from eighteen months (1953–57) to twenty-four months (1955–60) to thirty months (1957–65). The data can be extended back to 1948 by figures for two large companies, compiled by the National Bureau.

2. Percentage distribution of new-car contracts by down payment ratio, 1953–57, and by ratio of contract balance to dealer cost since 1957, reported by the First National Bank of Chicago, can also be used. Down payment data for five companies have been extended back to 1950 by the National Bureau.

To convert the maturity, down payment, and dealer cost ratio distributions into estimates of the risk of repayment difficulty, we rely upon the lender report sample of the Federal Reserve new-car purchases survey for 1954–55, despite the fact that this covers all lenders, not just sales finance companies. As noted in Chapter 3, this shows repossession rates on new-car contracts classified by original maturity and by contract down payment. The lender report is used instead of the personal interview sample because it appears to provide fuller coverage of loan difficulty and a more accurate picture of the relation of loan difficulty to maturities and down payments. The same materials can be used, by a more devious route, to estimate repossession risk on contracts classified by the ratio of contract balance to dealer cost. The method of making all these calculations is described in Appendix H. Since the maturity distributions provide one set of estimates of risk and the down payment and dealer cost ratio distributions another, we combine the two by a simple average. This takes into account both types of available information on contract terms of sales finance companies and presumably provides the best estimate of repossession risk.

The annual estimates of repossession risk can be compared with three annual series on the actual credit experience of sales finance companies. The ratio of losses to retail paper liquidated is reported by the First National Bank of Chicago for the same group of companies that provide the data on new-auto contract terms. The loss rates, however, are not confined to new-auto credit. Another series measuring a slightly different type of loss rate, the ratio of losses to total credit

## TABLE 47

*Actual Loss and Repossession Rates, and Estimated Repossession Risk, Sales Finance Companies, 1947-65*

| Year | Actual Loss Rate, All Retail Paper | | | | Actual Repossession Rate, New-& Used-Auto Contracts, NBER Sample | | Estimated Repossession Risk, New-Auto Contracts | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | FNBC Sample | | NBER Sample | | | | Based on Maturity Distribution (per cent) | Based on Down Payment and Dealer Cost Ratio Distribution (per cent) | Average | |
| | Per Cent (1) | Index, 1954-55:100 (2) | Per Cent (3) | Index, 1954-55:100 (4) | Per Cent (5) | Index, 1954-55:100 (6) | (7) | (8) | Per Cent (9) | Index, 1954-55:100 (10) |
| 1947 | .48 | 53 | -- | -- | -- | -- | -- | -- | -- | -- |
| 1948 | .66 | 73 | -- | -- | 3.4 | 42 | 1.0 | -- | 0.8[a] | 43 |
| 1949 | 1.57 | 173 | 1.16 | 113 | 4.8 | 60 | 1.4 | -- | 1.2[a] | 65 |
| 1950 | .58 | 64 | .73 | 71 | 5.2 | 65 | 1.4 | 1.0 | 1.2 | 65 |
| 1951 | .44 | 48 | .88 | 85 | 4.8 | 60 | 0.6 | 0.8 | 0.7 | 38 |
| 1952 | .76 | 84 | 1.17 | 114 | 6.1 | 76 | 1.4 | 1.0 | 1.2 | 65 |
| 1953 | 1.40 | 154 | 1.41 | 137 | 7.1 | 88 | 1.8 | 1.2 | 1.5 | 81 |
| 1954 | 1.18 | 130 | 1.23 | 119 | 9.3 | 116 | 1.9 | 1.5 | 1.7 | 92 |
| 1955 | .64 | 70 | .83 | 81 | 6.8 | 84 | 2.0 | 1.9 | 2.0 | 108 |
| 1956 | .72 | 79 | .97 | 94 | 10.7[b] | 133 | 2.1 | 2.1 | 2.1 | 114 |
| 1957 | .74 | 81 | .95 | 92 | -- | -- | 2.2 | 2.2 | 2.2 | 119 |
| 1958 | 1.35 | 148 | 1.77 | 172 | -- | -- | 2.4 | 2.0 | 2.2 | 119 |
| 1959 | 1.07 | 118 | 1.11 | 108 | -- | -- | 2.5 | 2.2 | 2.4 | 130 |
| 1960 | 1.71 | 188 | -- | -- | -- | -- | 2.6 | 2.2 | 2.4 | 130 |
| 1961 | 1.73 | 190 | -- | -- | -- | -- | 2.6 | 2.2 | 2.4 | 130 |
| 1962 | 1.28 | 141 | -- | -- | -- | -- | 2.6 | 2.3 | 2.4 | 130 |
| 1963 | 1.08 | 119 | -- | -- | -- | -- | 2.6 | 2.4 | 2.5 | 135 |
| 1964 | 1.21 | 133 | -- | -- | -- | -- | 2.6 | 2.4 | 2.5 | 135 |
| 1965 | 1.22 | 134 | -- | -- | -- | -- | 2.6 | 2.4 | 2.5 | 135 |

Notes to Table 47

Source: Column 1 -- First National Bank of Chicago, *Ratios of the Instalment Sales Finance and Consumer Finance Companies, February 1961* and current issues. 1947-59; loss (charge-offs) to retail paper liquidated; since 1960: losses (charge-offs net of recoveries) to instalment receivables liquidated.

Column 3 -- Paul F. Smith, *Consumer Credit Costs, 1949-59* (Princeton University Press for NBER, 1964), Table C-4, p. 141. Losses net of recoveries per $100 of loans outstanding, ten companies.

Column 5 -- Moore, Atkinson, and Klein, *"Changes in the Quality of Consumer Instalment Credit,"* Table 29. Repossessions as a per cent of number of contracts purchased, five companies.

Columns 7-10 -- Appendix F, Tables F-3 and F-4.

[a]Based on maturity distribution only, adjusted to level of 1950 average.

[b]First six months.

outstanding, has been compiled by Paul F. Smith for the National Bureau's study of consumer finance. Its coverage also extends beyond new autos. Both series reflect losses in the year charged off, some of which may pertain to credits originating in the current year, but many of which must relate to contracts made a year or two earlier. Finally, there is a series on repossession rates for new and used autos. This comes closest in concept to the estimates of new-auto repossession risk, but covers a different group of companies and ends in 1956. Like the loss rates, the repossession rates refer to the year in which the auto was repossessed, whereas the risk estimates pertain to the year in which the contract originated. Ideally, one would like to have repossession or loss rates compiled for all contracts that originated in a given year. A substantial portion of repossessions do occur within the same year, however.

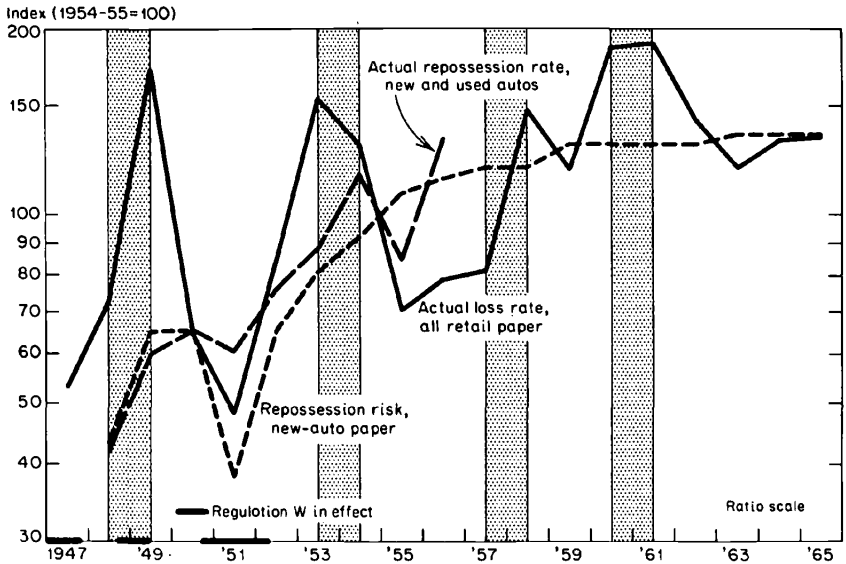
The three series on sales finance company loss and repossession rates are shown in Table 47, together with the average estimates of repossession risk computed from the maturity, down payment, and dealer-cost-ratio distributions.

Chart 25 compares the average index of repossession risk with the longer of the two actual loss rate indexes and with the actual repossession rate index, all indexes being expressed as relatives to the 1954–55 average. The results suggest the following conclusions:

1. Repossession risk increased generally during 1948–65 as a result both of longer maturities and lower down payments. The only ap-

CHART 25

Actual Loss and Repossession Rates, and Estimated Repossession Risk, Sales Finance Companies, 1947–65




SOURCE: Table 47.
NOTE: Shaded areas represent business cycle contractions.

preciable decline in the risk index occurred in 1951, when terms stiffened in accordance with Regulation W. The increase in risk position was rapid from 1952 to 1955, but gradual since 1955. By 1965, the risk of repossession on new autos was more than three times what it was in 1948.

2. Actual loss and repossession rates have experienced an upward trend since 1948 that is broadly parallel to the risk index, though somewhat less steep. Loss rates on all retail paper in 1965 were nearly double their 1948 level.[1]

[1] The actual repossession rates for new and used autos (Table 47, col. 6) are substantially higher than the risk rates estimated from contract terms for new autos (col. 10). The 1954–55 average for the former was 8.05 per cent; for the latter, 1.85 per cent. The difference may be partly due to the inclusion of used autos in the former, since used-auto contracts have higher repossession rates than those for new autos. But it may also be due to differences in methods of computing the rate. The 1954–55 Federal Reserve survey, on which the estimated rates for new autos were based, gives the number of repossessions up to the date of

3. Actual loss and repossession rates fluctuate much more widely than the risk index, largely because of the effects of recession and prosperity. Loss rates were high in the recession years 1949, 1954, 1958, and 1961 and generally low in the other years (except 1953 and 1960, where recession effects may have occurred earlier than in most economic series). There is little or no evidence of cyclical sensitivity in the risk index. Hence in a recession year actual repossessions and losses are likely to be higher than indicated by the risk index, whereas in a more than normally prosperous year they are likely to be lower.

## DELINQUENCY RISK, COMMERCIAL BANKS, 1954–65

For commercial banks we can compare monthly as well as annual estimates of delinquency risk with actual delinquency rates. Monthly distributions of new-auto paper cross-classified by maturity and by ratio of contract balance to dealer cost have been compiled for a sample of commercial banks by the Federal Reserve Board since 1957. Data for purchased paper and direct loans are reported separately.[2] We convert these distributions into estimates of delinquency risk by using the delinquency rates on new-auto contracts cross-classified by maturity and dealer cost ratio, derived from the lender report sample of the 1954–55 Federal Reserve new-car purchases survey. The method of deriving these 1954–55 rates, which were not reported in terms of this cross-classification, is described in Appendix H, together with the details of their application to the monthly distributions. Finally, the delinquency rates actually experienced monthly are provided by the American Bankers Association, separately for purchased paper and direct loans, but covering both new and used autos. The

the survey for contracts originating during 1954–55; repossessions that occurred after the survey data are, of course, not included. The series of actual repossession rates, on the other hand, is the number of repossessions during a calendar year relative to the number of contracts originating during the year; hence it includes repossessions on contracts originating prior to that year and yields a better approximation to the true repossession rate over the life of the contracts. Our estimated rate evidently underestimates the true level. See, however, note 3, below.

[2] Data for used cars also are reported, but are not employed in our risk calculation since estimates of delinquency rates in relation to maturity and down payment, comparable with those we use for new cars, are not available. This omission is unfortunate, since the actual delinquency rates with which our risk estimates are to be compared include loans on both new and used cars.

actual rates were adjusted for seasonal variations by the National Bureau; the risk estimates seemed to require no seasonal adjustment.

The results of these calculations (Table 48 and Charts 26 and 27) support the following conclusions:

1. Delinquency risk is substantially higher on new-car paper purchased by banks than on their own direct auto loans. However, the differential has diminished since 1957, with risks on direct paper rising more rapidly than on purchased paper. Actual delinquency rates are similar in both respects: rates on purchased paper are higher, but those on direct loans have advanced more rapidly since 1957, reducing the differential between them.[3]

2. The actual delinquency rates are sensitive to the business cycle, reaching relatively high levels during the recession years 1954, 1958, and 1961 and falling during the subsequent recovery periods. The risk estimates show no such cyclical sensitivity, but move in fairly smooth trends superimposed on short (monthly) irregular movements that may be due to sampling variations.

3. The movements in delinquency risk on bank-purchased paper since 1954 are similar to those in repossession risk for sales finance companies. (The latter also purchase their paper from dealers.) Both estimates rise from 1954 to 1959, remain relatively stable from 1959 to 1961 or 1962, and rise again to 1965. By 1965, delinquency risk on bank purchased paper had risen 58 per cent above the 1954–55 level, while repossession risk on sales finance company paper had risen 35 per cent.

4. The actual delinquency rates on bank-purchased paper do not show the marked upward trend since 1954 shown by the delinquency risk estimates for such paper. The trends in risk and actual rates for direct paper are more alike, especially since 1957. Higher delinquency rates on purchased paper may have been prevented by the recourse practice described in footnote 3 in Chapter 6.

Our experimental attempts to translate changes in credit terms into estimates of credit quality express in quantitative fashion the effects

[3] The estimated delinquency risks based on contract terms are at a substantially higher level than the actual delinquency rates (see Table 48). The reason probably lies in the fact that the actual rate is the percentage of loans delinquent on a given date, whereas the risk estimate refers to the percentage of loans that became delinquent at any time during their life, in so far as this was covered by the 1954–55 survey.

TABLE 48

*Actual Delinquency Rates and Estimated Delinquency Risk, Auto Loans, Commercial Banks, 1954-65*

| Year | Actual Delinquency Rate, New-And Used-Auto Loans | | | | Estimated Delinquency Risk, New-Auto Loans | | | |
|---|---|---|---|---|---|---|---|---|
| | Purchased Paper | | Direct Loans | | Purchased Paper | | Direct Loans | |
| | Per Cent (1) | Index, 1954-55:100 (2) | Per Cent (3) | Index, 1954-55:100 (4) | Per Cent (5) | Index, 1954-55:100 (6) | Per Cent (7) | Index, 1954-55:100 (8) |
| 1954 | 1.71 | 110 | 1.05 | 112 | 3.8 | 94 | 3.3 | 99 |
| 1955 | 1.41 | 90 | .82 | 88 | 4.3 | 106 | 3.4 | 101 |
| 1956 | 1.36 | 87 | .76 | 81 | n.a. | n.a. | n.a. | n.a. |
| 1957 | 1.35 | 87 | .75 | 80 | 5.1[a] | 126 | 3.1[a] | 93 |
| 1958 | 1.53 | 98 | .84 | 90 | 5.4[b] | 133 | 3.4[b] | 101 |
| 1959 | 1.31 | 84 | .78 | 83 | 5.7 | 141 | 3.6 | 107 |
| 1960 | 1.46 | 94 | .94 | 101 | 5.8 | 143 | 3.9 | 116 |
| 1961 | 1.49 | 96 | 1.05 | 112 | 5.8 | 143 | 4.2 | 125 |
| 1962 | 1.33 | 85 | .95 | 102 | 5.9 | 146 | 4.5 | 134 |
| 1963 | 1.42 | 91 | .94 | 101 | 6.2 | 153 | 4.6 | 137 |
| 1964 | 1.50 | 96 | .94 | 101 | 6.3 | 156 | 4.8 | 143 |
| 1965 | 1.57 | 101 | 1.14 | 122 | 6.4 | 158 | 4.9 | 146 |

Source: Columns 1, 3 – Table 14 above. Rates refer to percentage of loans outstanding that are delinquent thirty days or more.

Columns 5, 7 – 1954 and 1955, computed from data on contract maturities and dealer-cost ratios in Federal Reserve New-Car Purchases survey. 1957-64, annual averages of monthly estimates, computed from data on contract maturities and dealer cost ratios in Federal Reserve survey of commercial bank credit terms. Estimates refer to percentage of contracts becoming delinquent at any time during their life. See Appendix H, Section 2, and Tables H-5 and H-6.

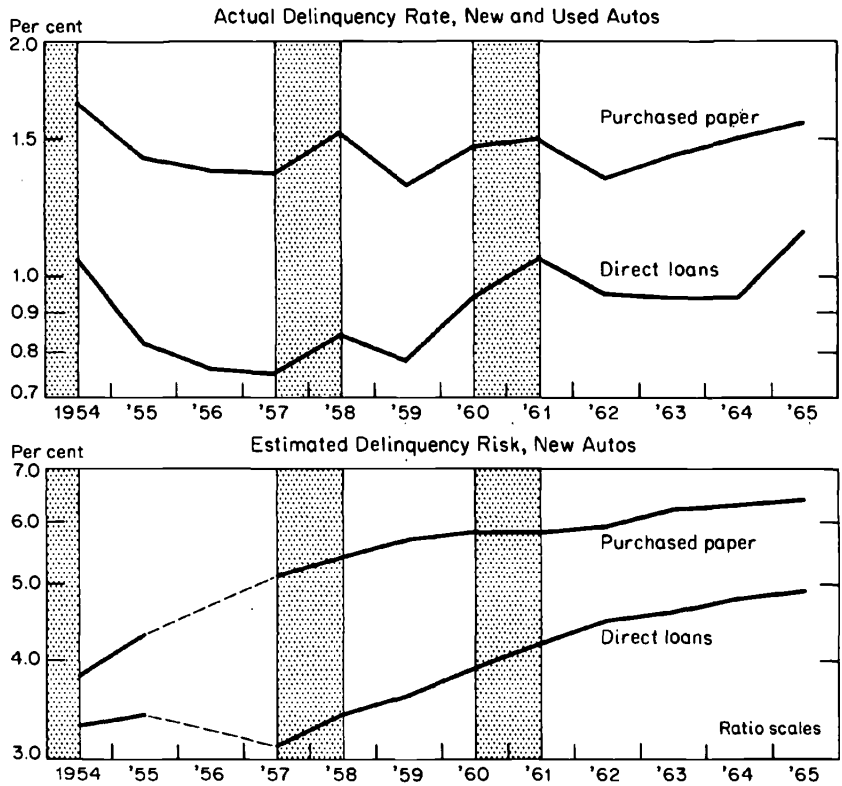
n.a. = not available.

[a]June, July, October, November, December.

[b]February through December.

CHART 26

Actual Delinquency Rates and Estimated Delinquency Risk, Auto Loans, Commercial Banks, 1954–65

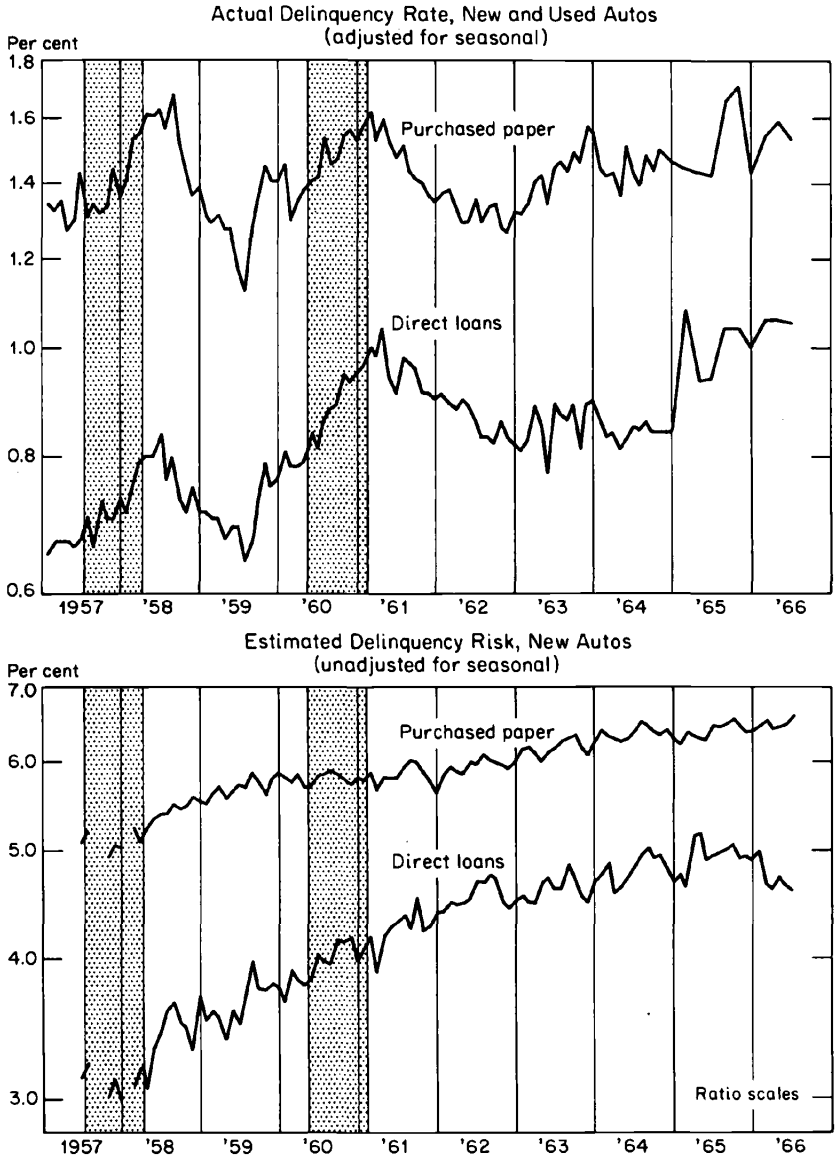



SOURCE: Table 48.
NOTE: Shaded areas represent business cycle contractions. Data for 1956 not available.

on risk position of the longer maturities and smaller equities that have characterized consumer credit transactions in recent years. Lenders and borrowers alike have assumed riskier positions—positions that in the event of recession are likely to involve wider delinquency and larger losses to both borrowers and lenders than would otherwise be the case. We do not find that these changes in risk position reverse themselves promptly and easily with the swings in the business cycle, at least not in the relatively mild and brief recessions experienced since

CHART 27

## Actual Delinquency Rates and Estimated Delinquency Risk, Auto Loans, Commercial Banks, 1957–66, Monthly




SOURCE: American Bankers Association and Table H-6.

NOTE: Estimated data on delinquency, no data available for August, September 1957 and January 1958. Actual delinquency rates adjusted to level of currently published data, issued bimonthly after October 1964.

1948. Instead, the movement so far has been mostly in one direction—toward the assumption of greater risk. The pace that this trend has taken has not accelerated—indeed, it has become less rapid—but neither has it come to a halt. Since the trend has consequences for the stability as well as the growth of the economy, its development over the years ahead should be well worth observing and evaluating.