



## **Credit Card Clarity: CARD Act Reform Works**

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**TABLE OF CONTENTS**

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Executive Summary . . . . . 2

Introduction . . . . . 5

Methods and Findings on Rates . . . . . 5

Access to Credit: Evidence from Mail Volume. . . . . 9

Additional Evidence from Business Cards . . . . . 11

Conclusion . . . . . 14

Appendices. . . . . 15

Endnotes . . . . . 21

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## EXECUTIVE SUMMARY

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New credit card rules mandated by the Credit CARD Act of 2009 have resulted in significantly greater price transparency for consumers. This reverses a trend of increasingly unclear pricing that for years misled consumers into believing they would pay less for credit card debt than was true. Inaccurate pricing information likely caused many borrowers to take on more credit card debt than they otherwise would have.

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***New rules have reduced the difference between stated rates and actual rates paid on credit cards, resulting in more transparent pricing.***

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The difference between the stated rate on credit card solicitations and the rate consumers actually paid widened to unprecedented levels by 2004 and stayed at those levels through 2008. This difference narrowed markedly in the wake of reform, with stated prices on solicitations moving much closer to actual prices. This study also finds that, in the year since the CARD Act's implementation, actual prices have remained stable and available credit has not tightened beyond what would be expected from the economic downturn. Because price transparency fosters competition, the long-term effect of the CARD Act is likely to be lower costs for consumers.

### Key Findings

- New rules have reduced the difference between stated rates and actual rates paid on credit cards, resulting in more transparent pricing. An estimated \$12.1 billion in previously obscure yearly charges are now stated more clearly in credit card offers.
- Once the economic downturn is taken into account, the actual rate consumers have paid on credit card debt has remained level.
- Direct-mail offers have been extended at a volume and pace consistent with economic conditions.

### Discussion

This report's findings refute negative claims by the credit card industry that new credit card rules have restricted access to consumer credit and raised its cost.<sup>1</sup> These claims rely on limited data that do not accurately capture the cost or availability of credit extended to consumers. This study uses multiple data sets and methods and consistently finds that the CARD Act has not caused prices to rise or credit to constrict.

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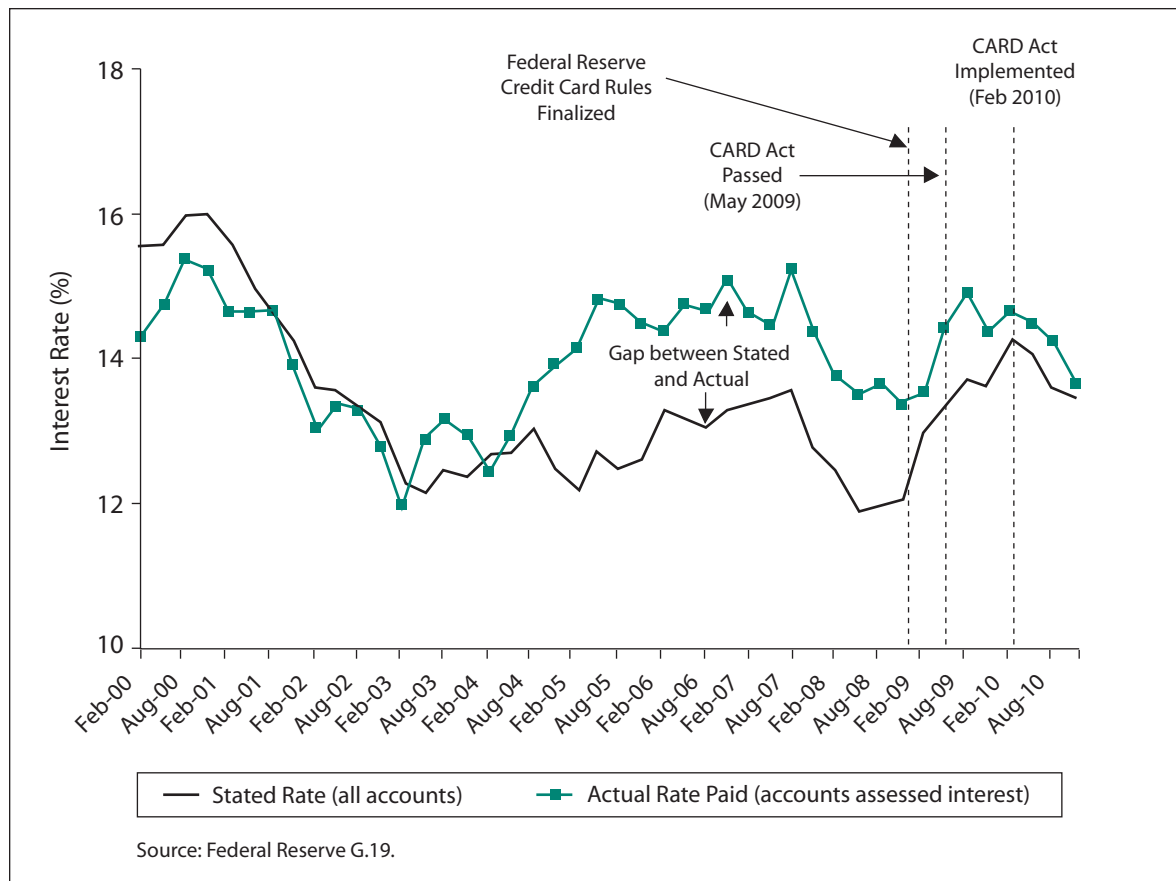
***The CARD Act has not caused prices to rise or credit to constrict.***

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Critics of reform often argue that common-sense rules and oversight inevitably lead to significant and negative "unintended consequences" for consumers. The on-going crisis in the mortgage market is an example of the harm the absence of common-sense rules brings. This report shows that, prior to the CARD act, the credit card industry was another.

Earlier CRL research has shown that, in the absence of basic rules, credit card issuers relied on confusing, complex pricing to charge more than consumers expected or understood.<sup>2</sup>

**Figure 1: Stated Rates and Actual Rates Paid on Consumer Credit Cards**



## Summary of Analysis

CRL examined five sets of data for this study. The first two, from the Federal Reserve Board, track credit card rates, both as stated on solicitations and as actually paid by consumers. The discrepancy between the two measurements narrowed after the CARD Act passed, with stated rates moving closer to actual rates paid.

The third source of information came from “Call Reports,” which are statements of income and financial condition that commercial banks file quarterly with bank regulators. Analysis of this data provided further evidence that prices have become more transparent.

The fourth set, a private data base from Mintel Comperemedia, tracked the number of mail solicitations over time. It showed that, once adjusted for the downturn, the number of solicitations has held steady or even risen.

The fifth, from the website CreditCards.com, compared rates offered on all credit cards to those offered on business credit cards, which are not subject to the CARD Act. The effective rate on business cards increased relative to consumer cards, further evidence that reform did not cause price increases.

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***Because price transparency fosters competition, the long-term effect of the CARD Act is likely to be lower costs for consumers.***

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## Conclusion

Contrary to credit card industry claims, the new rules have not caused prices to increase or access to credit to fall. Instead, they have benefitted the public by making credit card pricing significantly more transparent. Price transparency is likely to lower costs long term by spurring competition and making it harder for issuers to manipulate or arbitrarily raise prices.

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## INTRODUCTION

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After passage of significant reforms like the Credit CARD Act of 2009 (CARD Act), it is important to evaluate the consequences for consumers. This study examines both whether desired benefits in the form of increased transparency have been achieved and whether new rules have caused credit to be restricted, either through higher prices or reduced offers.

CRL examined five data sets in this study. The first two, from the Federal Reserve Board (FRB), are data on credit card rates, both as stated on solicitations and as actually paid by consumers. Beyond rates, these data sets also provide insight into rate transparency. The third data set came from revenue information culled from information filed with federal bank regulators in what are known as “Call Reports.” The fourth set was the number of mail solicitations over time from a private data base, Mintel Comperemedia. The fifth set, from CreditCards.com, was stated offer rates on all credit cards compared to those for business cards.

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***...regulations did not constrict credit either through price changes or through reduced offers.***

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All of these data sources independently confirm that the new regulatory framework avoided unintended consequences. Specifically, they show that new regulations did not constrict credit either through price changes or through reduced offers. On the intended effects, however, the data show that prices have become much more transparent under the new rules. For three different regulatory event dates there was a decrease in the difference between the stated rates disclosed to consumers and the actual rates paid.

### Key Findings

- New rules have reduced the difference between stated rates and actual rates paid on credit cards, resulting in more transparent pricing. An estimated \$12.1 billion in previously obscure yearly charges are now stated more clearly in credit card offers.
- Once the economic downturn is taken into account, the actual rate consumers have paid on credit card debt has remained level.
- Direct-mail offers have been extended at a volume and pace consistent with economic conditions.

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## METHODS AND FINDINGS ON RATES

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The FRB has two data series on credit card interest rates.<sup>3</sup> Both are better at tracking what consumers actually pay at any given time than a third measurement, frequently cited in the media, of average rates from mail solicitations.<sup>4</sup> The FRB data tracks what consumers are actually charged on the average open account, not just what consumers are offered in the mail. As pointed out recently by law professor Bob Lawless, the FRB series titled “accounts assessed interest” paints a much more benign picture of what has happened with interest rates relative to what has been reported in recent media coverage.<sup>5</sup>

The FRB tracks two data series on credit card charges. One is referred to as the interest rate on “all accounts.” The second is the interest rate on “accounts assessed interest.” Given that multiple rates can apply to any given account, it is this latter number which most accurately reflects the interest rates that cardholders actually pay.

While the interest rate on “accounts assessed interest” rose briefly just after passage of the CARD Act, it has declined since then to a level  $\frac{3}{4}$  of a percentage point lower than it was at the time of the law’s passage. There has been a slight (0.3 percentage points) increase in the rate for accounts assessed interest when comparing the quarter when the Federal Reserve Rules (which included some of the CARD Act’s reforms) were implemented to the most recent rate. In contrast, the rate on “all accounts” has increased 1.4 percentage points over this same period. Between 2004 and 2008 there was also a large and persistent gap between these two data series, with the “accounts assessed interest” consistently showing a higher rate. This gap has narrowed considerably since the CARD Act was passed. The most recent data shows a gap of 0.2 percentage points while, at its peak, the gap was 2.3 percentage points.

What should we make of this? The key is in knowing what the difference between these two sets of numbers represents. Despite the names of these data series, more important differences exist between these two sets of measurements than whether they include accounts assessed no interest. In fact, the two numbers have a completely different basis for calculation. The “all accounts” data set is based on the stated purchase rate averaged by each reporting bank across all accounts, while the “accounts assessed interest” data set is based on actual finance charges collected by each bank divided by the balances that incurred finance charges. These finance charges do not include fees but do reflect interest rates on other balances in addition to the purchase rate. This leads to a number of important distinctions between the “all accounts” and “accounts assessed interest” as summarized in Table 1.

**Table 1: Claims of Rate Increase Rest on Wrong Data**

	Card Comparison Websites used in Media Reports	FRB Stated Rate (All Accounts)	FRB Actual Rate Paid (Accounts Assessed Interest)
Measures rate in credit card offers associated with new purchases	✓	✓	
Includes all accounts at banks, not just new offers		✓	✓
Measures actual charges to consumers			✓
Includes cash advance and other non-purchase rates			✓
Includes penalty rates and rate changes <sup>6</sup>			✓
Weighted by balances to reflect total costs to consumers <sup>7</sup>			✓

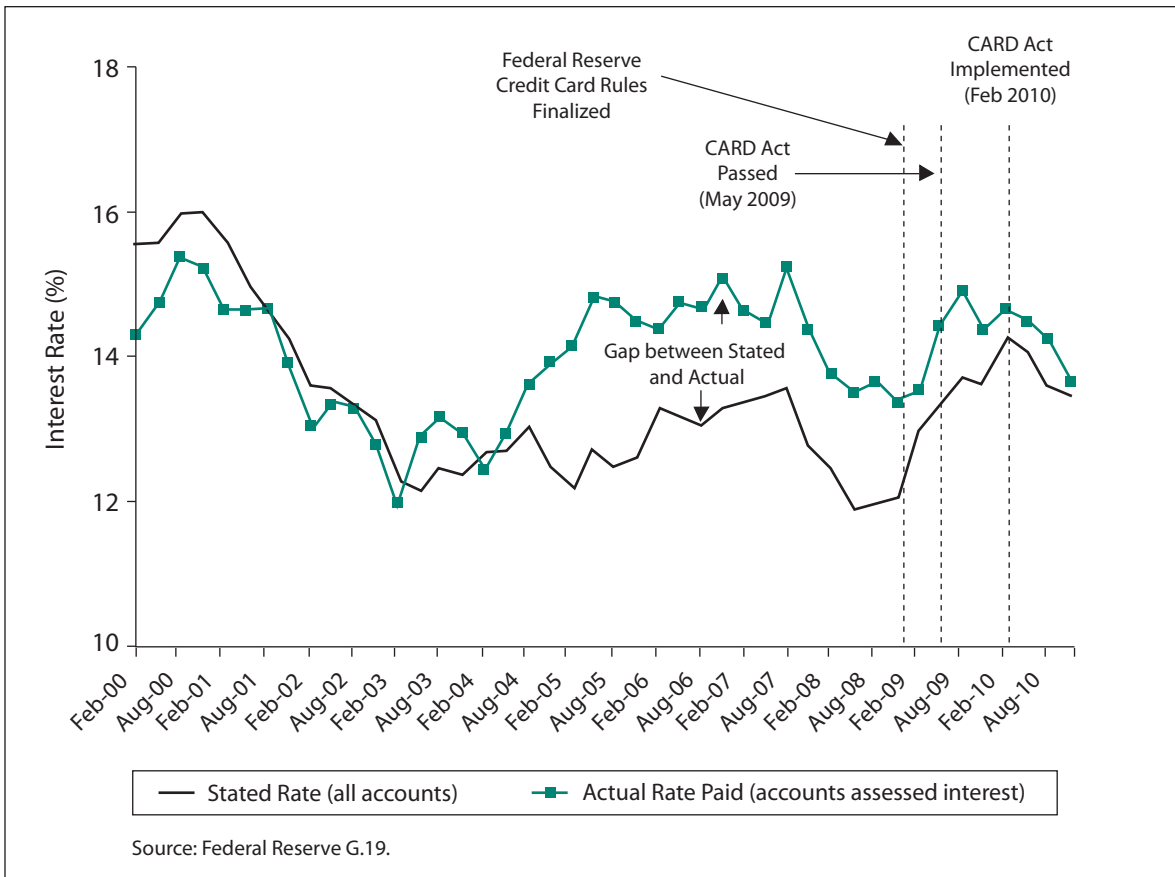


As Table 1 suggests, “accounts assessed interest” is a far more accurate gauge of the price consumers pay to borrow on credit cards. It also implies an interpretation for the shifting gap between the two rates. The primary difference between the two represents the gap between what issuers *say* a consumer will pay in interest and what they *actually charge* on average. Any difference between these two rates is troubling because it would cause consumers to pay more than they had anticipated and, likely, to take on more credit card debt than they would have assumed given accurate disclosures. To keep the most important difference between the two data series clear, the FRB’s “all accounts” rate will be referred to as the “stated rate” while the FRB’s “accounts assessed interest” series will be referred to as the “actual rate paid.”

## Changes in Rates

Figure 1 clearly shows that the actual rate paid has declined since the CARD Act. In addition, it shows a large and persistent difference between the prices disclosed to consumers and those actually paid in the time period from 2004 to 2008. Since the CARD Act, the two rates have moved much closer together, suggesting that prices have become more transparent. In fact, just before the FRB finished their new credit card rules, the difference in these two rates stood at 1.7 percentage points, implying that consumers paid \$16.3 billion more than their stated interest rates would suggest. Just after implementation of the CARD Act, the difference was down to 0.4 percentage points. Using recent figures on total credit card debt outstanding, this implies that consumers paid \$12.1 billion less annually in unanticipated finance charges compared to what they would have paid before credit card reform.<sup>8</sup>

**Figure 1: Stated Rates and Actual Rates Paid on Consumer Credit Cards**



To isolate the effects of reform from those of other economic factors on interest rates, a regression methodology was used.<sup>9</sup> The methodology and results of the regressions are provided in more detail in Appendix A. The regression results confirm that there is no evidence of a significant price increase associated with credit card reforms. There is, however, evidence consistent with improved transparency.

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***There is no evidence of a significant price increase associated with credit card reforms.... While stated rates show increases, actual rates paid remained more or less unchanged.***

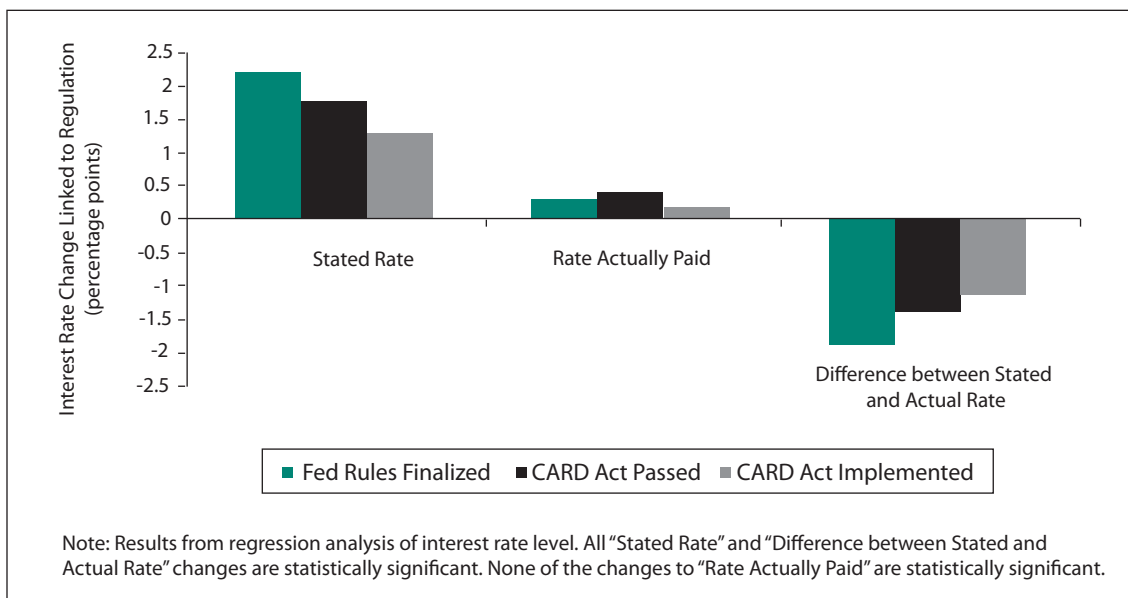
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The regressions test for the impact of three key regulatory events on interest rates. The first event is the announcement of the FRB’s final credit card rules in December 2008. Although the CARD Act went further than the FRB’s rules by adding and extending a number of rules, most of the key interest rate-related provisions existed in some form in the rules. The second event is passage of the CARD Act in May 2009. The third event is the main CARD Act implementation date of February 2010, when most of the Act’s provisions went into effect. None of the three dates led to significantly higher actual rates paid, even though each event led to significantly higher stated rates. Even more importantly, perhaps, all three events saw a decrease in the difference between the stated rates disclosed to consumers and the actual rates paid.<sup>10</sup>

Across regression models, the results consistently indicate that there was no real change in interest rates associated with any of the three regulatory events. In addition, the results are consistent with the improved transparency in credit card pricing associated with reforms, but whether that change is statistically significant depends on the regression model used.

Figure 2 summarizes these results. While stated rates show increases, actual rates paid remained more or less unchanged.<sup>11</sup> The gap between disclosed and real rates dramatically decreased (right side of figure) after all three regulatory dates. If there was a significant change in the stated rates, it appears to be merely a better reflection of the rates that consumers were already paying.

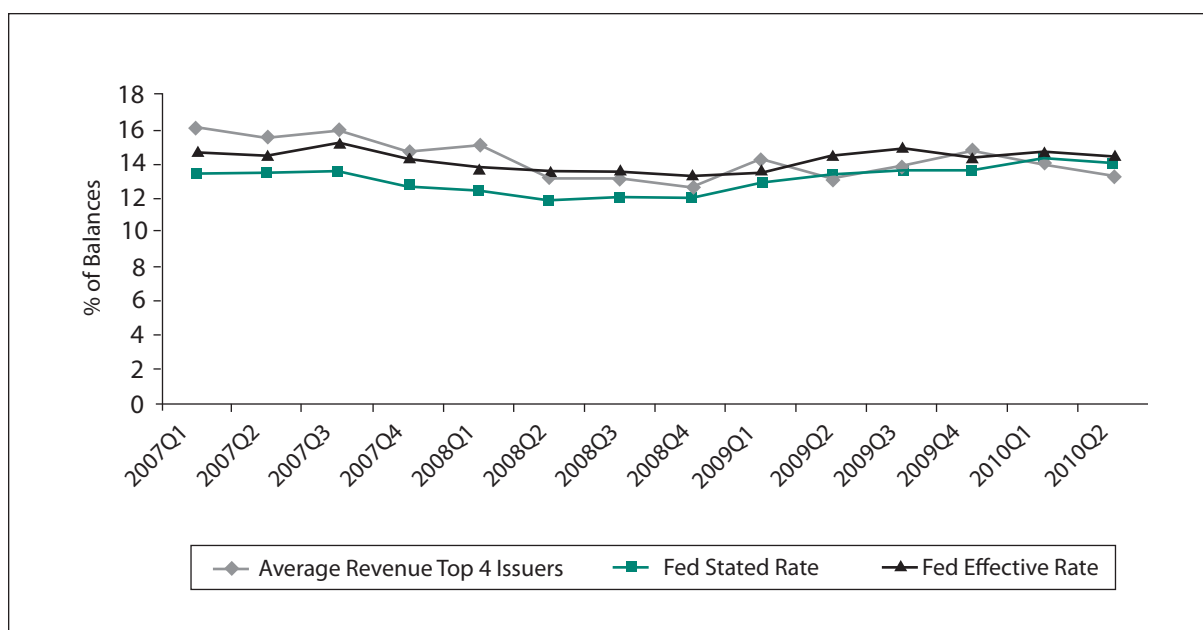
**Figure 2: Impact of Regulation on Interest Rates (Regression Results)**



## Call Reports Confirm Federal Reserve Data

While the results based on the two FRB data series explored above are convincing, it is useful to corroborate those findings with an independent data set. To do so, this study includes an evaluation of the interest and fee revenue from FDIC call reports for the Top 4 issuers.<sup>12</sup> That information is shown in Figure 3, expressed as a percent of credit card balances.<sup>13</sup> Together, these top 4 issuers hold two-thirds of outstanding credit card balances. The figure shows the credit card revenue for these top 4 issuers averaged and compared to the FRB data. There appears to be some evidence of increased transparency among these particular credit card issuers. In the two years before the CARD Act's passage, the stated rate was on average 1.7 percentage points lower than average revenue for the Top 4 issuers. However, in the two quarters since implementation, stated rate was 0.5 percentage points higher than average revenue.

**Figure 3: Interest and Fee Revenue: Average of Top 4 Issuers compared to FRB data**

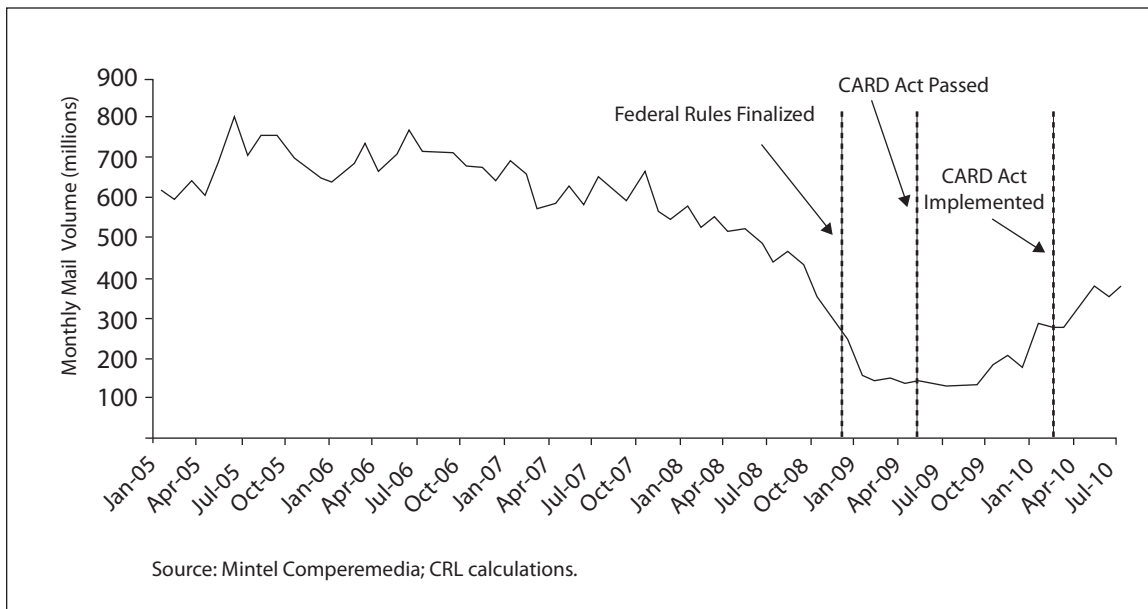


## ACCESS TO CREDIT: EVIDENCE FROM MAIL VOLUME

One way that issuers could have kept actual rates paid level over a reform period would have been to tighten credit. We search for evidence of constrained credit by evaluating the volume of new direct mail solicitations. Figure 4 shows mail volume using data from Mintel Comperemedia.

At the time the FRB made their credit card rules final, mail volume was already declining in tandem with economic conditions.<sup>14</sup> Figure 4 suggests that the CARD Act's passage and implementation have no connection with declining mail volume. In fact, before adjusting for economic conditions, the Act's implementation appears to coincide with a period of rising mail volume.

**Figure 4: Change in Credit Card Mail Volume**



Because the results presented above are based on aggregate mail volume, it could be argued that more and more offers are simply going to fewer and fewer people. However, data from Mintel Comperemedia refutes this hypothesis.<sup>15</sup> Since the start of 2009 (about the time of the FRB Rules), the number of people receiving at least one credit card offer has increased from about 40% of households (based on their sample) to about 60%. There was a decline in the number of people receiving an offer before 2009; however, the timing suggests that this was clearly driven by economic conditions, not regulation. In fact, regulatory reform coincided with a period when not only more offers were mailed, but those offers were being sent to a broader group of consumers.

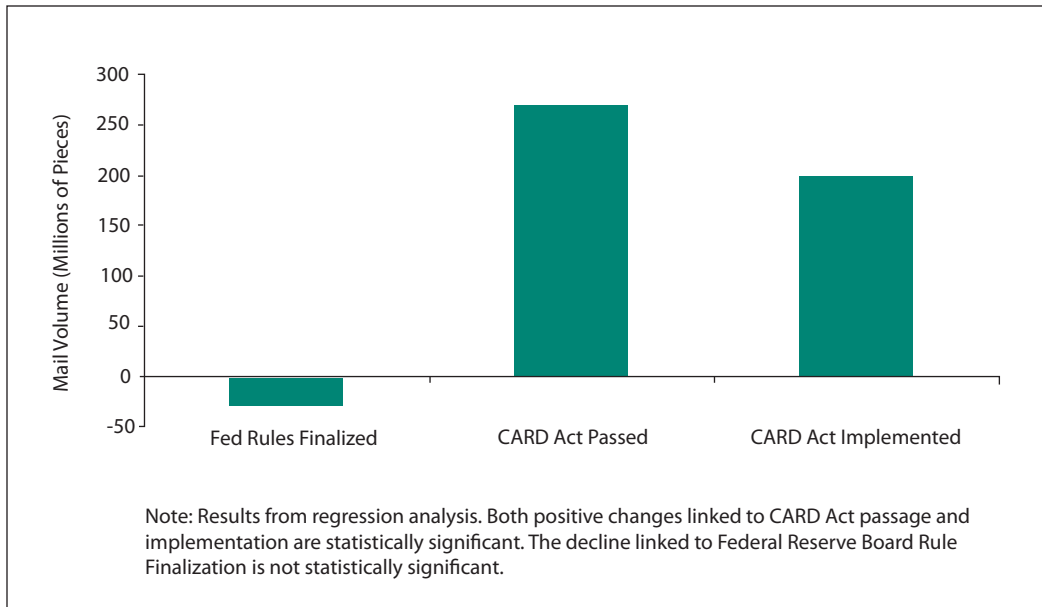
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***Since the start of 2009, the number of people receiving credit card offers has increased from about 40% of households to about 60%.***

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One could also argue that the increasing mail volume was less than it would have been in the absence of reform. To test this hypothesis, we use regression models to control for outside factors. Based on the findings reported below, however, this argument cannot be supported.<sup>16</sup> The results for regulation's impact are summarized in Figure 5, with more details provided in Appendix B. The CARD Act's passage and implementation is significantly linked to mail volume, but in the positive direction. The law's passage may have reduced uncertainty for issuers by clearly defining what the new ground rules would be, leading to more offers. Before the law's passage it is possible that mail volume was reduced because of uncertainty in the regulatory environment in addition to even greater uncertainty about the future of the economy. The reason implementation is linked to more offers is unclear.<sup>17</sup>

**Figure 5: Regulation Impact on Mail Volume (Regression Results)**



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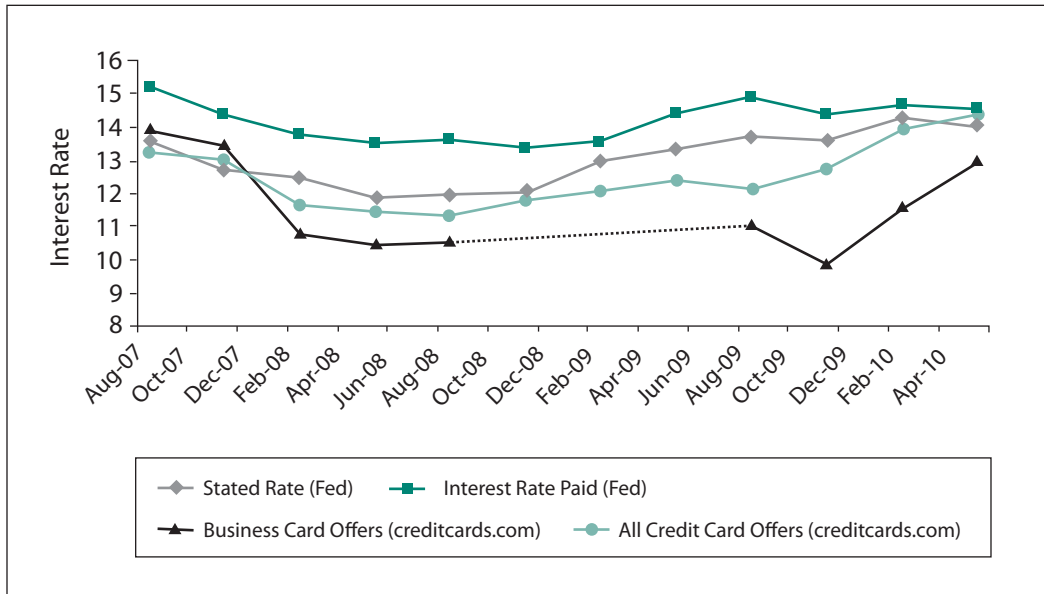
### **ADDITIONAL EVIDENCE FROM BUSINESS CARDS**

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Another way to determine whether the CARD Act increased interest rates is to compare credit card rates offered to consumers to those offered to businesses. Both the FRB rules and the CARD Act apply only to consumers. Therefore, if the two customer groups show different rate patterns, this may result from regulation that only affected consumers. Because the FRB data does not separate business cards from consumer cards, we must rely on data from the credit card comparison and information website CreditCards.com.<sup>18</sup>

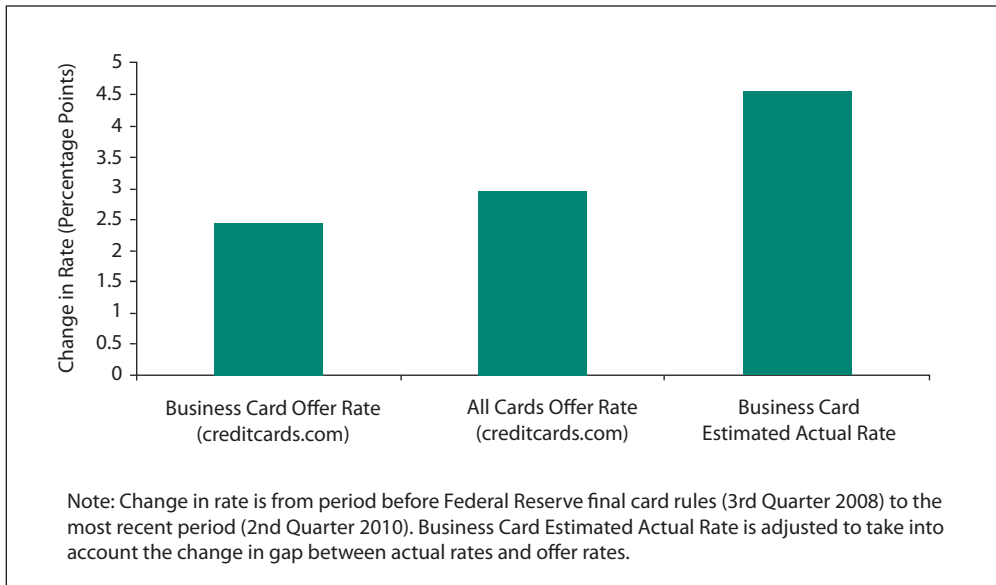
Figure 6 shows the FRB rates previously presented alongside CreditCards.com data showing the quarterly average offer rates to businesses and consumers. Offer rates on all credit cards show a pattern similar to the Fed's stated rate.<sup>19</sup>

**Figure 6: Consumer and Commercial Credit Card Interest Rates**



The offer rate rose on both business and consumer cards following the CARD Act. As shown in Figure 7, the business card offer rate did rise somewhat less than credit card offers. However, if consumer offer rates are becoming more transparent, this would be expected. Business cards still are allowed to use the back-end rate increase tactics the CARD act outlawed for consumer cards. Therefore, consumer card offer rates may have appeared to rise in part because offer rates more closely tracked actual paid rates; the same is not true for business cards.<sup>20</sup> By comparing the change in new offer rates overall to the change in the actual rates paid from the FRB, we can estimate the size of this difference in transparency and adjust for it. As shown in Figure 6, when adjusting for the estimated difference between offer rates and the rates actually paid (based on what consumers experienced), business cards had a far larger actual rate increase than consumer cards, despite the fact that they had no change in regulations. The rate increases shown in Figure 7 are at least in part the result of economic conditions rather than rule changes. (Previously it was found that actual consumer rates did not increase significantly after controlling for economic conditions.)

**Figure 7: Change in Business and Consumer Offer Rates**



Because business cards possibly are more sensitive than consumer cards to economic conditions, regressions were run to evaluate whether such a difference existed. Neither the CARD Act's passage nor implementation had a statistically significant impact on the gap between business and consumer card rates. The sign on the coefficient for these events was not even consistently positive, which it would have to have been if the new law had caused consumer credit to constrict. More details on regression results and methodology are provided in Appendix C.

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## CONCLUSION

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The evidence from FRB interest rate data, business-versus-consumer offer rates, and mail volume all lead to one conclusion. Recent reforms have delivered increased transparency without any evidence of unintended consequences. In fact, there is no evidence that the CARD Act or the prior FRB credit card rules burdened consumers either with higher costs or reduced access.<sup>21</sup> As indicated, the best data on rates suggests that the CARD Act led to more transparent disclosure of interest rates, with the stated rate more closely matching the interest actually paid by consumers.

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***Recent reforms have delivered increased transparency without any evidence of unintended consequences.***

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The public debate on regulation is often framed using a simplified caricature of economic theory, portraying new rules or oversight as inevitably causing significant, negative “unintended consequences” for consumers. While it is true that in a perfect market increased costs to businesses will be passed on to consumers, most markets are far from perfect, and the credit card market is—and long has been—more imperfect than most. Besides being highly concentrated, prior research has shown that credit card issuers have relied consistently on behavioral biases and confusing, complex pricing to charge prices higher than consumers expect to pay.<sup>22</sup> This has led to rates of return for credit card issuers that may be above what a competitive market would dictate. In 1991, Ausubel found that credit card industry profits were three to five times the ordinary rates of return in the banking industry.<sup>23</sup> More recently, a 2008 Federal Reserve report to Congress concluded that credit card earnings “have been consistently higher than returns on all commercial bank activities.”<sup>24</sup> Both comments from investors in these companies and analyst reports suggest that credit card issuers do not expect to make up all fees and interest rates new rules no longer let them charge.<sup>25</sup> This implies a long-term savings to consumers from the CARD Act.<sup>26</sup> In assessing the net impact to consumers, it is important to note that any costs of regulation were likely imposed on consumers right away while the benefits may continue to accrue over time.

Consumers gain greater transparency right away. For example, the new regulatory framework restricts increases in interest rates for existing cardholder balances because of penalty rates, arbitrary rate changes, and other methods to obscure the cost of credit. These methods include manipulating how consumer payments are applied to maximize interest charges and how variable rates are calculated.<sup>27</sup> These immediate changes are important because they equip consumers with more accurate information when weighing whether to take on additional credit card debt.

While transparency gives consumers immediate benefit, prices are likely to improve over time for two reasons. First, prices may improve over time because of greater competition spurred by more transparent pricing. Second, historically consumer rates tended to rise over time well after introductory rates expired because of price manipulations and arbitrary rate hikes. Issuers are now greatly limited in their ability to arbitrarily change prices to a consumer's disadvantage. Therefore, while any costs to consumers from the new rules have already been put into place, the largest share of benefits to consumers from these regulations may be yet to come.<sup>28</sup>

The bottom line is that reform appears to have improved transparency, made the card market more competitive and saved consumers money.



## APPENDIX A: REGRESSIONS ON FRB INTEREST RATE DATA

To isolate the price effect of reform from those of other economic factors, a regression methodology was used.<sup>29</sup> The regression results confirm that there is no evidence of a significant price increase associated with credit card reforms. There is, however, evidence consistent with improved transparency.

As shown in Table 2, both the stated rate and actual rate paid significantly increased when unemployment increased. This makes sense because the unemployment rate is closely linked to credit card losses. In addition, both the stated rate and the actual rate significantly increase when the prime rate increased.

The most important results shown here are the last three variables. They represent the impact of key events on interest rates. The first represents announcement of the FRB's final credit card rules in December 2008. Although the CARD Act, which was passed in May 2009, went further than the FRB's rules by adding and extending a number of rules, most of the key interest rate-related provisions existed in some form in the rules. The implementation date used here is February 2010, when most of the Act's provisions went into effect. If these events were impacting the actual rate paid, we would expect to see a large, positive and statistically significant coefficient value for these dates. Instead, we see small coefficients that are not at all close to statistical significance, showing that while the prime rate and unemployment affect rates, these events did not. None of the three dates led to significantly higher actual rates, even though each event led to significantly higher stated rates on offers. Even more importantly, perhaps, all three events saw a decrease in the difference between the stated rates disclosed to consumers and the actual rates paid.<sup>30</sup>

**Table 2: Results of FRB Interest Rate Models**

Dependent Variable	Stated Rate			Actual Rate Paid			Differences in Rates (Actual Rate Paid - Stated Rate)		
	1	2	3	4	5	6	7	8	9
Regression									
R-square	0.90	0.89	0.88	0.83	0.83	0.83	0.60	0.57	0.56
Unemployment	0.07 44.2%	0.25 98.7%	0.45 100.0%	0.44 100.0%	0.44 100.0%	0.49 100.0%	0.37 98.4%	0.19 86.9%	0.05 37.3%
Prime Rate	0.41 100.0%	0.44 100.0%	0.50 100.0%	0.60 100.0%	0.60 100.0%	0.62 100.0%	0.20 99.1%	0.16 97.2%	0.12 90.7%
Quarter	-0.06 100.0%	-0.05 100.0%	-0.05 100.0%	-0.004 66.5%	-0.004 68.1%	-0.003 57.4%	0.05 100.0%	0.05 100.0%	0.04 100.0%
Fed Rules Finalized	2.18 100.0%	---	---	0.29 50.5%	---	---	-1.89 100.0%	---	---
CARD Act Passed	---	1.76 100.0%	---	---	0.39 68.3%	---	---	-1.38 98.5%	---
CARD Act Implemented	---	---	1.30 99.5%	---	---	0.19 38.6%	---	---	-1.11 95.9%

First number is regression coefficient. Second number is confidence level (One minus p-value).

However, the regression models underlying Table 2 did show evidence of autocorrelation—meaning that the interest rates in each period were correlated with the prior period’s rate.<sup>31</sup> For technical reasons, this can sometimes affect the regression results. Therefore, a separate set of models that examine the first change in the level of a variable (first differences) was also run. Results from these models are shown in Table 3. The results confirm that there was no significant change in interest rates attributable to any of the key events.<sup>32</sup> Once again, if these events were impacting the actual rate paid, we would expect to see a large, positive and statistically significant coefficient value for these dates. Instead, we see small coefficients that are negative in two of three cases and not at all close to statistical significance, showing that while the prime rate and unemployment affect rates, these events did not. However, the stated rate also shows no significance difference, and the change in the difference in rates during the reform events is only of borderline significance in one regression. This could be because this second set of models is more accurate, but it could also be that those models are less able to detect the impact of a one-time event.<sup>33</sup>

**Table 3: Results of FRB Interest Rate Change (First Differences) Models**

Dependent Variable	Difference in Stated Rate			Difference in Actual Rate Paid			Change in Difference between Rates (Actual Rate Paid - Stated Rate)		
	1	2	3	4	5	6	7	8	9
Regression									
R-square	0.38	0.35	0.37	0.59	0.60	0.59	0.57	0.56	0.55
Difference in Unemployment	0.10 38.4%	0.18 65.3%	0.21 72.8%	0.17 57.5%	0.12 43.6%	0.16 55.7%	0.07 27.9%	-0.06 24.4%	-0.05 19.7%
Difference in Prime Rate	0.21 90.2%	0.23 92.4%	0.23 93.3%	0.30 97.0%	0.30 97.1%	0.30 96.9%	0.09 52.8%	0.07 41.9%	0.07 37.9%
Lagged Difference in Unemployment	0.24 74.0%	0.40 95.4%	0.39 97.9%	0.42 92.3%	0.45 96.6%	0.37 93.7%	0.18 57.3%	0.05 20.6%	-0.02 8.3%
Lagged Difference in Prime Rate	0.25 94.1%	0.30 97.6%	0.30 97.9%	0.28 94.5%	0.28 95.7%	0.27 94.3%	0.03 18.2%	-0.02 9.0%	-0.03 18.2%
2nd Quarter Dummy	-0.16 86.6%	-0.17 86.2%	-0.17 86.8%	0.70 100.0%	0.71 100.0%	0.70 100.0%	0.87 100.0%	0.87 100.0%	0.87 100.0%
3rd Quarter Dummy	-0.06 40.0%	-0.09 56.7%	-0.08 49.1%	0.47 100.0%	0.47 100.0%	0.48 100.0%	0.53 100.0%	0.56 100.0%	0.55 100.0%
4th Quarter Dummy	-0.24 96.3%	-0.25 96.7%	-0.23 95.6%	0.11 64.3%	0.11 65.0%	0.12 66.4%	0.35 99.6%	0.36 99.6%	0.35 99.5%
Fed Rules Finalized	0.272 88.2%	---	---	-0.059 24.6%	---	---	-0.331 92.7%	---	---
CARD Act Passed	---	0.037 17.4%	---	---	-0.178 67.2%	---	---	-0.215 76.7%	---
CARD Act Implemented	---	---	0.244 72.2%	---	---	0.05 16.5%	---	---	-0.193 57.8%

First number is regression coefficient. Second number is confidence level (One minus p-value).

Across both types of regression models, the results consistently indicate that there was no real change in interest rates associated with any of the three regulatory events. In addition, the results are consistent with the improved transparency in credit card pricing associated with reforms. But whether that change is statistically significant depends on the regression model used.

## APPENDIX B: REGRESSIONS ON MAIL VOLUME

Table 4 shows the results of regressions with mail volume as the dependent variable and economic factors as well as regulatory events as the explanatory variables. Not surprisingly, the results in Table 4 show that higher unemployment is linked to fewer credit card solicitations. The prime rate has no apparent connection to mail volume. The CARD Act's passage and implementation is significantly linked to mail volume, but in the positive direction. The law's passage may have reduced uncertainty for issuers by clearly defining what the new ground rules will be, leading to more offers. Before the law's passage it is possible that mail volume was reduced in part from uncertainty in the regulatory environment, in addition to great uncertainty about the future course of the economy. The reason implementation is linked to more offers is unclear. Shortly before the implementation date, the Federal Reserve cleared up some possible ambiguities in the CARD Act's interpretation by issuing a set of rules. Therefore the jump could once again be due to reduced uncertainty.

**Table 4: Results of Mail Volume Level Regressions**

Dependent Variable	Mail Volume (millions of pieces)		
	1	2	3
Regression			
R-square	0.81	0.87	0.87
Prime Rate	23.20 82.6%	-16.68 72.8%	11.29 58.4%
Unemployment	-63.96 97.4%	-14.98 100.0%	-93.98 100.0%
Fed Rules Finalized	-27.52 24.4%	---	---
CARD Act Passed	---	271.9 100.0%	---
CARD Act Implemented	---	---	198.70 100.0%

First number is regression coefficient. Second number is confidence level (One minus p-value).

As with the regressions on FRB interest rates, to compensate for autocorrelation, the analysis was repeated looking at the first differences in the rate gap rather than the level. As with the level model, there is no evidence that the CARD Act or FRB rules caused a constriction in consumer credit.<sup>34</sup>

**Table 5: Results of Mail Volume Change Regressions**

Dependent Variable	Difference in Mail Volume (millions of pieces)		
	1	2	3
Regression			
R-square	0.08	0.08	0.06
Difference in Prime Rate	24.60 56.6%	20.71 49.2%	22.10 51.4%
Difference in Unemployment	-47.95 84.4%	-34.90 70.0%	-37.89 73.1%
Fed Rules Finalized	20.00 86.0%	---	---
CARD Act Passed	---	22.8 87.2%	---
CARD Act Implemented	---	---	16.04 54.4%

First number is regression coefficient. Second number is confidence level (One minus p-value).

## APPENDIX C: REGRESSIONS ON BUSINESS VS. CONSUMER CARD OFFER RATES

Table 6 shows regression results analyzing the relative offer prices for consumer and business cards. Bankruptcy filings were used as explanatory variables since they allow business and consumer risk to be differentiated. The dependent variable is the gap between rates offered on all credit cards and that offered on business credit cards, so a higher number indicates that rates for consumer cards rose relative to rates for business cards.<sup>35</sup>

The prime rate was significantly negative in both regressions, suggesting that an increase in the prime rate caused rates offered for business cards to rise more steeply than for consumer cards.<sup>36</sup> The result of the commercial Chapter 7 bankruptcies analysis was negative and statistically significant in one of the two regressions, suggesting that these commercial bankruptcies cause business offer rates to rise relative to consumer offer rates, which is consistent with what one would expect. Consumer bankruptcies were not statistically significant, perhaps because offer rates on consumer and business credit cards rise to a similar degree when consumer bankruptcies rise.<sup>37</sup> Most importantly, neither the CARD Act's passage nor implementation had a statistically significant impact on the gap between business and consumer card rates. The sign on the coefficient for these events was not even consistently positive, which is the outcome one would expect if the law caused consumer credit to constrict.

**Table 6: All Product/Business Card Offer Rate Gap Level Regressions**

Dependent Variable	All Products Credit Card Offer	Business Card Offer Rate Gap
Regression	1	2
R-square	0.81	0.80
Prime Rate	-0.87 100.0%	-0.89 100.0%
Chapter 7 Non-Commercial Petitions	0.000 0.3%	0.000 28.6%
Chapter 7 Commercial Petitions	-0.001 96.3%	-0.001 91.9%
Chapter 11 Commercial Petitions	0.000 10.2%	0.000 8.6%
Chapter 13 Non-Commercial Petitions	0.000 75.5%	0.000 69.2%
Chapter 13 Commercial Petitions	0.004 86.0%	0.004 84.0%
CARD Act Passed	0.60 77.6%	---
CARD Act Implemented	---	-0.20 29.6%

First number is regression coefficient. Second number is confidence level (One minus p-value).

Because autocorrelation was also present in these regressions, the analysis was repeated looking at the difference in rate gap rather than the level. As with the level model, there is no evidence that the CARD Act caused a constriction in consumer credit.<sup>38</sup>

**Table 7: All Product/Business Card Offer Rate Gap Change Regressions**

Dependent Variable	Difference in Gap between:	
	All Products Credit Card Offer	Business Card Offer Rate Gap
Regression	1	2
R-square	0.13	0.13
Prime Rate	-0.82 45.8%	0.13 8.5%
Difference in Chapter 7 Non-Commercial Petitions	0.000 52.9%	0.000 26.6%
Difference in Chapter 7 Commercial Petitions	0.000 11.1%	-0.001 37.8%
Difference in Chapter 11 Commercial Petitions	0.000 20.8%	-0.001 43.7%
Difference in Chapter 13 Non-Commercial Petitions	0.000 27.4%	0.000 1.8%
Difference in Chapter 13 Commercial Petitions	0.006 86.5%	0.005 79.6%
CARD Act Passed	0.52 67.9%	---
CARD Act Implemented	---	-0.49 37.1%

First number is regression coefficient. Second number is confidence level (One minus p-value).

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## ENDNOTES

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1 For example, Ann Hardie, “Banks find ways to charge credit card users,” Atlanta Journal Constitution, September 18, 2010; “The Politics of Plastic,” The Wall Street Journal, August 24, 2010; “Credit card law is driving up interest rates,” The Detroit News, August 25, 2010, available at <http://detnews.com/article/20100825/OPINION01/8250316#ixzz10NMKaWWa>.

2 This is discussed further in: Joshua M. Frank, “Why Free Markets Can Sometimes Turn into ‘Peacock Markets’: The Evolution of Credit Cards,” Journal of Economic Issues, June 2010; and Joshua M. Frank, “What Does the Credit Card Market Have In Common with a Peacock?” 24-40 The Lydian Payments Journal, 2009.

3 Both are available in the G.19 statistical release at <http://www.federalreserve.gov/releases/g19/>.

4 Typically, news sources use credit card comparison sites that create their own index as the source of an average credit card rate (such as [creditcards.com](http://creditcards.com)). While the averages used by these websites is valuable when no other public data source exists (such as for comparing business to consumer card rates), they do not give as accurate an estimate of the rates consumers currently pay as Federal Reserve data when it is available.

5 Bob Lawless, “The Fed’s Apparently Nonexistent Interest,” Credit Slips, September 1, 2010, available at <http://www.creditslips.org/creditslips/2010/09/the-feds-apparently-nonexistent-interest.html#more>.

6 The data for the G.19 interest rates on credit cards are collected on the Quarterly Report of Credit Card Interest Rates (FR2835a). The language on the instructions given to banks is somewhat ambiguous regarding exactly which purchase rate to use if the purchase rate is subject to change. Bank interpretations could vary causing some to not enter penalty rates.

7 Even when penalty rates are included, a simple average will tend to underweight penalty rates since active, high balance accounts will more often be assessed these penalties.

8 The period before Federal Reserve rules was the 3rd quarter of 2008. The period after implementation of the main provisions of the Credit CARD Act was the 2nd quarter of 2010. Aggregate balances used for the finance charge calculation was from revolving credit in the Federal Reserve’s G.19 table. Both finance charge calculations used the same balance level in that they are based on revolving credit from 2008 which was \$957.5 billion.

9 Data used was quarterly and ran from the 4th quarter of 1994 to the 2nd quarter of 2010 resulting in 63 data points.

10 Since issuers need at least a month or two to change rates and there was significant uncertainty about the final composition of both the Credit CARD Act and the Federal Reserve Rules even a month before the event date, the quarter after passage of the Credit CARD Act and finalization of the Federal Reserve Rules are used as the first period after the event. However, in the case of Credit CARD Act implementation, there was much more certainty for most of the quarter in question, and credit card issuers were changing terms before the final implementation date. Therefore the quarter of implementation (the first quarter of 2010) is included in the period after the event since this is when changes would likely first be seen. Models with all three events combined into a single regression were also tested. These led to very similar results, with all coefficients for the stated rates and the difference between stated and actual paid rates being in the same direction as shown here, and the first two event dates being statistically significant for both dependent variables. None of the events had a significant impact on interest rates paid.

11 The actual rate went up slightly but the change was statistically insignificant. Results for difference model, while not shown in this figure, were also statistically insignificant.

12 Top 4 issuers are Chase, Bank of America, Citibank, and Capital One.

13 Interest and fee revenue comes from SNL-compiled data originating from FDIC call reports (specifically, interest and fees is from line RIADB485 of Schedule RI). This revenue may be higher than Federal Reserve reported interest rates since it includes some fee revenue. However, this data excludes securitized assets, and the reported non-securitized assets may be younger and therefore include more promotional rates, bringing interest rates down. Certain fee revenue sources may change when economic conditions vary substantially even if there has not been a change in pricing. For example, due to rising delinquencies, late fee revenue should be higher during the recession.

14 The conclusion that the decline in mail volume is due to economic conditions is based on the significance of unemployment in driving mail volume found in the regression analysis and the increase seen in unemployment at the same time that mail volume declined.

15 Mintel Comperemedia, “Q3 2010 Credit Card Acquisition Response Rate Tracker,” November, 2010.

16 Based on monthly data from January 2005 to July 2010.

17 Shortly before the implementation date, the Federal Reserve cleared up some ambiguities in the Credit CARD Act’s interpretation by issuing a set of rules. So the jump could once again be due to reduced uncertainty.

18 The problems in using this type of data to understand the current rate paid by cardholders have already been noted. However, if the distortion of rates follows similar patterns over time in business and consumer cards, then a comparison between the two can still be valid.

19 The business card series excludes data between the fourth quarter of 2008 and the second quarter of 2009 due to a lack of business card offers at that time. Based on discussions with [creditcards.com](http://creditcards.com) staff, it was determined that the rate is distorted during that time period and likely unreliable due to a small sample size. Business card offers dried up during this time period. If anything this would suggest that credit was more

constrained for business cards than consumer cards. And in fact, the offers that are available for this time period show a jump of roughly six percentage points in business card rates in the period just after finalization of the Federal Reserve credit card rules.

20 One or two issuers voluntarily improved their repricing rules for business cards, but most issuers did not.

21 More specifically, this report found no reduced access to credit, no increase in prices paid, and no decrease in mail volume or the scope of consumers mailed to. While the aggregate level of credit card debt has declined recently, this appears to be due both to reductions in debt from elevated credit losses as well as some intentional deleveraging by consumers.

22 The use of these tactics in the credit card market is discussed in detail in: Joshua M. Frank, "Why Free Markets Can Sometimes Turn into 'Peacock Markets': The Evolution of Credit Cards," *Journal of Economic Issues*, June 2010; and Joshua M. Frank, "What Does the Credit Card Market Have In Common with a Peacock?" 24-40 *The Lydian Payments Journal*, 2009.

23 Lawrence M. Ausubel, "The Failure of Competition in the Credit Card Market," *The American Economic Review*, 1991, Volume 81(1), pg 50-81.

24 Board of Governors of the Federal Reserve System, "Report to the Congress on the Profitability of Credit Card Operations of Depository Institutions." Even now and despite record credit losses, credit card banks are doing relatively well. In the latest quarter (2nd quarter of 2010), the after tax return on assets for all banks has been 0.65% while the return on credit card banks has been more than double that at 1.41% (from Federal Deposit Insurance Corporation, "Quarterly Banking Profile," Second Quarter, 2010). In 2009, credit card banks did slightly worse than banks over all. However, in 2008 they did much better. The performance of credit card banks during the period since the financial crisis is especially telling because one of the rationalizations that has been put forward for why credit card banks "deserve" a higher return is that these unsecured assets are much higher risk. However, that fact that during the period in which they had the highest credit losses ever credit card banks perform about as well or better than other banks shows that cyclical economic risk is not higher for credit card lending, refuting that argument.

25 Some estimates of the impact of the Credit CARD Act on issuers are reported (among other places) in Andrew Johnson, "Regulations, Unemployment Pose Challenges for CARD Issuers," *American Banker*, July 21, 2010; Kevin Dobbs, "Wells says regulatory changes to cost it \$530M," *SNL Financial*, August 9, 2010; and Greg Gemson, "Credit Card Statement: Last Round of CARD Act Rules Finalized – Issuers Will Look to Offset Revenue Lost Due to 'Reasonable and Proportional' Fee Limits," *Moody's*, June 29, 2010.

26 It is possible that some of the decreased revenue to issuers is due to reduced volume rather than lower prices, which would not result in consumer savings. However, the evidence presented here does not show a reduction in solicitation volume. In addition, the Credit CARD Act still allows issuers to charge any interest rate they want (as long as they do so up front), so with no general price cap, there is no theoretical reason that issuers need to limit the supply of credit. It is possible that more transparent rates on offers will result in a lower response rate, but this would be a positive outcome.

27 The cost of manipulations to payment allocation is described in "What's Draining Your Wallet? The Real Cost of Credit Card Cash Advances." Center for Responsible Lending, December 16, 2008b. Available at: <http://www.responsiblelending.org/credit-cards/research-analysis/what-s-draining-your-wallet-the-real-cost-of-credit-card-cash-advances.html>. The costs of variable rate manipulations such as the use of floors set at the initial rate and manipulation of the index rate are described in 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>.

28 In addition, some of the most important fee reductions in the CARD Act are either not reflected in the Federal Reserve data which tracks interest rates only, or not yet in effect at the time of the last data point on fee plus interest income for the top issuers (fee rules went into effect in August 2010, while the data ends at the second quarter).

29 Data used was quarterly and ran from the 4th quarter of 1994 to the 2nd quarter of 2010 resulting in 63 data points.

30 Since issuers need at least a month or two to change rates and there was significant uncertainty about the final composition of both the Credit CARD Act and the Federal Reserve Rules even a month before the event date, the quarter after passage of the Credit CARD Act and finalization of the Federal Reserve Rules are used as the first period after the event. However, in the case of Credit CARD Act implementation, there was much more certainty for most of the quarter in question, and credit card issuers were changing terms before the final implementation date. Therefore the quarter of implementation (the first quarter of 2010) is included in the period after the event since this is when changes would likely first be seen. Models with all three events combined into a single regression were also tested. These led to very similar results, with all coefficients for the stated rates and the difference between stated and actual paid rates being in the same direction as shown here, and the first two event dates being statistically significant for both dependent variables. None of the events had a significant impact on interest rates paid.

31 These regressions tended to have a Durbin-Watson statistic below 1, which indicates the dependent variable is correlated with prior values over time. However, the first differences model described next, had Durbin Watson statistics close to 2 +/- 0.5 indicating no evidence of autocorrelation.

32 This result was robust to a variety of other specifications. An AR1 model (an alternative method of eliminating autoregression) yielded similar results. Changing the dummy variable between a one-time shift in level at the time of the event and a long term change in the difference model dependent variable coefficient yielded similar results. Using 4-quarter difference instead of first differences yielded similar results, as did including levels for prime and unemployment or additional lagged values.

33 A one-time event causing a shift in the interest rate level may lose its statistical power when converted to a dummy variable in a differences model. It is for this reason that we show the results of both models—regardless of the method used, real interest rates were not affected by regulation using three different event dates.



34 Though not statistically significant in the differences model, the coefficients if anything are consistent with credit expansion after regulation. Once again this result was robust to different regression models. Monthly seasonal dummies, which are not shown here for the sake of simplicity, did not change this result.

35 Data was monthly and ran from June 2007 to August 2010. Bankruptcy data came from The Bankruptcy Database Project at Harvard (<http://bdp.law.harvard.edu>) in cooperation with Automated Access to Court Electronic Records (AACER).

36 The prime rate has been stable from before the Credit CARD Act's passage until the most recent data available.

37 Business losses depend on the health of consumers. Many business cards go to sole proprietors running their own small business and who may behave much like consumers. In addition, many of these cards are linked to the business owner's personal credit and appear on their personal credit bureau. Therefore, it is likely that business losses are closely tied to consumer bankruptcies.

38 Once again this result was robust to different regression models. Monthly seasonal dummies, which are not shown here for the sake of simplicity, did not change this result.

## ***About the Center for Responsible Lending***

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