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Abstract

This paper uses a unique data set to shed new light on the credit availability and credit performance of consumer bankruptcy filers. In particular, our data allow us to distinguish between Chapter 7 and Chapter 13 bankruptcy filings, to observe changes in credit demand and supply explicitly, to differentiate existing and new credit accounts, and to observe the performance of each credit account directly. The paper has four main findings. First, despite speedy recovery in their risk scores after bankruptcy filing, most filers have much reduced access to credit in terms of credit limits, and the impact seems to be long lasting. Second, the reduction in credit access stems mainly from the supply side as consumer inquiries recover significantly after the filing, while credit limits remain low. Third, lenders do not treat Chapter 13 filers more favorably than Chapter 7 filers. In fact, Chapter 13 filers are much less likely to receive new credit cards than Chapter 7 filers even after controlling for borrower characteristics and local economic environment. Finally, we find that Chapter 13 filers perform more poorly than Chapter 7 filers (after the filing) on all credit products (credit card debt, auto loans, and first mortgages). Our results, in contrast to prior studies, thus suggest that the current bankruptcy system does not appear to provide much relief to bankruptcy filers.

JEL Classifications: G01, G02, G28, K35
Key Words: bankruptcy, credit limit, credit performance, financial crisis, bankruptcy reform

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Credit Access and Credit Performance after Consumer Bankruptcy Filing: New Evidence

Julapa Jagtiani and Wenli Li

1. Introduction

The U.S. personal bankruptcy filing rate has been steadily trending upward since the outbreak of the mortgage crisis in 2007 after a brief retreat following a spike in October 2005 due to the implementation of the new bankruptcy law. [1] By 2010, personal bankruptcy filings reached 1.3 per thousand people per quarter, near the pre-reform level in 2004. This development has motivated an increasing literature to study the post-bankruptcy credit availability and credit performance for bankrupt households. This paper contributes to this literature by bringing a unique proprietary data set that allows us to distinguish between bankruptcy chapters, new and existing accounts, and, most important, demand and supply factors. Results derived from the new analysis are crucial for any policy debate that aims to either rehabilitate the bankrupt borrowers or improve the current bankruptcy system.

One key feature of the U.S. consumer credit market is personal bankruptcy provisions. Under the current consumer bankruptcy law, households obtain a fresh financial start by having their unsecured debt partially or completely discharged. In exchange, they give up either some of their current assets under Chapter 7 or some of their future earnings under Chapter 13. Additionally, they must wait at least for a period of time (e.g., an eight-year waiting period for Chapter 7) between two consecutive bankruptcy discharges. Finally, a Chapter 7 filing stays on

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[1] The implementation of the 2005 Bankruptcy Abuse Prevention and Consumer Protection Act in October 2005 caused a rush to file in October 2005.

the filer's credit report for 10 years, and a Chapter 13 filing remains on the credit report for seven years. A successful bankruptcy filing thus affects both credit demand and credit supply. For credit demand, on the one hand, the filing households now have a stronger balance sheet with less or no unsecured debt and more disposable income; thus, they are likely to have less demand for credit. On the other hand, because of the improved balance sheet, the filing households may decide to leverage up again for additional consumption. For credit supply, the improved balance sheet generally makes borrowers more creditworthy to lenders. However, a bankruptcy flag on the credit report also signals to lenders that the borrowers may be the risky type and thus more likely to default again compared with non-filers with similar balance sheets. Finally, the fact that Chapter 7 filers cannot have their debt discharged again under the bankruptcy law for at least eight years may entice some lenders to lend to borrowers post-bankruptcy filing.

The literature on post-bankruptcy credit availability and credit performance is small but growing. The earlier studies include Stanley and Girth (1971), Staten (1993), and Warren and Tyagi (2003). These studies draw on information collected from surveys and court files and generally find that households do have some access to credit after bankruptcy discharge, but they continue to suffer from financial difficulties (unable to pay bills on time, etc.). More recently, Musto (2004) uses credit bureau files to analyze the impact of removing bankruptcy information from the credit record on credit access. He finds that credit scores and credit limits increase immediately after the removal of the bankruptcy flag, suggesting that lenders reduce credit supply to borrowers during the period when the borrowers were flagged on their credit report for bankruptcy filing. Porter (2008) conducts interviews with bankrupt households and reports that bankruptcy filers have greater access to unsecured credit (cards) than to secured credit (auto loans and mortgages) after the bankruptcy filing. Using the National Longitudinal Survey of Youth, Keys (2008) find that filers in their 40s are more likely to be denied credit or discouraged from applying for credit. Using credit bureau data, Cohen-Cole, Duygan-Bump and Montoriol-Garriga (2009) document that access to credit is limited for a short period of time after bankruptcy filing and that the limitation is more evident for prime borrowers.

The two papers that are most closely related to ours are Han and Li (2011) and Han, Keys, and Li (2011). Using the Survey of Consumer Finances, Han and Li (2011) investigate differences in credit availability and the cost of credit between bankruptcy filers and non-filers. They show that relative to non-filers, bankruptcy filers have limited access to unsecured credit but they are able to borrow larger amounts of secured credit after bankruptcy filing than non-filers. Filers also pay higher interest rates on all types of debt and remain more prone to financial difficulties. Han, Keys, and Li (2011) directly explore credit supply after bankruptcy filing using credit card mailings and find that filers continue to receive credit card solicitations, though on much more onerous terms than non-filers.

The innovation of our paper lies in our unique data that allow us to explore new dimensions of the issues of credit availability and credit performance during the post-bankruptcy filing period. Specifically, the data make it possible to distinguish between Chapter 7 and Chapter 13 bankruptcy filings, to observe changes in credit demand and credit supply explicitly, to differentiate between existing lenders and new lenders, and finally to observe the performance of each account directly. Our analysis of these new dimensions is important for policy debates that aim to rehabilitate bankrupt borrowers and reform the current bankruptcy system.

Our main results are fourfold. First, although credit scores rebound quickly after bankruptcy filing, filers experience substantially reduced access to the unsecured credit, especially from existing lenders. Second, the reduction in credit access stems mainly from the supply side as consumer credit inquiries recover significantly after the filing, while credit limits remain low for at least six quarters after the filing. Third, although new lenders are more willing to lend to filers after their filings, as in Han, Keys, and Li (2011), this holds only for Chapter 7 filers. This finding is particularly interesting in light of the 2005 bankruptcy reform that effectively pushes filers into Chapter 13 repayment plans. It suggests that lenders do not view Chapter 13 filers more favorably than Chapter 7 filers. Finally, the performance of credit card, auto, and first mortgage loans improves immediately after the filing for Chapter 7 filers, but this is not the case for Chapter 13 filers.

The rest of the paper is organized as follows. In section 2, we briefly discuss bankruptcy laws and their impact on consumer credit (both borrowing and lending) post-bankruptcy filing. In section 3, we describe our data in detail. We present our empirical analysis in section 4, and we conclude in section 5.

2. Consumer Bankruptcy Legislation and Its Impact on Consumer Credit

2.1 The Bankruptcy Laws:

The key feature of U.S. personal bankruptcy law is that it contains two basic types of bankruptcy proceedings: Chapter 7 and Chapter 13. Before the passage of the 2005 reform act, a debtor's choice between these two bankruptcy options was voluntary. The 2005 reform act abolished this right. To file under Chapter 7, debtors whose incomes are above their (residential) state median family income must now pass a “means test,” which requires that (i) their monthly income net of allowable expenses calculated according to IRS rules is less than $166.67 per month, and (ii) their net monthly income multiplied by 60 is less than 25 percent of their unsecured debt. If their incomes are above the median level and/or they fail the means test, debtors must file under Chapter 13 (instead of Chapter 7) if they file for bankruptcy at all.

Chapter 7 filing is often called “liquidation.” Under Chapter 7, a debtor gives up all his assets above a certain exemption level. In exchange, the debtor gets almost all of his unsecured debt discharged. The exemption level varies by states. A debtor cannot file for bankruptcy for eight years under Chapter 7 or four years under Chapter 13 after the last Chapter 7 discharge (the time gap, however, is calculated between two filing dates).

Chapter 13 filing is also called a “wage earner's plan.” Under Chapter 13, a debtor gets to keep all of his assets. However, he must repay some of the unsecured debt out of future earnings through a repayment plan over three to five years. Only after the completion of the repayment plan will the debtor obtain a legal discharge of his remaining debts. A debtor cannot file for Chapter 7 bankruptcy for at least six years if the Chapter 13 payment made was less than 70 percent of the confirmed Chapter 13 repayment plan and cannot file for Chapter 13 bankruptcy for at least two years after the current Chapter 13 filing.

All lenders to bankruptcy filers will learn of the bankruptcy filing through credit reports. However, the Fair Credit Reporting Act (FCRA) regulates how filing is reported by the credit bureaus. Specifically, the FCRA requires that a bankruptcy filing can only stay on credit reports constructed by credit bureaus for at most 10 years from the date of relief or the date when the court decrees that the filer is bankrupt. All other non-bankruptcy defaults can stay on a credit report for only seven years.

2.2 The Impact of the Law on Post-Bankruptcy Borrowing and Lending

The immediate impact from bankruptcy discharge is an improved balance sheet and increased disposable income for all bankruptcy filers. All else equal, this wealth effect is likely to be significantly larger for Chapter 7 filers than for Chapter 13 filers, because Chapter 7 filers have all of their unsecured debt discharged, while Chapter 13 filers still have to repay some of their debts over the three to five years of the payment plan period. As a result of their improved balance sheet and increased disposable income, filers may reduce their credit demand in the short run. In the long run, however, as they are able to access additional credit at lower cost, these filers may leverage up again to meet their additional consumption.

From the lenders' point of view, an improved balance sheet and more disposable income suggest that the borrowers are more creditworthy, i.e., more likely to repay their loans; thus, bankruptcy filers could become a good target for high-yield lenders. A bankruptcy flag on the credit report, however, indicates to lenders that the borrowers may be the risky type and thus more likely to default again in the future compared with non-filers with similar financial backgrounds; thus, lenders may reduce their lending to these borrowers. On the contrary, the fact that these borrowers cannot file again for some period of time may entice some lenders to lend to these people, since, in the event of default, the lenders can garnish the borrowers' assets or earnings. As discussed earlier, the required waiting period varies with bankruptcy chapters and lenders may factor that into their considerations.

To summarize, after a bankruptcy filing, we expect credit demand to decline at least in the short run and credit supply to contract at least for conventional lenders. Furthermore, we expect the effect to vary with bankruptcy chapters.

3. Data Description

Our analysis uses the unique data set on consumer credit — the Federal Reserve Bank of New York (FRBNY)/Equifax Consumer Credit Panel — combined with account-level information from the Federal Reserve Bank of Philadelphia's Equifax Consumer Credit Panel. The panel represents a nationally representative 5 percent random sample drawn from anonymized Equifax credit report data.[2] The data contain quarterly information on an individual's borrowing and payment of various loans (loans from bank cards and department store cards, car loans, mortgages, home equity loans, etc.). The data also contain information about the individual's risk characteristics such as credit score, delinquency status, age, etc.

We examine individuals who filed for Chapter 7 or Chapter 13 bankruptcy during the period 2002:Q1 to 2010:Q4 and have subsequently obtained a discharge before the end of our data 2012:Q2.[3] If an individual files twice during our sample period, we treat the filings as two separate events. We then follow that individual's credit access and delinquency status up to six quarters after the bankruptcy filing date.

We separate borrowers into four groups according to the time of filing: the pre-reform period (2002:Q1 to 2005:Q3), the post-reform but pre-crisis period (2005:Q4 to 2007:Q2), the financial crisis period (2007:Q3 to 2009:Q4), and the post-crisis period (2010:Q1 to 2010:Q4).

[2] Equifax is one of the three major consumer credit reporting agencies in the U.S.

[3] Since a typical Chapter 13 repayment plan lasts three to five years, it is likely that some of the Chapter 13 filers who filed after 2007 do not appear in our sample since they have not finished the plan.

The 2005 Bankruptcy Reform Act became effective in October 2005. A large number of bankruptcy filings in 2004-2005 account for "opportunistic" filers who rushed to beat the deadline to file under the old legislation. The second half of 2007 is when the mortgage crisis broke out and the recession was officially announced in August 2007. Although the NBER committee dates 2009:Q3 as the end of the recession, many aspects of the financial markets (such as banking profits and the unemployment rate) did not start recovering until 2010 due to the public's fears of a double-dip recession (which some people predicted would occur with as much as 25 percent probability).[4]

New Versus Old Credits: In order to identify bankruptcy filers' ability to gain access to new credit after filing for bankruptcy, we trace each individual's credit record at the account level to identify any new credit cards, new auto loans, or new mortgages that were opened after the bankruptcy filing month. Bankruptcy filers' access to credit is measured in terms of number of filers who have access to each type of credit, new origination (number of new credit accounts and dollar amount of the credit limit), and dollar amount of the credit balance -- up to six quarters following the bankruptcy filing date. In addition to new credits, we also observe old credit accounts (from prior to bankruptcy) that remain active after the filing.[5] These accounts were granted or opened before the bankruptcy filing month.

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[4] In 2010:Q1 bank profits soared to their highest level in two years: a total of $18 billion in quarterly profits for the industry. The five largest U.S. banks (BAC, JPMC, Citi, Wells, and Goldman Sachs) reported $15.6 billion in profits in 2010:Q1 and ended with $60.4 billion in annual profits for 2010. The unemployment rate remained near a quarter-century high at 9.4 percent as of August 2009. The top 10 reasons cited for the double-dip recession are: 1) inflation (Starbucks, clothing); 2) investments starting to yield less (DJIA and S&P); 3) a drop in auto industry revenues; 4) a fall in oil prices; 5) federal budget cuts and cuts in government jobs by 450,000; 6) China's economy slowing; 7) unemployment; 8) the debt ceiling; 9) lack of access to credit; and 10) a housing market in which more than one-fourth of mortgages on single-family homes remained underwater.

[5] Note that credit becomes inactive if there is no activity for at least six months.

Credit Inquiries: To examine the demand for credit by bankruptcy filers, we collect information about the number of "hard" credit inquiries (i.e., credit applications) by each individual filer during the last three months, as reported in the Equifax database. A larger number of inquiries by bankruptcy filers would indicate greater interest in getting access to credit. This information is collected at the end of each quarter from the period six quarters prior to the bankruptcy filing to six quarters after the filing.

Credit Limit: Our data also provide the credit limit for each account. A credit limit is the maximum amount of credit that a financial institution or other lender will extend to a debtor for a particular line of credit (sometimes called a credit line, line of credit, or a tradeline). For example, it is the most that a credit card company will allow a card holder to take out at once on a card. This limit is based on a variety of factors such as an individual's ability to make interest payments. The credit limit thus captures the amount of credit that lenders are willing to offer (supply of credit).

Loan Performance: We define loan default as those that are 60 days or more past due as reported by the bureau file.

4. Empirical Evidence

We provide empirical evidence in several steps. First, we summarize the demographics and financial status of bankruptcy filers. Then we describe the post-bankruptcy equilibrium borrowing for Chapter 7 and Chapter 13 filers for the four different filing periods (pre-reform, post-reform/pre-crisis, crisis, and post-crisis). Next we report credit demand and supply separately followed by a description of loan performance. Finally, we use regression analysis to formally test the hypothesis that lenders treat Chapter 13 filers less favorably than Chapter 7 filers.

4.1 Characteristics of the Filers

Table 1 provides summary statistics of Chapter 7 and Chapter 13 bankruptcy filers as of the filing quarter for the four sub-periods that we study. According to the data, bankruptcy filers tend to be in their mid-40s, with Chapter 13 filers slightly older than Chapter 7 filers. Interestingly, Chapter 7 filers have higher risk scores than Chapter 13 filers for all four filing periods.[6] Additionally, as the economy moved into recession, risk scores rose for bankruptcy filers under both chapters.

As expected, the majority of bankruptcy filers have credit card debt. For Chapter 7 filers, 44 percent have auto loans and 30 percent have first mortgages during the pre-reform period; the ratios stay more or less the same for the post-reform but pre-crisis periods but rise to almost 50 percent for the crisis and post-crisis periods, implying that filers during and after the financial crisis are more creditworthy. Chapter 13 filers, by comparison, are much more likely to have both auto loans and first mortgages, with both ratios reaching (or approaching) 60 percent for both auto loans and first mortgages during the financial crisis and post-crisis periods. This is not surprising as Chapter 13 filers tend to have more assets, such as cars or houses, than Chapter 7 filers. The evidence is also consistent with a hypothesis that people may have filed for bankruptcy to avoid making mortgage payments (strategic default) during

[6] The risk score is within the range of 350 to 800 according to Equifax.

the housing downturn.[7] The proportion of filers with first mortgages who were delinquent (at least 60 days past due) on their mortgages rose significantly, from 12-17 percent during the pre-crisis periods to 34 percent during the post-crisis period for Chapter 7 filers, and from 28-35 percent during the pre-crisis periods to 44 percent during the post-crisis period for Chapter 13 filers.

4.2 Equilibrium Credit Access

Figure 1 charts the filers' average risk scores from six quarters before to six quarters after the bankruptcy filing for Chapter 7 vs. Chapter 13 filers for all four filing periods. For all filing periods, and for both Chapter 7 and Chapter 13 filers, we observe that the average credit scores deteriorate substantially, leading to the bankruptcy filing as filers start falling behind on their loan payments. The recovery in credit score is also very dramatic. With the exception of the pre-reform period (where there is a delay of about one quarter), the recovery in credit score takes place immediately after the filing. Both Chapter 7 and Chapter 13 filers seem to return to their previous risk score levels (as of four to six quarters prior to bankruptcy filing) within about one year after filing. The observed speedy recovery in risk score suggests that bankruptcy filers may have been completely rehabilitated and regained full access to the credit market shortly after the bankruptcy filing. Interestingly, a closer look at their balance sheets reveals otherwise.

In Table 2A, we report the total number of filers with credit cards, the total number of new and old active cards, the total credit limit of new and old active cards (in millions), and the

[7] This is consistent with the strategic default hypothesis, which states that people have an incentive to default on their mortgages (and file for bankruptcy) when the value of the home falls below the loan amount (i.e., underwater); see Jagtiani and Lang (2011).

total balance (in millions) for Chapter 7 and Chapter 13 filers at the time of the filing and as of two, four, and six quarters after the filing. A few observations stand out. First, the number of Chapter 7 filers with credit cards (exclude cards in bankruptcy) does not rebound until six quarters after the filing. In addition, the number of Chapter 13 filers with credit cards declines steadily through all six quarters after the filing. Existing lenders tend to cut Chapter 13 filers' credit limit substantially through all six quarters, while new lenders provide new credit. On balance, there is a sharp decline in credit availability per filer as of two quarters after the filing. After that, total balances move within a narrow range. We observe similar trends with auto loans and first mortgages, and they are reported in Table 2B and Table 2C, respectively. There is a sharp decline in both the number and dollar amount of old auto loans and old first mortgage loan accounts. The rise in new originations with new auto and new mortgage loan accounts is quite dramatic in terms of the number of accounts but the dollar amount of credit tends to be small for these new accounts. The total amount of credit (from both old and new accounts) remains significantly smaller (just a fraction of that as of the filing date) for at least a year following the filing date. We observe that total auto loans and total mortgage loans do not begin to recover until after about two years.

Figure 2 charts the percent of filers who received a new card before and after the filing. Mirroring the decline in credit score, leading to the bankruptcy filing, the fraction of the people having a new bank card declines substantially from 12 to 18 percent to 4 percent or below during the pre-reform filing period. However, Chapter 7 filers start opening new cards immediately after the filing. With the exception of the crisis period (2007:Q3 to 2009:Q4), within one year or less, the percent of filers receiving new cards is back to the level six quarters before the filing. For Chapter 13 filers, on the contrary, there is barely any recovery in terms of getting new cards for at least six quarters after the filing. This observation suggests that the trend documented in Keys, Han, and Li (2011), i.e., niche banks targeting households that have just filed for bankruptcy, applies only to Chapter 7 filers.

This is true for two reasons. First, as discussed earlier, Chapter 7 discharges all unsecured debt, while Chapter 13 discharges only part of them. More important, for the six quarters subsequent to the filing, almost all Chapter 13 filers are still under the repayment plan. Therefore, the wealth effect discussed earlier in Section 2 is larger for Chapter 7 filers than for Chapter 13 filers, and disposable income is also larger for Chapter 7 filers for the time period we study. Furthermore, the length of time that Chapter 13 filers have to wait before they can file for bankruptcy again is shorter than the period for Chapter 7 filers, which makes Chapter 13 filers less appealing to lenders who intend to garnish wages after default.

4.3 Credit Demand

The reduction in equilibrium access to credit obviously is a reflection of reduced credit demand or reduced credit supply or both. The credit bureau lists all credit inquiries made by consumers, lenders, or other agencies such as utility companies, etc. We use the so-called "hard" inquiries, i.e., inquiries resulting from applications for new credit. In our view, this is a good proxy for consumers' credit demand. It is true that these inquiries will not capture the needs of discouraged consumers. Put differently, some consumers may feel that they will not qualify for new credit and thus do not make inquiries. Unfortunately, absent survey data, it is not possible to capture the demand of these consumers.

Figure 3 charts the average number of hard inquiries by bankruptcy filers from six quarters before to six quarters after their bankruptcy filing date for Chapter 7 as well as Chapter 13 filers. A large number of inquiries indicate greater interest in getting access to credit. For the periods before the financial crisis, the average number of credit inquiries starts declining up to two quarters prior to bankruptcy filing. Interestingly, during and after the crisis periods, we observe that credit inquiries start declining much earlier. This is consistent with the observation that bankruptcy filers load up their credit card debt prior to the filing, since unsecured debt can be discharged under bankruptcy. Furthermore, credit demand is much higher for Chapter 13 than for Chapter 7 filers prior to the bankruptcy filing; this is in accordance with the fact that Chapter 13 filers tend to have more debt and lower credit scores (as reported in Table 1 and Table 2). After the filing, credit demand starts to recover, though much more slowly for Chapter 13 filers than for Chapter 7 filers. With the exception of the financial crisis period (2007:Q3 to 2009:Q4), credit demand returns to roughly the previous level (as of before the filing) for Chapter 7 filers but credit demand from Chapter 13 filers remains significantly lower than the previous level for at least six quarters after the filing. The impact on credit demand on Chapter 13 filers seems to be long-lasting.

4.4 Credit Supply

As discussed earlier, a credit limit is the maximum amount of credit that a lender is willing to extend to a borrower. Therefore, in our view, credit limits capture only credit supply. In Figure 4, we chart the average credit limit (for all cards that are not in bankruptcy) per bankruptcy filers during the periods before and after the filing. It is evident that lenders start cutting credit limits substantially as much as two quarters prior to the bankruptcy filing, for all filing periods. Credit limits bottom out around two quarters following the filing and then stay flat at a very low level for at least six quarters after the filing. At its lowest point, the average total credit limit is only about 10 to 15 percent of its peak level prior to the filing. This is strong evidence that lenders substantially reduce lending to bankruptcy filers up to at least six quarters after the filing, despite the improvement in their credit scores.

Going back to our earlier discussion on Table 2, existing lenders cut the credit limit dramatically after the borrowers file for bankruptcy. Although new lenders are willing to offer credit with new credit accounts, these accounts come with much smaller credit limits, as well. In addition, the increase in new credit supplied by new lenders is not large enough to offset the cut by existing lenders. On net, both Chapter 7 and Chapter 13 filers receive much smaller credit limits after their bankruptcy filings. More important, the reduction in credit limits seems to be long-lasting for both types of filers.

4.5 Post-Bankruptcy Credit Performance

We follow the performance of various credit accounts (cards, auto loans, and first mortgages that are not listed under bankruptcy) as reported by Equifax for six quarters after bankruptcy filing and report their performance in Table 3. We measure the performance as the percentage of filers with debt who are 60 days or more delinquent. It is worth noting that the number of people with credit cards, auto loans, or first mortgages has declined substantially from the time of the bankruptcy filing (see Table 2). Therefore, the statistics in Table 3 capture the loan performance only of those remaining filers with debt. We do report the performance statistics in the first quarter after the filing as well, to capture the status during the period right after filing (during the process of reclassifying debt under bankruptcy by the credit bureau).

There are several striking findings. First, Chapter 13 filers have much worse loan performance than Chapter 7 filers for credit card debt, auto loans, and first mortgages. There are two possible reasons for this. The financial relief that Chapter 13 filers receive is not as significant as that received by Chapter 7 filers. Under Chapter 13, filers may still be responsible for some of their unsecured debts. Additionally, the repayment plans that Chapter 13 filers enter into may impose a heavy financial weight on these filers and make them financially vulnerable. Second, the loan performance of Chapter 7 filers improves significantly over time. Note, however, that the improvement is less obvious for those who filed during and after the financial crisis where most of the improvement in loan performance happens during the first two quarters after the Chapter 7 filing. Finally, later Chapter 7 filers (filing after the start of the financial crisis) have much better loan performance in all three loan categories than the earlier filers (filing before the financial crisis period).[8] For Chapter 13 filers, there is no significant improvement in loan performance for mortgages in all filing periods. The overall mortgage performance deteriorates for both Chapter 7 and Chapter 13 filers in later filing periods, reflecting the deteriorating housing market. This finding is consistent with Jagtiani and Lang (2011), who observe changes in default priority during the recent financial crisis, whereby consumers are more likely to default (strategically) on their first mortgages relative to other financial products to avoid making payments on mortgages that are held on homes that are worth less than the mortgage amount.

[8] This finding is consistent with Cohen-Cole (2010), who finds that the same change in permanent income resulted in significantly more bankruptcy filings during the financial crisis period.

4.6 Do Lenders Treat Chapter 13 Filers Differently?

Our descriptive analysis suggests that lenders do not treat Chapter 13 filers any more favorably than Chapter 7 filers. In fact, Chapter 13 filers are much less likely to receive new credit cards after bankruptcy filing and have fewer credit cards than Chapter 7 filers after filing. While credit limits are cut dramatically for both Chapter 7 and Chapter 13 filers, the credit limit seems to be slightly larger (about $300) for Chapter 13 filers on average.

In this subsection, we test this stylized fact more formally. In particular, we run a logistic regression where we explain the probability of receiving a new credit card two quarters, four quarters, and six quarters after the bankruptcy filing using the indicator variable that takes the value of one if the consumer has filed for bankruptcy under Chapter 13 and zero if the consumer has filed for bankruptcy under Chapter 7.[9] We also control for other variables, including whether there has been a credit inquiry within the last six months; changes in credit limit from two quarters before the bankruptcy filing date; credit utilization rate (credit balance over credit limit); Equifax risk score; and a few dummies that indicate whether the borrower has at least one card, has a first mortgage before filing, is younger than 25, is between 25 and 45 years old, and whether they are 60 days or more delinquent on the first mortgage, auto loan, or credit card, respectively. Explanatory variables are as of two quarters prior to the observation date unless stated otherwise. We also include dummies to indicate the filing time

[9] Each BK filer enters the regression three times: one for each two-quarter interval following the BK filing date, where the three two--quarter intervals are Q1-Q2, Q3-Q4, and Q5-Q6. Data for periods after six quarters following the BK filing date are not included in the analysis. The dummy variables Q3_Q4 following BK Date and Q5_Q6 following BK Date are equal to 1 for observations in Q3-Q4 and Q5-Q6 periods, respectively, and equal to zero otherwise. The base case is for observations in Q1-Q2 period, where both of the dummy variables take the value of zero.

periods (post-reform but before crisis, crisis, or post-crisis). The logistic regression results are presented in Column (1) of Table 4A. We also run an OLS regression where we examine the number of credit cards that Chapter 13 filers have as of two quarters, four quarters, and six quarters after the filing, compared with the number of credit cards that Chapter 7 filers have. The regression results are reported in Column (2) of Table 4A.

Our variable of interest, whether the filer files under Chapter 13, has a negative sign and is statistically significant at the 1 percent level in both regressions. The results indicate that, given the same risk characteristics and economic conditions, Chapter 13 filers are less likely to be approved for new credit card accounts than Chapter 7 filers. This finding is particularly interesting, suggesting that new lenders actually view Chapter 13 filers less favorably than Chapter 7 filers. The coefficients of other variables mostly have the expected signs. It is harder to get credit as the economy moves into recession, and higher local unemployment rates also lower the probability of getting a new card. Having a high risk score, having had credit cards before filing, having had credit inquiries and/or having received a new card in the previous two quarters all help with getting credit cards. And the probability of getting new cards and the number of cards increase with time: from two to four and to six quarters after the filing.

Finally, we examine the change in credit limits and the dollar amount of credit limits that Chapter 7 filers have (relative to that of Chapter 13 filers) up to six quarters following the bankruptcy filing. The results are presented in Columns (3) and (4) of Table 4B, respectively. The coefficient of the Chapter 13 indicator is positive but only weakly significant at the 10 percent level in Column (3) but positive and significant at the 1 percent level in Column (4). Overall, the results suggest that Chapter 13 filers end up with slightly larger credit lines (a combination of the credit line before filing and the new credit) after the bankruptcy filing. That is, while new lenders are less willing to issue credit cards to Chapter 13 filers (from Columns (1) and (2) as discussed earlier), the overall credit limit seems to be slightly higher for Chapter 13 than for Chapter 7 filers. This finding, in conjunction with the statistics presented in Table 2A, suggests that the larger credit limits for Chapter 13 filers seem to come from the existing (rather than the new) lenders. New lenders are more willing to extend new credit to Chapter 7 filers than to Chapter 13 filers. Existing lenders view Chapter 13 filers more favorably than new lenders. Our examination of a proportion of Chapter 7 and Chapter 13 filers with at least one credit card not in bankruptcy also indicates that a larger ratio of Chapter 7 filers have cards outside of bankruptcy. Surprisingly, within six quarters after filing, between one-third and one-half of Chapter 7 filers have at least one card outside of bankruptcy, while the ratio ranges from 18 to 29 percent for Chapter 13 filers since the bankruptcy reform in 2005; see Appendix 1 for more detail.

5. Conclusion

In this paper we study post-bankruptcy credit access and credit performance across filing types and filing periods. Our unique account-level credit bureau data allow us to study several new dimensions in this area of consumer finance that have not been previously examined. In particular, we are able to analyze Chapter 7 filers and Chapter 13 filers separately, identify supply and demand factors, and isolate new accounts from old credit accounts.

We find that although credit scores start to recover immediately after the bankruptcy filing and are (for most filing periods) back to their pre-bankruptcy level about six quarters after the filing, filers have much reduced access to the credit market, especially on existing accounts. This reduced access mostly reflects a reduced credit supply, since lenders substantially cut the credit limits they offer to filers after a bankruptcy filing. We also find that lenders do not treat Chapter 13 filers more favorably than Chapter 7 filers. In fact, Chapter 13 filers are much less likely to receive new credit cards than Chapter 7 filers, even after we control for borrower characteristics and economic environment. Despite a smaller probability of getting new cards and a smaller average number of cards after bankruptcy filing, Chapter 13 filers tend to have slightly larger credit limits after the filing, since they are able to maintain more of the credit from before the filing. In terms of credit performance after the filing, we find that Chapter 13 filers perform more poorly than Chapter 7 filers after the filing on all credit products (credit card debt, auto loans, and first mortgages).

Our results have several important policy implications. They suggest that using credit score alone is not a good way to evaluate consumers' access to credit. Our results overall, unlike those of previous studies, indicate that both Chapter 7 and Chapter 13 filers suffer a significant reduction in their credit limits after the filing and that the impact seems to be long-lasting. This suggests that the current bankruptcy system does not appear to provide much relief to bankruptcy filers – both Chapter 7 and Chapter 13 filers. In addition, Chapter 13 filers seem to suffer even more as they continue to perform poorly on their credit accounts for at least six quarters after filing.

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Table 1: Summary Statistics of Bankruptcy Filers

Variable	Chapter 7 Filers			Chapter 13 Filers		
	Mean	Median	SD	Mean	Median	SD
Filing Quarters: 2002:Q1-2005:Q3						
Filing Age	42	41	11	44	44	11
Risk Score	522	527	80	509	511	78
Has Credit Card Debt (%)	80	100	40	74	100	44
Has Auto Loans (%)	44	0	50	49	0	50
Has First Mortgages (%)	30	0	46	46	0	50
Credit Card Debt 60+ Days Past Due (%)	69	100	46	61	100	49
Auto Loans 60+ Days Past Due (%)	20	0	40	26	0	44
First Mortgages 60+ Days Past Due	12	0	32	28	0	45
Number of Filers	262,513			42,422		
Filing Quarters: 2005:Q4-2007:Q2						
Filing Age	42	41	12	45	45	11
Risk Score	552	559	71	522	524	76
Has Credit Card Debt (%)	65	100	48	69	100	46
Has Auto Loans (%)	44	0	50	55	100	50
Has First Mortgages (%)	29	0	45	51	100	46
Credit Card Debt 60+ Days Past Due (%)	56	100	50	58	100	49
Auto Loans 60+ Days Past Due (%)	25	0	44	33	0	47
First Mortgages 60+ Days Past Due	17	0	37	35	0	48
Number of Filers	64,162			13,562		
Filing Quarters: 2007:Q3-2009:Q4						
Filing Age	44	43	11	46	45	10
Risk Score	550	558	79	521	522	77
Has Credit Card Debt (%)	74	100	40	71	100	45
Has Auto Loans (%)	52	100	50	60	100	49
Has First Mortgages (%)	47	0	50	57	100	49
Credit Card Debt 60+ Days Past Due (%)	64	100	49	60	100	49
Auto Loans 60+ Days Past Due (%)	30	0	46	36	0	48
First Mortgages 60+ Days Past Due	30	0	46	39	0	49
Number of Filers	121,662			29,547		
Filing Quarters: 2010:Q1-2010:Q4						
Filing Age	45	45	12	47	46	20
Risk Score	566	574	71	535	536	70
Has Credit Card Debt (%)	71	100	46	64	100	48
Has Auto Loans (%)	48	0	50	58	100	49
Has First Mortgages (%)	48	0	50	60	100	49
Credit Card Debt 60+ Days Past Due (%)	62	100	49	54	100	50
Auto Loans 60+ Days Past Due (%)	28	0	44	35	0	48
First Mortgages 60+ Days Past Due	34	0	47	44	0	50
Number of Filers	66,848			16,127		

Sources: Federal Reserve Bank of Philadelphia Equifax consumer credit panel and Federal Reserve Bank of New York Equifax consumer credit panel.

Table 2A: Post-Bankruptcy Credit Access – Credit Cards

	Chapter 7 Filers				Chapter 13 Filers			
	At Filing	+2Q	+4Q	+6Q	At Filing	+2Q	+4Q	+6Q
Filing Quarters: 2002:Q1-2005:Q3								
# Filers with Cards	225,619	181,074	174,337	183,292	34,298	26,708	24,793	25,179
# of New Cards	2,610	50,683	133,210	219,268	319	2,812	6,590	11,442
# of Old Active Cards	744,219	298,934	231,706	164,641	116,613	56,085	43,567	32,694
New Credit Limit ($Mill)	4	32	96	202	0	2	4	9
Old Credit Limit ($ Mill)	2,004	1,039	766	456	301	163	125	88
Total Balance ($ Millions)	1,629	872	659	433	241	143	106	72
Filing Quarters: 2005:Q4-2007:Q2								
# Filers with Cards	45,053	32,445	37,786	38,714	10,086	6,622	6,433	6,269
# of New Cards	1,885	22,422	49,621	70,813	252	1,812	3,888	5,773
# of Old Active Cards	128,603	37,057	30,001	24,833	34,258	14,235	14,235	9,123
New Credit Limit ($Mill)	1	12	36	67	0.1	1	2	4
Old Credit Limit ($ Mill)	343	107	84	66	99	40	34	26
Total Balance ($ Millions)	233	69	68	70	64	32	27	19
Filing Quarters: 2007:Q3-2009:Q4								
# Filers with Cards	96,516	50,038	50,096	57,292	22,183	10,095	9,449	9,225
# of New Cards	1,388	25,320	52,894	78,403	237	1,783	3,573	5,466
# of Old Active Cards	270,387	55,943	47,768	46,103	70,176	28,169	23,994	18,617
New Credit Limit ($Mill)	2	18	40	65	0.3	1	2	4
Old Credit Limit ($ Mill)	825	138	92	76	254	87	69	46
Total Balance ($ Millions)	578	63	58	67	167	69	56	35
Filing Quarters: 2010:Q1-2010:Q4								
# Filers with Cards	50,320	26,828	31,369	36,404	10,804	5,183	4,961	5,158
# of New Cards	452	16,456	35,402	54,796	59	807	1,804	3,125
# of Old Active Cards	123,874	30,393	27,811	26,503	33,207	16,797	14,574	11,621
New Credit Limit ($Mill)	1	12	29	50	0.1	0.5	1	2
Old Credit Limit ($ Mill)	341	51	41	38	120	47	39	27
Total Balance ($ Millions)	252	27	30	41	80	39	31	20

Sources: Federal Reserve Bank of Philadelphia Equifax consumer credit panel and Federal Reserve Bank of New York Equifax consumer credit panel.

Table 2B: Post-Bankruptcy Credit Access – Auto Loans

	Chapter 7 Filers				Chapter 13 Filers			
	At Filing	+2Q	+4Q	+6Q	At Filing	+2Q	+4Q	+6Q
Filing Quarters: 2002:Q1-2005:Q3								
# Filers with Auto Loans	123,602	99,527	99,115	106,069	22,893	14,959	13,755	13,182
# of New Auto Loans	1,246	25,619	53,286	79,869	82	607	1,139	1,816
# of Old Active Auto Loan	152,238	81,002	66,436	51,292	27,936	14,416	13,081	11,297
New Loan Limit ($Mill)	29	360	777	1,233	1	6	15	32
Old Loan Limit ($ Mill)	1,845	1,270	1,070	842	364	229	211	189
Total Balance ($ Millions)	1,874	1,630	1,847	2,075	365	235	226	221
Filing Quarters: 2005:Q4-2007:Q2								
# Filers with Auto Loans	30,603	26,407	26,939	28,035	8,034	5,707	5,379	5,145
# of New Auto Loans	480	8,012	15,462	21,539	19	167	393	658
# of Old Active Auto Loan	37,310	17,961	14,516	10,957	10,745	7,575	7,454	6,246
New Loan Limit ($Mill)	6	109	226	324	0.3	2	5	9
Old Loan Limit ($ Mill)	440	295	248	194	175	139	139	116
Total Balance ($ Millions)	446	404	474	518	175	141	144	125
Filing Quarters: 2007:Q3-2009:Q4								
# Filers with Auto Loans	67,245	51,043	45,381	45,738	18,787	13,249	12,036	11,207
# of New Auto Loans	506	9,245	18,677	27,772	24	289	646	1,013
# of Old Active Auto Loan	78,322	30,181	24,560	19,846	25,688	19,316	17,133	14,143
New Loan Limit ($Mill)	15	134	270	417	0.4	3	8	24
Old Loan Limit ($ Mill)	938	552	466	383	510	380	335	278
Total Balance ($ Millions)	953	686	736	799	510	383	343	302
Filing Quarters: 2010:Q1-2010:Q4								
# Filers with Auto Loans	34,371	26,294	23,657	24,733	9,845	6,625	5,855	5,383
# of New Auto Loans	165	5,169	11,225	17,345	11	126	252	399
# of Old Active Auto Loan	37,038	13,868	11,007	8,577	12,995	9,792	8,231	6,673
New Loan Limit ($Mill)	6	85	184	291	0.3	2	3	6
Old Loan Limit ($ Mill)	424	264	218	173	263	197	166	134
Total Balance ($ Millions)	430	349	402	464	263	199	169	140

Sources: Federal Reserve Bank of Philadelphia Equifax consumer credit panel and Federal Reserve Bank of New York Equifax consumer credit panel.

Table 2C: Post-Bankruptcy Credit Access – First Mortgages

	Chapter 7 Filers				Chapter 13 Filers			
	At Filing	+2Q	+4Q	+6Q	At Filing	+2Q	+4Q	+6Q
Filing Quarters: 2002:Q1-2005:Q3								
# Filers with Mortgages	85,332	61,027	50,612	49,972	21,582	15,027	14,781	14,376
# of New Mortgages	76	1,926	7,304	12,331	14	115	414	832
# of Old Mortgages	95,952	65,725	52,745	45,621	23,678	15,966	15,515	14,707
New Mortgages ($Mill)	0.8	81	571	1,599	0.4	5	30	140
Old Mortgages ($ Mill)	7,759	4,707	4,256	3,648	1,943	1,014	985	957
Total Balance ($ Millions)	7,760	4,788	4,826	5,247	1,943	1,019	1,015	1,097
Filing Quarters: 2005:Q4-2007:Q2								
# Filers with Mortgages	20,301	14,167	10,475	9,809	7,407	5,175	4,758	4,480
# of New Mortgages	14	432	1,266	1,710	4	20	81	139
# of Old Mortgages	21,921	14,791	10,577	8,839	7,972	5,449	4,976	4,520
New Mortgages ($Mill)	0.7	19	114	231	--	1	7	26
Old Mortgages ($ Mill)	1,801	1,089	936	768	831	563	557	495
Total Balance ($ Millions)	1,802	1,108	1,050	999	831	565	564	521
Filing Quarters: 2007:Q3-2009:Q4								
# Filers with Mortgages	60,416	36,060	19,801	17,398	17,899	12,309	11,477	10,602
# of New Mortgages	14	200	412	585	8	27	46	70
# of Old Mortgages	68,507	35,263	19,071	16,308	19,719	12,568	11,670	10,567
New Mortgages ($Mill)	--	14	39	67	0.11	2	3	8
Old Mortgages ($ Mill)	9,490	2,238	1,610	1,352	3,320	2,017	1,871	1,676
Total Balance ($ Millions)	9,490	2,252	1,649	1,418	3,320	2,019	1,874	1,684
Filing Quarters: 2010:Q1-2010:Q4								
# Filers with Mortgages	34,457	23,075	12,928	11,708	10,207	7,137	5,961	5,312
# of New Mortgages	6	71	170	256	2	10	17	20
# of Old Mortgages	37,631	22,275	12,175	10,917	11,058	7,328	6,083	5,355
New Mortgages ($Mill)	0.3	4	18	33	--	1	2	2
Old Mortgages ($ Mill)	4,571	874	731	682	2,053	1,370	1,136	979
Total Balance ($ Millions)	4,571	879	749	715	2,053	1,371	1,137	981

Sources: Federal Reserve Bank of Philadelphia Equifax consumer credit panel and Federal Reserve Bank of New York Equifax consumer credit panel.

Table 3: Post-Bankruptcy Credit Performance (60+ Days Delinquency Rate, % of All Filers with Debt) – Excluding Old Debt in Bankruptcy

	Chapter 7 Filers				Chapter 13 Filers			
	+1Q	+2Q	+4Q	+6Q	+1Q	+2Q	+4Q	+6Q
Filing Quarters: 2002:Q1-2005:Q3								
Credit Cards	72	50	30	25	73	62	51	46
Auto Loans	28	20	14	12	56	55	48	45
First Mortgages	23	20	15	11	37	37	37	31
Filing Quarters: 2005:Q4-2007:Q2								
Credit Cards	44	32	24	19	54	48	38	33
Auto Loans	26	17	12	10	53	50	42	36
First Mortgages	29	24	18	12	38	42	40	36
Filing Quarters: 2007:Q3-2009:Q4								
Credit Cards	35	12	7	8	51	47	36	31
Auto Loans	21	7	4	4	52	50	44	40
First Mortgages	31	14	8	7	40	46	50	48
Filing Quarters: 2010:Q1-2010:Q4								
Credit Cards	33	6	5	6	54	48	37	29
Auto Loans	17	4	3	3	51	48	42	38
First Mortgages	26	8	7	6	50	55	54	49

Sources: Federal Reserve Bank of Philadelphia Equifax consumer credit panel and Federal Reserve Bank of New York Equifax consumer credit panel.

Table 4A: Regression Results: Are Chapter 13 Filers Treated Differently by Lenders? Probability of Getting New Cards and Number of Cards After Filing

Independent Variables	(1) Logistic Regression Dependent Variable = Probability of Getting New Cards		(2) OLS Regression Dependent Variable = Number of Cards After Filing@	
	Coefficient Estimates	Standard Errors	Coefficient Estimates	Standard Errors
Intercept	-4.3618***	0.0407	-0.6870***	0.0075
D_Filed for Chapter 13	-0.9380***	0.0119	-0.0288***	0.0016
D_Post-Reform Pre-Crisis (2005:Q3-2007:Q2)	0.1534***	0.0088	0.0401***	0.0017
D_Crisis (2007:Q3-2009:Q4)	-0.1368***	0.0109	-0.1429***	0.0019
D_Post-Crisis (2010:Q1-2010:Q4)	-0.0045	0.0088	-0.1379***	0.0017
Changes in Unemployment (from -6Q to -2Q)	-0.0448***	0.0027	-0.0148***	0.0005
D_Submitted Credit Applications in the Last 2 Quarters	1.6037***	0.0079	0.1496***	0.0012
Number of Cards as of the Last 2 Quarters	0.0791***	0.0026	0.1584***	0.0005
Change in Credit Limit from -2Q (Before Filing)	-0.0198***	0.0039	0.0002***	0.0001
Credit Utilization Ratio	0.0397***	0.0117	-0.0419***	0.0024
Risk Score as of 2Q Before Filing	0.0018***	0.0001	0.0008***	0.0000
D_Has Credit Card Before Filing	0.3191***	0.0089	0.8803***	0.0018
D_Has 1st Mortgage Before Filing	-0.1614***	0.0096	-0.0851***	0.0018
D_Less Than 25 Years Old	-0.3168***	0.0176	-0.0186***	0.0030
D_Between 25 and 45 Years Old	0.1368***	0.0065	0.0259***	0.0012
D_60+ Days Delinquent on 1st Mortgage	-0.0334*	0.0182	0.0411***	0.0032
D_60+ Days Delinquent on Auto Loans	-0.0949***	0.0144	0.0244***	0.0026
D_60+ Days Delinquent on Cards	-0.1957***	0.0116	-0.4215***	0.0023
D_3 to 4 Quarters After BK Filing	0.0679***	0.0085	0.3599***	0.0016
D_5 to 6 Quarters After BK Filing	0.0841***	0.0086	0.4454***	0.0016
D_Already Has a New Card in Previous Quarters	43.4673**	20.0698	1.0811***	0.0019
Adjusted R-Square	--		50.6%	
% Concordant	86.8		--	
% Discordant	12.8		--	
Number of Observations	1,335,165		1,335,165	

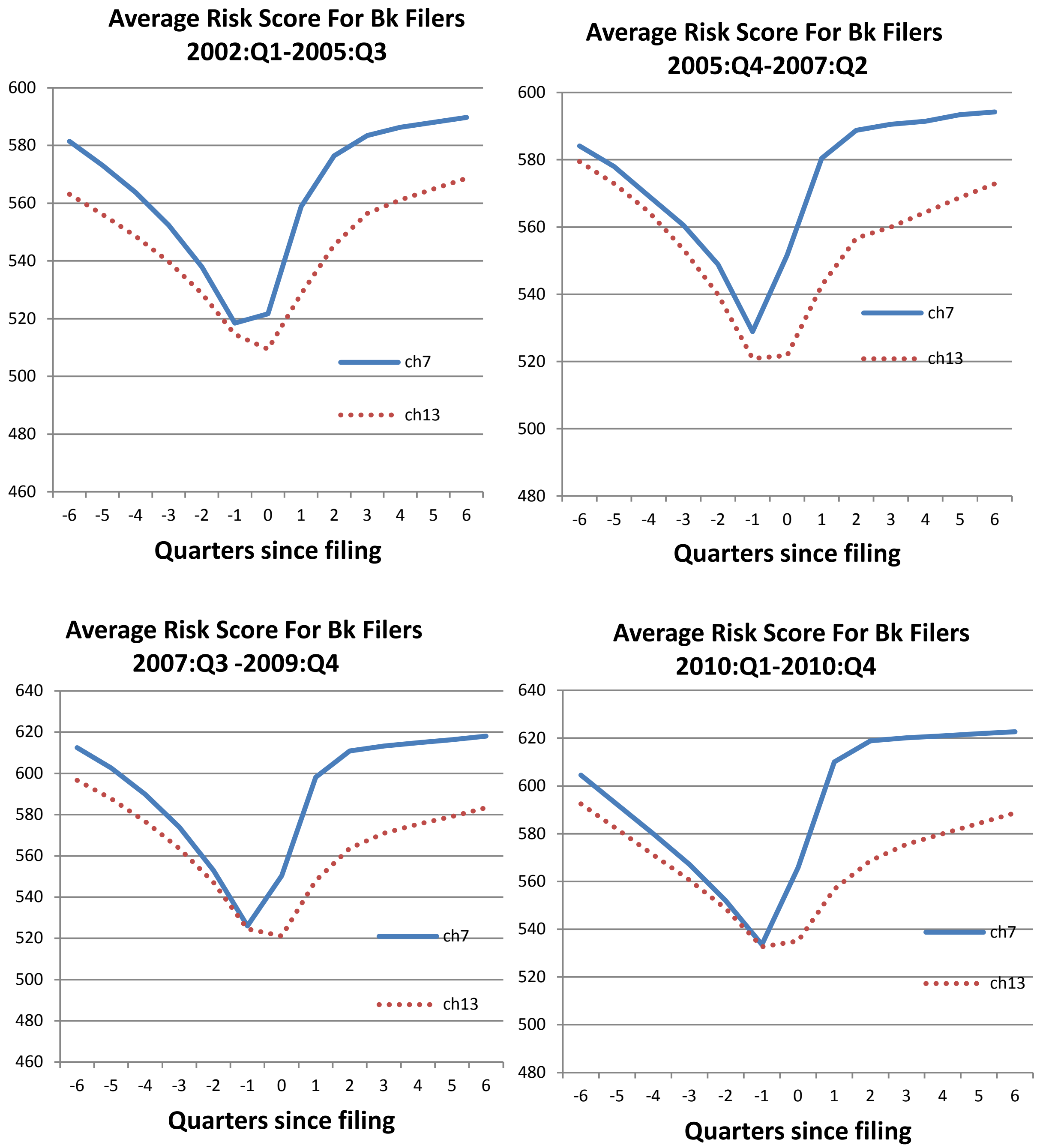
Note: @ Includes credits outside of bankruptcy only. ***, **, and * represent significance at the 1 percent, 5 percent, and 10 percent level, respectively.

Table 4B: Regression Results: Are Chapter 13 Filers Treated Differently by Lenders? Change in Credit Limit After Filing (i.e. Ratio of Credit Limit as of Two Quarters After Filing to Credit Limit as of Two Quarters Before Filing) and $ Amount of Credit Limit After Filing

Independent Variables	(3) OLS Regression Dependent Variable = (Credit Limit at +2Q)/ (Credit Limit at -2Q)		(4) OLS Regression Dependent Variable = $ Credit Limit After Filing@	
	Coefficient Estimates	Standard Errors	Coefficient Estimates	Standard Errors
Intercept	0.8924***	0.1174	-4121.8***	47.8967
D_Filed for Chapter 13	0.0446*	0.0252	348.2***	10.2899
D_Post-Reform Pre-Crisis (2005:Q3-2007:Q2)	-0.0617**	0.0271	-67.65***	11.0255
D_Crisis (2007:Q3-2009:Q4)	-0.0514*	0.0307	-573.9***	12.5290
D_Post-Crisis (2010:Q1-2010:Q4)	-0.0641**	0.0259	-700.3***	10.5713
Changes in Unemployment (from -6Q to -2Q)	0.0002	0.0074	-36.17***	3.0370
D_Submitted Credit Applications in the Last 2 Quarters	0.0309	0.0189	90.55***	7.7387
Number of Cards as of the Last 2 Quarters	0.0216***	0.0081	537.1***	3.3254
Credit Utilization Ratio	-0.0324	0.0368	-1422.4***	14.6668
Risk Score as of 2Q Before Filing	-0.0003	0.0002	8.98***	0.0723
D_Has Credit Card Before Filing	-0.2755***	0.0279	975.8***	11.0771
D_Has 1st Mortgage Before Filing	-0.0006	0.0282	178.2***	11.5708
D_Less Than 25 Years Old	0.0389	0.0472	-185.5***	19.2513
D_Between 25 and 45 Years Old	0.0496***	0.0189	-112.4***	7.7401
D_60+ Days Delinquent on 1st Mortgage	-0.0264	0.0494	201.2***	20.2483
D_60+ Days Delinquent on Auto Loans	0.0009	0.0403	199.4***	16.4048
D_60+ Days Delinquent on Cards	0.3563***	0.0358	917.6***	14.2718
D_3 to 4 Quarters After BK Filing	-0.0630**	0.0249	505.2***	10.1570
D_5 to 6 Quarters After BK Filing	-0.0443*	0.0253	501.9***	10.2912
D_Already Has a New Card in Previous Quarters	-0.0224	0.0304	701.7***	12.3118
Adjusted R-Square	0.02%		10.71%	
Number of Observations	1,335,165		1,369,462	

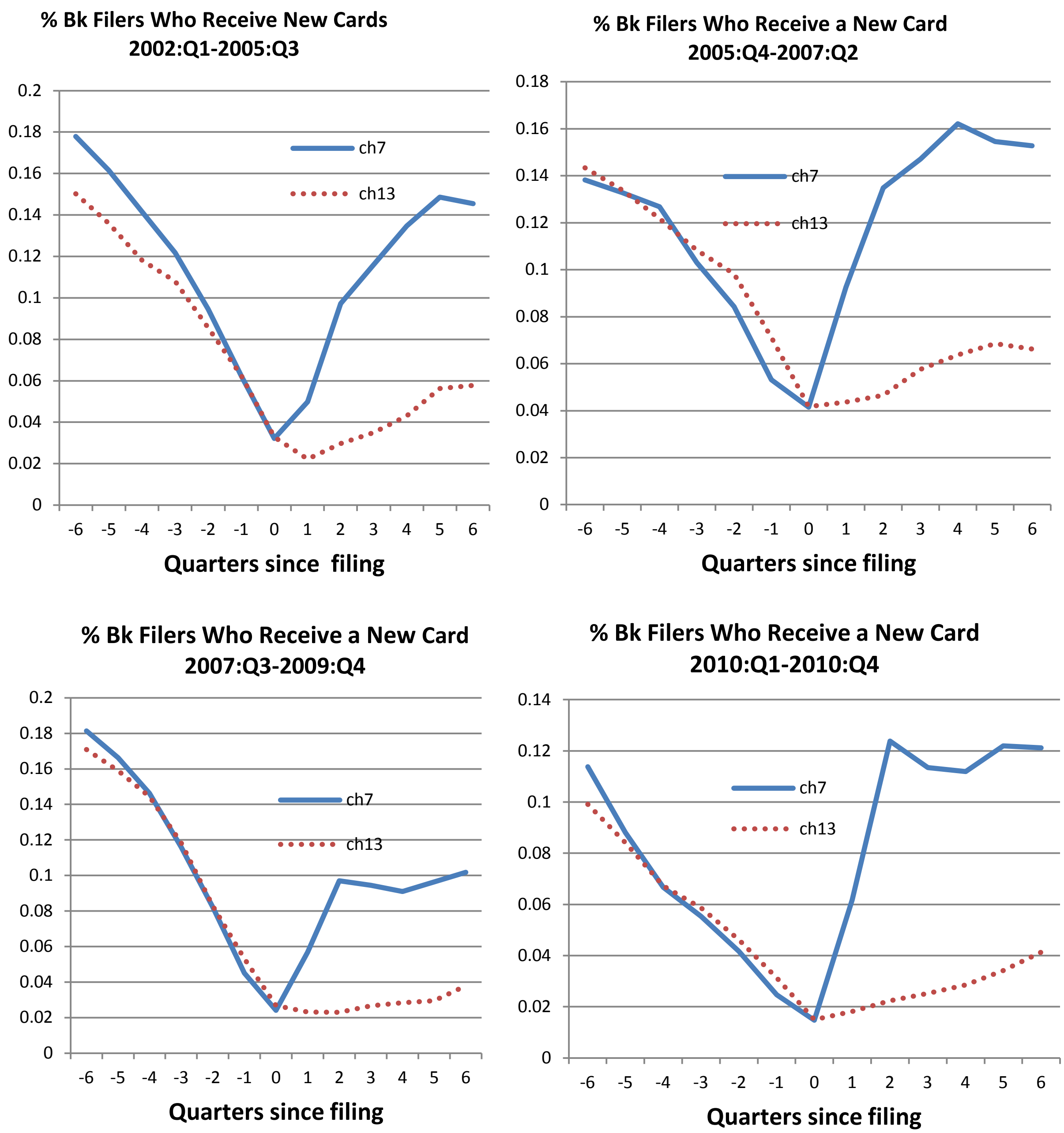
Note: @ Includes credit cards outside of bankruptcy only. ***, **, and * represent significance at the 1 percent, 5 percent, and 10 percent level, respectively.

Figure 1: Credit Score Before and After Bankruptcy Filing



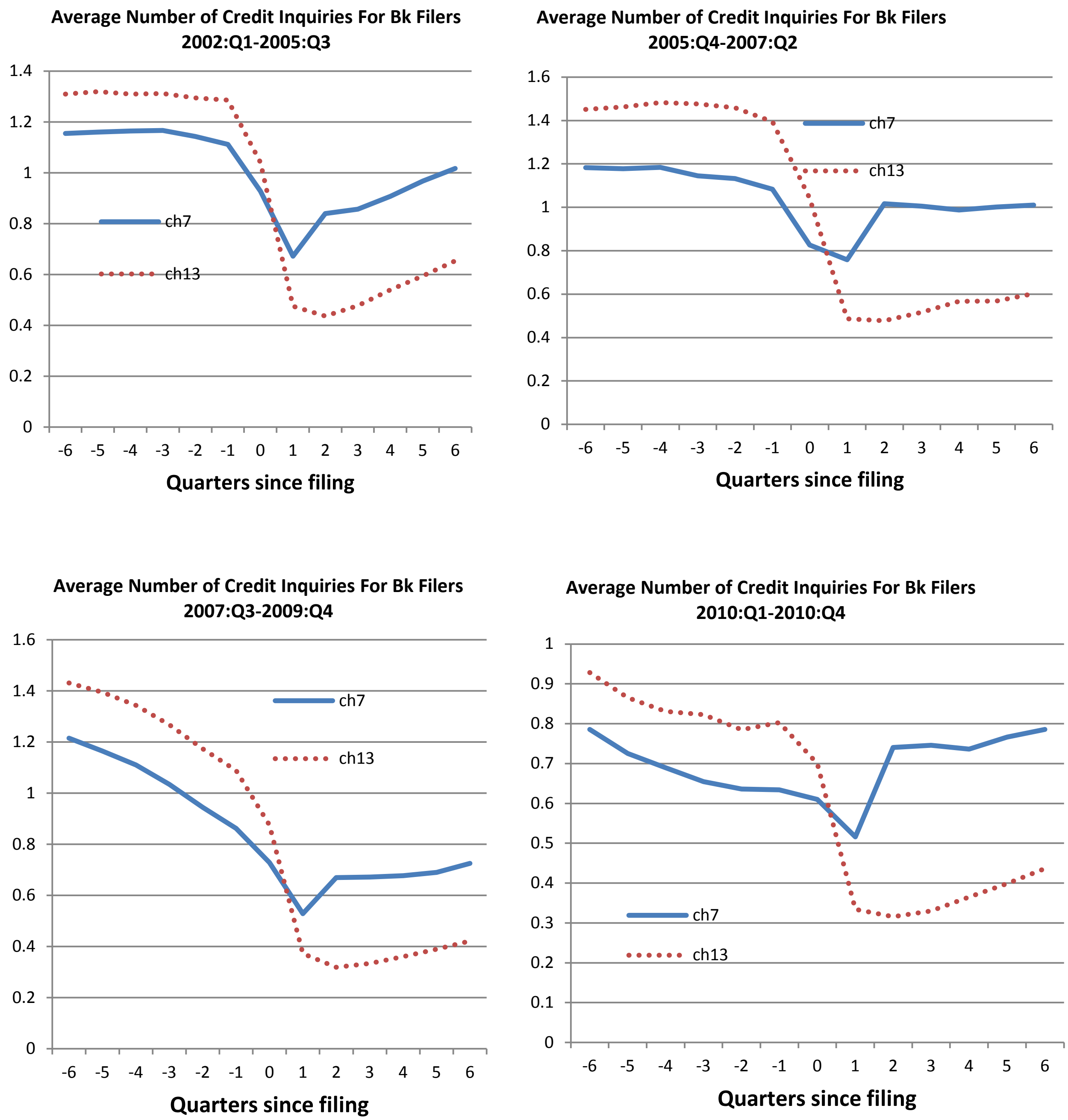
Sources: Federal Reserve Bank of Philadelphia Equifax consumer credit panel and Federal Reserve Bank of New York Equifax consumer credit panel.

Figure 2: New Cards Before and After Filing



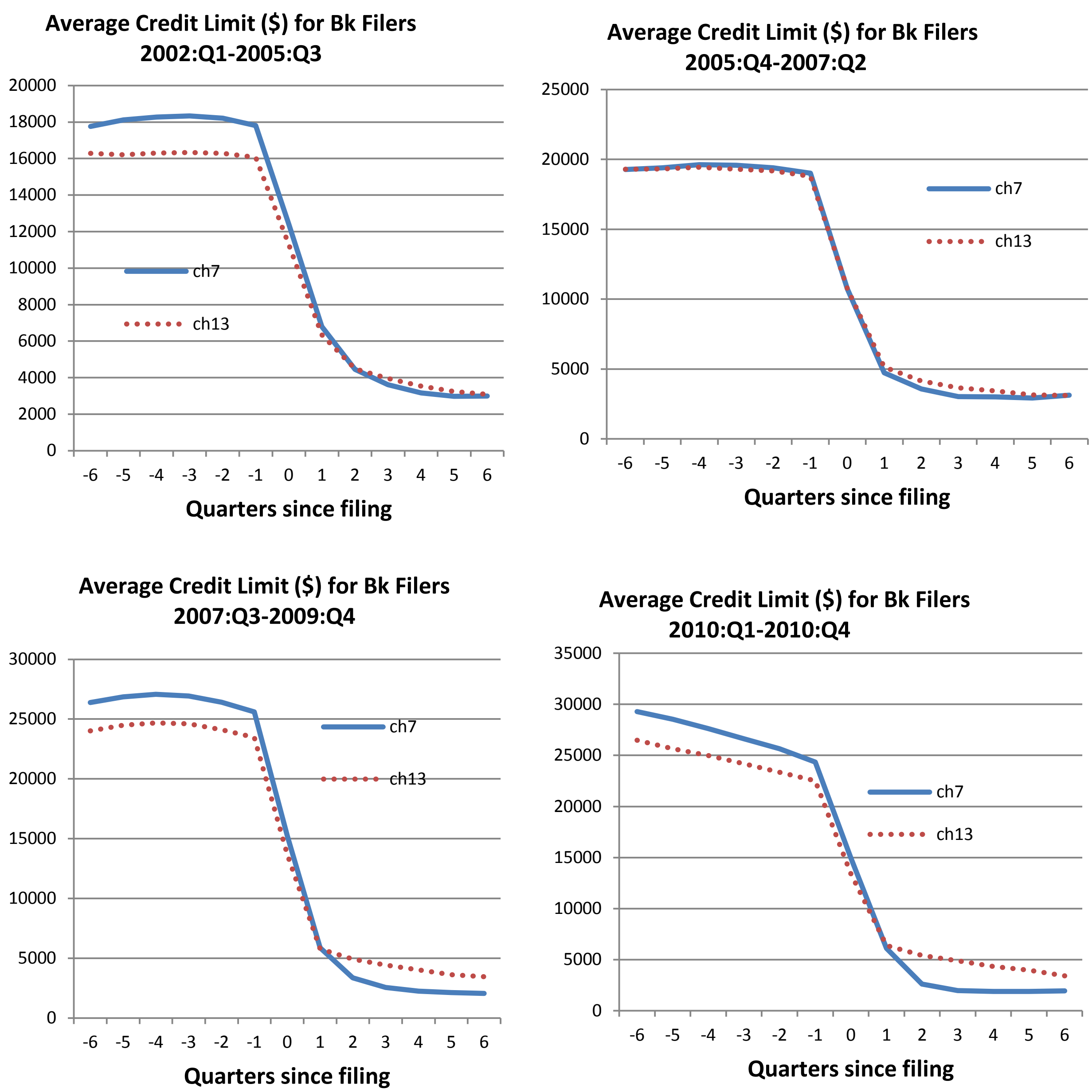
Sources: Federal Reserve Bank of Philadelphia Equifax consumer credit panel and Federal Reserve Bank of New York Equifax consumer credit panel.

Figure 3: Credit Inquiries Before and After Bankruptcy Filing



Sources: Federal Reserve Bank of Philadelphia Equifax consumer credit panel and Federal Reserve Bank of New York Equifax consumer credit panel.

Figure 4: Credit Limit Before and After Bankruptcy Filing



Sources: Federal Reserve Bank of Philadelphia Equifax consumer credit panel and Federal Reserve Bank of New York Equifax consumer credit panel.

Appendix 1

Percent of Chapter 7 and Chapter 13 Filers with All Cards in Bankruptcy and Percent of Chapter 7 and Chapter 13 Filers with at Least One Card Not in Bankruptcy

	All Cards in Bankruptcy				At Least 1 Cards Not in Bankruptcy			
	At Filing	**+2Q**	**+4Q**	**+6Q**	**At Filing**	**+2Q**	**+4Q**	**+6Q**
Filing Quarters: 2002:Q1-2005:Q3								
Chapter 7 (%)	35	34	23	17	45	37	43	51
Chapter 13 (%)	35	34	31	29	41	32	30	33
Filing Quarters: 2005:Q4-2007:Q2								
Chapter 7 (%)	38	24	18	10	28	31	43	50
Chapter 13 (%)	42	30	27	20	26	24	26	29
Filing Quarters: 2007:Q3-2009:Q4								
Chapter 7 (%)	43	26	15	12	22	19	28	35
Chapter 13 (%)	39	20	18	15	23	18	17	19
Filing Quarters: 2010:Q1-2010:Q4								
Chapter 7 (%)	48	27	16	13	16	19	32	42
Chapter 13 (%)	47	26	21	19	16	14	16	18

Sources: Federal Reserve Bank of Philadelphia Equifax consumer credit panel and Federal Reserve Bank of New York Equifax consumer credit panel.