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Findings of Risk Factor Studies

IN CREDIT studies the essential elements of risk are usually grouped into a few broad categories. Some writers speak of the three C's of credit—character, capacity, and capital; others refer to moral risk, financial risk, and cyclical risk. In the consumer financing studies of the National Bureau of Economic Research, risk elements in instalment credit have been segregated into such groups as personal characteristics, moral characteristics, vocational characteristics, etc.¹ Although such groupings are generally accepted, some ambiguities and misunderstandings of terminology are usually involved. For example, there is no standard notion of the meaning of moral risk. To some people the concept appears narrow, referring only to personal integrity and social respectability; to others it has much broader meaning and includes the notion of ability—ability to earn a livelihood, ability to meet problems and make decisions, ability to handle financial matters. On the whole, however, the terms are used to create general impressions; when more specific delineation is needed, other terms are ordinarily employed.

In this chapter we present statistical information relevant to a number of credit factors, and in the presentation we draw a tentative distinction between financial and non-financial characteristics. Some of the factors that we present

¹ See National Bureau of Economic Research (Financial Research Program), *Commercial Banks and Consumer Instalment Credit*, by John M. Chapman and Associates (1940) Chapter 6; *Industrial Banking Companies and Their Credit Practices*, by Raymond J. Saulnier (1940) Chapter 6.

as financial, however, may reflect indirectly non-financial qualities, and vice versa.

FINANCIAL FACTORS

In commercial lending, a borrower is usually requested to submit a balance sheet and income statement, which the lender uses as a basis for judging whether or not the borrower may be a good financial risk. Analysis of the financial statements is detailed and systematic, with emphasis on a number of crucial ratios such as the current ratio, sales to inventory, and gross profit to sales. The consumer borrower, on the other hand, is rarely asked to provide a comprehensive, formal financial statement but instead is requested merely to list a few asset and liability items or a few items of income and expense. The lender, in his analysis of these data, examines the ratio of the amount of the loan to income, of monthly payment to income, or some other measure of the burden of debt upon the borrower's current purchasing power. The ratio of the amount of down payment to the amount of the total sale is important in sales finance transactions. Ratios other than these are conceivable in consumer instalment lending, and may be used occasionally, but not frequently.

Income

Perhaps the most surprising findings of the entire study are those concerning borrower's income and its relation to the amount borrowed. None of the income distributions of borrowers in Table 4 shows more than a moderate tendency for the higher incomes to be the better risks. In the new-and used-car distributions, the tendency is clear but not pronounced; the efficiency indices of about 17 in both cases are not notably high, and the component samples are not entirely

TABLE 4
PERCENTAGE DISTRIBUTION OF GOOD-LOAN AND BAD-LOAN SAMPLES, BY INCOME OF
BORROWER

Source and Composition of Data	Monthly Income						Number of Cases		Efficiency Index	Remarks
	\$0-99	\$100-149	\$150-199	\$200-249	\$250-299	\$300-399	\$400 and Over	Re-reporting		
21 Commercial banks ^a 12 Samples										
Good loans	11.9	28.4	28.1	13.7	7.7	5.5	4.7	1,260	34	Not significant. Very inconsistent indications in component samples.
Bad loans	11.0	32.8	28.1	14.2	6.2	4.5	3.2	1,240	54	
Bad-loan relative	.9	1.2	1.0	1.0	.8	.8	.7			4.9
10 Industrial banking companies 3 Samples										
Good loans	16.1	24.8	27.7	11.2	8.6	5.2	6.4	614	49	Not significant. Component samples fairly consistent.
Bad loans	17.3	28.2	25.1	12.7	6.7	5.6	4.4	585	74	
Bad-loan relative	1.1	1.1	.9	1.1	.8	1.1	.7			6.5

TABLE 4 (continued)

Source and Composition of Data	Monthly Income						Number of Cases		Efficiency Index	Remarks	
	\$0-99	\$100-149	\$150-199	\$200-249	\$250-299	\$300-399	\$400 and Over	Re-reporting			Not Re-reporting
2 Personal finance companies 2 Samples											
Good loans	13.8	39.3	29.2	11.0	4.7	2.0 ^b	...	698	13	Questionably significant. No consistency.	
Bad loans	17.7	42.6	25.5	8.0	3.8	2.4 ^b	...	713	19		
Bad-loan relative	1.3	1.1	.9	.7	.8	1.2	...			7.6	
3 Automobile finance companies 4 Samples											
New cars {	Not repossessed	...	15.8 ^c	18.2	20.4	10.0	14.7	20.9	368	55	Significant. 3 of 4 samples consistent.
Used cars {	Repossessed	...	27.0 ^c	20.6	24.4	7.4	8.2	12.4	340	48	
Bad-loan relative	...	1.7	1.1	1.2	.7	.6	.6				17.6
Not repossessed	10.1	30.0	29.8	19.1	7.2 ^d	...	3.8	446	38		
Repossessed	15.3	41.3	24.9	10.5	6.4 ^d	...	1.6	450	35	Significant. No consistency.	
Bad-loan relative	1.5	1.4	.8	.5	.94				16.5

^a See footnote 13, p. 37.

^b Includes all cases with incomes of \$300 and over.

^c Includes all cases with incomes of less than \$150.

^d Includes all cases with incomes of \$250-399.

consistent. In the cash loan distributions, however, the tendency for good risk to go with high income is virtually non-existent; only in the personal finance company samples is any tendency apparent, and even here the evidence is of doubtful significance.

These findings on the income-risk relation are so confusing that additional data are welcome. Analysis of some two million loans made by a large personal finance company from 1934-37 indicates a significant, though small tendency for risk to improve with income; the efficiency index is only 9.6.² A sample of appliance finance deals insured by the Electric Home and Farm Authority shows a more pronounced relation; the repossession ratio rises sharply as income decreases.³ This and the evidence presented above point toward one conclusion—that income is distinctly more important in sales finance than in cash lending; the evidence, however, is not conclusive, but only suggestive.

Amount of Loan

Table 5, showing amount of loan, does not include the automobile finance companies' samples, which are analyzed separately later. Very little concerning the relation between risk and the amount of loan is learned from the commercial bank and industrial banking company samples, where the variation is small and of questionable significance; loans of less than \$100, however, appear somewhat worse than average. In the personal finance company samples, the bad loans are on the

² Data supplied by the Household Finance Corporation. The distribution of loans and charge-offs, and the bad-loan relatives are as follows:

	Monthly Income of Borrower					
	\$1-50	\$51-100	\$101-150	\$151-200	\$201-250	Over \$250
All loans	.7	16.1	34.0	27.0	11.6	10.6
Charge-offs	1.6	22.2	36.6	23.9	8.4	7.3
Bad-loan relative	2.3	1.4	1.1	.9	.7	.7

³ See National Bureau of Economic Research (Financial Research Program), *Government Agencies of Consumer Instalment Credit*, by Joseph D. Coppock (1940) Table 41, p. 144.

TABLE 5
PERCENTAGE DISTRIBUTION OF GOOD-LOAN AND BAD-LOAN SAMPLES, BY AMOUNT OF LOAN

Source and Composition of Data	Amount of Loan						Number of Cases		Efficiency Index	Remarks
	\$0-99	\$100-199	\$200-299	\$300-399	\$400-499	\$500-999 and Over	Re-possessing	Not Re-possessing		
21 Commercial banks^a										
12 Samples										
Good loans	6.8	42.2	19.4	15.7	5.2	9.2	1.5	1,289	5	Questionably significant. No consistency. 4.2
Bad loans	10.8	40.2	19.5	15.3	4.8	7.8	1.6	1,294	0	
Bad-loan relative	1.6	1.0	1.0	1.0	.9	.8	1.1			
10 Industrial banking companies										
3 Samples										
Good loans	9.4	40.5	19.2	14.8	3.3	9.5	3.3	662	1	Questionably significant. 7.7
Bad loans	14.8	36.9	20.5	13.5	4.3	8.8	1.2	654	5	
Bad-loan relative	1.6	.9	1.1	.9	1.3	.9	.4			
	\$0-49	\$50-99	\$100-149	\$150-199	\$200-249	\$250-299	\$300 and Over ^b			
2 Personal finance companies										
2 Samples										
Good loans	4.1	23.0	28.5	14.4	10.7	18.6	.7	709	2	Significant. No consistency. 13.4
Bad loans	3.0	16.9	22.3	16.3	15.2	24.7	1.6	732	0	
Bad-loan relative	.7	.7	.8	1.1	1.4	1.3	2.3			

^a See footnote 13, p. 37.

^b One of the contributing companies operates branches in states permitting loans over \$300.

whole the larger ones. Similar results for this type of company are obtained from the sample of some two million loans referred to above; but the efficiency index of 3.3 is so low that the observed results are considered inconsequential.⁴

The ratio of the amount of the obligation to the amount of the income is one possible measure of the burden of the debt on the borrower's purchasing power. Since we have found no significant relation between risk and income or between risk and amount of loan in the commercial bank and the industrial banking company samples, we can reasonably infer a similar lack of relation between risk and the ratio of amount of obligation to income. Likewise, for the personal finance companies, where good risks show a slight tendency to be associated with large incomes and small loans, we can infer that good risks will also be associated with a low ratio of amount of loan to income. Inferences of this sort are not absolutely infallible, but they are usually fairly reliable; in this case they were actually confirmed by detailed tabulations, which are not presented here.⁵

Since the opinion is rather widely held that income and the relation of the amount borrowed to income ought to be important risk indices, the fact that they do not appear important in any of the cash loan samples calls for comment. The explanations offered here are only conjectures; to arrive at any more definite conclusions we should have more data—particularly on the reasons behind delinquency and charge-off. In general, cash loan agencies, and also sales finance com-

⁴ Data supplied by the Household Finance Corporation. The distribution of loans and charge-offs, and bad-loan relatives are as follows:

	Amount of Note						
	\$0-49	\$50-99	\$100-149	\$150-199	\$200-249	\$250-299	\$300
All loans	3.5	16.7	27.0	13.6	14.9	3.8	20.5
Charge-offs	2.4	14.5	27.3	14.3	15.9	4.6	21.0
Bad-loan relative	.7	.9	1.0	1.1	1.1	1.2	1.0

⁵ Information concerning the ratio of the amount of note to income may be found for commercial banks in John M. Chapman and Associates, *op. cit.*, Table 35, p. 130, and for industrial banking companies in Raymond J. Saulnier, *op. cit.*, Table 35, p. 140.

panies, insist that their customers shall be employed and have a certain regular minimum income; certain standard relationships between amount borrowed and income also must be met. In spite of numerous exceptions, these restrictions undoubtedly serve to eliminate most of the poorest risks, including paupers with no ability to pay and others with grandiose ideas of their abilities to repay large sums out of small incomes. Therefore a sample giving no evidence of an income-risk relation, or of relation between risk and the ratio of the amount of the note to income, undoubtedly indicates that standards are sufficiently restrictive to eliminate most of these particularly undesirable lower strata. Yet one important point requires explanation. Within normally acceptable limits, why is there no observable risk variation by income or amount borrowed? Why are not persons with incomes of \$4000 appreciably better risks than persons with incomes of \$1500, and why are not persons who borrow only 5 percent of their annual incomes appreciably better risks than those who borrow 20 percent?

Ability to pay is not measured by the amount of income alone, particularly not by the amount of income at the time of application for funds. Stability of income and the likelihood of increases rather than decreases are also important. They depend upon a number of characteristics: the borrower's age, health, character, experience, his general employability, the nature of his occupation, the stability of his employer's business, and so on. No less important than stability of income is the borrower's ability to live within his income, his ability to budget, to save, and to adjust his expenditures to unusual strains. Some credit men are of the opinion that most consumer-borrowers tend to spend to the very limit of their incomes; that higher incomes are offset by higher expenditures for luxury goods, which the borrower soon learns to consider necessities. If this reasoning is correct, the larger incomes will not carry with them any greater

flexibility, or any additional margin of safety between income and the so-called minimum necessary expenses. This discussion implies that lack of character and the inability to handle finances are more likely to be causes of default than lack of income. In the last analysis, ability to pay may be as much a result of personal attributes as of financial condition.

The fact that income appears important in the automobile finance business but not in the cash loan business suggests fundamental differences between the two types of lending. A significant difference seems to exist between the dealer-customer relation in sales finance and the analogous relation in cash lending. In an instalment sale the dealer is interested in selling merchandise, and the extension of credit is usually a secondary matter. The dealer, however, obtains the necessary credit information, and the customer rarely deals directly with the financing agency. The dealer frequently endorses the note so that the financing agency is covered in case of default. The result of the dealer's desire to make a sale and his subsequent endorsing of the customer's note may be a lowering of standards; the dealer may be inclined to sacrifice standards for the sake of the sale; and the sales finance company may either be willing to accept poor risks because of the dealer's endorsement, or may feel compelled to do so in order to continue its relations with the dealer. Therefore, the sales finance company samples, which are all from recourse companies,⁶ may contain a larger proportion of low-grade, low-income risks than the cash loan samples.

Certain authorities are of the opinion that the economic and financial status of instalment purchasers of automobiles is distinctly different from the status of customers of cash lending agencies. Those who share this opinion believe that the instalment purchaser of an automobile buys something

⁶ A recourse company is one that discounts a dealer's paper only on condition that the dealer guarantees it. Then if the customer defaults, the financing agency attempts to collect and, if necessary, repossesses; if a loss is entailed, the dealer must assume the burden.

presumably not essential to his living, and therefore that his financial position is good. The cash borrower, on the other hand, is borrowing to meet an emergency, which indicates a poor financial position. This differentiation, while probably relevant, is clearly open to criticism since a sizable proportion of cash loan borrowers do not borrow to meet an emergency; many borrow to purchase merchandise which they might otherwise have financed through a sales finance company.

The automobile represents an almost unique position in American life; it is not only a means of transportation but also of ostentation. The loss of an automobile through repossession might be considered a serious blow to a person's prestige, and this blow would be more serious for the higher-income than for the lower-income purchasers.

The fact that income and the ratio of amount of loan to income do not appear particularly important as risk factors does not mean that lenders should accommodate paupers or persons wishing to borrow exorbitant sums; nor does it mean that lenders should relax their existing standards of income and amount of loan. It merely suggests that lenders in the cash loan business are giving adequate attention to the matter of minimum income and maximum loan—roughly determined by the amount of the income—and that further restrictions would probably not improve the quality of the borrowers. This conclusion is based on combined samples from a number of individual contributions, some of which showed quite contradictory tendencies. Possibly the risk experience of some individual contributors is significantly related to income, in contrast to the combined experience.

Length of Loan Contract

Distribution of samples according to length of loan contract is given in Table 6, where length of contract indicates the number of equal monthly payments the borrower agrees to

TABLE 6
PERCENTAGE DISTRIBUTION OF GOOD-LOAN AND BAD-LOAN SAMPLES, BY LENGTH OF
LOAN CONTRACT

Source and Composition of Data	Number of Equal Monthly Payments						Number of Cases		Efficiency Index	Remarks
	0-6	7-11	12	13-17	18 and Over	Reporting	Not Reporting ^a			
21 Commercial banks ^b										
12 Samples										
Good loans	3.8	7.3	78.2	3.6	7.1	1,278	16			
Bad loans	2.4	5.8	80.8	4.6	6.4	1,275	19			
Bad-loan relative	.6	.8	1.0	1.3	.9			3.6	Not significant.	
10 Industrial banking companies										
3 Samples										
Good loans	3.7	9.6	75.7	3.2	7.8	655	8			
Bad loans	4.7	7.5	74.3	4.4	9.1	637	22			
Bad-loan relative	1.3	.8	1.0	1.4	1.2			3.5	Not significant.	
2 Personal finance companies										
2 Samples										
Good loans	14.2	32.5	20.2	33.1		703	8			Significant.
Bad loans	7.9	29.6	19.6	42.9		643	89			Both samples consistent.
Bad-loan relative	.6	.9	1.0	1.3				9.8		
3 Automobile finance companies										
4 Samples										
Not repossessed	6.2	43.5	36.3	14.0		421	2			Significant. 3 of 4 samples consistent.
Repossessed	2.1	11.6	53.8	32.5		379	9			
Bad-loan relative	.3	.3	1.5	2.3				36.0		
New cars										
Not repossessed	11.0	50.6	11.6	26.8		482	2			
Repossessed	12.2	49.3	13.2	25.3		483	2			
Bad-loan relative	1.1	1.0	1.1	.9				2.8	Not significant.	

^a Includes cases of irregular repayment.

^b See footnote 13, p. 37.

make in order to repay his loan. The new-car samples indicate a striking tendency for good risks to be associated with short-term contracts; the efficiency index is 36, which is high. The personal finance companies, with an efficiency index of slightly less than 10, show a similar though much less pronounced tendency; but here the import of the data is obscure, for in the personal finance business loans are frequently renewed before their contractual maturity. For the other samples the variation between risk and length of contract is not significant. The negative results for the commercial bank and industrial banking company samples may be explained by the fact that most of the loans—about 75 percent of them, in fact—mature in exactly 12 months. In the case of used cars, however, a very interesting situation is well worth pointing out as an example of the necessity of using caution in analysis.

On the basis of other data for used cars, two pertinent facts were brought to light.⁷ First, low-priced used cars are much more likely to be repossessed than high-priced used cars (see Table 7, page 58), a difference probably due partly to the higher down payments on the high-priced cars and partly to the greater age of the low-priced cars. Second, only the high-priced used cars are financed with loans of long duration. Thus long duration, indicating bad risk, apparently goes hand in hand with high price, indicating good risk; the two opposing tendencies ought to counteract each other, and the available data suggest that they actually do. If the used-car data of Table 6 were presented to show experience by price levels, they would undoubtedly show that for each price level the long-term contracts were the poorer risks.

Lenders seem to believe rather generally that short-term contracts are better than long. One reason for this opinion is that a short contract offers less time for a catastrophe to

⁷ See National Bureau of Economic Research (Financial Research Program), *Sales Finance Companies and Their Credit Practices*, by Wilbur C. Plummer and Ralph A. Young (1940) pp. 164-68.

occur and to prevent repayment. Another aspect, however, should not be overlooked. Many short contracts are voluntarily sought by applicants who prefer to repay in less than the standard time. Presumably, such persons do not like to be in debt, and their financial condition must be reasonably good to permit quick retirement; these persons are undoubtedly good risks. But there may be a difference in risk experience between voluntary and involuntary short-term contracts; if a lender forces a short contract on a borrower who wishes a long contract, he should not suppose that the borrower's risk status will be greatly improved.

Security of Loan

Various types of security are common in personal lending. In sales financing the collateral for the loan is the article purchased; and if the lender is a financing agency and not a dealer, the additional security of the dealer's endorsement may be required. In cash lending, commercial banks and industrial banking companies frequently require comaker signatures, and personal finance companies often take chattel mortgages and single-name notes; but there is no standard policy, and numerous other forms of security are commonly used. Acceptable collateral for commercial loans—such as securities, real estate, life insurance policies, and savings bank passbooks—may be used as security for consumer loans,⁸ but the practice is probably not very common. Contributing commercial banks and industrial banking companies were requested to exclude all such loans from the samples submitted for this study.

A number of sources indicate that the likelihood of repayment is not so much determined by the kind of security, as

⁸ Tables showing this information were not considered sufficiently interesting to publish here. For commercial bank and industrial banking company experience see John M. Chapman and Associates, *op. cit.*, Table 38, p. 134, and Raymond J. Saulnier, *op. cit.*, Table 37, p. 142.

that the kind of security is determined by the lender's appraisal of the likelihood of repayment. Thus persons with three or more comakers are found to be poor risks in both the commercial bank and industrial banking company samples.⁹ This fact merely means that banks do not require an additional comaker unless they consider the risk poor, and that the additional security is not enough to make the loan good. Contrariwise, some of the commercial bank and industrial banking company component samples show single-name notes to be as good as or better than comaker notes,¹⁰ which merely indicates that these particular banks have been successful in limiting their single-name loans to their best grade of applicants. An analogous situation occurs in the one appliance finance company sample. Non-recourse deals contain relatively fewer repossessions than recourse deals; undoubtedly the finance company is more cautious in selecting non-recourse paper, and is less likely to repossess a delinquent account that has no dealer's endorsement behind it.

Cash Price

For the automobile finance and appliance finance company samples, the distributions of good and bad loans according to the cash price of the article purchased are presented in Table 7. In the new-car samples the price seems to be unimportant; for used cars, however, the higher-priced cars appear to be less frequently repossessed. Since the price of a car varies with the make, a study was also made of repossession experience by make; no satisfactory evidence of variation for either the new cars or the old was discovered. The samples from the appliance finance company, like those for the used cars, indicate that the higher-priced articles are less frequently repossessed.

⁹ *Loc. cit.*

¹⁰ See John M. Chapman and Associates, *op. cit.*, Appendix B, Table B-13, p. 303.

TABLE 7
PERCENTAGE DISTRIBUTION OF GOOD-LOAN AND BAD-LOAN SAMPLES, BY CASH PRICE
OF ARTICLE PURCHASED

Source and Composition of Data	Cash Price				Number of Cases		Efficiency Index	Remarks
	Under \$800	\$800-999	\$1000-1199	\$1200-1499	Repossessing	Not Repossessing		
3 Automobile finance companies								
4 Samples								
New cars	Not repossessed	22.2	35.9	25.8	12.3	3.8	423	0
	Repossessed	23.5	37.5	26.9	10.8	1.3	387	1
	Bad-loan relative	1.1	1.0	1.0	.9	.3		4.0 Not significant.
Used cars	Under \$200			\$400-599	\$600 and Over			
	Not repossessed	13.0	35.8	34.5	16.7		484	0
	Repossessed	26.8	39.8	20.8	12.6		485	0
Bad-loan relative	2.1	1.1	.6	.8				17.8 Significant. 3 of 4 samples consistent.
1 Appliance finance company	Under \$100			\$200 and Over				
	Not repossessed	37.5	40.1	22.4			237	0
	Repossessed	58.1	31.0	10.9			184	0
Bad-loan relative	1.5	.8	.5					20.6 Significant.

Down Payment

In sales finance transactions, the ultimate security is the purchased article, and the value of this article as coverage is usually considerably enhanced by the practice of requiring a down payment. That the likelihood of default and repossession decreases as the amount of the down payment increases is almost axiomatic in sales finance. Repossession experience according to the amount of down payment is shown in Table 8. Here the actual down payment, the dollar amount of trade-in plus cash, is given in place of percent of cash selling price, which is the factor usually considered. In all of the samples shown, those for new cars, used cars, and appliances, the purchases with the higher down payments are less frequently repossessed. This tendency is not difficult to understand, for the purchaser's ability to make a large down payment is likely to reflect financial strength; furthermore, a purchaser who has a substantial equity in an article will be less likely to allow his payments to lapse out of sheer indifference. The evidence presented suggests that down payment is the most effective risk indicator among all the factors considered in this study; the efficiency indices for the new-car and appliance samples are both above 30, and that for used cars is above 20. This conclusion does not conform entirely to the consensus of opinion of the retail merchants who replied to the questionnaire and laid only secondary emphasis on down payment (see Table 2, page 18).

The reason for discussing actual down payment instead of percent down payment is by way of illustration. Percent down payment is the ratio of two credit factors, actual down payment and price; as such it may be either more or less significant than its components. Therefore, whether the proper approach is to analyze the ratio alone, to analyze the components, or to analyze all three cannot always be determined. To analyze all three is the most methodical procedure, but

TABLE 8
PERCENTAGE DISTRIBUTION OF GOOD-LOAN AND BAD-LOAN SAMPLES, BY AMOUNT OF DOWN PAYMENT

Source and Composition of Data	Amount of Down Payment							Number of Cases		Efficiency Index	Remarks
	\$100-199	\$200-299	\$300-399	\$400-499	\$500-599	\$600-799	\$800 and Over	Repossessing	Not Repossessing		
3 Automobile finance companies 4 Samples											
New cars	Not repossessed	.9	19.0	18.5	18.2	19.2	14.0	10.2	422	1	Significant. All 4 samples consistent.
	Repossessed	6.4	32.7	35.1	16.8	5.2	2.8	1.0	388	0	
Used cars	Bad-loan relative	7.1	1.7	1.9	.9	.3	.2	.1			
		\$0-49	\$50-99	\$100-149	\$150-199	\$200-299	\$300-399	\$400 and Over			
1 Appliance finance company	Not repossessed	5.6	17.5	24.5	20.6	18.5	8.9	4.4	481	3	Significant. 3 of 4 samples consistent.
	Repossessed	8.3	37.7	23.0	15.1	13.0	2.5	.4	483	2	
	Bad-loan relative	1.5	2.2	.9	.7	.7	.3	.1			
		\$0-9.99	\$10-19.99	\$20-29.99	\$30-39.99	\$40-49.99	\$50-99.99	\$100 and Over			
	Not repossessed	17.4	29.4	19.2	10.6	7.7	13.6	2.1	235	2	Significant.
	Repossessed	52.0	28.4	9.8	4.9	1.7	2.7	.5	183	1	
	Bad-loan relative	3.0	1.0	.5	.5	.2	.2	.2			
									34.6		

also the most laborious, and in some cases it is virtually a waste of time.

From the behavior of the components of a ratio, the behavior of the ratio itself may sometimes be predicted easily, as illustrated by the new-car samples. Here we have found that price is not important as a credit factor; and the variation in price, if expressed in percentage form, is relatively small, with more than half of all cars priced between \$800 and \$1200. We may therefore safely infer that high percentage down payment as well as high actual down payment indicates small likelihood of repossession; furthermore, the inference is adequately justified by facts, as shown by the tabulations in Table 9. The efficiency index for percent down payment is 46, ten points higher than that for actual down payment; in this case the ratio approach seems to have distinct merit.

For used cars and appliances, however, the behavior of percent down payment cannot be predicted so simply, owing to the fact that price as well as down payment is related to repossession experience, and to the greater range, if expressed

TABLE 9
PERCENTAGE DISTRIBUTION OF REPOSSESSED AND NON-REPOSSESSED NEW-CAR SAMPLES, BY AMOUNT OF DOWN PAYMENT IN PERCENT OF CASH SELLING PRICE

3 Automobile Finance Companies 4 Samples	Ratio of Down Payment to Cash Selling Price						
	Less than 30%	30-34%	35-39%	40-44%	45-49%	50-59%	60% and Over
Not repossessed	4.3	17.5	13.7	11.3	9.4	19.9	23.9
Repossessed	16.8	45.2	19.4	8.3	5.2	3.6	1.5
Bad-loan relative	3.9	2.6	1.4	.7	.6	.2	.1
Efficiency Index: 45.9							

in percentage form, of the price of used cars. Actual tabulations, not reproduced here, indicate that repossessions decrease as percent down payment increases. The efficiency indices are 21 for used cars, which is just slightly less than the index for actual down payment, and 26 for appliances, which is considerably less. Here the ratio approach not only has little to offer, but appears to be actually detrimental.

In sales finance transactions, the amount of the obligation, which is equal to the cash price less the down payment plus a relatively small finance charge, is affected by both its main constituent parts, price and down payment. As a credit factor it appears to be a poor indicator. For new cars, where price is not related to repossession experience, amount of note behaves conversely with down payment; a large down payment, resulting in a small note, means a good risk; but in respect to efficiency, amount of note is inferior to down payment. For used cars, where price is an important factor, no relation appears between amount of note and repossession experience.

Borrower Assets and Liabilities

The possession by a borrower of such assets as life insurance, a bank account,¹¹ or real estate indicates both financial strength and personal stability. Financial strength is indicated because these assets usually represent reserves of purchasing or borrowing power. The indication of personal stability arises from the fact that possession of life insurance or a bank account connotes the willingness and ability to save and provide for the future, and further that the ownership

¹¹ One of our critics points out that there are several types of bank accounts; he refers particularly to special checking accounts (those not requiring a minimum balance), which have been introduced by many banks in recent years, and suggests that these accounts are less indicative of good risk than the traditional commercial checking account with a minimum balance. We may add that the available data did not show which type of checking account was reported. The data did list savings accounts and checking accounts separately, but, for simplicity, cases with either or both types were all tabulated together.

of real estate, particularly an unmortgaged home, suggests domestic solidity, although it must be admitted that the ownership of heavily mortgaged speculative real estate may suggest the precise opposite.

Table 10, which shows the relation between risk experience and the possession of assets, gives no indication of the value of the assets held; it merely indicates whether or not assets were held. Further information on value would be extremely pertinent, but it is not generally available.¹² Even without this information, however, Table 10 is significant. The mere ownership of life insurance or a bank account or real estate, without regard to its value, suggests better-than-average risk. This relation occurs consistently in the combined samples from all types of reporting institutions and in all but one of the available component samples. Of the three asset items, life insurance is the most widely held by borrowers; bank accounts are next; and real estate last. The bank account item has by far the highest efficiency index, averaging about 22 for the reporting institutions as against 10 or so for life insurance and real estate.

A few of the contributing commercial banks reported information on three additional asset items—ownership of stocks and bonds, ownership of automobiles, and ownership of household goods—and two liability items—charge accounts and other instalment accounts. Information relevant to these items is not shown in Table 10.¹³ Of these five items, ownership of securities alone appears to have any reliable relation to risk. The available evidence suggests that security ownership is relatively rare among personal loan borrowers, probably occurring in less than 10 percent of the cases, but that the few who do have securities are better risks. The other

¹² Data were obtained on the value of real estate and the amount of liens against it, but the number of cases reporting was too small for a significant analysis.

¹³ For tabulations see John M. Chapman and Associates, *op. cit.*, Table 36, p. 131, and Table B-11, pp. 293-300.

TABLE 10
PERCENTAGE DISTRIBUTION OF GOOD-LOAN AND BAD-LOAN SAMPLES, BY SELECTED
ASSET ITEMS OF BORROWER

Asset Items	21 Commercial Banks ^a			10 Industrial Banking Companies			3 Automobile Finance Companies					
	Good		Bad-Loan Relative	Good		Bad-Loan Relative	New Cars		Used Cars		Bad-Loan Relative	
	Good	Bad	Bad-Loan Relative	Good	Bad	Bad-Loan Relative	Not Rep.	Rep.	Bad-Loan Relative	Not Rep.	Rep.	Bad-Loan Relative
Bank account	44.6	21.5	.5	34.0	19.6	.6	70.9	45.5	.6	51.0	25.5	.5
No bank account ^b	55.4	78.5	1.4	66.0	80.4	1.2	29.1	54.5	1.9	49.0	74.5	1.5
Efficiency index	23.1			14.4			25.4			25.5		
Number of cases	1,294	1,294		318	318		323	288		384	385	
Remarks	Significant. 11 of 12 samples consistent.			Significant. Both available samples consistent.			Significant. 3 available samples consistent.			Significant. 3 available samples consistent.		
Life insurance	81.8	71.4	.9	81.1	72.8	.9						
No life insurance ^b	18.2	28.6	1.6	18.9	27.2	1.4						
Efficiency index	10.4			8.3								
Number of cases	1,294	1,294		350	342							
Remarks	Significant. 11 of 12 samples consistent.			Significant. Both available samples consistent.			Information not available					
Real estate	27.3	13.3	.5	23.7	14.0	.6	26.1	15.5	.6	18.9	8.9	.5
No real estate ^b	72.7	86.7	1.2	76.3	86.0	1.1	73.9	84.5	1.1	81.1	91.1	1.1
Efficiency index	14.0			9.7			10.6			10.0		
Number of cases	1,294	1,294		663	659		249	220		238	248	
Remarks	Significant. 11 of 12 samples consistent.			Significant. 3 available samples consistent.			Significant.			Significant.		

^a See footnote 13, p. 37.

^b Includes cases not reporting information.

four items occur much more frequently than ownership of securities, but provide most unsatisfactory evidence concerning risk experience. In many instances, the number of cases not reporting information is altogether too high for reliability; furthermore, the variation in experience between samples is sufficiently pronounced to discredit any conclusions.

A comparison of these findings with the opinions expressed by bankers and retail merchants is of interest. Table 1 shows that the bankers who replied to our questionnaire laid considerably more stress on liabilities than on assets; Table 2 shows that the retail merchants—who were not asked to express themselves concerning assets—laid some stress on liabilities. Our findings suggest that the general opinion of the business lays too much stress on liabilities and not enough on assets.

NON-FINANCIAL FACTORS

The factors considered thus far—income, amount of loan, length of loan contract, security, cash price, down payment, assets, and liabilities—are all used to measure financial characteristics of borrowers. To be sure, a borrower's income, or the amount of his down payment, indicates his general ability as well as his spending power, but by and large these factors represent financial risk. The factors next to be considered are more personal, although some of them reflect financial as well as non-financial status.

Stability of Occupation

Stability of occupation, measured by the number of years an applicant has been at his present position, has been mentioned in Chapter 2. Further information is presented in Table 11. The tendency for long periods of employment to

TABLE 11
PERCENTAGE DISTRIBUTION OF GOOD-LOAN AND BAD-LOAN SAMPLES, BY DURATION
OF BORROWER'S PRESENT EMPLOYMENT

Source and Composition of Data	Number of Years ^a							Number of Cases		Efficiency Index	Remarks
	0-1	1-2	2-3	3-6	6-10	10 and Over	Re- porting	Not Re- porting			
21 Commercial banks ^b 12 Samples											
Good loans	5.7	7.4	9.5	18.5	19.3	39.6	1,226	68		19.8	Significant. All 12 samples consistent.
Bad loans	13.0	11.1	12.4	24.4	15.7	23.4	1,216	78			
Bad-loan relative	2.3	1.5	1.3	1.3	.8	.6					
10 Industrial banking companies 3 Samples											
Good loans	5.1	7.5	5.3	17.8	18.8	45.5	547	116		21.2	Significant. All 3 samples consistent.
Bad loans	11.4	13.5	9.5	22.2	19.1	24.3	555	104			
Bad-loan relative	2.2	1.8	1.8	1.2	1.0	.5					
3 Automobile finance companies 4 Samples											
New cars	9.2	20.2	28.0	42.6			357	66		23.9	Significant. All 4 samples consistent.
Repossessed	23.8	29.5	22.6	24.1			319	69			
Bad-loan relative	2.6	1.5	.8	.6							
Used cars	16.9	29.0	22.3	31.8			421	63		15.6	Significant. 3 of 4 samples consistent.
Repossessed	27.0	33.8	23.0	16.2			444	41			
Bad-loan relative	1.6	1.2	1.0	.5							

^a Each class interval includes the lower and excludes the upper limit.

^b See footnote, 13, p. 37.

denote good risk is shown consistently by all but one of the available sample components. Furthermore, in the one used-car unit that is the exception, evidence of this tendency is merely lacking; it is not contradicted. The efficiency index for stability of occupation is high; the average of the indices for the samples of lending institutions is about 20, which is only slightly lower than that for bank account. In this case, however, the efficiency index is not a satisfactory index of the importance of a credit factor. Few lenders would deny loans to all persons without bank accounts, for if they did so they might be turning away roughly half of their good business. They might, however, deny loans to persons with less than one year's employment tenure, since then they would be turning away only about a twentieth of their good business. For this reason, stability of occupation is probably a more useful means of credit control than is bank account. The importance attached to stability of occupation by credit executives has already been pointed out.

Stability of Residence

Like stability of occupation, stability of residence appears to be associated with good risks (Table 12). This general tendency is typical of the 3 reporting industrial banking company components and 10 of the 12 commercial bank components; the 2 exceptions, moreover, are negative and show no contradictory tendencies. The information reported by the industrial banking companies is open to question, however, for some of them reported number of years at present address, and some reported number of years in the same city, and a large number of cases did not report any information. The efficiency indices of 14.7 for commercial banks and 20.1 for industrial banking companies are reasonably high, though they average slightly lower than those for stability of occupation. The importance of stability of resi-

TABLE 12
PERCENTAGE DISTRIBUTION OF GOOD-LOAN AND BAD-LOAN SAMPLES, BY DURATION
OF RESIDENCE AT BORROWER'S PRESENT ADDRESS

Source and Composition of Data	Number of Years ^a						Number of Cases		Efficiency Index	Remarks
	0-1	1-2	2-3	3-6	6-10	10 and Over	Reporting	Not Reporting		
21 Commercial banks ^b										
12 Samples										
Good loans	13.5	14.5	13.7	21.1	10.1	27.1	1,249	45		Significant.
Bad loans	21.6	18.8	16.0	20.2	7.2	16.2	1,240	54		10 of 12 samples
Bad-loan relative	1.6	1.3	1.2	1.0	.7	.6			14.7	consistent.
10 Industrial banking companies ^c										
3 Samples										
Good loans	3.4	2.8	5.7	15.9	14.0	58.2	435	228		Significant.
Bad loans	3.1	8.6	8.9	21.4	19.6	38.4	383	276		All 3 samples
Bad-loan relative	.9	3.1	1.6	1.3	1.4	.7			20.1	consistent.

^a Each class interval includes the lower and excludes the upper limit.

^b See footnote 13, p. 37.

^c Some industrial banking companies reported the number of years at present address; some reported the number of years in the same city; and, as indicated above, some did not report any information on this point.

dence as a credit factor seems to have been overlooked by most credit executives; it received virtually no recognition by the bankers whose replies are tabulated in Table 1.

Occupation and Industry

A word of warning must precede a discussion of the occupational classification of Table 13, which is subject to a number of shortcomings. The main difficulties with making an occupational classification are that hundreds, perhaps even thousands of different occupations must be consolidated into a few broad groups, and that the number of occupations that can be classified separately is limited by the number of cases available for analysis. Numerous systems of consolidation are possible, and almost any one of them, including that in Table 13, is open to serious criticism. A system of classification will not be satisfactory if a number of occupations with widely different characteristics are grouped together; but decisions concerning similarity of occupation and the grouping of these occupations depend upon a detailed study based on a larger number of cases—perhaps 25,000. We may safely conclude that samples of the size used in this study are not large enough to supply all the desired information about occupation.

The construction of an acceptable scheme of classification is not the only problem; the fitting of any particular borrower's occupation into that scheme is also difficult. Frequently the borrower's description of his occupation, which appears on his application blank, is so inadequate or ambiguous that a clear picture of the borrower's duties cannot possibly be obtained.¹⁴ In such instances, which probably occur in nearly a fifth of all the cases handled here, the am-

¹⁴ This judgment is based entirely on the transcribed statements of occupation made available to the National Bureau of Economic Research. The credit investigators of the contributing institutions undoubtedly have a much better picture than we can form of the applicant's duties.

TABLE 13

PERCENTAGE DISTRIBUTION OF GOOD-LOAN AND BAD-LOAN SAMPLES, BY OCCUPATION OF BORROWER

Occupation	21 Commercial Banks ^a			10 Industrial Banking Companies		
	Good	Bad	Bad-Loan Relative	Good	Bad	Bad-Loan Relative
1. Professions	11.2	6.5	.6	9.3	6.4	.7
a. Teachers, nurses, doctors, technicians, lawyers	8.0	3.6	.4			
b. Artists, actors, musicians, misc.	3.2	2.9	.9			
2. Clerical	42.8	34.1	.8	30.0	30.5	1.0
a. Typists, stenographers, accts., etc.	24.2	10.6	.4	13.1	9.1	.7
b. Salespersons behind retail counters	4.0	3.7	.9	3.3	3.9	1.2
c. Outside salesmen, commercial representatives	6.6	11.2	1.7	4.7	9.6	2.0
d. Other clerical: agents, messengers, etc.	8.0	8.6	1.1	8.9	7.9	.9
3. Policemen, firemen, etc.	2.4	2.0	.8		b	
4. Proprietors	13.0	13.2	1.0	11.8	12.4	1.1
5. Managers and officials	8.0	10.2	1.3	9.3	10.2	1.1
6. Wage-earners	19.6	29.8	1.5	27.8	32.9	1.2
a. Skilled labor	8.7	11.5	1.3	14.2	12.9	.9
b. Semiskilled and unskilled	8.2	14.7	1.8	11.0	17.7	1.6
c. Service trades	2.7	3.6	1.3	2.6	2.3	.9
7. Miscellaneous	3.0	4.2	1.4	11.8	7.6	.6
Number of cases	1,294	1,294		663	659	
Efficiency index ^c	19.0			13.7		
Remarks	Significant			Significant		

^a See footnote 13, p. 37.

^b Because of the small number of cases available policemen and firemen are included with skilled labor.

^c Whenever subgroupings appear in this table, the efficiency index is computed from the subgroupings without reference to the main groups.

(concluded on next page)

TABLE 13

PERCENTAGE DISTRIBUTION OF GOOD-LOAN AND BAD-LOAN SAMPLES, BY OCCUPATION OF BORROWER (concluded)

Occupation	2 Personal Finance Companies			3 Automobile Finance Companies					
	Good	Bad	Bad-Loan Rel.	New Cars		Used Cars			
				Not Rep.	Rep.	Bad-Loan Rel.	Not Rep.	Rep.	Bad-Loan Rel.
1. Professions	5.9	4.0	.7	13.5	8.5	.6	11.6	4.3	.4
a. Teachers, nurses, doctors, technicians, lawyers									
b. Artists, actors, musicians, misc.									
2. Clerical	24.7	22.3	.9	23.4	23.0	1.0	22.1	18.7	.8
a. Typists, stenographers, accts., etc.	9.6	8.0	.8	5.2	3.9	.8	5.2	3.1	.6
b. Salespersons behind retail counters	3.4	4.8	1.4	1.2	1.5	1.3	3.9	4.9	1.3
c. Outside salesmen, commercial representatives	1.3	1.5	1.2	9.4	15.0	1.6	8.5	6.2	.7
d. Other clerical: agents, messengers, etc.	10.4	8.0	.8	7.6	2.6	.3	4.5	4.5	1.0
3. Policemen, firemen, etc.	3.4	1.1	.3		b			b	
4. Proprietors	3.9	6.0	1.5	19.9	25.8	1.3	14.7	18.4	1.3
5. Managers and officials	6.3	6.7	1.1	12.5	8.2	.7	3.9	4.8	1.2
6. Wage-earners	48.2	53.3	1.1	21.0	25.5	1.2	39.4	49.9	1.3
a. Skilled labor	24.9	25.4	1.0	13.7	11.8	.9	20.0	19.4	1.0
b. Semiskilled and unskilled	15.7	21.3	1.4	5.9	10.3	1.7	15.3	24.8	1.6
c. Service trades	7.6	6.6	.9	1.4	3.4	2.4	4.1	5.7	1.4
7. Miscellaneous	7.6	6.6	.9	9.7	9.0	.9	8.3	3.9	.5
Number of cases	711	732		423	388		484	485	
Efficiency index ^c	10.2			18.2			16.7		
Remarks	Significant			Significant			Significant		

^b, ^c For footnotes, see p. 70.

biguous occupation either must be classified as miscellaneous or must be arbitrarily placed in some class that seems not too inappropriate. Neither procedure is entirely satisfactory.

An analysis of the occupational groupings of Table 13 reveals that certain groups appear to be consistently good risks and other groups consistently poor. For all the samples shown, the professional group as a whole is above average. From this evidence, however, the inference that all professional classes are good risks does not follow. Some lenders consider clergymen and lawyers poor risks, but separate indices for these two groups could not be computed because of an insufficient number of cases among the samples submitted. For the commercial bank classification, the professional group was broken down into two subgroups; a group containing teachers, doctors, and the like was formed, and another containing musicians and actors. Both these groups appear to be better-than-average risks; the doctor group, with a bad-loan relative of .4, is well above average, whereas the actor group, with a bad-loan relative of .9, is only slightly above.

A number of very diverse occupations have been classified as clerical. One of these, a group containing typists, accountants, etc., appears to be a good-risk group; the evidence is particularly strong in the commercial bank sample where such persons comprise a large portion of the total. Another of the clerical subgroups, consisting of outside salesmen and commercial representatives, perhaps does not even belong under the heading of clerical. With one exception, the used-car sample, it appears to be one of the worst risk groups shown.

Another bad-risk group contains semiskilled and unskilled workers whose record is consistent for all the samples. Skilled workers and service trade workers, who are classed as wage-earners along with the unskilled and semiskilled, show no reliable indications one way or the other. Two groups, managers and officials, and proprietors, are fairly close to average.

This fact is understandable from the wide diversity of persons found in these groups. Proprietors include all those from the owners of newsstands to the owners of large hotels; managers and officials include officers of companies ranging from the smallest to the largest.

Separate examination of the component samples was not considered feasible, for the number of cases in many of the classes was too small to give reliable results. Hence no statements are made concerning the extent to which the combined samples are typical of the individual samples. Even in the combined samples some of the groups are too poorly represented to be reliable. The service trade group is probably one such example; the fact that indices for this group are above average for the automobile finance and commercial bank samples but below average for the industrial banking company and personal finance samples is probably a point of no consequence.

Judged by the efficiency index, averaging about 16 for the five available samples, occupation is a fairly important credit factor. Its importance, however, may be somewhat discounted because of difficulties already mentioned, and may be further discounted because the efficiency index is open to bias; when there is a relatively large number of classes containing a small number of cases each, the index is likely to be larger than it would otherwise have been.

The classification of borrowers by industry is subject to all the shortcomings of the occupational classification, and the results are even less definite. The industrial classification is not tabulated here, but the average efficiency index for industrial banking companies, commercial banks, new cars, and used cars, has been found to be 14. Judged by the bad-loan relatives computed, borrowers in government service appear to be somewhat better-than-average risks, and those in miscellaneous transportation industries—including trucking, the

garage and service station business, etc.—apparently are worse-than-average risks.

Personal Characteristics

The classification of borrowers by sex and marital status (Table 14) indicates that women are better risks than men; and the superiority appears to be statistically significant. No significant difference, however, is evident between the risk characteristics of married and single persons. The superiority of women is not well confirmed in the component samples. Four of the twelve commercial bank samples, one of the three industrial banking company samples, and one of the two personal finance company samples, fail to show such a tendency. This failure may indicate a genuine inconsistency. It may, on the other hand, merely reflect the effects of sampling error; a considerable sampling error could have been expected in the component samples, for the number of women in some of them was very small.

Some credit men have expressed surprise that women should appear to be the better risks, and they have suggested that these results may be due to the indirect effect of other factors. Little can be offered in the way of amplification except that a very simple cross-classification of the commercial bank loans by sex and occupation showed that in the better-than-average occupations women are still the better risks.

The age distribution of borrowers in the commercial bank and industrial banking company samples is shown in Table 15. While some tendency is apparent for the older borrowers to be the better risks, the tendency is slight. In the component commercial bank samples the consistency of the result is very poor.

The number of a borrower's dependents is virtually unimportant. This conclusion is based on both the commercial

TABLE 14
PERCENTAGE DISTRIBUTION OF GOOD-LOAN AND BAD-LOAN SAMPLES, BY MARITAL STATUS AND SEX OF BORROWER

Source and Composition of Data	Married		Single		Other ^a	Number of Cases		Efficiency Index	Remarks
	Male	Female	Male	Female		Re- porting	Not Re- porting		
21 Commercial banks ^b									
12 Samples									
Good loans	61.4	5.0	16.1	11.6	5.9	1,294	0	10.9	Significant. 8 of 12 samples consistent.
Bad loans	66.3	2.2	22.1	5.0	4.4	1,294	0		
Bad-loan relative	1.1	.4	1.4	.4	.7				
10 Industrial banking companies									
3 Samples									
Good loans	60.0	7.5	10.9	9.7	11.9	663	0	9.0	Significant. 2 of 3 samples consistent.
Bad loans	62.4	4.2	16.5	4.0	12.9	659	0		
Bad-loan relative	1.0	.6	1.5	.4	1.1				
2 Personal finance companies									
2 Samples									
Good loans	71.6		21.0	6.6	.8	711	0		
Bad loans	63.1		31.4	4.1	1.4	732	0		Significant.
Bad-loan relative	.9		1.5	.6	1.8			11.0	No consistency.

^a Includes divorced, separated, widowed persons, and persons not reporting information.

^b See footnote 13, p. 37.

TABLE 15
PERCENTAGE DISTRIBUTION OF GOOD-LOAN AND BAD-LOAN SAMPLES, BY AGE OF
BORROWER

Source and Composition of Data	Age of Borrower in Years							Number of Cases		Efficiency Index	Remarks
	21-25	26-30	31-35	36-40	41-45	46-50	Over 50	Reporting	Not Reporting		
21 Commercial banks ^a											
12 Samples											
Good loans	12.4	19.8	17.1	15.3	13.2	9.6	12.6	1,267	27		
Bad loans	14.2	20.2	20.8	18.1	11.8	7.9	7.0	1,250	44		Significant.
Bad-loan relative	1.1	1.0	1.2	1.2	.9	.8	.6			8.7	Poor consistency.
10 Industrial banking companies											
3 Samples											
Good loans	9.6	16.4	16.7	13.7	12.8	10.3	20.5	604	59		Significant. All
Bad loans	13.6	20.7	19.7	17.1	12.1	7.9	8.9	609	50		3 samples consistent.
Bad-loan relative	1.4	1.3	1.2	1.2	.9	.8	.4			14.7	

^a See footnote 13, p. 37.

bank and industrial banking company samples, where no significant relation between risk and number of dependents is observable. The tabulations are not considered worth reproducing here.¹⁵

Purpose of Loan

Consumer-borrowers undoubtedly seek loans for a variety of reasons. In sales finance the problem is simple; the purchaser buys merchandise and thus contracts a debt. In cash lending, however, the reasons for borrowing vary remarkably from one lender to another; thus one commercial bank makes 5 percent, and another makes 50 percent, of its loans to persons who wish to buy cars. Despite the variations, most of the reasons for borrowing may be classified into three broad groups: to meet emergencies; to purchase merchandise, usually durable consumer goods, or to finance improvements on property; and to refinance pre-existing indebtedness. Table 16 presents the distribution of good and bad loans for the commercial bank and industrial banking company samples by reported reason for borrowing. The results are puzzling. The variations seemed to be statistically significant, but little uniformity among individual institutions is apparent; hence the results should be considered negative. Furthermore, the problem of classification offered serious difficulties: too many cases were ambiguous concerning the purpose of borrowing; too many cases indicated that loans were desired for miscellaneous uses; and a number of cases reported several uses without indicating the main one.

SUMMARY

One of the most striking indications of the reliability of the findings of this chapter has been the consistency with which

¹⁵ Cf. John M. Chapman, *op. cit.*, Table 29, p. 122, and Raymond J. Saulnier, *op. cit.*, Table 28, p. 128.

TABLE 16
PERCENTAGE DISTRIBUTION OF GOOD-LOAN AND BAD-LOAN SAMPLES, BY INTENDED
USE OF FUNDS

Source and Composition of Data	Intended Use of Funds								Total No. of Cases Reporting and Not Reporting			
	Taxes	Vaca- tion	House- hold	Help for Rela- tive	Pur- chase Auto- mobile	Medi- cal and Dental	Busi- ness	Cloth- ing		Consoli- dation of Debts	Miscella- neous ^a	
21 Commercial banks ^b												
12 Samples												
Good loans	3.5	3.8	11.7	2.8	12.0	13.3	6.6	1.7	24.2	20.4	1,294	
Bad loans	1.1	2.2	7.0	1.8	9.9	15.6	8.0	2.2	32.4	19.8	1,294	
Bad-loan relative	.3	.6	.6	.6	.8	1.2	1.2	1.3	1.3	1.0		
Remarks	Efficiency index: 12.4 Significant. No consistency.											
10 Industrial banking companies												
3 Samples												
Good loans	4.7	1.8	8.2	4.1	1.4	6.6	7.7	.9	32.4	32.2	663	
Bad loans	1.7	1.4	4.9	3.6	2.1	12.3	8.6	2.7	35.2	27.5	659	
Bad-loan relative	.4	.8	.6	.9	1.5	1.9	1.1	3.0	1.1	.9		
Remarks	Efficiency index: 11.2 Significant. No consistency.											

^a Includes a considerable number of cases not reporting information.

^b See footnote 13, p. 37.

certain relations occur repeatedly in samples obtained from very diverse sources; bank account and stability of occupation are two cases in point. If only three or four samples had exhibited a pronounced relation between, say, stability of occupation and bad-loan experience, the result might have been attributed to sectional peculiarities, to institutional differences, or to some personal sampling bias on the part of the contributing lenders; but when the same tendency occurs in 22 out of 23 available samples, as it actually did, the evidence supporting a universal, fundamental relationship between stability and bad-loan experience is almost incontrovertible. The relation between down payment and repossession experience is supported not only by all the samples available for the present study but also by many other statistical studies made by other investigators; and the fact that our results agree substantially with those of others helps justify the use of our special sampling techniques.

The efficiency index was introduced in this study as a means of appraising the relative importance of the various credit factors studied. But since computation of the efficiency index is based on samples of loans actually made, the index does not measure the intrinsic importance of the factors; what it measures is their potential importance in the future selection of risks. A summary of the efficiency indices for the more important factors analyzed appears in Table 17. The most striking of all the indices are those for down payment, a factor peculiar to sales finance; and the highest single index is that for percent down payment in the new-car sample. Length of loan contract is not strictly limited to the sales finance business, but it appears to be an important factor only in this field; the index of 36 for the new-car sample is impressive, while for all the other samples the indices are either small or negligible. Since this factor tends to be related to other factors, as shown above, a simple statement of its true importance cannot be made.

TABLE 17
EFFICIENCY INDICES FOR THE MORE IMPORTANT CREDIT
FACTORS, BY FIVE TYPES OF FINANCING INSTITUTIONS

Credit Factor	21 Com- mercial Banks	10 Indus- trial Banking Com- panies	3 Automobile Finance Companies		2 Per- sonal Finance Com- panies	1 Appli- ance Finance Company
			New Cars	Used Cars		
Down payment in percent of cash selling price	..	..	46	21	..	26
Down payment in dollars	..	..	36	23	..	35
Length of loan contract, in months	4	4	36	3	10	..
Tenure of occupation	20	21	24	16	..	..
Bank account	23	14	25	26	..	..
Tenure of residence	15	20	..	..	..	..
Nature of occupation	19	14	18	17	10	..
Borrower's income	5	7	18	17	8	..
Real estate	14	10	11	10	..	..
Cash purchase price	..	..	4	18	..	21
Sex and marital status	11	9	..	..	11	..
Life insurance	10	8	..	..	..	..
Amount of loan	4	8	..	..	13	..
First credit-rating formula (see p. 85)	31	..	..	..	..	..
Second credit-rating formula (see pp. 86-87.)	32	30	..	..	..	..

Of the factors germane to all fields of lending, stability of occupation and possession of a bank account stand out as primarily important in the selection of risks; for each of these

factors the efficiency indices for all the samples average a little over 20. Stability of residence, nature of occupation, and borrower's income in sales finance only, are probably next in importance, although their proper order cannot be determined easily; after them comes ownership of real estate. The least important factors are possession of life insurance, sex of borrower, cash price in sales finance, and amount of note.

In some respects Table 17 is at variance with the opinions of credit executives tabulated in Tables 1 and 2 of Chapter 1. The first striking difference is in the importance of down payment; the efficiency indices presented in Table 17 give primary emphasis to this factor, while the replies listed in Table 2 rate it fifth among six factors. Both possession of a bank account and stability of residence, particularly bank account, are important in Table 17; but the replies of Table 1 indicate that bank accounts and other assets are secondary in importance, and that stability of residence is almost entirely overlooked. Lenders attach considerable significance to character and past payment record, which are not analyzed in this study; they also attach importance to the borrower's other obligations, upon which we have obtained only inconclusive evidence. Our findings and the opinions of the financing business agree on the importance of stability of occupation as an indicator of credit risk.

The findings of this chapter must be broadly interpreted, for they are only general tendencies; furthermore, they are subject to exceptions, which are often readily apparent to a critical eye. Thus, an unstable employment record usually indicates a poor risk, but instability due to frequent promotions is almost certainly a sign of good risk; likewise, a large down payment on an automobile is a good indication in general, but not if it represents a grossly overvalued trade-in. In fact, all of the objective credit indicators here shown to be important are probably not important in themselves; their

real significance lies in their ability to reflect the intangible qualities of the applicant. A satisfactory borrower does not need to have a stable employment record, or a bank account, or cash to make a large down payment. What he needs is the ability to earn a livelihood, the capacity to exercise prudence and judgment, and regard for his financial and social reputation; but these qualities are often apparent only indirectly through more objective criteria like stability of occupation or the possession of a bank account.

Credit-Rating Formulae

IN THE last chapter we presented a series of individual analyses, each of which treated the relation of an isolated credit factor to bad-loan experience. We shall now attempt to bring these isolated findings together and to consider the problem of credit analysis as a whole. One common way of meeting this problem is to select a number of the more important factors, to determine the relative importance—or weight—of each factor, and to combine these factors and weights to obtain a credit-rating score, which may then be used as a basis for accepting or rejecting applications for loans. For example, one bank officer has advanced a rating scheme based on five groups of items: he allots 20 percent of the total rating to the applicant's employment record and 25 percent to the income statement, 10 percent to the financial statement (including data on assets, liabilities, income, expense, and similar items appearing on a borrower's application), 20 percent to the type of security, and 25 percent to the past payment record; a score of 70 or better is necessary to indicate a satisfactory risk.¹ A sales finance officer has a substantially similar scheme; on the whole he treats the same fundamental concepts, but he treats them in more detail, and he gives more weight to occupation.² A "credit quotient" scheme for evaluating automobile transactions also has been devised.³

¹ H. L. Dunham, "A Simple Credit Rating for Small Loans," *Bankers Monthly*, vol. 55, no. 6 (June 1938) pp. 332, 333, 361.

² Joseph M. Greenberg, "A Formula for Judging Risks Accurately," *The Credit World*, vol. 28, no. 9 (June 1940) pp. 20-22.

³ Owen L. Coon, *An Analysis of Automobile Repossessions and the Credit Quotient Method of Credit Analysis*, American Finance Conference, Special