REPORT ON THE RACIAL IMPACT OF AHFC'S FINANCE CHARGE MARKUP POLICY

IN THE MATTER OF

TERRY WILLIS, ET AL.

v.

AMERICAN HONDA FINANCE CORPORATION (AHFC)

June 30, 2004

Prepared by

Mark A. Cohen, Ph.D.

[ABRIDGED SUMMARY OF REPORT]

Table of Contents [OF ABRIDGED SUMMARY OF REPORT]

[A FULL TABLE OF CONTENTS OF SECTIONS AVAILABLE IN THE COMPLETE, UNABRIDGED REPORT IS AT THE END OF THIS DOCUMENT, PAGES 25-31.]

I. Introduction and Summary of Findings

This report has been prepared in the matter of *Terry Willis, et al. v. American Honda Finance Corporation* ("AHFC"). I have been asked by plaintiffs' counsel to review the data on auto finance customers that has been provided by AHFC (and that has been race-coded by CLC Compliance Technologies, Inc.) in this litigation to determine whether or not there is evidence of a disparate impact on African-Americans who finance their cars through AHFC because they pay a higher subjective markup than similarly situated White customers. The subjective markup I have estimated in this case is based on the difference between the credit risk-based "buy rate" and the ultimate annual percentage rate ("APR") paid by the borrower.

A. Summary of Key Findings

In summary, I find that African-American borrowers consistently pay a higher subjective markup on average than similarly situated White customers. In particular:

- 43.3% of African-American borrowers are charged a markup, compared to 22.2% of White borrowers.
- African-American borrowers on average pay more than two times the amount in subjective markup compared to Whites: $557 versus $227, a difference of $330.
- Excluding customers who are booked for loans under "zero markup programs," African-American borrowers are charged on average $1,108 compared to only $698 for Whites, a difference of $410.

- AHFC's credit pricing policy has a differential markup cap based on credit tier. While most customers are limited to either a zero or 2% markup, the least creditworthy tier allows for a 3.5% markup for buyers of new cars. This is different from any credit pricing policy I have observed. The effect of this higher markup predictably aggravates the disparity and especially disadvantages those who can least afford it. There appears to be no business justification for this differential markup policy.
- These results are highly statistically significant. For example, the difference between the "expected" and "actual" chance of receiving a subjective markup for African-Americans exceeds the standard deviation by 91.5 times for all contracts and 50.1 excluding contracts booked under a zero markup program.
- The 383,652 AHFC borrowers who were identified as either being African-American or White were charged a total of $101.8 million in subjective markup. Of that total, $24.7 million, or 24.2% was paid by African-Americans, who make up only 11.6% of this customer base.
- My analysis in this case, as well as analysis I have conducted on other auto lenders including GMAC, NMAC and FMCC, provides strong evidence that the industry-wide practice of subjective credit pricing results in a disparate impact on minorities. It appears that the industry standard for credit pricing in the automobile lending industry disadvantages minorities.

These data provide strong empirical evidence of a disparate impact on African-American borrowers. The finding that African-American AHFC customers pay a significantly higher subjective markup than White customers is consistent with my understanding of the automobile financing market and my previous analysis of data and other evidence in previous cases involving subjective automobile loan financing markup. It is also consistent with a finding that there is a causal connection between AHFC's credit pricing policy and a disparate impact on African-American customers.

B. Additional Findings

In addition to the main results detailed above, this report contains numerous empirical findings relevant to this case. The finding of a disparate impact on African-American AHFC customers is persistent over the entire time period from June 1999 through March 2003, across geographic boundaries, and controlling for factors such as term of loan, type of vehicle, credit worthiness of borrower, etc. Some of the more important detailed findings are recapped below:

- Within the 15 states where drivers license or birth certificate data has been used to race-code AHFC borrowers, the largest average markup for African-American customers occurred in Maryland, where African-American customers were charged $856 (compared to $343 for White customers). Thus, African-Americans in Maryland paid 2.5 times as much in subjective markup than Whites.
- 1,288 AHFC customers in the race-coded sample were charged $3,000 or more in subjective markup. African-Americans make up 33.4% of these

who were charged $3,000 or more, although they represent only 11.6% of the borrower pool.

- While African-Americans make up 11.6% of AHFC race-coded customers, they make up 32.7% of those in the top 1% of markups (i.e. the 1% of AHFC borrowers who pay the most in markup). While the top 1% were charged $12.1 million in markup, African-Americans in that group were charged $3.98 million, or 32.7% of the total dollars in that category.
- The top 1% of customers were charged 11.9% of the total subjective markup. The top 5% were charged 41.4% of the total markup. The top 10% were charged 65.3% of the total markup. The top 25% were charged 100% of the total markup.
- African-Americans are over-represented in the top 500 markups relative to their frequency in the AHFC population. While African-Americans represent 11.6% of the sample, they account for 36.4% of the top 500 markups – more than three times their relative frequency.
- The African-American AHFC customer who paid the most in subjective markup financed $34,846 and was charged $6,063 in subjective markup.
- Mandatory dollar caps on markups would not only reduce the average subjective markup, they would significantly reduce the disparity between African-Americans and White AHFC customers. For example, while African-Americans currently pay $410 more than Whites, a markup cap of $1000 would reduce that disparity to $224. A $750 cap would reduce the disparity to $165 and a $500 cap would reduce it further to $102.

II. Summary of AHFC Data and Statistical Analysis

According to the expert report filed in this case by Paul Manning, AHFC provided plaintiffs with data on 1,421,932 active transactions from June 1999 through April 2003. After eliminating cases that were labeled as recourse loans (i.e., including only loans where the dealer retains no risk of loan default), cases with irregular payment schedules (e.g. balloon payments) and missing buy rates, and those that were not race-coded as being African-American or White by CLC Compliance Technologies, Inc. (CLC), a total of 383,652 AHFC customers were identified and included in my analysis.[1] Of these AHFC customers, 132,844 (34.6%) were booked under pricing programs where subjective markup was authorized. The remaining contracts were booked under programs that did not authorize dealers to mark up the loans (also referred to as "zero markup programs").

A. Summary Data and Key Results

Table 1 examines the national race-coded data for the 132,844 AHFC customers who were booked under contracts where subjective markup was allowed and who have been race-coded as being either African-American or White. Overall, African-Americans represent 16.8% of all AHFC borrowers who have been race-coded, excluding customers who are booked under zero markup programs. African-American purchasers who finance their vehicles through AHFC and who book contracts subject to markup are more likely to receive a subjective markup than Whites. Nationwide, I find that 86.3% of African-

[1] Despite the fact that we could not race-code all of the data received, a data set of 383,652 is a substantial sample that allows us to draw inferences about the nature of any disparity in subjective markups.

Americans who were booked under programs that allow markup receive a subjective markup compared to 68.0% for Whites. Furthermore, African-Americans who are booked under programs that allow a markup are charged on average $1,108 compared to only $698 for Whites, a difference of $410. Thus, on average, African-Americans who are booked under programs that allow markup pay 1.59 times as much in subjective markup than Whites pay and are more likely to be marked up. All of these differences are statistically significant at $p < .01$.[2]

Table 1 also includes for comparison similar data analyzed in my August 29, 2003 report in a related case brought under the Equal Credit Opportunity Act ("ECOA") against General Motors Acceptance Corp. ("GMAC"). I compare these data to my earlier study of GMAC because this captive lender had very similar pricing policies to those in effect at AHFC. Both captive lenders provide dealers with credit-based buy rates which the dealers are then allowed to subjectively "mark up." Both companies also selectively offer special APR loans - often at below market rates - that are not generally subject to markup. The findings are strikingly similar. In GMAC, I analyzed 648,876 race-coded customers between January 1999 and April 2003 – 13.1% of whom were African-American. I found that African-Americans, like African-American AHFC borrowers,

[2] A "$p < .01$" means that "the probability of getting data as extreme as or more extreme than the actual data, given that the null hypothesis is true," is less than one in a hundred. (See David H. Kaye and David A. Freedman, "Reference Guide on Statistics," in Reference Manual on Scientific Evidence, Federal Judicial Center, 1994 at p. 378.) In this case, the "null hypothesis" is that there is no difference between the markup charged to African-Americans and Whites. Thus, a $p < .01$ means that the probability of obtaining an average African-American markup of $1,109 and a White markup of $698 in this sample when the true markups in the full population of African-Americans and Whites is actually equal, is less than one in one hundred.

paid significantly higher subjective markup – about 1.6 times what Whites paid. The average markup in GMAC was $985 for African-Americans and $599 for Whites.

Table 1
African-American versus White AHFC Borrowers, 1999-2003
(with comparison to GMAC: 1999-2003)
Excluding Contracts Booked Under Zero Markup Programs

	AHFC	**GMAC**
Time Period	**June 1999 - March 2003**	**January 1999 - April 2003**
Total Sample Size Analyzed	**132,844**	648,876
African-Americans in Sample	**22,252**	85,235
Whites in Sample	**110,592**	563,641
Percent of Customers Who Are African-American	**16.8%**	13.1%
Average Amount Financed - African Americans	**$19,926**	$17,562
Average Amount Financed - Whites	**$19,221**	$17,062
% with Markup - African-Americans	**86.3%**	80.2%
% with Markup - Whites	**68.0%**	69.1%
Additional Percentage of African-Americans with Markup	**18.3%**	11.1%
Relative Odds Ratio % - African-Americans	**296%**	182%
Relative Odds Ratio % - Whites	**34%**	55%
Average Markup - African-Americans	**$1,108**	$985
Average Markup - Whites	**$698**	$599
Additional Markup Paid By African-Americans	**$410**	$386
Ratio of African-Americans to White Markup	**1.59**	1.64
# Standard Deviations-Incidents of Markup - (Actual to Expected)	**50.1**	62.6

These data provide strong statistical evidence of a disparate impact on African-Americans. For example, one generally accepted statistical method of comparing two probabilities is to calculate the "relative odds." The relative odds compares the

probability of two events occurring. Thus, if both African-Americans and Whites had the same probability of receiving a markup, for example, 40% each, the relative odds would be 1.0, which is calculated by dividing 40% for African-Americans by 40% for Whites (.40/.40 = 1.0). Thus, an odds ratio of 1.0 would indicate that there is an equal chance of African-Americans as Whites receiving the markup or not receiving the markup. In fact, the relative odds ratio for African-Americans experiencing a markup was 2.96 for AHFC customers - indicating that an African-American borrower is 296% as likely to experience a subjective markup as a White borrower.[3]

Both of the key findings in Table 1 (that African-Americans are more likely to receive a subjective markup and that their average markup is considerably higher than that of White AHFC customers) are highly statistically significant at $p < .001$. A "p-value" is the "probability of getting data as extreme as or more extreme than the actual data, given that the null hypothesis is true." In this case, the "null hypothesis" is that there is no difference between the subjective markup paid by African-American and White AHFC customers. Thus, for example, if $p < .05$, the likelihood of getting particular results in error is less than five in one hundred or 5%; that is, with a "p-value" of $p < .05$,

[3] Based on 86.3% of African-Americans and 68.0% of Whites who receive a markup, African-Americans have higher odds of receiving a markup – 6.29 (calculated as .863/.137) as opposed to Whites who have significantly lower odds, 2.12 (.680/.320). These figures can also be expressed as the **relative odds** of receiving a markup. Thus, African-Americans are 2.96 times as likely as Whites to receive a markup (6.29/2.12) - indicating that they have a 296% higher rate of being charged a markup. Similarly, Whites have a relative odds ratio of 0.34, (2.12/6.29) indicating that they are only 34% as likely to receive a markup as African-Americans.

one can confidently reject the "null hypothesis." Generally, a finding with a p-value below 0.01 is considered "highly significant."[4]

Another method of characterizing the level of statistical significance (in addition to the p-value) is to examine the standard deviation of the sample in order to determine whether or not the observed level is significantly different from the expected level. If the difference between the "actual" and "expected" value exceeds 2 or 3 times the standard deviation, one can reject the hypothesis that the "actual" value is equal to the "expected" value.[5] In the nationwide AHFC data shown in Table 1, the actual values are 50.1 times the standard deviation - a level that is highly statistically significant.[6] One can therefore reject the hypothesis that the subjective markup for African-Americans is identical to that for Whites. In other words, one can conclude that the AHFC pricing policy of authorizing subjective markups has a highly statistically significant disparate impact on African-

[4] "In practice, statistical analysts often use certain preset significance levels – typically .05 or .01. The .05 level is the most common in social science, and an analyst who speaks of "significant" results without specifying the threshold probably is using this figure. An unexplained reference to "highly significant" results probably means that p is less than .01." (Kaye and Freedman *supra* note 3 at 122).

[5] *See Hazelwood School District v. United States*, 433 U.S. 299, 309 n. 14 (1977).

[6] In the race-coded sample, African-American borrowers represent approximately 16.8% of the total number of borrowers who were booked under programs allowing markup. Since there are 94,387 borrowers (out of 132,844) that receive this markup, the expected number of African-Americans who would be marked up is 15,810 (16.8% x 94,387). In fact, there were a total of 19,198 African-Americans who received a markup. Put differently, the difference between the expected and actual number of African-Americans who received this markup is 3,388. To compare this to the standard deviation of the sample of African-Americans, we can calculate the standard deviation as the square root of the number of Black borrowers (22,252) times the percentage of the full population that is marked up (71.1%) times one-minus this amount (i.e., the probability of being marked up times the probability of not being marked up). Mathematically, the standard deviation is equal to: Square Root [22,252*0.711*(1-0.711)] = 67.7. Since the Black markup exceeds the expected markup by 3,388, this exceeds the standard deviation by 50.1 times (3,388/67.7= 50.1).

American borrowers who are charged with this markup more often than expected. While the legal standard of statistical significance is 2-3 times the standard deviation, the difference between the actual and expected probability of being marked up for an African-American AHFC customer is 50.1 times the standard deviation.

Table 1A reports on a similar comparison of the subjective markup charged all 383,652 race coded AHFC customers – including those who were ultimately booked under zero markup programs. African-Americans represent 11.6% of all AHFC race-coded customers. They are about twice as likely to be marked up (43.3% compared to 22.2%) as White customers. The average subjective markup was $557 for African-Americans compared to $227 for Whites – nearly 2.5 times as much in subjective markup. Thus, African-Americans on average pay about $330 more in subjective markup than Whites.

In addition to AHFC and GMAC, Table 1A also includes for comparison similar data analyzed in my May 21, 2001 report in a related case against Nissan Motor Acceptance Corp. ("NMAC"), and in my January 9, 2004 report in another related case brought against Ford Motor Credit Company ("FMCC"). Once again, these captive lenders have subjective markup policies similar to the one used by AHFC. The findings are strikingly similar. In FMCC, I analyzed 855,989 customers from January 1994 through April 2003 and found that African-Americans were both more likely to be marked up (48.5% versus 30.9%) and paid higher markups on average ($684 versus $337). In NMAC, I analyzed 310,718 race-coded customers between March 1993 and September 2000 - 19.0% of whom were African-American. I also found that African-Americans pay significantly higher subjective markup – as here, about two times what

Whites pay. The average markup in that case was $970 for African-Americans and $462 for Whites, a difference of $508.[7] In GMAC, I analyzed 1.5 million race-coded customers between January 1999 and April 2003 – 8.5% of whom were African-American. Once again, I found that African-Americans pay significantly higher subjective markup – more than 2.5 times as much. Similarly, African-Americans borrowing with both NMAC and GMAC were more likely to receive a markup compared to Whites.

[7] The average markups were higher in the NMAC case primarily because its data cover an earlier time frame, 1993-2000, when "special rate" loans with zero markups were not as prevalent.

Table 1A

African-American versus White AHFC Borrowers, 1999-2003
(with comparison to Ford: 1994-2003, GMAC: 1999-2003
and NMAC: 1993-2000)

Including Contracts Booked Under Zero Markup Programs

	AHFC	Ford	NMAC	GMAC
Time Period	**June 1999 - March 2003**	**January 1994 - April 2003**	**March 1993 - September 2000**	**January 1999 - April 2003**
Total Sample Size Analyzed	**383,652**	855,989	310,718	1,511,913
African-Americans in Sample	**44,321**	99,347	59,044	127,983
Whites in Sample	**339,331**	756,642	251,674	1,383,930
Percent of Customers Who Are African-American	**11.6%**	11.6%	19.0%	8.5%
Average Amount Financed - African Americans	**19,333**	19,383	$16,749	$20,443
Average Amount Financed - Whites	**17,656**	20,563	$15,922	$21,530
% with Markup - African-Americans	**43.3%**	48.5%	71.8%	53.4%
% with Markup - Whites	**22.2%**	30.9%	46.7%	28.2%
Additional Percentage of African-Americans with Markup	**21.2%**	17.6%	25.1%	25.2%
Relative Odds Ratio % - African-Americans	**268%**	210%	289%	292%
Relative Odds Ratio % - Whites	**37%**	47.6%	34%	34%
Average Markup - African-Americans	**$557**	$684	$970	$656
Average Markup - Whites	**$227**	$337	$462	$244
Additional Markup Paid By African-Americans	**$330**	$347	$508	$412
Ratio of African-Americans to White Markup	**2.45**	2.03	2.10	2.69
# Standard Deviations-Incidents of Markup - (Actual to Expected)	**91.5**	104.1	99.0	178.8

B. Subjective Markups Over Time

Figure 1 compares the subjective markup over time. Over the 1999 to 2003 time period, the markup has fluctuated from year-to-year, but has been relatively stable. The average subjective markup for African-Americans (excluding those who were booked under zero markup policies) was $963 in 1999; $1,028 in 2000; and $1,163 in 2001. The average then dropped back to $1,124 in both 2002 and 2003. The average subjective markup for Whites was $648 in 1999; $626 in 2000; $736 in 2001; $717 in 2002; and $652 in 2003. However, throughout this entire time period, African-Americans have consistently paid a higher markup than Whites at statistically significant levels. Similar results are shown in Figure 1A, which includes contracts booked under zero markup programs.

Figure 1
Average Subjective Markups:
Black versus White, AHFC 1999-2003
Excluding Contracts Booked Under Zero Markup Programs

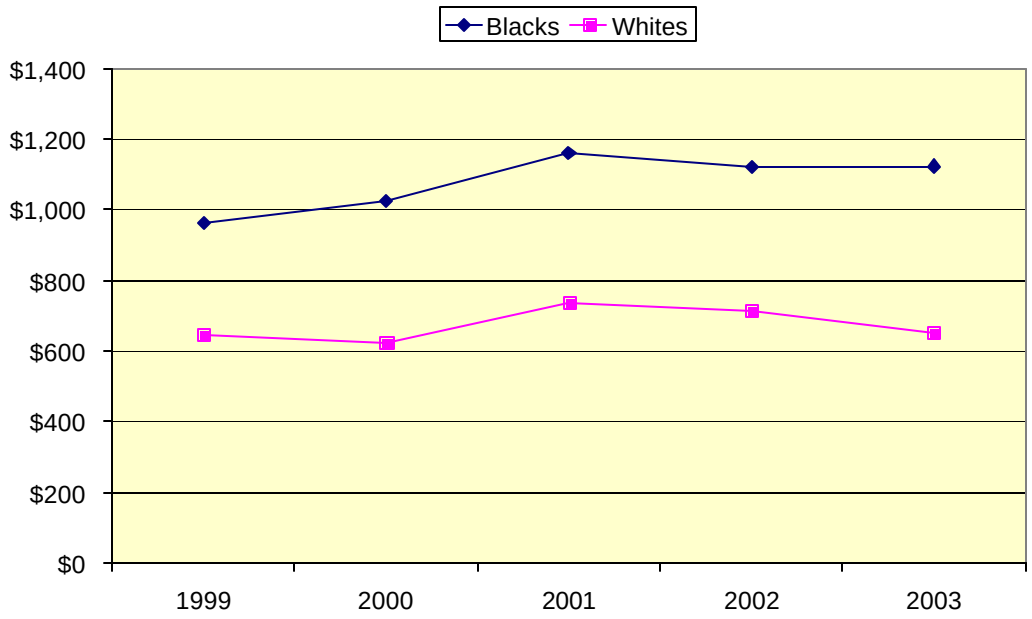


Figure 1A
Average Subjective Markups:
Black versus White, AHFC 1999-2003
Including Contracts Booked Under Zero Markup Programs

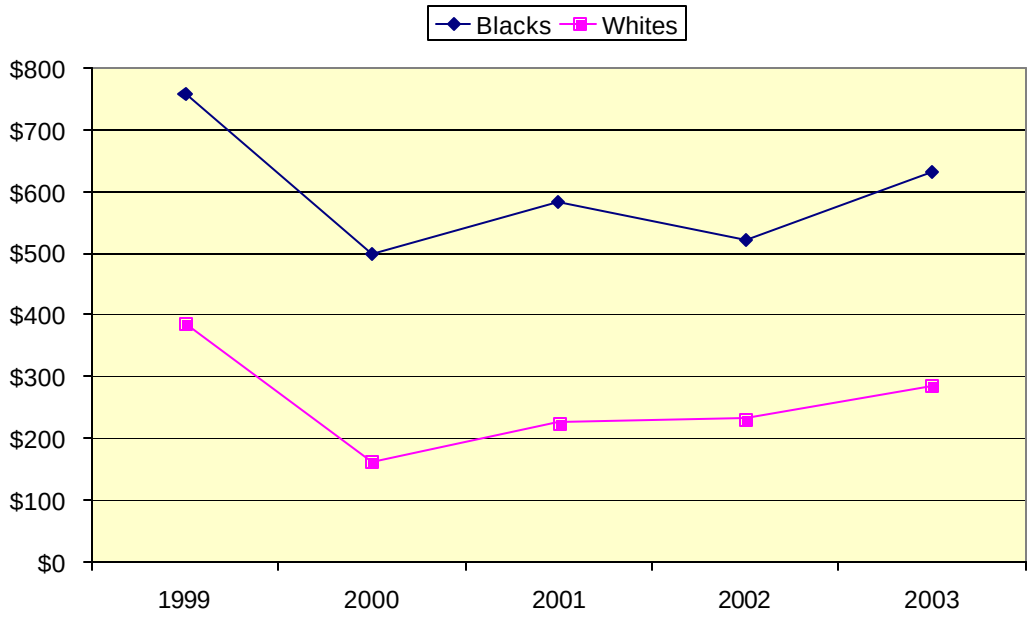


Figure 2 examines the difference between the average markup that African-Americans and Whites pay over time. Throughout the entire period from 1999-2003, this differential markup has persisted, and has varied from approximately $315 to $472 on average. The largest difference of $472 occurred most recently, in 2003. Similar results are shown in Figure 2A which includes contracts booked where markup was not allowed.

Figure 2
Difference Between Black and White
Average Subjective Markups, AHFC 1999-2003
Excluding Contracts Booked Under Zero Markup Programs

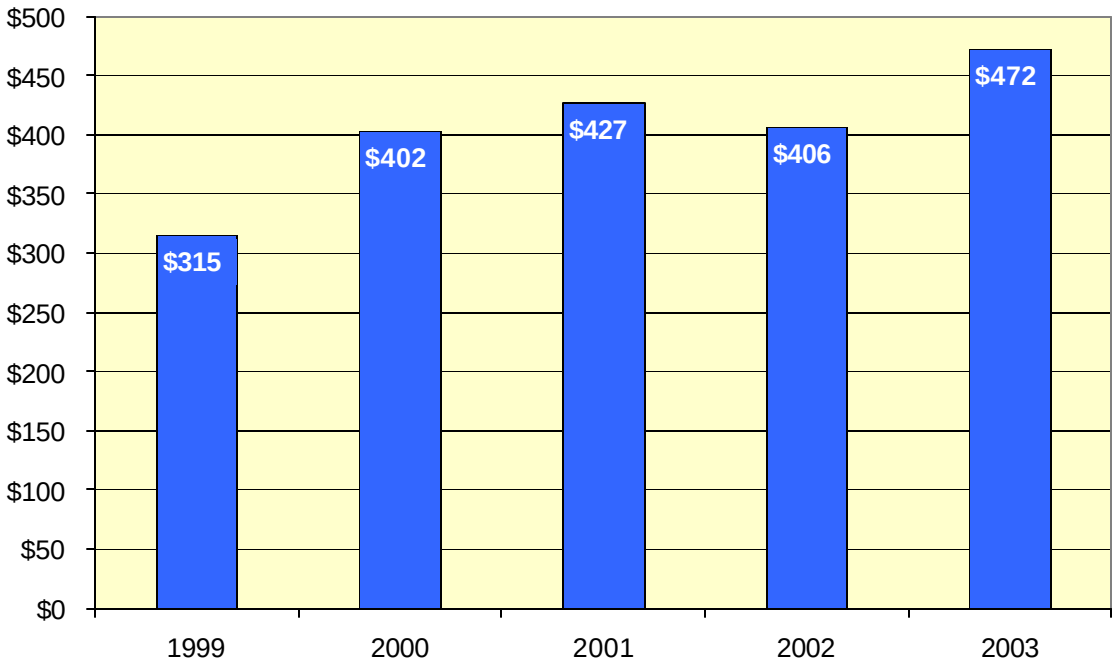
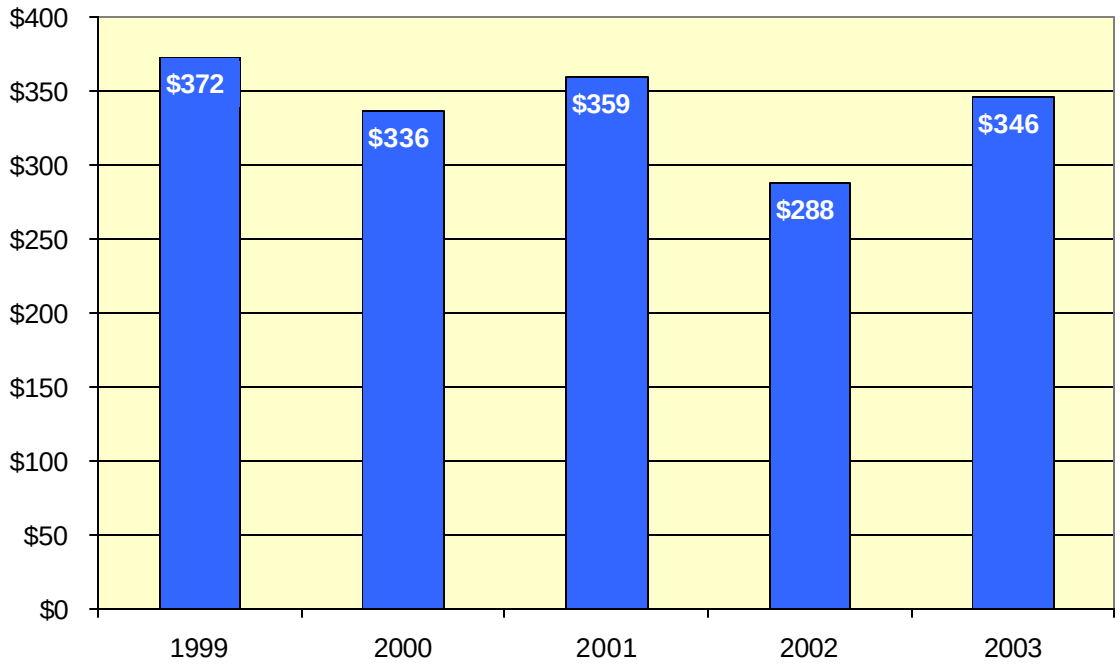


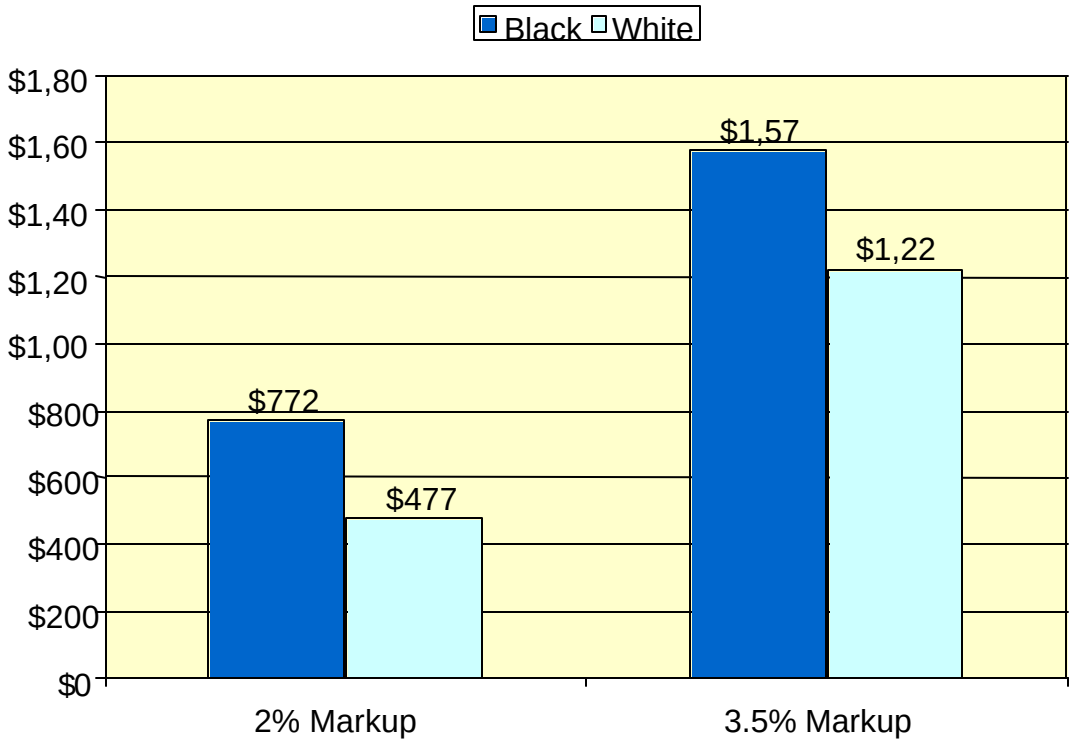
Figure 2A
Difference Between Black and White
Average Subjective Markups, AHFC 1999-2003
Including Contracts Booked Under Zero Markup Programs



My understanding is that AHFC subjective markup policy generally places limits on the amount of the markup that dealers are authorized to add to the stated buy rate. Assuming the APR does not exceed state usury laws or other state restrictions on markups, AHFC allows dealers to mark up some contracts 2%, while others may be marked up as much as 3.5%. The 3.5% markup "cap" is generally reserved for consumers in the worst credit tier ("standard"), while the 2% cap applies to better credit tiers ("preferred" and "super preferred"). As shown in Figure 3, the average markup for African-Americans subject to the 2% cap was $772 compared to $477 for Whites subject to a 2% cap. The average markup for African-American customers subject to a 3.5% cap was $1,575 compared to $1,223 for Whites.

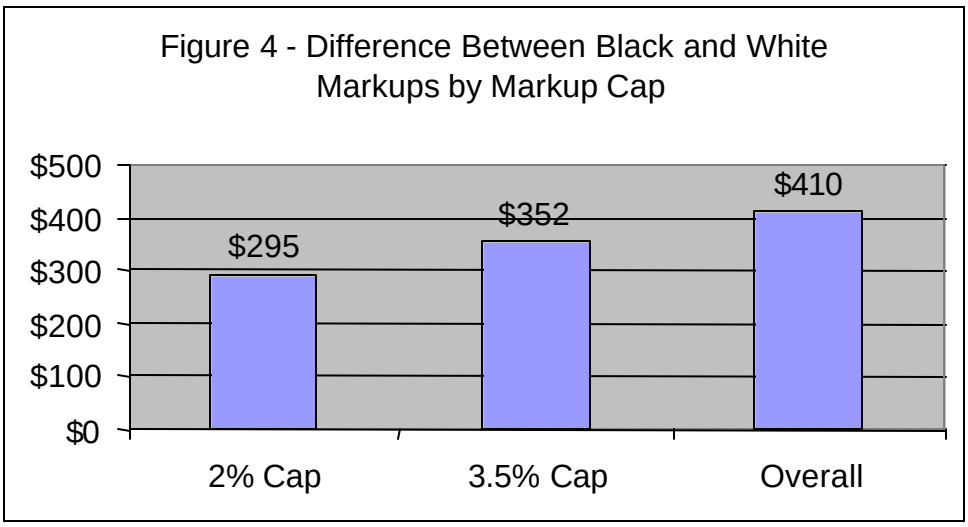
Figure 3

Average Markup: Black versus White by Markup Cap



The lower markup cap has the effect of reducing the disparity between White and African-American markups who are booked for contracts in those respective pricing tiers. As shown in Figure 4, the difference between African-American and White markups is higher in pricing tiers subject to a maximum 3.5% interest rate cap than under the 2% cap ($352 versus $295). Thus, the disparity between African-Americans and Whites is 16.4% lower under the 2% markup cap than under the 3.5% cap. This reduction in the differential was statistically significant at $p < .01$. Note that Table 1 reports a disparity of $410 – significantly higher than either the $295 or $352 disparity shown in Figure 4. The reason that the overall disparity is greater than the disparity shown within each markup cap range is that Figure 4 masks the important fact that African-Americans are more

likely to be booked under contracts that have a 3.5% cap than Whites. As shown in Figure 3, African-Americans who are booked under contracts where the subjective markup cap is 3.5% pay on average $1,575 compared to the $772 paid by African-Americans who are booked under contracts where the markup is limited to 2%. Thus, African-Americans are disadvantaged for two reasons: (1) they are more likely to be subject to the 3.5% markup cap than Whites, and (2) within either markup cap range, they are charged a higher markup on average.



Note that AHFC policy permits some exceptions ("over-rides") to the 2% and 3.5% markup caps. Thus, we find in the data that 309 African-American customers (1.48% of the 20,936 African-Americans whose contracts were subject to these markup caps), and 1,089 White customers (1.02% of the 106,441 White customers subject to these markup caps) were charged subjective markups greater than the caps. This higher rate of "over-rides" to African-American customers is statistically significant at $p < .01$.

C. Subjective Markup in 15 State Sample

Table 2 compares the subjective markup (excluding customers booked under zero markup programs) by state.[8] CLC matched drivers license and birth certificate data with AHFC records in 15 states.[9] African-American customers in Louisiana, Maryland and Texas had the highest markups – each averaging over $1,200. The disparity between the subjective markup charged African-American versus White AHFC customers was largest in Louisiana, Maryland, and Wisconsin – with African-Americans in those states being charged more than $500 over the average markup of Whites. In Wisconsin, African-Americans were charged more than twice the amount of markup as Whites ($1,045 versus $477). In all but three states, these differences were statistically significant at $p < .01$. The difference in Nebraska was only $120 ($420 versus $300) and is not statistically significant; however, the number of African-American customers was also very small (13). Similarly, the Iowa data only had 14 African-Americans, and they were charged on average $52 more than White customers.[10]

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[8] This analysis is not necessary to establish the fact that in the sample of cases provided by AHFC, African-Americans pay higher markups than Whites. That has already been established in the previous analysis. Instead, analyzing individual states provides some information about the nature of the markups and anticipates potential criticism by defendant's experts. For example, as I show in the state of Arkansas, statutory restrictions appear to affect markups such that there is a substantially smaller difference between the subjective markup charged African-Americans and Whites. This finding further supports the view that AHFC's subjective markup policy causes this disparate impact on Black borrowers and that adjusting the markup policy can lead to a reduced differential. By reducing subjectivity in credit pricing, AHFC could significantly reduce or even eliminate this disparity.

[9] Birth certificate information was obtained from California. Drivers license data were obtained for the remaining 14 states. This is explained fully in the report by Raymond Henderson, CLC Compliance Technologies, Inc.

[10] Note that it is less likely to find statistical significance in a small sample than in a large sample. *See* Kaye and Freedman (*supra* note 3) for a discussion on sample size. In these

Table 2
Differences in African-American versus White Markups
(15 States with Race-Coded Data)
Excluding Contracts Booked Under Zero Markup Programs

State	% Race Coded	Black (Number)	White (Number)	Black Markup	White Markup	Difference	Ratio B to W
AL	69.1%	477	2,120	$792	$553	**$239**	1.43
AR	70.0%	62	789	$479	$395	**$84**	1.21
CA	21.6%	1,689	23,249	$892	$626	**$266**	1.42
FL	58.8%	2,130	9,625	$1,063	$669	**$395**	1.59
IA	73.9%	14	600	$460	$409	**$52**	1.13
LA	83.9%	1,407	3,942	$1,285	$731	**$554**	1.76
MD	56.4%	5,742	12,753	$1,245	$724	**$521**	1.72
MS	75.0%	165	511	$789	$583	**$206**	1.35
NC	68.2%	1,826	7,927	$958	$652	**$306**	1.47
NE	69.1%	13	370	$420	$300	**$120**	1.40
OK	69.7%	140	1,631	$1,056	$624	**$432**	1.69
SC	77.3%	1,275	3,816	$969	$641	**$328**	1.51
TN	77.9%	1,157	5,812	$1,102	$712	**$390**	1.55
TX	64.0%	3,253	22,000	$1,272	$860	**$412**	1.48
WI	74.6%	138	1,618	$1,045	$477	**$568**	2.19
Combined	45.4%	19,488	96,763	$922	$597	**$325**	1.54

Note: All differences between African-American and White markups are significant at $p < .01$ (except Arkansas, Iowa, and Nebraska**).** All figures rounded to nearest dollar. Thus, some figures may not add up exactly and may be off by up to $1.00.

Note that in Arkansas, it is my understanding that constitutional limitations affect AHFC's markup policy, restricting the ability of dealers to mark up interest rates as high as they might otherwise under current AHFC policy. Consistent with these legal restrictions, the markups for both African-Americans and Whites were relatively small. As shown in Table 2, African-Americans in Arkansas on average were charged $479 in markup, compared to $395 charged to Whites. This difference of $84 is not statistically

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two states, the sample of African-American customers is particularly small. I have included these states here for completeness, since they have race-coded drivers license data and over 75% of AHFC customers from those dealers have been race-coded.

significant. This finding supports the view that AHFC's subjective markup policy facilitates this disparate impact on African-American borrowers and that adjusting the markup policy can lead to a reduced differential. By reducing dealer subjectivity on the amount that interest rates can be marked up, AHFC could significantly reduce or even eliminate this disparity.[11]

Similar results are shown in Table 2A which includes all contracts, including those booked in programs where zero markup is mandated. Although the average dollar values are lower in Table 2A than in Table 2 – since Table 2A includes more "zero markup" contracts, the percentage rate disparity between African-Americans and Whites is greater. For example, the average subjective markup in Wisconsin is $427 for African-Americans and only $83 for Whites. Thus, African-Americans on average are charged 5.16 times as much as Whites in Wisconsin.

[11] Ohio is another state that has had statutory restrictions that effectively limit the amount of markup that can be charged to AHFC customers. However, information provided me by plaintiffs' counsel indicates that Ohio lifted some of its restrictions effective February 19, 2002. While the sample sizes are relatively small, and no statistically significant differences exist, it is interesting to compare markups in Ohio "before" and "after" the lifting of those restrictions. Prior to that date, the average markup for African-Americans was $218 compared to $229 for Whites. Whites actually paid $11 more on average in subjective markup than African-Americans. After the restrictions were removed, both averages increased – to $640 for African-Americans and $539 for Whites. However, the increase in markups was greater for African-Americans than for Whites, consistent with the results in other states that do not have markup restrictions. In particular, the difference between African-American and White markups went from ($11) to $101.

Ohio	% Race Coded	Black (Number)	White (Number)	Black Markup	Difference	Ratio B to W
Combined	7.15%	54	555	$398	$64	1.19
<02/19/02	6.96%	31	367	$218	($11)	0.95
>=02/19/02	7.52%	23	188	$640	$101	1.19

Table 2A
Differences in African-American versus White Markups
(15 States with Race-Code Data)
Including Contracts Booked Under Zero Markup Programs

State	% Race Coded	Black (Number)	White (Number)	Black Markup	White Markup	Difference	Ratio B to W
AL	69.1%	1,801	12,059	$210	$97	**$112**	2.15
AR	70.0%	357	5,433	$83	$58	**$26**	1.45
CA	21.6%	2,931	47,835	$514	$304	**$210**	1.69
FL	58.8%	4,872	41,260	$465	$156	**$309**	2.98
IA	73.9%	84	4,550	$77	$54	**$23**	1.42
LA	83.9%	3,080	14,071	$587	$205	**$382**	2.87
MD	56.4%	8,352	26,967	$856	$343	**$514**	2.50
MS	75.0%	691	3,583	$188	$83	**$105**	2.27
NC	68.2%	3,934	26,156	$445	$198	**$247**	2.25
NE	69.1%	59	2,275	$93	$49	**$44**	1.90
OK	69.7%	357	7,404	$414	$138	**$277**	3.01
SC	77.3%	2,531	12,485	$488	$196	**$292**	2.49
TN	77.9%	2,416	19,801	$528	$209	**$319**	2.53
TX	64.0%	6,353	61,154	$651	$309	**$342**	2.10
WI	74.6%	338	9,327	$427	$83	**$344**	5.16
Combined	45.4%	38,156	294,360	$402	$165	**$236**	2.43

Although race-coded data was available from drivers licenses for fourteen states and from birth certificates from California, race could be identified for purchasers from dealers in all 50 states. These cases are likely to be from individuals who live nearby a dealer in another state (*e.g.*, someone who lives in Northern Tennessee but who purchases a car in Kentucky) or who moved to another state from one of the 15 states where we have race-coded drivers licenses or birth certificates. While individually, it would not be appropriate to draw inferences about many of these states – as they often involve a small

number of customers – collectively, they account for 51,136 AHFC customers – 6,165 of whom are African-American.[12]

Table 3 uses this nationwide dataset and compares the subjective markup by region of the country. In all four regions of the country, there is a statistically significant difference in markup paid by African-American AHFC borrowers compared to White borrowers. This difference is largest in the South ($408), followed by the Midwest ($353), Northeast ($333), and West ($255). Overall, these race-coded AHFC customers represent about 28.5% of all AHFC customers. Similar results are shown in Table 3A, where contracts that were booked under zero markup programs are included.

Table 3
Differences in Black versus White Markups Across Regions
Excluding Contracts Booked Under Zero Markup Programs

State	% Race Coded	Black (Number)	White (Number)	Black Markup	White Markup	Difference	Ratio B to W
Midwest	14.3%	444	5,215	$852	$499	**$353**	1.71
Northeast	4.8%	933	4,745	$958	$625	**$333**	1.53
South	55.6%	18,990	74,918	$1,142	$734	**$408**	1.56
West	19.8%	1,885	25,714	$901	$646	**$255**	1.39
Combined	28.5%	22,252	110,592	$963	$626	**$337**	1.54

[12] Note that Table 1A reports on a total of 383,652 AHFC customers, while Table 2A reports on 332,516 customers from the 15 race-coded states. The difference, 51,136, represents customers who have been race-coded, but who did not purchase their vehicles from one of these 15 states. These 51,136 customers include those who were booked under contracts that did not allow markup. Excluding contracts that do not allow markup, an additional 16,593 purchased from dealers outside those 15 states – 2,764 of whom are African-American.

Table 3A

Differences in Black versus White Markups Across Regions

Including Contracts Booked Under Zero Markup Programs

State	% Race Coded	Black (Number)	White (Number)	Black Markup	White Markup	Difference	Ratio B to W
Midwest	14.3%	1,348	27,521	$281	$95	**$186**	2.97
Northeast	4.8%	1,708	11,699	$524	$254	**$270**	2.06
South	55.6%	37,851	243,723	$573	$226	**$348**	2.54
West	19.8%	3,414	56,388	$497	$295	**$203**	1.69
Combined	28.5%	44,321	339,331	$469	$217	**$252**	2.16

Table of Contents [OF COMPLETE STUDY AVAILABLE IN UNABRIDGED REPORT.]

List of Tables

List of Figures