

**A second life or same old story once again?
--- A study on households' post-bankruptcy credit card
borrowing¹**

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Abstract

Few papers have examined consumers' post-bankruptcy borrowing. Using data from Survey of Consumer Finance, we find that generally, bankruptcy filers are less likely to get credit cards and those who have at least one credit card have lower credit limits compared to non-filers. Bankruptcy filers carry a greater credit card balances, compared with filers, even though they have less credit limits. The more distant the last filing is, the smaller the gap we find between filers and non-filers. Our results also show that in the long run, those who have filed for bankruptcy before are still more likely to fall in the more financially troubled group again. The effects of bankruptcy in helping those who are financially troubled seem to be limited. In our conclusions we discuss some implications for bankruptcy policy.

1. Introduction

There have been hot debates about the policy issues of personal bankruptcy recently. The original purpose of having a personal bankruptcy law is to provide an "insurance" to those who have been trapped in deep financial troubles, by discharging some, or all, parts of their unsecured debt³. And there has been a large literature focusing on pre-bankruptcy related issues, like how people make filing decisions, which group of people are more prone to filing for bankruptcy, and how do people choose the timing of filing, etc. While there have been a lot of researches on these pre-bankruptcy issues already, few efforts have been put to look into the interesting area of post-bankruptcy issues. A good understanding of people's post-bankruptcy lives is key to examine the effectiveness of personal bankruptcy law and can give insights into several other important policy issues.

In this paper, we aim to address issues of post-bankruptcy borrowing, specifically, credit card borrowing. Using the 1998 to 2007 SCF data combined, we try to answer the following questions: Do bankruptcy filers have any difficulties in getting credit card credit compared with those non-filers after filing? If yes, how much of those difficulties can be attributed to bankruptcy? What is filers' demand for credit like, compared with non-filers? And lastly, in general, do those filers have a healthy financial life, in terms of outstanding credit debt, after their previous "failures"?

The rest of the paper is organized as follows. We will go through some relevant legislation in part 2. And in part 3, we review previous papers in this field. After that

³ There are two ways of filing for bankruptcy, either by Chapter 7 or Chapter 13, the spirit of those two chapters, which is to discharge some unsecured debts, is similar though.

we'll go through some theories which imply channels through which bankruptcy can have an impact on borrowing. Then we'll discuss some data and measurement and estimation issues. In the last part, we'll present our regression results and make some policy implications derived from our results.

2 Relevant Legislations

Households in the U.S. have two ways to file for personal bankruptcy, either by Chapter 7 or Chapter 13 of the Bankruptcy Act. Under Chapter 7, a debtor can obtain a discharge of unsecured debts (typical secured debts, which cannot be discharged, include student loans and unpaid tax liabilities). On the other hand, filers under Chapter 13 can obtain a debt discharge after paying off a portion of his debt through a debt repayment plan which usually lasts for 3-5 years. But unfortunately, the SCF does not include the chapter choice information of the filers, so we cannot distinguish these two different types. But combining those two chapters is common practice in literature due to two reasons. First Chapter 13 filings only accounts about one third of the total filings, and many of those Chapter 13 filings eventually convert to Chapter 7. The other reason is that both Chapter 7 and Chapter 13 share a common spirit of the U.S. Bankruptcy Act, which is debt discharge.

Another aspect worth noting here is that under Bankruptcy Act, Bankruptcy filing records expire from the credit reports ten years after the filing date. Based on credit bureau preferences, Chapter 13 bankruptcy filings may be removed from credit report after seven years instead. Each account marked as “included in BK” remains on credit

report for seven years from the filing. We believe that this has some effects on people's post-bankruptcy borrowing, mainly from the supply side.

Another important timing in the post-bankruptcy borrowing is ten years, for the reason that The Fair Credit Reporting Act (FCRA) requires a bankruptcy filing record can only stay on a credit report for up to ten years. This policy guarantees filers a stigma-free life after ten years into bankruptcy, and in principle will have great impact on filers' borrowing, on both demand and supply side.

3 Literature

There is relatively a small literature on post-bankruptcy borrowing. Musto (2004) uses data on credit reports from a credit bureau, and finds that the removal of the bankruptcy record at the tenth anniversary of filing leads to significant increases in the borrower's credit scores as well as the credit limits on credit cards. Keys (2008) finds that filers are more likely to be declined credit or discouraged to apply for credit, using the data from the 2004 wave of the National Longitudinal Survey of Youth (NLSY). Han and Li (2008) uses data from Survey of Consumer Finance to examine the household borrowing after personal bankruptcy. They find that bankruptcy filers have less access to credits and they pay high interest rates on credit cards, mortgages and car loans. Our paper follows the basic idea and model used in Han and Li (2008), with some significant differences and improvements in both data and estimation methods adopted, which will be discussed in detail in later parts. Also, differences between those two papers in results will be highlighted and interpreted. Some other

papers (Stanley and Girth, 1971; Staten, 1993; Braucher, 1993; Warren and Tyagi, 2003; Porter and Thorne, 2006; Porter, 2008) use different data sources, like some bankruptcy surveys or court dockets, to look into the post-bankruptcy problem. These studies generally find that many filers continue to encounter financial difficulties even after the bankruptcy debt discharges.

Another strand of papers deal with the impact of personal bankruptcy on consumer and creditor behaviors. Filer and Fisher (2005) and Filer and Fisher (2007) looked into the effects of personal bankruptcy on consumption. Lin and White (2001), Fan and White (2003) and Gropp et al., (1997) looked into the effects of bankruptcy on the demand and supply of credit.

4 Channels through Which Bankruptcy Affects Borrowing

There are several ways a bankruptcy filing could possibly affect consumer borrowing:

1. One possibility is that bankruptcy filers, after filing, tend to be more careful in using consumer credits, with the purpose of establishing a good credit record, which is a lesson learned from their previous bankruptcy experience. This type of consciousness and more sophistication in financial planning story obviously will bring down the demand for consumer credit for those filers.
2. It is equally possible that filers become even more reckless in consumption after bankruptcy, due to the relatively healthier financial situations they are now in thanks to the debt discharge. This story, which is the opposite to the previous one, will increase the demand for credit for filers after bankruptcy.

3. From the supply side, one speculation is that record of personal bankruptcy will downplay the possibility of households getting a credit as well as the amount of credit granted if there is any. Businesses tend to treat those with bankruptcy records as the group who are more reckless and less disciplined in personal financial issues, therefore higher risk which will push creditors to offer a greater price tag when lending to them.

4. Another speculation on the supply side is that since those who have filed for bankruptcy before always start with a healthier asset composition and lighter debt, both of which can play positively when filers are applying for credits. In short, under this speculation, the filers should not be harmed, if not being beneficiary from, the filing, in getting consumer credits.

Those four possible explanations span from negative to positive stories in both supply and demand sides of the consumer credit. We'll examine the validity of those four speculations based on our empirical findings.

5 Data and Empirical Models

In this paper, we use data from the Survey of Consumer Finance, which is believed to be one of the best datasets about household finances in the United States. From 1998, the SCF asks respondents, "Have you (or your spouse/partner) ever filed for bankruptcy?". If the answer is "Yes", then the survey asks, "when was the most recent time?". Yet the survey doesn't ask the chapter choices, which is one limitation of this data.

In this paper, we use SCF data from 1998 to 2007, which is an update for Han and Li (2008), by adding the newly released 2007 wave data. We combine the data out of the purpose to increase the sample size. Additionally, since 2007 is the starting point of the current financial crisis, it would be interesting to include the 2007 dataset into our study.

Our analysis focuses on credit card borrowing. Specifically, following the analyzing frameworks in Han and Li (2008), we are interested in the following variables: the likelihood of having a credit card, the ratio of credit card limit to the normal income, the ratio of credit card balance to normal income, the ratio of credit card balance to the credit card limit, and the rate spread, defined as the interest rate on the credit card with the highest limit divided by treasury security rate with one-month maturity.

We use a Logit regression to estimate the likelihood of having a credit card. In the Logit regression as well as the following regression specifications, we use two different ways to measure the bankruptcy filing status: a simple dummy for bankruptcy status and a set of more detailed bankruptcy dummies, indicating the timing of the filing, which are less than one year ago, two to seven years ago, seven to ten years ago and more than ten years ago. We also include some basic control variables including race, marital status, education, risk tolerance level, attitude toward borrowing, household head age, size of primary economic unit (PEU) and year dummies.

When we estimate the credit card debt or credit card limit related regressions, we use the Heckman selection model in our multi-variable analysis, which we believe to be

an improvement over Han and Li (2008), where a set of simple OLS and Tobit estimations are used. Specifically, we denote variable $L_i = 1$ when consumers have credit cards. We also define a latent variable y_i , such that

$$L_i = 1, \text{ if } y_i \geq 0; 0 \text{ otherwise,}$$

$$\text{where } y_i = \beta B_i + \alpha Z_i + \varepsilon_i$$

The variable B_i is a vector of dummy variables indicating bankruptcy, and Z_i is a vector of control variables, including proxies for household preferences and demographic information. Note that we need an independent variable which is included in the first step (likelihood estimation) but not in the second estimation in order to meet the identification requirements. We choose a dummy for whether respondents have been turned down for credits in the last 6 months to serve as identification instrument. It is reasonable to assume that been turned down for a credit application previously can have some impacts on one's likelihood of having a credit card, but its effects on credit limit and balance, once a credit card is approved, is minimal, if there is any.

7 Descriptive Statistics

The sample size of our dataset is 17,630, out of which 1,844 respondents report having filed for bankruptcy in the past. Table 1 summarizes bankruptcy filing status reported in SCF, from 1998 to 2007. There are several trends worth noting. First, bankruptcy rate is increasing over the years, which is consistent with what the U.S. Economy has experienced in the same period of time. Another observation is that the

filing-time structure remains stable from 1998 to 2004. But in the 2007 wave, the percentage of people who filed for bankruptcy less than 1 year ago drops significantly, compared with previous years, confirming with what happens around year 2004 filing rate drops significantly as a result of a new debtor-unfriendly bankruptcy law coming into place.

Table 2 summarizes relevant demographic information of the sample, grouped by filers and non-filers. Generally, those who have filed for bankruptcy before have lower-education level, lower normal income, lower marriage rate and blacks are more likely to file for bankruptcy, compared with other racial groups. Filers and non-filers groups do not significantly differ in their risk tolerance level as well as their attitude toward borrowing.

Table 3 contains descriptive statistics of several main variables which we specify as independent variables later. We can find that filers, even after their filing, on average have worse financial situations and more difficulties in accessing to credit. Filers are less likely to have credit cards, on average have fewer credits, reflected by both their credit limits as well as their credit limits as a ratio of their normal income. On the other hand , even with less credit limits compared with non-filers, filers have higher credit card balance. A higher ratio of credit balance to the total credit limit on credit cards shows that filers group has strong demand for credit. In addition, filers are paying a higher price in credit card borrowing, revealed by a higher rate spread, than those non-filers.

8 Regression Results

Table 4 shows our regression results. Columns (1) and (2) are Logit regressions of whether households have a credit card. Columns (3) and (10) are Heckman selection regressions (details discussed in previous section) on the ratio of credit card limit to normal income, the ratio of credit card balance to normal income, the ratio of credit card balance to credit card limit and the interest rate spread. We have several findings from our results.

First, filing for bankruptcy has a negative effect on the likelihood on having a credit card. In other words, filers are less likely to get a credit card compared with non-filers. And as time passes by, bankruptcy has less and less effect on the likelihood of having a credit card. This finding coincides with that in Han and Li (2008).

Secondly, regression (3) and (4) are Heckman selection model regression. The first stage (the selection stage) is a regression on having a credit card, and the second stage regress the percentage of credit limit to the normal income (or the standardized credit limit) on bankruptcy variables and other control variables. Our findings suggest that bankruptcy records have a negative effect on the credit limit granted. And this effect does fade away with time. In other words, those who filed for bankruptcy more recently suffer more, while in another extreme, the effect on the group which filed for bankruptcy more than 10 years ago is minimal. This fading effect is stronger in our results, compared with the results in Han and Li (2008), where those who filed 1 year ago, 2-5 years ago and 7-10 years ago almost share similar level of impact from bankruptcy, and only those who filed more than ten years ago make a difference.

The most notable difference of our results from Han and Li (2008) is that the effect of

bankruptcy on card balance is positive, while in Han and Li (2008), either positive or insignificant. In other words, Han and Li (2008) predicts that filing for bankruptcy indicates a higher level of credit card debt. But in this paper, on average, non-filers are carrying less credit card balance compared with those non-filers, on average. Our findings also suggest that the fading effect also applies here, which implies that the longer after the filing, the more credit card debt households are carrying. We want to point out that having less credit card balance does not imply that filers have healthier financial situations. On the contrary, as we find in column (7) and (8), filers have a higher ratio of credit card balance against credit limit, which means that, to put it in plain words, filers are not getting as much credit as they want and are more likely to max out their credit cards. Linking this to our previous card balance findings, we conclude that a lower credit card balance of the filers are mostly contributed to a lower supply of credit, or a lower credit limit, rather than a lower demand in borrowing credits.

Our regression results confirm the findings of Han and Li (2008) in that bankruptcy records have a positive effect on credit card interest rate. And interestingly, the effect only persists for about ten years. To put it in another way, those who filed for bankruptcy more than ten years ago only pay a slightly higher interest rate compared with non-filers. This fading effect is most notable in the interest rate variable.

In short, bankruptcy filers have greater demand to credit on one side, and get fewer credits on the other side, thus are more likely to max out their credit cards. In addition, filers also face greater costs in credit card borrowing.

9 Conclusion

This paper employs a widely used dataset to study households' post-bankruptcy borrowing. We portrait a not-so-good picture of bankruptcy filers' financial life: Less credit, more debt, higher cost in borrowing. Our findings are a little bit astounding and disappointing in that these findings suggest that the original purpose of Bankruptcy Act, which is to give those financially troubled households a 'Fresh start' that may help them have a brighter second life, is not fulfilled satisfyingly. Those who have been trapped before seem to be still more likely to have financial difficulties, even after discharging a lot of debt.

The reasons behind this phenomenon are more important to us, while still not clear. It seems that those filers are not learning enough from their previous mistakes, since their borrowing after bankruptcy seems reckless. And for sure banks' high price tag for those filers makes filers' situation more difficult.

Another finding worth noting is that the effects bankruptcy has are more persistent than we expect. Actually, even after 10 years into bankruptcy, those filers still experience difficulties in accessing credit, though easier than those earlier years. More study is needed to explain this problem.

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Table 1 Bankruptcy Filing Status in the Surveys of Consumer Finance, 1998-2007

Filing Status	Percent of households in survey year				
	1998	2001	2004	2007	Combined
Filers	8.54	10.03	11.02	12.16	10.46
Of all households, distribution by time of filing					
Less than 1 year ago	1.78	1.18	1.20	0.93	1.27
2-7 years ago	2.03	3.09	3.13	2.83	2.78
7-10 years ago	1.58	2.24	2.79	2.63	2.32
>10 years ago	3.15	3.52	3.90	5.77	4.09
Number of households	4281	4435	4509	4405	17630

Table 2 Household Characteristics By Bankruptcy Filing Status

Characteristics	Nonfilers	filers
Age	50.9	48.0
Family size	2.4	2.6
Below high school (%)	15.2	13.6
High School (%)	30.9	38.8
Some college (%)	23.4	31.8
College (%)	23.0	12.4
Graduate degree (%)	7.5	3.4
Married (%)	51.4	48.1
Hispanic (%)	8.5	7.5
Black (%)	12.4	16.0
Asian and others (%)	3.5	3.2
Normal income (Mean, in 2007 dollar)	77,208.6	56,392.2
Risk tolerance level	1.86	1.74
Attitudes toward borrowing	0.97	0.97
Number of households (weighted)	16,117	1,513

Table 3 Summary Statistics on credit Card Borrowing by bankruptcy Filing Status

Variables	Nonfilers	Filers
Having Credit Card (%)	75.4	64.9
Credit Card Limit (\$)	16,662.9	8,193.1
Credit Card limit/income (%)	30.5	15.3
Credit card debt amount (\$)	2,606.9	2,670.4
Card balance/income (%)	6.05	5.17
Card balance/limit (%)	3.15	6.47
Credit card spread (pp.)	4.59	5.24

Table 4 Regression Results on the Effects of Bankruptcy Filing on Credit Card Debt.

Variables	Having Credit Card		Credit Limit/Income		Card Balance/Income		Card Balance/Credit Limit		Rate Spread	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Intercept	0.740***	0.683***	-1.893***	-1.903***	-0.224***	-0.220***	-0.238***	-0.231***	804.2***	802.0***
	(0.167)	(0.165)	(0.234)	(0.234)	(0.038)	(0.038)	(0.078)	(0.078)	(16.52)	(16.50)
Ever Filed	-0.455***		-0.453***		-0.059***		0.076*		41.23***	
	(0.069)		(0.132)		(0.021)		(0.043)		(8.734)	
Filed less than 1 year ago		-1.836***		-1.922**		-0.302***		0.601***		68.11**
		(0.180)		(0.406)		(0.021)		(0.138)		(32.25)
Filed 2-6 years ago		-0.574***		-0.525**		-0.084**		0.088		66.24***
		(0.120)		(0.242)		(0.040)		(0.082)		(16.77)
Filed 7-10 years ago		-0.216		-0.241		-0.024***		0.136		82.01***
		(0.139)		(0.259)		(0.043)		(0.088)		(17.07)
Filed >10 years ago		-0.275**		-0.166		-0.007***		0.187***		3.903
		(0.108)		(0.143)		(0.032)		(0.064)		(12.26)
Age	0.007***	0.021***	0.011***	0.011***	0.001**	0.001**	0.002*	-0.002*	0.018	0.044
	(0.002)	(0.002)	(0.003)	(0.002)	(0.0004)	(0.0004)	(0.001)	(0.001)	(0.166)	(0.166)
Less than high school degree	-2.822***	-3.084***	-2.094***	-1.863***	-0.298***	-0.298***	-0.585***	-0.588***	9.821	9.953
	(0.120)	(0.117)	(0.154)	(0.149)	(-0.025)	(-0.025)	(0.051)	(0.051)	(14.00)	(14.08)
High school degree	-1.799***	-1.980***	-0.603***	-0.524***	-0.082***	-0.082***	-0.117***	-0.118***	1.163	1.098
	(0.112)	(0.110)	(0.110)	(0.107)	(0.018)	(0.018)	(0.037)	(0.037)	(7.521)	(7.543)
Some College	-1.212***	-1.391***	-0.012	0.018	0.023	0.022	0.108***	0.106***	-9.790	-9.571
	(0.115)	(0.113)	(0.111)	(0.108)	(0.018)	(0.018)	(0.037)	(0.037)	(6.785)	(6.793)
Bachelor degree	-0.283**	-0.365***	0.130	0.127	0.017	0.016	0.055	0.055	-14.08**	-13.92**
	(0.128)	(0.127)	(0.104)	(0.102)	(0.017)	(0.017)	(0.035)	(0.035)	(6.023)	(6.019)

Married	0.811***	1.128***	0.579***	0.505***	0.088***	0.088***	0.208***	0.206***	-6.243	-5.950
	(0.058)	(0.055)	(0.090)	(0.087)	(0.015)	(0.015)	(0.030)	(0.030)	(6.359)	(6.363)
Asian and others	-0.248*	-0.468***	-0.184	-0.176	-0.028	-0.029	-0.080	-0.082	9.665	9.984
	(0.131)	(0.127)	(0.193)	(0.188)	(0.031)	(0.031)	(0.064)	(0.064)	(11.73)	(11.72)
Black	-0.744***	-0.967***	-1.223***	-1.131***	-0.175***	-0.174***	-0.246***	-0.244***	26.31***	25.62**
	(0.065)	(0.063)	(0.134)	(0.129)	(0.022)	(0.022)	(0.044)	(0.044)	(9.974)	(9.988)
Hispanic	-0.347***	-0.511***	-0.598***	-0.522***	-0.075***	-0.075***	-0.106**	-0.105**	24.29**	23.53**
	(0.080)	(0.078)	(0.160)	(0.155)	(0.026)	(0.026)	(0.053)	(0.053)	(10.88)	(10.88)
risk tolerance level	0.364***	0.458***	0.398***	0.344***	0.041***	0.041***	0.058***	0.057***	-7.995***	-7.760***
	(0.031)	(0.030)	(0.045)	(0.043)	(0.007)	(0.007)	(0.015)	(0.015)	(2.928)	(2.927)
Attitude toward lending	0.291***	0.269***	0.225***	0.194***	0.036***	0.036***	0.080***	0.080***	-6.094**	-5.931**
	(0.030)	(0.029)	(0.045)	(0.043)	(0.007)	(0.007)	(0.015)	(0.015)	(2.789)	(2.790)
Family size	-0.092***	-0.036*	-0.086***	-0.074**	-0.007	-0.006	0.001	0.002	1.625	1.581
	(0.020)	(0.019)	(0.032)	(0.031)	(0.005)	(0.005)	(0.011)	(0.011)	(2.015)	(2.013)
1998 year dummy	-0.069	-0.098	-0.142	-0.092	0.006	0.007	0.088***	0.091***	-479.0***	-478.8***
	(0.066)	(0.064)	(0.100)	(0.097)	(0.016)	(0.016)	(0.033)	(0.033)	(6.121)	(6.116)
2001 year dummy	0.158**	0.137**	0.151	0.140	0.023	0.023	0.040	0.040	-355.3***	-355.1***
	(0.066)	(0.064)	(0.098)	(0.096)	(0.016)	(0.016)	(0.033)	(0.033)	(5.994)	(5.991)
2007 year dummy	-0.118*	-0.114*	0.082	0.047	-0.00003	-0.001	-0.039	-0.041	-453.9***	-453.2***
	(0.066)	(0.064)	(0.099)	(0.096)	(0.016)	(0.016)	(0.033)	(0.032)	(6.024)	(6.023)
R ² or Likelihood	0.063	0.056	-42996	-42610	-17409	-17400	-26479	-26464	-100325	-100283
No. of obs	17630	17630	17615	17615	17630	17630	17086	17086	17083	17083

Note: 1 Columns (1) and (2) are Logit regression. Columns (3) to (10) are using Heckman two-stage selection model.

2 ***, **, * indicate the estimated coefficient is statistically significant at the 99, 95 and 90 percent of confident levels, respectively.