Numbers Game: The True Cost of Credit Card Mail Offers

CRL Research Report: Credit Cards Joshua M. Frank, Senior Researcher
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EXECUTIVE SUMMARY

Credit card offers have grown increasingly complex over time. Using a straightforward measure of complexity—the total number of numeric figures that appear on a credit card direct mail offer—this report shows that offers to consumers were 2.5 times more complicated in 2009 than in 1999. In an encouraging sign, a decade-long trend toward complexity has eased since implementation of recent reforms contained in the Credit CARD Act of 2009.

This analysis focuses on the "Schumer Box" – a key summary of terms within each offer ("Schumer Box" and "summary of terms" are used interchangeably in this report). This disclosure, which summarizes costs to the consumer, contains the information most likely used when selecting a credit card. It does not include all card terms, but rather is intended to summarize the most important terms for consumers. The general structure and the type of information that must be included in the Schumer Box are mandated by law that became effective in 2000 (in legislation sponsored by then-U.S. Congressman Charles Schumer). However, the law does not mandate or necessitate complex disclosures. Rather, the complexity of disclosures is a function of choices made by a card issuer.

Finding 1: The average credit card offer's summary of terms had 33 figures at its peak in 2009.

The most complex summary of terms analyzed had 55 numbers, while the simplest summary of terms had just 5 numbers. In the peak period of May 2009, the number of numbers in a summary of terms varied considerably, from 14 to 48. In many periods, the most complex offer had more than 6 times as many numbers as the simplest.

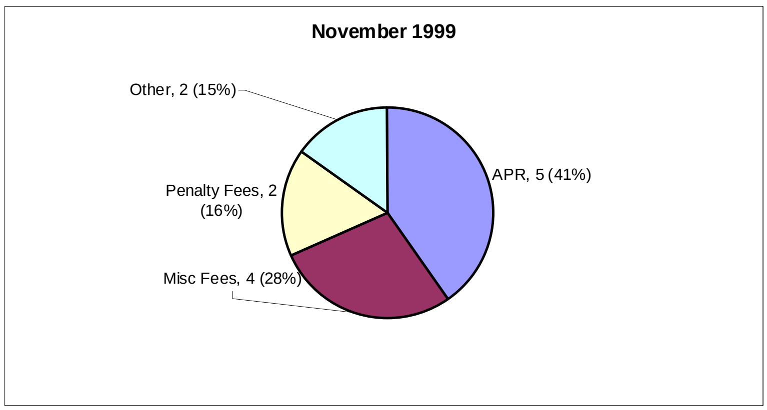
Finding 2: Summary term complexity rose 250% between 1999 and the peak period in 2009, but declined 23% after implementation of key provisions of the Credit CARD Act of 2009.

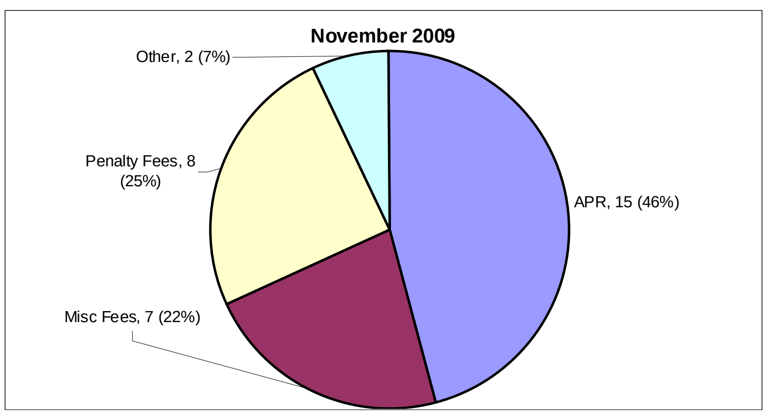
The average number of numbers appearing in the Schumer Box grew by 250% from 13 numbers in 1999 to a peak of 33 numbers in 2009. In 2010, after the Credit CARD Act, the complexity of contracts declined by 23% to an average of 26 numbers. A notable drop in offer complexity was observed after the CARD Act. Most of this has been due to simplification in Annual Percentage Rate (APR) terms.

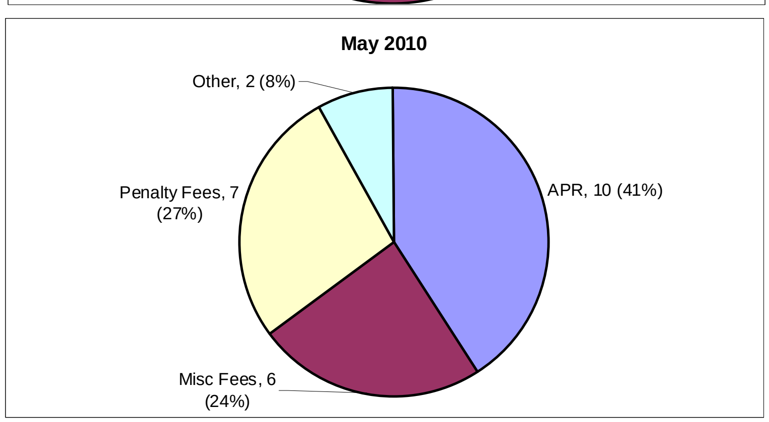
Finding 3: The sources of complexity shifted from 1999 to 2009, with the latter year having a greater portion of numbers related to penalty fees and to APR.

In 1999, 41% of numbers were related to APR, while 16% were related to penalty fees. In 2009, 46% were related to APR, while 25% were related to penalty fees. The absolute level of numbers increased for all categories between 1999 and 2009. After implementation of most provisions of the Credit CARD Act, 41% of numbers were related to APR, while 27% were related to penalty rates. However, even as the proportions of these figures remained more or less level over the implementation of the Credit CARD Act, they were associated with an appreciably lower absolute count of numbers than was the case before reform.

Average Number of Numbers (rounded) in Credit Card Offers, by Date and Type







Each number in a credit card offer can generally be considered a dimension of price. All of these price dimensions must be considered simultaneously so that a consumer can make the best decisions regarding his or her credit cards. There is evidence that consumers cannot grasp anything close to 30 dimensions simultaneously when making a decision, with previous research suggesting the number may be closer to seven. With a typical credit card offer and average processing capacity on the part of the consumer, over 75 percent of the price information will not be fully taken into account.

If a consumer is comparing offers, this quickly multiplies the number of dimensions involved. For example, if a consumer is comparing three credit card products, just looking at the introductory rate, the length of the introductory rate, and a single long-term purchase rate for each offer results in nine numbers. This already stretches the consumer's cognitive capacity. Consumers often make their best effort to comparison shop, but end up frustrated in their attempt to find the cheapest product.

Why do most issuers put so many numbers in their offers? Complexity in disclosures is a direct result of credit card issuer choices. In most years, the most complex offer had 6 to 8 times as many numbers as the simplest offer. Both of these offers existed in the same regulatory environment. The difference was the complexity of the underlying product.

Policy Recommendation

The Credit CARD Act appears to have reduced the complexity of credit card contracts, supporting the contention that the law is having its intended effect of creating more understandable and predictable credit card terms. However, credit cards still remain far more complex in their pricing than they were just a decade ago. Price complexity can lead to a less competitive market by thwarting a consumer's ability to weigh all factors when comparing prices simultaneously and accurately. The trend toward more complex credit card offers should be monitored by regulators. Complexity is down since Credit CARD Act implementation, but it is still higher than the complexity of offers just five years ago. More reform or rulemaking action by regulators may be warranted if complexity continues to stay high.

Borrower Recommendations

Issuers are well-aware that there are limitations to consumers' ability to attend to every detail of highly complex disclosures. The less scrupulous among them will give what seems a great offer with a prominent headline interest rate, while making up for it by using a variety of other fees and prices less obvious to the prospective cardholder. Consumers should not be deceived by this tactic. It may be too difficult to weigh and compare all the prices and fees at once, so **choose the simple and transparent over the deal that looks too good to be true**. In the end, consumers likely will be better off with straightforward, honest pricing systems than with a 0% introductory offer that comes with considerable price changes and fees down the line.

BACKGROUND

Credit card offers have grown increasingly complex over time. There are many ways to examine complexity. CreditCards.com, for example, considered the readability of credit card contracts using grade school reading level as the metric.[1] That report found that the typical card contract is written at a 12th grade level, which makes it beyond the full comprehension of four out of five U.S. adults. According to the report, the average adult in the U.S. reads at the ninth grade level. If anything, the CreditCards.com study likely underestimates complexity because the software focuses on vocabulary and grammar, rather than considering other dimensions of complexity such as the use of multiple numbers and logical complexity. Also, while the study provides useful perspective into card contracts, it is based on a single point in time and does not provide insight into how complexity has changed.

This study reports on a simple, straightforward, objective and quantifiable measure of complexity: the total number of distinct numeric figures that appear on credit card direct mail offers. In fact, these offers are just one of three forms in which consumers receive credit card-related disclosures:

1. Application or offer disclosures—this includes a summary of terms, the focus of this study.
2. Account opening disclosures—these typically include the full contract along with a complete specification of terms and conditions. Consumers normally only receive this full contract *after* they have signed up for the card.
3. Periodic statements—some limited information such as interest rates are included in this set of disclosures, but were not evaluated in this study.

This study evaluates the change over time in the number of numbers in credit card offers. More specifically, the study focused on the summary of terms that consumers are most likely to use in their decision, the "Schumer Box" (See Figure 1 for an example). It does not include all disclosures even in the context of a typical credit card offer, but rather is intended to summarize those terms most important to consumers. In this report we refer to this important set of disclosures alternatively as the "Schumer Box" or "summary of terms." The general structure and the type of information that must be included in the Schumer Box are mandated by law that became effective in 2000 (in legislation sponsored by then-U.S. Congressman, now Senator, Charles Schumer). However, the law does not mandate or necessitate complex disclosures. Rather, the complexity of disclosures is a function of choices made by a card issuer.

Figure 1: Sample Schumer Box

SUMMARY OF VISA® CARD ACCOUNT TERMS	
Interest Rates and Interest Charges	
Annual Percentage Rate (APR) for Purchases	**11.99%** This APR will vary with the market based on the Prime Rate.
APR for Balance Transfers	**11.99%** when you open your account. This APR will vary with the market based on the Prime Rate.
APR for Cash Advances	**23.99%** This APR will vary with the market based on the Prime Rate.
How to Avoid Paying Interest on Purchases	Your due date is 24-30 days after the close of each billing cycle. We will not charge you interest on purchases if you pay your entire balance by the due date each month.
Minimum Interest Charge	If you are charged interest, the charge will be no less than $2.00.
For Credit Card Tips from the Federal Reserve Board	To learn more about factors to consider when applying for or using a credit card, visit the website of the Federal Reserve Board at http://www.federalreserve.gov/creditcard
Fees	
Annual Fee	None
Transaction Fees • Balance Transfer • Convenience Check Cash Advance • Cash Advance • Cash Equivalent Advance • Overdraft Protection • Foreign Transaction	 Either **$5** or **3%** of the amount of each transfer, whichever is greater.[1] Either **$5** or **3%** of the amount of each advance, whichever is greater. Either **$10** or **4%** of the amount of each advance, whichever is greater. Either **$20** or **4%** of the amount of each advance, whichever is greater. **$10** per occurrence. **2%** of each foreign purchase transaction in U.S. Dollars. **3%** of each foreign purchase transaction in a Foreign Currency. **2%** of each foreign ATM advance transaction in U.S. Dollars. **3%** of each foreign ATM advance transaction in a Foreign Currency.
Penalty Fees • Late Payment • Overlimit • Returned Payment	 **$19** on Balances up to $100. **$29** on Balances from $100 up to $250. **$39** on Balances of $250 or more. **$39.** **$39.**

The information about the costs of the card described in this letter is accurate as of 4/19/2010. This information may have changed after that date.

How We Will Calculate Your Balance: We use a method called "average daily balance (including new purchases)".

[1]The Balance Transfer Fee will be waived for all transfers made within 30 days of the account opening date.

Source: Mintel CompereMedia

Credit card offers were analyzed for the top 25 issuers at six-month intervals over the last two years, and every year before that going back to 1999. The most recent offers analyzed were from May 2010. This 1999-2009 timeframe also allows for the observation of offers after most Credit CARD Act provisions were implemented.[2] Data was taken from Mintel Comperemedia, a subscription-based database containing digital images of actual credit card offers. For the month in question, the most commonly mailed offer was used for each particular issuer. A "number" was any distinct quantity that was a term in the contract, whether expressed as a numeral or in word form.[3]

FINDINGS

Finding 1: The average credit card offer's summary of terms had 33 numbers at its peak in 2009.

Using the simple average of all offers, the peak period was May 2009 (the month the Credit CARD Act was passed), when there were an average of 33 numbers. This is the number of numbers in just the Schumer Box. The actual account agreement that consumers would have received after responding to the offer likely would have had many more.

Since not all companies analyzed had offers in all periods, a more complex alternative statistical methodology was also used along with the simple averages reported here. The alternative methodology allows the analysis to control for differences in the composition of the offers in different periods and resulted in very similar results to the simple averages reported here.[4]

The most complex summary of terms analyzed in any period had 55 numbers. This level of complexity in pricing is not necessary for a credit card product, as evidenced by the simplest summary of terms that had less than a tenth of this figure, with 5 numbers.[5] In the peak period of May 2009, the number of numbers in a summary of terms varied considerably, from 14 to 48. In many periods, the most complex offer had more than 6 times as many numbers as the simplest summary terms.

Finding 2: Summary term complexity rose 250% between 1999 and the peak period in 2009, but it declined after implementation of key provisions of the Credit CARD Act of 2009.

The number of numbers appearing in contracts grew by 20 between 1999 and 2009.[6] In 1999, there was an average of 13 numbers per summary of terms.[7] There was a 250% increase in the number of numbers between 1999 and the peak of 33 numbers (see Figure 2). Most of this growth occurred in the first five years between 1999 and 2004, when there was a growth of 95%, or about 12 numbers. Between 2004 and 2009, there was growth of 38%, or about 9 numbers.

Figure 2: Average Number of Numeric Figures in Credit Card Summary Terms over Time

To illustrate how the terms in the offers have changed, Figure 3 and Figure 4 show two offers from the same major issuer in November 2000 and November 2009, respectively.

Figure 3: November 2000 sample terms

Annual fee	None.
†Annual Percentage Rate (APR)	15.99% APR for purchases.
Grace period for repayment of balance for purchases	At least 25 days, if each month, we receive payment in full of your New Balance Total by the Payment Due Date.
Method of computing the balance for purchases	Average Daily Balance (including new transactions).
Transaction fees for cash advances and fees for paying late or exceeding the credit limit	Transaction fee for Bank and ATM cash advances: 3% of each cash advance (minimum $5). Transaction fee for credit card cash advance checks and balance transfers: 3% of each cash advance (minimum $5, maximum $30). Late-payment fee: $29. Over-the-credit-limit fee: $29.
Transaction fee for purchases	Transaction fee for the purchase of wire transfers, money orders, bets, lottery tickets, and casino gaming chips: 3% of each such purchase (minimum $5).

Figure 4: November 2009 sample terms

†Annual Percentage Rate (APR) for Purchases	Standard Variable APR: 10.99%, 15.99%, or 19.99% for accounts without [redacted] benefits, and 12.99%, 16.99%, or 19.99% for [redacted] accounts. The APR you receive is determined based on your creditworthiness.
Other APRs	Balance Transfers: **0%** Introductory APR for the first 12 statement Closing Dates following the opening of your account for all Balance Transfers and Direct Deposits. After that, the Variable APR for any balances that were subject to the Introductory APR is **10.99%, 15.99%**, or **19.99%** for accounts without [redacted] benefits, and **12.99%, 16.99%**, or **19.99%** for [redacted] accounts. The Standard Variable APR for Balance Transfers is **10.99%, 15.99%**, or **19.99%** for accounts without [redacted] benefits, and **12.99%, 16.99%**, or **19.99%** for [redacted] accounts. The APR you receive is determined based on your creditworthiness. The Introductory APR will end sooner if your payment is late and, for [redacted] accounts, it will also end sooner if the account balance is over the credit limit. *See*[1] *and*[5] *below for explanation.* Cash Advances: Standard Variable APR is **24.24%** for all Direct Deposits, Check Cash Advances, ATM Cash Advances, Bank Cash Advances, Overdraft Protection and Cash Equivalent transactions for both accounts without [redacted] benefits and [redacted] accounts. *See*[6] *below for explanation.*
Variable-Rate Information	Your APRs may vary. For each billing cycle, we determine each APR by adding a margin to the prevailing U.S. Prime Rate. The margin for the Standard Variable APR for Purchases and Balance Transfers is 7.74%, 12.74%, or 16.74% for accounts without [redacted] benefits, and 9.74%, 13.74%, or 16.74% for [redacted] accounts. The margin for the Standard Variable APR for Cash Advances is 20.99%. *See*[2] *below for explanation.*
Grace Period for repayment of balance for Purchases	At least 25 days from the statement Closing Date (provided you fully paid your New Balance Total from the previous statement by its Payment Due Date). *See*[3] *below for explanation.*
Method of computing the balance for Purchases	Average Daily Balance (including new purchases).
Minimum Finance Charge	$1.50.
Annual Fee	None.
Transaction fee for Purchase	Transaction Fee for the purchase of wire transfers from a non-financial institution: 4% of each such transaction (minimum $10).
Foreign Transactions	Transaction Fee for any transaction made in a foreign currency and any transaction made in U.S. Dollars that is processed outside the United States: 3% of the U.S. Dollar amount of each such transaction. This fee will be in addition to any other applicable fee.

Standard Balance Transfer Fee: 4% of each such transaction (minimum $10). *See*[4] *below for explanation.*
Standard Cash Advance Fee (except as noted below): 4% of each such transaction (minimum $10).
Fee for Overdraft Protection Cash Advances (if enrolled): 3% of each such transaction (minimum $10).
Late Fee: Based on your balance as of the day the fee is assessed—$15 if $0–$100; $29 if between $100.01 and $250; $39 if $250.01 or over.

Source: Mintel CompereMedia

In May 2010, after the Credit CARD Act was implemented, the complexity of summary terms declined from the peak level by 23% to an average of 25.5 numbers.[8] This decline was the same using the regression methodology. Using the regression methodology, the decline was also statistically significant at the 99.9% confidence level.

Overall the alternative regression methodology gave a very similar time trend to the simple average. However, using an average weighted by number of accounts gave slightly different results. In particular, since the largest issuers tended to have more figures in most periods, the weighted average results in a higher number, especially in 2003 through 2007. In addition, the drop after the Credit CARD Act, though still present, is somewhat smaller using a weighted average.

The Credit CARD Act of 2009 made important improvements in the credit card market. Despite the benefits, credit card issuers might have reacted to the Act in ways that complicated offers. This could have happened both because of improvements in disclosure and because limitations on pricing could have given rise to more complicated pricing systems. For example, limitations on repricing existing balances could have led issuers to set up different rules for repricing existing balances than for repricing new balances. CRL research issued in December 2009 also found that issuers responded to the Credit CARD Act in part by adding fees, increasing fees, and changing fee definitions.[9] In addition, some issuers changed their interest rates from fixed rates to variable rates, which typically increase the number of numbers in the Schumer Box.[10]

Yet despite these potential reasons that the Credit CARD Act could have led to more complicated offers, a sharp drop in the complexity of offers was observed after the CARD Act. Terms in offers mailed in 2010 after Credit CARD Act implementation are noticeably simpler. Most of this has been due to simplification of the APR terms. The Credit CARD Act limited when issuers could raise APRs on existing balances. It also prevented temporary rates that last for less than six months. In addition, changes to payment allocation rules make it less advantageous for an issuer to charge multiple APR's. These changes may have resulted in issuers using less complex APR pricing schemes. Penalty and miscellaneous fee terms were also slightly simpler after CARD Act implementation.

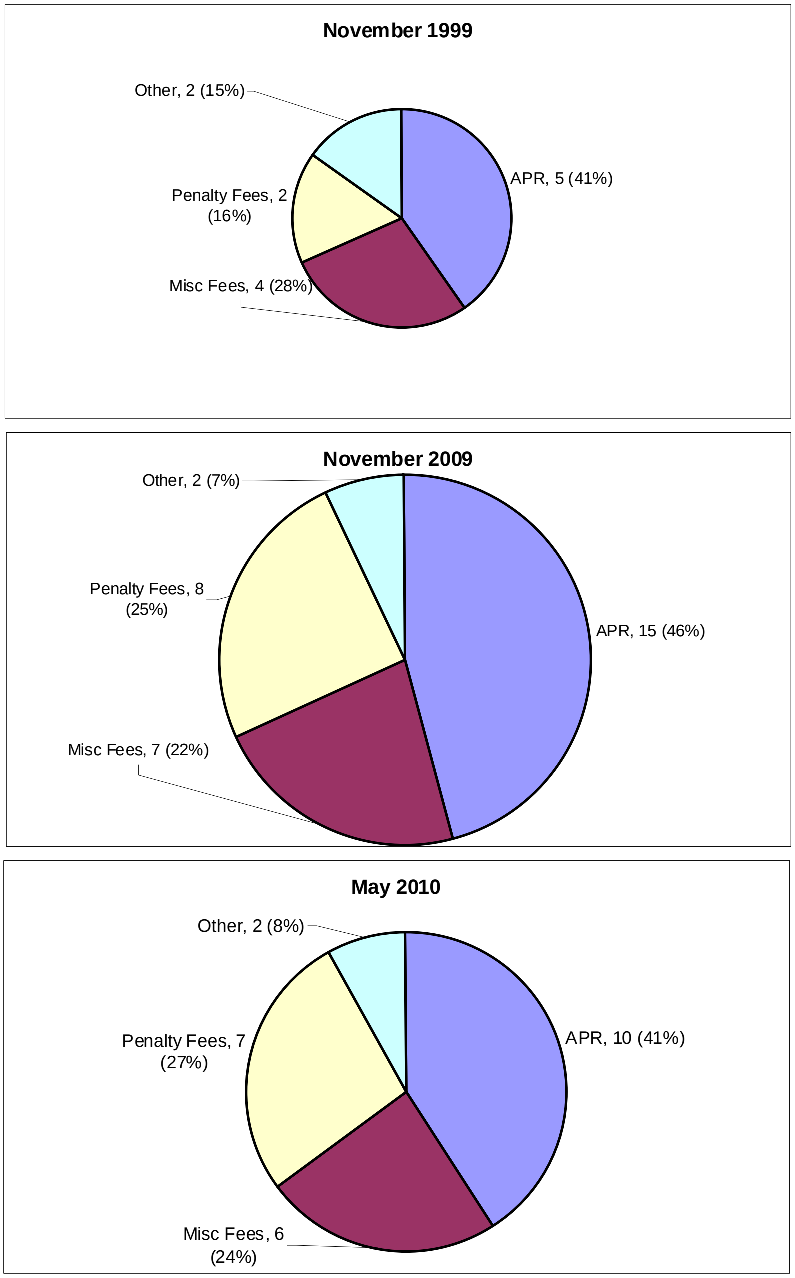
The simpler terms after CARD Act implementation support a perspective that an intended consequence of the law—making card terms less complicated and more consumer-friendly overall—was realized.

These results are consistent with a recent study by the Pew Health Group.[11] The study found that the Credit CARD Act had its intended effect. Many of the most troublesome practices disappeared from the marketplace, and predictions of proliferation in fees (such as annual fees) were found not to have materialized.

Finding 3: The sources of complexity shifted from 1999 to 2009, with the latter year having a greater portion of numbers related to penalty fees and to APR.

In 1999, 41% of numbers were related to APR, while 16% were related to penalty fees. In 2009, 46% were related to APR, while 25% were related to penalty fees. After implementation of most provisions of the Credit CARD Act, 41% of numbers were related to APR, while 27% were related to penalty rates. However, the absolute level of numbers increased for all categories between 1999 and 2009 and the absolute level of numbers declined for all categories between 2009 and 2010.

Figure 5: Average Number of Numbers (rounded) in Credit Card Offers, by Date and Type



The increase in penalty fee-related numbers is in large part due to the growth of tiered penalty fees which vary based on the cardholder's balance amount. These fees tend to have three categories based on balance ranges and can be deceptive and needlessly complicated, as discussed in previous CRL research.[12] Since the final sample was taken before the August 22, 2010 implementation date for this part of the Credit CARD Act, the results do not incorporate the new penalty fee rules. These rules limit penalty fee levels and create simplified suggested disclosures, which typically state that fees are "up to" a specified amount. It is likely that these new rules will reduce the number of numbers in credit card summary terms even further.

Therefore, **the full impact of the Credit CARD Act in reducing offer complexity is probably understated here.**

DISCUSSION

Each number in a credit card summary of terms can generally be considered a dimension of price. All of these price dimensions must be considered simultaneously so that a consumer may make the best decisions regarding their credit cards. There is evidence that consumers cannot grasp anything close to 30 dimensions simultaneously when making a decision. In 1956, psychologist George Miller argued that we are limited to processing 7 (plus or minus 2) chunks of information simultaneously.[13]

A current credit card offer may have seven annual percentage rates or APRs alone. For example, there may be three different long-term purchase rates based on credit: an introductory rate, a cash advance rate, and a penalty rate. In addition to these seven APRs, the time limit on introductory rates may differ between issuers and is therefore an important variable, all of the APRs may vary based on an index rate, and the rules regarding when the penalty rate applies and when it will return to the normal rate can also be very important. Therefore, the consumer may already experience information overload with the APR information alone.

Add multiple miscellaneous fees and penalty fees to this APR-related complexity, and the typical consumer is unable to fully process much of the information when deciding how to respond to the offer. Rebates and rewards, which are typically not even discussed in the Schumer Box, add further to the complexity of the decision. To determine whether an offer is "good" the relevant dimensions of price must be held in the consumer's mind simultaneously. With a typical credit card offer and average processing capacity on the part of the consumer, over 75 percent of the price information will not be available in the consumer's mind when they make their decision.

If a consumer is comparing offers, this quickly multiplies the number of dimensions involved. For example, if a consumer is comparing three credit card products, just looking at the introductory rate, the length of the introductory rate, and a single long-term purchase rate for each offer results in nine numbers. This already stretches the consumer's cognitive capacity to the limit.

Issuers can take advantage of these very human limitations. Their research tells them which numbers consumers tend to focus on, and they can push consumers further in the direction of focusing on certain numbers by the way they present their offer (often, for example, putting their most attractive price point on the outside of the envelope and prominently on an introductory letter). The prices that consumers are most likely to ignore can then be raised to compensate for promoting an attractive rebate or teaser APR. This results in frustrated consumers who despite their best effort to obtain the lowest price offer, end up with an offer that has high costs that they failed to fully consider. Although much work has been done since 1956 to refine the details, Miller's theory of roughly seven being an effective limit to the number of chunks of information people can hold in working memory still holds up.[14]

Studies on consumer decision-making similarly find limits to our cognitive capacity. There has been some controversy over whether "information overload" exists where providing less information is superior to providing more information, given the same set of underlying facts. For example, two studies from 1974 and 1975 found information overload took place with far fewer dimensions to choose from than those seen in credit card terms summaries.[15] While other authors since then have questioned the interpretation of their results, those critiques do not impugn the conclusion that increased price complexity hurts consumer choice.[16]

Information overload may occur quickly for consumers selecting among card offers. Comparison shopping between products multiplies the cognitive capacity used by each dimension of price. Consumers quickly lose the ability to compare all relevant dimensions of price. For example, they may see a short-term zero percent APR with a rebate program and no annual fee, and view this to be more attractive than a simple, understandable card they currently own that has a 10% fixed APR, no rebate program, and a modest annual fee. In reality, the zero percent APR could cost the consumer far more in the long run, but dimensions of price such as changing APRs, balance transfer fees, and other fees may be ignored in the decision to move a balance to the new card.

Why do most issuers put so many numbers in their summary terms? While credit card issuers may argue that regulation compels them to make the Schumer Box complex, all the law does is require the issuer to state their key prices and terms. If issuers are required to disclose more numbers, this reflects the fact that the product offered by that issuer has become more complex. In most years, the most complex set of summary terms had 6 to 8 times as many numbers as the simplest set of summary terms. Both of these offers existed in the same regulatory environment. The difference was the complexity of the underlying product.

An important question is whether the increase in underlying complexity before the Credit CARD Act was due to innovation that was beneficial to consumers, or due to complexity that either had no consumer benefit or perhaps was an intentional effort to confuse consumers. As previously discussed in CRL research, the increased penalty fee price complexity was driven by a pricing system that appeared to be designed to mislead consumers.[17] Much of the increased complexity in APR summary terms was due to the addition of penalty rates not beneficial to consumers. Changes in miscellaneous fee complexity were mainly due to the addition of new fees and fee term complexity that was not beneficial to consumers. It is quite possible that these miscellaneous fees grew because consumers were already experiencing information overload and were unlikely to notice new costs added to their contracts. These fees may be individually moderate in size and importance, causing them to be discounted in decisions when information overload is occurring. But, when combined these items can add up to billions of dollars for issuers.[18]And, the ultimate cost is billions of dollars **less** in American cardholders' wallets.

Policy Recommendation

Despite an increase in levels of miscellaneous fees we found in pre-CARD Act research, the law appears to have reduced the complexity of credit card contracts, supporting the contention that the law is having its intended impact of creating more understandable and predictable credit card terms. However, credit cards still remain far more complex in their pricing than they were just a decade ago. Price complexity can lead to a less competitive market by thwarting a consumer's ability to weigh all factors when comparing prices simultaneously and accurately. The trend towards a more complex credit card contracts should be monitored by regulators. Complexity is down since Credit CARD Act implementation, but it is still higher than the complexity of offers just five years ago. More reform or rulemaking action by regulators may be warranted if complexity continues to stay high.

Borrower Recommendations

Issuers are well-aware that there are limitations to consumers' ability to attend to every detail of highly complex disclosures. The less scrupulous among them will give what seems a great offer with a prominent headline interest rate, while making up for it by using a variety of other fees and prices less obvious to the prospective cardholder. Consumers should not be deceived by this tactic. It may be too difficult to weigh and compare all the prices and fees at once, so **choose the simple and transparent over the deal that looks too good to be true.** In the end, consumers likely will be better off with straightforward, honest pricing systems than with a 0% introductory offer that comes with considerable price changes and fees down the line.

NOTES

[1] Connie Prater, "U.S. credit card agreements unreadable to 4 out of 5 adults," creditcards.com, July 23, 2010, available at http://www.creditcards.com/credit-card-news/credit-card-agreement-readability-1282.php

[2] More specifically, the periods used were May 2010, November 2009, May 2009, November 2008, November 2007, November 2006, November 2005, November 2004, November 2003, November 2002, November 2001, November 2000, and November 1999. For the largest issuers, many offers were typically available for the month in question, for smaller issuers in the top 25 offers in the closest month available were selected. Some portions of the CARD Act that have a negligible direct impact on offer complexity were implemented in August 2009. These include a requirement that a minimum of 21 days be allowed between mailing a bill and the day it is due and requiring 45 days notice and the right to opt out of term changes. Most of the CARD Act's provisions were implemented in February 2010 and August 2010. The changes implemented in August 2010 occurred after the last study period of May 2010 and may have had a significant impact on offer complexity. In particular, penalty rates most likely have been simplified after August 2010.

[3] For example, a Schumer Box in May 2009 that states "you will have a 0% APR until November 2009", would have 2 numbers in that language (the APR and the date). A contract that states "you will pay no interest for six months" likewise has two numbers. Redundant language was not counted (e.g. "for six months" vs. "for six (6) months" both count as a single number). Generally, the numbers counted were only those inside the Schumer Box. However, if a term was typically included inside the Schumer Box by most issuers but the same term was put just below the lines of the actual box by a few issuers, it was counted in the total to allow a fair comparison (for example, a few issuers in some periods put the late fee just below the box rather than inside of it). Issuers were also not penalized for disclosing non-fees: for example, an offer that disclosed "$0 annual fee, $0 late fee, $0 over-limit fee" in the Schumer Box did not have these zeroes counted against them. Optional disclosure of certain terms that most issuers did not disclose even though they all had the term in their full agreements were generally not penalized (for example, disclosing the minimum payment amount, which most issuers did not do).

[4] This involved creating a regression with issuer and time period dummy variables. This allowed the time trend to be analyzed while accounting for differences in composition of the data caused by a particular issuer not having an offer in a particular period. The alternative methodology also shows a peak of 33 numbers, but the peak occurred in November 2009 (after passage of the Credit CARD Act, but just before implementation). Other than the difference in peak, the two methodologies come out with similar results.

[5] The offers with five terms were from a credit union and had two APRs (because applicants could receive either a "Gold" or "Classic" product, each with a single APR, a grace period of 25 days, a single late fee, and a single over-limit fee. There were no other non-zero fees or prices that required disclosure in the Schumer Box

[6] Using the regression methodology, the increasing trend over time was also statistically significant at the 99.9% confidence level.

[7] In 1999 there were 12.2 numbers using the alternative regression methodology and about a 250% increase between this year and the peak.

[8] Most of the CARD Act was implemented at this point. Changes to penalty rates which may have resulted in significant changes to Schumer Box disclosures were not implemented until August 2010.

[9] Joshua M. Frank, "Dodging Reform: As Some Credit Card Abuses Are Outlawed, New Ones Proliferate," Center for Responsible Lending, December 2009, available at: http://www.responsiblelending.org/credit-cards/research-analysis/Dodging-Reform-As-Some-Credit-Card-Abuses-Are-Outlawed-New-Ones-Proliferate.html.

[10] Variable rates will typically add several numbers since there are multiple interest rates in most offers and the margin must be provided as well as the current interest rate. It should be noted that while the portion of variable rate offers increased after the CARD Act, this does not mean that the law stopped true fixed rate offers. Issuers were quite clear that the reason some thought they no longer could offer fixed rate offers after the CARD Act was that they needed the ability to change interest rates on existing balances if the cost of funds changed on a fixed rate card. This is the same thing as saying that the "fixed rate" cards before the CARD Act were intended to be variable to begin with using the ability of the issuer to change prices arbitrarily.

[11] Nick Bourke and Ardie Hollifield, "Two Steps Forward," The Pew Health Group, July 2010, available at: http://www.pewtrusts.org/our_work_report_detail.aspx?id=60075.

[12] Joshua M. Frank, "Dodging Reform: As Some Credit Card Abuses Are Outlawed, New Ones Proliferate," Center for Responsible Lending, December 2009, available at: http://www.responsiblelending.org/credit-cards/research-analysis/Dodging-Reform-As-Some-Credit-Card-Abuses-Are-Outlawed-New-Ones-Proliferate.html.

[13] George A. Miller, 1956, *The magical number seven, plus or minus two: Some limits on our capacity for processing information*, Psychological Review 81-97.

[14] Alan Baddeley, 1994, *The Magical Number Seven: Still Magic After All These Years?* Psychological Review, 353-356.

[15] Jacoby, J., Speller, D. E., & Berning, C. K., 1974, *Brand choice behavior as a function of information load—Replication and extension*, Journal of Consumer Research, 33-41; and Jacoby, J., Speller, D. E., & Kohn, C. A. 1974, *Brand choice behavior as a function of information load*, Journal of Marketing Research, 63-69.

[16] The distinction is between two questions: What we are interested in here is whether a more complex price hurts consumer decisionmaking. What generated the controversy was whether more complex and complete information regarding prices hurts consumer decisionmaking *given the level of complexity in the underlying price.* In other words, while marketers, psychologists, and behavioral economists generally agree that increased product complexity can reduce the quality of consumer choices after a certain point, what is in dispute is whether reducing the information available about a given product can improve choice. We are interested here in the issue of price complexity itself, not how much of total price should be disclosed. It should also be noted that these studies more generally were about dimensions of product attributes, which can include price as well as the qualities of the product itself.

[17] Joshua M. Frank, "Dodging Reform: As Some Credit Card Abuses Are Outlawed, New Ones Proliferate," Center for Responsible Lending, December 2009, available at: http://www.responsiblelending.org/credit-cards/research-analysis/Dodging-Reform-As-Some-Credit-Card-Abuses-Are-Outlawed-New-Ones-Proliferate.html

[18] In 2009, issuers made $8 billion from fees and enhancements outside of penalty fees and interchange fees charged to merchants according to Card &Payments magazine's Bank Card Profitability Study (May, 2010).