



# DISCUSSION PAPER

## PAYMENT CARDS CENTER

### **Another Look at Credit Card Pricing and Its Disclosure: Is the Semi-Annual Pricing Data Reported by Credit Card Issuers to the Fed Helpful to Consumers or Researchers?**

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***Summary:** “Credit Card Pricing Developments and Their Disclosure,” a January 2003 Payment Cards Center Discussion Paper, examined the history and dynamics of credit card pricing and how such pricing is described to consumers in Truth in Lending solicitation disclosures. In this paper, we examine credit card pricing as revealed to consumers in a different context: that of a semiannual shopping guide that the Board of Governors publishes pursuant to the Truth in Lending Act. Specifically, we ask two questions: Are the data on credit card pricing in the guide useful to consumers? Are the data collected for the guide (commonly known as Terms of Credit Card Plan [TCCP] data) of value to researchers? With respect to both of these questions, we find that the data are becoming less useful.*

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## I. Introduction

On November 3, 1988, President Reagan signed the Fair Credit and Charge Card Disclosure Act (FCCDDA),<sup>1</sup> a federal law that aims to improve the transparency of credit card pricing and simplify credit card shopping. While the centerpiece of the act is the tabular credit card price disclosure commonly referred to as the “Schumer Box,” a lesser known provision of the law requires the Board of Governors of the Federal Reserve System to “collect, on a semiannual basis, credit card price and availability information...from a broad sample of financial institutions” and make such information “available to the public upon request.”<sup>2</sup> Congress inserted this provision into the FCCDDA because it believed such pricing information would aid consumers in finding the best credit card deals and encourage issuers to compete against each other. The Senate report that accompanied the bill explained, “[i]t is anticipated that newspapers and consumer groups will use this information to inform consumers about the virtues and vices of different cards.”<sup>3</sup>

Pursuant to Congress’ mandate, every January and July select credit card issuers throughout the U.S. provide the Federal Reserve System with interest rate and fee information for their most popular credit card plan open to new customers. This survey information is ultimately published on the Federal Reserve Board’s website as part of a step-by-step shopping guide that aims to assist consumers in choosing a credit card.

This paper analyzes the pricing information collected from issuers pursuant to the 1988 TILA amendment and considers two questions: Does the pricing information help consumers

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<sup>1</sup> Public Law No. 100-583, signed November 3, 1988.

<sup>2</sup> See 15 U.S.C. § 1646(b) (2006).

<sup>3</sup> Senate Banking Committee Report, December 16, 1987, p. 4. Prior to passage of the act, then-Chairman of the Board of Governors Alan Greenspan and various senators questioned whether consumers would find the information the Board collected of any value. Chairman Greenspan argued that the collection of such data “is unnecessary, both because a number of private sector entities prepare guides for consumers to use in comparison shopping and because the bill’s disclosure provisions in-and-of-themselves will ensure that credit card price and term information will be available to consumers” (letter from Chairman Greenspan to Senator William Proxmire, December 1, 1987, p. 1). Senators Garn, Hecht, Bond, Karnes, and Shelby agreed with Chairman Greenspan, and they strongly (but unsuccessfully) urged the deletion of the price collection provisions from the bill in a letter included in the Senate Banking Committee’s report. (Senate Banking Committee Report, December 16, 1987, p. 14.)

shop for credit cards? Does the pricing information help researchers better understand credit card pricing terms and trends? This paper is organized around these questions and proceeds as follows: Section II describes the pricing data and how they are collected from credit card banks pursuant to the 1988 federal law. Section III examines the usefulness of the TCCP-based pricing and terms survey made available to consumers over the Internet. It discusses how the credit card industry has changed since passage of the FCCCDA and how these changes affect the efficacy of the survey. Section IV evaluates the usefulness of the card pricing survey data to researchers. It attempts to determine whether the pricing data represent a reliable proxy for the actual prices card issuers are charging consumers. Section V concludes that the survey data are becoming less useful for consumers and researchers because of changes in the industry.

## **II. Collection of Credit Card Pricing Data Pursuant to Truth in Lending**

Following Congress' mandate, the Board created a report form to collect pricing information from a sample of credit card issuers. The form, known as the Report of Terms of Credit Card Plans (TCCP), is sent to roughly 200 card issuers and collects information on basic credit card terms, such as purchase APRs and annual fees.<sup>4</sup>

The Board publishes the survey information as part of a shopping guide. The survey portion of the guide includes a single line of information for each card-issuing participant and is organized alphabetically by issuer name. While there may be other ways of organizing the survey data (e.g., sorting plans from low to high based on the reported APR) or other ways of displaying issuers' products (e.g., displaying a range of products or multiple products per issuer), the Board of Governors adopted a single-line-per-issuer method to avoid "endorsing" a particular issuer or

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<sup>4</sup> The Board always sends the form to the 25 largest issuers. The remaining 175 issuers are chosen based on size, with an aim toward geographic and institutional diversity. For more information about the selection process, see Board of Governors of the Federal Reserve System, "Supporting Statement for the Report of Terms of Credit Card Plans," October 5, 2005, p. 3 (sent to the Office of Management and Budget; hereafter cited as Supporting Statement for OMB), available at [www.federalreserve.gov/BoardDocs/ReportForms/formsreview/FR2572.20051005.omb.pdf](http://www.federalreserve.gov/BoardDocs/ReportForms/formsreview/FR2572.20051005.omb.pdf).

product. Limited by this endorsement constraint and given that each issuer has multiple card “products” that it could potentially report on this line, the Board devised a method by which issuers identify the single product or “plan” to report on the TCCP. As explained on the TCCP form, the one credit card product on which the issuer may report must meet the following three criteria: First, the program must be a “third-party plan,” i.e., it must be associated with a general-purpose credit card, such as those bearing the marks of MasterCard, Visa, Discover, or American Express.<sup>5</sup> Second, the program must be available to new customers as of the date of the report. This requirement increases the likelihood that a consumer with an interest in the program will be able to apply for a card associated with it. Finally, the program must be the one that has the largest number of cards outstanding.<sup>6</sup> Stated succinctly, the criteria ask issuers to report the mode<sup>7</sup> general-purpose credit card plan that is open to new customers.

After identifying which card program satisfies the three criteria, participating issuers complete the form with information about the program’s pricing and terms. This information, which largely tracks the information issuers must include in the tabular “Schumer Box” disclosures, includes the following: annual percentage rate, grace period, minimum finance charge, annual fee, purchase transaction fee, cash advance fee, late fee, over-limit fee, card enhancements, and balance computation method. The report requires issuers to organize this information according to the geographic availability of the plan. Therefore, issuers can report program information at the national, regional, and/or state levels.<sup>8</sup> In all, the form contains almost 1150 fields, most of which are dedicated to capturing state-level detail.

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<sup>5</sup> “Third-party plan,” as used in the context of the TCCP, refers to a plan connected to a general-purpose credit card (as opposed to a card that can be used only at a specific merchant). The term is *not* used in the sense of a plan issued by a “third party” (i.e., a bank) that relies on a network not operated by that third party (e.g., MasterCard or Visa).

<sup>6</sup> If the program that meets this requirement is an affinity program that is not available to the general public, the issuer has the option of reporting the affinity program terms or the terms of the largest program open to the public.

<sup>7</sup> The value or item occurring most frequently in a series of observations or statistical data. Definition from Dictionary.com available at [dictionary.reference.com/search?q=mode](http://dictionary.reference.com/search?q=mode).

<sup>8</sup> The design of the TCCP report form allows for the reporting of state-by-state variations in a single card issuer’s pricing strategy. While prices may have differed by issuer at the state level in the 1970s and early

Upon completing the survey, card issuers submit the TCCP data to their regional Federal Reserve Bank. These Banks validate the data and pass it on to the Board of Governors for publication. The Board includes the survey data, along with educational information about shopping for credit cards, in an Internet-based consumer resource called “Choosing a Credit Card.”<sup>9</sup> While the Reserve Banks collect 61 different pieces of information from card issuers on the TCCP, just 10 elements are included in “Choosing a Credit Card”: institution name, credit card plan name, geographic availability, annual percentage rate, type of pricing (variable or fixed), variable rate index, grace period, annual fee amount, “other features” (including introductory pricing and rewards), and issuer telephone number. The Board does not report information on late, over-limit, or cash advance fees on its website, although such information can be obtained from the Board upon request.

The Board began collecting TCCP data in January 1990 and, with the exception of the July 2000 and July 2001 reporting periods, has collected the data every January and July since. In total, the Board has collected 30 periods of data over the past 16 years. During those 30 periods, as few as 107 issuers and as many as 175 have filed a report in a given period (see Table 1 for the number of TCCP-filing institutions by year). The entire database includes over 120,000 rows of data on over 5100 unique plans<sup>10</sup> offered by 542 different issuers.

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1980s, a variety of legal, technological, and economic developments have shifted issuers away from state-based pricing. Today, card issuers do not generally segment their customers by state for pricing purposes. Instead, they segment by risk and behavioral characteristics unique to each consumer. While many issuers continue to report price and term information at the state level on the TCCP, our analysis shows that the vast majority of these banks are reporting the same price and term information for every state. Over the past five years, the number of banks reporting plans with any geographic variation ranged between two and five (out of a total of approximately 150 issuers). Earlier in the life of the survey, 20 to 25 issuers reported state-by-state variation. For more information on credit card pricing practices, see Mark Furletti, “The Debate Over the National Bank Act and the Preemption of State Efforts to Regulate Credit Cards,” *Temple Law Review*, 77, 2, p. 425, available at [www.philadelphiafed.org/pcc/discussion/NationalBankAct\\_032004.pdf](http://www.philadelphiafed.org/pcc/discussion/NationalBankAct_032004.pdf).

<sup>9</sup> “Choosing a Credit Card” can be accessed on the Board’s website at [www.federalreserve.gov/pubs/shop/default.htm](http://www.federalreserve.gov/pubs/shop/default.htm).

<sup>10</sup> To arrive at this estimate, we grouped plans by the following attributes: issuer (i.e., RSSD identifier), date, prices, and product features.

### III. The Value of TCCP Data to Consumers

The Federal Reserve Board’s website explains that the purpose of collecting TCCP data is “to encourage consumers to compare credit card offers and to promote competition among credit card issuers.”<sup>11</sup> Because we believe that the TCCP’s ability to accomplish this goal has been affected by changes in credit card products and the credit card industry, we begin this section by exploring these changes. Specifically, we examine how credit card pricing has changed at the account level, how it has changed at the customer level, and how credit card features have changed. We then analyze the impact of these changes on the TCCP-based survey.

#### A. How Credit Card Pricing Has Changed at the Account Level

As described in a previous Payment Cards Center Discussion Paper entitled “Credit Card Pricing Developments and Their Disclosure,”<sup>12</sup> the average cardholder who compares her credit card statements from 1988—the year the Fair Credit and Charge Card Disclosure Act (FCCDDA) was enacted—to statements from 2006 will notice four major changes with respect to the cost of her credit card. Three of these are fee related, and the fourth is related to annual percentage rates.

First, she will notice a lack of an annual fee. These fees, which were standard on nearly all types of cards in the late 1980s, are now generally confined to cards that offer rich rewards or special services or that target subprime consumers.<sup>13</sup> Second, she will notice much higher punitive fees. Late and over-limit fees, which were relatively low (around \$10) and rarely assessed 15 years ago, are now significantly higher (nearly \$40 at major issuers) and paid by

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<sup>11</sup> See the web page describing FR 2572 at [www.federalreserve.gov/boarddocs/reportforms/ReportDetail.cfm?WhichFormId=FR\\_2572&WhichCategory=6](http://www.federalreserve.gov/boarddocs/reportforms/ReportDetail.cfm?WhichFormId=FR_2572&WhichCategory=6).

<sup>12</sup> This paper is available on the Center’s website at [http://www.philadelphiafed.org/pcc/discussion/CreditCardPricing\\_012003.pdf](http://www.philadelphiafed.org/pcc/discussion/CreditCardPricing_012003.pdf).

<sup>13</sup> *Credit Card Management*, an industry trade publication, explained this change as follows: “Annual fees once represented a major revenue source for issuers. But that ended in 1990, when the introduction of the no-annual-fee-for-life AT&T Universal card effectively delivered a deathblow to that lucrative source of income.” Linda Punch, “The Ugly Issuer,” *Credit Card Management*, September 1, 2004, p. 30.

approximately half of all cardholders during a given year.<sup>14</sup> Third, she will notice new fees. Over the past 15 years, issuers have introduced cash advance fees, balance transfer fees, and phone payment convenience fees and have relied more heavily on these fees to supplement lower interest revenues. The effect of all three of these changes can be seen in a graph of annual fee and nonannual-fee revenues for the card industry over time (Figure 1).

Finally, our consumer will notice many more APRs. In the early 1990s, balance transfers and cash advances soared in popularity as issuers offered consumers price incentives for the former and aggressively marketed the latter.<sup>15</sup> In addition, as competition in the industry became fiercer, issuers rolled out promotional APRs to both acquire new customers and retain existing ones. As a result of these developments, the one-APR-per-account model, which was prevalent in the days before the FCCCDA, was replaced by a multiple-APR model. Today, a single cardholder's balance can be subjected to cash advance APRs, balance transfer APRs, introductory APRs, promotional purchase APRs, and promotional "life of loan" APRs.<sup>16</sup> The increase in the variety of APRs has led to a decrease in the proportion of balances that actually accrue interest at the only APR type that existed in 1988: the purchase APR.

#### B. How Credit Card Pricing Has Changed at the Issuer Level

In addition to noticing new fees and new types of APRs, an observant cardholder who compares her 1988 and 2006 statements and who is able to compare her statements to those of other cardholders will notice another dramatic change: The APRs on her account are very different from those on other cardholders' accounts, reflecting differences in cardholder risk.

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<sup>14</sup> See Ron Lieber, "Credit Card Firms Collect Record Levels of Late Fees," *Wall Street Journal*, May 21, 2002, p. D1 (citing a CardWeb.com study that found 58 percent of cardholders paying a late fee in 2001).

<sup>15</sup> See, for example, Robert Jennings, "Balance Transfers Fuel Bank Card Rise," *American Banker*, January 4, 1996, p. 12.

<sup>16</sup> See Mark Furletti, "Credit Card Pricing Developments and Their Disclosure," Payment Cards Center Discussion Paper (January 2003), available at [www.philadelphiafed.org/pcc/discussion/CreditCardPricing\\_012003.pdf](http://www.philadelphiafed.org/pcc/discussion/CreditCardPricing_012003.pdf).

As described in our earlier pricing paper, credit card APRs in the 1980s and early 1990s were uniformly high across all customers. The high profits earned from low-risk customers paying high interest rates subsidized the losses issuers incurred from high-risk customers. In the mid-1990s, however, this changed and issuers began adopting “risk-based pricing.” Risk-based pricing is a strategy by which issuers vary customers’ APRs by risk, with low-risk customers paying low APRs and high-risk customers paying high APRs (Figure 2). The figure, which is based on proprietary data from the largest issuers in the U.S., shows the difference between the effective APR charged to very high-risk customers (with FICO scores less than 600) and the effective APR charged to customers at lower risk levels. Notice that, in the most recent period, the effective APR of very low-risk customers is 800 basis points lower than the effective APR of high-risk customers. While we are not able to update this chart, we believe that this trend has continued, with lower risk consumers now receiving an even greater discount.

Risk-based pricing strategies manifest themselves in other ways, permitting issuers to vary their prices based on the channel through which they receive a credit card offer (e.g., mail, Internet, telephone), the co-brand or affinity group to which the prospective offeree belongs, or both. Consider, for example, two potential cardholders with otherwise identical risk profiles. One responds to a personalized offer sent to him through the mail for a credit card affiliated with the American College of Surgeons, a group to which the cardholder belongs. The second applies for a co-branded card by completing an Internet application available to the general public through a national retailer’s website. It is likely that these cardholders, although identical in their standardized risk score, will face different prices. The latter will likely be assessed a higher interest rate because issuers’ credit risk models will probably show the following: Internet-originated accounts have higher default rates than accounts originated in response to direct mail solicitations and cardholders associated with the American College of Surgeons have lower default rates than cardholders that select a card based on a merchant co-brand.

The adoption of risk-based pricing by issuers has contributed to another phenomenon: more risk variation in individual issuers' portfolios. In the 1980s, issuers had a few specific underwriting criteria. If a consumer met the criteria, he received a card; if he did not, his application was denied.<sup>17</sup> Risk-based pricing changed this by permitting issuers to underwrite higher risk loans by charging higher APRs. Initially, higher risk lending was the province of specialized issuers (e.g., Providian and Metris). Over the past five years, however, as growth in the industry has slowed, issuers who traditionally targeted prime and "superprime" customers have shown an appetite for higher risk lending. In 2005, for example, one of the very largest credit card issuers in the U.S. announced it was pursuing a "near prime" or "low prime" strategy.<sup>18</sup> In that same year, prime issuer HSBC acquired subprime issuer Metris<sup>19</sup> and prime lender Washington Mutual acquired subprime issuer Providian.<sup>20</sup>

### C. How Credit Card Features Have Changed

The final change that a cardholder would observe after comparing her 1988 and 2006 credit card statements with those of other cardholders would be an explosion in the different types of credit cards to which cardholders have access. In the mid-1980s, credit cards came in few varieties. There were generally two different card "colors" — silver and gold — and affinity and co-branded cards were still considered innovations.<sup>21</sup>

Today, credit cards come in many varieties and can be tailored to an individual consumer's interests, behaviors, and needs. A review of the major U.S. credit card issuers' websites nicely illustrates this point. JPMorgan Chase, for example, offers nearly 250 different credit cards on its website, including general purpose cards, rebate cards, entertainment cards,

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<sup>17</sup> See "Credit Card Pricing Developments and Their Disclosure."

<sup>18</sup> Lavonne Kuykendall, "Chase Plans Card Blitz, May Buy Other Issuers," *American Banker*, February 24, 2005, p. 1.

<sup>19</sup> Eric Dash, "HSBC to Acquire Metris For \$1.59 Billion in Cash," *New York Times*, August 5, 2005, p. 5.

<sup>20</sup> Jim Cole, "In Brief: Wamu Buys Providian; Mailing Planned," *American Banker*, October 4, 2005, p. 20.

<sup>21</sup> For a general description of innovations in the bankcard industry in the 1980s, see David Evans and Richard Schmalensee, *Paying with Plastic* (MIT Press, 1999), pp. 73-75.

travel cards, auto and gas cards, retail cards, student cards, college cards, military cards, sports cards, and cards that support organizations. Similarly, MBNA's website features over 150 consumer credit cards, and Citibank's website features nearly 50. Given that most of these cards can be tailored to an individual consumer's risk profile (by adjusting their APRs) and that the cards can be issued in a variety of "colors," the number of unique card "products" available to consumers from any given major issuer could easily reach into the thousands.

#### D. How Changes in the Industry Affect the TCCP

In this section, we examine how the specific industry changes discussed above reduce the efficacy of the TCCP-based survey of issuer pricing. Overall, we conclude that the price terms included in the survey may be less relevant than in the past and that, over time, it has become more difficult to use the TCCP-based survey to make cross-issuer comparisons. We note, however, that the effects of these changes have not been uniform and that the survey data are more useful for smaller banks than for larger ones

As described in Section III.A, credit card pricing at the account level has become much more complicated. In the 1980s issuers primarily generated revenues through annual fees and interest charged on purchase balances. Today, a consumer may have five or more APRs and an extensive menu of punitive and service-based fees associated with her account. As a result of this change, the "cost" of a credit card for any given consumer depends on multiple factors, including the types of balances the consumer revolves, the card-based services on which the consumer relies, and the care with which the consumer manages his or her account.

The TCCP-based survey, despite these changes, continues to include only two specific indicators of price: purchase APR and annual fee. It is not clear whether this information is sufficient for comparison shopping purposes. For issuers that have adopted the new model of multifaceted, customized pricing at the account level, the purchase APR and annual fee do not

necessarily represent the pricing terms that have the most impact on consumers. This is particularly true given the industry's move toward balance transfers and away from annual fees.<sup>22</sup>

In addition to omitting terms that are potentially relevant, the TCCP survey is becoming less useful for making cross-issuer comparisons. As described in Sections III.B and C, large issuers have adopted risk-based pricing strategies and significantly expanded the variety of credit cards they offer. As a result, an entire issuer's credit card portfolio, which could once be fully described by referencing two colors (i.e., silver or gold), one or two purchase APRs, and one or two annual fees, now evades such easy description. Today, credit card plans can differ by price, color, reward, intended use, and cardholder interest. Overall, the likelihood that any two cardholders have the exact same card with the exact same terms has decreased significantly.

As a result of these changes, it has become increasingly difficult to find a single credit card that a significant proportion of an issuer's customers own. For example, let's simply define a credit card as a one-dimensional product, varying only by purchase APR. As late as 1994, the *Card Industry Directory*, a source of annual data on the credit card industry, published the various purchase APRs each issuer charged its customers. In that year, four of the top 10 issuers charged all of their customers the same purchase APR, three of them varied their APRs only by card color (i.e., one price for gold cards and one price for silver/standard cards), and the remaining three had other types of variation (e.g., fixed vs. variable APRs). In addition, there was also not much variation in price among issuers, with most charging purchase APRs in the range of 15 percent to 18 percent. Contrast these data with more recent data on purchase APRs from issuers' websites and direct mail solicitations (Figures 3 and 4). Purchase APRs now vary

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<sup>22</sup> While it is outside of the scope of this paper to determine exactly which elements should be included in the survey, we believe that two sources of information might be helpful in making this determination. First, the Board is presently undertaking a comprehensive review of Regulation Z, the regulation that implements the Truth in Lending Act. Within the scope of this review is the "Schumer Box," the tabular display of information included in all credit card solicitations for comparison shopping purposes. We believe that the findings of this review (which will culminate in a proposed rule) and any subsequent modifications to the tabular display may prove instructive for the purpose of selecting elements to include in the published version of the survey. Second, a number of private-sector websites help consumers shop for credit cards (some of which we have listed in Table 2). The information that these websites include on various credit card offers may be a good indicator of the elements consumers find useful.

significantly within a single issuer and among issuers. Overall, we find that at any single point in time, a large issuer could be offering 10, 20, or even 30 different purchase APRs to prospective customers.

We know that the purchase APR of a credit card is just one of the product's many dimensions. Credit cards today also vary by color, reward type, intended use, cardholder interest, and other price attributes (e.g., promotional APRs, balance transfer APRs). To the extent to which an issuer has hundreds or thousands of unique plans or products, how likely is it that a mode, median, mean, or any other single product that one selects from this issuer's portfolio will be indicative of its products in general or comparable to those of other issuers?

The tailoring of credit card products to meet the needs of individual consumers creates a significant challenge for any survey restricted to listing one product per issuer. Overall, such customization results in a very common product that is not so common. As a result, it is more difficult for consumers to use the survey data to understand a particular issuer's products or to make cross-issuer comparisons — two important functions of the survey.<sup>23</sup>

Our focus thus far has been on the pricing and product strategies of large, national credit card issuers. Such issuers, while small in number, play a disproportionately important role in the industry. Our analysis of Call Report data from the first quarter of 2006 finds that of the 1656 commercial banks that have a credit card portfolio, the largest 17 hold 98.3 percent of all credit card loans.<sup>24</sup> (Inversely, 1.7 percent of all credit card loans are spread among more than 1600 institutions.) As a result of these concentrations, the TCCP's approximately 150 lines are dominated by issuers with relatively small portfolios.

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<sup>23</sup> Since the TCCP purchase APR and the QRCC nominal APR are not independent of each other, they naturally have some use in rank ordering. When we compare the rank ordering of purchase APRs by the TCCP with the rank ordering of nominal APRs by the QRCC, the Spearman rank correlation in any one period is around 0.6

<sup>24</sup> Our analysis excludes noncommercial-bank issuers of credit cards, such as savings banks, credit unions, and nonfinancial institutions. We do not believe that including these entities would affect our analysis.

For the most part, the changes described earlier in this section have not affected these smaller issuers. They continue to offer a relatively simple credit card product, and they market this product primarily through their branches to consumers with whom they have a traditional banking relationship. For these small issuers, their common plan is likely quite common. (It may be their only plan.) As a result, the TCCP is a fairly good indicator of the prices these issuers charge. In addition, because small issuers have limited marketing resources, the TCCP-based survey probably represents the only source of Internet-accessible information on most of these issuers' plans.<sup>25</sup>

Before concluding this section, we note a distinction between the focus of our analysis — the TCCP-based survey data that the Board collects and publishes pursuant to the Truth in Lending Act — and the broader shopping guide of which this survey is a part. The broader shopping guide includes up-to-date information on card industry pricing practices, including the various types of APRs and fees that issuers charge and the various incentives and features that can be associated with a card. The guide also explains to consumers how to read a “Schumer Box” disclosure and what to do if they have a problem with a credit card purchase. Overall, we believe that the educational information in the shopping guide keeps pace with changes in the industry and would be quite helpful to a consumer shopping for credit.

In sum, we find that major changes in the credit card market since the passage of the Fair Credit and Charge Card Disclosure Act of 1988 have made it increasingly difficult for the TCCP survey to provide consumers with relevant information on most nationally marketed credit card plans. Consumers seeking information on the plans of smaller regional issuers, however, may find the survey of use.

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<sup>25</sup> We conclude that the TCCP-based survey is a good indicator of the prices smaller issuers charge and not a good indicator of the prices larger issuers charge. Consumers seeking to learn more about larger issuers' products, however, are not without options. A wealth of information on such products is available through issuers' websites and those of third parties.

#### IV. The Value of TCCP Data to Researchers

Given that TCCP data are the only public source of historical information on U.S. issuer-level prices, it is not surprising that these data are frequently used as a proxy for issuers' pricing practices. A brief search of the academic literature uncovered four published articles, two working papers, and one book that relied on the data to either support a general proposition or model credit card industry pricing. We also found that TCCP data are featured each year in "The Profitability of Credit Card Operations of Depository Institutions,"<sup>26</sup> a report to Congress by the Board of Governors that is mandated by the FCCCDA. This report typically relies on TCCP data to understand card issuers' variable and fixed rate pricing practices and general trends in credit card pricing.<sup>27</sup>

Because we found evidence that changes in the industry have challenged the TCCP-based survey, we questioned whether the data would be of value to researchers. Specifically, because of the developments described in the previous section, we were not certain whether the APRs and fees in the TCCP would reflect the actual prices issuers charge consumers. In this section, we test this hypothesis in two ways: First, with respect to the APR component of price, we compare the TCCP APR to two APRs derived from confidential pricing data reported by issuers for the purpose of the G.19, a statistical publication of the Federal Reserve.<sup>28</sup> Second, with respect to the fee component of a plan's price, we compare TCCP-reported fee data to various publicly available fee data.

The rest of this section is organized around our analysis of the TCCP's data on APRs and fees. Please note that our findings with respect to the TCCP's APR data are based on regressions

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<sup>26</sup> These reports are available on the Board's website at [www.federalreserve.gov/pubs/reports\\_other.htm](http://www.federalreserve.gov/pubs/reports_other.htm).

<sup>27</sup> See, e.g., Board of Governors of the Federal Reserve System, "The Profitability of Credit Card Operations of Depository Institutions," June 2005, available at [www.federalreserve.gov/boarddocs/rptcongress/creditcard/2005/ccprofit.pdf](http://www.federalreserve.gov/boarddocs/rptcongress/creditcard/2005/ccprofit.pdf).

<sup>28</sup> For general information about the G.19, see the statistical release section of the Board's website at [www.federalreserve.gov/Releases/](http://www.federalreserve.gov/Releases/). For an analysis of the G.19's estimate of revolving consumer credit, see Mark Furletti and Christopher Ody, "Measuring U.S. Credit Card Borrowing: An Analysis of the G.19's Estimate of Consumer Revolving Credit," Payment Cards Center Discussion Paper (April 2006), available at [www.philadelphiafed.org/pcc/DG192006April10.pdf](http://www.philadelphiafed.org/pcc/DG192006April10.pdf).

and other econometric analysis. In the text that follows, we describe very generally the results of this analysis. For the benefit of researchers, however, we include a detailed description of the statistical tests we employed and the actual results of these tests in the Data Appendix.

#### A. The TCCP Mode APR

In an effort to better understand what the TCCP mode APR measures, we compare it with two interest rates derived from the Quarterly Report of Credit Card Interest Rates (QRCC), a confidential report filed with the Federal Reserve by a panel of large and small credit-card-issuing banks. We use QRCC-derived APRs as points of comparison because we believe that QRCC data are relatively accurate and representative. The instructions that accompany the QRCC form are clear, the data gathered by the form reflect the reporting issuer's entire managed credit card portfolio (not a subset), and the variables issuers report (simple averages and totals) are easy to calculate. In addition, all QRCC data are validated by statisticians within the Federal Reserve System.

Using QRCC data, we computed two APRs for each bank in every period in which it filed a report: an average nominal purchase APR for all accounts and an effective APR for all accounts that carried a balance. The former is calculated by summing the purchase APRs of all open accounts (regardless of whether they are active) and dividing the sum by the total number of open accounts. The latter is calculated by summing the finance charges assessed by the issuer during the month, multiplying this sum by 12, and dividing the result by the total balances on which finance charges were assessed. QRCC-derived interest rates are available for every quarter (in February, May, August, and November) from November 1994 to present. While the number of issuers filing a QRCC report has declined as a result of consolidation in the card industry, the proportion of the industry represented by those filing a report has remained consistently high.<sup>29</sup>

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<sup>29</sup> The QRCC originally aimed to collect data from 150 commercial bank issuers. See Agency Forms Under Review, 59 Fed. Reg. 3102, 3103 (proposed January 20, 1994). In 1997, the Board requested that the

When we compare the three interest rates—the TCCP APR, the QRCC nominal APR, and the QRCC effective APR—we find that the TCCP’s APR is a reasonable proxy for the QRCC’s nominal APR and is not a reasonable proxy for the QRCC’s effective APR.<sup>30</sup> In retrospect, these results are somewhat intuitive for two reasons. First, the TCCP APR and the QRCC nominal APR both measure the price at which select customers can potentially borrow for the purpose of making a purchase, whereas the QRCC’s effective APR includes interest rate information on purchase *and* nonpurchase balances, such as those generated through balance transfers, promotions, or penalty pricing. Second, customers at banks may use different card features or experience changes in the credit card terms, leading to differences in what they actually pay.

Why is the TCCP APR potentially more useful for a researcher’s purposes than for a consumer’s? We believe it is because researchers can derive value from a variable that is noisy but, on average, accurate. In contrast, a consumer shopping for a single card has no use for information that can be inaccurate at the individual-offer level while, on average, correct.

Although we find that the TCCP’s APR and the QRCC’s nominal APR are correlated, we also find evidence to support our expectation that the relationship between these two APRs deteriorates over time. Specifically, we find that as more issuers employ complicated pricing schemes (e.g., risk-based pricing), the TCCP APR becomes less predictive of the QRCC nominal APR. When we compare observations from the early years of the sample (1995 through 1998) with observations from the later years of the sample (2003 through 2006), we find that the differences between the TCCP APR and the QRCC nominal APR are more pronounced in the

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targeted sample size be reduced to 100. See Agency Information Collection Activities, 62 Fed. Reg. 30,853, 30,855 (proposed June 5, 1997). And in March 2006, the Board requested that the targeted sample size be reduced to 50. See Proposed Agency Information Collection Activities, 71 Fed. Reg. 15,745, 15,745 (proposed March 29, 2006). We find that the actual number of respondents to the survey generally falls short of these targets.

<sup>30</sup> Although we find that an issuer’s TCCP APR and its QRCC nominal purchase APR move together, we also find that the TCCP APR is, on average, 1 percent higher than the QRCC nominal purchase APR.

later period than in the earlier one.<sup>31</sup> When we subtract the QRCC APR from the TCCP APR and plot the distribution of the differences, we see a tighter distribution during the period in which issuer pricing was relatively simple (Figure 5).<sup>32</sup>

For similar reasons, we also find evidence that the TCCP APR is a better proxy for smaller issuers' APRs than for larger issuers' APRs. When we plot the distribution of differences between the TCCP and QRCC APRs for the largest and smallest one-third of credit card issuers in the sample, we see a much tighter distribution for smaller issuers than for larger ones (see the second graph in Figure 5). Given that smaller issuers generally employ less complicated pricing strategies relative to larger issuers, this result is consistent with our expectations.

In sum, the TCCP APR is a reasonable proxy for the average nominal purchase APR that an issuer charges, particularly when the reporting issuer relies on less complicated pricing techniques. We caution researchers, however, about using the TCCP APR as a measure of overall price because the TCCP APR explains much less with respect to how much consumers *are currently paying* for credit. As described above, as a proxy for the average nominal purchase APR, the TCCP APR does not include any information on an issuer's use of promotional APRs, balance transfer APRs, cash advance APRs, and penalty APRs. Measuring the impact of these nonpurchase APRs is useful because, as explained in Section III, nonpurchase APRs have become more important over time and represent an increasingly larger portion of issuer interest revenues. As a proxy of the QRCC's nominal APR, the TCCP APR has less research value.<sup>33</sup> The nominal purchase APR is an indicator of the interest an issuer's cardholders *would potentially pay if they were to make a purchase and not pay their balances in full*; that is, it reflects an average

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<sup>31</sup> Because QRCC data did not exist until 1995, we are not able to compare the TCCP and QRCC APRs until that year. For more information on the TCCP and QRCC "overlap sample," see the Data Appendix.

<sup>32</sup> We speculate that if QRCC data were available for 1990 through 1994, we would find an even more pronounced difference between the earliest and latest periods; that is, the TCCP APR would be an even better predictor of the QRCC nominal APR in the early 1990s.

<sup>33</sup> The QRCC effective APR will vary among issuers because of differences in prices, customers, and how customers respond to price incentives. Therefore, a researcher would need to be careful in determining appropriate uses for the QRCC effective APR. In other words, there are problems with any attempt to simplify into one number a plethora of pricing terms that depend on behavior.

APR charged to all accounts, not just those that have revolving balances or those used for making purchases. In addition, the QRCC nominal APR does not include any information on the increasingly important nonpurchase balances. For these reasons, we caution those who rely on the TCCP APR to remember that it is a reasonable proxy for a measure of price that is becoming less relevant.

## B. TCCP Fee Data

The TCCP collects information on four fees: late, over-limit, cash advance, and annual. (Researchers can gain access to all of these data on fees even though the Board's consumer shopping survey includes just annual fee information.) For late, over-limit, and cash advance fees, issuers report the dollar amount or rate of the fee and, if the fee varies by geographic region (e.g., from state to state), the minimum and maximum amount of the fee. Issuers report data on annual fees for every geographic variation of a plan (in lieu of reporting a range).

In this section, we evaluate fee data at two levels: First, we analyze whether, in the aggregate, TCCP fee information is indicative of industrywide trends. Second, we analyze whether, at the issuer level, the fee data for the mode plan are indicative of the fees assessed on nonmode plans. Overall, we find that prior to 2002, the data on late and over-limit fees collected by the TCCP are accurate, reflecting industry trends and issuer-level practices. After 2002, because issuers changed how they assess late and over-limit fees, the TCCP's data on late and over-limit fees are unreliable in the aggregate and at the issuer level. We also find that the TCCP's data on cash advance fees are accurate in the aggregate and at the individual issuer levels and that the annual fee data, while accurate in the aggregate, are not necessarily indicative of annual fees for nonmode plans.<sup>34</sup>

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<sup>34</sup> Data on late, over-limit, and cash advance fees are reliable at the issuer level for most of the TCCP's lifespan because, in general, these fees do not vary at the customer level. That is, most issuers determine a customer's late, over-limit, and cash advance fees using a single fee schedule. Annual fees, in contrast, vary at the customer level by product type or risk.

As discussed in Section II, credit card fee practices have changed dramatically over the past two decades. In general, issuers have gone from charging all consumers a once-a-year fee for the “privilege” of having a card to charging them fees throughout the year based on their risk and use of card-related services. In the aggregate, the TCCP data generally reflect this shift. The top graph of Figure 6 shows the percentage of TCCP-filing issuers that charge the four fees tracked by the report. The bottom graph shows these four fees (with late and over-limit fees grouped together) as a percentage of industry revenues as reported by the *Card Industry Directory*. In general, the decline in the number of TCCP-reporting issuers charging annual fees and the increase in such issuers charging nonannual fees are mirrored in the overall revenue statistics for the industry.

While the TCCP data on penalty fees in the aggregate comport with our expectations as to whether certain fees are associated with card plans, we do not believe that these data are reliable with respect to certain issuer-level fee practices. We observe problems with data on issuer-level late and over-limit fees, and these problems stem from a change in how issuers assess these fees and the TCCP form’s inability to capture this new fee regime. In May 2002, the *Wall Street Journal* reported that “[i]n recent months, many big companies have boosted late fees...by moving to a three-tiered fee structure.”<sup>35</sup> This structure varied late fees by balance level. For example, many large issuers charge consumers a \$15 late fee if their balance is less than \$100, a \$29 late fee if their balance is between \$100 and \$1000, and a \$39 late fee if their balance is greater than \$1000. Some issuers have adopted a similar tiered fee structure for over-limit fees.

Unfortunately, the TCCP reporting form solicits information on late and over-limit fees that vary by cardholder geography, not cardholder balance. The form asks issuers to answer one of two mutually exclusive questions regarding late and over-limit fees: What is the fee amount (assuming it is uniform across the geographic area)? Or what is the minimum and maximum fee

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<sup>35</sup> Ron Lieber, “Credit-Card Firms Collect Record Levels of Late Fees,” *Wall Street Journal*, May 21, 2002, p. D1.

amount (assuming the fee “varies between states”)?<sup>36</sup> For issuers that tier their fees, a response to either of these questions will necessarily be unclear. Based on our review of TCCP data for issuers with tiered fees, we found inconsistent reporting practices. The majority reported the fee for the lowest tier (e.g., \$15) as the “uniform” fee for the plan, and a few reported the amounts of the highest and lowest fee tiers (e.g., \$15 and \$39) in the fields intended to capture interstate or intraregional differences. Figure 7 shows the TCCP late fees reported by four large issuers that adopted the tiered fee structure between 2002 and 2003. The dotted line represents the maximum late fee that these issuers currently charge (i.e., \$39). This chart illustrates how researchers relying on TCCP data may incorrectly conclude that the late fees of the largest issuers declined in the early part of this decade. In reality, these issuers’ late fees reached record-high levels.

Unfortunately, because issuers’ fee practices have changed and the TCCP form has not, it is more difficult for researchers to continue to analyze of late fee trends in the aggregate. For example, we have historically used TCCP data to show how card issuers move as a “herd” when adopting higher late fees. We generally have seen one issuer raises its late fee (to a new high) and then, a few months later, we have seen much of the rest of the industry follow. Table 3 summarizes the results of our ongoing analysis. Note that in January 1996, one issuer reported that it had increased its late fees to \$20. (Prior to 1996, the standard late fee was \$15 or \$18.) Six months after this issuer moved to \$20, over one-quarter of all large issuers had moved to \$20 (or higher), and one year later, almost three-quarters of the market was charging \$20 or more. We observed the same trend when late fees climbed to \$25 and \$29. After 2002, however, we do not

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<sup>36</sup> The TCCP report form (FR 2572) was modified in January 2006. Before the modification, issuers were asked to report the minimum and maximum amount of late, over-limit, and cash advance fees if the particular fee “varie[d] between states.” Today, issuers are asked to report the minimum and maximum amount of a fee if it “varies over the plan’s region.” This change was not intended to capture tiered fees but to clarify that minimums and maximums should be reported only for geographic variations. (The supporting statement for the change indicates that it was made to ensure that responses “diverge according to whether the particular fee is uniform or variable over the card plan’s geographic area of availability” Supporting Statement for OMB.) Apparently, however, the change induced some issuers who had adopted a tiered fee structure earlier in the decade to report for the first time in January 2006 the range instead of the amount of the lowest tier. This suggests that in addition to asking the wrong questions about fees, the form may be unclear and confusing.

see the same movements with respect to the \$35 and \$39 late fee levels because of the effects of late fee tiers.

With respect to the TCCP's cash advance data, we find that it reflects industry- and issuer-level practices. Our survey of major issuers' websites found that cash advance fees typically range from 3 to 4 percent of the value of a cash advance with a minimum fee of \$5 to \$20. These results are generally consistent with the information recently reported by issuers on the TCCP. We also compared the TCCP data on cash advance fees with data we collected on credit card terms and conditions from the late 1990s. At that time, cash advance fees of major issuers were generally lower (around 2 percent), and this is reflected in the TCCP data.

With respect to annual fees, our findings are not uniform. As explained above, the trend away from annual fees as represented in the TCCP data in the aggregate is consistent with our expectations. Those relying on annual fee data, however, should note that, as with the TCCP APR, the extent to which the data are representative at the individual-issuer level varies. Among issuers that continue to charge annual fees in lieu of service fees or high punitive fees, the mode plan's annual fee is likely representative of the fee a consumer would face if he applied for a card. In contrast, among issuers that employ more complicated pricing schemes, annual fees are generally found on cards that offer rich rewards or that target subprime consumers. The plans associated with these cards, which may represent just a few of the hundreds or thousands of plans that these generally larger issuers offer, may not meet the criteria for inclusion in the TCCP. Alternatively, such plans may be included in the TCCP but not reflect the issuer's annual fee strategies with respect to the majority of its portfolio.

In sum, we find that the data on late and over-limit fees reported by issuers prior to 2002 on the TCCP are accurate at the issuer level and reflect general industry trends. After 2002, data on late and over-limit fees are not reliable because many issuers adopted a tiered late-fee structure, and they inconsistently report these tiered fees on the TCCP form. The TCCP's data on cash advance fees are reliable in the aggregate and at the individual issuer levels. And the

TCCP's data on annual fees, while accurate with respect to industry-level trends, are not a good indicator of issuer-specific practices.

## **V. Conclusion**

In 1988, Congress mandated that the Board of Governors survey credit card issuers about the terms of their largest, publicly available credit card plan and make the results of the survey available to the public. At the time, credit card pricing was relatively simple and the survey instrument, known as the TCCP, captured information about the credit card price components most important to consumers.

In the nearly 20 years since passage of the federal law that created the TCCP, the credit card market has changed significantly. Credit card pricing, once easily explained by referencing a single interest rate and a single annual fee, now varies at the individual consumer level by risk, balance type, and usage patterns. The credit card itself, once distinguishable only by color, now can be customized by color, reward type, co-brand partner, and affinity group.

Despite all of these changes, the TCCP-based survey has largely remained the same. For consumer purposes, it includes information on the same two measures of price that it included in 1988. These measures have become less indicative of the costs consumers using credit cards actually face. In addition, the survey includes information on just one credit card plan. Because of changes in credit card pricing and products, this plan is no longer as indicative of an issuer's card offerings.

As a research tool, the TCCP survey data have some value. The TCCP interest rate is a reasonable proxy for an issuer's average nominal purchase APR, particularly when the issuer does not employ complicated pricing techniques. We note, however, that such a proxy is becoming noisier as issuers' overall pricing strategies are relying more heavily on nonpurchase APRs. With respect to fees, the TCCP fee data are representative in the aggregate and at the

issuer level until 2002. At that time, issuers adopted a tiered late and over limit fee structure that is not captured by the TCCP reporting form.

In conclusion, we hope our analysis helps researchers understand the limitations of TCCP data and makes it easier for them to use the data to answer research questions. In addition, we hope our analysis leads policymakers to consider how to create consumer tools that can continue to benefit the public even in the face of change.

**Table 1: Number of Financial Institutions Participating in TCCP by Period**

<b>Period</b>	<b>Number of Participating Institutions</b>
Jan-90	151
Jul-90	158
Jan-91	151
Jul-91	159
Jan-92	157
Jul-92	157
Jan-93	153
Jul-93	153
Jan-94	156
Jul-94	150
Jan-95	154
Jul-95	166
Jan-96	160
Jul-96	143
Jan-97	157
Jul-97	160
Jan-98	157
Jul-98	148
Jan-99	158
Jul-99	139
Jan-00	128
Jul-01	107
Jan-02	171
Jul-02	175
Jan-03	132
Jul-03	127
Jan-04	132
Jul-04	151
Jan-05	149
Jul-05	144

Source: TCCP data.

**Table 2: Select Internet Resources for Credit Card Shoppers\***

<b>Sponsor</b>	<b>Resource</b>	<b>Website</b>
Visa USA	Searchable credit card offer database that customizes results based on the following consumer attributes: state of residence, risk profile, reward preferences, and other feature preferences.	<a href="http://usa.visa.com/personal/cards/index.html?it=gb//Personal">http://usa.visa.com/personal/cards/index.html?it=gb//Personal</a>
MasterCard	Searchable credit card offer database that customizes results based on the following consumer attributes: state of residence, employment status, whether the consumer presently owns a credit card, risk profile, and the attributes of a credit card most important to consumer.	<a href="http://www.mastercard.com/us/personal/en/findacard/creditcard_search.html">http://www.mastercard.com/us/personal/en/findacard/creditcard_search.html</a>
CardWeb.com	Searchable credit card offer database that customizes results based on the following consumer attributes: annual salary, employment status, expected usage patterns, rewards preferences, brand preference, annual fee preference, and business or personal use preference.	<a href="http://www.cardweb.com/cardlocator/">http://www.cardweb.com/cardlocator/</a>
Bankrate.com (also available through Kiplinger.com)	Searchable credit card offer database that customizes results based on the following consumer attributes: state of residence, “goal” of seeking card, and card type.	<a href="http://www.bankrate.com/brm/rate/cc_home.asp">http://www.bankrate.com/brm/rate/cc_home.asp</a>
CreditCard.com	Searchable credit card offer database that permits searching based on card type and issuer. Includes information about each offer’s risk threshold and APR.	<a href="http://www.creditcards.com/">http://www.creditcards.com/</a>

\* The inclusion of these websites in this table should not be viewed as an endorsement. We found these websites while doing research for this paper and did not validate the information they contain.

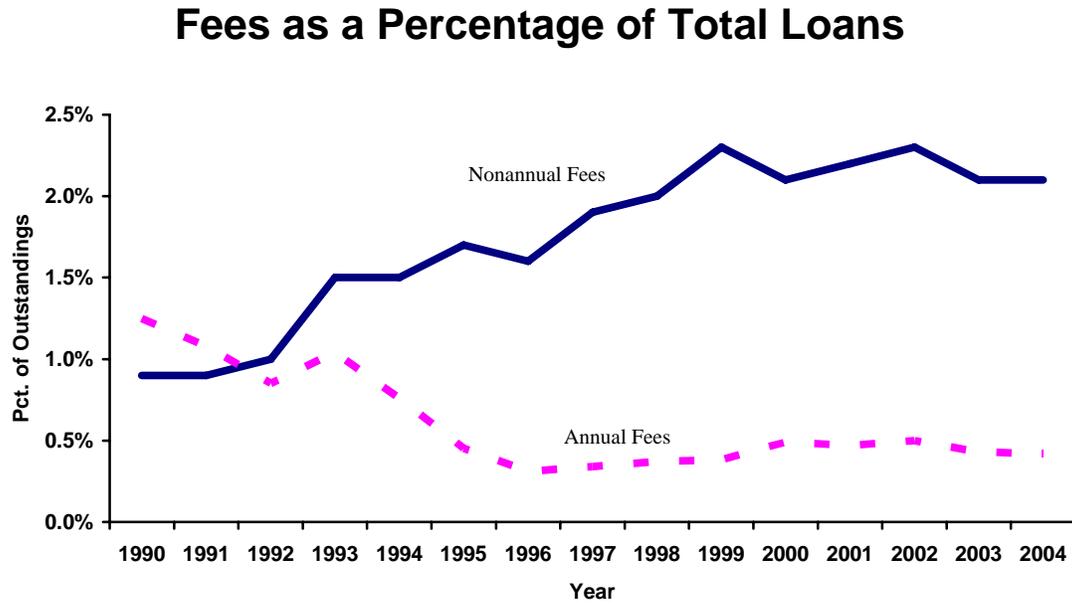
**Table 3: “Herd-Like” Late Fee Movements of Large Issuers**

Fee	“First Mover” Date	Cumulative Percentage of Large Issuers Adopting Late Fee Level				
		1 <sup>st</sup> Mover Period	1 Period Later	2 Periods Later	3 Periods Later	4 Periods Later
<b>\$15</b>	7/1989*	n.a.	29	40	41	58
<b>\$18</b>	1/1995	4	14	27	59	85
<b>\$20</b>	1/1996	4	26	69	82	96
<b>\$25</b>	7/1997	14	35	79	92	95
<b>\$29</b>	1/1998	9	25	48	74	80
<b>\$35</b>	7/2001	8	8	18	n.a.	n.a.
<b>\$39</b>	1/2002*	n.a.	n.a.	n.a.	n.a.	n.a.

\* Date estimated because of a lack of TCCP data.

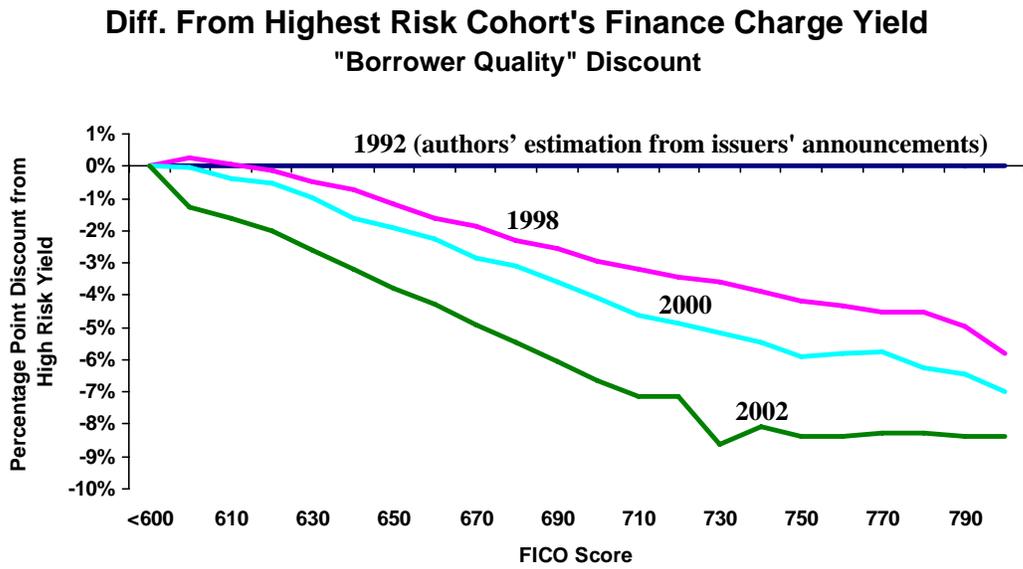
Note: Large issuers are those that are owed more than the mean amount of credit card outstandings in any given period. Because firms started using tiered late fees in January 2002, data for the \$35 and \$39 late fees are either not available or unreliable.

Figure 1: Credit Card Issuer Fees



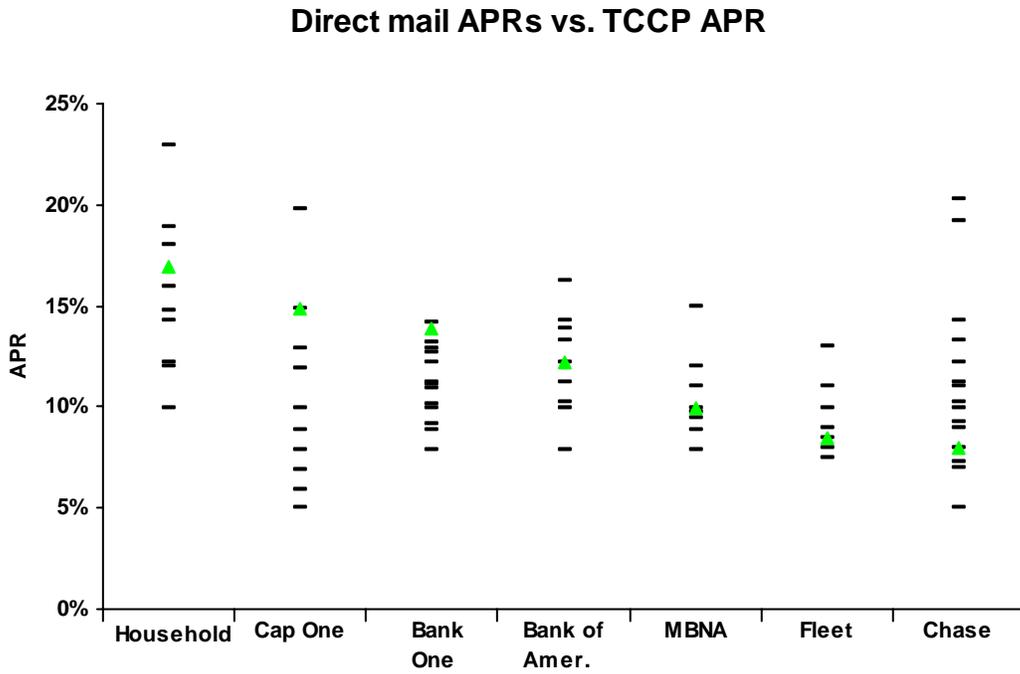
Source: Authors' analysis of data from the *Card Industry Directory*, various years.  
Note: Nonannual fees are late, over-limit, and cash advance fees.

Figure 2: The Effect of Risk-Based Pricing on Cardholder Interest Rates



Source: Argus Information & Advisory Services

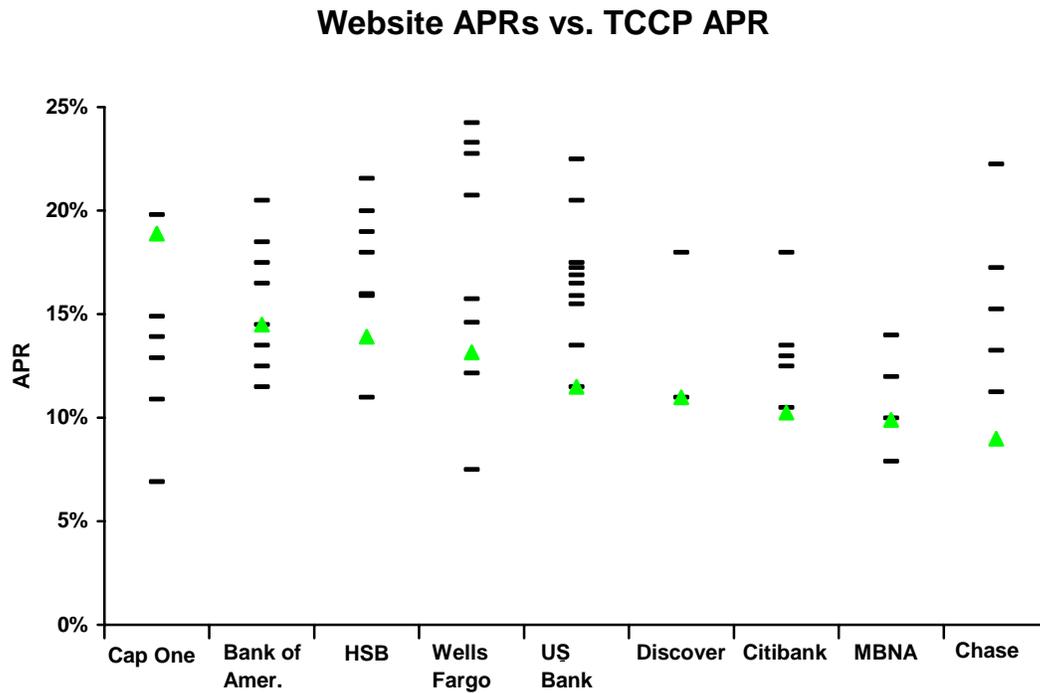
**Figure 3: 2003 Comparison of APR Ranges Observed Through Mail Solicitations vs. TCCP-Reported APR**



Note: The horizontal lines represent the range of prices observed on each issuer's website and the green triangles represent the TCCP-reported APR.

Source: Review of card issuers' websites, March 2006. TCCP data, January 2006.

**Figure 4: 2006 APR Ranges Observed on Issuer’s Websites vs. TCCP-Reported APR**



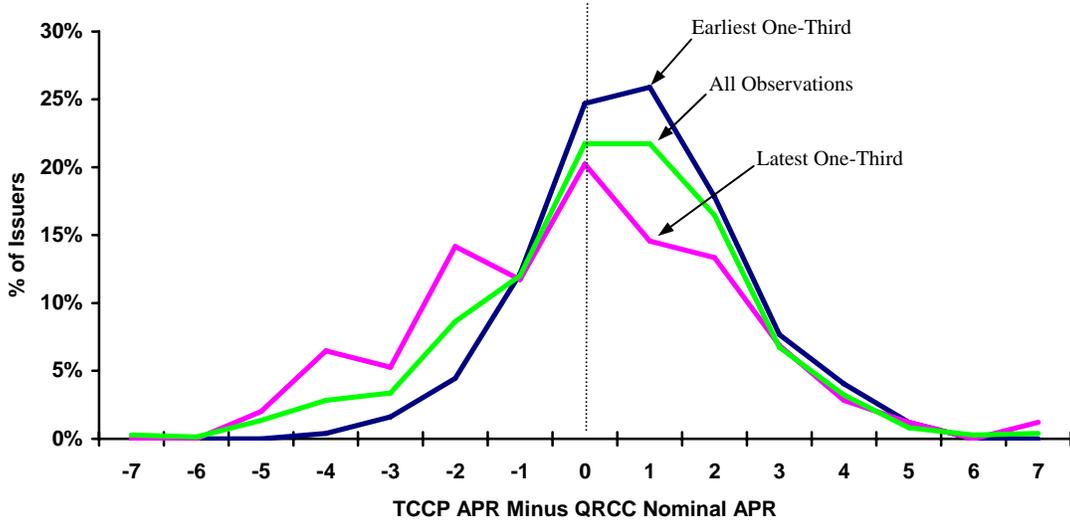
Note: The horizontal lines represent the range of prices observed on each issuer’s website and the green triangles represent the TCCP-reported APR.

Source: Comperemedia solicitation data, June 2003. TCCP data, July 2003.

Figure 5: Differences Between TCCP and QRCC APRs by Period and Bank Size

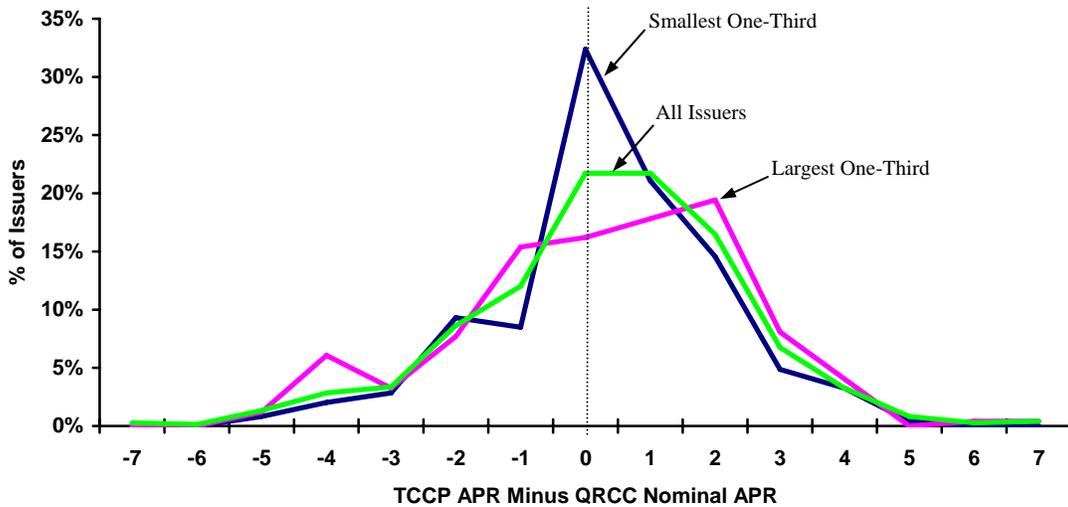
## Distribution of Difference Between TCCP APR & QRCC APR

### By Time Period



The variance of the earliest one-third is smaller than the variance of the latest one-third at the 99.9% significance level.

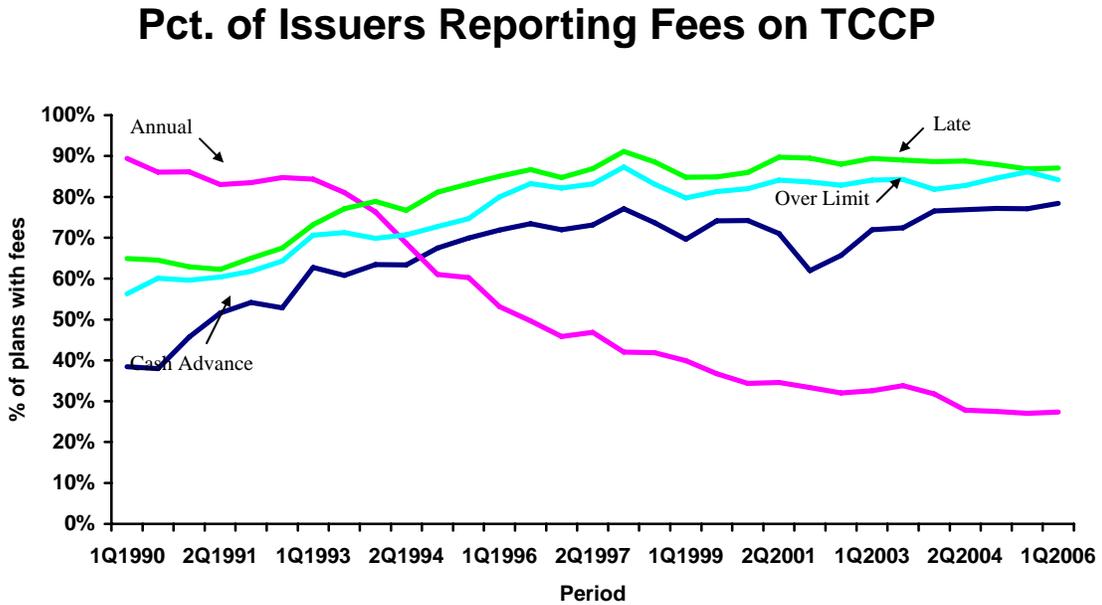
### By Bank Size



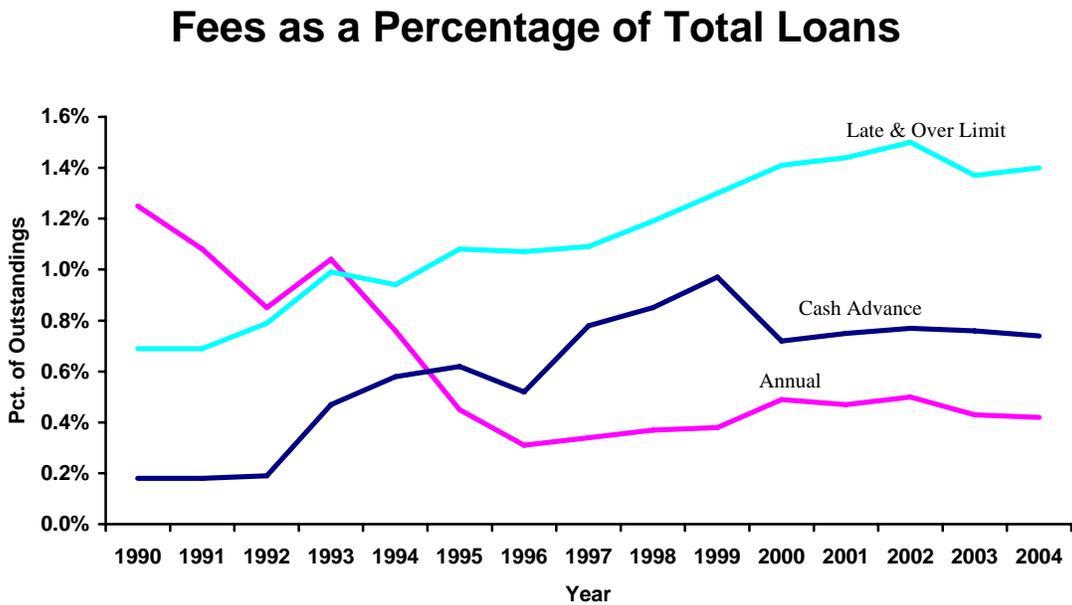
Source: QRCC and TCCP data.

The variance of the smallest one-third is smaller than the variance of the largest one-third at the 99.9% significance level.

Figure 6: Percentage of TCCP Plans with Various Types of Fees

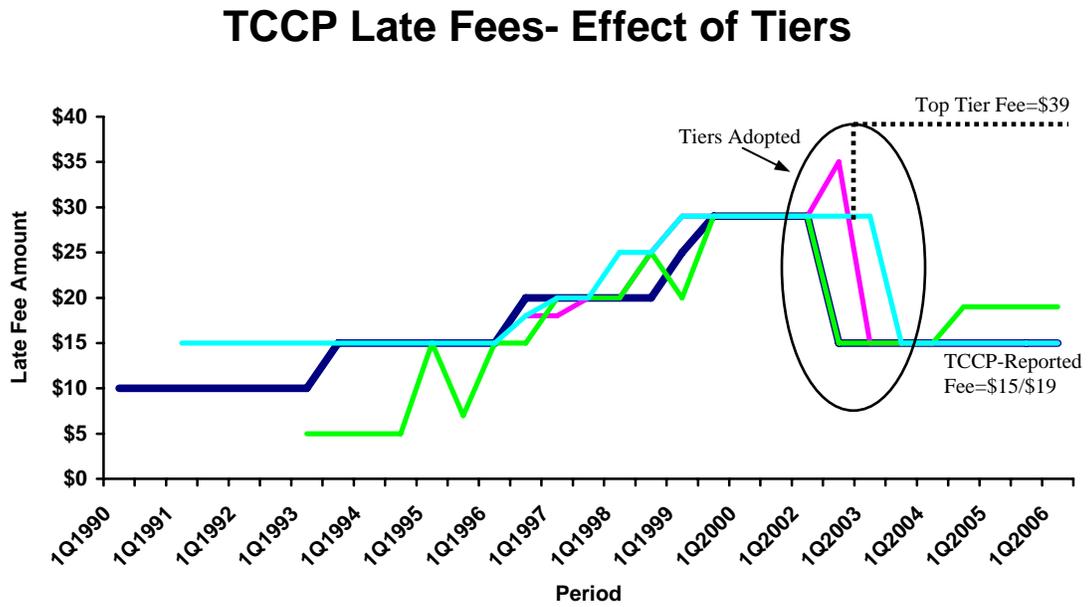


Source: TCCP data, various years.



Source: Authors' analysis of data from the *Card Industry Directory*, various years.

Figure 7: How the Adoption of Tiered Fees Is Reflected in TCCP Data



Source: TCCP data.

## **Data Appendix: An Analysis of the TCCP and QRCC APRs**

In an effort to gauge the accuracy of the TCCP APR, we compared it with two APRs (both of which we understand well and believe to be representative) reported to the Federal Reserve System on the Quarterly Report of Credit Card Interest Rates (QRCC). In this appendix, we describe how we compare the various APRs and the results of our comparisons.

The appendix is organized as follows: Because not all TCCP-filing issuers file a QRCC, we begin by describing the overlap sample that resulted from merging the TCCP and QRCC data. Then we rely on this overlap sample to answer three questions: First, is the TCCP APR a good proxy for the average APR an issuer charges its customers? Second, as a proxy for the QRCC nominal purchase APR, does the TCCP APR contain information that can help researchers understand both the level and movement of an issuer's QRCC nominal purchase APR? Finally, how does the complexity of an issuer's pricing strategies affect the accuracy of the APR it reports in the TCCP?

### *The TCCP and QRCC Overlap Sample*

Before merging the TCCP and QRCC data, we adjusted both data sets to make them comparable. First, we adjusted the data to account for differences in frequency. We chose to align the semiannual observations of the TCCP (from January and July) with the two closest quarterly observations from the QRCC (from February and August)<sup>37</sup>. Second, we adjusted the two series for differences in the time periods over which they run. Because issuers did not begin reporting QRCC data until February 1995, we discarded all TCCP observations from January 1990 through July 1994. Third, because a few banks report pricing terms that vary by geography on the TCCP, we adjusted the TCCP data such that our sample had just one APR per bank per reporting period. We did this by grouping the TCCP data by plan name, geographic availability, APR, late fee, and

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<sup>37</sup> To the extent that interest rates shifted in the same direction over our time period, we worried that this difference in timing would bias our results. To check this, we reran our regression from Table A2 with annual dummy variables. The dummy variable for 2001, for example, showed a sharp drop in interest rates that was not reflected in the dependent variable because of lags. We have noted where we were particularly concerned that this lag might bias our results.

over-limit fee and then choosing the plan with the widest distribution.<sup>38</sup> Finally, we merged the remaining TCCP and QRCC data with information from the Call Report, including on- and off-balance-sheet card balances. We merged March and September Call Report data with the early and mid-year interest rate data, respectively.

Ultimately, our adjustments to the QRCC and TCCP data resulted in an “overlap” sample with 750 observations. Details about this sample, including how often issuers appear in the sample on average, the card loans owed to the issuers in the sample, and the number of issuers in the sample by year, can be found in Table A1.

*Question #1: Is the TCCP APR a good proxy for the average APR an issuer charges its customers?*

As discussed in the article, we set out to analyze whether the TCCP “mode” purchase APR reflects the prices consumers actually face. For reasons set out in Section III (on the TCCP as a shopping tool for consumers), we predicted it would not be.<sup>39</sup> To test our hypothesis, we compare the TCCP APR with two other measures of price: the average nominal purchase APR of all of a bank’s customers as derived from the QRCC (QRCC nominal purchase APR); and the effective interest rate of all of a bank’s revolving credit card balances as derived from the QRCC (QRCC effective APR).<sup>40</sup> Specifically, we test the extent to which, as compared with one of the two QRCC measures of price, the TCCP APR is unbiased and efficient.<sup>41</sup>

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<sup>38</sup> In the vast majority of cases, this grouping narrowed the plans down to a single one.

<sup>39</sup> Technically, we tested multiple null hypotheses, including (i)  $a=0$  and  $b=1$  and (ii)  $b=1$  (a weaker null hypothesis).

<sup>40</sup> Because the TCCP and QRCC are voluntary surveys, the issuers that complete them in any given period change over time. Therefore, the TCCP, the QRCC, and their overlap are unbalanced panels. To ensure that our results are not due to sampling, we reran all of our results on a subsample of banks that were present for 9.5 years or more. Results of those tests are described throughout the section.

<sup>41</sup> Our methodology is similar to that employed in the following article: Dean Croushore, “Evaluating Inflation Forecasts,” Working Paper 98-14, Federal Reserve Bank of Philadelphia (June 1998).

When we regress the TCCP APR against the QRCC nominal APR, we find that the former is nearly an unbiased estimator of the latter (Table A2).<sup>42</sup> In retrospect, this result is somewhat intuitive. The TCCP APR and the QRCC nominal APR generally measure the same thing: the price at which any of a lender's customers could potentially borrow. Why is the TCCP APR a reasonable proxy for the purchase APR for research purposes and not for consumer purposes? Researchers can derive value from a variable that is noisy but, on average, accurate. In contrast, a consumer shopping for a single card has no use for information that can be widely inaccurate at the individual-offer level while, on average, correct.

When we regress the TCCP APR against the QRCC effective APR, the results are not as promising. We find that the TCCP APR is not nearly as good an estimator of the QRCC effective APR as it is of the QRCC nominal APR (Table A2.). The biased intercept, telling us that the TCCP is, on average, 6 percent higher than the QRCC effective APR, is likely due to the QRCC effective APR and TCCP nominal APR being very different measures of price. The QRCC effective APR is a "blended" APR influenced by how heavily all existing customers of a bank borrow at promotional, cash advance, purchase, balance transfer, and penalty APRs. In contrast, the TCCP APR is a measure of a single new plan's purchase APR. The lower R-squared in the second regression illustrates that the purchase APR is not capturing a great deal of the variation in "blended" nonpurchase APRs that a bank's customers pay.

Overall, we conclude that the TCCP APR is a reasonable proxy for an issuer's nominal purchase APR. In other words, selecting a "mode" plan for the TCCP does lead to some (potentially acceptable) noise but no bias when compared with the bank's "mean" purchase APR. However, we also conclude that no measure of purchase APR can reasonably proxy for an issuer's effective APR. Given this finding, our remaining analysis focuses on the relationship

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<sup>42</sup>Table A2 shows that the TCCP is, statistically, a biased estimator for both QRCC interest fields. Economically, however, the TCCP's bias as an estimate of the mean purchase APR is negligible.

between the TCCP APR and the QRCC nominal APR (to the exclusion of the QRCC effective APR).

*Question #2: Are changes in the TCCP APR over time correlated with changes in the QRCC nominal purchase APR? Do differences in the TCCP APR among banks reflect actual differences in the QRCC nominal purchase APR?*

In the previous section we determined that the TCCP APR provides some information about an issuer's average purchase APR. In this section, we further investigate the TCCP APR as a proxy for the QRCC nominal purchase APR by performing two tests. To understand these tests, consider two extremes. At one extreme, consider a bank that reports a TCCP APR that is consistently 10 percent higher than those APRs the bank offers its customers. In this scenario, the *level* of the reported TCCP APR will bear no resemblance to that of the QRCC nominal purchase APR, but period-to-period *changes* in the TCCP APR will still mirror those in the QRCC nominal purchase APR. To evaluate how well the TCCP APR captures "intra-bank changes" in the QRCC nominal purchase APR, we ran a regression in first difference. At the opposite extreme, consider a bank that reports a TCCP APR that is roughly indicative of the *level* of its QRCC nominal purchase APR at a point in time but that, over time, does not report a TCCP APR that reflects *changes* in the QRCC nominal APR. To evaluate how well the TCCP APR captures interbank differences between banks' QRCC nominal purchase APRs, we ran a "between effects" regression.

To test whether changes in the QRCC nominal purchase APR result in equal changes to the TCCP APR, we ran a regression in first differences (Table A3, Regression 1). A regression on changes in the two interest rates over time eliminates any idiosyncrasies in the level of the APR that a bank first reports on the TCCP. The regression has an R-squared of 0.05<sup>43</sup> and is a very

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<sup>43</sup> As another way to test how effective the TCCP is at picking up on changes over time, we created annual dummy variables and reran our OLS regression with them included. Compared with 1995, the dummy variables are all negative and significant (although not all significantly different from each other), meaning the TCCP APRs have fallen further over time than the QRCC nominal purchase APRs.

biased signal of changes. While this shows that the TCCP APR picks up on some variation within a bank's nominal purchase APR, a six-month T-bill rate explains more, producing an R-squared of 0.07.<sup>44</sup> This is unsurprising for fixed-rate plans in the TCCP, since the terms of existing plans change very infrequently. In our overlap data set, the TCCP does not change from one time period to the next 45 percent of the time, and when it does change, it is often because the most common publicly available plan changes. A change in the reported TCCP plan introduces within-bank heterogeneity that, by changing the level of the TCCP APR, also introduces more noise into the changes over time.<sup>45</sup> Therefore, the TCCP APR is of limited use as a measure of changes in the interest rates that banks charge over time.

Next, we ran a “between effects” regression to test whether the level of the TCCP APR was indicative of the level of the QRCC nominal purchase APR across banks. A separate regression in each time period would tell us how well the TCCP APR reflects interbank differences across the QRCC nominal purchase APR. However, the resulting 21 regressions are cumbersome to evaluate and frequently unstable because of sampling problems and data idiosyncrasies. A “between effects” regression assuages these problems by creating one observation per bank with the mean values of the TCCP APR and QRCC nominal purchase APR for that bank over time and regressing on these means. As Table A3 illustrates, the bank-averaged TCCP rate is an unbiased estimator of the bank-averaged QRCC nominal purchase APR. Therefore, although the TCCP APR is noisy, as shown in Figure 2, it is a useful cross-sectional proxy for the QRCC nominal purchase APR.

Comparing the fixed effects and first differences regression with the between effects regression leads us to conclude that the TCCP has some information both about changes in a bank's APR over time and about how comparatively high different banks' APRs are, on average.

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<sup>44</sup> Of course, changes in the T-bill are a very biased proxy of changes in credit card interest rates.

<sup>45</sup> Rerunning the first differences regression on just those observations where the TCCP does change leads to an  $R^2$  of 0.076. Interestingly, in every case in our overlap where the TCCP APR changes, the T-bill has changed at least 50 basis points in the previous six months, suggesting that the TCCP plan or TCCP APR is affected by significant changes in the cost of funds.

However, the TCCP is not picking up on changes from time period to time period as well as it is differentiating between banks. Phrased another way, there is more useful information in the cross-section component than in the time-series component of the TCCP data.

*Question #3: How does the complexity of an issuer's pricing strategies affect the accuracy of the APR it reports in the TCCP?*

If an issuer offers hundreds of different types of cards and prices each of those cards according to the risk of the consumer that holds the card, the issuer's "mode" APR will not necessarily be a good proxy for the APR that a card-seeking consumer is likely to face. As the number of plans an issuer offers increases, the mode APR becomes a noisier estimate of the average nominal purchase rate. Additionally, the looser the distribution of potential purchase APRs, the further from the mean the chosen one will be, on average. Since 1990, when the TCCP was first collected, the industry has consolidated, issuers have offered an increasing number of plans, and banks have more finely priced to risk. Each of these trends is more pronounced and occurred earlier for larger banks than smaller banks. Therefore, we predicted that the data on the TCCP mode APR would be a less noisy estimate in earlier time periods than later ones and for smaller banks than for larger ones.

To test whether the TCCP APR is a better estimator of the QRCC nominal purchase APR in earlier times than later times, we ran regressions on subsamples from 1995 through 1998 and from 2003 through the first part of 2006. As Table A4 shows, the TCCP APR is a more efficient estimator in earlier years than in later years.<sup>46</sup> However, Table A4 also shows that in the earlier years the TCCP APR is more biased<sup>47</sup> and that the QRCC nominal purchase APR explains a

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<sup>46</sup>In addition to running this test on these two time segments, we additionally reran it on the earliest one-third and latest one-third of observations, leaving out those in the middle. This yielded similar results. A histogram of differences between the TCCP APR and QRCC nominal APR is included in Figure 4 of the main paper.

<sup>47</sup> Rerunning for the earlier time period with a restriction that  $a=0$  results in  $b=1.03$ .

smaller percent of the variation.<sup>48</sup> Therefore, while the TCCP APR is more “accurate” earlier than later, this does not mean it is more useful to researchers for earlier periods than for later ones. In 1995 through 1998, a straight line through 16 percent is nearly as efficient an estimator of the TCCP APR as our regressions for 2003 through 2006 can provide. However, with little variation around 16 percent,<sup>49</sup> the regression in 1995 through 1998 does not differentiate as well between what variations to attribute to the intercept versus the slope. Phrased differently, when APRs were all high, the TCCP APR and the QRCC nominal purchase APR were usually close to each other, but small deviations from their means were less correlated. In sum, the TCCP pricing data are more accurate (but less pertinent for researchers) in earlier periods when banks had simpler pricing strategies than in later periods.

As a second test, we analyzed whether the TCCP is a better proxy for smaller banks than large ones.<sup>50</sup> Table A5 shows our results. An F-test provides some support that the TCCP is biased for both the larger and smaller banks, though in different directions. Again, the magnitude of the bias is minimal. As the mean squared error illustrates, the TCCP APR is a more efficient estimator of the QRCC nominal purchase APR for smaller banks than larger banks. This is consistent with our expectations.

The results of these two tests are compatible with the theory that the TCCP data are better for banks with fewer plans and simpler pricing.<sup>51</sup> This is interesting for at least four reasons.

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<sup>48</sup> When rerun on a subsample available for at least 9.5 years, the later time period becomes as biased as the earlier. Therefore, we take the lack of bias in later years to be a result of the sampling. In recent years, there is not only more variation between the rates within one bank in earlier times; there is also more variation between the rates of different banks. The entrance of subprime issuers in recent years led to more variation between banks and, by extension, to interest rates explaining more variation across banks and the intercept explaining less.

<sup>49</sup> For the earlier and later subsegments of our overlap, we go from a standard deviation of 1.793 in the QRCC and 2.461 in the TCCP to 2.326 and 3.466, respectively.

<sup>50</sup> We classified banks as large and small using three methods: (1) taking the largest and smallest thirds for each time period; (2) taking the largest and smallest thirds across time periods; and (3) determining an average size across time periods and then taking the largest and smallest third of banks. All three of these methods led to qualitatively similar results.

<sup>51</sup> As we document at the beginning of our data appendix, both forms are voluntary. We also know that the observable characteristics of the overlap are different from that of the TCCP or industry as a whole. It is possible that the characteristics of our particular overlap are driving these results and that they would not

First, the characteristics of our overlap sample will make the TCCP appear to be a less accurate source of data than it actually is because the QRCC data do not begin until 1995 and because the overlap samples heavily from the largest issuers. Second, as we mention in the text, over 90 percent of credit card outstandings are concentrated among the 10 largest banks. These banks have hundreds of plans and prices, meaning that the TCCP is not a useful source of information about the banks that a vast majority of consumers actually get credit cards from. Third, the TCCP has been a surprisingly good source of historical data for the small banks and thrifts in the sample. Finally, because of credit card pricing trends, the TCCP data that issuers continue to report are becoming less useful for researchers.

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hold for a properly randomized sample or for the universe of banks. Unfortunately, this is an unavoidable limitation to our methodology.

**Table A1: Select Characteristics of the Overlap Sample**

Distribution of issuers and card loans by year

<b>Period</b>	<b>Issuers</b>	<b>Card Loans (bill. of dollars)</b>
Jan. 1995	69	109*
Jul. 1995	69	116
Jan. 1996	63	155
Jul. 1996	55	169
Jan. 1997	52	180
Jul. 1997	49	198
Jan. 1998	51	191
Jul. 1998	47	178
Jan. 1999	43	178
Jul. 1999	36	162
Jan. 2000	33	172
Jul. 2001	22	213
Jan. 2002	19	261
Jul. 2002	19	277
Jan. 2003	17	204
Jul. 2003	18	209
Jan. 2004	20	301
Jul. 2004	19	312
Jan. 2005	17	324
Jul. 2005	16	327
Jan. 2006	16	330*

\*Estimates. We estimated these two figures because, for January 1995, off-balance-sheet card loans were not available through the Call Report and, for January 2006, Call Report data (from March 2006) were not yet available as of the date of this report.

Other characteristics

<b>Total Observations</b>	750
<b>Mean period during which an issuer is in the sample</b>	4 years
<b>Median period during which an issuer is in the sample</b>	3 years
<b>Mean card loans of issuers in the sample</b>	\$5.6 billion
<b>Median card loans of issuers in the sample</b>	\$186 million
<b>Percentage of plans available at the national/regional/state levels</b>	52%/35%/12%

**Table A2: TCCP APR Is Less Biased, More Efficient Estimator of Purchase APR at Which People Could Borrow Than Effective APR They Actually Pay**

<b>Dependent variable: TCCP6258</b>	<b>Regression 1</b>	<b>Regression 2</b>
<b>Mean QRCC Purchase APR</b>	0.946 (0.033)	
<b>QRCC Effective APR</b>		0.620 (0.031)
<b>Constant</b>	1.148 (0.501)	6.155 (0.460)
<b>R-squared</b>	0.5228	0.359
<b>Root MSE</b>	2.0251	2.3531
<b>N</b>	741	728
<b>Prob.&gt;F for hypoth. B=1</b>	0.1007	0.0000
<b>Prob.&gt;F for joint hypoth. B=1 and A=0</b>	0.0000	0.0000

Notes: Standard errors are reported in parenthesis. When repeated on a subset of 14 banks available for at least 9 years, standard errors were larger, but results were qualitatively very similar.

**Table A3: Fixed Effects, Between Effects, and First Differences**

<b>Dependent variable: TCCP6258</b>	<b>First Differences</b>	<b>Between Effects</b>
<b>Mean QRCC Purchase APR</b>	0.312 (0.054)	1.021 (0.084)
<b>Constant</b>	-0.161 (0.056)	0.161 (1.308)
<b>R-squared (overall, between, or within, as applicable)</b>	0.0493	0.6245
<b>sigma_u/sd(u_i + avg(e_i.))/ Root MSE</b>	1.4116	1.3638
<b>n</b>	650	90
<b>Prob.&gt;F for hypoth. B=1</b>	0.0000	0.8057

Note: Standard errors are reported in parenthesis. When repeated on a subset of 14 banks available for at least 9 years, results were qualitatively very similar.

**Table A4: How Well Does TCCP Pick Up Changes in Simple Average of All of a Bank's Customers' Purchase APRs in Different Periods?**

<b>Dependent variable: TCCP6258</b>	<b>All Banks</b>	<b>1995-1998</b>	<b>2003-2006</b>
<b>Mean QRCC Purchase APR</b>	0.946 (0.033)	0.739 (0.045)	0.915 (0.094)
<b>Constant</b>	1.148 (0.501)	4.655 (0.718)	0.659 (1.197)
<b>R-squared</b>	0.523	0.3695	0.450
<b>Root MSE</b>	2.025	1.736	2.277
<b>n</b>	741	454	117
<b>Prob.&gt;F for hypoth. B=1</b>	0.1007	0.0000	0.1049
<b>Prob.&gt;F for joint hypoth. B=1 and A=0</b>	0.0000	0.0000	0.1050

Notes: Standard errors are reported in parenthesis. P-value for test that coefficients for QRCC7164 are equal in earlier and later time periods is 0.056 and that the constants are the same is 0.001. When repeated on a subset of 14 banks available for at least 9 years, the TCCP remained a more efficient estimator in the early years. However, on just the subsample in the later years, the results became biased, supporting the theory that the decrease in bias above is a sampling issue. Additionally, some of the difference in constants is clearly a result of changes in interest rates during the lag between the merge dates in our data set.

**Table A5: How Well Does TCCP Pick Up Changes in Simple Average of All of a Bank's Customers' Purchase APRs for Larger vs. Smaller Banks?**

<b>Dependent variable: TCCP6258</b>	<b>All Banks</b>	<b>Small Banks</b>	<b>Large Banks</b>
<b>Mean QRCC Purchase APR</b>	0.946 (0.033)	0.919 (0.048)	1.130 (0.068)
<b>Constant</b>	1.148 (0.501)	1.387 (0.723)	-1.703 (1.036)
<b>R-squared</b>	0.523	0.614	0.508
<b>Root MSE</b>	2.025	1.764	2.159
<b>n</b>	741	233	267
<b>Prob.&gt;F for hypoth. B=1</b>	0.1007	0.0925	0.0579
<b>Prob.&gt;F for joint hypoth. B=1 and A=0</b>	0.0000	0.0724	0.0270

Notes: Standard errors are reported in parenthesis. P-value for a dummy variable to test whether coefficients for QRCC7164 are equal for larger and smaller banks is 0.010 and that the constants are the same is 0.012. Results, when repeated on a subset of 14 banks available for at least 9 years, were similar.