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Giving recently bankrupt cardholders new credit lines may not be a bad strategy, considering the way they use the cards and the fact that they can't refile for bankruptcy for six years.

Bankruptcy in a Bank Credit Card Portfolio

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While credit losses are a cost of doing business for credit card issuers, the recent trend in nonbusiness bankruptcy raises concerns about the predictability of future bad debts. The dollar value of charged-off accounts is rising faster than outstandings, and losses due to bankruptcy are rising even more rapidly. From 1980 to 1990, average net chargeoffs increased from 2.92% to 3.51% of outstandings on Visa credit cards. Bankruptcy losses climbed to 43% of net chargeoffs in 1990, up from 27% in 1980. While interest spreads for bank cards have been sufficient to absorb increased credit losses for the largest card issuers, the threat of the bankruptcy "wild card" makes the expected economic benefits of bank credit cards very uncertain for smaller issuers, issuers offering low interest rates, and those with high operating costs or a high cost of funds.

This research examines the card use of credit cardholders who filed bankruptcy in the first five months of 1991. (This period was selected because of data availability. There is no reason to believe that the results will be biased by this limitation on the analysis.) Measures of their activity and profitability in the calendar year prior to chargeoff are analyzed and compared to equivalent measures for accounts charged off due to severe delinquency, as well as to those for a random sample of credit card accounts. The question addressed is: How do bankruptcies differ from delinquency chargeoffs? After describing various dimensions of the card use behavior of the two groups, the paper contains a multi-

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variate analysis of factors associated with borrowers' choices between bankruptcy and outright default, including legal conditions that define lenders' rights to debtors' income and assets inside and outside bankruptcy court. The paper addresses the extent of the "abusive or unnecessary bankruptcy" in the portfolio. Further, an estimate of the expected profitability of providing new credit cards to bankrupts is presented.

Lenders are greatly concerned about the growing percentage of losses attributed to bankruptcy. The trend is interpreted as an indication of an increasing nondiversifiable risk for credit card issuers and a decline in borrowers' sense of responsibility for debt repayment. Alternate interpretations are that growing bankruptcy losses reflect the increased availability of unsecured credit to high-risk borrowers or an increase in the probability that debtors in distress have multiple credit accounts and view bankruptcy as a more efficient means of solving credit problems than renegotiation with creditors or outright default.

A Six-Year Hiatus

From the borrower's point of view, to petition for bankruptcy or to simply default are alternative means of debt relief. The borrower's choice is expected to be that avenue which provides the greatest expected value of debts discharged, net of costs. Either action may have a negative impact on the availability of future credit. But the borrower who files under Chapter 7 may not file again for six years, a factor that may enhance the market's perception of his or her future creditworthiness and so reduce the relative cost of bankruptcy. While this analysis considers only one of many credit contracts the distressed borrowers may have had, it provides insights into the factors that influence debtors' choices of bankruptcy over outright default.

The data analyzed reflect the activity in a large geographically diversified portfolio of standard bank credit cards in 1990 and the first five months of 1991. Cardholders in the portfolio resided in each of the 50 states and the District of Columbia. As an indication of the credit risk of the portfolio, about 2.7% of accounts opened before Jan. 1, 1990, were charged off in 1990 with net dollars lost equal to 4.69% of average outstandings.[1] Twenty-eight percent of charged-off accounts were due to bankruptcy, 45% were due to severe delinquency, 1.5% resulted from the death of the cardholder, and 24% were attributed to fraud.[2] While bankrupts made up 28% of charged-off accounts, they were responsible for 34% of the estimated net dollars charged off, with only 2% of bankrupts making a payment after chargeoff, compared with 19% of the delinquency group.

The sample of accounts analyzed includes all standard accounts charged off in the first five months of 1991 after bankruptcy or severe delinquency. These accounts were analyzed relative to a random sample of active accounts that were open before 1990 and remained open throughout that year. For most of the analysis, this sample was further reduced to those accounts open before 1990 – thus providing a full 12 months of activity for all accounts analyzed.

The greatest risk of loss occurs early in the life of the account (Table 1). Charged-off accounts had an average life of about 27 months, while that for open accounts was 55 months.[3] Less than 5% of charged-off accounts had been open for more than 60 months, compared with about one-third of open accounts. The cardholders represented by the charged-off accounts were more likely to be very young (25 or younger) than the open accounts. But, on average, cardholders with open accounts were only slightly older than cardholders with charged-off accounts (41 versus 38). The distributions of life of the accounts and age of cardholders were significantly different for bankrupt and delinquency chargeoff groups.

Almost 40% of open accounts had credit lines above $3,000, in contrast to about 20% of bankrupt accounts and 14% of the delinquency chargeoffs. But the greatest distinction between the open and charged-off accounts was in the percentages with credit lines in excess of $4,500 (13% of open accounts versus 2% to 2.5% of the charged-off groups). Some of the size disparity could be attributed to lenders' assessment of the credit risk of the charged-off accounts. But since the credit line typically grows over the life of an account, the differences in credit-line sizes may also be attributable to the difference in account lives for the two groups.

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Table 1: Analysis of Charged-Off Accounts

Characteristics	Accounts Open Throughout 1990	Accounts Charged Off in 1991	
		Bankruptcy	Delinquency
Mean Account[1] Life (months)	55	26	27
< 12 months	4.0%	5.0%	4.6%
13-24	23.5	48.1	53.6
25-60	41.8	43.1	37.3
> 60 months	30.7	3.8	4.5
		$X^2 = 12.8^*$	
Mean Cardholder Age (years)	41	38	38
<=22	0.8%	1.9%	1.1%
23-25	7.8	9.0	11.9
26-35	34.6	37.4	39.3
36-45	25.2	29.1	24.7
46-55	14.2	13.0	13.6
56-65	8.7	6.3	5.1
> 65	8.7	3.3	4.3
		$X^2 = 17.3^*$	
Mean Credit Line	$2886	$2398	$2270
<=$1000	5.7%	6.5%	7.3%
$1001-1500	18.1	24.3	30.2
$1501-2000	9.6	11.5	12.0
$2001-2500	14.9	25.8	23.6
$2501-3000	13.1	12.4	12.5
$3001-4500	25.7	17.0	12.3
> 4500	12.9	2.5	2.1
		$X^2 = 23.4^*$	
Number of accounts (opened prior to 1990)	8484	1146	2025

*Distributions of bankrupts and delinquents are significantly different at the 95% level of confidence.
[1]Whereas most of the analysis was for accounts opened before 1990, the life distribution includes accounts open during 1990 as well.

The size of credit lines held by the bankruptcy charge-off group was distributed differently from that of the delinquency group. The bankrupt accounts were more likely to have credit lines above $3,000. The average life of the accounts was also distributed differently for the two charge-off groups, with the bankrupts being somewhat more likely to have had their accounts more than 24 months. Cardholders in the bankrupt group had probably been judged, on average, to be of better credit quality than those in the delinquency group by the card issuer. This difference is not totally unexpected, as the majority of bankruptcies are associated with unexpected changes in financial circumstances, conditions that could befall cardholders from a wide range of economic circumstances.

The charged-off accounts differed significantly from the open accounts along all usage dimensions (Table 2). They were more likely to revolve, and revolved most of the year. Charged-off account holders used an average of about 78% of their available line versus about 39% for the open accounts. The charged-off groups were about five times more likely to have been over limit in 1990 than the open accounts and were

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Table 2: Analysis of Charged-Off Accounts by Usage

1990 Activity Measures	Accounts Open Throughout 1990	Accounts Charged Off in 1991	
		Bankruptcy	Delinquency
Revolve	75.1%	100%	100%
Proportion of 1990 Revolved	.80	.98	.88*
% Credit Line Used	38.7%	87.3%	68.4%*
Average Daily Balance	$945	$2074	$1543*
High Balance/Credit Line	52.3%	99.5%	79.5%*
Used Cash Advance	22.6%	45.6%	26.2%*
Average Amount of Advances	$759	$725	$676
Overlimit	11.7%	57.4%	50.1%*
Proportion of 1990 Overlimit	.20	.35	.46*
Delinquent	43.3%	95.9%	100%*
Proportion of 1990 Delinquent	.25	.54	.67*
1990 Delinquency History			
Never delinquent	56.7%	4.1%	0%
> 0 <= 3 months	30.0	21.6	2.9
> 3 months <= 9 months	12.3	53.4	65.0
> 9 months	1.0	20.9	32.1

*Statistics for bankrupts and delinquents are significantly different at 95% level of confidence.

considerably more likely to use cash advances than the open accounts. However, the mean dollar amount of their total cash advances was not significantly different from that for the open accounts ($694 vs. $759).

The bankrupts used their accounts more aggressively than the delinquents on every activity dimension with the most pronounced difference being in cash advance usage. The bankrupts were almost twice as likely to use cash advances, though the average dollar value of cash advances did not differ across the two groups ($725 vs. $676). Their active use of cash advances might have provided an early warning of bankruptcy. If a cardholder is using a credit card as a temporary substitute for lost wages or drawing on one card to keep other credit obligations current, there could be substantial cash advance activity. Or a cardholder could use cash advances to draw down the credit line in anticipation of bankruptcy, although discharge of such debt obligations could be disallowed by the Bankruptcy Code.

The chargeoff accounts were more likely to have been delinquent than the open accounts, regardless of the reason for charge off. Almost 96% of bankrupts had been delinquent in 1990. On average, they had been delinquent for slightly more than half the year. It is safe to conclude that many of the bankrupts would have ultimately been charged off because of chronic delinquency. But since they are able to continue collection efforts after a delinquency chargeoff but not after bankruptcy, lenders suffer more from chargeoff due to bankruptcy than from chargeoff due to chronic delinquency. Because late payments actually precipitated their official chargeoff, all the delinquency chargeoffs had been delinquent in 1990 and for an average of almost two-thirds of the year.

A substantial percentage of bankrupts did not have serious repayment problems (on this particular card) in the calendar year before filing. About 4% of bankrupts had not been delinquent at all in 1990, and another 22% had been delinquent for three months or less. But about 21% had been delinquent more than nine months.

The Abusive Bankrupt. Lenders report that they receive bankruptcy notices from borrowers who have never been delinquent. This suggests that borrowers may be legally voiding debts through bankruptcy when debt relief is not nec-

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essary. A 1982 analysis estimated that about 20% of bankrupts who filed under Chapter 7 of the Bankruptcy Code had the ability to repay all their debts out of disposable income in less than three years.[4] By filing under Chapter 7, all their disposable income was protected from unsecured lenders' claims. Unpredictable or unnecessary bankruptcy is particularly threatening for unsecured lenders, whose claims are generally discharged completely in Chapter 7.

Do accounts that were in bankruptcy after a short delinquency represent abusive or unnecessary bankruptcies?[5] An analysis of the 25% of bankrupt accounts that had been the least delinquent revealed that, relative to the average bankrupt, these had larger credit lines (an average of $2,521, with 25% having credit lines above $3,000 and 4% with lines greater than $4,500), were slightly older accounts (average life of 29 months), and represented cardholders with higher average age (42 years). The least delinquent were dramatically more likely to use cash advances (about 62%) than the average bankrupts. Further, they used an average of six cash advances in 1990 versus between two and three for the other bankrupts. In fact, there was little difference in the cash-advance usage of delinquency and bankruptcy chargeoffs when the least delinquent bankrupts were excluded from the analysis.

Since these data reflect only activity on one card, it is not possible to conclude that these bankruptcies were unnecessary. However, their cash-advance activity certainly distinguished this group from the rest of the bankrupts and suggests some measure of "loading up" before bankruptcy.[6]

Given their heavy use of the credit card and the high level of fees associated with exceeding credit limits and missing payments, the chargeoff accounts generated attractive cash flows in the year before their charge off. The average net contribution before taxes per open account was $76.75, while that for the bankrupt and delinquency chargeoffs was $185.46 and $147.26 respectively (Table 3). The average annual profitability per account for each group of accounts was calculated based on actual interest paid, fees, and merchant interchange earned, net of interest expense, estimated at 8.16%, and operating costs, estimated at 6.25% of the average balance.

The average net contribution before losses on accounts that were charged off demonstrates that, with limits on their ability to default again, these cardholders may be attractive targets for new credit. Unlike the delinquency chargeoff, the bankruptcy chargeoff is legally prohibited from filing bankruptcy again for six years, a factor that may effectively reduce their credit risk for that period. And this factor does seem to be taken into account in the credit marketplace. A recent study demonstrated that 20% of bankrupts had a new unsecured credit line within 12

Table 3: Profit Analysis of Charged-Off Accounts

Profitability in 1990	Accounts Open Throughout 1990	Accounts Charged Off in 1991 due to: Bankruptcy	Delinquency
(mean values)			
Interest Margin	$86.83	$220.67	$167.90
Fee Income	24.62	63.97	53.39
Interchange	13.49	5.07	3.50
Operating Expense	48.19	104.25	77.53
Net Contribution[1]	76.75	185.46	147.26
Estimated Net Chargeoff	0	2342.06	1770.31

[1]The figures for net contribution do not include any loss expense as none of the accounts analyzed here were charged off in 1990. The net contribution for all standard cards, including those charged off or closed in 1990, was $29.68.

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months of their bankruptcy filing and that 60% had new credit within five years.[7]

The data on the annual profitability of the bankrupt accounts in this sample are used to assess whether there is value created by this strategy. Assume that the credit demands of people who file bankruptcy will not change after their bankruptcy. Assume further that the size of their credit line stays constant. And assume that 15% of bankrupts will file again at the end of the six years, the waiting period required by law.[8] With an average balance of $2,074 and annual net earnings of $185.46 per account, the expected net present value (discounted at 8% per year) for six years of activity equals $397. Given the assumptions stated, it makes economic sense to give a new unsecured credit line to a previously bankrupt account holder. However, the results would be different if, after the first bankruptcy, the cardholder attempted to minimize overlimit and delinquency fees, or the probability of repeat bankruptcy increased. Further, this analysis takes the view that providing credit to bankrupts will not affect the probability of bankruptcy in the overall population of borrowers. If, however, the strategy communicates to other borrowers that there is no stigma to bankruptcy, it may well prove counterproductive.

Choosing to File

The distressed debtor who has not filed bankruptcy in the previous six years is free to default outright or file bankruptcy to gain relief from debts. The borrower's choice is a function of the expected value of debts discharged, net of costs, including assets or income forfeited, and any residual effect the action might have on the future availability of credit. This data set provides a unique opportunity to empirically evaluate the factors that influence distressed borrowers' choices between default and bankruptcy.

Borrowers' choices between bankruptcy and default are expected to vary with their age (a proxy for number and variety of credit contracts) and size of debt obligations (as measured by size of credit line), with the probability that the distressed debtor chooses bankruptcy increasing with both variables. Young borrowers with fewer credit contracts and borrowers with smaller credit lines are expected to have less need for court protection than older borrowers with more varied contracts and borrowers with larger credit obligations.

Borrowers' choices are also expected to reflect factors related to the life of the account and the way the account was used. Holding other things constant, debtors who have maintained successful credit relations for some period of time and then experience financial difficulty are expected to be more likely to file bankruptcy than to default outright. And borrowers who use a large number of cash advances or who consistently use a high percentage of their credit line are expected to be more likely to file bankruptcy than to default. These behaviors may be attributed to "loading up" the line of credit in anticipation of bankruptcy or to the use of the credit line as a substitute for lost earnings.

To evaluate the determinants of borrowers' choices (measured as a 0/1 variable, where 1 equals the bankruptcy choice and 0 is default), a multivariate logit model was employed. The resulting maximum likelihood equation estimates the probability that a distressed debtor will choose bankruptcy over default. Explanatory variables in the model included measures of the legal environment of the debtors' states concerning creditors' rights to debtors' assets and income, the age of the cardholder, the life of the account, the size of credit line, and measures of how the card was used in the year before chargeoff – the number of cash advances taken and the average balance as a percentage of the credit line.

The creditors' ability to garnishee wages is measured by two 0/1 variables. The variable "Restricted Garnishment" takes the value of 1 for those states where more wages are protected from garnishment than is provided by the Federal Consumer Protection Act.[9] The variable "Prohibited Garnishment"' takes the value 1 for those states where 100% of the debtor's wages are protected from garnishment for payment of consumer credit.[10] Creditors' claim to debtors' assets in bankruptcy is measured by a 0/1 variable that distinguishes states that provide a homestead exemption less than the Federal Bankruptcy Code homestead allowance of $7,500 per debtor.[11]

The logit equation performed reasonably well in predicting the distressed debtor's choice of

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Table 4: Logit Analysis of Debtor's Choice of Bankruptcy vs. Delinquency

	A. All Chargeoffs			B. Exclude "Abusive" Bankruptcy		
Independent Variables	Estimated Coefficients	Absolute t-Statistic	Variable Mean	Estimated Coefficients	Absolute t-Statistic	Variable Mean
Life of Account (months)	0.007*	1.97	24.0	0.006	1.45	24.0
Age of Principal Cardholder (yrs.)	0.001	0.29	37.8	-0.007	1.79	37.5
Credit Line ($)	0.0002*	3.26	2272	0.0002*	2.74	2257
% Credit Line Used in '90	0.018*	12.66	76.0	0.023*	12.84	75.7
# Cash Advances in '90	0.062*	4.84	1.3	0.027	1.83	1.2
State Laws						
Restricted Garnishment	-0.521*	5.72	0.37	-0.585*	5.77	0.37
Prohibited Garnishment	-0.665*	5.46	0.19	-0.613*	4.56	0.20
Low Asset Exemption	0.266*	2.82	0.27	0.318*	3.08	0.27
Constant	2.367*	10.67	1.0	2.721*	10.51	1.0
Mean Proportion of Cardholders Choosing Bankruptcy		0.369			0.302	
N**		3098			2800	
Model Significance (X^2)		324.97*			320.28*	
Pseudo adjusted R^2		0.076			0.091	

* Significant at the 95% level of confidence.
** Accounts opened in 1990 were included in this analysis.

bankruptcy over default (Table 4A). He or she was significantly less likely to file bankruptcy in states where garnishment was prohibited or restricted. Further, in states where the value of the asset exemption was lower than the federal exemption, distressed debtors were more likely to file bankruptcy than to default outright. In a separate analysis, an estimated 21% of bankrupts in low asset states filed under Chapter 13, vs. only 9% in other states. The difference was statistically significant. We also found that debtors preferred Chapter 13 to Chapter 7 in states with low asset exemptions.[12]

The debtor's choice did not vary significantly with age, but the probability of choosing bankruptcy increased significantly with the size of the credit line. And, holding age and credit line constant, debtors with older accounts preferred bankruptcy to outright default. The coefficients for the number of cash advances and the percentage of credit line used throughout the year before chargeoff were both significant and positive.

To further investigate the phenomenon of "abusive or unnecessary bankruptcy," a separate logit analysis of the choice between bankruptcy and default was estimated, excluding all bankrupts that had been delinquent for less than three months in 1990 (Table 4B). In the analysis of the choices of cardholders who had all been severely delinquent in the year before chargeoff, the coefficient of the cash-advance variable decreased markedly in size and significance, supporting our earlier sentiment that cash-advance usage was a distinguishing characteristic of the less severely delinquent bankrupt. The account life variable became insignificant, suggesting that the less severely delinquent bankrupts had been cardholders longer than the other bankrupts in the sample.

The univariate analysis of the activity, profitability, and delinquency measures for credit card accounts that had been charged off in 1991 after severe delinquency or bankruptcy demonstrated that, for the most part, bankruptcy chargeoffs were very similar to delinquency

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chargeoffs. Both groups had been very active users of their credit lines and had generated average earnings before taxes that were more than double the earnings generated by the average account in the portfolio. And most of the bankrupts had been as severely delinquent in 1990 as the delinquency group. But our analysis suggests that, given the manner in which they used credit cards and the fact that filing bankruptcy bars them from exercising that option again for six years, as noted, the group of bankrupts may be an economically attractive target for new unsecured lines of credit after bankruptcy.

The decision to file bankruptcy vs. outright default by cardholders with repayment problems was a function of the legal conditions in their state that govern lenders' ability to seize income and assets. In states where garnishment of wages was prohibited or restricted, debtors were more likely to default outright rather than file bankruptcy. In states where asset exemptions in bankruptcy were more restricted than the federal exemption, debtors in trouble were more likely to file bankruptcy under Chapter 13 than default outright. Holding those conditions constant, the probability of choosing bankruptcy over outright default increased with the life and size of the credit account. Further, the probability of choosing bankruptcy was higher for account holders who had maintained a high average balance relative to their credit line or who had frequently used the cash-advance feature of their card.

There is evidence that a substantial portion of the bankruptcy cases may have been abusive. That 25% of bankrupts who had been the least delinquent before chargeoff used an inordinately large number of cash advances before filing, had larger credit lines, and had been cardholders longer. While our ability to judge their motives on the basis of activities in only one of their credit relationships may be limited, this group is distinctive from the other bankrupts in the portfolio. Since they account for about 28% of bankruptcy losses in this portfolio, efforts to learn more about the validity of their bankruptcy action may lead to substantial reductions in credit losses.

Notes

1. The statistics for 1990 are reported because a complete year of data was not available for 1991, the year of chargeoff for the accounts analyzed in the paper.
2. The reason for chargeoff was not ascertained for 2% of accounts charged off.
3. Account life was measured by the number of months between the opening and chargeoff dates for charged-off accounts and the number of months between the opening date and the current date (May 1991) for open accounts.
4. R.W. Johnson and R.L. Peterson: "Consumers' Right to Bankruptcy: Origins and Effects," Credit Research Center, Purdue University, p. 57.
5. Some of the accounts that had not been extremely delinquent in 1990 became more delinquent in 1991 before chargeoff. On average, however, these accounts were significantly less delinquent before bankruptcy (in months) than the rest of the bankrupt accounts (4.8 months vs. 10.2 months).
6. The Bankruptcy Code provides that unsecured credit card debts incurred within 90 days of filing may be excluded from discharge in Chapter 7.
7. Mike Staten: "Better Screening of Borrowers Can Stem Bankruptcy" *American Banker,* Jan. 15, 1991, p. 7.
8. In a survey of people who filed bankruptcy under Chapter 7 in 1981, 15% said they would consider filing again in the future. Nine percent had already filed at least once. A. Charlene Sullivan: "Personal Bankruptcy: Causes, Costs, and Benefits," Credit Research Center, Purdue University, 1982.
9. There were 25 states where garnishment was restricted in 1990. These are AL, AK, CT, DE, HI, IA, ID, IL, KS, LA, MA, MD, ME, MN, MO, NE, NH, NJ, NM, NY, OR, RI, VT, WV, WI.
10. The states where garnishment was prohibited in 1990 were FL, NC, ND, PA, SC, SD, TX.
11. The states that enforced homestead allowances that were lower than the federal allowance were AL, AR, DE, GA, KY, MD, NE, NH, OH, OK, SC, TN, VA, WY.
12. See A. Charlene Sullivan and Debra D. Worden, "The Law and Consumer Demand for Debt Relief Under the Bankruptcy Code," unpublished manuscript, Purdue University, 1991.

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