Unlocking the Risk-based Pricing Puzzle:
Five Keys to Cutting Credit Card Costs

The introduction of risk-based pricing has substantially changed the U.S. credit market. Although this "democratization" has provided credit to many underserved populations, these sophisticated pricing schemes leave many consumers wondering how to get the best price. Using the 2004 Survey of Consumer Finances, we specifically looked at credit card interest rates to determine the effect of selected financial behaviors that are within the control of consumers. For consumers who revolve a credit card balance, we found five tips to lowering their interest rate: (1) pay bills on time, (2) pay off credit card balances, (3) decrease credit utilization ratios, (4) become more financially educated, and (5) shop around more for credit. If consumers implement these tips, they can reduce their credit card interest rate and the amount of interest they will have to pay.

Amberly Hazembuller, Federal Reserve Board[1]
Britton J. Lombardi, Ohio Wesleyan University[2]
Jeanne M. Hogarth, Federal Reserve Board[3]

Introduction

Credit markets have changed substantially over the past 20 years. The decision to grant credit has changed from a "yes or no" decision for lenders to a "yes, but at what price" decision in a risk-based pricing environment. Legislators who passed the Fair Credit and Charge Card Disclosure Act of 1988 probably never anticipated subprime credit markets, universal default, or "penalty" interest rates that can exceed 30 percent. Nor may have they anticipated levels of outstanding credit card debt growing from $329.9 billion in 1988 to $840.8 billion in 2006 (constant 2006 dollars, Federal Reserve Board, 2006).

The concepts of risk-based pricing and "penalty" interest rates are interesting for policymakers and consumer educators for a variety of reasons. Although we know these pricing policies exist, we need to better understand how credit card issuers define risky behavior and, consequently, how these behaviors affect the annual percentage rate (APR) received by consumers.

Using data from the 2004 Survey of Consumer Finances, the goal of this paper is to examine the extent to which risky behaviors are reflected in the APRs charged to consumers on their credit cards. We pay special attention to the behaviors that can be controlled and changed by the consumers themselves. Identifying these behaviors will help consumers modify their behaviors to reduce the APR on their credit cards, saving thousands of dollars in interest payments on credit card debt over time.

Background and Previous Studies

The way financial institutions price their products has undergone a transition to risk-based pricing. This type of pricing structure is only recently possible due to a number technological improvements and innovations. These recent innovations include automated credit scoring, growth of asset securitization, and more flexible underwriting models while the technological improvements have reduced the cost of providing credit, including reductions in data storage costs (Bostic, 2002). These advancements have increased competition among lenders during the 1990s (Getter, 2006), which has encouraged lenders to offer credit to marginal borrowers (Lyons, 2003) in order to increase or maintain their market share. As the technology of providing credit has advanced, so has the way lenders price their credit products. Lenders can now segment the population between low-risk and high-risk borrowers based on their credit score, charging different rates based on risk. The higher the risk of the borrower, the higher the interest rates the lenders will charge to compensate for the possibility of delinquency or default (Cutts, Van Order, & Zorn, 2000). This pricing strategy has allowed households traditionally considered credit constrained, especially minorities and low income households, to gain access to credit products that they were previously denied, albeit it at a higher cost. This expansion of available credit to more individuals that occurred during the mid-to-late 1990s has become known as the "democratization of credit" (Lyons, 2003).

Household Loan Markets

Research in the 1980s and early 1990s maintained that many lenders did not want to lend to high risk consumers, and therefore, simply denied them credit. A study conducted using data from the 1983 Survey of Consumer Finances found that about 19% of U.S. households were liquidity constrained (Jappelli, 1990), but further research concluded that if the liquidity constraint were removed, overall household borrowing would increase by 9% (Cox & Jappelli, 1993). Thus, these constrained individuals would increase their indebtedness if given the chance. In line with these findings and the recent credit trends, the borrowing gap for all households, defined as the difference between desired debt levels and the actual debt holdings, has decreased since 1983. Households with lower levels of permanent income have seen a greater decline in their borrowing gap than households with higher levels of permanent income (Lyons, 2003).

As evidence of risk-based pricing, one study found that for mortgage loans, 63.6% of all borrowers paying rates in the highest percentile of the mortgage rate distribution were of low credit quality, defined as households reporting a 60-day delinquency in the past year, ever filing for bankruptcy, or who have been completely rejected for credit in the five-year period studied (between 1996 and 2001; Getter, 2006). Similar trends of high risk individuals concentrated in the top percentiles of the price distribution also occur for new and used automobile loans. This same study found that delinquency problems and levels of shopping for credit were significantly associated with the rate received on mortgage or automobile loans (Getter, 2006). These findings provide evidence that lenders are pricing on a more granular, almost individualistic, basis. There is some concern that pricing on a seemingly individual basis might raise concerns of discrimination and bias. However, it appears that using credit scores to award credit has made judging applications more objective, more consistent, and less biased for the entire population (McCorkell, 2002).

Credit Card Industry

Even though risk-based pricing originated in the consumer loan markets, the concept and technologies have made their way to other loans types, specifically credit card loans (Edelberg, 2003). Similar to the other loan markets, credit card issuers faced strong competition and more informed consumers in the early 1990s. As a result, issuers had to move away from their risk-indifferent APR strategies that they had used up to that point (Furletti, 2003). As the market moved away from a "single APR" strategy, the issuers used improved credit scoring technology already prevalent in the mortgage industry but also improved their solicitation technologies and response modeling to further identify and segment their potential customers (Furletti, 2003). They began to price cards based on an individual's risk and behavior as they tried to maintain profit margins during a time of overall decreasing APRs.

Card issuers focused on APRs to attract new customers by using two types of strategies. The issuers either offered very low introductory APRs or low permanent APRs, and within this strategy, risk based pricing was used two different ways. The card issuers either used risk-based pricing to set the initial interest rate offered to their customer or created a "penalty APR", which meant they could increase the customer's APR as the individual's risk increased (Furletti, 2003). As evidence of this strategy, the fraction of the poor households with a credit card more than doubled between 1983 and 1995 according to SCF data during this period (Bird, Hagstrom, & Wild, 1999). Consequently, credit cards have become more accessible by lower income consumers, although they face higher APRs under this pricing structure.

As credit becomes more available to riskier consumers, banks and card issuers face the possibility of higher delinquencies and losses due to the inability of consumers to repay their debt. In fact, banks or card issuers face adverse selection, especially on their pre-approved credit card solicitations. That is, consumers who accept credit card offers with higher risk-based APRs are worse credit risks than consumers who accept offers with lower APRs; therefore banks could face higher delinquency rates and charge-offs (Ausubel, 1997). One study tested these hypotheses and found that the banks that charged higher interest rates did have higher delinquency rates, but not significantly higher charge-off rates (Stavins, 2000). Furthermore, banks that charged higher annual fees, minimum finance charges, or late fees also had higher delinquency rates (Stavins, 2000). However the same institutions that charged higher interest rates or fees were found to have higher net revenues from credit card lending than other issuers. Therefore, extending credit to riskier consumers may be profitable for banks. As a result of these studies, it seems that banks screen their potential clients and offer higher-cost plans to their higher-risk customers (Stavins, 2000).

Credit Risks and Credit Scores

Consumer educators used to teach the "Three C's" of credit – capacity (income, assets, other obligations), collateral (security for the debt), and character (usually measured as past payment history). Today, however, those

criteria have morphed into a credit score. The major components of a consumer credit score, and, consequently the "risky behaviors" that creditors consider, are payment history, credit utilization, length of credit history, new credit obligations, and the mix of credit products a consumer has (Consumer Federation of America & Fair Isaac, 2005).

Methodology

Data

We used data from the Federal Reserve Board's 2004 Survey of Consumer Finances (SCF) for this study. The SCF is a triennial survey of U.S. families' financial portfolios sponsored by the Federal Reserve with the cooperation of the Statistics of Income Division of the Internal Revenue Service. It is designed to provide detailed information on U.S. households' balance sheets, their use of financial services, demographics, and labor participation. The data were collected by the National Opinion Research Center at the University of Chicago. In 2004, 4,522 households were interviewed; however, only 4,519 observations are included in the public data set.

The SCF uses a dual-frame sample design. About two-thirds of the respondents are selected from a standard multi-stage area-probability design; this sample provides coverage of characteristics, such as home ownership, that are broadly distributed in the population. However, many assets are not widely distributed among households. The remaining one-third of respondents are a purposive over-sampling of wealthy households selected from statistical records provided by Statistics of Income Division of the Internal Revenue Service. The dual sampling frame employed in the survey requires that data be weighted in descriptive analyses (Aizcorbe, Kennickell, & Moore, 2003).

The SCF also uses multiple imputation techniques to deal with missing data. This procedure creates five data sets (called implicate data sets) that require special handling in any multivariate analyses (Kennickell, Starr-McCluer & Sunden, 1997). In this study, we used all five implicates for descriptive analyses; the third implicate was randomly selected for the multivariate analysis. Unweighted regressions are estimated (see Kennickell, 2006 for a discussion on weighted versus unweighted regressions).

Model

Because we are interested in learning about the relationships between "risky" behaviors and the price paid for credit, our dependent variable is the interest rate (APR) on the household's primary credit card, defined as the main card used or the card with the largest balance, as reported by the respondent. Our working hypothesis is that APR is associated with credit risk measures, holding other socioeconomic, demographic, and expectational and motivational characteristics constant:

APR on primary credit card = f (credit risk measures | socioeconomic, demographic, expectational and motivational characteristics)

There is some evidence that revolvers may have different interest rates than convenience users (Lee & Hogarth, 1999); to allow for these differential rates, we estimate the model on the sample of consumers with credit cards and then only on the sub-sample of revolvers.

Independent Variables

Credit Risk Measures. To the extent possible, we identified variables that serve as proxies for the components of a consumer credit score: payment history, credit utilization, length of credit history, new credit obligations, and the mix of credit products a consumer has (see Table 1 for definitions and measures). We also included selected other credit risk measures: level of credit shopping effort, level of information search when shopping for credit, attitude toward credit, and level of risk tolerance.

Socioeconomic and Demographic Characteristics. Although we are primarily interested in the extent to which prices (APRs) reflect credit risk, we realize we need to control for a number of other factors. To that end, we included measures of income, financial assets, education, marital status and gender, race/ethnicity, and work status.

Expectations and Motivations. In addition to attitudes about credit, expectations about general economic conditions as well as the household's plans may be related to the price consumers are willing to pay for credit. We included expectation measures of interest rate, major expenses, and income increases relative to inflation. Also, to understand household motivations, we have a measure of financial planning horizon.

Results

<u>Descriptive Analysis</u>

Among all households with credit cards, half had interest rates at or below 11.5%; among revolvers, half had interest rates at or below 11.0% (Table 1). This makes sense, in that revolvers should be more motivated to seek out cards with lower APRs.

<u>Credit Risk Measures.</u> Compared with all households with credit cards, households that revolved appear to be somewhat riskier – that is, they are less likely to report good credit history, they are more likely to say they hardly ever pay off their balances, they have higher utilization rates and higher balances, they carry more cards, they are younger (a shorter credit history), they are more likely to have been rejected for credit, and they are less likely to be home owners (our proxy for having a mix of types of credit). On the other hand, higher proportions of revolvers said they were not late with their payments, they added lower amounts of new charges to their cards, and they reported higher levels of shopping effort and information search.

<u>Other Characteristics.</u> As might be expected, compared with all households with credit cards, household that revolved had lower incomes and lower amounts of financial assets. They were more likely to be minority and to be working. In addition, they tended to have shorter financial planning horizons.

Table 1. Description of Measures of Credit Risk and Other Related Variables (in percents unless stated otherwise)

Variable	Measurement	Households with Credit Cards	Households that Revolve
Number of observations	Unweighted, all 5 implicates	18,100	8,159
APR on primary card			
	Mean	11.48	11.75
	Median	11.50	11.00
Credit Risk Measures Related to Credit Scores			
Payment history			
No late payments	1 if never got behind or missed payments	71.9	77.5
Good credit history	1 if never behind in payments 2 months or more <u>and</u> never filed for bankruptcy	91.3	87.5
Payment behaviors			
Hardly ever pay off (base)	1 if hardly ever pay off total balance on credit card	24.1	40.2
Sometimes pay off	1 if sometimes pay off total balance on credit card	20.1	32.2
Always/almost always pay off	1 if always/almost always pay off total balance on credit card	54.9	27.5
Credit utilization			
Utilization rate	Ratio of outstanding credit to credit limit	27.8	47.2
Credit limit	In dollars, combined for all cards		
	Mean	23,455	21,127
	Median	13,000	12,000
Have card balance	1 if report having a balance still owed	58.9	100.0
Card balance	In dollars, combined for all cards		
	Mean	3,123	5,304
	Median	430	2,380
New charges last month	Dollars, combined for all cards		
	Mean	1,224	922
	Median	350	260
Number of cards	Mean	4.4	4.6
	Median	3.0	4.0

Length of credit history			
Age	Years		
	Mean	50.4	46.6
	Median	49.0	45.0
18-34	1 if respondent is 18-34	18.8	22.2
35-49	1 if respondent is 35-49	32.6	39.1
50-64 (base)	1 if respondent is 50-64	27.3	25.8
65 & over	1 if respondent is 65 or older	21.4	12.9
Number of years with current employer	Years	7.7	7.7
New credit obligations			
Approved for credit	1 if applied and approved for credit in last 5 years	58.3	57.5
Rejected	1 if applied for credit but rejected or received less than applied for	19.1	27.1
Reapplied	1 if able to obtain the full amount requested by reapplying	8.1	11.2
Loan from friends	1 if could get loan of $3,000 or more from friends or relatives	72.8	69.4
Mix of credit			
Home owner	1 if own home	78.7	73.7
Other lines of credit	Dollars, in thousands		
	Mean dollars	$730	$360
	Median dollars	$0	$0
Other Credit Risk Measures			
Level of shopping effort for credit			
Low (base)	1 if report less than a moderate amount of shopping for credit	21.5	19.0
Medium	1 if report a moderate amount of shopping for credit	37.3	39.7
High	1 if report more than a moderate amount of shopping for credit	41.2	41.3
Information search (weighted measure based on number and expertise of information sources)			
Low (base)	1 if use few, non-expert sources	17.1	14.2
Medium	1 if use multiple, mixed expertise sources	57.9	60.6
High	1 if use more, expert sources	25.1	25.2
Attitude toward credit	1 if respondent says it's a bad idea for people to buy things on the installment plan	30.1	24.9
Risk tolerance			
Low (base)	1 if not willing to take any financial risks	33.9	37.5
Moderate	1 if willing to average financial risks	62.7	58.7
Substantial	1 if willing to take above average or substantial financial risks	3.4	3.8
Socioeconomic & Demographic Characteristics			
Income	Dollars, in thousands		
	Mean	84,350	65,214
	Median	53,399	50,318
Financial assets	Dollars, in thousands		
	Mean	575,479	90,700
	Median	159,000	18,300
Checking account	1 if have checking account	90.9	91.6
Saving account	1 if have saving account	53.6	54.7
Money market account	1 if have money market account	26.4	18.7

Education	Years		
	Mean	13.9	13.6
	Median	14.0	14.0
Less than high school	1 if less than a high school education	8.7	9.3
High school/GED (base)	1 if high school diploma or GED	27.5	30.6
Some college	1 if some college	15.9	11.8
College degree	1 if bachelor's degree	23.8	20.6
Post graduate/graduate degree	1 if some post-graduate study or graduate degree	15.9	11.8
Marital status/gender			
Married (base)	1 if household is married couple	63.4	62.9
Single male	1 if household is headed by single male	12.9	11.4
Single female	1 if household is headed by single female	23.7	25.7
Race/ethnicity			
White	1 if respondent is White	80.1	74.1
Black	1 if respondent is Black	9.4	13.4
Hispanic (base)	1 if respondent is Hispanic	6.6	9.0
Other races	1 if respondent is of another race	3.9	3.5
Work Status			
Working	1 if respondent is working	61.7	71.1
Self-employed	1 if respondent is self-employed	13.4	11.7
Student	1 if respondent is a student	1.0	1.0
Homemaker	1 if respondent is a homemaker	1.0	0.0
Retired	1 if respondent is retired	18.2	10.1
Unemployed, looking for a job	1 if respondent is unemployed but looking for a job	2.1	2.5
Unemployed, not looking for a job (base)	1 if respondent is unemployed and not looking for a job	4.1	4.0
Expectations & Motivations			
Interest rates will rise over next 5 years	1 if expect interest rates will rise over next 5 years	82.5	81.2
Major expense in next 5-10 years	1 if expect major expense in next 5 to 10 years	53.7	56.2
Income rose more than prices last year	1 if report that household income rose more than prices last year	22.1	20.9
Financial planning horizon			
Short term (<= 1 year; base)	1 if report planning horizon of 1 year or less	28.1	32.9
Medium term (2-10 years)	1 if report planning horizon between 2 and 10 years	56.3	53.1
Long term (10+ years)	1 if report planning horizon of more than 10 years	15.5	14.0

Regression Results

  Credit Card Holders. We first estimated an OLS regression model using those respondents who said they had at least one credit card. The dependent variable was the interest rate of the primary credit card; the independent variables were as previously described (Table 2).

  Controlling for credit risk, only a few of the socioeconomic, demographic, and expectational variables were significant. The financial assets of the respondent were positively related to the interest rate on the credit card, although the affects were minimal. Compared with married couples, single males had lower interest rates. Experiencing increases in household income that outpaced prices in the previous year was positively related to credit card interest rates.

Table 2. OLS Regression Results, by Card Ownership and Revolving Behavior*

Variable	Households with Credit Cards		Households that Revolve	
	Parameter estimate	Prob. sig.	Parameter estimate	Prob. sig.
Intercept	16.24	.00	17.00	.00
Credit Risk Measures Related to Credit Scores				
Payment History				
No late payments	-.69	.01	-1.77	.00
Good credit history	-1.18	.02	-.85	.14
Payment behaviors				
Hardly ever pay off	Base	Base	Base	Base
Sometimes pay off	-1.41	.00	-1.04	.00
Always/almost always pay off	-1.69	.00	-1.61	.00
Credit Utilization				
Utilization rate	.66	.00	.43	.01
Credit limit (in thousands)	-.03	.01	-.01	.00
Have a credit card balance	-.81	.02	na	na
Card balance (in thousands)	-.05	.00	-.03	.05
New charges last month	-.004	.75	.02	.58
Number of cards	-.03	.40	-.02	.66
Length of Credit History				
Age				
18-34	-.34	.41	-.54	.32
35-49	-.10	.74	-.78	.06
50-64	Base	Base	Base	Base
65 & over	-.76	.03	-2.08	.00
Number years with current employer	.004	.71	.01	.45
New Credit Obligations				
Approved for credit	.34	.24	-.45	.36
Rejected	1.40	.01	1.03	.11
Reapplied	-1.01	.07	-1.00	.11
Loan from friends	.21	.43	.04	.92
Mix of Credit				
Home owner	-.76	.02	-1.22	.00
Other lines of credit	.0003	.37	.0004	.44
Other Credit Risk Measures				
Level of shopping effort				
Low	Base	Base	Base	Base
Medium	-.62	.03	-.66	.14
High	-1.33	.00	-1.91	.00
Information search				
Low	Base	Base	Base	Base
Medium	.37	.23	.27	.59
High	.42	.23	.46	.42
Attitude toward credit	.21	.37	.24	.51
Risk tolerance				
Low	Base	Base	Base	Base
Moderate	-.71	.01	-.88	.82
Substantial	-1.31	.01	-1.94	.01
Socioeconomic & Demographic Characteristics				
Income (in thousands)	-.00001	.63	.0006	.14
Financial assets (in thousands)	.00002	.03	-.0003	.02
Checking account	.22	.52	.17	.78
Saving account	-.11	.62	-.30	.35
Money market account	-.04	.89	-.25	.56

Education				
Less than high school	.07	.89	.49	.44
High school/GED	Base	Base	Base	Base
Some college	-.69	.28	-.61	.46
College degree	.07	.91	-.46	.60
Post graduate/graduate degree	.11	.87	.007	.99
Marital status/gender				
Married	Base	Base	Base	Base
Single male	-.79	.02	-1.10	.04
Single female	.17	.60	-.09	.84
Race/ethnicity				
White	-.37	.46	-.66	.26
Black	-.09	.89	-.30	.68
Hispanic	Base	Base	Base	Base
Other races	-.06	.93	-.16	.86
Work Status				
Working	.37	.61	1.26	.18
Self-employed	.45	.56	1.76	.09
Student	-2.21	.14	-1.22	.53
Homemaker	-.40	.78	.85	.75
Retired	.72	.36	1.88	.09
Unemployed, looking for a job	-1.40	.20	.04	.98
Unemployed, not looking for a job	Base	Base	Base	Base
Expectations & Motivations				
Interest rates will rise over next 5 years	.32	.30	.75	.07
Major expense in next 5-10 years	-.25	.26	-.32	.34
Income rose more than prices last year	.62	.01	.52	.18
Financial planning horizon				
Short term (<= 1 year)	Base	Base	Base	Base
Medium term (2-10 years)	-.40	.55	-.15	.68
Long term (10+ years)	-.24	.13	.39	.45
F value	4.76	.00	5.94	.00
Adjusted R^2	.05		.14	

* Dependent variable is APR on primary credit card

Our real interest lies in the credit risk variables, and these generally performed as expected. Households with no late payments can expect interest rates that are about 69 basis points lower than those that do make late payments (for example, starting with the 16.24 intercept, a household with no late payments could expect an interest rate of 15.55). Households with a good credit history can expect rates that are 118 basis points lower. Good payment behaviors were associated with monotonically decreasing interest rates – 141 basis points less for those that sometimes pay off and 169 basis points less for those that always pay off.

The higher the utilization rate, the higher the interest rate, as expected; a 1% increase in the utilization increased the interest rate by 66 basis points. The credit limit had a negative relationship with the interest rate. For every $1000 increase in the credit limit, the interest rate was 3 basis points lower. Revolving a balance on the credit card was associated with an interest rate that was 81 basis points lower. Furthermore, the size of the balance on this card affected the interest rate; for every $1000 carried, the interest rate was 5 basis points lower.

Our proxy for length of credit history – respondent's age – was significant but did not function as expected. While being older (65 and over compared with 50-64) was associated with a lower interest rate, being younger (having a shorter credit history) was not significant.

If in the past the respondent had applied for a loan and had been rejected, their credit card interest rate was higher by 140 basis points. However if they reapplied, after being rejected, and then were approved for the full amount requested, their interest rate was 101 basis points lower, although this result is only marginally significant.

The level of shopping effort for credit was associated with credit card interest rates. Respondents who reported a medium level of effort saved about 62 basis points on their interest rates, while those who reported a high level of effort saved about 133 basis points.

Finally, compared with those unwilling to take risks, those willing to take moderate financial risk had a lower interest rate by 71 basis points; and those willing to take substantial risk had interest rates that were 131 basis points lower.

Revolvers. Getter's study combining the 1998 and 2001 SCF data found race was a significant factor on the reported interest rate charged on a credit card with a revolving balance (Getter 2006). In our second OLS regression model with the interest rate as the dependent variable, race was not significant when controlling for other variables. However, interesting differences did arise between our two regression models that need to be noted, although a core group of variables did maintain their significance in both regressions.

Of the socioeconomic and demographic variables, being a single male remained significant; none of the expectational and motivational variables were significant. Although the financial assets of an individual remained significant, the relationship with the interest rate turned to a negative one; an increase in financial assets was associated with a decrease in the interest rate.

The good credit history variable lost its significance among revolvers. If respondents had no late payments, their interest rate was 177 basis points lower than those that had made a late payment. Payment practices also affected the interest rate. Compared with those who never paid off their balance, respondents who sometimes paid off their credit card balance had an interest rate that was 104 basis points lower while those who always paid off their credit card balance had a lower interest rate by 161 basis points.

A 1% increase in the utilization ratio would increase the interest rate by about 43 basis points. The credit limit on the card still had a negative relationship, but the affect was small -- an increase of $1000 would decrease the interest rate by 1 basis point. The credit card balance maintained its negative association with the interest rate -- for every $1000 increase in the balance, the interest rate decreased by 4 basis points.

Age played more of a factor in the interest rate received by revolvers. If the respondents were age 35-49, they had a lower interest rate than the 50-64 year olds, the base group, by 78 basis points. If respondents were in the 65 and older age group, their interest rate decreased by 208 basis points compared with the base group. Home ownership was also significant and had a higher magnitude than in the previous regression; home owners had interest rates that were 122 basis points lower than their non-owning counterparts.

Shopping efforts continued to have a payoff, but only at the higher level of effort – those who shopped at this higher level saved about 191 basis points on their interest rate. Moderate risk takers saved 88 basis points, while substantial risk takers saved 194 basis points.

Discussion

The purpose of this paper was to examine the extent to which risk-based prices are correlated with risky behaviors. We focus our discussion on the revolvers, because the conventional wisdom is that individuals who only use their credit card for transactional purposes focus less on their APR than on the other features of their credit card. The APR affects the revolvers as they must pay the interest on their outstanding balance every month, and consequently, they stand to save more money by lowering their interest rates.

When we controlled for all variables, there was no evidence of racial discrimination in the interest rate received by consumers on their credit cards in our model. However, we must note some limitations to this statement. Although, we found no evidence of discrimination with respect to the interest rate, we do not have data about the fee structures used when administering additional charges to the respondents by the credit card companies. As a result, we cannot draw any definitive conclusions regarding discrimination. Also, we could not differentiate between prime and subprime credit cards, nor among those with penalty rates versus those with high-rate subprime cards.

In our model with revolvers, few demographic and socioeconomic variables had an association with the interest rate. And while these may be associated with the interest rate, it is difficult to make recommendations to consumers about things that they cannot control, nor do we want to tell consumers to completely change their lives. Therefore, we will focus on certain credit behaviors that consumers can control and will help them reduce their credit card interest rate and the amount of interest they will have to pay.

Top 5 Things Consumers Could Do to Lower Their Credit Card Interest Rate

In the "revolver" regression five behaviors had a significant affect on the interest rate. Since credit card companies are also in competition with themselves, though applying some or all of these principles, card holder

should be able to make a case for a lower interest rate. Some may not think that reducing the interest rate on their credit card by a few basis points would significantly decrease the amount of interest they pay on their credit card balance, however it does. To illustrate this point we use examples based on the median balance revolved ($2,380) and the "intercept" interest rate of 17.0%. We assume that consumers do not charge any more to their credit card, that a single interest rate applies to the full balance, the rate does not change during the payoff period, there are no additional fees or penalties, and consumers pay all of the finance charges plus 3% of the balance with a minimum total payment of $20. This "Sample Consumer" would end up paying $1,774.91 in interest over the life of the debt as they pay down the balance to zero (Table 3).

Table 3. Behaviors that Lower Rates and Save Money**

	Rate	Interest Paid	Potential Savings
Base	17.00%	$1,774.91	---
Shop more	15.09%	$1,439.27	$333.64
Pay on time	15.23%	$1,461.90	$313.01
Decrease utilization by 10%	12.37%	$1,089.81	$685.10
Increase risk tolerance to substantial.	15.06%	$1,434.48	$340.43

** Assumptions: Balance = $2,380, completely paid off, consumers do not add to the balance
                Single interest rate applies to the full balance, no interest rate changes during payoff period
                No additional fees or penalties
                Payments = all finance charges + 3% of balance

1. Pay Bills On Time. As part of the credit card industry's "penalty" interest rate system, missing a payment could cause the card issuer to increase the consumer's interest rate to the higher penalty rate. In our model, consumers who pay their bills on time would have lower interest rates by 177 basis points.

If our Sample Consumer cleans up their credit record and never has a late payment, their interest rate would be 15.23%, resulting in a saving of $313.01 in interest over the base group.

2. Pay Off the Credit Card Balance. Depending upon the amount of the balance carried, it is understandable that consumers may not be able to pay off the entire balance on their credit card. But they may be able to initiate a new pattern of increasing the amount they pay off monthly to systematically reduce their balance. As this pattern continues, they could eventually gain the ability to pay off their entire balance monthly. Once this occurs, they could maintain this payment pattern. By implementing this behavior, they could reduce their interest rate by 104 to 161 basis points.

A dollar saving for this behavioral change is difficult to calculate because of the compounding effects of paying down the credit card balance and the interest rate change. However, if the interest rate remained constant and the Sample Consumer pays off 4% of their balance, instead of 3%, the resulting interest would be $1,152.57, a savings of $622.34. And if the interest rate was reduced by 104 basis points they would save $190.36. Therefore, the approximate total potential savings would be $622.34 + $190.36 or $812.70.

3. Decrease Credit Utilization. The credit utilization rate is the ratio between the credit card balance and the credit limit. To cut this rate, the consumer would have to decrease the credit card balance. If they lessen the balance, they save money in two ways – they reduce their credit card interest rate and this lower rate gets applied to the smaller balance, resulting in lower interest costs. The utilization rate is a percentage (for example, if the credit limit is $1,000 and the balance is $500, the utilization rate is 50%); lowering the rate by 1% (in our example, from 50% to 49%) was associated with a 43 basis point reduction in the interest rate.

If our Sample Consumer reduced their credit utilization ratio by 10 percentage points, they could reduce their interest rate by 433 basis points to 12.67% from 17.00%, paying $1089.81 in interest, a savings of $685.10.

4. Become More Financially Educated. Becoming financially educated increases consumer confidence and ultimately helps consumers actively manage their credit. Although we do not have a variable that directly measures financial education, the amount of risk consumers are willing to take can be a proxy for financial sophistication. An improved understanding of financial products, including stocks, bonds, and credit products allows consumers to conduct more sophisticated financial transactions – and they may be able to take on more informed risk. Additionally, consumers with more financial education may be able to choose among credit card offers as they are better able to recognize the bad ones. By being willing to take on more risk, consumers could find rates that are 194 basis points lower.

If our Sample Consumer was able to tolerate substantial risk, they could reduce their interest rate from 17.00% to 15.06% and pay $1434.48 in interest, saving them $340.43.

5. Shop More For Credit. The proliferation of credit cards have actually created increased competition between card companies, shopping for credit allows consumers to tap into this competition. Our model predicts that increasing the amount of shopping is associated with a decrease in the interest rate. When consumers do more comparison shopping, they are more likely to find a lower interest rate – our model predicts a 191 basis point reduction – and perhaps other card features that provide added benefits. With additional information, consumers would be able to make more informed decisions when choosing their credit card.

 If our Sample Consumer had conducted more research to choose their credit card, they could reduce their interest rate by 191 basis points to 15.09% would pay $1,439.27 in interest, saving $335.64.

Conclusion

Understandably, consumers cannot change all five behaviors at once, but if they start to make small adjustments these can eventually add up to at hundreds of dollars saved in interest through lower interest rates. This process takes time, but the first step is to understand that consumers can affect their interest rates through their actions. Next, they need to actually make the changes that will reduce their interest rates. Lastly, consumers will need to be proactive in dealing with the credit card company and ask for a lower interest rate.

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<u>Endnotes</u>

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[1] Senior Research Assistant, Consumer Education and Research, Federal Reserve, Washington, DC 20551, E-mail: Amberly.hazembuller@frb.gov, Phone: (202) 785-6056, Fax: (202) 452-3849.

[2] Student, Economics Department, Ohio Wesleyan University, Delaware, OH 43015, E-mail: britton.lombardi@gmail.com, Phone (216) 789-0431.

[3] Manager, Consumer Education and Research, Federal Reserve, Washington, DC 20551, E-mail: jeanne.m.hogarth@frb.gov, Phone: (202) 785-6024, Fax: (202) 452-3849. The analysis and conclusions set forth in this paper represent the work of the authors and do not indicate concurrence of the Federal Reserve Board, the Federal Reserve Banks, or their staff.