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Imperfect Competition in Auto Lending:

Subjective Markup, Racial Disparity, and Class Action Litigation*

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* The author was an expert witness hired by plaintiffs in numerous class action lawsuits that are the subject of this paper. All of the data obtained and analyzed in this paper are based on confidential information provided through various court rulings during the course of litigation. While the raw data are not available to the public, all of the empirical findings reported in this paper have been made public through various legal filings and have been reviewed by numerous expert economists and statisticians in the course of litigation. Thus, no confidential information is contained in this paper, and external reviewers can verify my analysis. Moreover, all of the analysis in this paper is based on publicly available information. Upon request, I will make any of these reports available to interested readers. The author gratefully acknowledges the research assistance of Ajibola Akindele, Rosevelt Noble, Pingping Shan, Simon Tidd, and Kun Yang. Special thanks to Ian Ayers (who also served as a plaintiff expert) for providing many useful comments and suggestions on earlier drafts of my reports. Additional comments were received from seminar participants at Harvard Law School and Stanford Law School. Finally, credit for this entire line of research must go to the many attorneys who brought these lawsuits and hired me to analyze the data – especially Clint Watkins and Michael Terry, the lead attorneys in these cases. Views expressed are not necessarily those of the attorneys or any others whom I have thanked.

Imperfect Competition in Auto Lending:

Subjective Markup, Racial Disparity, and Class Action Litigation

ABSTRACT

While the market for auto lending at first appears to be highly competitive, many consumers lack the ability to obtain accurate information about price. In many markets, uninformed consumers can "free ride" off the knowledge of informed consumers. However, the market for auto lending differs from traditional markets because price ultimately depends upon both the credit worthiness of the individual borrower and the details of the auto loan (e.g. term length, payment-to-income ratio, etc.). Auto dealers in this market act as agents of both consumers (identifying suitable auto lenders) and auto lenders (identifying prospective borrowers). Given the asymmetric information about prices facing consumers, this market has been characterized by a wide disparity in the prices paid by consumers. While the majority of auto loans are written without any markup, some consumers are charged thousands of dollars in addition to the risk-based interest rate. For example, the top 5% of customers account for over 40% of dealer markup from auto lending. While charging different prices to different consumers is not illegal, one of the apparent consequences in auto lending is that minority consumers – African-Americans and Hispanics in particular – have systematically been charged a higher markup on auto loans than White borrowers. It is this fact – coupled with federal laws outlawing discrimination in credit markets - that led to a series of lawsuits against auto lending institutions. This paper reviews the theory and evidence of subjective markups on auto loans and examines how class action litigation has changed the auto lending market.

I. Introduction

At first glance, the market for auto lending appears highly competitive as it is characterized by many buyers and sellers. In any one city there might be eight or ten local lenders in addition to major national financial institutions and captive auto lenders ready to loan money to auto purchasers. Yet, market efficiency has traditionally been hampered by one crucial assumption that is violated if a market is to be truly competitive – availability of accurate information about prices in the marketplace. Without adequate information to shop for lower prices, consumers may ultimately pay a higher price than they would in a fully-informed competitive market. That appears to have been the situation in auto lending.

In many markets, uninformed consumers can "free ride" off the knowledge of informed consumers. This has not been possible in the auto lending market because price ultimately depends upon the credit worthiness of the borrower – something that consumers (until recently) were often unable to determine on their own. As a result, this market has been characterized by a wide disparity in the prices paid by consumers. While most customers are charged little (if any) markup above competitive risk-adjusted interest rates, a small percentage of customers pay thousands of dollars in markup above that price. In fact, the top 5% of customers account for over 40% of dealer markup from auto lending.

About 80% of auto loans are originated at a dealer location following the purchase of a new or used vehicle. Auto lenders have developed sophisticated, objective risk-based pricing models that classify each individual deal based on the borrower's creditworthiness, loan-to-value relationship, etc. While lenders might also tailor their

prices to local or regional market conditions, once a customer and deal have been analyzed using these analytical models, they are generally placed into a "credit tier" with a corresponding interest rate. This rate is called the "buy rate" and is quoted directly to the dealer – not the borrower. Lenders generally allow dealers to subjectively mark up the buy rate and charge what the market will bear.[1] The result is that a small minority of customers contribute a large share of dealer profits. While charging different prices to different consumers is not illegal, one of the apparent consequences in auto lending is that minority consumers – African-Americans and Hispanics in particular – have systematically been charged a higher markup on auto loans than White borrowers. It is this fact – coupled with federal laws outlawing discrimination in credit markets - that has led to a series of lawsuits against auto lending institutions.

This paper reviews the empirical evidence on auto lending and the subjective markups that are authorized by lenders. Section II reviews the economic theory of consumer protection under asymmetric information as well as the relevant theories of principal-agency. Section III reviews the empirical evidence in this market that finds asymmetric information in pricing coupled with the auto lending industry's subjective markup policy has led to a skewed distribution of markups. In particular, we find a significant disparate impact on minority borrowers. There are many possible explanations for this empirical finding – both legal and economic. Section IV explores these alternative explanations. Section V examines changes that have taken place in the market

[1] As discussed later, lenders have imposed some restrictions on markups. However, dealers generally retain considerable discretion in marking loans up. Moreover, many of these restrictions on markups were instituted subsequent to the filing of these lawsuits.

since a series of lawsuits and resultant publicity has begun. Concluding remarks are reserved for Section VI.

II. The Economics of Auto Lending

In theory, the market for auto lending should be highly competitive. A consumer who wishes to finance an auto purchase generally has many opportunities to shop for financing. Local banks, financial institutions, and credit unions regularly offer competitive auto loan rates. In addition, when purchasing a new or used vehicle, consumers are generally offered the opportunity to finance the vehicle directly at the dealer's location. However, a careful look at this market reveals considerable asymmetric information and the existence of two very important principal-agency relationships:

(a) Auto Dealer as Agent of Borrower

In a typical auto purchase transaction, after the customer negotiates for the purchase of a car, she is sent to a "finance and insurance" ("F&I") manager to complete the purchase by helping to arrange for payment, offering extended warranties, etc. The F&I desk has become a significant source of revenue for auto dealers. One dealer testifying for the defense at the PRIMUS trial indicated that 20% of his income is derived from marking up auto loans.[2]

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[2] See testimony of Ramsay Gillman, March 10, 2005, *Borlay vs. Primus*. Nationally, it was reported that "finance and insurance" accounted for 12.9% of dealership profits. See Keenan (2000). Moreover, since the average profit on a new car is only a few hundred dollars, markup on loans can be a significant source of income.

The way the industry is generally structured is that the dealer is quoted a "buy rate" which is the risk-based interest rate taking into account the credit rating of the borrower and the terms of the deal (amount financed, down payment, term of loan, etc.). In most cases, the dealer is then able to "mark up" the loan by adding a percentage rate on top of the buy rate. The final annual percentage rate "APR" that is quoted to the customer thus includes the dealer markup.[3]

So far, the market for auto loans appears to be like many other competitive markets where buyers shop around for their preferred price-quality combination. However, for competition to work, buyers must be able to observe the price and quality of products in the marketplace. In the case of auto lending, however, customers do not generally have good information about the prices they face. Instead, they rely upon the dealer to assist them in financing the loan. When an auto dealer offers to assist in financing, the dealer acts as a middleman and essentially bring the lender business and handle the paperwork for a fee. This is a classic principal-agency relationship where the buyer (principal) contracts with the dealer (agent) to bring her a good deal.

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[3] In some cases, no markup is allowed by the lender and instead the dealer is compensated based on a fixed dollar fee. However, most of these "no markup" loans are special below-market rates offered by captive auto lenders to sell more cars. In addition, auto lenders may not allow markup on certain loans to the least creditworthy customers – where buy rates often approach statutory maximums and/or the risk of default is extremely high.

Evidence suggests that dealers have considerable market power in handling auto loans for auto purchasers. One study found that nearly 80% of all auto financing is done on site at a dealer. At the same time, captive lenders have anywhere from 30-50% of this business, with the remaining amount distributed over various lenders – including local credit unions as well as major national lenders). For example, it was recently estimated that 40% of all General Motors automobile sales are financed through GMAC (Zukerman and Whitehouse, 2005).

While there is some competition at the consumer end of the market, asymmetric information makes this market much less competitive. Consumers, unlike dealers, are generally unaware of the buy rate that they are eligible for through a particular lender based on their credit rating. In fact, until recently, most consumers had very little information about their credit rating and the loan rates that they might qualify for if attempting to finance a vehicle purchase.[4]

This lack of competition and asymmetric information increases the competitive power of the dealer to impose the highest "markup" instead of the lowest consumer APR. The markup, although not disclosed to the customer, becomes part of the finance charge

[4] In 2003, Congress passed the Fair and Accurate Credit Transactions Act (FACTA), which among other things provided for better consumer access to information on their credit ratings and financial literacy. For example, the act created the Financial Literacy and Education Commission (FLEC) chaired by the Secretary of the Treasury. Among other things, the FLEC is charged with setting a national strategy to increase consumer awareness of credit scores and their impact on their financial decisions.

that the customer is required to pay the lender. As evidence of this asymmetric information, a former dealer finance and insurance manager explained:

> The standard method used in the automobile retail industry to discourage customers from leaving to arrange financing is to foster the image that the dealer has the capability to check rates with multiple lenders and to make the customer believe that the dealer will work on behalf of the customer to find the "best rate" available.
>
> The standard industry practice is to prepare financing documents so that the customer is not alerted in any manner that the person with whom he is dealing has the ability to control the customer's price of credit. This allows the finance arranger to present himself as the ally of the customer, which further relaxes and disarms the customer.[5]

Thus, in the auto lending market, the dealer has considerably more information about the true cost of credit than the customer. Unlike a commodity product where consumers can easily judge the quality and can compare prices, credit is something that is priced based on individual risk-based characteristics of the consumer and the deal. Thus, while the customer may be quoted a price, it might not be obvious to the customer whether that price is competitive. This is less true of the price of the auto – which can be determined by numerous third party sources (e.g. AAA, NADA, Autobytel.com, etc.). Consumers can readily determine the cost of the vehicle and thus the "appropriate" price they should pay for the vehicle from readily available public sources. For credit, however, the customer must fill out a personalized credit application which is time consuming and very difficult to do through public sources such as the internet or auto pricing books. Instead, customers may rely upon dealers (or credit unions) to quote them an interest rate based on their detailed credit profile and the auto being financed. Some

[5] Edward Ford, Plaintiff Expert Report, Coleman v. GMAC, August 21, 2003. Mr. Ford served as an expert witness on behalf of plaintiffs in many of these lawsuits.

consumers will have better access to information than others, but overall consumer information on credit pricing is likely to be less than on auto pricing.

By offering financing on site, dealers are also providing a valuable service to consumers – lowering their search costs in finding an appropriate loan. This is a service consumers would no doubt voluntarily pay for. However, the extent to which this benefit is offset by price inefficiencies due to asymmetric information and the lack of knowledge that their loans might be marked up, is an empirical issue.

(b) The Dealer as Agent of the Lender

Dealers also act as agents for lenders, as they bring customers in need of financing to lenders. Competition in this market is largely between lenders to offer the highest markup to dealers so that dealers will bring them customers. Interestingly, the current market structure that provides considerable discretion for dealers to mark up the loan rate does not appear to be in the interest of captive lenders. Captive lenders are in the business of helping their parent companies sell vehicles. Higher interest rates reduce the value of the auto that can be purchased and also increase the likelihood of consumer default. Thus, aside from their own profit-maximizing spread, captive lenders would be better off if consumers were charged lower interest rates. Indeed, an official of Nissan Motors Acceptance Corporation ("NMAC") acknowledged this in depositions when explaining how they once tried to institute a non-subjective markup policy that did not permit dealers to markup loans:

> In November, 1992, NMAC decided to radically transform the manner in which it purchased contracts from dealers. NMAC's experience was that the higher the markup, the greater the incidence of defaults and expense to NMAC.
>
> To eliminate the undesirable aspects of yield-spread pricing, NMAC instituted a flat-rate pricing program known as Customer First Financing...

> Under the Customer First Financing Program, the APR and the buy rate were always the same rate. There was no markup paid to the dealer. Rather than calculating compensation on the basis of a yield-spread, dealers were paid for the assignment of contracts using a calculation that took into account the car buyer's credit tier, the amount financed, and the term of the contact. High volume dealers (those who met certain penetration targets as outlined in the bulletin) received additional compensation.
>
> The Customer First Financing Program did not achieve the desired results due to negative dealer reaction….The Nissan dealer body rejected the program, causing an immediate and significant loss of business for NMAC.[6]

Thus, in its attempt to eliminate subjective markups in auto loans, NMAC immediately lost significant business as dealers flocked to outsider lenders. It was not retail customers who refused to accept lower interest rates – they were unaware of this new policy. Instead, it was the competitive nature of the market for markups that allowed dealers to shop around for the highest markups to charge their customers.

III. Empirical Evidence on Effect of Subjective Markup Policies

Data on individual auto loan transactions are generally available to researchers. However, during the course of the legal discovery process in these class action lawsuits, the defendants were compelled to provide plaintiffs with individual customer records including information on their credit application, loan details, and payment history. Overall, more than 20 million customer records were analyzed, covering six captive auto

[6] Declaration of John French, *Cason et al., v. Nissan Motors Acceptance Corporation,* October 1, 2002. Mr. French was Vice President of Sales and Marketing for NMAC and designed the Customer First Financing Program.

lenders and five financial institutions between 1993 and 2004.[7] Because of proprietary and consumer privacy concerns, these data were not available to the public. Instead, they were made available to both plaintiff and defense experts under strict court orders not to divulge confidential information or to use the data outside the confines of these lawsuits. Thus, the information reported here is based solely on reports made public throughout the litigation process.

A. Market-wide Effects

Given the market characteristics described in the previous section, economic theory would predict that the "dealer reserve" or "commission" auto lenders pay dealers to finance their customer's vehicles with them will tend to be similar across lenders. This is analogous to a prediction that in a competitive market, prices for comparable products will be similar. While there will be some variation, in a competitive market, once all "quality" attributes are accounted for, prices should be identical. In the case of auto

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[7] Among the automotive captive lenders that have been defendants in these lawsuits and whose data I analyzed were American Honda Finance Corporation ("AHFC"), Ford Motor Credit Corporation ("FMCC"), Nissan Motors Acceptance Corporation ("NMAC"), General Motors Acceptance Corp. ("GMAC"), DaimlerChrysler Financial Company ("DFC"), Primus Automotive Financial Services ("PRIMUS"), and Toyota Motor Credit Corp. ("TMCC"). Note that PRIMUS is a wholly-owned subsidiary of Ford Motor Corporation and services many non-Ford brands such as Mazda, Volvo and Jaguar. Thus it is considered a captive lender for purposes of this discussion. Among the financial institutions were AmSouth Bank Corp ("AmSouth"), WFS Financial Inc. ("WFS"), BankOne, Bank of America, and U.S Bank.

lending, there are a few quality attributes from the dealer's perspective. For example, some lenders provide faster turnaround time, computerized service, special dispensation for providing non-traditional loans, and other benefits to dealers who book a significant percentage of their business with that lender. Thus, we expect some variation in both buy rates and markup policies across lenders.

While a direct comparison of the prices facing dealers is not available, we can estimate the average income per contract booked by dealers financing with each of the captive lenders that have been subject to these lawsuits. Table 1 contains such a comparison. For example, out of 1.1 million NMAC customer records between March 1993 and September 2000, approximately 51.5% were marked up.[8] Those who were marked up were charged on average $1,058 in subjective markup.[9] Since dealers retain

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[8] Throughout this paper, I refer to various reports that I submitted in these cases. All are available upon request: NMAC (May 17, 2001 and Supplemental report August 28, 2001), GMAC (August 30, 2003), FMCC (January 9, 2004), AHFC (June 30, 2004), and PRIMUS (September 20, 2004). Additional reports for each of these cases (except PRIMUS) as well as TMCC and DCS were filed during the fairness hearings. Less detailed reports were also filed in each of the banking cases, which are also available upon request.

[9] Throughout this Article, the amount of markup "charged" is calculated by comparing the interest rate with no markup to the interest rate with markup and computing the additional cost throughout the life of the loan if held to full term. Note that this is the only way markup could be calculated in most instances. Later in Section IV. (2) (a) (ii), we

approximately 75% of the markup (with the remainder being reserved by lenders to account for the risk of early payoff or default), and loans that are not marked up are generally paid a flat fee averaging $125, I estimate that the weighted average dealer income per contract over this time period was $469 for dealers who booked contracts with NMAC. This same methodology yields comparable estimates for the other captive lenders – with average dealer income estimated to range between $288 and $469 depending upon the time period. Note that in the one case when the time periods are almost identical (GMAC and AHFC), the dealer compensation levels are virtually identical as well ($291 and $288 respectively).

- - - - - TABLE ONE ABOUT HERE - - - - -

While we observe relatively uniform average "prices" charged to captive lenders by dealers for providing bringing borrowers to them, economic theory also suggests that we will observe significant price variation among individual borrowers – primarily due to the informational asymmetries discussed above and heterogeneity of consumer knowledge about credit. Because the dealer-lender relationship is so competitive – and it is the dealer (not the lender) who is actually facing a customer and who "negotiates" a price, we do not expect to see this difference in the buy-rate, but instead in the dealer markup. In fact, only a small percentage of customers account for the bulk of markup (and hence dealer profit from the credit transaction). For example, as shown in Table 2, the top 1% of GMAC customers were charged 13.7% of the total markup dollars, the top 5% of customers were charged 41.8% of total markup dollars. Based on the fact that

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discuss the possibility that accounting for "early payoff" would change any of the results reported here.

dealers generally retain 75% of this amount and receive on average $125 per contract when there is no markup, I estimate total dealer compensation from the top 1% of customers to be 9.7%; 29.5% from the top 5% of customers and 45.1% from the top 10% of customers. Similar findings hold for all of the captive lenders.

- - - - - TABLE TWO ABOUT HERE - - - - -

Not only did these markups fall disproportionately on a small percentage of customers, the dollar value of markups were quite high in some cases. In the GMAC sample of 1.5 million race-coded customers, for example, nearly 27,000 customers (1.8%) were charged between $2,000 and $3,000 in markup, and 12,000 (0.8%) were charged more the $3,000 in markup. Hundreds of markups were found in the $8,000 to $10,000 range or more, with the largest being $26,288 – a markup of 14.75% on a loan with a buy-rate of only 9.25%. Industry insiders referred to these as "home run" markups.

B. Effect of Subjective Markup Policy on Minority Borrowers

In addition to company supplied data, the plaintiffs obtained data from 14 states in which race information is coded on driver licenses applications and in some cases, birth certificate data from California. Based on matching of names and social security numbers, the race of approximately 25-40% of customers was successfully coded. An additional procedure was used in some cases to match Hispanic surnames. Overall, between 45-50% of customers were identified by race or ethnicity.

The differential consumer impact shown above is most pronounced when comparing markups charged to African-American versus White consumers. Table 3 compares markups for White and African-American borrowers from five of the captive

lenders.[10] These figures are based on an analysis of 366,492 auto loans to African-American and 2,915,058 auto loans to White customers between 1993 and 2004. As shown in Table 3, the average markup charged African-American customers ranged from $557 to $970 for African-Americans and $227 to $475 for White customers. While not shown here, if one were to compare the APR charged White versus African-American customers, the latter would generally be charged between 3/10 and 9/10 of 1% higher interest rate.

The similarity in markup patterns across companies is even more striking when ignoring customers who are not charged markups. This is because over time and across company, there have been differences in the use of "special" promotional rate financing (e.g. 0% or 2.9% financing). These special financing promotions are generally subsidized by the auto companies and dealers are provided a flat fee (generally $100 or $150) and are usually not permitted to mark up loans written under these special provisions. When limiting the sample to loans that have been marked up, Whites on average are charged markup ranging from approximately $865 to $1,156, while the average markup charged to African-American customers ranged from approximately $1,228 to $1,410. On average, African-Americans paid between $347 and $508 more than Whites in subjective

[10] Note that these are all the captive lenders in which I issued detailed public reports. In the case of DaimlerChrysler, the case settled before my report was made public. Instead, as discussed in my public Declaration in support of the DaimlerChrysler settlement, similar findings hold for that lender. Similarly, while I did not issue comprehensive reports in the case of the financial institutions, similar results hold and were reported on in declarations I submitted at fairness hearings for their respective settlements.

markup. For those who paid more than a zero markup, African-Americans paid between $239 and $363 more than Whites.

- - - - TABLE THREE ABOUT HERE - - - -

While Table 3 reports average markups, the disparity between African-American and White borrowers is even more dramatic when viewed from the perspective of individual borrowers. While the average markup for African-Americans ranges from $557 to $970 for those five lenders, some borrowers have been charged thousands of dollars in markup. African-American customers were found to be systematically over-represented in these "home run" markup categories. For example, while African-Americans represented 11.6% of FMCC customers, they accounted for 38.2% of the largest 500 markups in the race-coded sample (191 out of 500). This difference is highly statistically significant at $p < .01$. Similar results were found for all lenders.

The FMCC African-American customer who was charged the most in subjective markup financed $31,406 and was charged $7,391 in risk-based interest based on the FMCC buy rate. However, that customer was also charged $15,390 in subjective markup – more than twice the cost of the risk-based financing itself. Note that this customer was rated tier 1, a high level of creditworthiness. The list of "top 500" dollar markups in FMCC included 12 African-Americans who were charged $10,000 or more in subjective markup, and over 100 who were charged $6,000 or more.

In addition to the disparity in the subjective markup, two other sources of disparity were found. As shown in Table 3, African-American customers were more likely to be marked up. However, many of the "zero markup" loans are actually below-market special rate financing (e.g. 1.9% or 2.9%). These are generally subsidized loans

offered through captive lenders by the auto makers to move inventory. Thus, consumers who receive these loans not only save any markup dollars they are not charged but they also benefit from a lower buy-rate. African-Americans are significantly less likely to receive these special APR loans. Hence, the estimated interest rate differential shown in Table 3 underestimates the effect of credit pricing policies on African-Americans. Another source of potential impact results from policies that allow dealers to move customers from a better credit tier to a worse one in order to obtain a higher markup. This was clearly the case in NMAC, which had capped the markup at 3% over the buy rate for all but the middle credit tier which allowed for a 5% markup. My analysis of NMAC found that about 2.3% of White customers and 4.0% of African-American customers qualified for a better credit tier but instead were "bumped" to a lower tier and charged a markup higher than 3%. From the dealer's perspective, they were able to obtain a higher markup. However, from the consumer's standpoint, they were charged both a higher buy rate and a markup. The higher buy rate ultimately became profits to the lenders.

Based the type of evidence shown above, a series of lawsuits were filed against most of the captive auto lenders in the U.S. as well as the largest auto lending financial institutions. Collectively, the companies represented by the lawsuits made up 9 of the 10 largest auto lenders and over 70% of the nationwide volume by the top 50 lenders in 2001 (Momentic Research, 2002). These lawsuits essentially claimed that these lenders' credit pricing policies that authorize dealers to subjectively mark up the objectively-determined risk-based interest rates result in a disparate impact on African-American and Hispanic borrowers – a violation of the Equal Credit Opportunity Act ("ECOA"). Note that the data above are based on a comparison of African-American and White customers. Similar

analyses were conducted on Hispanic borrowers in the case of AHFC, PRIMUS, and NMAC (for Florida). In all cases, Hispanics paid a higher markup than White customers, but not as high as African-American customers.

IV. Are there Alternative Explanations?

Not surprisingly, auto lenders vigorously defended these lawsuits on both legal and economic grounds. This paper does not focus on the main legal arguments based on interpretation of the ECOA or class action litigation precedents, and instead focuses on the factual and economic arguments put before the courts (see Ayres, 2007, for a discussion of legal arguments in this case). The argument made by numerous expert economists hired by defendants was essentially that the plaintiff's analysis did not consider all potentially relevant factors that might determine markups.[11] Generally, there were three such arguments: (1) competition forces firms to authorize lenders to subjectively markup customers, (2) many other factors that might explain the empirical finding of a disparate impact were ignored, and (3) auto lending is "bundled" with the purchase of autos in many cases and thus one must consider the entire price paid by consumers for both the auto and financing costs. A fourth argument that was raised was that the data were somehow flawed because they were not representative of the entire population. Each argument is dealt with in turn.

(1) Competition forces lenders to authorize dealers to subjectively markup customers. Several defendant experts argued that one legitimate business justification

[11] Among the prominent experts hired by defendants to rebut my findings (and those of plaintiff expert Ian Ayers) were Richard Epstein, James Heckman, and George Priest. Their reports and other defendant expert reports are available upon request to the author.

for authorizing subjective markup is the fact that this is a highly competitive market and dealers will go elsewhere if no markup is allowed. While this might be a reasonable economic argument explaining why lenders authorize dealers to mark up their loans, it does not appear to be a legitimate business justification. Comparing this to employment discrimination, it is akin to an employer saying that they must pay African-Americans who are equally qualified a lower wage rate than Whites because if they pay an equal wage their costs will be higher and they will go out of business. While it might be understandable from a pure economic profit perspective, it might not be legally or morally acceptable.

While the pure economic competition argument has appeal, it is also clear that alternative approaches could have been adopted that would have had a less disparate impact – at least not in the post-litigation environment. For example, it might be possible for a captive lender to institute a "no-markup" policy with a higher flat fee and to widely advertise to consumers the fact that their interest rates will be low and not marked up. Since the average markup (including zero markups) is only a few hundred dollars, a uniform flat fee of this magnitude would pay dealers the same amount as they currently make.[12] Indeed, as the market has continued to adjust to this ongoing litigation, industry analysts are beginning to predict that in time lenders will adopt flat fee commissions and

[12] Of course, there might still be an incentive for dealers to find another lender for their "home run" hits – but there might also be ways to reduce this leakage. For example, bonuses can be offered for dealers that provide more than a certain percentage of their loans to the captive lender. This approach is already used by some captives.

eliminate subjective markups. For example, according to a recent study by The Rikess Group & Dixon Hughes (2004), "Automobile dealers predict that replacing interest rate mark-ups with flat fee financing will yield a great many benefits for their customers, business operations, and the industry."

(2) The analysis should control for numerous factors that might explain a differential markup. Defendant experts often argued that the correct method to analyze subjective markup is to control for all potential factors that might affect markup - including make, model and color of automobile, date of financing, dealer, negotiating skills of the borrower, etc. Thus, for example, it is possible that certain dealers have systematically low markup policies while others (perhaps located in urban cities near minority populations) might routinely charge high markups.[13] Or, perhaps dealers will be more likely to charge a markup on autos that are in high demand and less likely when they have a large inventory of a certain model. Similarly, certain consumers might lack negotiating skills and/or be less knowledgeable about financing options. While the Defendants argued these factors should be controlled for, Plaintiffs argued that in a "disparate impact" case of this sort, only "legitimate" factors that can be justified from a cost basis should be controlled for in any statistical analysis. Plaintiffs were arguing that this is not a "disparate treatment" case where one would need to control for all possible

[13] This point was made explicitly at trial in the PRIMUS litigation. However, subsequent empirical analysis of dealers introduced at trial found no evidence that dealers routinely charged a fixed markup.

factors other than race to determine if discrimination occurs.[14] Regardless of the legal argument, from an economic standpoint, one might still be interested in understanding the factors that explain the differential markup – even if these factors would be irrelevant if no markup was allowed.

From a factual standpoint, there appeared to be little or no evidence that markups were based on anything other than what the traffic would bear – i.e. they were a form of hidden profits. This was confirmed not only by the data (discussed below), but by numerous dealership witnesses – often brought by the defense to argue other points. For example, a dealer from Texas who testified in the PRIMUS trial stated that the markup on loans was unrelated to the creditworthiness of the borrower, profit on the vehicle, time spent negotiating the loan, make or model of vehicle, etc.[15] Nonetheless, defense experts claimed there were theoretical reasons to expect these factors to be important; thus we analyzed them extensively.

(a) Are there "legitimate" business reasons?

Given the data available, I attempted to control for any potentially legitimate business reason for charging different markups to different customers. There were

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[14] For a useful discussion of the distinction between a disparate treatment and disparate impact case, see Chapter 4 of Kaye and Freedman (1994). This is also discussed at length by Ian Ayres in his expert reports filed in these cases (available upon request from the author).

[15] See testimony of Raymond Gillman, March 10, 2005, *Borlay vs. PRIMUS.* Other dealers and former employees testified in a similar manner. I am unaware of any contrary testimony by those in the field.

essentially two reasons mentioned by defendant experts that markups might be different due to legitimate business reasons: (1) the opportunity cost of the dealer's time might vary across borrowers, (2) compensation for risk of default or early payoff.

(i) Opportunity Cost of Dealer's Time. It is possible that the markup is related to the opportunity cost of the dealer's time in obtaining appropriate financing for each customer. For example, it is possible that customers with bad credit histories will take the dealer more time and energy locating appropriate financing. If so, and if African-Americans have worse credit on average than White customers, it is possible that higher markup compensates the dealer for this additional time. While theoretically plausible, the data do not support this hypothesis.

In every case I analyzed, the disparity existed after controlling for creditworthiness of the borrower. For example, Table 4 compares the average markup by White versus African-American GMAC customers within each tier category, where S and A are the best credit tiers, and credit tiers declining from B through E. While the differential between African-American and White markup is persistent across credit tiers, the highest average markups are generally in Tiers B and C. It is highest in Tier B ($402) and lowest in Tiers E ($155) and S ($221). Similar findings are shown in other cases.

The fact that both the average markup and the differential between African-American and White markup is lowest in the "best" and "worst" credit tiers is not coincidental. In the case of the worst credit tiers, buy rates often come close to maximum interest rates allowed under state usury laws.[16] In addition, borrowers in the worst credit

[16] For example, rate sheets provided in one of these cases showed buy rates as high as 21.9%.

tiers are more likely to have monthly payment restrictions based on financial ability to pay – hence limiting markup. On the other hand, borrowers with superior credit are more likely to know that their credit is superb and thus they are in a better position to call around and check the internet for the lowest auto loan rates – which they will most likely qualify for. In other words, it is much easier for borrowers with the best credit to obtain information about "prices" in the market that they face. Thus, they are less likely to be charged a high markup.

- - - - - TABLE FOUR ABOUT HERE - - - -

A more direct test of whether the markup is related to the cost of providing financing services was found in several of the datasets. For example, in NMAC, the data contained a "rehash" variable directly associated with the number of times that a dealer went back to the lender to try to obtain financing. As shown in Table 5, regardless of the number of rehashes, African-Americans were charged higher markups than White NMAC customers.

- - -- - - TABLE FIVE ABOUT HERE - - - -

The GMAC data contained two variables that might be related to the cost of servicing the loan application. The first variable (Turn_Around_Time) records "the difference in minutes between the time the application is received and the time a notification is sent back…" This variable might not always be related to the difficulty of a loan application, as it might in some cases reflect how busy the loan office is, staffing loads, etc. However, it is also likely that applications that require further information from the borrower to assess creditworthiness would take longer to process.

Table 6 compares the average markup by race by turn around time in the GMAC data. Applicants who are approved instantly (0 minutes) are charged the lowest average markup ($122 overall or $470 when Special APRs are excluded). However, even in this category, African-American borrowers are charged significantly more than Whites. For example, including Special APRs, African-American GMAC customers were charged $393 compared to $108 for White borrowers. Aside from a lower average markup in the "0 minute" category, no clear pattern emerges, and it does not appear that markup is systematically related to turn around time. Moreover, in all categories of turn around time, African-Americans were charged a significantly higher markup than White GMAC customers.

- - - - - TABLE SIX ABOUT HERE - - - -

GMAC also records instances in which an adverse action letter is sent to the applicant. If an adverse action letter is sent, this would likely involve an initial rejection of an application and "reworking" the deal by changing the down payment, buying a different car, or financing under a different rate program. Thus, it is possible that individuals who receive an adverse action letter will require some additional processing time on the part of both GMAC and the dealer – similar to the "rehash" variable in NMAC. To test whether or not this additional time results in additional markup, I split the sample into applicants who received an adverse action letter and those who did not. As shown in Figure 1, the average markup for African-Americans is virtually identical whether or not they received an adverse action letter ($662 without an adverse action and $676 with an adverse action). This difference is not statistically significant at $p < .05$. However, there is a large and statistically significant difference for White customers. The

average markup for Whites without an adverse action letter is $234, compared to $404 for those with an adverse action. As shown in Figure 2, excluding Special APR contracts changes this picture considerably. While Whites who have an adverse action letter once again receive a higher markup ($552 versus $574, with this difference being statistically significant at $p < .01$), African-Americans who have an adverse action letter actually have lower markups ($812 versus $990, with this difference being statistically significant at $p < .01$). Thus, there is no evidence that African-Americans are charged a higher markup due to adverse action letters.

- - - FIGURES ONE AND TWO ABOUT HERE - - - -

In AHFC, I was able to analyze two other variables that are likely to affect the amount of time spent by a dealer in acquiring financing for a customer. AHFC has two expedited approval programs, "InstaApprove" and "AutoApprove." As shown in Figures 3 and 4, customers who are approved using InstaApprove receive the lowest markup, with AutoApprove customers also being marked up less than average. However, in each category, African-Americans receive a higher subjective markup than Whites. For example, the average markup for African-Americans using AutoApprove (excluding those booked under zero markup contracts) was $709, compared to $451 for Whites.

- - - - FIGURES THREE AND FOUR ABOUT HERE - - -

(ii) Risk of default or early payoff

One common argument was that higher markups might be needed to compensate dealers for additional risk. While my analysis was based on the markup charged in the contract, the actual amount paid will be equal to or less than the amount charged depending upon whether the loan terminates early. It is possible, for example, that

African-Americans are more likely to pay their loans off early and/or default on their loans – and thus the actual amount of markup that is paid by African-Americans is not greater than the actual amount paid by Whites due to this early pay-off. While a theoretical possibility, the evidence suggests otherwise.

Before reviewing the empirical evidence, it is important to understand that the loans being analyzed in all of these cases are "non-recourse" loans – i.e. the dealer does not retain the risk of the loan defaulting. Once an initial time period has expired (generally the initial three or four payments on the auto loan have been made), all of the risk of losing the markup falls on the auto lender. [17] Once the lender has approved an application and the buyer has signed the loan agreement, any risk of default on the loan

[17] While it is theoretically possible that dealers might try to increase the markup to account for the added risk that they will lose their markup on a certain percentage of cars that are not ultimately financed, this could not explain the wide disparity we observe. For example, in my May 2001 NMAC Report (Appendix A), I estimated that 1.8% of loan applications were ultimately canceled and thus no commission was earned. (Of course, some of those auto sales might have been financed with another lender – so this is an overstatement of the true percentage of loan applications that ultimately resulted in a lost sale or no financing at the dealership.) African-Americans had a slightly higher rate of dealer charge-backs – 1.97% versus 1.7% for White customers. Thus, African-Americans have a 0.27% higher rate of charge-backs. This is such a small number that it could not account for any significant difference in markups. For example, in my NMAC Report, I estimated that at most it could account for less than 1% of the average markup value.

falls to the lender. Thus, the dealer retains no risk of loan default. The dealer receives payment for the car whether or not the loan is ultimately paid off.

In terms of markup, there are various "plans" generally offered to dealers. The most common approach is for the dealer to receive an upfront payment – generally around 75% of the markup. This amount is retained by the dealer even if the buyer pays off the loan early. Thus, the remaining 25% is held by the lender in a reserve account to make up any difference between the markup that would be received if the loan was held to term and the markup actually received. In some cases, however, the dealer may opt to retain 100% of any markup received – in which case the dealer is either paid as the markup is received or they receive an up front payment and reimburse the lender for any unearned markup in the case the loan is paid off early. Thus, the only risk is that the dealer will not receive the markup – the dealer bears no risk of loan default.

While I did not have access to "closed files" that would have allowed for a direct estimate of actual dollar markups paid (and no evidence was provided by the defendants suggesting that African-Americans make fewer payments on their vehicles), I did access to some data in AHFC that shed light on this issue. In fact, I found just the opposite to be true. As shown in Table 7, considering only currently open contracts, the average number of payments made by contract length is virtually identical for African-Americans and White AHFC customers. The only differences that are statistically significant are for contract lengths of 36, 60 and 72 months – and in all three cases African-Americans have made more payments (not fewer). Thus, there is no evidence that higher markups are somehow needed to account for the fact that African-Americans are likely to make fewer

payments. Similar findings (not shown here) are reported in Table 23 of my PRIMUS Report.

- - - - TABLE 7 ABOUT HERE - - -

(b) Does Borrower's Education and Negotiating Ability Affect Markups?

Perhaps more than any other argument, this is the one that has the most appeal at first glance. Whether or not dealers target African-American and Hispanic borrowers, if the average minority borrower has less information about credit markets and/or has less access to credit markets (e.g. fewer banks or credit unions from which they might shop around), we would expect them to pay higher prices. Indeed, there is some evidence that African-Americans have less sophistication and understanding of credit. For example, Ards et al. (2006) find that blacks who are good credit risks are more likely to underestimate their creditworthiness than whites. There is also evidence that African-Americans have a cultural bias against negotiating, these would not be considered legitimate business justifications. As noted earlier, the plaintiffs argued that even if true, this is not a legal defense – although the defendants did not generally agree with that legal argument and continued to use that as a defense.

Empirically, this was difficult to test as there were no data on educational level of the borrowers, and little ability to directly assess their individual access to credit. The only empirical evidence that was available in some cases was the occupational category of the borrower. In every case where this was examined, the markup differential existed in virtually every occupational category – including occupations such as office manager,

licensed professional, and teacher in GMAC, and attorney, doctor, clergy, and teacher in Honda.

(c) What Other Factors Might Explain Differences in Markups?

Even if they agreed that the factors discussed above did not explain the differences in markups paid by African-Americans and Hispanics versus White borrowers, Defendants and their experts argued that other factors must also be controlled for in order to compare 'similarly situated' borrowers. While the point of this paper is not to rekindle the legal debate – suffice it to say that the Plaintiff's retort was that once the buy-rate had been priced according to credit risk and the dealer did not retain the risk of default, all borrowers were similarly situated with respect to the policy of the lenders that authorized dealers to subjectively markup their loans. Thus, there was no need to control for other factors. Defendants and their experts did not agree with this view.

To test the effect of these factors on the markup, I ran a series of multiple regression analyses by state, where the dependent variable was the dollar value (or interest rate) markup, and independent variables included: black versus white borrower, buy-rate, credit tier, term length, new versus used car, loan value, dealer, quarter, and a time trend. In all cases, the race variable was positive and statistically significant, although it was always smaller than a simple comparison. For example, in the NMAC case in Maryland, African-Americans were charged on average $792 more than Whites. When controlling for the term length and amount financed in a regression model, the coefficient on the race variable was reduced to $645. Controlling for all of the above variables further reduced the race coefficient to $246. The inclusion of dealer dummy variables was a large part of that reduction. Note that African-Americans on average had

higher loan values and longer terms – two factors that will automatically give them a higher dollar markup for any given interest rate markup.

Defendant experts argued for even more variables to be included. Without reproducing all of these regressions, the overall thrust of the analysis was to confirm that one could reduce the size of the race coefficient by adding more variables. Inevitably, however, the experts would list other factors that were not available in the dataset that could potentially explain the higher markup – such as education level and negotiating ability.[18]

One expert in the NMAC case, Janet Thornton, argued that over 120 variables should be included in addition to others that could not be measured, and ultimately argued that each individual dealer should be analyzed separately. She reported no statistically significant difference between African-American and White markups using regressions with as little as 34 observations and 30 explanatory variables.[19] Of course, even if her flawed econometrics had made sense, this was largely a legal argument over whether the case should be analyzed using a "disparate impact" or "disparate treatment" approach.

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[18] See, for example, Janet R. Thornton, "Report of Economic and Statistical Analysis of Nissan Motor Acceptance Corporation Contracts, April 1998 – September 2000," August 14, 2001 (pp. 8-9).

[19] See Thornton, *supra,* and Mark A. Cohen, "Supplement Report on Racial Impact of NMAC's Finance Charge Markup Policy," August 28, 2001.

(3) Auto lending is "bundled" with the purchase of autos in many cases and thus one must consider the entire price paid by consumers for both the auto and financing costs. It is possible that the reason we observe higher markups being charged to African-American customers is that they receive better deals upfront – i.e. lower prices on their auto purchases and/or higher trade-ins. Thus, the argument goes, we should look at the entire package deal – auto purchase and financing. Defense experts termed this a "bundled transaction," where the auto purchase and financing are "bundled" together in one deal. Another term for a "bundled transaction" in economics is a "tied product." There is an extensive literature on tied products, including a significant antitrust literature dealing with the anticompetitive effects of tying products. While there are no antitrust issues in this case – as auto dealers do not "require" a joint purchase of a car and financing - some of the economic insights of tying products are important for purposes of our analysis.

First, it is important to realize that auto purchasing and auto financing are not necessarily bundled together. Many customers pay cash for their autos, lease autos, or finance autos through sources such as credit unions where the dealer is not involved. The credit decision is not legally or economically tied in any way to the auto purchase decision. However, a significant number of customers who purchase vehicles also finance their vehicles at the same dealer location (through a third party or captive lender).

It is generally not in a consumer's interest to purchase tied products if there are competitive markets in both of the products of interest. In some cases, however, a tied product may indeed be lower priced than purchasing the two products from independent suppliers, since there may also be efficiencies on the production/sales side. Absent those

cost efficiencies, the tied product might be priced higher than the two independent products. If it is priced higher, the only reason buying a tied product would be advantageous from the consumer's standpoint is when doing so lowers the transactions cost of going into the market to purchase both goods separately. In the case of an auto purchase and financing transaction, it is in the interest of the consumer to finance the vehicle separately only when the additional cost of doing so (which includes the time and resources devoted to going to a credit union, for example) is less than the savings from finding a lower price.

While I am not arguing that these auto financing transactions violate antitrust laws (since dealers are not required to "bundle" the auto purchase with the financing portion of the transaction), the reason that these subjective credit pricing policies result in a disparate impact is akin to the reason why a tying purchase may often be anti-competitive and thus illegal. Tying is generally anticompetitive and illegal when the company that ties the products together has monopoly power in one of the products. It is that power that allows the firm to charge a higher price and earn higher profits on the bundled product than they might otherwise earn if the products were not tied. In this case, the fact that the dealer has asymmetric information about credit pricing gives the dealer "market power" in the financing transaction vis-à-vis the customer. That is, the dealer is able to charge a higher than competitive price for credit because the customer is not aware of the true cost of credit and of the ability to find a better price elsewhere. To the extent minority borrowers have less information, fewer credit opportunities, or are simply selected by dealers on the presumption that they have less information and/or negotiating skills in

credit, they systematically pay a higher subjective markup than White customers and are disparately impacted by this policy.

Regardless of the theoretical arguments, the data do not appear to support the notion that credit pricing and auto pricing are bundled in this manner. Instead, all the evidence suggests that customers who pay higher markups on their vehicles pay a higher (not lower) markup on their auto loans. For example, in the AHFC data, I estimated "profit" to be the difference between the sales price and the wholesale price of the vehicle. I found that the correlation between profit on the vehicle and markup is actually positive, not negative. That is, higher vehicle profit is associated with higher markup.

In my AHFC Declaration of November 2004, I compared all race-coded new vehicle purchases where the customer financed 75% or more of the price of the car (in order to reduce the effects of large trade-ins or downpayments). As shown in Table 8, African-Americans make up 9% of those with zero or "negative" profit, but they make up 15.2% of customers with $5,000 or more profit. The last two columns indicate the average markup for each profit category. Thus, the average loan markup for African-American customers whose vehicles earned a dealer between 0 and $1,000 profit was $387, compared to $128 for White customers in the same profit category. In every category of profit, African-Americans were charged a larger markup. Thus, the evidence suggests that African-Americans are charged a higher markup on **both** their vehicles and on their loans.[20]

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[20] Note that there is considerable evidence that African-Americans are charged higher prices for vehicles. See for example, Ayres and Siegelman (1995) and Busse, Silva-Russo and Zettelmeyer (2006: Table 2).

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Related to the "bundling" argument is the possibility that higher markups might be a mechanism that increases market efficiency by allowing certain consumers to purchase vehicles who might not otherwise be able to do so. For example, a consumer with no down payment and a low valued trade-in might be given a higher than market-value trade-in credit by the dealer in exchange for a higher markup. Alternatively, the dealer could simply provide the "cash" down payment without a trade-in. Either way, the markup serves as a mechanism to get a deal through that otherwise might be turned down by the lender (or require a considerably higher buy-rate).[21] In theory, this scenario could be a form of efficient price discrimination – charging a higher price for credit to those with fewer lending alternatives. Of course, price discrimination is efficient only if it increases output (see e.g. Tirole, 1989: 138). Thus, one test of this proposition is to see what happened to sales following markup restrictions.

Table 9 reports on two reduced-form regression models where the dependent variable is the monthly market share of new car sales for General Motors and Nissan respectively. Data were collected for the 156 months from January 1993 through December 2005. The demand for new cars is assumed to be a function of relative price, income, price of gasoline, and interest rates.[22] The supply side is a function of prior

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[21] Of course, this could also be considered a form of fraud against the lender – or certainly a moral hazard problem associated with their agency relationship.

[22] This model largely follows Ludvigson (1998), with additional variables to identify individual auto firm inventory and strikes.

month inventory (measured here both for the company and relative to industry inventory) and the number of workers on strike. Additionally, control variables were included to account for post-November 1996 when there appears to have been a structural shift in auto loan rates,[23] and for September 11, 2001. The key variables of interest in Table 9 are the 4% markup cap that GMAC instituted in August 2001, and the NMAC settlement in February 2003. These are the most significant changes in their respective markup caps. In the case of GMAC, prior to instituting a 4% cap, markups were unlimited subject only to state usury laws – with markups of 10% or 15% not unheard of. In the case of NMAC, the Settlement brought their top rate down from 5% to between 2% and 2.5%. Both are positive and significant in their respective regressions, indicating that if anything, sales went up following the lowering of markups. Thus, if anything, the price discrimination experienced by minority customers did not increase sales of autos – it decreased them.

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(4) Can we Draw Inferences from the Race-Coded Samples? Since the race-coded sample is not randomly drawn from the population, the question was raised about whether reliable inferences can be drawn from the sample. First, note that I analyzed over 7 million race-coded customer records and over 20 million customer records overall for seven captive lenders and five financial institutions. The race-coded data thus represent

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[23] For the first 47 months in our data, from January 1993 through November 1996, the reported average auto loan rate was 4% higher than the 5-year T-bill. However, from month 48 onward, it averaged only 0.9% higher. Thus, we constructed a dummy variable equal to one from month 48 onward.

about 35% of all customers and include individuals who purchased vehicles from dealers in all 50 states. The only selection criterion was that the customer at one time lived in a state that had collected race information from driver license applications.

While not entirely representative of the U.S. population, the evidence suggests that the sample of race-coded customers can be used to determine whether or not the subjective markup policies of auto lenders have a disparate impact on minority borrowers. For example, in many of the race-coded states, the customer data represent nearly all customers. In Tennessee, there were 22,115 race-coded customers analyzed for AHFC, representing 87.6% of all customers; this figure was 91.2% in Louisiana (Cohen, AHFC Declaration, November 2004).

With such a large percentage of the population in these states represented, and with such large disparity between African-American and White subjective markups, it is impossible to draw any inference other than a disparate impact in these states. To illustrate, even assuming that all "missing" African-American customers received zero markups and the "missing" White customers received the highest markups for customers who reside in Tennessee, the average markup for African-Americans is reduced from $515 to $451 and the average White markup is increased from $240 to $252. Thus, the estimated disparity is reduced from $277 to $201 in Tennessee under the most extreme assumptions. This example holds in other states as well.

Nationwide, a similar exercise could be conducted to see how likely it is that the race-coded samples are not representative. For example, African-Americans were charged on average $557 and Whites were charged $227 in the AHFC race-coded sample. Suppose in actuality there is no racial disparity in the subjective markup. For that

to be true, the average subjective markup for the non-race-coded Whites would have to be $692 – an amount that is three times the average White markup in the race-coded data. Similarly, suppose instead of the $557 average African-American markup we observe in the race-coded data, the actual African-American markup is only $227, the same as the White markup in the race-coded data. For that to be true, the average African-American markup in the non-race-coded dataset would need to be $92 – an amount that is 60% less than the average White markup we observe in the race-coded data.

Another method of determining how representative the race-coded data are compared to the nationwide data is to directly compare the race-coded to the non-race-coded data and to re-weight the race-coded sample based on the characteristics in the population. I did this in the case of NMAC where I calculated weights to apply to each race-coded customer based on their age, income, state, and the year in which they purchased their loan. Thus, for example, the first category would be individual customers who were under age 26 and whose monthly income was under $1,850 in the state of Alaska prior to 1997. In all, this represents a maximum of 2500 strata (five income categories x five age categories x 2 time periods x 50 states). For each of these strata, I computed the total number of customers and the total number of race-coded customers. The ratio of total customers to race-coded customers then became the weight that was applied to race-coded data. Using this approach, I estimated that the difference between White and African-American markups was $450 (as opposed to $508 in the unweighted data). While this is less than the $508 difference estimate using the unweighted data, it is still large and significant. The reason it is less, however, is that the race-coded sample is skewed in favor of states that have a relatively high markup and relatively more African-

Americans than the U.S. as a whole. I conclude from this exercise that the race-coded data are appropriate for determining whether a disparate impact exists. The magnitude of nationwide markup differentials is likely to be slightly lower than estimated using the race-coded sample, but the differential still exists and is large.

V. Impact of Litigation and Press Coverage on Subjective Markups

The first class action lawsuit alleging that NMAC and GMAC's credit pricing policy had a disparate impact on minority borrowers was filed in February 1998, although they were kept under seal until October 2000. Legal battles over class action certification and the discovery process took several years with the first case settling (NMAC) on February 18, 2003. By 2006, settlements were reached in lawsuits involving six captive lenders (NMAC, GMAC, AHFC, DFS, FMCC, TMCC) and five financial institutions (AmSouth, WFS, BankOne, US Bank, and Bank of America). The only court ruling on its merits has been in the case of PRIMUS, where the judge ruled in favor of the plaintiffs and ultimately forced a settlement.

(a) Nature of Settlements

While the details of each Settlement varied slightly, the basic structure was the same. Defendants agreed to restrictions on markups ranging from 1.75% to 2.5%, depending upon the term of the loan or other factors, with markup restrictions being progressively tighter as later cases settled. They also agreed to identify existing and former customers who were believed to be African-American or Hispanic, and offer them pre-approved auto loans at prevailing interest rates with no markup. Each company also made direct cash payments (ranging from $250,000 to $2 million) to nonprofit

organizations sponsoring financial education campaigns directed towards minorities. In a few cases, other provisions were agreed upon such as a 1% reduction in interest rate for current borrowers. Toyota was the only Settlement that included a cash payment to existing borrowers, estimated to be valued at $63.6 million.

At fairness hearings, I presented uncontested estimates of the value of each Settlement based on the individual terms and assumptions about utilization of offers of reduced credit. Even ignoring the special offers of no-markup loans, the impact of future restrictions on markup resulted in estimates of millions of dollars in consumer savings. For example, in the case of GMAC, I estimated that markup restrictions would benefit over 100,000 minority customers over the three years of the terms of the Settlement, reducing their markup (assuming they held their loans to term) by $114 million ($872 per customer). Additional benefits due to the affirmative lending offers of no-markup loans were estimated to range between $233 and $492 million. Interestingly, the value to White borrowers was estimated to exceed that of minority borrowers – as they too would benefit from restrictions on markups. While a considerably lower percentage of White customer would benefit – since a lower percentage of Whites were charged the "home run" markups, Whites make up roughly 80% of customers. In GMAC, for example, I estimated over 210,000 White customers would benefit by $648 on average, or $139 million over the three year period of the Settlement. Thus, while couched as Equal Credit Opportunity Act litigation, these lawsuits were as much about consumer protection as racial disparity.

Of course, all of these estimates of the value of Settlement assume that dealers are not in a position to shift their business elsewhere to lenders who allow a higher markup.

While some of that might be possible, recall that the lawsuits have affected over 70% of the market, and as discussed below, the information set of consumers and the direct competition for their business has changed significantly following these lawsuits. Thus, it appears that there will be a significant shift in surplus from dealers to customers following these Settlements. Indeed, a recent survey confirms this, as 62.4% of surveyed dealers indicated markup restrictions have negatively impacted profits (Automotive News, 2006). 29.8% indicated they had a "substantial negative effect," while 32.6% claimed the effect to be "slight negative." Note that while the lenders clearly bore the brunt of legal fees associated with these lawsuits, they presumably would bear little of the cost of these Settlements which restrict markup - something that appears to have mostly benefited dealers.

(b) Impact on Stock Prices

To examine the effect of these lawsuits on the auto lenders, I collected all available media reports on these lawsuits using the LEXIS/NEXIS newspaper file. This would include major newspapers such as the *Wall Street Journal, New York Times, Washington Post* and newswires such as AP.[24] Table 10 summarizes these announcements as well as the cumulative abnormal returns using an event window of (-1,+1) for all publicly-traded auto companies. For example, the first newspaper reports of the NMAC and GMAC lawsuits appeared in the New York Times on Sunday, October

[24] Note that all of these events were checked for confounding events that might significantly affect stock prices, such as earnings or sales announcements. Dates with confounding events are indicated with an * in Table 10 and are not reported in the text.

22, 2000. The event window thus includes Friday, October 20 through Tuesday, October 24, 2000. The cumulative abnormal returns were -2.4% for General Motors. Since the newspaper report mentioned that this was an industry-wide practice, it is not surprising that Honda, Toyota, Ford and DaimlerChrysler all had negative abnormal returns. Note that NMAC had a +0.5% returns, but there was a significant story in the *Wall Street Journal* on Friday, October 20, reporting a turn-around by the troubled company – a report that apparently offset the negative news from the lawsuits.

The next major story appeared on July 4, 2001, when my NMAC study was first released. The headline on page 1 of the *New York Times* read, "Review of Nissan Car Loans Finds That Blacks Pay More," and the article mentioned that all auto companies had similar lawsuits. The cumulative abnormal returns from that announcement ranged from -1.3% for Ford to -2.3% for GM. The following week, NMAC released a press release rebutting my report, the *New York Times* headline was "Nissan Says It Can Refute Report of Bias In Car Loans," and company officials claimed that "plaintiffs used seriously flawed methodology to reach a contrived conclusion." The reaction to this announcement was mixed, with General Motors experiencing a +5.7% return but Nissan experiencing a -2.4% abnormal return.

Another significant date in the litigation process was on July 23, 2002, when the appeals court ruled that plaintiffs could not seek monetary damages in these cases. All companies experienced large positive returns, with General Motors experiencing a +8.8% abnormal return and Nissan a +8.6% return. Table 10 also highlights in bold other interesting findings that relate to specific company events as opposed to industry-wide

announcements. For example, when the Court ruled against PRIMUS on March 17, 2005, the cumulative abnormal return for Ford (its parent company) was -6.2%.

(c) Impact on Subjective Markups

The market has changed considerably since these lawsuits – and subsequent settlements have been announced. Prior to the lawsuits, "asymmetric information" in the marketplace – whereby consumers were not aware of the fact that the dealer might mark the interest rate up – resulted in some credit applicants being marked up by thousands of dollars. The auto lending market is becoming more competitive as consumers learn about the fact that dealers may mark up their loans. This consumer education process – and resulting reduction in markups – appears to have taken place primarily due to the publicity resulting from these lawsuits as well as related information that has been disseminated to the public.[25]

For example, the Toyota's "Scion Solutions" offers online financing without a markup. (Automotive News, December 8, 2003). It has also been reported recently that credit unions – which generally forbid markups – are increasingly working with auto dealers, something that was relatively rare in the past. In 2003, the National Federation of

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[25] See for example, Consumer Federation (2004). Recently, there has been considerable media attention and direct attempts to educate consumers (not just minority consumers) about subjective finance charge markups. For example, on the *ABC Early Show*, financial advisor Ray Martin (2004) explained markups and cautioned consumers about financing their auto purchase at a dealership. A May 2004 article in *Consumer Reports* warns consumers that they need to be aware that dealers may mark up the loans and not necessarily quote them the lowest price. See also Reed (undated).

Credit Union set up a display for the first time at the National Automobile Dealer's Association annual convention to promote credit union loans through dealerships. According to one industry official, "At least half of the major credit unions – those with $100 million in assets – have indirect lending programs and that's growing…Probably 75 percent to 80 percent of the credit unions pay dealers a flat fee (per loan contract). Probably 20 percent allow dealers a markup. The Credit Union Direct Lending program (an online credit processing program) pays 1 percent of the loan amount to participating dealers….Credit unions that five years ago wouldn't have dealt with dealers are today playing golf with them and building relationships" (Automotive News, 2003). While credit unions account for only a small percentage of auto loan financing, their market share among the top 50 US auto lenders increased from 1.6% in 2001 to 3.2% in 2003. While only five credit unions made the list of top 50 lenders, in 2003, they were all among the top 15 in loan origination growth, with growth rates ranging from 17% to 71% over the previous year (Momentic Research, 2002, 2004). In another example, "Carmax claims to simply not allow finance markup charge, and allows customers to view the credit approval process right on the computer screen" (Consumer Federation of America, 2004: 10).

As further evidence of how the market has been changing as a result of these lawsuits, I note that prior to August 15, 2001, GMAC did not restrict the markup on auto loans. On that date, GMAC instituted a 4% markup cap. I do not believe it is coincidental that my report in the NMAC case was filed two months earlier – May 17, 2001. In fact, the NMAC report was not released to the press until about one month earlier - July 2001.

Between July 4 and July 12, 2001, there were numerous high profile stories published in major newspapers, wire services, television and radio.

More recently, the automotive industry trade publications have indicated that consumers are becoming more attuned to auto lending rates and that both online pre-approved loans by auto lenders and competition from credit unions is having a significant effect on markups. In fact, as one article noted, "the caps on dealers profits, introduced in recent years in part to stem discrimination lawsuits, amount to a public relations tool, some finance managers say" (Harris, 2003). In other words, as consumers are becoming more attuned to the nature of this market and information is becoming more symmetric, markups will become lower even without mandatory caps.

The effect of markup caps has been significant – although the disparity still exists. For example, Figure 5 illustrates the effect of FMCC moving from no markup restrictions to a 3% markup cap in November 2002. Following the introduction of this markup cap, average markups for Whites increased slightly from $331 to $348, while the African-American markup decreased from $749 to $540. The effect was that the differential between African-American and White markups decreased by more than 50%. While previously, African-Americans were charged $418 more than Whites, under the new markup cap, they were charged $192 more on average. Of course, even under this 3% markup cap, a disparate impact exists.

- - - FIGURE 5 ABOUT HERE - - -

Table 11 compares the average markups charged to African-American and White customers by markup cap regime and company. It is sorted by the last column – the difference between average markups charged Africans-Americans and Whites. Thus, the

largest difference was found when NMAC had a markup cap policy that ranged between 3% and 5%. In that case, the average markup charged African-Americans was $970, compared to $462 for Whites – a difference of $508.[26] As shown in Table 12, the next largest differences between the markup charged African-Americans and Whites occurred under GMAC ($452) and FMCC ($418) markup policies when these companies did not have markup caps at all. The lowest difference occurred when FMCC instituted a 3% markup policy in November 2002, which reduced the disparity at FMCC from $418 (when they had no markup cap) to $192. Thus, it is clear that when auto lenders have instituted markup caps and when they tightened their existing caps – the disparate impact on African-American customers has decreased.

- - - - TABLE 11 ABOUT HERE - - - -

VI. Concluding Remarks

The auto lending market is extremely competitive with literally hundreds of lenders around the country willing to provide auto loans. It is also a market involving two very distinct principal-agency relationships. On the one hand, dealers have acted as the agent of borrowers by essentially providing a lending "search" service onsite where the auto is purchased. This might be an efficient mechanism for borrowers to obtain

[26] Although it does not fully account for the higher difference, one of the reasons this markup difference is so large appears to be the fact that NMAC at the time had a unique subjective markup policy that allowed for a higher markup in the middle tier – something that resulted in "downward" tier movement. This is discussed earlier in the text.

financing with convenient one-stop shopping, as well as the ability to reduce search costs by relying upon an informed agent (dealer) to shop around with local lenders and obtain the best financing rate. However, the dealer (agent) has considerable asymmetric information about the availability of loan rates that any single individual would qualify for. This asymmetric information has allowed dealers to mark up certain consumers considerably more than they might otherwise in a more competitive market. At the same time, the dealer acts as an agent of the various lenders who would like to loan money to auto buyers. Dealers provide a valuable service to auto lenders by bringing them "active" customers who are in need of financing. This most likely is a low cost and efficient method of marketing to consumers. However, because there are many lenders vying for the dealer's services, the dealers are able to extract a significant portion of the surplus available from auto lending by directing customers to lenders who authorize significant loan markups.

Thus, until recently, this market was characterized by asymmetric information as borrowers oftentimes did not know their creditworthiness and thus could not judge whether or not the price quoted them was fair or whether they should shop around. Whether the consumer simply assumed they were being quoted the best price given their credit history – or (as many borrowers who later became plaintiffs have alleged) – auto dealers misled consumers into thinking they were shopping for the best available rate given their credit – the end result has been a market with a highly skewed distribution of prices. A majority of consumers pay no "markup" over the credit-based buy-rate, while a small percentage of consumer pay thousands of dollars in additional markup. Moreover,

minority borrowers have been found to be highly over-represented in the category of those paying significant markups.

From an economic efficiency standpoint, it appears that the basic structure of the market makes a lot of sense as dealers are able to match potential lenders and borrowers at very low cost. Yet, the nature of asymmetric information and competition in this market led to significant inefficiencies. Buyers are not matched with the lowest price lenders. From the consumer's standpoint, it appears the litigation and resulting publicity have both imposed partial solutions and increased the availability of information and competitive options – thus lowering the price of credit and reducing the disparity facing minority borrowers. From the lender's perspective, there was little to like in the old structure where dealers were able to markup loans to whatever the market would bear. Since markups result in larger monthly payments to consumers, this increases the risk of default – whose burden falls solely on the lenders.[27] Moreover, captive lenders – who make up 30-40% of the markup – are owned by auto companies who make money by selling more expensive autos – something that large loan markups discourage. Thus, it appears to be in the lenders' interest to disallow markups and instead use a flat fee or commission system to compensate dealers. However, competitive forces – and antitrust laws that prohibit collusion – have made that impossible to enforce.

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[27] Indeed, there is evidence of higher default rates associated with higher markups. For example, in my NMAC Supplemental Report (August 2001, Table 30), I found that the 90+ day delinquency rate was only 1.13% for customers where dealers received $250 or less in commission, compared to 11.18% when dealers received $3,000 or more in commission.

While it is possible that changes in technology (e.g. increasing Internet access) and other external factors (e.g. other government efforts to increase consumer knowledge of their credit ratings and financial markets) would have eventually moved this market in a similar direction, there is no doubt that class action litigation and the resulting press coverage has sped this process up considerably. Of course, a cost-benefit analysis – which is beyond the scope of this paper – would need to consider both the efficiency gains from better informed consumers (resulting in hundreds of millions of dollars in lower financing costs) and the cost of litigation – which itself likely cost hundreds of millions of dollars.

Table 1
Average Markup and Dealer Income per Contract
(Five captive auto lenders, 1993-2004)

Company	# of Customers analyzed	Time Period	Percent Marked Up*	Average Markup if Marked Up*	Weighted Average Dealer Income per Contract**
NMAC (Nissan)	1.1 million	March 1993-Sept. 2000	51.5%	$1,058	$469
FMCC (Ford)	3.1 million	January 1994-April 2003	32.9%	$1,028	$337
GMAC (General Motors)	6.2 million	Jan. 1999 – April 2003	30.3%	$897	$291
AHFC (Honda)	1.4 million	June 1999-March 2003	24.6%	$1,052	$288
PRIMUS	800,000	Jan. 2001 – Feb 2004	44.4%	$1,194	$467

* Based on the race-coded samples. See text.
** Estimate based on 75% of markup being retained by dealer and average dealer compensation of $125 for contracts that are not marked up. See text.

Table 2
Dollar Markup and Dealer Compensation from Highest Markup Customers
(GMAC, January 1999 – April 2003)

Customers	Markup Dollars	Percent of Total	Dealer Compensation	Percent of total
top 1%	$57,733,094	13.7%	$43,299,820	9.7%
top 5%	$176,338,143	41.8%	$132,253,607	29.5%
top 10%	$269,300,178	63.9%	$201,975,133	45.1%
top 25%	$409,206,396	97.1%	$306,904,797	68.5%
All customers	$421,597,871	100.0%	$446,655,953	100.0%

Note: These figures are taken from Table 8 of GMAC Report and are based on 1.5 million race-coded customers.

Table 3 Comparison of Subjective Markup Charged to African-American versus White Borrowers Five Captive Auto Lenders					
	PRIMUS	**AHFC (Honda)**	**FMCC (Ford)**	**NMAC (Nissan)**	**GMAC (General Motors)**
	January 2001 - February 2004	**June 1999 - March 2003**	**January 1994 - April 2003**	**March 1993 - September 2000**	**January 1999 - April 2003**
Total Sample Size Analyzed	219,278	383,652	855,989	310,718	1,511,913
African-Americans in Sample	35,797	44,321	99,347	59,044	127,983
Whites in Sample	183,481	339,331	756,642	251,674	1,383,930
Percent of Customers Who Are African-American	16.3%	11.6%	11.6%	19.0%	8.5%
% with Markup - African-Americans	61.8%	43.3%	48.5%	71.8%	53.4%
% with Markup – Whites	41.1%	22.2%	30.9%	46.7%	28.2%
Additional Percentage of African-Americans with Markup	20.7%	21.2%	17.6%	25.1%	25.2%
Average Markup - African-Americans	$862	$557	$684	$970	$656
Average Markup – Whites	$475	$227	$337	$462	$244
Additional Markup Paid By African-Americans	$387	$330	$347	$508	$412
Ratio of African-Americans to White Markup	1.81	2.45	2.03	2.10	2.69
Ave Markup – African-American (excluding zero markups)	$1,395	$1,286	$1,412	$1,351	$1,229
Ave Markup – White (excluding zeros markups)	$1,156	$1,023	$1,090	$ 989	$ 867
Difference between Black and White Markup (excluding zero markups)	$ 239	$ 264	$322	$362	$ 362

Table 4
Average Markup by Race and Year by Credit Tier

Year	**Credit Tier = S**			**Credit Tier = A**			**Credit Tier = B**		
	Black	White	Diff.	Black	White	Diff.	Black	White	Diff.
1999	$384	$127	**$257**	$682	$244	**$438**	$867	$446	**$421**
2000	$367	$111	**$256**	$597	$210	**$387**	$883	$407	**$476**
2001	$321	$92	**$229**	$498	$158	**$340**	$790	$354	**$436**
2002	$308	$106	**$202**	$503	$195	**$308**	$765	$387	**$378**
2003	$283	$100	**$183**	$459	$194	**$265**	$645	$373	**$272**
Overall	$323	$102	**$221**	$523	$191	**$332**	$786	$384	**$402**

Year	**Credit Tier = C**			**Credit Tier = D**			**Credit Tier = E**		
	Black	White	Diff.	Black	White	Diff.	Black	White	Diff.
1999	$949	$519	**$430**	$504	$243	**$261**	$175	$98	**$77**
2000	$950	$463	**$487**	$375	$148	**$227**	$209	$76	**$133**
2001	$853	$416	**$437**	$570	$270	**$300**	$353	$162	**$191**
2002	$763	$424	**$339**	$568	$306	**$262**	$347	$152	**$195**
2003	$686	$410	**$276**	$431	$269	**$162**	$257	$83	**$174**
Overall	$827	$436	**$391**	$494	$231	**$263**	$269	$114	**$155**

Note: Reproduced from Table 18 of GMAC Report.

Table 5
Average Markup by Rehash by Race - NMAC

	# of Contracts	Ave. Markup	# of Contracts	Ave. Markup	# of Contracts	Ave. Markup	Diff. Black vs White Markup
0	151994	$506	23712	$943	128282	$425	$518*
1	48531	$683	11975	$1,039	36556	$566	$473*
2	19798	$703	5639	$1,020	14159	$576	$444*
3	7119	$733	2335	$1,012	4784	$597	$415*
4	2620	$712	944	$951	1676	$578	$373*
5	942	$696	327	$778	615	$652	$126*
6	378	$760	144	$974	234	$628	$346*
7	112	$779	49	$1,070	63	$552	$518*
8	42	$554	13	$668	29	$503	$165
9	30	$710	10	$768	20	$681	$87
Total	231566	$571	45148	$981	186418	$471	$510*

Note: From Table 6 of NMAC Supplemental Report. If missing values are assumed to be zero, the average markup for zero rehashes is $937 for Backs and $426 for Whites. This represents a difference in average markup of $511.

* $p < .05$

Table 6
Comparison of Average Markups by Race and Estimated Turn Around Time:
Including and Excluding Special APR Programs

Estimated Turn Around Time	**Special APRs – Included**				**Special APRs – Excluded**			
	Overall Markup	Black Markup	White Markup	Diff.	Overall Markup	Black Markup	White Markup	Diff.
0 Minutes	$122	$393	$108	**$285**	$470	$865	$432	**$433**
1-30 Minutes	$327	$701	$287	**$414**	$655	$988	$601	**$387**
31-60 Minutes	$393	$744	$349	**$395**	$692	$1,001	$639	**$362**
61-90 Minutes	$401	$740	$358	**$382**	$708	$982	$658	**$324**
91-120 Minutes	$400	$781	$352	**$429**	$719	$1,049	$660	**$389**
121-150 Minutes	$388	$722	$346	**$376**	$705	$997	$653	**$344**
151-180 Minutes	$404	$809	$353	**$456**	$745	$1,114	$679	**$435**
Over 180 Minutes	$387	$737	$343	**$394**	$724	$1,037	$669	**$368**
Next Day	$367	$714	$329	**$385**	$771	$1,075	$720	**$355**

Note: From Table 26 of GMAC Report.

Table 7 (from AHFC Declaration, Nov. 2004)
Number of Payments by Race, Term Length, Type of Contract

	Zero Markup Contracts			Markup Contracts		
	Black	White		Black	White	
24 month	9.8 (74)	9.03 (1,976)		11.29 (7)	11.55 (58)	
36 month	19.46 (820)	19.82 (27,434)		20.91 (116)	16.6 (960)	*
48 month	20.81 (1,168)	21.36 (24,762)		18.6 (675)	18.32 (3,362)	
60 month	15.51 (20,876)	15.61 (171,631)		16.97 (13,792)	16.47 (45,448)	*
72 month	12.03 (364)	12.17 (2,352)		13.05 (2,673)	12.51 (9,054)	*

Note: From AHFC Declaration, November 2004.
* indicates statistically significant difference at $p < .05$
Note: Number of cases in parentheses.

Table 8
Comparison of Vehicle Profit to Subjective Finance Charge Markups

Profit	# Blacks	# Whites	% Black	% White	Black Markup	White Markup
< = 0	1309	13230	9.0%	91.0%	$ 458	$ 151
0 - $1,000	4736	50539	8.6%	91.4%	387	128
$1,001 - $2,000	7025	61596	10.2%	89.8%	508	191
$2,001 - $3,000	4971	36643	12.0%	88.1%	711	314
$3,001 - $4,000	3353	23872	12.3%	87.7%	821	400
$4001 - $5,000	1977	12102	14.0%	86.0%	970	518
> $5,000	2116	11802	15.2%	84.8%	1295	758

Note: From AHFC Declaration, November 2004.

Table 9
Regression Analysis of Market Share Following Changes in Markup Caps
(Dependent Variable: Market Share for General Motors/Nissan)
January 1993-December 2005

	General Motors			Nissan		
Variable	Coeff.	t-stat		Coeff.	t-stat	
Constant	0.67504	6.42	**	0.05339	1.18	
Relative price of new cars	-0.15753	-1.90		-0.01056	-0.31	
Disposable Personal Income	-0.00004	-5.57	**	0.00000	-0.05	
Real price of gasoline	-0.00001	-0.16		0.00004	1.56	
Five year t-bill	0.00003	0.01		0.00284	2.86	**
Inventory (GM or Nissan)	0.00000	2.76	**	0.00000	1.11	
Industry – Company Inventory	0.00000	-1.21		0.00000	-4.69	**
Number of Workers on Strike (GM or Nissan)	-0.00007	-4.04	**	0.00001	1.05	
Dummy for Sept. 2001	0.00800	2.24	*	0.00108	0.78	
October 2000 - Media Reports	-0.00765	-1.23		0.00346	1.24	
GMAC - 4% markup cap	**0.01766**	**2.47**	*	0.00260	0.63	
NMAC Settlement	-0.00169	-0.22		**0.00493**	**2.60**	**
GMAC - 3% markup cap	0.01219	1.01		0.00609	1.13	
FMCC- 3% markup cap	0.00664	0.58		0.00997	1.71	
GMAC Settlement	-0.00714	-1.13		0.00509	1.30	
Month 48 (shift in special APR)	-0.00562	-0.94		-0.00653	-1.48	
N	156			156		
Adjusted R-squared	0.68			0.55		
Mean dependent variable	0.30			0.05		

* $p < .05$; ** $p < .01$

Sources:
Relative price of new cars & Personal Income: Bureau of Economic Analysis
Price of Gasoline: Bureau of Labor Statistics
T-bill: Federal Reserve
Inventory and industry sales: Ward's Automotive
Workers on Strike: Bureau of Labor Statistics (www.bls.gov/cba/mwsdetail.htm)

Table 10
Event Study of Stock Prices and Auto Lending Litigation
(Percent cumulative abnormal returns using (-1, +1) event window.)

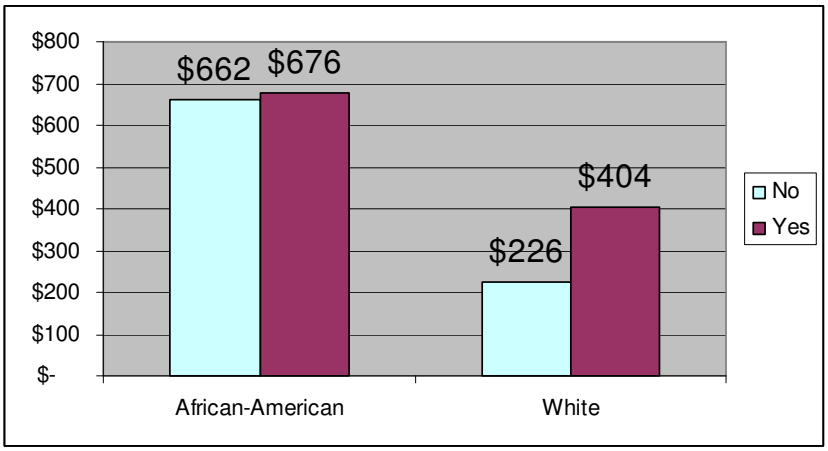
Date	Event	General Motors	Nissan	Toyota	Daimler Chrysler	Ford	Honda
20001022	**First mention of lawsuits**	**-0.024**	**0.005***	**-0.014**	**-0.049**	**-0.013**	**-0.068**
20010704	**Report on Cohen Study for NMAC**	**-0.023**	**0.019**	**-0.018**	**-0.014**	**-0.013**	**-0.004**
20010710	**NMAC Rebuttal to Cohen Study**	**0.057**	**-0.024**	**0.007**	**0.072***	**0.036**	**-0.037**
20011001	Court Ruled against Injunction	-0.022	-0.021	0.052	0.017*	0.089*	0.047
20020620	Report on Cohen Study for FMCC	-0.013	-0.050	-0.016	-0.033*	**-0.065**	-0.032
20020723	**Plaintiffs Denied Monetary Damages**	**0.088**	**0.086**	**0.030**	**0.035***	**0.055**	**0.133**
20030220	NMAC Settlement	-0.017	**-0.003**	-0.006	-0.022*	-0.059	0.030
20030410	Lawsuits filed against Honda, Toyota	0.003*	**---**	**-0.046***	0.007*	0.026*	**-0.041***
20031001	Report on Cohen Study for GMAC	**-0.011**	---	0.003	-0.041	-0.007	-0.023
20040130	GMAC is seeking Settlement	**-0.069**	---	0.006	-0.012	-0.104	0.013
20040211	GMAC Settlement	**0.007**	---	-0.015	0.002	0.015	0.008
20040727	Report on Cohen Study for Honda	---	---	0.019	0.035	0.043	**0.045***
20050128	Honda Settlement	---	---	-0.018	-0.014	-0.025	**-0.010**
20050317	Court Rules Against PRIMUS (Ford)	---	---	-0.004	-0.015*	**-0.062**	---
20050727	DaimlerChrysler Settlement	---	---	0.006	**0.103**	0.014	---

* Indicates significant confounding event.

Table 11
Black versus White Average Markups by Markup Cap and Company

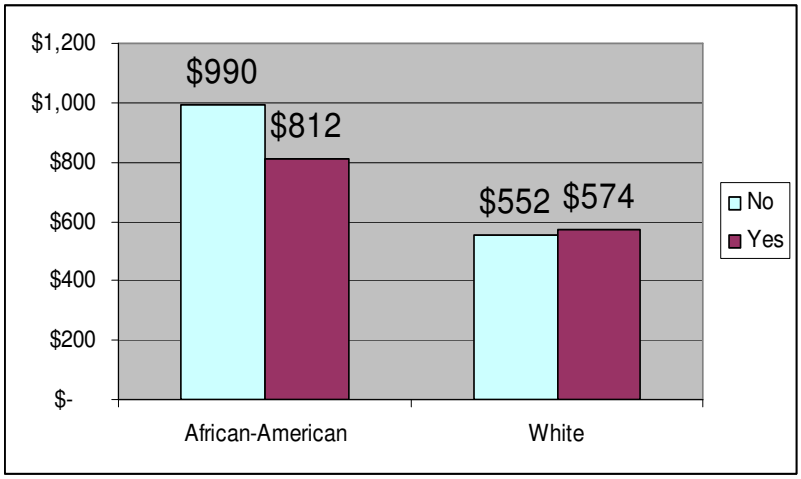
Markup Cap/Company	Dates	Black	White	Difference
3% to 5% (NMAC)	3/93-9/00	$ 970	$ 462	$ 508
None (GMAC)	1/99-8/01	$ 744	$ 292	$ 452
None (FMCC)	1/94-11/02	$ 749	$ 331	$ 418
2% to 5% (PRIMUS)	1/01-2/02	$ 910	$ 502	$ 408
4% (GMAC)	8/01-8/02	$ 604	$ 198	$ 406
3% (GMAC)	8/02-4/03	$ 564	$ 232	$ 332
2% to 3.5% (AHFC)	6/99-3/03	$ 557	$ 227	$ 330
2% to 3% (PRIMUS)	3/03-2/04	$ 652	$ 383	$ 269
3% (FMCC)	11/02-4/03	$ 540	$ 348	$ 192

Figure 1
Subjective Markup by Adverse Action Letter Status (All contracts)



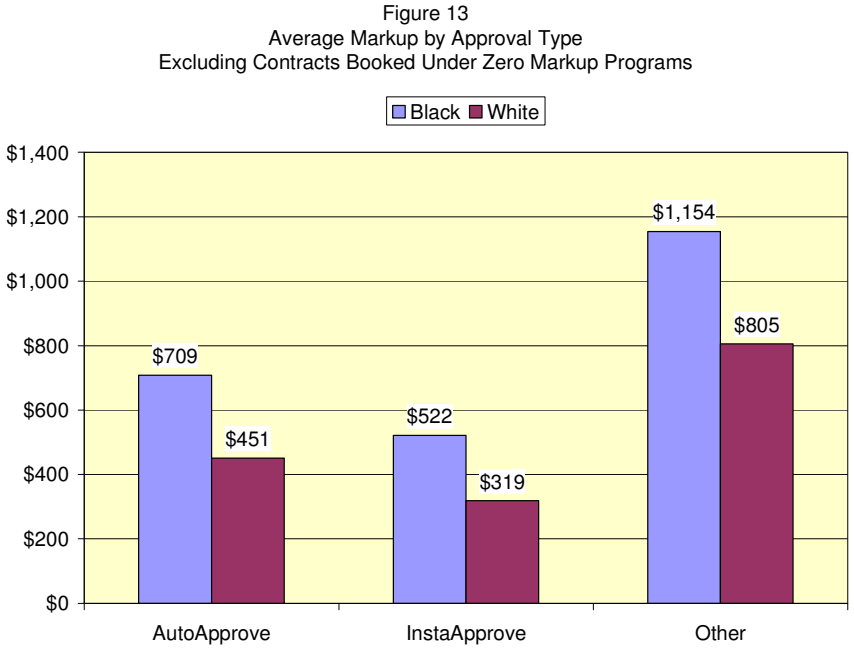
Source: Figure 21 - GMAC Report.

Figure 2
Subjective Markup by Adverse Action Letter Status
(Excluding Special APR contracts)



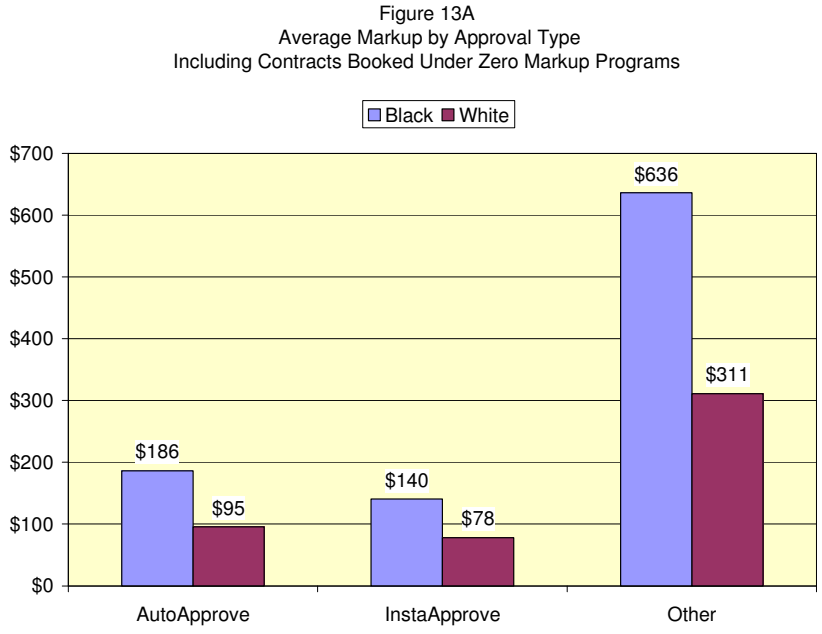
Source: Figure 22 - GMAC Report.

Figure 3



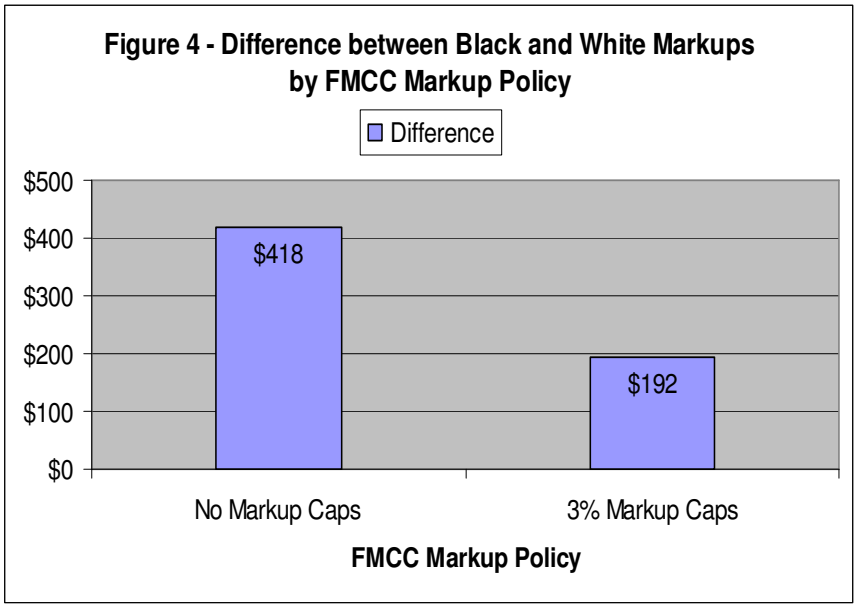
Source: Figure 13 - AHFC Report.

Figure 4



Source: Figure 13A - AHFC Report.

Figure 5
Difference between Black and White Markups by FMCC Markup Policy



Source: FMCC Report, Figure 4

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