At the heart of the so-called Truth-in-Lending bills is the question of disclosure: What should the lender reasonably be required to tell the borrower in a consumer credit contract about the costs of the transaction?

The disclosure debate has been raging persistently in legislative committees and legislatures all over the United States and Canada. Although ostensibly fought over technical points of accounting, the debate often has been but a mask for a determined effort to obstruct the ultimate clarity and uniformity which alone can achieve the aim of this legislation.

This article will show that, in the main, the issues are now clear and the available solutions simple and unambiguous. The intellectual debate is over; aside from some very real drafting problems, all that remains is politics.

The Central Issue

The central obligation of the creditor in a credit contract consists of either making a cash payment (loan or mortgage) or of selling some merchandise at an agreed upon price. Thus, the creditor's primary obligation always is stated in terms of the dollar amount given either in cash or in value.

In contrast, the obligation of the borrower or consumer (as we shall refer to him interchangeably) to repay the credit can be written

† Professor of Law and Sociology, University of Chicago. Dr. Jur., 1927, Dr. rer. pol., 1928, University of Vienna. I became familiar with the problem area as a one-time member of the Special Committee of the National Conference of Commissioners on Uniform State Laws, whose job it is to draft a Consumer Credit Code. This paper is a contribution to the ongoing debate. We owe a great debt of gratitude to my colleague, Professor Allison Dunham, the Executive Director of the Conference, for guiding us critically through the maze of issues. Nevertheless, the positions this paper takes are those of the authors.


1 After extensive hearings, Hearings on S. 5 Before the Senate Comm. on Banking and Currency, 90th Cong., 1st Sess. (1967) [hereinafter cited as 1967 Hearings], the United States Senate approved a watered-down version of the Douglas-Proxmire bill, S. 5, 90th Cong., 1st Sess. (1967); the House, with considerably more enthusiasm, approved a somewhat stronger bill on February 1, 1968. H.R. 11601, 90th Cong., 2d Sess. (1968). However, this action was rescinded and the House passed a version of the Senate bill, with amendments. The two versions are now headed for a joint committee. In addition, many states are considering bills of their own. For a compilation of state disclosure acts, see Hearings on S. 750 Before a Subcomm. of the Comm. on Banking and Currency, 88th Cong., 1st & 2d Sess., pt. 1-2, at 1377a (1963-64).
in one of three mathematically equivalent ways: by stating the number, due dates and size of the payments to be made; or by stating the interest rate on the basis of which the payments will be computed; or by a mixture of both. In any case, the content of the credit contract is stated with legal and mathematical precision. Indeed, a mathematician can see clearly, or can ordinarily clarify with a few simple computations, all the implications of the contract, whatever its form.

The problem of disclosure arises because the average consumer is not a mathematician and, hence, is unable to see all the implications of his contract. By speaking of disclosure, therefore, we refer not to making available information actually withheld from the debtor, but rather to making explicit the essential aspects of the credit contract which the ordinary debtor otherwise cannot perceive.

Professors Jordan and Warren, in a distinguished paper,\(^2\) have illustrated the issue superbly:

[C]onsider the case of a man who wants to buy an automobile which has a cash price of $2500. He may be told by the dealer that he can finance the purchase at a rate of six dollars per hundred per year on a thirty-month contract through a sales finance company. A bank might offer to lend him the purchase price at six per cent per year, discounted, with a maturity period of twenty-four months. He might also obtain a loan from a small loan company whose rates are 2½ per cent per month on the first $200, 2 per cent per month on the next $300, and ½ of one per cent on the remaining balance, over thirty-six months. A credit union to which the buyer belongs lends money at one per cent per month and pays an annual patronage dividend of uncertain amount. In addition, the buyer may have a savings account at a bank on which he receives four per cent per year interest. It is virtually impossible for the average buyer to determine which of the competing credit suppliers is offering him the cheapest credit.\(^3\)

The example makes clear that whatever the mode of disclosure required, it must be uniform so that the essentially fungible character of credit is made clearly visible.

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\(^3\) Id. at 1293. See also the testimony of Andrew J. Biemiller before the Senate Committee:

Whatever the mysteries of consumer credit financing, there is little mystery about why consumer borrowers know so little about its costs. They are concealed behind a curtain woven out of indecipherable statistics; a curtain that’s pure gold on the side of the lender.

1967 Hearings 363. On the consumer's lack of knowledge of his finance charges, see the summaries of surveys in W. Moos, Consumer Credit Finance Charges: Rate Information and Quotation 80-91 (1965).
If the consumer is to act rationally, he must be able to see all those aspects of the credit contract which, if clearly perceived, might lead him to a different decision—that is, to increase or reduce the amount of credit requested, to turn to a different credit source, or to forego making a credit contract altogether by paying cash.

The Principle in Outline

We shall argue that the consumer's needs will be met adequately if the following information is made explicit in the offered credit contract:

1. the face dollar amount of credit which, in the absence of initial finance charges, constitutes the net proceeds to the borrower;
2. the size and due dates of installments;
3. the true annual rate of interest which, in the absence of other finance charges, is equal to the contractual rate of interest;
4. the aggregate dollar-amount of interest which the debtor will have paid when his last installment payment is made; that is, the total stipulated dollar payments (2) minus the net credit proceeds (1);
5. initial finance costs, in contracts where such costs are charged, irrespective of whether an obligatory or optional part of the transaction.

If such an initial finance charge is made, items (1), (3) and (4) are transformed into items (1a), (3a) and (4a) as follows:

1a. the net proceeds to the borrower, that is, the actual amount of credit received (item 1 minus the finance charges);
3a. the true annual rate of interest, which in this case is larger than the contractual rate, because finance charges have reduced the net proceeds to the borrower;
4a. aggregate total costs of credit (total dollars repaid minus item 1a).

The annual interest rate is clearly preferable to the monthly interest rate on at least two grounds. First, because it is undesirable that while “People save [money] on one set of computations, they borrow it . . . under another set . . . .” 1967 Hearings 72. Furthermore, there are some consumer credit contracts (e.g., mortgages) in which anything but an annual interest rate would be out of place. Since uniformity and comparability is of the essence, the law should settle on the annual interest rate and allow the annual rate to be simply the multiple of the rate of any corresponding smaller interval, e.g., twelve times the monthly rate, while disregarding compounding as de minimis. This rate, technically, is called the nominal rate.

Cf. p. 824 infra.
This, in broad outline, is the principle of the proposed disclosure. Before discussing some of the issues involved, however, it will be useful to illustrate the principle by a few examples.

**Examples**

Let us look first at the purchase of a medium priced item, such as a small television set, on relatively short-term credit:

<table>
<thead>
<tr>
<th>Purchase price</th>
<th>$130.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Down payment</td>
<td>50.00</td>
</tr>
<tr>
<td>Credit granted</td>
<td>$80.00</td>
</tr>
</tbody>
</table>

To be paid back in 8 monthly installments of $11.

Under the suggested disclosure rule, the required information for this contract would be:

1. Face amount of credit: $80.00
2. 8 monthly installments of $11: $88.00
3. Contractual (here also the true) interest rate: 26% per year
4. Total finance costs: $(8 \times 11 - 80) = $8.00

In this case, it would seem unnecessary to supply (4), but only because the contract is extremely simple, requiring only elementary arithmetic to ascertain that $8 \times 11$ is 88, or 8 more than 80.

The situation is quite different if we look next at the other extreme—a complex credit contract such as a long term mortgage for a relatively large amount of money:

<table>
<thead>
<tr>
<th>Amount of credit</th>
<th>$10,000.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>To be repaid in quarterly installments at an interest rate of</td>
<td>6.0% per year</td>
</tr>
<tr>
<td>Over a period of</td>
<td>10 years</td>
</tr>
</tbody>
</table>

Our four required items of information would be:

1. Credit: $10,000.00
2. Quarterly equal installments of: $334.27 each
3. Contractual (also the true) interest rate: 6.0% per year
4. Total amount of interest accrual: $3,370.80

Here it is not item (3), the interest rate, that is not apparent to the borrower, but item (4), the total amount of interest payments.

Note that in both contracts, two of the three items of information would have been clearly discernable by the average consumer, but in each contract there is one item of information that rarely is supplied.
In the short-term contract, the information usually missing is the rate of interest (item 2); in the long-term contract it is the aggregate amount of interest (item 4) that is usually omitted.⁶

If we vary the number and time of payments required by these two sample credit contracts, it becomes clear that disclosure of all three items is indeed essential. Suppose the mortgage credit of $10,000 at an interest rate of 6.0 per cent could be repaid over 20 years instead of 10 years. In that case, the face amount (1) and the interest rate (3) would stay the same, but with the doubling of the credit time, the individual installment (2) would drop to $215.48, payable over (20 \times 4 =) 80 quarters, and the aggregate amount of interest would increase from $3,371 to $7,239.

If we were to vary repayment of credit for the television set from 8 monthly installments of $11 to 16 monthly installments of $5.50, item (4), the aggregate accrual, would remain unchanged, but item (3), the contractual interest rate, would change from 26 per cent to 13.6 per cent per year.

If the 20-year mortgage credit carries with it a $500 financing charge, consisting of a fee for title search and drawing up the contract to be paid to the lawyer of the mortgage company, the contract is further complicated:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Face amount of credit</td>
<td>$10,000.00</td>
</tr>
<tr>
<td>2</td>
<td>Equal quarterly installments (payable over 20 years)</td>
<td>$215.48</td>
</tr>
<tr>
<td>3</td>
<td>Contractual interest rate</td>
<td>6.0%</td>
</tr>
<tr>
<td>4</td>
<td>Aggregate interest</td>
<td>$7,238.40</td>
</tr>
<tr>
<td>5</td>
<td>Finance charge</td>
<td>$500.00</td>
</tr>
</tbody>
</table>

The finance charge changes items (1), (3) and (4) as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>Net proceeds to the borrower ($10,000 - $500 =)</td>
<td>$9,500.00</td>
</tr>
<tr>
<td>3a</td>
<td>True interest rate</td>
<td>6.6%</td>
</tr>
<tr>
<td>4a</td>
<td>Aggregate cost of credit ($7,238.40 + $500.00)</td>
<td>$7,738.40</td>
</tr>
</tbody>
</table>

It is appropriate to quote here from the Regulation issued by the Governor in Council Under the Consumer Protection Act, describing the disclosure provisions of the Canadian Province of Nova Scotia:

For example: If a borrower receives a credit of $300 to be repaid in equal monthly installments of $28.37 a month for 12 consecutive months, being a total of $340.44, the lender must furnish the borrower before extending the credit a clear statement in writing showing at least:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>the amount of credit</td>
<td>$300.00</td>
</tr>
<tr>
<td>b</td>
<td>the cost of borrowing</td>
<td>$40.44</td>
</tr>
<tr>
<td>c</td>
<td>the annual rate</td>
<td>24%</td>
</tr>
</tbody>
</table>

The true rate is computed by relating the quarterly installments of $215.48 each (representing 6 per cent for 20 years on the face amount of $10,000) not to the face amount, but to the actual proceeds of $9,500.

Given the size of the credit, the contractual rate and the initial finance costs, the shorter the duration of the credit, the more the true rate will deviate from the contractual rate. For example:

(1) Credit ........................................ $600
(5) Finance charge ................................... $30
(1a) Actual credit ................................. $570
(3) Contractual interest rate ..................... 12.0%
(3a) True interest rate, if credit is paid back within—
    3 years ......................... 15.6%
    2 years ......................... 17.2%
    1 year ......................... 21.9%

The operation is analogous to that applied by economists when they have to combine fixed and running costs of an enterprise. Thus, the longer the period over which the "fixed costs" can be apportioned, the smaller the fraction that will fall on any one time unit. The true interest rate reaches high levels when the credit period is short and the initial costs relatively high. Although the lending industry occasionally has claimed that such percentages are more misleading than informing, it is hard to share this view. The true interest rate is, after all, what its name implies, not more and not less. If it is claimed that such a particularly high percentage amounts to not more than a few dollars in some cases, the provision that the true rate and the aggregate dollar costs be disclosed will always show the situation in its true light.

We now turn to a discussion of some of the issues that have arisen in the debate over the proper mode of disclosure.

Time Rate or Dollars and Cents?

It has been persistently asked why an interest time rate is at all necessary; why is not disclosure in terms of dollars and cents sufficient? Although by now the point has become relatively moot, with only some diehards in the lending industry still fighting a rear-guard action,7 the arguments and counter-arguments are here briefly summarized:

7 "Opposition to the proposal [to require interest rate disclosure] has come almost exclusively from the industry, particularly from the highly vocal and well-organized sales finance companies. . . ." Id. at 363-64.
Argument

1. The dollars and cents form is meaningful to the average consumer; it tells him exactly what his costs are. The interest rate does not.

2. The dollars and cents form is a long established practice in a large part of the credit industry. Disruption would result from imposition of the new requirement; in small enterprises the task, if not impossible, would result in calculation errors.

3. The “interest rate” includes non-interest cost elements and, hence, will mislead the consumer.

4. Collateral charges, such as for life or casualty insurance, raise difficult and unnecessary questions as to which charges are to be included in the rate.

5. There are several methods of calculating interest rates and their multiplicity will vitiate comparison.

6. Expressing the cost as an interest rate yields bizarre and misleading results on small accounts.

Counter-Argument

1. The interest rate is the only device that permits comparison of credit costs. All people who ever had a savings account or a mortgage can understand interest rates. Moreover, since our sixth-graders today learn computer mathematics, it is safe to assume that future generations of adults will have no difficulty understanding interest rates.

2. All large companies have turned to computers, which can solve these problems quickly and accurately. Smaller establishments or branch offices can be provided with pre-computed tables. Such tables can be ordered from financial service firms for almost any type of contract.

3. All prices, not only the price of credit, consist of multiple cost components. The individual consumer is interested only in the total price and not in its components. If only the word “interest” is at issue, it might be replaced by the use of the term “finance rate.”

4. The classification of these charges raises problems, but not unsolvable ones.

5. This problem is avoided by adoption of the only correct method—the actuarial method.

6. Any such impression is balanced by the simultaneous disclosure of the small dollar amount involved; moreover, small transactions could be exempted from rate disclosure.

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8 See pp. 802-04 infra.
9 See note 17 infra.
10 See p. 824 infra.
11 See pp. 808-10 infra.
12 See pp. 827-28 infra.
**Argument**

7. To avoid excessively high rates, some sellers will transfer part of the selling cost into the alleged cash price.

8. The time rate cannot be stated in advance for revolving charge accounts and credit-check operations.

**Counter-Argument**

7. This problem admittedly cannot be solved by requiring the time-rate disclosure; but neither is it likely to be aggravated by it.\(^{13}\)

8. These are the only two credit arrangements that offer genuine difficulties; but they can be solved by special disclosure provisions.\(^{14}\)

Since the authors agree with the Royal Commission for Nova Scotia, which concluded that: "[h]aving reviewed the objections advanced to this form [time rate] of disclosure it is difficult to find any merit in them,"\(^ {15}\) we turn now to the second disputed issue that has obstructed the debate for an unduly long time.

**Which Interest Formula?**

If a time rate is required, by what method is it to be computed? To the uninitiated this would seem a simple question: "Why not," he might reply, "compute it just as a bank or loan association computes the interest they pay us if we loan them some money?" To apply this method, known as the "actuarial method," would indeed seem the only proper solution. It is based on the theory of compound interest and is the standard procedure for the evaluation not only of credit operations but of all capital investments, in which general context it is known as the discounted cash flow method. Two other methods of computing interest known as the constant ratio and direct ratio methods have gained some acceptance, but neither is accurate or much used, although some usury statutes have adopted them, because the mathematics required is ostensibly simpler.

Their operation can be seen from the following. If:

\[
P = \text{the number of payments in a year} \\
C = \text{the finance charge in dollars} \\
A = \text{the original credit} \\
N = \text{the number of payments}
\]

then, the

\[
\text{constant ratio per cent rate} = \frac{2PC}{A(N+1)}
\]

and the

\[
\text{direct ratio per cent rate} = \frac{6PC}{3A(N+1) + C(N-1)}
\]

\(^{13}\) Cf. pp. 808-10 infra.

\(^{14}\) See pp. 817-19 infra.

\(^{15}\) NOVA SCOTIA REPORT, supra note 6, ¶ 600, at 375.
The per cent rate computed by the direct ratio formula will always be lower, and the rate computed by the constant ratio formula will always be higher, than the correct rate as computed by the actuarial method. The following table gives the discrepancies for twenty different typical credit transactions.

### Table 1

**Annual Interest Rate**  
**As Computed by Three Different Methods**

<table>
<thead>
<tr>
<th>Contract Repayable in:</th>
<th>5% Per Year Add-on</th>
<th>10% Per Year Add-on</th>
<th>15% Per Year Add-on</th>
<th>20% Per Year Add-on</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>12 Months</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant Ratio</td>
<td>9.23</td>
<td>18.46</td>
<td>27.69</td>
<td>36.92</td>
</tr>
<tr>
<td>ACTUARIAL</td>
<td>9.11</td>
<td>17.98</td>
<td>26.63</td>
<td>35.09</td>
</tr>
<tr>
<td>Direct Ratio</td>
<td>9.10</td>
<td>17.96</td>
<td>26.57</td>
<td>34.95</td>
</tr>
<tr>
<td><strong>24 Months</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant Ratio</td>
<td>9.60</td>
<td>19.20</td>
<td>28.80</td>
<td>38.40</td>
</tr>
<tr>
<td>ACTUARIAL</td>
<td>9.32</td>
<td>18.16</td>
<td>26.58</td>
<td>34.64</td>
</tr>
<tr>
<td>Direct Ratio</td>
<td>9.31</td>
<td>18.09</td>
<td>26.37</td>
<td>34.20</td>
</tr>
<tr>
<td><strong>36 Months</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant Ratio</td>
<td>9.73</td>
<td>19.46</td>
<td>29.19</td>
<td>38.92</td>
</tr>
<tr>
<td>ACTUARIAL</td>
<td>9.31</td>
<td>17.92</td>
<td>25.98</td>
<td>33.60</td>
</tr>
<tr>
<td>Direct Ratio</td>
<td>9.29</td>
<td>17.78</td>
<td>25.56</td>
<td>32.73</td>
</tr>
<tr>
<td><strong>48 Months</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant Ratio</td>
<td>9.80</td>
<td>19.59</td>
<td>29.39</td>
<td>39.18</td>
</tr>
<tr>
<td>ACTUARIAL</td>
<td>9.25</td>
<td>17.60</td>
<td>25.32</td>
<td>32.54</td>
</tr>
<tr>
<td>Direct Ratio</td>
<td>9.21</td>
<td>17.37</td>
<td>24.66</td>
<td>31.20</td>
</tr>
<tr>
<td><strong>60 Months</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant Ratio</td>
<td>9.84</td>
<td>19.67</td>
<td>29.51</td>
<td>39.34</td>
</tr>
<tr>
<td>ACTUARIAL</td>
<td>9.16</td>
<td>17.27</td>
<td>24.67</td>
<td>31.57</td>
</tr>
<tr>
<td>Direct Ratio</td>
<td>9.10</td>
<td>16.94</td>
<td>23.76</td>
<td>29.51</td>
</tr>
</tbody>
</table>

That the two ratio methods are inaccurate—the constant ratio more so than the direct ratio—because they infer the interest rate not from the actual pattern of the declining outstanding debt but from approximation to it, should suffice to eliminate them.\(^\text{16}\)

For larger, computerized enterprises, such as department stores, finance companies, banks and others, it is as easy to program for use of the actuarial method as for the misleading ratio methods. Nor can adoption of this method make any difference to smaller enterprises,

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\(^{\text{16}}\) Applied to interest payments, the actuarial method has been called the "U.S. Rate," because it is the only one that allows computation in the form postulated by Story v. Livingston, 38 U.S. (13 Pet.) 310, 323 (1839).
including modest retail outlets, since they will be using pre-computed
tables in any event and it is just as simple to buy the correct tables as
the incorrect tables.\textsuperscript{17}

\textbf{The Actuarial Method}

An explanation of the principles of the actuarial method may
serve to take some of the mystery out of an ostensibly forbidding form
of arithmetic and will help the reader to see more clearly why this
method is the only apt measure of interest disclosure.

We shall discuss, first, the concept of accrual of interest, or the
interest growth pattern, as it emerges from the familiar principle of
interest compounding.

The essence of this concept is easily presented. If the original
amount of debt or capital is $100 and the interest rate, compounded
monthly, is 1 per cent per month, or nominally 12 per cent per annum,
the following table establishes the pattern of growth over the first
few months:

\begin{table}
\centering
\caption{Growth Pattern of $100 at 1 Per Cent Per Month}
\begin{tabular}{ll}
\hline
Original amount at the beginning of \\
the first month \hspace{1cm} & \$100.00 \\
Interest accruing up to the end of \\
the first month \hspace{1cm} & 1.00 \\
\hline
Amount outstanding at the beginning \hspace{1cm} & \\
of the second month \hspace{1cm} & \$101.00 \hspace{1cm} (= 100 \times 1.01 \textsuperscript{1}) \\
Interest accruing to $101.00 during \hspace{1cm} & 1.01 \\
the second month \hspace{1cm} & \hspace{1cm} \\
Amount outstanding at the beginning \hspace{1cm} & \\
of the third month (i.e., the end \hspace{1cm} & \$102.01 \hspace{1cm} (= 100 \times 1.01 \textsuperscript{2}) \ast \\
of the second month) \hspace{1cm} & 1.0201 \\
Interest accruing to $102.01 during \hspace{1cm} & \hspace{1cm} \\
the third month \hspace{1cm} & \hspace{1cm} \\
Amount outstanding at the beginning \hspace{1cm} & \\
of the fourth month (i.e., the end \hspace{1cm} & \$103.0301 \hspace{1cm} (= 100 \times 1.01 \textsuperscript{3}) \ast \ast \\
of the third month) \hspace{1cm} & \hspace{1cm} \\
\hline
\end{tabular}
\end{table}

\textsuperscript{*} = 100 \times 1.01 \times 1.01

\textsuperscript{**} = 100 \times 1.01 \times 1.01 \times 1.01; 1.01 \textsuperscript{1} is of course equal to 1.01.

\textsuperscript{17} A variety of such pre-computed tables are available at minimal cost from a
number of financial publishing houses.
The accrual process is presented graphically in Table 3: 18

**Table 3**

**Forward Aspect: The Accrual Process**

<table>
<thead>
<tr>
<th>Accrual Periods</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>100.00</td>
</tr>
<tr>
<td>+1.00</td>
</tr>
</tbody>
</table>

The figures in conjunction with the graph clarify several aspects of interest compounding. First, the total amount of interest accrued at any time after the start of the contract is the total outstanding debt minus the original debt; after three terms the original $100.00 has grown to (rounded off to the nearest penny) $103.03, or $3.03 over the original amount. Second, the graph if it had been sufficiently far extended would have shown the continuous acceleration of the ascent of the curve. 19 Third, for any two points in time, the outstanding debt (that is, the original debt plus accrued interest) represents equivalent values under the regime of the given interest rate. After one term, $101.01 is the equivalent of $102.01 after two terms and of $103.03 after three terms, and so on. These equivalent values, based not on $100.00 but on $1.00 of the original amount, can be found in any standard compilation-of-interest tables. They are called accrual factors because they give the compounded amount, that is, the original amount

18 The graph is imperfect in that the height of the original debt (100) cannot be shown as it ought to be—one hundred times as high as the height of the interest (1.00). The wavy line indicates this deficiency.

19 Mathematicians call this particular acceleration a geometric progression or an exponential curve. Eventually it will grow beyond any fixed boundaries. Thus, a penny invested in the year A.D. 1, at one per cent per annum would have doubled every 69 or 70 years (or 28 times by the mid-20th century) for a round total of 2½ million dollars. It is significant that the German word for usury, *Wucher*, connotes not only any abnormally swift growth in interest but is applied also to cancerous growths of the body.
plus the total interest accrued to it, for 100 terms and more, and for a variety of interest rates per dollar of the original amount.

The actual size of the debt will, of course, always be a multiple of $1.00, but it is simple enough to obtain the accrual values for any size of debt; all one has to do is to multiply the value found on the standard table for the particular interest rate and the particular number of terms by the actual dollar amount of the original debt. To compute, for instance, the accrual value for three months for a debt of $500, to be compounded monthly at a rate of one per cent per month: the accrual value for $1.00 is read from the interest table as 1.0303, which number must be multiplied by 500 to obtain the desired result (1.0303 \times 500 =) $515.15.\textsuperscript{20}

The Discount Factors

The table of accrual factors is, as we saw, the record of equivalent values at different points of time, given a certain rate of interest per term. The accrual is oriented towards the future, in that it answers the prospective question: "How much will the original amount be worth at successive future points of time?" Or, in terms of payment: "How much will I, the debtor, owe at a given future date if I now receive X dollars at a certain rate of interest?" In this case, time along the horizontal axis is read from the left (coming from the past) to the right (going into the future).

The resulting growth pattern, however, can also be looked at retrospectively from the right (the future) to the left (the past), so that it will answer the question: "How much was a given amount worth a certain time ago?" In terms of payment: "How much less do I have to pay now if I am to receive in return at some future point of time a certain amount?" The answers are given by the Discount Factor Table which gives the equivalent values for different interest rates again per dollar, but this time per dollar of the ending capital, which is the original amount plus the interest accrued to it. These factors are given for earlier points of time, particularly, of course, for the beginning of the contract time, to indicate the cents of original capital (without interest) that correspond to $1.00 of ending capital.

Note that the pattern remains unchanged whether one refers to accrual or to discount factors; only the scale and the direction in which we compute the equivalents has changed. If we apply this notion to the three terms of Table 3, we obtain:

\textsuperscript{20} In addition, if certain credit amounts, such as $100, $200 or $300 are made standard amounts (as they are, for instance, in small loan transactions), it is easy to buy special accrual tables for these standard amounts which will make unnecessary even the above-mentioned simple multiplication. See note 17 supra.
TRUTH-IN-LENDING

Table 4
BACKWARD ASPECT: THE DISCOUNT PROCESS

Discount Periods

Computationally, the discount factors are obtained by the reciprocal of the accrual formula; instead of $1.00 \times 1.01^n$, the formula is $\frac{1.00}{1.01^n}$. Following is the actual computation for the first three periods:

- Amount due at the end of the contract .......... $100.00$
- Equivalent values prior to the end of the contract for—
  - one month ............. $\frac{1.00}{1.01} = 99.01$
  - two months ............. $\frac{1.00}{1.01^2} = 98.03$
  - three months ............. $\frac{1.00}{1.01^3} = 97.06$

The table that gives these discount factors for various rates of interest and time periods is usually Table II in the standard compilation-of-interest tables (Table numbers in Roman numerals indicate that reference is being made to standard compilation-of-interest tables).

Equal Installment Payments

All types of computations requiring the compounding of interest, particularly those involving periodic payments of equal amounts, like
the discount table, can be derived from the basic accrual table. The basic table applies to the type of contract, written for the great majority of credit transactions, which provides for repayment of the credit in equal periodic installments over the entire time period for which the credit is extended.

The table of accrual factors answers the question: "If I receive X dollars now, what is the lump sum that I must repay at the end of the credit period?" The Installment Table, usually Table VI of the standard interest tables, answers the question "What is the size of the installment per dollar of credit I must pay if I want to repay the credit in regular installments of equal size over the total length of time the credit is extended?"

Two examples—a long-term mortgage for $20,000, and a short-term bank loan of $1,500 for the purchase of an automobile—will illustrate the use of Interest Table VI.

Assume that the mortgage of $20,000 is repayable in quarterly installments over 25 years at an annual interest of 6 per cent. Table VI will indicate that for every $1.00 of debt a level quarterly amortization payment of 0.0193706 is required, or for $20,000, $(20,000 \times 0.0193706 =) \$387.41$. Thus, the $(25 \times 4 =) 100$ installments total \$38,741.20. Since the original credit amount was $20,000, the total interest accrual will be $(38,741.20 - 20,000 =) \$18,741.20$ or almost again as much as the original debt.

If the $1,500 loan is to be repaid in 36 monthly installments at a nominal interest rate of twelve per cent per annum, Table VI indicates an installment to be due of 0.03321431 per $1.00 of debt, or $49.83 per month for $1,500 of credit. The total accrual value will be $(36 \times 49.83, \text{ or } \$1793.88 - \$1500 =) \$293.88$ above the originally extended credit.

For standard credit operations (mortgages, small loans, and automobile purchases) the particular interest table will supply all necessary information. All the vendor has to do is to multiply the table value, which always refers to the unit amount of $1.00, by the actual amount involved.²¹

²¹ See note 4 supra. The effective annual rate for a rate of one per cent per month is 12.68% (rounded). Since some banks have been advertising that they compound interest daily, it will be of interest to see that this rate so compounded would amount to an effective rate that is only 12.75% (rounded).

²² The occasional objection heard from the industry, that any precise statement would require tables of impracticable enormity, is thus laid to rest. The standard tables plus one multiplication provide all answers. See also note 16 supra. In describing how the U.S. Treasury had prepared tables for consumer finance computations, Under Secretary J. W. Barr remarked: "... we have been persuaded that we cannot... throw an intolerable burden and make American businessmen go through a series of long computations. These are designed for eighth grade graduates." 1967 Hearings 69.
We now turn to some of the modifications of this level installment amortization, beginning with the streamlined credit operation provided primarily by mail order houses and department stores.

The Open Merchandise Credit

There are various ways of handling the open merchandise credit. One is to apply a given uniform interest rate, say 18 per cent per year (or 1½ per cent per month) to the open balance as described in Table 5 and the paragraphs that follow.

Table 5

Open Merchandise Credit

(No additional purchases during the duration of the contract—Maximum: 10 installments—Interest: 18% per year or 1½% per month.)

<table>
<thead>
<tr>
<th>(1) Size of Statement Balance ($)</th>
<th>(2) Number of Installments</th>
<th>(3) Size of Installments</th>
<th>(4) All But the Last One ($)</th>
<th>(5) The Last One ($)</th>
<th>(5) Total Interest Accrual ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.00</td>
<td>1</td>
<td>10</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.00</td>
<td>3</td>
<td>10</td>
<td>0.15</td>
<td>0.15</td>
<td></td>
</tr>
<tr>
<td>30.00</td>
<td>4</td>
<td>10</td>
<td>0.47</td>
<td>0.47</td>
<td></td>
</tr>
<tr>
<td>40.00</td>
<td>5</td>
<td>10</td>
<td>0.93</td>
<td>0.93</td>
<td></td>
</tr>
<tr>
<td>50.00</td>
<td>6</td>
<td>10</td>
<td>1.57</td>
<td>1.57</td>
<td></td>
</tr>
<tr>
<td>60.00</td>
<td>7</td>
<td>10</td>
<td>2.37</td>
<td>2.37</td>
<td></td>
</tr>
<tr>
<td>70.00</td>
<td>8</td>
<td>10</td>
<td>3.36</td>
<td>3.36</td>
<td></td>
</tr>
<tr>
<td>80.00</td>
<td>9</td>
<td>10</td>
<td>4.52</td>
<td>4.52</td>
<td></td>
</tr>
<tr>
<td>90.00</td>
<td>10</td>
<td>10</td>
<td>5.88</td>
<td>5.88</td>
<td></td>
</tr>
<tr>
<td>100.00</td>
<td>10 + 1 *</td>
<td>10</td>
<td>7.42</td>
<td>7.42</td>
<td></td>
</tr>
<tr>
<td>100.01</td>
<td>7</td>
<td>15</td>
<td>14.50 **</td>
<td>4.49</td>
<td></td>
</tr>
<tr>
<td>120.00</td>
<td>9</td>
<td>15</td>
<td>6.79</td>
<td>6.79</td>
<td></td>
</tr>
<tr>
<td>140.00</td>
<td>10</td>
<td>15</td>
<td>14.53 **</td>
<td>9.53</td>
<td></td>
</tr>
<tr>
<td>150.00</td>
<td>10 + 1 *</td>
<td>15</td>
<td>11.13</td>
<td>11.13</td>
<td></td>
</tr>
<tr>
<td>150.01</td>
<td>8</td>
<td>20</td>
<td>18.83 **</td>
<td>8.82</td>
<td></td>
</tr>
<tr>
<td>160.00</td>
<td>9</td>
<td>20</td>
<td>9.06</td>
<td>9.06</td>
<td></td>
</tr>
<tr>
<td>180.00</td>
<td>10</td>
<td>20</td>
<td>11.75</td>
<td>11.75</td>
<td></td>
</tr>
<tr>
<td>200.00</td>
<td>10 + 1 *</td>
<td>20</td>
<td>14.84</td>
<td>14.84</td>
<td></td>
</tr>
<tr>
<td>200.01</td>
<td>9</td>
<td>25</td>
<td>11.31 **</td>
<td>11.30</td>
<td></td>
</tr>
<tr>
<td>225.00</td>
<td>10</td>
<td>25</td>
<td>14.70</td>
<td>14.70</td>
<td></td>
</tr>
<tr>
<td>250.00</td>
<td>10 + 1 *</td>
<td>25</td>
<td>18.55</td>
<td>18.55</td>
<td></td>
</tr>
</tbody>
</table>

* The extra payment covers the accrued interest.

** Normally, the last installment (4) will be equal to the Total Interest Accrual (5) except for the payments marked ** which cover, in addition, part of the original debt. If the loan extends over a longer period, more than the last installment may be necessary to cover the Total Interest Accrual.
The size of the monthly installment is pre-determined by the size of the total charge. If the total charge is $10 or less, no credit is given; if the total is below $100, the monthly installment is $10; if the charge is over $100, but not more than $150, the monthly installment is $15, and so forth as shown in column 3 of Table 5.

The true interest rate is 18 per cent per year on the open balance; it is usually charged from the date of the first monthly statement after the purchase.\(^{23}\) The last installment will be the equivalent of the accrued interest rate and any odd residual of the debt not covered by the sum of the preceding installments. For example, suppose that an item has been purchased for $100 and is to be paid for in equal installments of $10. After ten months, the 1½ per cent per month interest will have accrued to $7.42 altogether, so that the consumer will have to pay $7.42 as the eleventh payment (as seen at the $100-line in Table 5).

Such a table, to be sure, can accommodate only round dollar amounts at key intervals; but this would suffice, because the payments for interstitial amounts can be easily estimated by the consumer. Thus, the interest accrual on a credit of $110 would be estimated to be approximately mid-way between $4.49 (the interest for $100.01) and $6.79 (the interest for $120), or $5.64. The consumer, thus, would have to make seven payments of $15 and one payment of $10.64. The exact computation yields an amount of $5.69, a difference of only a few pennies.

One may, of course, operate under a different rule concerning the size of the required installment payments. One rule, for instance, might be to require payments of at least 10 per cent of the original purchase price, the exact amount being left at the discretion of the borrower. In that case, nothing but a statement of the annual interest rate on the open balance—18 per cent per year, 1.5 per cent per month—is required.

**The Add-on-Charge**

A second possible way of dealing with the open credit account is to add to the original credit amount an aggregate interest accrual that remains fixed for each class, as shown in Table 6. In the open credit operation (Table 5), only the size of the installment is kept constant for each class; the interest rate remains the same for all credits. In the add-on operation, the added interest accrual remains unchanged with certain narrow credit brackets so as to simplify the computation, especially for mail order customers. But if the aggregate accrual re-

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\(^{23}\) See, however, the different computation at p. 816 infra.
mains constant and the size of the credit changes, resulting interest
rates must vary slightly depending on the precise location of the credit
amount within the bracket. The obvious solution is to state the range
within which the true interest rate will vary, either for the table as
a whole or for the individual brackets. The first three columns of
Table 6, taken from a current mail order catalog, illustrate the situation.
To the right of each line we have computed the range within which
the interest rate varies depending on where the amount of the purchase
lies within the bracket; the interest rate will be highest if the amount
coincides with the lower limit of the bracket and lowest if it coincides
with the top limit.

The Revolving Add-on Account

If a second purchase is made on an open credit account before the
first has been paid up, no difficulties in computation arise. The
consolidated amount at the time of the second purchase is treated as
if it were one purchase; the interest rate remains constant and the size
of the monthly installment is pre-determined by the consolidated
amount. However, where an add-on account is involved, a second
purchase presents a difficulty. Suppose, for example, that the first
purchase was for $340 to which $49.50 was added for interest accrual.
The combined amount of $389.50 is to be paid back in eighteen monthly
payments, as can be seen from the last line of Table 6. Suppose also that
at a time when three payments have been made, another purchase is
made for $50.01, which, along with the $6 interest accrual, is to be
paid back in ten installments. The interest rate for this second pur-
chase by itself is 34 per cent, since $50.01 is the lower limit of the
particular bracket.

In this case, to facilitate handling for both the customer and him-
self, the seller will consolidate the two purchases and allow the cus-
tomer to pay back the $6 add-on for the second purchase, not over the
ten months provided in the plan, but over the fifteen months during
which the first purchase still has to run. Thus, the interest rate for
this second purchase will be lower than the 22 per cent indicated
in Table 6.

Consolidation of two add-on purchases with different time intervals
to run presents one situation in which the interest rate cannot be stated
in advance. But to use this difficulty as a general argument against
disclosure of the interest rate is improper. First, this is a relatively
rare occurrence among all consumer credit transactions. Moreover,
since the consumer can only profit by the transaction, it would be
quite sufficient to indicate that, in such cumulated add-on purchases,
<table>
<thead>
<tr>
<th>If total cash price (plus any sales tax and shipping charge, less any deposit) amounts to</th>
<th>The amount added for credit price will be</th>
<th>Amount payable monthly is</th>
<th>Time interest rate (in % per year) **</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to $10.00</td>
<td>10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$10.01 to 15.00</td>
<td>$1.50</td>
<td>$3.00</td>
<td></td>
</tr>
<tr>
<td>$15.01 to 20.00</td>
<td>2.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$20.01 to 30.00</td>
<td>3.00</td>
<td>4.00</td>
<td></td>
</tr>
<tr>
<td>$30.01 to 40.00</td>
<td>4.00</td>
<td>5.00</td>
<td></td>
</tr>
<tr>
<td>$40.01 to 50.00</td>
<td>5.00</td>
<td>5.00</td>
<td></td>
</tr>
<tr>
<td>$50.01 to 60.00</td>
<td>6.00</td>
<td>6.00</td>
<td>34—22</td>
</tr>
<tr>
<td>$60.01 to 70.00</td>
<td>7.00</td>
<td>7.00</td>
<td>32—24</td>
</tr>
<tr>
<td>$70.01 to 80.00</td>
<td>8.00</td>
<td>8.00</td>
<td>31—24</td>
</tr>
<tr>
<td>$80.01 to 90.00</td>
<td>9.00</td>
<td>8.50</td>
<td>28—24</td>
</tr>
<tr>
<td>$90.01 to 100.00</td>
<td>10.00</td>
<td>9.00</td>
<td>26—22</td>
</tr>
<tr>
<td>$100.00 to 110.00</td>
<td>11.00</td>
<td>10.00</td>
<td>26—21</td>
</tr>
<tr>
<td>$110.00 to 120.00</td>
<td>12.00</td>
<td>10.00</td>
<td>23—20</td>
</tr>
<tr>
<td>$120.01 to 130.00</td>
<td>13.50</td>
<td>10.00</td>
<td></td>
</tr>
<tr>
<td>$130.01 to 140.00</td>
<td>14.50</td>
<td>11.00</td>
<td></td>
</tr>
<tr>
<td>$140.01 to 155.00</td>
<td>16.00</td>
<td>11.50</td>
<td></td>
</tr>
<tr>
<td>$155.01 to 170.00</td>
<td>19.00</td>
<td>12.00</td>
<td></td>
</tr>
<tr>
<td>$170.01 to 185.00</td>
<td>22.00</td>
<td>12.50</td>
<td></td>
</tr>
<tr>
<td>$185.01 to 200.00</td>
<td>24.50</td>
<td>13.50</td>
<td></td>
</tr>
<tr>
<td>$200.01 to 215.00</td>
<td>26.50</td>
<td>14.50</td>
<td></td>
</tr>
<tr>
<td>$215.01 to 230.00</td>
<td>30.00</td>
<td>15.00</td>
<td>22—18</td>
</tr>
<tr>
<td>$230.01 to 245.00</td>
<td>32.50</td>
<td>16.00</td>
<td></td>
</tr>
<tr>
<td>$245.01 to 260.00</td>
<td>34.50</td>
<td>17.00</td>
<td></td>
</tr>
<tr>
<td>$260.01 to 275.00</td>
<td>39.00</td>
<td>17.50</td>
<td></td>
</tr>
<tr>
<td>$275.01 to 290.00</td>
<td>41.00</td>
<td>18.50</td>
<td></td>
</tr>
<tr>
<td>$290.01 to 310.00</td>
<td>43.50</td>
<td>19.50</td>
<td></td>
</tr>
<tr>
<td>$310.01 to 330.00</td>
<td>46.50</td>
<td>20.50</td>
<td></td>
</tr>
<tr>
<td>$330.01 to 350.00</td>
<td>49.50</td>
<td>22.00</td>
<td></td>
</tr>
</tbody>
</table>

* From a 1966 mail order catalog. The 1968 add-on amounts represent slightly higher rates, in conformity with the generally higher level of interest.

** This rate is not in the original table; it has been computed here for the purposes of demonstration.

24 For an argument in favor of a $50.00 limit, see pp. 827-28 infra.
the combined interest rate will be lower than if the now extended credit had run for the shorter time.\textsuperscript{25}

\textit{The Revolving Charge Account}

The revolving charge or credit account has assumed a special role in the debate over the truth-in-lending program. Retail merchants have almost succeeded in persuading legislators that revolving accounts create such a variety of "true" interest rates that it would be impossible to arrive at a fair and workable rule for stating them.

The questions raised in this area can best be illustrated through a table illustrating a typical revolving charge system, such as the one used by Sears, Roebuck & Co. and many other companies.

\begin{table}[h]
\centering
\caption{TYPICAL REVOLVING CHARGE ACCOUNT}
\begin{tabular}{lcccc}
\textbf{Date} & \textbf{Purchase} & \textbf{Payment} & \textbf{Balance} & \textbf{Charge} \\
April 5 & $100.00 & & & \\
April 30 & & $100.00 & $1.50 & \\
May 15 & 50.00 & & 140.00 & 2.10 \\
May 28 & & $10.00 & & \\
May 31 & & & & \\
\end{tabular}
\end{table}

The retailers make the point that the "true" interest rate depends on the dates on which purchases and payments are made. If the purchases are made at the beginning of the month but the payments toward the end, then the "true" interest rate will be below 1\(\frac{1}{2}\) per cent per month, and—if the dates are reversed—it may be even a bit higher. Before discussing this argument, it will be useful to illustrate the different method of accounting used by the J. C. Penney Co., a variation which seems to make even more difficult efforts to arrive at a simple legislative solution.

\textsuperscript{25}The Ontario Select Committee recommended the following solution: "... as to cyclical accounts the charges should be disclosed as a monthly percentage add-on, with a minimum charge if the lender so desires. The percentage to be charged, and the minimum charge if any, should be disclosed to the borrower when the credit is granted." \textit{Final Report of the Select Comm. of the Ontario Legislature on Consumer Credit} \S 314, at 45-46 (1965).
Table 8

Revolving Charge Account Used by J. C. Penney

<table>
<thead>
<tr>
<th>Date</th>
<th>Purchase</th>
<th>Payment</th>
<th>Balance</th>
<th>Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 5</td>
<td>$100.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>April 30</td>
<td></td>
<td>$100.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>May 15</td>
<td></td>
<td>50.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>May 28</td>
<td></td>
<td>$10.00</td>
<td>90.00</td>
<td></td>
</tr>
<tr>
<td>May 31</td>
<td>(140.00)</td>
<td></td>
<td>(1.35)</td>
<td></td>
</tr>
</tbody>
</table>

J. C. Penney, too, charges a rate of 1½ per cent on the open balance—but on a different "open balance." Note first that there is no service charge on the April 30 balance; note further that only $90.00 of the May 31 balance is subject to the service charge.

At first glance these retailers' arguments look convincing. When considered more fully, however, problems arising from both the date of the month variation and variations allegedly arising from the selection of different balances for the application of service charges can be resolved rather simply.

If we recall that our central concern is with credit contracts which impose a financial burden in excess of the original price of the merchandise, the issue becomes one of determining when this contractual situation arises. In other words, we must decide where the border-line lies between the normal charge account purchase without an extra finance charge and the credit purchase for which such a charge is levied.26

Considering the problem in this way, we note that for purchases at Sears, Roebuck & Co. no finance charge is being levied if the merchandise is paid for before the purchase appears on the monthly account. Purchasers at J. C. Penney need not pay any finance charge if they pay before the end of the month following the appearance of the purchase on the monthly account. Beyond these dates, both Sears,

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26 This approach, incidentally, also was proposed in the Senate hearings by Mr. Joseph W. Barr, Under Secretary of the Treasury when he was asked how the interest on a revolving charge account could be disclosed in advance:

I have pondered this, and to the best of my knowledge the only way I can get to this revolving credit transaction is to find at the point when the credit transaction begins what rate is being charged to the consumer.

1967 Hearings 79.
Roebuck & Co. and J. C. Penney apply an interest rate of eighteen per cent per year. This is all there is to it, and J. C. Penney indeed has had no difficulty in making this competitive advantage known to its customers.

There still remains, however, the problem of variations in the interest rate due to fluctuations of the date of payment of an installment. To be sure, if the borrower always pays earlier than his due date would require, the lender makes some money. Again, our recommendation is a simple one: forget the differences that may arise from these fluctuations. Once the borrower is advised what his latest allowed payment date is, he makes an earlier payment at his own, knowing sacrifice; since it is likely that he will draw the payment from a non-interest-bearing checking account, there will usually be no sacrifice. The fluctuations have only a de minimis effect anyway; if the leeway is not more than one month, the resulting difference in total accrued interest cannot exceed the interest equivalent for one month. Variations arising from accounting schedules adapted to computer facilities are also de minimis. Here, the suggestion to disregard is reinforced by the probable random character of these variations.

**Credit Checks**

There is one other situation for which it may be almost impossible to state the interest rate in advance. Some banks allow the borrower to obtain credit by merely drawing checks up to a certain amount. The charge arrangement is usually a fixed fee per check (say 25¢) and a fixed interest rate on the open balance. Since the true interest rate depends upon both the size of the credit balance and the number of checks drawn to reach that balance, the true rate cannot be stated in advance.

The solution here would seem to be to allow the bank to state the effective interest rate by way of approximation in terms of "typical examples." For instance, one might show the costs for a cumulative credit of $100, $300 and $500, each obtained through 5 checks, 10 checks, and 20 checks.

**The Skip Contract**

We now turn to an infrequently-written type of contract which is allegedly so complicated as to make it impossible to subject it to any demands for disclosure. The problem arises in credit contracts with teachers, or with others who receive their salaries over a ten months' period from September to June. Such contracts often allow the bor-
rower to "skip" payments during July and August. We shall see that this type of contract presents no disclosure difficulties.

Before we embark on computation, it is essential to see exactly what is involved in converting a regular contract into a skip contract. The diagram below makes it clear that the difference consists entirely in the added interest accrual for the postponed payment.

The difference in total cost between the regular contract and the skip contract consists of the added interest that accrues on the skipped installment from its original due date to its new due date. In schematic Table 9, the second installment has undergone this transformation. The precise effect of this postponement depends, as Table 9

**Table 9**

**THE PRINCIPLE OF THE SKIP CONTRACT**

Example: The normal schedule provides repayment in three monthly installments, in months #1, 2 and 3. If payment in month #2 is to be skipped, it must be paid in month #4.

The scheme again schematically demonstrates, both on the beginning date of the contract and on its duration. Tables 9A and 9B present the skip-effect for contracts that provide for repayment in 12 monthly installments, skipping July and August. In contract A, repayments are to begin in September; in Contract B, they are to begin in July. In contract A, installment #11 (July) is postponed by two months until September, and installment #12 is postponed by two months from August to October. In contract B, installments #1 and #2 have to be postponed for 14 months.
Contracts A and B mark the two extremes with respect to a regular twelve-month repayment contract: Contract A provides the minimum deviation from the regular contract; Contract B the maximum deviation. As Tables 9A and 9B show, if the contract begins in any month other than July or September, the added interest accrual will fall somewhere between these two extremes.

Table 10 shows what the difference between the regular and the skip contract amounts to in terms of the size of the monthly installment, if the contract is to provide for twelve equal monthly installments. The size of these installments we know will vary according to the month in which the contract begins.

**Table 9A**

**Skip Contract A, Beginning in September**

<table>
<thead>
<tr>
<th>Installment Number</th>
<th>Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sep</td>
</tr>
<tr>
<td>2</td>
<td>Oct</td>
</tr>
<tr>
<td>3</td>
<td>Nov</td>
</tr>
<tr>
<td>4</td>
<td>Dec</td>
</tr>
<tr>
<td>5</td>
<td>Jan</td>
</tr>
<tr>
<td>6</td>
<td>Feb</td>
</tr>
<tr>
<td>7</td>
<td>Mar</td>
</tr>
<tr>
<td>8</td>
<td>Apr</td>
</tr>
<tr>
<td>9</td>
<td>May</td>
</tr>
<tr>
<td>10</td>
<td>Jun</td>
</tr>
<tr>
<td>(11)</td>
<td>Jul</td>
</tr>
<tr>
<td>(12)</td>
<td>Aug</td>
</tr>
<tr>
<td>11</td>
<td>Sep</td>
</tr>
<tr>
<td>12</td>
<td>Aug</td>
</tr>
</tbody>
</table>

Legend:
- Normal monthly interest
- Skipped monthly interest
- Extra-interest due to skipping
As explained in Tables 9A and 9B, the installment size reaches a maximum if credit is granted at the beginning of July and the first payment is due at the end of July; it reaches a minimum if the first payment is due in September. The most interesting point that emerges from Table 10 is the relatively small difference in the resulting interest rate between the regular contract and any skip contract. Depending on the starting month, the difference is less than one per cent in three of the twelve months; in only one month does it exceed three per cent. This is important because it suggests that no great inconvenience is done to the consumer if the difference is simply added as a so-called balloon charge at the end of the contract written on the basis of twelve regular (non-skip) monthly payments.
Table 10
Size of 12-Month Installment for a $1000 Credit Where July and August Are Skipped
(Interest 1½% per month)

<table>
<thead>
<tr>
<th>Contract begins in:</th>
<th>Size of monthly installment (dollars)</th>
<th>Per cent difference over $91.68, the regular installment size</th>
</tr>
</thead>
<tbody>
<tr>
<td>July</td>
<td>94.88</td>
<td>+ 3.5 (maximum)</td>
</tr>
<tr>
<td>August</td>
<td>93.48</td>
<td>+ 2.0</td>
</tr>
<tr>
<td>September</td>
<td>92.09</td>
<td>+ 0.4 (minimum)</td>
</tr>
<tr>
<td>October</td>
<td>92.31</td>
<td>+ 0.7</td>
</tr>
<tr>
<td>November</td>
<td>92.53</td>
<td>+ 0.9</td>
</tr>
<tr>
<td>December</td>
<td>92.76</td>
<td>+ 1.2</td>
</tr>
<tr>
<td>January</td>
<td>92.98</td>
<td>+ 1.4</td>
</tr>
<tr>
<td>February</td>
<td>93.22</td>
<td>+ 1.7</td>
</tr>
<tr>
<td>March</td>
<td>93.45</td>
<td>+ 1.9</td>
</tr>
<tr>
<td>April</td>
<td>93.70</td>
<td>+ 2.2</td>
</tr>
<tr>
<td>May</td>
<td>93.94</td>
<td>+ 2.5</td>
</tr>
<tr>
<td>June</td>
<td>94.41</td>
<td>+ 3.0</td>
</tr>
</tbody>
</table>

The balloon charge, of course, will be slightly greater than the percentages in Table 9 indicate, since Table 9 is based on a comparison of monthly installments, whereas the balloon charge is added only at the very end of the contract period. But if such a minor blemish seems disturbing, there is no difficulty in having tables prepared that would allow the lender to determine the appropriate increase of the regular installment.

Table 11 generalizes the principle established in Tables 9A, 9B and 10, and gives the installment size for skip contracts ranging from 6 to 48 monthly installments for the repayment of a $1000 credit at an annual interest rate of eighteen per cent. The table has been added here to dispel any doubt that it can easily be constructed. And again, any financial service firm will provide similar tables for any specifications.
TABLE 11
SIZE OF MONTHLY INSTALLMENT FOR REPAYMENT OF A CREDIT OF $1000, IF THE MONTHS OF JULY AND AUGUST ARE SKIPPED

(18 per cent per year)

<table>
<thead>
<tr>
<th>Contract begins in</th>
<th>6</th>
<th>12</th>
<th>18</th>
<th>24</th>
<th>30</th>
<th>36</th>
<th>42</th>
<th>48</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>$175.53</td>
<td>$92.98</td>
<td>$65.21</td>
<td>$51.44</td>
<td>$43.24</td>
<td>$37.80</td>
<td>$33.99</td>
<td>$31.16</td>
</tr>
<tr>
<td>February</td>
<td>176.35</td>
<td>93.22</td>
<td>65.42</td>
<td>51.57</td>
<td>43.37</td>
<td>37.92</td>
<td>34.09</td>
<td>31.25</td>
</tr>
<tr>
<td>March</td>
<td>177.21</td>
<td>93.45</td>
<td>65.03</td>
<td>51.89</td>
<td>43.64</td>
<td>38.04</td>
<td>34.19</td>
<td>31.34</td>
</tr>
<tr>
<td>April</td>
<td>178.08</td>
<td>93.70</td>
<td>65.85</td>
<td>51.89</td>
<td>43.63</td>
<td>38.16</td>
<td>34.29</td>
<td>31.44</td>
</tr>
<tr>
<td>May</td>
<td>178.97</td>
<td>93.94</td>
<td>66.07</td>
<td>52.08</td>
<td>43.77</td>
<td>38.29</td>
<td>34.39</td>
<td>31.55</td>
</tr>
<tr>
<td>June</td>
<td>179.89</td>
<td>94.41</td>
<td>66.30</td>
<td>52.28</td>
<td>43.91</td>
<td>38.42</td>
<td>34.52</td>
<td>31.65</td>
</tr>
<tr>
<td>July *</td>
<td>180.83</td>
<td>94.88</td>
<td>66.54</td>
<td>52.48</td>
<td>44.05</td>
<td>38.56</td>
<td>34.64</td>
<td>31.75</td>
</tr>
<tr>
<td>August *</td>
<td>170.16</td>
<td>94.48</td>
<td>65.34</td>
<td>51.70</td>
<td>43.40</td>
<td>37.99</td>
<td>34.13</td>
<td>31.28</td>
</tr>
<tr>
<td>September</td>
<td>175.52</td>
<td>92.09</td>
<td>64.59</td>
<td>50.94</td>
<td>42.76</td>
<td>37.43</td>
<td>33.68</td>
<td>30.82</td>
</tr>
<tr>
<td>October</td>
<td>175.53</td>
<td>92.31</td>
<td>64.69</td>
<td>51.04</td>
<td>42.88</td>
<td>37.51</td>
<td>33.71</td>
<td>30.90</td>
</tr>
<tr>
<td>November</td>
<td>175.53</td>
<td>92.53</td>
<td>64.80</td>
<td>51.18</td>
<td>43.00</td>
<td>37.61</td>
<td>33.81</td>
<td>30.97</td>
</tr>
<tr>
<td>December</td>
<td>175.52</td>
<td>92.76</td>
<td>65.00</td>
<td>51.31</td>
<td>43.12</td>
<td>37.70</td>
<td>33.90</td>
<td>31.00</td>
</tr>
<tr>
<td>Regular size</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Installment—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>without skip</td>
<td>175.52</td>
<td>91.68</td>
<td>63.81</td>
<td>49.92</td>
<td>41.64</td>
<td>36.15</td>
<td>32.26</td>
<td>29.38</td>
</tr>
</tbody>
</table>

* If the contract begins in July or August, the first payment is delayed until September.

Initial Finance Charges

If there are initial finance charges, the question arises as to which of these charges ought to be considered as costs of the credit so as to reduce the net proceeds to the borrower, the basis for the computation of the interest rate. Some items undoubtedly belong to this category of cost. Fees for credit examination, cost of administrative processing for the life of the credit and for debt collection, and, in mortgage transactions, the lender’s appraisal and legal fees all must be included; otherwise, a lender would be able to advertise a modest finance charge and then recover income from such special charges.

The difficulties begin with items that clearly confer an advantage on the borrower as well as to the lender, such as life insurance for the amount and duration of the credit, casualty insurance on the offered collateral, and the fee for the title search in a mortgage transaction.

A sensible rule, it would seem, could be developed along these lines:

1) All obligatory items, without which the credit cannot be granted, must be deducted for the computation of the net proceeds.

2) Obligatory items that clearly confer additional advantages to the borrower, such as life or casualty insurance, must be both deducted and itemized.

3) Optional items need only be itemized and not deducted from the proceeds.
Advertising

The essentials of disclosure—interest rate and its aggregate accrual—should extend to the advertising of credit.\textsuperscript{27} An advertisement that reads “No down payment—$20 a week” is obviously incomplete. But even if it read, “Pay $20 for 100 weeks,” it is not enough. For adequate disclosure it must read:

\begin{align*}
\text{Cash price:} & \quad $1,768 \\
\text{Credit price:} & \quad $2,000 \\
\text{Pay } $20 \text{ for 100 weeks, which} & \quad \text{is 13\% interest per year.}
\end{align*}

Or, to take one of the standard advertisements by one of the country’s leading small loan companies, which now reads:

\begin{tabular}{lll}
\text{Borrow} & \text{Pay 12 Months} & \text{Pay 24 Months} \\
$100 & $9.74 & $5.59 \\
$300 & $28.81 & $16.31 \\
$500 & $47.06 & $26.19 \\
\end{tabular}

To disclose what needs to be disclosed, it should read:

\begin{tabular}{lllll}
\text{Borrow} & \text{Pay} & \text{Total} & \text{Pay} & \text{Interest} \\
 & \text{12 Months} & \text{24 Months} & \text{Total} & \text{Per Year} \\
$100 & $9.74 & $116.88 & $5.59 & $134.16 & 30\% \\
300 & 28.81 & 345.72 & 16.31 & 391.44 & 27\% \\
500 & 47.06 & 564.72 & 26.19 & 628.56 & 23\% \\
\end{tabular}

If this full disclosure gives some borrowers pause, the disclosure requirements will have done exactly what they are supposed to do.

The essential point to be kept in mind is simple: in some phases of the economic cycle it is in the interest of the economy as a whole that consumer credit be expanded; in other phases it will be desirable to restrict it. Interest rates that are made to appear lower than they are, therefore, at times may hurt the community as a whole.

Delayed Payments and Prepayments

Occasional delays in the payment of the stipulated installments are apt to occur in long-term financial transactions. The “penalty” for such delays should not exceed the extra costs occasioned thereby. The size of such a “penalty” might be part of the initial disclosure, or even be regulated by law.

\textsuperscript{27}The present Senate bill, S. 5, 90th Cong., 1st Sess. (1967), does not regulate advertising in any way.
Here, incidentally, the actuarial method reveals one of its many advantages—its flexibility. As we have shown, it can accommodate without disruption any delays or prepayments within the stipulated interest rate. Thus, it would seem proper to add or subtract from the aggregate interest whatever is indicated by the actuarial method. Penalties designed to compensate the lender for extra administrative work should be subject to a legal ceiling.

Prepayment of a long-range credit, such as a mortgage, poses special problems. The lender, by contracting for a specific interest rate, impliedly accepts the risk that the market rate might go up during the life of the credit; it would not be fair to allow the borrower to borrow money elsewhere and prepay the more onerous mortgage if the market rate dropped. One way to protect the lender against such a contingency is to allow the borrower to prepay only a part, for instance one fourth, of the total mortgage in any one year and, thus, to reduce a ten- or fifteen-year credit to four years, but not to less. Another frequently used solution is to charge a premium of one or two per cent if the prepayment is made within a protected time period.

Regulation of prepayment for smaller credits is needed because of the relative frequency with which a partially paid-back credit is pre-paid with part of another credit obtained from the same or another institution.

Tolerance Limits

When dealing with measurements, it is necessary to set tolerance limits of accuracy, if for no other reason than to decide the cut-off point of the never-ending flow of decimals. The setting of tolerance limits for disclosure has two aspects. The first is the need for deciding to which decimal point the interest rate must be computed: is it to be rounded off to the nearest full percentage point, to the nearest tenth of one per cent, or should even further accuracy be required?

We might note here that rounding off to the nearest percentage point can, at worst, involve an error of one half of one per cent. A figure of seven per cent, for instance, may stand for any value above six and one-half per cent and up to seven and one-half per cent. Similarly, rounding off to the nearest one tenth of one per cent cannot involve a larger error than one twentieth of one per cent. The figure of 8.4 per cent, for example, may represent all values from 8.3½ per cent to 8.4½ per cent.

The tolerance limit which is selected obviously should depend on the size of the credit and its duration. Rounding off to the nearest percentage point in a $500 credit for one year allows for an error of
about one half of one per cent, i.e., $1.25 of the average credit balance ($2.50) for the year. Clearly, that is a tolerable error. On the other hand, for a $10,000 mortgage over 10 years, the same error represents about $250; rounding off to the nearest decimal would involve one-tenth of this amount (or $25). The problem is to determine the amount up to which the law should be satisfied with accuracy to the nearest percentage; beyond that point all interest rates could be stated to the nearest first decimal. It should almost never be necessary to require more disclosure accuracy in consumer transactions.\(^8\)

Theoretically, the dividing line should be determined by the product of the face amount of the credit and the number of years for which it runs. But since credit size and length move, as a rule, in the same direction, it would suffice to stipulate, for instance, that annual interest rates for credits up to three years can be stated to the nearest percentage point and that rates for longer credits must be stated to the nearest first decimal.

The second aspect of the tolerance problem concerns situations, such as the open merchandise credit, in which it is difficult, if not impossible, to compute the exact interest rate in advance. Here, for reasons already suggested,\(^9\) the lender should be required only to state the range within which the true interest rate will fall.

**Summary**

What does our elaborate and necessarily technical argument amount to? Essentially, just these five points:

1. **That** any lender or vendor selling on credit must provide his purchaser with a clear statement of the
   - credited amount
   - mode of repayment
   - initial finance charges
   - true annual interest rate
   - total amount of interest that will accrue.

2. **That** these five items must include any and all charges, under whatever label, that are part of the cost of financing.

3. **That** this rule should be uniformly applied except where the credit is *de minimis* (defined as a credit up to $50) or where specific modifications are necessary for revolving

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\(^8\) It would probably go too far to *forbid* interest statements with more than one decimal, but a good case can be made that additional decimals might do more harm than good, because they are more likely to confuse the lay reader than help him. See H. Zeisel, *Say It With Figures* 18-19 (4th ed. 1957).

\(^9\) See p. 819 *supra*. 
add-on credits. Similarly, the law should treat as *de minimis* the deviations that may arise from both purchases or payments made at various points of time during the (usually monthly) accounting period.

4. **That** it is a simple task to provide this information either with the help of standard interest tables, or with the help of tables tailor-made for the particular enterprise, which are obtainable at a nominal price from many financial service firms. For large scale operations, this task can be performed automatically by computers.

5. **That** the worst difficulty that can be involved in any of these operations is one single multiplication of the value read off the prepared table for $1.00 by the amount of the credit.

* * *

We are not sure that we have answered all possible objections or doubts as to the feasibility of these simple disclosure rules. In fact, we are certain that new objections will be raised; but we are satisfied that all of them can be answered easily.

One last word as to why it would be a serious mistake to allow exceptions—other than that contained in rule 3—to these disclosure rules. First, we believe there is no justifiable need for any exception. But even more importantly, it must be realized that what is at stake are not the small difficulties of transition, but the long-range simplicity and uniformity of the proposed solution. The important question is not what the required disclosure will achieve tomorrow or next year, but rather what it will achieve in the long run, once its arithmetic has found its way into our elementary school books, and new generations have grown up thoroughly familiar with its simple scheme. Children who now learn computer mathematics in elementary school will have no difficulty in understanding the arithmetic of a credit contract. And, with full disclosure, even the citizen with a below-average education, the one who needs this information most, will better be able to appraise the meaning of a credit contract.

Still another long-range consequence is to be expected from simple and complete disclosure: the usury laws, which now put ceilings on interest rates, will lose their importance. Clear visibility of the price of credit will not only enable the consumer to make an intelligent decision, but will also sharpen competition among lenders and, thus, bring down the price of credit. We know that price ceilings—or, for that matter, price floors—whatever good they may accomplish, are crutches that have deleterious effects on the economy as a whole by forcing it off its optimal equilibrium. They make investments possible
that ought not to be made and prevent investments that ought to be made.

Thus, what on the surface may look like only a plan to protect the unwary borrower is in fact more. The larger function of proper disclosure laws is to bring the decisions of all potential borrowers to an optimum for the economy as a whole. Some will borrow at the offered rate; some will go to another credit source; some will prefer to draw on their cash savings; and some will save before they buy. But the relative proportion of persons making each decision will be closer to the proportions that are optimal for the economy as a whole. Thus, the ultimate function of proper disclosure is to restore the fungible character of credit which it was allowed to lose in the jungle of a hundred individual labels.