# 4. Procedures and Problems in Converting Existing Finance Charge Information to Comparable Forms

CONSUMERS WHO WISH TO COMPARE different types of finance charge information can do so by converting them to a comparable form. This chapter is concerned with the procedures and problems of conversion. Computational rates or equivalents are the usual starting point in any conversion precedure, for finance charges in consumer financing are universally computed by multiplying such rates or equivalents by either the amount borrowed or the amount of credit outstanding.

### *Converting Computational Rates (Equivalents) to Dollar Charges and to Monthly Payments*

The procedures for converting add-on, discount, and per cent per month rates (or equivalents) to dollar finance charges are described in Chapter 2. On instalment contracts on which monthly payments are uniform in amount, the size of each monthly payment is determined by adding the amount borrowed to the finance charge and dividing the sum by the number of monthly payments. On instalment contracts in which monthly payments are not uniform, the size of each monthly payment must be determined individually in accordance with the details of the contract.

### *Converting One Form of Computational Rate (Equivalent) to Another*

Converting one form of computational rate (equivalent) to another form, e.g., add-on to discount, requires computing effective monthly or annual rates as a step in the process. Similarly, converting dollar finance charges to a computational rate (equivalent)—other than the one used to obtain the charges—requires computing monthly or annual finance rates as a step in the process.

Effective rates occupy a strategic role in both of the above conversions and are the end product in the conversion of computational rates (equivalents) or dollar charges to effective rates. Since the procedures and problems are similar in all of these conversions, they are covered for all three in the section which follows.

## *Converting Computational Rates (Equivalents) or Dollar Charges to Monthly and Annual Finance Rates*

### CHOICE AND USE OF FORMULAS

With one exception, conversion of computational rates (equivalents) and dollar charges to effective rates requires the use of formulas or tables based on formulas. The exception is a flat per cent per month rate since it is both a computational rate and an effective monthly (*not* an annual) rate.

Among the available formulas, six are referred to most frequently.[1] They are:

| *Name Used in This Study* | *Alternate Names* | *Symbol Used in This Study* Monthly Rate | Annual Rate |
|---|---|---|---|
| 1. Annuity or actuarial formula with a monthly base | Present Worth formula | $k$ | $y_m$ |
| 2. Annuity or actuarial formula with a yearly base | Actuarial yield formula, small-loan method formula | $k$ | $y_a$ |
| 3. Constant ratio formula | Uniform method formula | $k_c$ | $y_c$ |
| 4. Direct ratio formula | Pro-rata method formula | $k_d$ | $y_d$ |
| 5. Minimum yield formula | Priority method formula | | |
| 6. Maximum yield formula | Residuary method formula | | |

[1] For derivation of all six formulas, see Milan V. Ayres, *Instalment Mathe-*

Formulas (5) and (6) are disregarded because they are based on rather unrealistic assumptions requiring the allocation of the entire finance charge to either the beginning instalment payments (minimum yield) or to the ending payment (maximum yield). This leaves three formulas for effective monthly rates and four for effective annual rates. There is one less for effective monthly rates because formulas (1) and (2) give the same result for monthly but not for annual rates.

Formulas (2), (3), and (4) give annual rates that are twelve times their respective monthly rates. This means that the relationship among annual rates and among monthly rates under the three formulas is the same. For convenience in exposition, this relationship is discussed in terms of annual rates, but it applies equally to monthly rates.

Chart 1 indicates that the $y_m$ formula gives the highest effective annual rates, the $y_a$ and $y_d$ formulas the lowest rates, and the $y_c$ formula in-between rates. The $y_d$ rates are not shown on the chart but can be approximated from it, for they are virtually the same as $y_a$ rates.

As explained in Appendix A, under existing computational methods in consumer finance, the $y_m$ and $y_a$ formulas are two ways of measuring yields just as inches and meters are two ways of measuring distance. Both are theoretically defensible and there is no "scientific" way of choosing between them. The $y_d$ formula is somewhat less complicated than the $y_a$ formula and gives similar results. As can be seen from Chart 1, the $y_c$ formula gives a different maturity pattern of effective rates from the $y_m$, $y_a$, and $y_d$ formulas. Simplicity of computation is its main advantage over the other three.[2]

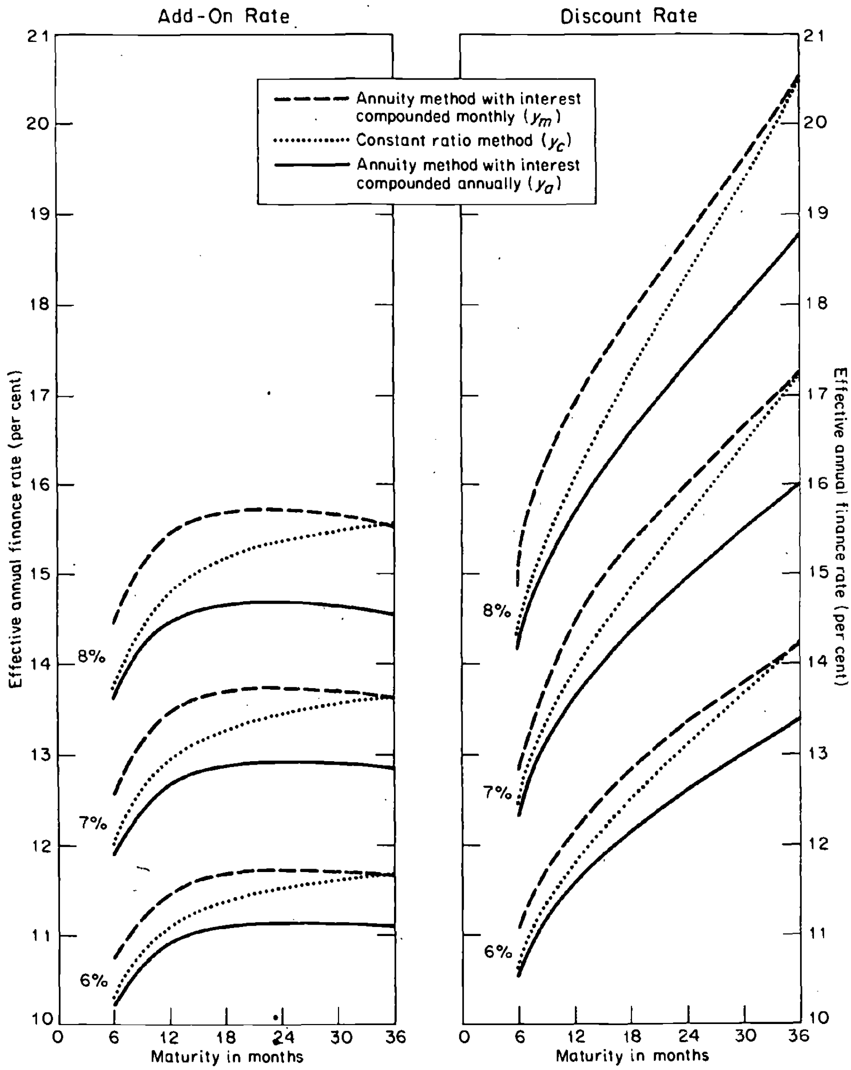
Any one of the four formulas would serve as a self-contained sys-

*matics Handbook,* New York, 1946, Chaps. 25–30. For derivation of formulas (2) through (6), see M. R. Neifeld, *Neifeld's Guide to Instalment Computation,* Easton, 1954, Chaps. 7–11. For a comparison of formulas (2), (3), (4), and (6), see H. E. Stelson, "The Rate of Interest in Instalment Payment Plans," *The American Mathematical Monthly,* April 1949, pp. 257–261.

[2] H. E. Stelson has developed a formula which, in ease of computation and results, is similar to the constant ratio formula. This formula, designated as $r\beta$ in the article cited below, gives results which are slightly lower (about .1 per cent) than those of the constant ratio formula. See H. E. Stelson, "The Rate of Interest on Instalment Payment Loans," *The American Mathematical Monthly,* May 1953, pp. 326–329.

CHART 1

Comparable Effective Annual Finance Rates for Monthly Payment Contracts with 6, 7, and 8 Per Cent Annual Add-On and Discount Rates, by Maturity




Source: Tables B-1 and B-2.

tem in comparing rates on different instalment contracts. Any one of the four would also probably serve as a yardstick if used by consumers to determine whether to use liquid assets instead of credit. It is true, of course, that yields on liquid assets are usually expressed in terms of an annuity formula using quarterly or semiannual compounding rather than monthly or annual compounding. The spread between liquid-asset yields and finance rates is so great, however, that any consumers who might be interested in making a comparison would probably reach about the same conclusions, whether they compared liquid-asset yield with $y_a$, $y_d$, $y_e$, or $y_m$ finance rates. Thus, if a liquid-asset yield is 4 or 5 per cent and finance rates by the four formulas are successively 14.4, 14.4, 14.8, and 15.5 per cent, the differences between liquid-assets yields and finance rates are so great with all four formulas that they overshadow the difference in the spread from one formula to the next. Scientific accuracy is hardly a realistic goal for comparison under the circumstances.

Monthly finance rates would have to be multiplied by twelve by consumers for comparison with liquid-asset yields. The comparison is thus somewhat more complex than the comparison between annual rates and liquid-asset yields.

In order to investigate the views of regulatory authorities on technical aspects of the various methods of converting existing finance charge information to comparable forms, questionnaires were sent out to eighty state supervisors responsible for the administration and enforcement of laws governing consumer credit agencies. Forty-five replies were received. Because two respondents requested that their answers not be published in any form, the results reported are based upon forty-three replies covering thirty-four states.

The state supervisor survey asked: What method of determining this (effective) rate do you prefer? Thirty of the forty-three who returned the questionnaire answered as follows:

| *Method of Determining Effective Rate* | *Number Who Prefer This Method* |
|---|---|
| Constant ratio formula | 14 |
| Annuity or actuarial formula [3] | 13[4] |
| Direct ratio formula | 2[4] |
| Per cent per month | 2 |

[3] No attempt was made in the survey to distinguish between the $y_a$ and $y_m$ annuity or actuarial formulas.

[4] One supervisor gave the direct ratio formula as an alternative to the annuity formula and is counted twice.

The answers indicate that persons have different formula preferences and help explain why different people get different finance rate answers to the same problem. The state supervisor survey also investigated whether the personnel of financing agencies could convert financing charges to effective annual rates with or without the use of rate tables based upon some formula. The results are discussed in Appendix C.

### RELEVANCE OF EX ANTE COMPUTATIONS

Consumers who wish to compute effective rates may be in a position to compute them either *ex ante* (foresight) or *ex post* (hindsight). An *ex ante* effective rate is computed at the time the credit is extended and requires the following information: amount of credit extended, finance charge in dollars, and scheduled payment dates and amounts throughout the credit period. It can be computed on virtually all consumer credit transactions on which a separate finance charge is made. Indeed, a number of hypothetical *ex ante* rates can be estimated on any credit transaction at the start of the credit period, each one depending on a hypothetical schedule of payment amounts and dates.

An *ex post* effective rate requires the following information: amount of credit extended, finance charge in dollars, and actual payment dates and amounts during the credit period. Clearly, an accurate estimate of an *ex post* rate can be made only after a credit contract is fulfilled since many are not paid on schedule.

The *ex ante* and *ex post* bases serve different purposes and which one is used depends on whether an effective rate is desired to facilitate a rational choice for a given transaction or to reveal the cost of a completed transaction in order to facilitate a choice on future credit transaction. It is important to consider relevant problems with this distinction in mind.

When a consumer shops to buy a washing machine on credit, what matters for the purpose of comparing alternative current rates of charge and liquid-asset yields is the predetermined (*ex ante*) effective rate on the assumption the contract will be paid on schedule. The consumer may have an *ex post* rate on a previous credit purchase of a washing machine or analogous good. This rate will be of help in shopping for a new credit purchase only if finance rates have not changed or have all changed proportionately between purchase dates *and* if the consumer pays off the new contract on the same schedule as he paid off the previous contract.

Business firms constantly face situations which are analogous to those faced by consumer credit users. When a corporation floats a bond issue, it sets the prospective yield in line with yields on comparable existing bonds on the assumption that the whole issue will be redeemed at par at maturity. This is an *ex ante* yield. The issue may have, as many issues do, a call provision permitting the corportion to retire bonds at varying times before maturity at varying call prices. A whole series of hypothetical *ex ante* yields can be worked out before the bond is issued, each based on a different pattern of redemptions. Only one actual *ex post* yield will eventuate, however, and this can be known only after the last bond is retired.

#### GRADUATED RATE CONTRACTS

A number of small-loan laws and a few instalment and industrial loan laws have two, three, or four graduated rates. Consumers who wish to determine *ex ante* effective rates on graduated rate contracts can do so by special manipulation of a formula or by a trial and error procedure which gives approximately similar results.[5]

The special manipulation may be illustrated by applying an annuity formula to a graduated instalment contract using the ceiling monthly rates in Massachusetts' small-loan law, viz.: $2\frac{1}{2}$ per cent on the part of a loan under \$200; 2 per cent on the part from \$200 to \$600; $1\frac{3}{4}$ per cent on the part from \$600 to \$1,000; and $\frac{3}{4}$ per cent on the part over \$1,000. Any loan over \$200 is regarded as several loans, each at its respective rate. Thus a \$600 loan for twelve months is regarded as a \$200 loan at $2\frac{1}{2}$ per cent and a \$400 loan at at 2 per cent. Principal payment on the \$200 loan is deferred and only interest is collected until the \$400 loan at 2 per cent is paid off. Tables based on ordinary annuity formulas at the respective monthly rates give the interest in dollars and the principal outstanding at the end of each month. Dividing the sum of monthly

[5] For an explanation of the trial and error procedure, see Ayres, *Instalment Mathematics*, pp. 206–208.

interest charges by the sum of the principal amounts outstanding at the end of each month gives the effective *ex ante* monthly rate over the life of the contract.[6] Examples of maximum effective *ex ante* rates on twelve-month loans of selected sizes under Massachusetts' small-loan law are as follows (in per cent):

| *Size of Loan (dollars)* | *Monthly ($k$ formula)* | *Annual ($y_a$ formula)* |
|---|---|---|
| 100 | 2.50 | 30.00 |
| 300 | 2.42 | 29.04 |
| 500 | 2.29 | 27.48 |
| 1,000 | 2.12 | 25.44 |
| 1,500 | 1.87 | 22.44 |

Each such rate is the effective rate a borrower incurs throughout the whole loan period if: (1) he borrows on a twelve-month basis; (2) he repays the loan in twelve equal monthly payments as scheduled; and (3) the principal part of each payment is applied entirely to the portion of the loan at the lowest rate until that portion is paid off and then applied to each succeeding part in a similar manner. An effective rate computed under this interpretation is an *ex ante* rate.

An alternative interpretation assumes that the loan mix changes each month and that, as a consequence, the effective rate also changes each month. This interpretation, in effect, assumes that the borrower negotiates a new loan each month at zero refinancing expense. The series of rates so computed (twelve on a twelve-month loan, twenty-four on a twenty-four-month loan, and so on) are also *ex ante* rates.

### TREATMENT OF RECORDING AND FILING FEES

Financing agencies and sellers pay recording and filing fees to public officials for some secured instalment credit transactions. Some small-loan laws require lenders to absorb the fees in the finance charge. The remaining small-loan laws and most other types of con-

[6] A similar procedure is necessary to determine the flat monthly payment on loans under a graduated rate structure. Specialized publishers have been preparing flat monthly payment schedules and selling them to consumer finance companies since graduated structures first appeared in the middle 1930's.

sumer financing laws permit creditors to charge consumers extra for such fees either on all credit transactions or only on those credit transactions above a specified minimum size.

Any fees which are passed on to consumers can, of course, be added to the finance charge which is used to compute an effective rate. Practically speaking, such fees can probably be ignored. They are too small to affect the usefulness of an effective rate as a comparative yardstick. They are not included in computing mortgage rates even though they are much more common in mortgages than in consumer finance. Because they are small, their inclusion in the finance charge results in uneven add-on, discount, and per cent per month rates, e.g., an add-on rate of 6.003 per cent, and complicates the use of effective rate tables or charts based on computational rates.

### TREATMENT OF MINIMUM CHARGES

Most retail instalment financing laws specify minimum charges ranging from $10 to $25 on automobile financing and a fair number specify minimum charges from $5 to $20 on other retail instalment financing. Minimum charges are less frequent in cash loan laws and are also smaller, ranging for the most part from $1 to $3 and, in a few cases, from $10 to $15. Any of the four formulas can be used to compute effective rates in minimum charge contracts. Such rates are likely to be relatively high because the minimum charge is used only when it exceeds what the regular charge would have been. Where such rates are high because the contract involves a relatively small amount of debt or has a short maturity, they may need to be supplemented by dollar charge information to place credit cost in proper perspective.

### SPECIAL FINANCING PLANS

Special financing plans may or may not require special techniques for determining effective rates. The problem is discussed here in connection with each of four such plans.

*Irregular Payment Contracts.* Two types of irregularities need to be distinguished. The first type, which occurs in many instalment contracts, involves deferring the first payment beyond a month to obtain convenient payment dates. Thus, if a consumer buys a car on the instalment plan on May 5, the first payment may be scheduled for June 15 or July 1 instead of June 5.

While the four formulas already described are devised for contracts in which the payments are equal and evenly spaced, they can also be applied to contracts which have only slight deferments of the first payment. Such irregularities have relatively little effect on the effective rate, except on short-term, higher-rate contracts.[7] Longer deferments of the first payment would require special formulas in order to compute effective rates.

A second type of irregularity occurs in contracts which have several irregular payments or a last payment which is markedly higher than preceding ones, the so-called balloon payment. Instalment loans to teachers, for example, sometimes call for regular payments during the school year and no payments during the summer vacation period. Because of legislative restrictions and lender interest in encouraging regular payments, only a small minority of instalment contracts have irregular payments of this second type. Special formulas are required to determine effective rates on such contracts.[8]

*Add-On Instalment Contracts.* These are contracts which cover successive instalment purchases by a given buyer from a given seller. As each purchase is made, the amount owed on it is added to the

[7] The effect of a deferred first payment without added charges is to reduce the effective rate. The extent of the reduction depends on the level of the computational rate and the length of the deferment period. The following tabulation makes it possible to compare the extent to which effective monthly finance rates are reduced when the first payment is deferred fifteen or thirty days beyond the regular (thirty-day) first-payment period.

| *Maturity (months)* | *Annual Add-On Rate* | *Effective Monthly Rate (in per cent) When Timing of First Payment Is:* Regular | +15 days | +30 days |
|---|---|---|---|---|
| 12 | 6% | 0.908 | 0.845 | 0.785 |
| | 15 | 2.219 | 2.050 | 1.866 |
| 24 | 6 | 0.927 | 0.890 | 0.857 |
| | 15 | 2.215 | 2.122 | 2.036 |
| 36 | 6 | 0.923 | 0.898 | 0.874 |
| | 15 | 2.165 | 2.112 | 2.039 |

The writer is indebted to his colleague Earl K. Bowen for deriving the formula $[P\ (1+ku)=R\times a_{\overline{v}|k}]$ for computing the irregular-payment contract rates. In this formula, in which $k$ must be found by trial and error, $P$ = the amount financed, $k$ = the effective monthly rate, $u$ = the fraction of a month's deferment in the first payment, $R$ = the monthly payment, $v$ = the number of monthly payments, and $a_{\overline{v}|k}$ = the present value of an annuity of 1 per annum at $k$.

[8] For such formulas, see Ayres, *Instalment Mathematics*, pp. 134–135, and *Neifeld's Guide*, pp. 203–214.

contract covering previous purchases. When successive purchases are added and no adjustment is made for amounts owed on previous purchases, an *ex ante* effective rate can be computed on each purchase separately as if each purchase were put into a separate instalment contract. In some cases an existing instalment contract is canceled when a new instalment purchase is made and the purchase and the balance of the old contract are added in a new contract. The finance charge adjustment needed to compute a new *ex ante* effective rate by one of the formulas is the charge on the new contract less any prepayment refund on the old contract.[9] Some retail instalment financing laws prohibit add-on contracts.

*Retailer Revolving Credit Plans.* There are special problems in the computation of an *ex ante* effective rate on revolving credit transactions. If a customer buys goods in a given month and pays for them during that month, the purchases are customarily treated as charge-account purchases and no separate finance charge is levied. Analogously, if a customer buys goods during a month but pays for them in a succeeding month or months, no separate finance charge is made in the month of purchase. Any finance cost for that month is, as with charge account credit, included in the price of the goods.

To take a specific example, assume that a store's billing date is the first of each month and that a customer buys $300 in merchandise at various times during January and makes no payments in January. Any credit cost for January is included in the merchandise price of $300. There is no separate finance or revolving credit charge in January.

There is, however, a revolving charge on February 1 on the $300 which the customer owes. At a rate of 1½ per cent a month, the revolving credit charge is $4.50 and the total owed is $304.50. According to some observers, the effective rate cannot be determined on February 1 because it depends on the customer's payment pattern in the future.[10] This is true *ex post* but not *ex ante*. As far as

9 See Appendix D for a discussion of the nature of prepayment refunds, refinancing, extension, and delinquency charges and their relation to finance charge computation and quotation.

10 See, for example, *Consumer Credit Labeling Bill*, Hearings before a Subcommittee of the Committee on Banking and Currency, U.S. Senate, 86th Congress, 2nd Session, Washington, 1960, p. 364; and Robert W. Johnson, *Methods of Stating Finance Charges*, Columbia University, New York, 1961, p. 97.

the customer is concerned, he is paying $4.50 to use $300 for one month. This is an *ex ante* effective monthly rate of 1½ per cent ($k$, $k_c$, and $k_d$) and effective annual rates of 18 per cent ($y_a$ $y_c$, and $y_d$) and 19.56 per cent ($y_m$).[11] Comparison of effective rates of different sellers computed by one of these formulas is important to the customer if he wishes to shop for the lowest revolving credit charge in order to get the best credit bargain.

It is true that, once the customer incurs the revolving credit of $300, his *ex post* effective rate goes up if he makes any payment before March 1, because he repays in advance of the scheduled date. But this is unimportant to the customer when he is shopping for the best credit bargain. In any practical sense, it is also unimportant in deciding on his payment pattern once the revolving credit charge has been incurred.

*Bank Check-Credit Plans.* A number of banks have these plans and several states have special laws governing such plans. In the typical plan a bank provides a borrower with a number of checks which may be drawn up to a maximum outstanding balance. The borrower cashes these checks as he needs money and repays every month some fraction of either the maximum or the outstanding balance. Interest is charged, usually at the rate of 1 or 1½ per cent a month on the unpaid balance, from the time each check is cashed or from the time each check clears the bank. In addition, the borrower pays a service charge of so much a check, usually 25 cents, each time he cashes a check. The total finance charge is the interest on the unpaid balance plus the service charge.

For these plans a consumer cannot compute an effective *ex ante* rate at the time he gets the checks unless he knows the dates on which he will cash the checks and the amount to be cashed on each date. He does know, however, that the effective *ex ante* monthly rate will be in excess of the specified per month rate on the unpaid balance. The amount of the excess depends on (1) the size of the service charge per check, (2) the dollar amount of the checks cashed on any date, and (3) the dates of the month they are cashed. The

[11] The principle remains the same but the computation becomes somewhat more complex in revolving credit transactions which involve graduated rates, e.g., 1½ per cent a month on the first $500 owed and 1 per cent a month on any part of the balance owed above $500.

amount of the excess will be smaller the smaller is the service charge, the larger is the amount of the checks cashed on any day, and the earlier in the month is the day on which the check is cashed.

As an illustration, the following tabulation gives estimated effective *ex ante* monthly rates (in per cent) using a 1 per cent per month rate on the unpaid balance, a thirty-day month, service charges of 10 and 25 cents per check, the first and last days of the month as check-cashing dates, and $100 and $1,000 checks.

| | *$100 Check* | | *$1,000 Check* | |
|---|---|---|---|---|
| *Day of Month on Which Check Is Cashed* | Service Charge of 10¢ Per Check | Service Charge of 25¢ Per Check | Service Charge of 10¢ Per Check | Service Charge of 25¢ Per Check |
| First day | 1.10 | 1.25 | 1.01 | 1.03 |
| Thirtieth day | 4.00 | 8.50 | 1.30 | 1.75 |

## MEANINGFULNESS OF RETAIL INSTALMENT FINANCE RATES

When sellers extend credit they have a choice between setting one price for the goods and credit combined and setting separate prices for the goods and credit. Sellers, in fact, follow both policies now. Some—for instance, instalment jewelers and department stores for open-account credit—generally set one price and others—for instance, automobile and appliance dealers—generally set separate prices. Retail instalment financing laws recognize the right of the seller to choose, for they set ceiling finance charges, but they do not specify any minimum charge below which a seller cannot go.

What counts to sellers and buyers is the total price (cost) of the goods and credit combined, whether expressed as one price or as separate prices. Sellers who set separate goods and credit prices can use varying combinations to achieve any given total price.

Data supplied by the National Automobile Dealers Association measuring the relation between automobile dealers' average operating profit and average finance reserve on new cars and trucks imply that some shifting of goods price to credit price occurred between 1950 and 1959. Table 11 indicates that per unit average operating profit (including average finance reserve) dropped sharply from 1950 through 1954 and remained at a generally lower level

TABLE 11

Relation of Average Operating Profit and Average Finance Reserve Per New Car Unit, 1950–59

| Year | Average Operating Profit (Including Finance Reserve) | Average Finance Reserve[a] | Average Finance Reserve as a Percentage of Average Operating Profit |
|---|---|---|---|
| 1950 | 208 | n.a. | |
| 1951 | 201 | n.a. | |
| 1952 | 175 | n.a. | |
| 1953 | 100 | n.a. | |
| 1954 | 29 | 26.60 | 91.7 |
| 1955 | 80 | 36.54 | 45.7 |
| 1956 | 39 | 45.44 | 116.5 |
| 1957 | 35 | 48.13 | 137.5 |
| 1958 | 11 | 48.39 | 439.9 |
| 1959 | 70 | 50.06 | 71.5 |

SOURCE: National Automobile Dealers Association. 1949 is the first year for which data are available.

[a] The average finance reserve covers the reserves on both new and used units but, according to the NADA method of reporting, is related to new units only.

from 1955 through 1959. It also indicates that the per unit average finance reserve increased substantially between 1954 (the first year for which figures are available) and 1959. In three of these six years, the average finance reserve exceeded the average operating profit, i.e., the average operating profit excluding the average finance reserve was negative.

Since it is the total goods-credit price which counts and since sellers who have separate goods and credit prices can vary them to obtain a given total, the question arises of the meaningfulness of any separate goods or credit price.[12] If a consumer determines the finance rate on any pending instalment purchase, does such a rate have any meaning or usefulness?

To hold that any finance rate does not convey the cost of credit requires setting up standards by which finance rates accurately represent such costs. Whenever a seller has separate prices on joint sales, consumers may respond differently to alternative price com-

[12] See, for example, *Consumer Credit Labeling Bill,* pp. 305 and 406, and Johnson, *Finance Charges,* pp. 93–97.

binations. When the credit transaction is separate from the sale of the good, as in direct lending, the finance rate must reveal the credit cost. If sellers raised finance rates and lowered goods prices to increase joint sales, people might gravitate to direct lenders. If sellers lowered finance rates and raised goods prices, consumers might seek lower-cost goods sellers. Under these conditions, separately stated prices help determine the combined market cost to the consumer on joint sales. Each price conveys to consumers its market share of the total cost of credit purchases.

Legislation reflects this view of the usefulness of separate goods and credit prices to consumers. Retail instalment financing laws universally require instalment sellers to show separate goods and credit prices in dollars. (The credit price is given as zero if no separate charge is made for it.) The Automobile Information Disclosure Act, effective October 1, 1958, requires the posting of the factory-recommended price of a new automobile plus accessories.

### CONVERTING FINANCE CHARGES TO RATES COMPARABLE WITH USURY CEILINGS

As indicated in Chapter 2, forty-seven states and the District of Columbia have usury ceilings which, with the exception of Rhode Island's 30 per cent, vary from 6 to 12 per cent. Courts have generally held that usury ceilings are to be interpreted as effective annual rates, to relate to all costs of a financing transaction rather than only to the "pure interest" cost, and to apply to all financing transactions not specifically exempted by statue or common law.

Consumers who accurately compute finance (i.e., effective annual) rates in the forty-seven states with 6 to 12 per cent usury ceilings will find that many, if not most, of these finance rates exceed the usury ceilings. To prevent possible misunderstanding, consumers should know what costs to include in computing finance rates and when finance rates that exceed usury ceilings are legal and when they are not.

*What Costs to Include.* In the theoretical works that offer an explanation of why interest exists and analyze the factors determining the level of the interest rate, economists have traditionally been concerned primarily with pure interest cost and have assumed away or ignored service and risk costs. This is illustrated by the following quotation: [13]

While any exact and practical definition of a pure rate of interest is impossible, we may say roughly that the pure rate is the rate on loans which are practically devoid of chance. . . . In this book, I shall usually confine the concept of the rate of interest to the rate in a (humanly speaking) safe loan, or other contract implying specific sums payable at one date or set of dates in consideration of repayment at another date or set of dates. The essentials in this concept are: (1) definite and assured payments, (2) definite and assured repayments, and (3) definite dates.

The pure interest concept has been applied to the consumer instalment credit market by one writer as follows: [14]

The interest rate could be regarded as the sole price factor only if the instalment credit had a perfect market such as is assumed in a large part of the general theory of money and credit. If there existed a generally accessible instalment loan market where demand for all types of instalment credit could be satisfied on the same contract terms, at least within certain limits, and consumers could freely renew and extend loans, the price of instalment credit could be thought of unequivocally as interest on the average unpaid balance.

If interest is construed as the pure cost of money alone, there should theoretically be little or no difference among the interest costs of all kinds of loans, for money is a homogeneous commodity and the money markets are highly competitive. The theory has not been tested empirically since measurement of pure interest has not been possible because of the lack of a riskless commodity whose scheduled repayment is certain.

In the absence of a consensus on what constitutes pure interest and, consequently, on how it can be measured, one authority suggests that: [15]

. . . economists have gradually come to recognize that the interest problem is essentially a numerical problem and should be approached as such. . . . The concept of "pure" or "riskless" interest is metaphysical. The prac-

13 Irving Fisher, *The Theory of Interest*, New York, 1954, pp. 34–35.

14 Gottfried Haberler, *Consumer Instalment Credit and Economic Fluctuations*, New York, NBER, 1942, p. 89.

15 Frederick Macauley, *Some Theoretical Problems Suggested by the Movement of Interest Rates, Bond Yields and Stock Prices in the United States Since 1896*, New York, NBER, 1938, pp. 6 and 38.

tical contrast is not between "pure" and "impure" but between "promised" or "expected" and "actual" or "realized." It is quite quixotic to attempt to divide the "promised" (or even "realized") return from a bond into "interest" and "profits" or something else. Moreover, such a division is unnecessary for either theoretical or historical treatment. Bonds and other interest-bearing obligations may be classified according to their ("promised") yields without deciding what the rate of "riskless" yield would be.

In an empirical sense, the term interest rate measures the total annual cost of a credit transaction regardless of the nature of that cost or of the number of components into which the cost may be divided. Three kinds of cost are common to all types of credit transactions, including consumer credit: service, risk, and pure interest. The relative importance of each of these cost elements varies widely among credit transactions. In general, the greater the credit strength of the borrower, the greater is the share of pure interest in total cost and the smaller is the share of risk and service in total cost. To illustrate, pure interest is the major cost while service and risk are negligible costs in lending money on short term to the United States government by buying Treasury bills. Service and risk are the dominant costs and pure interest is a minor cost on a loan to a struggling small business firm and on most consumer credit transactions. Some observers have objected to expressing the finance charge as an effective rate because pure interest is only a small part of the cost of most consumer credit transactions and because they interpret "interest rate" as "pure interest costs." [16]

The term interest rate (or its equivalent, yield) is used in an empirical sense in business, government, and mortgage financing. It generally represents the total annual cost expressed as an effective annual rate on loans, bonds, and other forms of debt, from the very high-grade (in which pure interest cost dominates) to the very low-grade (in which service and risk costs dominate). An interest or finance rate can be used in the same empirical sense in consumer financing.

Courts have generally interpreted the term interest in the empirical rather than the pure interest sense. Their objective has been to prevent lenders from evading usury ceilings by charging

[16] For an example, see the statement of Theodore Beckman in *Consumer Credit Labeling Bill,* p. 333.

pure interest up to the ceiling and then adding one or more extra charges to cover service and risk costs. Most of the special laws governing consumer financing set one ceiling covering all three cost elements. Included here are virtually all retail instalment financing laws, revolving credit laws, small-loan laws, and credit union laws, two-thirds of the instalment loan laws, and one-fourth of the industrial loan laws. Only a minority of special consumer financing laws have separate ceilings for different cost elements. These laws usually contain two ceilings, one to cover pure interest and risk and the other to cover service costs.[17] Both the one-charge and two-charge laws usually permit creditors to charge consumers separately for any filing or recording fees which creditors pay public officials for a credit transaction.

Measurement of total cost rather than pure interest is the relevant magnitude to consumers whether the measure is in dollar or rate form. In seeking the lowest cost alternative, the consumer wants the charge or rate which is necessary to cover his credit risk and to provide the desired credit service.

*Legality of Finance Charges Which Exceed Usury Ceilings.* Whether finance charges may legally exceed usury ceilings depends on (1) the existence of usury ceilings, (2) state court interpretations of the scope of credit transactions which are construed as usury, and (3) the existence of legislation permitting higher rates of charge on the extension of credit to individuals.

State courts have adhered to the time-price doctrine and exempted retail instalment financing from the usury laws in all states other than Arkansas (since 1952). Except for that state, retail instalment finance charges are legally subject either to ceilings in retail instalment financing laws or to no ceiling in the absence of such a law.[18] In Arkansas retail instalment finance charges are subject to the usury ceilings.

Cash loans are subject to usury laws unless specifically exempted

17 For advocacy of a three-charge system, see Roland A. Baker, "Statutory Limitations on Small Loan Charges," *Personal Finance Law Quarterly Report,* fall, 1955, pp. 118–121.

18 For a discussion of the historical development of this legislation, see William D. Warren, "Regulation of Finance Charges in Retail Instalment Sales," *The Yale Law Journal,* April 1959, pp. 839–868.

by enabling legislation which provides higher ceilings. Commercial banks, consumer finance companies, credit unions, and industrial banks operate, in the main, under such laws. Commercial banks operate without instalment loan laws in seven states with usury ceilings where the legal status of charges above usury limits could be questioned.[19]

Three states (Arkansas, Oklahoma, and Tennessee) have constitutions which set interest ceilings at 10 per cent and which give no authority to legislatures to pass loan laws authorizing higher rates. Enabling cash loan legislation in these states must pass the test of constitutionality. Texas was in a similar situation until 1961 when it adopted a constitutional amendment permitting the legislature to pass loan laws with ceilings about 10 per cent.

19 Arkansas, Louisiana, Montana, Nevada, Oklahoma, Tennessee, and Washington.