



THE COST OF MONEY

A Look at Interest Rates
& Government Regulations

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THE COST of MONEY—a LOOK at INTEREST RATES and GOVERNMENT REGULATIONS

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INTRODUCTION

THE USE OF BORROWED CAPITAL is becoming more and more important to the functioning of the U.S. economy. The total debt of individuals, agriculture, and industry increased over 60 percent during the 5-year period from 1970 to 1975.¹ In absolute dollars, debt rose from approximately \$1.4 trillion to \$2.3 trillion. The rising costs of inputs for business and agricultural operations, coupled with the development of many “pay as you go” credit plans and credit card services, have created the necessity for this increased use of borrowed capital and made credit readily available for almost everyone.

When credit is used properly to finance the operation of a business or to supplement normal family income to make personal or household purchases, it is not necessarily harmful. In fact, for a business, credit could be just as important as the basic raw materials used in the production process. When credit is not used appropriately in the home or business, however, it can quickly lead to deterioration of a sound family financial structure or bankruptcy of a profitable business operation.

Proper credit management is not an easy task. Many business managers do a better job in administering the productive opera-

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¹ “\$3-Trillion Debt—Is It Out of Control?” *U.S. News and World Report*, November 24, 1975, pp. 63-64.

tions of their enterprise than in managing the use of borrowed capital. A basic cause of poor credit management, both in the home and business, is a lack of knowledge. This publication will give some of the basic concepts of credit management. Credit terminology and methods of repayment and calculating interest charges will be presented and compared. In addition, the Usury Law, which controls maximum interest rates, and the Truth in Lending Law, which regulates lenders and those extending credit, will be discussed.

CREDIT TERMINOLOGY

It is understandable that many individuals and business managers are reluctant to carefully investigate the credit market and seek out the least expensive sources of credit. The credit field is very confusing and there are numerous terms relating to credit and interest which appear to have the same meaning. To further compound the problem, those who deal in extending loans or credit might use the terms differently. In fact, there is confusion and debate among credit and financial experts concerning the exact meaning and correct usage of many credit terms.

Interest

The most basic of all terms regarding the use of borrowed capital is that of interest. Interest is generally considered to be the price paid for the use of money or capital. The interest rate is the ratio of the total interest or finance charge to the capital or principal involved. Interest is generally considered to be payment for four things. These are:

1. Pure interest—The market price of money, which is approximated by the rate paid on government bonds where there is a minimum of risk or other costs involved.
2. Risk—The chance taken by the lender in that he may not get his money back.
3. Management and administrative costs—The costs involved with running the credit operation.
4. Inflation—The money paid back by a borrower has less purchasing power than the money he received.

The actual interest that is being charged for a given loan or credit transaction may be expressed in several different ways. Some of the basic terms used to describe interest are as follows:²

² Terms used in consumer credit advertising sometimes differ from those used by financial analysts. The terms and interpretation of these financial experts are used in this bulletin.

Contract interest rate—This is the basic interest rate as stated on the note or credit agreement. It may be stated on an annual basis or on the basis of the individual repayment period. For example, you might have a 9 percent home mortgage or a revolving charge account with interest of $1\frac{1}{2}$ percent charged on the average monthly balance.

True, compound or actuarial interest rate—This is the rate that is applied to the loan or credit balance in each payment period. It may be the same as the contract rate if the contract is stated in terms of the payment period.

Annual or nominal interest rate—This rate is obtained by multiplying the true rate by the number of repayment periods in a year. The number of repayment installments clearly influences this rate since they determine the amount and the length of time that the borrower has use of the borrowed money. This rate is probably the best measure for the borrower or credit purchaser to use in comparing the costs of alternative credit sources. The Truth in Lending Law, which will be discussed in detail later, requires that this annual rate be given in writing to all borrowers and credit customers. This rate is referred to as the Annual Percentage Rate (A.P.R.) in the Truth in Lending Law. This term will be used in the remainder of the bulletin.

REPAYMENT PLANS

Anyone who has ever borrowed money has probably discovered that lenders have numerous methods for charging interest and that these variations can have a significant impact on the total dollars that are repaid in interest. Although a borrower might see many variations of repayment plans, all are based upon one or a combination of three methods of charging interest. The basic techniques for charging interest are declining or remaining balance, add-on, and discount.

A simple loan example calculated by each of the three methods will illustrate the differences. Suppose that you want to borrow \$2,000.00 for 2 years and repay the total amount in quarterly installments. You approach three lenders and get three different "deals," all at an annual contract rate of 9 percent.

Declining-Balance Interest

With the declining or remaining-balance method, interest is paid only on the outstanding balance of the loan. This is the

least expensive method of borrowing money from the borrower's viewpoint since he pays interest only on the amount of money which he still owes. A special case of the declining-balance loan is referred to as simple interest. With a simple interest loan, a **single** payment of the principal plus accrued interest is made at the end of loan period.

Declining-balance loans can be obtained from a service organization such as credit unions or organizations designed specifically to aid borrowers (Production Credit Association). Also, long-term mortgages are typically figured on the declining-balance.

For the 2-year, \$2,000.00, 9 percent, quarterly payment, declining-balance loan, each payment would be \$275.98. This amount may be found by referring to the loan repayment factors in the table presented in Appendix B of this bulletin. A 9 percent loan with quarterly payments would have a true rate of 2.25 percent (9 percent annual contract rate \div number of payments in one year). Using row eight in the table (since eight payments are made) and the 2.25 percent column, the amount of each repayment may be found as follows:³

$$2,000.00 \times .13799 = 275.98$$

The complete repayment schedule for this loan is given below.

<i>Payment</i>	<i>Loan balance</i>	<i>Payment</i>	<i>Principal</i>	<i>Interest</i>
1	2,000.00	275.98	230.98	45.00
2	1,769.02	275.98	236.17	39.81
3	1,532.85	275.98	241.48	34.50
4	1,291.37	275.98	246.91	29.07
5	1,044.46	275.98	252.47	23.51
6	791.99	275.98	258.15	17.83
7	533.84	275.98	263.96	12.02
8	269.88	275.98	269.88	6.10
Totals		2,207.84	2,000.00	207.84

The true rate is 2.25 percent (the rate per repayment period) and the annual percentage rate (A.P.R.) is 9 percent (the true rate \times the number of payment periods in a year). For a declining-balance loan, the A.P.R. and the contract rate are the same. Total interest paid with this loan is \$207.84.

Add-On Interest

When the add-on technique is used to calculate interest, the **interest charge** is based on the **original** amount of the loan for the

³ Repayment equations given in this bulletin are illustrated in Appendix A, page 22.

entire period of the loan. This amount is then **added** to the loan and the total paid back in a single payment or by installments. If a single payment is made, then the declining-balance loan and add-on loan are identical. If installment payments are made, however, the add-on loan will force the borrower to have to pay more interest since the interest is calculated on the total amount for the entire period.

For the example loan made on the add-on basis, each payment would be \$295.00. This amount may be obtained by using the following formula:

$$\text{Loan Payment} = [\text{Loan amount} + (\text{Loan amount} \times \text{annual contract interest rate} \times \text{number of years of loan})] \div \text{number of payment periods.}$$

$$295.00 = [2,000.00 + (2,000.00 \times .09 \times 2)] \div 8$$

The repayment schedule for this loan is as follows:

<i>Payment</i>	<i>Loan balance</i>	<i>Payment</i>	<i>Principal</i>	<i>Interest</i>
1	2,000.00	295.00	218.36	76.64
2	1,781.64	295.00	226.72	68.28
3	1,554.92	295.00	235.41	59.59
4	1,319.51	295.00	244.43	50.57
5	1,075.08	295.00	253.80	41.20
6	821.28	295.00	253.53	31.47
7	557.75	295.00	273.63	21.37
8	284.12	295.00	284.12	10.88
Totals		2,360.00	2,000.00	360.00

The true rate for this loan is 3.83 percent, giving an A.P.R. of 15.32 percent which is substantially higher than the 9 percent rate of the declining-balance loan. The total interest paid, \$360.00, is also significantly higher.

A high percentage of commercial bank loans are made on the add-on basis. Savings and loan organizations would also be very likely to use the add-on method for short term loans.

Discount Interest

Interest is also calculated on the **total** amount of the loan for the **entire** period for the discount loan, however, in this case, it is **subtracted** from the original principal and the borrower receives the difference. This is the most expensive type of loan agreement since the borrower pays interest on money that he never gets to use.

For the example loan made on a discount basis, the total interest is calculated and subtracted from the loan amount to de-

termine how much the borrower will receive. This may be illustrated as follows:

$$\text{Amount received by borrower} = [\text{Loan amount} - (\text{Loan amount} \times \text{annual contract interest rate} \times \text{number of years of loan})]$$

$$1,640.00 = [2,000.00 - (2,000.00 \times .09 \times 2)]$$

The amount of each payment is obtained by dividing the original loan amount by the number of payments.

$$\text{Loan Payment} = \text{Loan amount} \div \text{number of payments}$$

$$250.00 = 2,000.00 \div 8$$

The discount repayment schedule is given below:

<i>Payment</i>	<i>Loan balance</i>	<i>Payment</i>	<i>Principal</i>	<i>Interest</i>
1	1,640.00	250.00	174.00	76.00
2	1,466.00	250.00	182.07	67.93
3	1,283.93	250.00	190.51	59.49
4	1,093.42	250.00	199.33	50.67
5	894.09	250.00	208.57	41.43
6	685.52	250.00	218.23	31.77
7	467.29	250.00	228.35	21.65
8	238.94	250.00	238.94	11.06
Totals		2,000.00	1,640.00	360.00

The true rate for this loan is 4.63 percent, generating an A.P.R. of 18.52 percent. Even though the total amount of interest is the same for this loan as with the add-on loan, \$360.00, the A.P.R. is higher because the borrower did not have use of as much money.

Perhaps a more valid comparison of the add-on and discount loans could be made by using the repayment schedule for a discount loan starting with the same net amount as with the add-on. The loan amount necessary to get a given net amount may be found as follows:

$$\text{Loan amount} = \text{Net amount} \div [(1 - (\text{annual contract interest rate} \times \text{number of years of loan}))]$$

$$2,439.00 = 2,000.00 \div [(1 - (.09 \times 2))]$$

The discount repayment schedule for this loan, which initially gives the borrower use of \$2,000.00, is given below:

<i>Payment</i>	<i>Loan balance</i>	<i>Payment</i>	<i>Principal</i>	<i>Interest</i>
1	2,000.00	304.88	212.20	92.68
2	1,787.80	304.88	222.03	82.85
3	1,565.77	304.88	232.33	72.55
4	1,333.44	304.88	243.09	61.79
5	1,090.35	304.88	254.36	50.51
6	835.99	304.88	266.14	38.73
7	569.85	304.88	278.48	26.39
8	291.37	304.88	291.37	13.50
Totals		2,439.00	2,000.00	439.00

The \$439.00 interest as compared to \$360.00 interest for the \$2,000.00 add-on loan reflects the more expensive nature of the discount loan.

Discount loans are normally made by smaller lending organizations and those who make very risky loans, i.e., agencies that will give an auto loan to almost anyone. In some cases, commercial banks might also use the discount method. Their decisions to use this method would depend upon the type of loan, the previous credit record of the customer, and the type of security.

The repayment schedules given above clearly indicate how much difference the method of interest calculation and loan repayment can affect the total interest charged and the A.P.R. These examples also illustrate that the A.P.R. gives a more valid indication of the actual interest being charged than does the annual contract rate.

Approximate Annual Percentage Rate

Calculation of the A.P.R. for some loans can be very cumbersome and in fact, almost impossible without loan amortization tables or a computer. For this reason, several formulas have been developed to aid in deriving an approximate annual rate for loans. These approximate rates are normally very close to the actual rates and are good for comparing several credit alternatives.

One of the most often used approximating equations for regularly scheduled, equal payment loans is the Stelson equation.⁴

⁴ HOPKIN, J. A., P. J. BARRY, AND C. B. BAKER. *Financial Management in Agriculture*. Danville, Illinois: Interstate Printers and Publishers, Inc., 1973, pp. 246-248.

$$r = \frac{2C}{f(B + a)}$$

Where:

- r = the approximate nominal rate (A.P.R.);
- C = the total interest cost of the loan;
- B = the beginning principal of the loan;
- f = the length of the loan in years; and
- a = the amount of each periodic payment.

The Stelson equation gives a slight overestimation of the actual rate in most cases. For the example loan problem given earlier, the approximate A.P.R. with interest calculated on the declining-balance may be found by the Stelson equation as follows:

$$r = \frac{2 (207.84)}{2 (2,000.00 + 275.98)} = 9.1 \text{ percent}$$

This equation can be very useful in helping the potential borrower or credit user to "shop" for credit. Even though the Truth in Lending Law (discussed later) requires that the borrower or credit purchaser be informed of the true costs of their credit (the A.P.R.), much of this information is given "after the fact." That is, the written disclosure statement is not seen until the loan or credit contract is signed. Use of the Stelson equation gives the borrower an easy to use tool for credit comparison before the deal is closed.

USURY LAWS

Laws concerned with the payment of interest (usury), either to or by a financial institution or individual, have been traced back to the beginnings of recorded history. The basic intent of these laws has been to either place a limit on the amount of interest that could be paid or, in the most extreme form, to prevent the payment of any interest.

One of the earliest references to usury is given in the Bible.⁵ In Deuteronomy 23: 19-20, it is stated, "Thou shalt not lend

⁵ BOWSHER, NORMAL N. "Usury Laws: Harmful When Effective." Federal Reserve Bank of St. Louis Review, August, 1974, p. 16.

upon usury to thy brother, . . . Unto a stranger thou mayest lend upon usury; but unto thy brother thou shalt not lend upon usury. . . .” This is followed by a similar statement in the New Testament. In Luke 6:35, “. . . lend freely, hoping nothing thereby.”

The religious, moral and ethical restrictions on the payment of interest prevailed until about the 15th or 16th century. Martin Luther and his followers began to concede that creditors could not be prevented from charging interest. These views were also followed by John Calvin, in his rejection of the scriptural basis for prohibiting interest. He felt that there were conflicting interpretations and that the Mercantilism of his day had changed the business and economic environment such that the Biblical restrictions on interest were not practical.

Usury laws in the United States were passed on from colonial days and British rule. Even though we have been free from British control for over 200 years, we still retain these restrictions on economic activity. They were abolished in Great Britain in 1854.

Several justifications for usury laws, in addition to the religious basis, have been given over the years. From an equity viewpoint, it is felt by many that the borrower, particularly the individual consumer, is at the mercy of the large, financially knowledgeable creditor. Thus, the borrower needs to be protected from possible exorbitant rates and unscrupulous lenders. Coupled with these arguments is the idea of the relative power possessed by the borrower and the lender in the market. In the opinion of those who support usury laws, the borrower is in an inferior bargaining position and must be protected.

Another case for the existence of usury laws relates to the level of investment and growth of the economy. It is argued that low rates of interest for loanable funds should serve to stimulate investment and provide the means for extensive economic growth.

These are also many valid arguments against the maintenance of interest rate ceilings. The major proposition is that the existence of such a regulation serves to hurt borrowers, those it is designed to protect, to a greater degree than it helps them. This is particularly true in periods of “tight” money which causes interest rates to rise and the rate of return on all financial investments to increase. These increases improve the return that financial organizations (lenders) can get for their available funds. If the rate of return that they can receive in one investment area is limited (by law), then they will channel their funds to other al-

ternatives. For example, if the state usury law for consumer loans is 8 percent and the market rate of interest is 9 percent, then available funds will be put in some other investment, possibly government bonds and securities, leaving no money to be borrowed. In this case, the law does protect the consumer from paying a high interest rate since there would be no money available to borrow. Is this a benefit to the consumer?

Another premise for abolishing usury laws is that they have not been effective or even needed until recent years. Arguments for the controls which stated that the knowledge, market power and skills of the lender would enable him to take advantage of the uninformed, unsuspecting borrower have not generally held. Instead, during the past 30-40 years, the laws of supply and demand have given a market price for money (interest rate) that has been below usury levels. Only during our recent inflationary years has the market rate been at or above existing usury rates. For example, an interest ceiling at 9 percent has little effect or influence if the market rate of interest is 6 percent.

Arguments which counter the reasoning given for the law ask why the individual consumer shopping for credit is any less knowledgeable or worthy of protection than the individual shopping for a car or other items. Also, if rates are kept artificially low in order to encourage investment and economic expansion, are rates paid by deposit type financial institutions going to be high enough to encourage enough deposits for the financial organization to have funds to lend?

Presently, in the United States, interest rates on time and savings deposits are controlled by the Federal Reserve System through a law known as Regulation Q. Until recently, the law also stated that interest could not be paid on checking accounts. In 1975, Congress restored this right to banks but such payments are to begin at "some subsequent date to be named."⁶

Controls over the rates that lenders may charge are basically controlled at the state level, rather than by federal legislation. The District of Columbia and all states except two, Massachusetts and New Hampshire, have usury laws.⁷ Applicable basic rates in the other 48 states and Washington, D.C. range from a low of 6 percent in Pennsylvania to highs of 18 percent in Utah and Indi-

⁶ SAMUELSON, PAUL A. *Economics*. New York: McGraw-Hill Book Company, 1976, pp. 325-326.

⁷ Bowsher, pp. 20-21.

ana and 21 percent in Rhode Island.⁸ The low 6 percent rate in Pennsylvania is followed by a series of exemptions allowing higher rates for a great percentage of all loans made. The nationwide average basic rate is 10.1 percent, with almost 80 percent (38) of the states being at or below that level. Fifteen of these states have a 10 percent basic rate.

Alabama Usury Laws

Interest rates in Alabama are regulated by several laws. Two of the most important are the Alabama Small Loan Act (1959) and the Alabama Consumer Credit Code (1971).

All Alabama laws concerning interest rates and usury exempt from control or regulation Federally chartered or sponsored organizations and loans guaranteed by Federal agencies. Because of this, loans made by the Federal Land Bank, Production Credit Associations, and the Farmers Home Administration, in addition to FHA or VA guaranteed loans, may carry the going market interest rate no matter how high (or low) it may be.

Small Loan Act

The Small Loan Act governs rates for loans up to \$300.00 and permits fairly high rates to be charged on these small loans. Lenders may charge 3 percent per month (36 percent A.P.R.) for that part of the unpaid principal balance not exceeding \$200.00 and 2 percent per month (24 percent A.P.R.) on that part of the unpaid principal balance exceeding \$200.00 but not exceeding \$300.00.

Consumer Credit Code

The Consumer Credit Code, approved October 1, 1971, is designed to provide the maximum finance charges for loans and credit transactions; to regulate extensions of credit, including consumer loans, consumer credit sales and consumer leases; and to provide penalties for violation of the Act. The basic provision of this Act provides for maximum interest charges as follows: if the original principal amount is \$2,000 or less, interest may total 15 percent per year for the first \$500, 10 percent for \$501 through

⁸ The individual state laws may permit many variations from the basic rates for various types of loans.

\$1,000 and 8 percent per year for \$1,000 through \$2,000. These rates may be figured on an add-on basis.⁹ If the original principal exceeds \$2,000, the maximum rate is 8 percent add-on and the maximum rate is 1½ percent per month on the unpaid balance under open-end credit plans (charge accounts and credit cards).

Other legislation provides that loans to incorporated business may carry an interest charge of up to 15 percent for amounts between \$10,000 and \$99,999.99 figured on the declining balance. For \$100,000 or more, the interest rate is negotiable between the borrower and lender.

Agricultural Loans

Loans to agriculture are generally controlled by the provisions of the Consumer Credit Code, giving an 8 percent basic rate limit for most transactions. The Brock Bill, an Act passed by the U.S. Congress in October, 1974, made special provision for loans of over \$25,000 to agriculture that would permit lending organizations to charge up to the existing Federal Reserve Discount Rate plus 5 percent.¹⁰ This would give lenders the incentive to make agricultural loans during times of high market interest rates. Without this possibility, loanable funds would probably not be available for agriculture during "tight" credit periods.

TRUTH IN LENDING¹¹

The Truth in Lending Law (Regulation Z) became effective July, 1969. This Act, which is administered by the Federal Reserve System, is designed to require lenders and others extending credit to let borrowers and consumers know the true cost of credit so that they can compare the costs between various credit sources

⁹ The A.P.R. for these stated rates would vary according to the number of installments. For a 1-year loan repaid in monthly installments, the approximate nominal rates would be 26.75 percent for the 15 percent portion, 18 percent for the 10 percent portion, and 14.75 percent for the 8 percent portion. These rates represent the fact that the borrower may pay interest on the *total* amount for the *total* period, but he does not have use of all the money for the total period.

¹⁰ Unincorporated small businesses are also covered by this Act. The Discount Rate is the interest rate charged to banks if they borrow from the Federal Reserve.

¹¹ Material for this section was drawn directly from a publication prepared by the Board of Governors of the Federal Reserve System titled *Truth in Lending* (Regulation Z). The bulletin gives interpretations of the Law and questions concerning applications of the Law.

more easily and avoid the uninformed use of credit. It provides regulations for the issuance of credit cards and sets maximum liability for unauthorized use of such cards. Also, the Law provides a procedure for correcting billing errors which might occur in open end credit accounts (credit cards and charge accounts). Regulation Z does not set maximum or minimum interest rates. These are controlled by state usury laws as was indicated in the preceding section of this publication.

The provisions of the Regulation apply to any individual or organization extending or arranging credit for which a finance charge is levied or which is repayable in more than four installments. Organizations issuing credit cards are also regulated by the Law. Credit transactions not exceeding \$25,000 extended for personal, family, household or agricultural uses are covered. All real estate transactions for personal use except those dealing in agriculture for more than \$25,000 are also covered. Types of credit which are not covered by the Law are: business and commercial credit, credit to Federal, State, and local governments, transactions in securities with Securities Exchange Commission registered brokers, and transactions under certain public utility tariffs.

Provisions are included in the Law which prescribe the obligations of those extending credit. These responsibilities are both to the borrower and to at least one of the nine Federal agencies who are assigned the duty of enforcement.¹² If one of these examining agencies finds that a lender or business extending credit has not followed the regulations given in the Truth in Lending Act, the business or lender may be sued for actual damages, twice the amount of the finance charge, court costs, and attorney's fees. Fines and imprisonment might also be required if the persons responsible are convicted of criminal charges for willfully or knowingly disobeying the Act.

Basic Regulations

The basic provision of the Law is that the lender or business extending credit must give the customer, in writing, a clear statement of all finance charges which the customer must pay, directly

¹² The government offices or organizations charged with maintaining compliance with Regulation Z are: the Comptroller of the Currency, the Federal Reserve Bank, the Federal Deposit Insurance Corporation, the Federal Home Loan Bank Supervisory Agent, the National Credit Union Administration, the Civil Aeronautics Board, the Packers and Stockyards Administration, the Farm Credit Administration, and the Federal Trade Commission.

or indirectly, for obtaining credit. Some of the more common items that are included in the finance charge are: interest; loan fees; finders fees; time price differential; the amount paid as a discount; service, transaction or carrying charge; points; appraisal fee (except for real estate); premium for required credit life insurance; and the investigation or credit report fee.

In addition, the annual percentage rate (the nominal rate discussed on page 5 of this publication), which puts the relative cost of credit in percentage terms must be presented prominently on the credit disclosure statement. This stated rate must be accurate within one-quarter of 1 percent. It is normally referred to as the A.P.R.

Open End Credit

Credit transactions covered by the Act are classed as either open end credit and credit "other than open end." Open end credit typically includes those accounts where finance charges are imposed on the unpaid monthly balance. Credit cards, revolving charge accounts in retail stores, and check overdraft plans in banks normally fall in this category. The open end credit customer, when he opens an account, must be told several things in addition to the total finance charge and annual percentage rate. These are:

1. The conditions under which the finance charge may be imposed and the period in which payment can be made without incurring a finance charge.
2. The method used in determining the balance on which the finance charge is to be imposed.
3. How the actual finance charge is calculated.
4. The periodic rates used and the range of balances to which each applies.
5. The conditions under which additional charges may be made along with details of how they are calculated.
6. Descriptions of any lien which may be acquired on the customer's property.
7. A statement of the customer's rights under the Fair Credit Billing Act (a portion of Regulation Z).

The Law also requires that periodic statements (normally monthly) be sent if there is a debit or credit balance over \$1.00. In addition to reporting this balance, the following information, if applicable, must be given in each periodic statement:

1. The debit or credit balance at the start of the billing period.
2. A copy of the sales voucher or written identification of the transaction.
3. Amounts and dates of payments made by a customer, as well as other credits, including returns, rebates, and adjustments.
4. The finance charge shown in dollars and cents.
5. The rates used in calculating the finance charge plus the range of balances to which they apply, the corresponding annual percentage rate in each case calculated by multiplying the rate for the time period by the number of periods each year, and any minimum charge.
6. The annual percentage rate when a finance charge is imposed.
7. The unpaid balance on which the finance charge was calculated.
8. The closing date of the billing cycle and the debit or credit balance at that time.
9. A statement of the customer's rights under the Fair Credit Billing provisions.
10. An address to which billing error inquiries may be sent.

Credit Cards

Provisions in the Truth in Lending Law are very precise with regard to the issuance and use of credit cards. A major section of the Act states that a credit card cannot be issued except in response to a request or application or as a renewal of, or in substitution for, an accepted credit card. An accepted credit card is defined as one which the cardholder has requested and received, or has signed, or has used, or has authorized another person to use.

The Act also states the degree for which a cardholder is liable for unauthorized use of a credit card. A cardholder is liable if:

1. The credit card is an accepted credit card;
2. The liability does not exceed the lesser of \$50 or the amount of money, property, labor, or services obtained by unauthorized use prior to notification of the card issuer;
3. The card issuer has given the cardholder adequate notice of his potential liability on the credit card or within 2 years preceding unauthorized use;
4. The card issuer has provided the cardholder with an addressed postage-paid notification to be mailed in event of loss,

theft, or possible unauthorized use of the credit card; and

5. The card issuer has provided a method whereby the user of the card can be identified as the person authorized to use it, such as by signature, photograph, fingerprint on the card, or by electronic or mechanical confirmation.

Other Credit

Loans and "large item" credit sales are typically classified as credit which is "other than open end." As with open end credit, there are several items, in addition to the total finance charge and annual interest rate, that the customer must be told. These are:

1. The date on which the finance charge begins to apply, if this is different from the date of the transaction.
2. The number, amounts, and due dates of payments.
3. The total payments, except in the case of first mortgages on dwelling purchases.
4. The amount charged for any default, delinquency, etc., or method used for calculating that amount.
5. Description of any security held.
6. Description of any penalty charge for prepayment of principal.
7. Identification of the method used to compute the amount of any finance charge rebate in the case of prepayment of contracts involving precomputed finance charges. Charges deducted from any rebate must be stated.

If the transaction is a loan, the lender must also tell the borrower:

1. The amount of credit to be given to the customer. This includes all charges which are part of the amount of credit extended but are not a part of the finance charge. This information must be itemized.
2. Amounts that are deducted as prepaid finance charges and required deposit balances.

For "large item" credit purchases the seller must also tell the buyer:

1. The cash price.
2. The down payment, including trade-in.
3. The difference between the two.
4. All other charges, itemized, that are included in the amount financed but not part of the finance charge.
5. The unpaid balance.

6. Amounts deducted as prepaid finance charges or required deposit balances.

7. The amount financed.

8. The deferred payment price, which is the total of the cash price, finance and all other charges. (This does not apply to the sale of a dwelling.)

All of this information must be given to the customer or borrower in writing **before** the credit is extended.

Real Estate Credit

As indicated earlier, all real estate transactions except those for business purposes or for agricultural use in excess of \$25,000 are covered by the Law. This means that most credit transactions involving any type of security interest in real estate are covered. Real estate regulations differ from those covering other transactions in that the lender does not have to show the total dollar amount of the finance charge on a credit sale or first mortgage loan to finance the purchase of the borrower's dwelling and, in many cases, the customer has the right to cancel a credit arrangement within 3 business days if his residence is used as collateral for credit. However, a first mortgage to finance the purchase of the borrower's dwelling carries no right to cancel.

In order for a borrower to cancel such a transaction he may:

1. Sign and date the Notice to Customer required by Federal Law which he receives from the creditor, **and** either

(a) mail the Notice to the creditor at the address shown on the Notice, **or**

(b) deliver the Notice to the creditor at the address shown on the Notice either personally or by messenger (or by other agents), **or**

2. Send a telegram to the creditor at the address shown on the Notice. A brief description of the transaction which the customer wishes to cancel should be included in the telegram, **or**

3. Prepare a letter which includes a brief description of the transaction which he wishes to cancel, **and** either

(a) mail the letter to the creditor at the address shown on the Notice, **or**

(b) deliver the letter to the creditor at the address shown on the Notice either personally or by messenger (or by other agents).

A final section of the Law covers restrictions on the advertising of credit. Regulations are presented to cover all advertising to aid or promote the extension of consumer credit regardless of who the advertiser may be. In general, the provisions state that a lender or business concern extending credit is not permitted to advertise any specific credit terms unless all other terms and conditions of the transaction are stated clearly and can be easily seen.

The Truth in Lending Act is a very comprehensive and detailed Law designed to aid the consumer in his intelligent use of credit. Even with all the Act's provisions for protection, it still does not guarantee that the consumer will use credit wisely.

SUMMARY

Borrowed capital is used extensively in our economy. Because of this widespread use of credit, it is important that both individuals and business have an understanding of the methods of making loans and charging interest and the legal restrictions that control financial transactions. Such knowledge is necessary if credit is to be used wisely in the home and profitably in business.

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- (4) SAMUELSON, PAUL A. 1976. Economics. New York: McGraw-Hill Book Company.
- (5) "\$3-TRILLION DEBT — IS IT OUT OF CONTROL?" November 24, 1975. U.S. News and World Report, pp. 63-64.

APPENDIX A

Equations for Calculating Periodic Payments for Installment Loans

The amount of each periodic payment for a given loan is dependent upon the amount of the loan, the contract interest rate, the length of the loan, the number of installments, and the method used to calculate interest. For a \$3,000.00 9 percent, 2-year, monthly payment loan, the payments would be calculated as follows:

Remaining Balance—Use the repayment factors given in Appendix B. For an annual rate of 9 percent on a monthly payment loan, the true rate would be .75 percent (9 percent \div 12). Use the .75 percent column for 24 repayment periods to find the appropriate factor, .04569. Multiply this factor by the original loan amount to get the monthly payment:

$$\begin{aligned} \text{Periodic payment} &= \text{Original loan amount} \times \text{Repayment factor} \\ \$137.07 &= 3,000.00 \times .04569 \end{aligned}$$

Add-On—Calculate the total interest to be paid and add this amount to the original principal. Divide this total by the number of repayment periods to obtain the periodic payment.

Periodic payment = [Original loan amount + (Original loan amount \times annual contract rate \times number of years of loan)] \div Number of payment periods

$$\$147.50 = [3,000.00 + (3,000.00 \times .09 \times 2)] \div 24$$

Discount—Divide the original loan amount by the number of repayment periods.

Periodic payment = Original loan amount \div Number of repayment periods

$$\$125.00 = 3,000.00 \div 24$$

Long-Term—The repayment factors in Appendix B may also be used to calculate the approximate repayment for a long-term loan. For example, the approximate monthly payment for a 9 percent, 30-year, \$40,000 mortgage could be found as follows:

Monthly payment = (Original loan amount \times Repayment factor) \div 12

$$\$324.47 = (40,000 \times .09734) \div 12$$

This value is a close estimate of the actual repayment value, \$321.85. In order to find this value, the .75 percent column in a more complete table with at least 360 payment periods would have to be used.

APPENDIX B

FACTORS FOR CALCULATING THE AMOUNT OF EACH PERIODIC PAYMENT FOR VARIOUS TRUE INTEREST RATES FOR A DECLINING-BALANCE LOAN

No. of periods	.25%	.50%	.75%	1.00%	1.25%	1.50%	1.75%
1	1.00265	1.00517	1.00753	1.01007	1.01251	1.01504	1.01750
2	0.50201	0.50384	0.50568	0.50757	0.50942	0.51131	0.51317
3	0.33508	0.33674	0.33838	0.34006	0.34172	0.34340	0.34507
4	0.25164	0.25318	0.25474	0.25631	0.25787	0.25946	0.26103
5	0.20156	0.20305	0.20455	0.20606	0.20757	0.20910	0.21062
6	0.16818	0.16963	0.17109	0.17257	0.17404	0.17554	0.17702
7	0.14433	0.14576	0.14719	0.14865	0.15010	0.15157	0.15303
8	0.12645	0.12786	0.12927	0.13071	0.13214	0.13359	0.13504
9	0.11254	0.11393	0.11533	0.11675	0.11818	0.11962	0.12106
10	0.10141	0.10279	0.10418	0.10560	0.10701	0.10844	0.10988
11	0.09231	0.09368	0.09506	0.09647	0.09787	0.09930	0.10073
12	0.08472	0.08609	0.08746	0.08886	0.09026	0.09169	0.09311
13	0.07830	0.07966	0.08103	0.08242	0.08383	0.08525	0.08667
14	0.07280	0.07415	0.07552	0.07691	0.07831	0.07973	0.08116
15	0.06803	0.06938	0.07074	0.07213	0.07353	0.07495	0.07638
16	0.06386	0.06520	0.06657	0.06795	0.06935	0.07077	0.07220
17	0.06018	0.06152	0.06288	0.06427	0.06566	0.06708	0.06852
18	0.05690	0.05824	0.05961	0.06099	0.06239	0.06381	0.06525
19	0.05397	0.05531	0.05667	0.05806	0.05946	0.06088	0.06232
20	0.05134	0.05268	0.05404	0.05542	0.05682	0.05825	0.05969
21	0.04896	0.05029	0.05165	0.05304	0.05444	0.05587	0.05732
22	0.04679	0.04812	0.04948	0.05087	0.05228	0.05371	0.05516
23	0.04481	0.04614	0.04750	0.04889	0.05030	0.05173	0.05319
24	0.04300	0.04433	0.04569	0.04708	0.04849	0.04993	0.05139
25	0.04133	0.04266	0.04402	0.04541	0.04682	0.04827	0.04973
26	0.03979	0.04112	0.04248	0.04387	0.04529	0.04674	0.04820
27	0.03836	0.03969	0.04106	0.04245	0.04387	0.04532	0.04679
28	0.03704	0.03837	0.03973	0.04113	0.04255	0.04400	0.04548
29	0.03580	0.03714	0.03850	0.03990	0.04132	0.04278	0.04426
30	0.03465	0.03599	0.03735	0.03875	0.04018	0.04164	0.04313
31	0.03358	0.03491	0.03628	0.03768	0.03911	0.04058	0.04207
32	0.03257	0.03390	0.03527	0.03667	0.03811	0.03958	0.04108
33	0.03162	0.03295	0.03432	0.03573	0.03717	0.03864	0.04015
34	0.03073	0.03206	0.03343	0.03484	0.03629	0.03776	0.03927
35	0.02989	0.03122	0.03260	0.03401	0.03545	0.03694	0.03845
36	0.02909	0.03043	0.03180	0.03322	0.03467	0.03615	0.03768
37	0.02834	0.02968	0.03105	0.03247	0.03392	0.03542	0.03694
38	0.02763	0.02897	0.03035	0.03176	0.03322	0.03472	0.03625
39	0.02695	0.02829	0.02967	0.03109	0.03256	0.03406	0.03559
40	0.02631	0.02765	0.02903	0.03046	0.03192	0.03343	0.03497

(Continued)

FACTORS FOR CALCULATING THE AMOUNT OF EACH PERIODIC PAYMENT FOR
VARIOUS TRUE INTEREST RATES FOR A DECLINING-BALANCE LOAN (Continued)

No. of periods	2.00%	2.25%	2.50%	2.75%	3.00%	3.25%	3.50%
1	1.02002	1.02254	1.02501	1.02753	1.03001	1.03252	1.03500
2	0.51507	0.51697	0.51884	0.52074	0.52262	0.52452	0.52641
3	0.34677	0.34846	0.35014	0.35185	0.35354	0.35524	0.35694
4	0.26263	0.26423	0.26582	0.26743	0.26903	0.27064	0.27225
5	0.21217	0.21371	0.21525	0.21681	0.21836	0.21992	0.22148
6	0.17853	0.18004	0.18155	0.18308	0.18460	0.18613	0.18767
7	0.15452	0.15601	0.15750	0.15900	0.16051	0.16203	0.16355
8	0.13651	0.13799	0.13947	0.14096	0.14246	0.14397	0.14548
9	0.12252	0.12399	0.12546	0.12695	0.12844	0.12994	0.13145
10	0.11133	0.11279	0.11426	0.11574	0.11723	0.11873	0.12024
11	0.10218	0.10364	0.10511	0.10659	0.10808	0.10958	0.11109
12	0.09456	0.09602	0.09749	0.09897	0.10046	0.10197	0.10349
13	0.08812	0.08958	0.09105	0.09254	0.09403	0.09554	0.09706
14	0.08261	0.08407	0.08554	0.08703	0.08853	0.09004	0.09157
15	0.07783	0.07929	0.08077	0.08226	0.08377	0.08529	0.08683
16	0.07365	0.07512	0.07660	0.07810	0.07961	0.08114	0.08269
17	0.06997	0.07144	0.07293	0.07443	0.07595	0.07749	0.07904
18	0.06670	0.06818	0.06967	0.07118	0.07271	0.07426	0.07582
19	0.06378	0.06526	0.06676	0.06828	0.06982	0.07137	0.07294
20	0.06116	0.06265	0.06415	0.06567	0.06722	0.06878	0.07036
21	0.05879	0.06028	0.06179	0.06332	0.06487	0.06645	0.06804
22	0.05663	0.05813	0.05965	0.06119	0.06275	0.06433	0.06593
23	0.05467	0.05617	0.05770	0.05925	0.06082	0.06241	0.06402
24	0.05287	0.05438	0.05591	0.05747	0.05905	0.06065	0.06227
25	0.05122	0.05274	0.05428	0.05584	0.05743	0.05904	0.06067
26	0.04970	0.05122	0.05277	0.05434	0.05594	0.05756	0.05921
27	0.04829	0.04982	0.05138	0.05296	0.05457	0.05620	0.05785
28	0.04699	0.04853	0.05009	0.05168	0.05329	0.05494	0.05660
29	0.04578	0.04732	0.04889	0.05049	0.05212	0.05377	0.05545
30	0.04465	0.04620	0.04778	0.04939	0.05102	0.05268	0.05437
31	0.04360	0.04515	0.04674	0.04836	0.05000	0.05167	0.05337
32	0.04261	0.04418	0.04577	0.04739	0.04905	0.05073	0.05244
33	0.04169	0.04326	0.04486	0.04649	0.04816	0.04985	0.05157
34	0.04082	0.04240	0.04401	0.04565	0.04732	0.04903	0.05076
35	0.04000	0.04159	0.04321	0.04486	0.04654	0.04825	0.05000
36	0.03923	0.04083	0.04245	0.04411	0.04580	0.04753	0.04928
37	0.03851	0.04011	0.04174	0.04341	0.04511	0.04685	0.04861
38	0.03782	0.03943	0.04107	0.04275	0.04446	0.04621	0.04798
39	0.03717	0.03879	0.04044	0.04212	0.04384	0.04560	0.04739
40	0.03656	0.03818	0.03984	0.04153	0.04326	0.04503	0.04683

(Continued)

FACTORS FOR CALCULATING THE AMOUNT OF EACH PERIODIC PAYMENT FOR VARIOUS TRUE INTEREST RATES FOR A DECLINING-BALANCE LOAN (Continued)

No. of periods	3.75%	4.00%	4.25%	4.50%	4.75%	5.00%	5.25%
1	1.03751	1.04000	1.04251	1.04502	1.04751	1.05001	1.05250
2	0.52831	0.53020	0.53211	0.53401	0.53591	0.53781	0.53971
3	0.35865	0.36035	0.36207	0.36378	0.36550	0.36722	0.36893
4	0.27387	0.27549	0.27712	0.27875	0.28038	0.28202	0.28365
5	0.22306	0.22463	0.22621	0.22780	0.22938	0.23098	0.23257
6	0.18922	0.19076	0.19232	0.19388	0.19545	0.19702	0.19860
7	0.16508	0.16661	0.16816	0.16971	0.17126	0.17282	0.17439
8	0.14700	0.14853	0.15007	0.15161	0.15316	0.15472	0.15629
9	0.13297	0.13449	0.13603	0.13758	0.13913	0.14069	0.14226
10	0.12176	0.12329	0.12483	0.12638	0.12794	0.12951	0.13108
11	0.11262	0.11415	0.11570	0.11725	0.11882	0.12039	0.12198
12	0.10501	0.10655	0.10811	0.10967	0.11124	0.11283	0.11442
13	0.09860	0.10014	0.10171	0.10328	0.10486	0.10646	0.10806
14	0.09311	0.09467	0.09624	0.09782	0.09942	0.10103	0.10265
15	0.08838	0.08994	0.09152	0.09312	0.09472	0.09634	0.09798
16	0.08425	0.08582	0.08741	0.08902	0.09064	0.09227	0.09392
17	0.08061	0.08220	0.08380	0.08542	0.08705	0.08870	0.09036
18	0.07740	0.07899	0.08061	0.08224	0.08388	0.08555	0.08723
19	0.07453	0.07614	0.07777	0.07941	0.08107	0.08275	0.08444
20	0.07196	0.07358	0.07522	0.07688	0.07855	0.08024	0.08195
21	0.06965	0.07128	0.07293	0.07460	0.07629	0.07800	0.07972
22	0.06756	0.06920	0.07086	0.07255	0.07425	0.07597	0.07771
23	0.06565	0.06731	0.06899	0.07068	0.07240	0.07414	0.07589
24	0.06392	0.06559	0.06728	0.06899	0.07072	0.07247	0.07424
25	0.06233	0.06401	0.06572	0.06744	0.06919	0.07095	0.07274
26	0.06088	0.06257	0.06428	0.06602	0.06778	0.06956	0.07137
27	0.05953	0.06124	0.06297	0.06472	0.06650	0.06829	0.07011
28	0.05830	0.06001	0.06176	0.06352	0.06531	0.06712	0.06896
29	0.05715	0.05888	0.06064	0.06242	0.06422	0.06605	0.06790
30	0.05609	0.05783	0.05960	0.06139	0.06321	0.06505	0.06692
31	0.05510	0.05686	0.05864	0.06044	0.06228	0.06413	0.06601
32	0.05418	0.05595	0.05774	0.05956	0.06141	0.06328	0.06518
33	0.05332	0.05510	0.05691	0.05875	0.06061	0.06249	0.06440
34	0.05252	0.05432	0.05614	0.05798	0.05986	0.06176	0.06368
35	0.05177	0.05358	0.05541	0.05727	0.05916	0.06107	0.06301
36	0.05107	0.05289	0.05473	0.05661	0.05851	0.06043	0.06239
37	0.05041	0.05224	0.05410	0.05598	0.05790	0.05984	0.06181
38	0.04979	0.05163	0.05350	0.05540	0.05733	0.05928	0.06127
39	0.04921	0.05106	0.05294	0.05486	0.05680	0.05877	0.06076
40	0.04866	0.05052	0.05242	0.05434	0.05630	0.05828	0.06029

(Continued)

FACTORS FOR CALCULATING THE AMOUNT OF EACH PERIODIC PAYMENT FOR VARIOUS TRUE INTEREST RATES FOR A DECLINING-BALANCE LOAN (Continued)

No. of periods	5.50%	5.75%	6.00%	6.25%	6.50%	6.75%	7.00%
1	1.05501	1.05750	1.06001	1.06251	1.06500	1.06751	1.07000
2	0.54163	0.54353	0.54544	0.54736	0.54926	0.55118	0.55310
3	0.37066	0.37238	0.37411	0.37585	0.37758	0.37932	0.38105
4	0.28530	0.28694	0.28860	0.29025	0.29190	0.29357	0.29523
5	0.23418	0.23579	0.23740	0.23902	0.24064	0.24226	0.24389
6	0.20018	0.20177	0.20337	0.20497	0.20657	0.20818	0.20980
7	0.17597	0.17755	0.17914	0.18073	0.18233	0.18394	0.18555
8	0.15787	0.15945	0.16104	0.16264	0.16424	0.16585	0.16747
9	0.14384	0.14543	0.14702	0.14863	0.15024	0.15186	0.15349
10	0.13267	0.13426	0.13587	0.13748	0.13911	0.14074	0.14238
11	0.12357	0.12518	0.12679	0.12842	0.13006	0.13170	0.13335
12	0.11603	0.11765	0.11928	0.12092	0.12257	0.12423	0.12590
13	0.10969	0.11132	0.11296	0.11462	0.11628	0.11796	0.11965
14	0.10428	0.10593	0.10759	0.10926	0.11094	0.11264	0.11435
15	0.09963	0.10129	0.10296	0.10465	0.10635	0.10807	0.10980
16	0.09558	0.09726	0.09895	0.10066	0.10238	0.10411	0.10586
17	0.09204	0.09374	0.09545	0.09717	0.09891	0.10066	0.10243
18	0.08892	0.09063	0.09236	0.09410	0.09585	0.09763	0.09941
19	0.08615	0.08788	0.08962	0.09138	0.09316	0.09495	0.09675
20	0.08368	0.08542	0.08719	0.08896	0.09076	0.09257	0.09439
21	0.08147	0.08323	0.08501	0.08680	0.08861	0.09044	0.09229
22	0.07947	0.08125	0.08305	0.08486	0.08669	0.08854	0.09041
23	0.07767	0.07947	0.08128	0.08311	0.08496	0.08683	0.08871
24	0.07604	0.07785	0.07968	0.08153	0.08340	0.08528	0.08719
25	0.07455	0.07638	0.07823	0.08010	0.08198	0.08389	0.08581
26	0.07319	0.07504	0.07690	0.07879	0.08069	0.08262	0.08456
27	0.07195	0.07381	0.07570	0.07760	0.07952	0.08147	0.08343
28	0.07082	0.07269	0.07459	0.07651	0.07845	0.08041	0.08239
29	0.06977	0.07166	0.07358	0.07552	0.07747	0.07945	0.08145
30	0.06881	0.07072	0.07265	0.07460	0.07658	0.07857	0.08059
31	0.06792	0.06984	0.07179	0.07376	0.07575	0.07777	0.07980
32	0.06710	0.06904	0.07100	0.07299	0.07500	0.07703	0.07907
33	0.06634	0.06829	0.07027	0.07228	0.07430	0.07634	0.07841
34	0.06563	0.06760	0.06960	0.07162	0.07366	0.07572	0.07780
35	0.06498	0.06696	0.06897	0.07101	0.07306	0.07514	0.07723
36	0.06437	0.06637	0.06840	0.07044	0.07251	0.07460	0.07672
37	0.06380	0.06582	0.06786	0.06992	0.07201	0.07411	0.07624
38	0.06327	0.06530	0.06736	0.06944	0.07153	0.07366	0.07580
39	0.06278	0.06483	0.06689	0.06899	0.07110	0.07323	0.07539
40	0.06232	0.06438	0.06646	0.06857	0.07069	0.07284	0.07501

(Continued)

FACTORS FOR CALCULATING THE AMOUNT OF EACH PERIODIC PAYMENT FOR VARIOUS TRUE INTEREST RATES FOR A DECLINING-BALANCE LOAN (Continued)

No. of periods	7.25%	7.50%	7.75%	8.00%	8.25%	8.50%	8.75%
1	1.07251	1.07500	1.07751	1.08000	1.08251	1.08501	1.08750
2	0.55502	0.55693	0.55885	0.56077	0.56270	0.56462	0.56654
3	0.38280	0.38454	0.38629	0.38804	0.38979	0.39154	0.39330
4	0.29690	0.29857	0.30025	0.30192	0.30361	0.30529	0.30698
5	0.24553	0.24717	0.24881	0.25046	0.25211	0.25377	0.25543
6	0.21142	0.21305	0.21468	0.21632	0.21796	0.21961	0.22126
7	0.18718	0.18880	0.19044	0.19207	0.19372	0.19537	0.19703
8	0.16910	0.17073	0.17237	0.17402	0.17567	0.17733	0.17900
9	0.15512	0.15677	0.15842	0.16008	0.16175	0.16343	0.16511
10	0.14403	0.14569	0.14735	0.14903	0.15072	0.15241	0.15411
11	0.13502	0.13670	0.13838	0.14008	0.14178	0.14349	0.14522
12	0.12759	0.12928	0.13098	0.13270	0.13442	0.13615	0.13790
13	0.12135	0.12306	0.12479	0.12652	0.12827	0.13002	0.13179
14	0.11607	0.11780	0.11954	0.12130	0.12306	0.12484	0.12663
15	0.11154	0.11329	0.11505	0.11683	0.11862	0.12042	0.12223
16	0.10762	0.10939	0.11118	0.11298	0.11479	0.11661	0.11845
17	0.10421	0.10600	0.10781	0.10963	0.11146	0.11331	0.11517
18	0.10121	0.10303	0.10486	0.10670	0.10856	0.11043	0.11231
19	0.09858	0.10041	0.10226	0.10413	0.10601	0.10790	0.10981
20	0.09624	0.09809	0.09997	0.10185	0.10375	0.10567	0.10760
21	0.09415	0.09603	0.09792	0.09983	0.10176	0.10370	0.10565
22	0.09229	0.09419	0.09610	0.09803	0.09998	0.10194	0.10391
23	0.09062	0.09254	0.09447	0.09642	0.09839	0.10037	0.10237
24	0.08911	0.09105	0.09301	0.09498	0.09697	0.09897	0.10099
25	0.08775	0.08971	0.09169	0.09368	0.09569	0.09771	0.09975
26	0.08652	0.08850	0.09050	0.09251	0.09454	0.09658	0.09864
27	0.08541	0.08740	0.08942	0.09145	0.09350	0.09556	0.09764
28	0.08439	0.08641	0.08844	0.09049	0.09256	0.09464	0.09674
29	0.08346	0.08550	0.08755	0.08962	0.09170	0.09381	0.09592
30	0.08262	0.08467	0.08674	0.08883	0.09093	0.09305	0.09519
31	0.08185	0.08392	0.08600	0.08811	0.09023	0.09237	0.09452
32	0.08114	0.08323	0.08533	0.08745	0.08959	0.09174	0.09391
33	0.08049	0.08259	0.08471	0.08685	0.08901	0.09118	0.09336
34	0.07990	0.08201	0.08415	0.08630	0.08847	0.09066	0.09286
35	0.07935	0.08148	0.08363	0.08580	0.08799	0.09019	0.09241
36	0.07885	0.08099	0.08316	0.08534	0.08754	0.08976	0.09199
37	0.07838	0.08055	0.08273	0.08492	0.08714	0.08937	0.09161
38	0.07795	0.08013	0.08233	0.08454	0.08677	0.08901	0.09127
39	0.07756	0.07975	0.08196	0.08419	0.08643	0.08868	0.09095
40	0.07720	0.07940	0.08162	0.08386	0.08611	0.08838	0.09066

(Continued)

FACTORS FOR CALCULATING THE AMOUNT OF EACH PERIODIC PAYMENT FOR
VARIOUS TRUE INTEREST RATES FOR A DECLINING-BALANCE LOAN (Continued)

No. of periods	9.00%	9.25%	9.50%	9.75%	10.00%	10.25%	10.50%
1	1.09001	1.09250	1.09501	1.09750	1.10000	1.10250	1.10500
2	0.56847	0.57040	0.57233	0.57426	0.57619	0.57813	0.58006
3	0.39506	0.39682	0.39858	0.40035	0.40212	0.40389	0.40566
4	0.30867	0.31037	0.31207	0.31377	0.31547	0.31718	0.31889
5	0.25709	0.25876	0.26044	0.26212	0.26380	0.26548	0.26718
6	0.22292	0.22459	0.22625	0.22793	0.22961	0.23129	0.23298
7	0.19869	0.20036	0.20204	0.20372	0.20541	0.20710	0.20880
8	0.18068	0.18236	0.18405	0.18574	0.18745	0.18915	0.19087
9	0.16680	0.16850	0.17021	0.17192	0.17364	0.17537	0.17711
10	0.15582	0.15754	0.15927	0.16100	0.16275	0.16450	0.16626
11	0.14695	0.14869	0.15044	0.15220	0.15396	0.15574	0.15753
12	0.13965	0.14141	0.14319	0.14497	0.14676	0.14857	0.15038
13	0.13357	0.13535	0.13715	0.13896	0.14078	0.14261	0.14445
14	0.12843	0.13025	0.13207	0.13390	0.13575	0.13760	0.13947
15	0.12406	0.12590	0.12774	0.12960	0.13147	0.13336	0.13525
16	0.12030	0.12216	0.12404	0.12592	0.12782	0.12972	0.13164
17	0.11705	0.11893	0.12083	0.12274	0.12466	0.12660	0.12855
18	0.11421	0.11612	0.11805	0.11998	0.12193	0.12389	0.12586
19	0.11173	0.11367	0.11561	0.11757	0.11955	0.12153	0.12353
20	0.10955	0.11151	0.11348	0.11546	0.11746	0.11947	0.12149
21	0.10762	0.10960	0.11159	0.11360	0.11562	0.11766	0.11971
22	0.10591	0.10791	0.10993	0.11196	0.11401	0.11606	0.11813
23	0.10438	0.10641	0.10845	0.11050	0.11257	0.11465	0.11675
24	0.10302	0.10507	0.10713	0.10921	0.11130	0.11340	0.11552
25	0.10181	0.10388	0.10596	0.10806	0.11017	0.11229	0.11443
26	0.10072	0.10281	0.10491	0.10703	0.10916	0.11130	0.11346
27	0.09974	0.10184	0.10397	0.10611	0.10826	0.11042	0.11260
28	0.09885	0.10098	0.10312	0.10528	0.10745	0.10963	0.11183
29	0.09806	0.10020	0.10236	0.10454	0.10673	0.10893	0.11114
30	0.09734	0.09950	0.10168	0.10387	0.10608	0.10830	0.11053
31	0.09669	0.09887	0.10106	0.10327	0.10550	0.10773	0.10998
32	0.09610	0.09829	0.10051	0.10273	0.10497	0.10722	0.10949
33	0.09556	0.09778	0.10000	0.10225	0.10450	0.10677	0.10904
34	0.09508	0.09731	0.09955	0.10181	0.10407	0.10635	0.10864
35	0.09464	0.09688	0.09914	0.10141	0.10369	0.10598	0.10829
36	0.09424	0.09649	0.09876	0.10105	0.10334	0.10565	0.10797
37	0.09387	0.09614	0.09843	0.10072	0.10303	0.10535	0.10768
38	0.09354	0.09582	0.09812	0.10043	0.10275	0.10508	0.10742
39	0.09324	0.09553	0.09784	0.10016	0.10249	0.10483	0.10718
40	0.09296	0.09527	0.09759	0.09992	0.10226	0.10461	0.10697

(Continued)

FACTORS FOR CALCULATING THE AMOUNT OF EACH PERIODIC PAYMENT FOR VARIOUS TRUE INTEREST RATES FOR A DECLINING-BALANCE LOAN (Continued)

No. of periods	10.75%	11.00%	11.25%	11.50%	11.75%	12.00%	12.25%
1	1.10751	1.11000	1.11250	1.11500	1.11750	1.12000	1.12250
2	0.58200	0.58394	0.58588	0.58781	0.58976	0.59170	0.59364
3	0.40744	0.40922	0.41100	0.41278	0.41456	0.41635	0.41814
4	0.32061	0.32233	0.32405	0.32577	0.32750	0.32924	0.33097
5	0.26887	0.27057	0.27228	0.27398	0.27570	0.27741	0.27913
6	0.23468	0.23638	0.23808	0.23979	0.24151	0.24323	0.24495
7	0.21051	0.21222	0.21393	0.21566	0.21738	0.21912	0.22086
8	0.19259	0.19432	0.19606	0.19780	0.19955	0.20130	0.20306
9	0.17885	0.18060	0.18236	0.18413	0.18590	0.18768	0.18947
10	0.16803	0.16980	0.17159	0.17338	0.17518	0.17698	0.17880
11	0.15932	0.16112	0.16293	0.16475	0.16658	0.16842	0.17026
12	0.15220	0.15403	0.15587	0.15771	0.15957	0.16144	0.16331
13	0.14629	0.14815	0.15002	0.15190	0.15378	0.15568	0.15758
14	0.14134	0.14323	0.14512	0.14703	0.14895	0.15087	0.15281
15	0.13715	0.13907	0.14099	0.14292	0.14487	0.14682	0.14879
16	0.13358	0.13552	0.13747	0.13943	0.14141	0.14339	0.14539
17	0.13050	0.13247	0.13445	0.13644	0.13844	0.14046	0.14248
18	0.12785	0.12984	0.13185	0.13387	0.13590	0.13794	0.13999
19	0.12554	0.12756	0.12960	0.13164	0.13370	0.13576	0.13784
20	0.12353	0.12558	0.12763	0.12970	0.13179	0.13388	0.13598
21	0.12177	0.12384	0.12592	0.12802	0.13012	0.13224	0.13437
22	0.12022	0.12231	0.12442	0.12654	0.12867	0.13081	0.13296
23	0.11885	0.12097	0.12310	0.12524	0.12740	0.12956	0.13173
24	0.11765	0.11979	0.12194	0.12410	0.12628	0.12846	0.13066
25	0.11658	0.11874	0.12091	0.12310	0.12529	0.12750	0.12972
26	0.11563	0.11781	0.12001	0.12221	0.12443	0.12665	0.12889
27	0.11479	0.11699	0.11920	0.12143	0.12366	0.12590	0.12816
28	0.11404	0.11626	0.11849	0.12073	0.12298	0.12524	0.12752
29	0.11337	0.11561	0.11785	0.12011	0.12238	0.12466	0.12695
30	0.11277	0.11502	0.11729	0.11956	0.12185	0.12414	0.12645
31	0.11224	0.11451	0.11679	0.11908	0.12138	0.12369	0.12600
32	0.11176	0.11404	0.11634	0.11864	0.12096	0.12328	0.12561
33	0.11133	0.11363	0.11594	0.11826	0.12058	0.12292	0.12526
34	0.11095	0.11326	0.11558	0.11791	0.12025	0.12260	0.12496
35	0.11060	0.11293	0.11526	0.11760	0.11996	0.12232	0.12468
36	0.11029	0.11263	0.11498	0.11733	0.11969	0.12206	0.12444
37	0.11002	0.11236	0.11472	0.11709	0.11946	0.12184	0.12423
38	0.10977	0.11213	0.11449	0.11687	0.11925	0.12164	0.12404
39	0.10954	0.11191	0.11429	0.11667	0.11906	0.12146	0.12387
40	0.10934	0.11172	0.11410	0.11650	0.11890	0.12130	0.12372

(Continued)

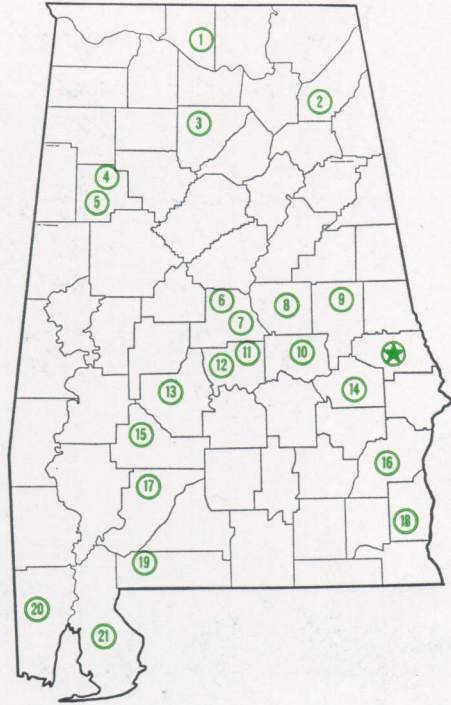
FACTORS FOR CALCULATING THE AMOUNT OF EACH PERIODIC PAYMENT FOR
VARIOUS TRUE INTEREST RATES FOR A DECLINING-BALANCE LOAN (Continued)

No. of periods	12.50%	12.75%	13.00%	13.25%	13.50%	13.75%	14.00%
1	1.12501	1.12750	1.13000	1.13250	1.13500	1.13750	1.14000
2	0.59559	0.59754	0.59949	0.60144	0.60339	0.60534	0.60729
3	0.41993	0.42173	0.42353	0.42532	0.42712	0.42893	0.43073
4	0.33271	0.33445	0.33620	0.33794	0.33969	0.34145	0.34321
5	0.28086	0.28258	0.28432	0.28605	0.28779	0.28954	0.29128
6	0.24668	0.24841	0.25015	0.25190	0.25365	0.25540	0.25716
7	0.22260	0.22435	0.22611	0.22787	0.22964	0.23141	0.23319
8	0.20483	0.20661	0.20839	0.21017	0.21197	0.21377	0.21557
9	0.19126	0.19306	0.19487	0.19668	0.19851	0.20033	0.20217
10	0.18062	0.18245	0.18429	0.18613	0.18799	0.18985	0.19171
11	0.17211	0.17397	0.17584	0.17772	0.17960	0.18149	0.18339
12	0.16519	0.16709	0.16899	0.17089	0.17281	0.17474	0.17667
13	0.15950	0.16142	0.16335	0.16529	0.16724	0.16920	0.17116
14	0.15475	0.15670	0.15867	0.16064	0.16262	0.16461	0.16661
15	0.15076	0.15275	0.15474	0.15675	0.15876	0.16078	0.16281
16	0.14739	0.14940	0.15143	0.15346	0.15550	0.15755	0.15962
17	0.14451	0.14656	0.14861	0.15067	0.15274	0.15482	0.15692
18	0.14205	0.14412	0.14620	0.14829	0.15039	0.15250	0.15462
19	0.13993	0.14203	0.14413	0.14625	0.14838	0.15052	0.15266
20	0.13810	0.14022	0.14235	0.14450	0.14665	0.14881	0.15099
21	0.13651	0.13866	0.14081	0.14298	0.14516	0.14735	0.14954
22	0.13512	0.13730	0.13948	0.14167	0.14387	0.14608	0.14830
23	0.13392	0.13611	0.13832	0.14053	0.14276	0.14499	0.14723
24	0.13287	0.13508	0.13731	0.13954	0.14179	0.14404	0.14630
25	0.13194	0.13418	0.13643	0.13868	0.14095	0.14322	0.14550
26	0.13113	0.13339	0.13565	0.13793	0.14021	0.14250	0.14480
27	0.13042	0.13270	0.13498	0.13727	0.13957	0.14188	0.14419
28	0.12980	0.13209	0.13439	0.13669	0.13901	0.14133	0.14366
29	0.12925	0.13155	0.13387	0.13619	0.13852	0.14086	0.14320
30	0.12876	0.13108	0.13341	0.13575	0.13809	0.14044	0.14280
31	0.12833	0.13067	0.13301	0.13536	0.13772	0.14008	0.14245
32	0.12795	0.13030	0.13266	0.13502	0.13739	0.13976	0.14215
33	0.12762	0.12998	0.13234	0.13472	0.13710	0.13949	0.14188
34	0.12732	0.12969	0.13207	0.13446	0.13685	0.13924	0.14165
35	0.12706	0.12944	0.13183	0.13422	0.13662	0.13903	0.14144
36	0.12683	0.12922	0.13162	0.13402	0.13643	0.13884	0.14126
37	0.12662	0.12902	0.13143	0.13384	0.13626	0.13868	0.14111
38	0.12644	0.12885	0.13126	0.13368	0.13611	0.13854	0.14097
39	0.12628	0.12869	0.13112	0.13354	0.13597	0.13841	0.14085
40	0.12613	0.12856	0.13099	0.13342	0.13586	0.13830	0.14075

Alabama's Agricultural Experiment Station System

AUBURN UNIVERSITY

With an agricultural research unit in every major soil area, Auburn University serves the needs of field crop, live-stock, forestry, and horticultural producers in each region in Alabama. Every citizen of the State has a stake in this research program, since any advantage from new and more economical ways of producing and handling farm products directly benefits the consuming public.



Research Unit Identification

★ Main Agricultural Experiment Station, Auburn.

1. Tennessee Valley Substation, Belle Mina.
2. Sand Mountain Substation, Crossville.
3. North Alabama Horticulture Substation, Cullman.
4. Upper Coastal Plain Substation, Winfield.
5. Forestry Unit, Fayette County.
6. Thorsby Foundation Seed Stocks Farm, Thorsby.
7. Chilton Area Horticulture Substation, Clanton.
8. Forestry Unit, Coosa County.
9. Piedmont Substation, Camp Hill.
10. Plant Breeding Unit, Tallassee.
11. Forestry Unit, Autauga County.
12. Prattville Experiment Field, Prattville.
13. Black Belt Substation, Marion Junction.
14. Tuskegee Experiment Field, Tuskegee.
15. Lower Coastal Plain Substation, Camden.
16. Forestry Unit, Barbour County.
17. Monroeville Experiment Field, Monroeville.
18. Wiregrass Substation, Headland.
19. Brewton Experiment Field, Brewton.
20. Ornamental Horticulture Field Station, Spring Hill.
21. Gulf Coast Substation, Fairhope.