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

IN THE MATTER OF

JOYCE JONES, ET AL.

v.

FORD MOTOR CREDIT COMPANY (FMCC)

January 9, 2004

Prepared by

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I. Introduction and Summary of Findings

This preliminary report has been prepared in the matter of *Joyce Jones et al. v. Ford Motor Credit Company* ("FMCC"). I have been asked by plaintiffs' counsel to review the data on auto finance customers that has been provided by FMCC (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 FMCC 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.[1]

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

- 48.5% of African-American borrowers are charged a markup, compared to 30.9% of White borrowers.

[1] My understanding is that there are several ways to define "buy rate." Since the purpose of my report is to determine whether or not the **subjective** component of the APR (*i.e.*, any amount that is not based on objective risk-related factors) has a disparate impact on African-Americans, I use the term "buy rate" to refer to the original rate that FMCC determines is the minimum interest rate it will approve for a contract after analyzing the terms of the loan and whatever credit risk information it legitimately includes in its credit scoring system. Anything beyond that – whether it becomes an "adjusted buy rate" or "dealer participation" is considered "markup" for purposes of my analysis.

- African-American borrowers on average pay more than 2 times the amount in subjective markup compared to Whites: $684 versus $337, a difference of $347.
- African-American borrowers who receive a subjective markup are charged on average $1,412 compared to only $1,090 for Whites, a difference of $322.
- 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 104.1 times.
- The 855,989 FMCC borrowers who were identified as either being African-American or White were charged a total of $323.1 million in subjective markup. Of that total, $69.9 million, or 21.0% was paid by African-Americans, who make up only 11.6% of this customer base.
- Within the 14 states where drivers license data has been used to race-code FMCC borrowers, the largest average markup for African-American customers occurred in Louisiana, where African-American customers were charged $797 (compared to $366 for White customers). The largest disparity occurred in Wisconsin, where African-Americans on average were charged $753 compared to $249 for Whites. Thus, African-Americans in

Wisconsin were charged $504 more in subjective markup than Whites, more than 3 times the amount Whites were charged.

- Over 13,122 FMCC customers in the 855,989 race-coded sample were charged $3,000 or more in subjective markup. African-Americans make up 30.4% 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 FMCC race-coded customers, they make up 32.4% of those in the top 1% of markup dollars (i.e. the 1% of FMCC borrowers who pay the most in markup). While the top 1% were charged $18.1 million in markup, African-Americans in that group pay $5.5 million, or 30.4% of the total dollars in that category.
- The top 1% of customers were charged 5.6% of the total subjective markup. The top 5% were charged 18.0% of the total markup. The top 10% were charged 29.2% of the total markup. The top 25% were charged 53.2% of the total markup.
- African-Americans are over-represented in the top 500 markups relative to their frequency in the FMCC population. While African-Americans represent 11.6% of the sample, they account for 38.2% of the top 500 markups – more than 3 times their relative frequency.
- The African-American FMCC customer who paid the most in subjective markup financed $31,406 and paid $7,391 in risk-

based markup based on the FMCC buy rate. However, that customer was also charged $15,390 in subjective markup – more than twice the cost of risk-based financing itself. This customer – who was a tier 1 customer (i.e. a high level of creditworthiness), purchased a vehicle in Louisiana and paid 23.98% interest despite the fact that the risk-based buy rate was only 8.65%.

- FMCC credit tiers start with the most credit worthy tier 0, and then run from 1 through 5 (with 5 being the worst creditworthiness tier). The largest average subjective markups occur in the middle credit tier 2 ($867 for African-Americans and $553 for Whites), where the average markup for African-Americans is $314 more than Whites.

These data provide strong empirical evidence of a disparate impact on African-American borrowers. This effect is persistent over the entire time period from 1994 through 2003, across geographic boundaries, controlling for factors such as term of loan, type of vehicle, credit worthiness of borrower, etc.

The findings that African-Americans FMCC 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 FMCC's credit pricing policy and a disparate impact on African-American customers.

II. Summary of FMCC Data and Statistical Analysis

FMCC provided plaintiffs with data on active transactions from January 1994 through September 2003. Of those cases, 931,909 were race-coded as being Black or White by CLC Compliance Technologies, Inc. ("CLC").[2] After eliminating cases that were not labeled as "nonrecourse" loans (*i.e.,* including only loans where the dealer retains no risk of loan default) and those with irregular payment schedules (e.g. balloon payments), there were a total of 855,989 FMCC customers included in my analysis.[3]

A. Summary Data and Key Results

Table 1 examines the national race-coded data for the 855,989 FMCC customers who have been race-coded as being either African-American or White. Overall, African-Americans represent 11.6% of all FMCC borrowers who have been race-coded. African-American purchasers who finance their

[2] According to Raymond Henderson, of CLC Technologies, Inc., FMCC provided two main sources of data, "LA," containing 2,344,220 records, and "Pinnacle" data, containing 3,068,421 records. *See* Report of Raymond Henderson, January 9, 2004 ("Henderson Report").Apparently, a significant fraction of these records did not have birth date information coded, thus reducing the ability to race-code customer records using drivers license data. Ultimately, however, he was able to assign a race-code to 931,909 customers which were sent to me.

[3] Despite the fact that we could not race-code all of the data received, a data set of 855,989 is a substantial sample that allows us to draw inferences about the nature of any disparity in subjective markups.

vehicles through FMCC are more likely to receive a subjective markup than Whites. Nationwide, I find that 48.5% of African-Americans receive a markup compared to 30.9% for Whites – more than 150% as many African-Americans as Whites. Furthermore, for those who do receive a markup, it is likely to be substantially higher if the borrower is African-American than if White. African-Americans who receive a markup are charged on average $1,412 compared to only $1,090 for Whites, a difference of $322. Overall, including those who do not receive a markup, the average markup is $684 for African-Americans and $337 for Whites - a difference of $347. Thus, on average, African-Americans pay more than 2 times the amount of subjective markup that Whites pay.[4] All of these differences are statistically significant at $p < .01$[5]

[4] Subsequent to analyzing the data and drafting this report, I learned that some of the data supplied by FMCC in this case appears suspect. In particular, 16,522 cases (1.9%) appear to have incorrectly coded buy rates. These cases generally involved "buy rates" that were coded "99" (with one coded "45" - far in excess of state usury laws). In addition, some cases had buy rates listed as zero, but had APRs that were higher than zero. Based on our earlier understanding that FMCC was providing accurate buy rates and APR, we had assumed that when the APR minus the buy rate was negative, this was a "zero markup" special APR case, and we reset the negative markup to zero. However, since these now appear to be miscoded contracts, it might not be appropriate to assume they were zero markup loans. I have re-estimated Table 1 excluding these 16,522 cases and find that the results do not change in any significant manner. Indeed, the results are slightly stronger. The average amount financed for the 97,093 African-Americans in this "revised" sample is $19,467, compared to $20,839 for the 742,374 Whites. 49.0% of African-Americans were marked up compared to 31.1% of Whites. Thus, African-Americans were marked up at a rate that is 17.8% percentage points higher than Whites. The average markup for African-Americans is now $682, compared to $330 for Whites. Thus, the additional markup paid by African-Americans is now $352 (up from $347 in Table 1). Since all of the eliminated cases were previously assumed to be "zero markup" cases, the average markups "if markup > 0" remain unchanged. Throughout this report, unless otherwise noted, I have retained the original sample of 855,989.

Table 1 also includes for comparison similar data analyzed in my May 21, 2001 report in a related case brought under the Equal Credit Opportunity Act ("ECOA") against Nissan Motor Acceptance Corp. ("NMAC"), and in my August 29, 2003 report in another related case brought against General Motors Acceptance Corp. ("GMAC"). I compare these data to my earlier studies of NMAC and GMAC because both of these captive lenders have very similar pricing policies to those in effect at FMCC. All three captive lenders provide dealers with credit-based buy rates which the dealers are then allowed to subjectively "mark up." All three companies also selectively offer special APR loans at below market rates that are not generally subject to markup – if the special APR rate is offered to a customer. The findings are strikingly similar. 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

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Leaving these cases in the analysis likely results in a slight understatement of the disparate impact on African-Americans.

[5] 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 Black markup of $684 and a White markup of $337 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.

Table 1
African-American versus White FMCC Borrowers, 1994-2003
(compared to NMAC 1993-2000 and GMAC Borrowers, 1999-2003)

	NMAC	GMAC	FMCC
Time period	March 1993 – September 2000	January 1999 – April 2003	January 1994 to September 2003
Total Sample Size Analyzed	310,718	1,511,91	855,989
African-Americans in Sample	59,044	127,983	99,347
Whites in Sample	251,674	1,383,93	756,642
Percent of Customers who are African-American	19.0%	8.5%	11.6%
Average Amount Financed – African-Americans	$16,749	$20,443	$19,383
Average Amount Financed – Whites	$15,922	$21,530	$20,563
% with markup – African-Americans	71.8%	53.4%	48.5%
% with markup – Whites	46.7%	28.2%	30.9%
Additional Percentage of African-Americans with Markup	25.1%	25.2%	***17.6%***
Relative odds ratio % - African-Americans	289%	292%	210%
Relative odds ratio % - Whites	34%	34.2%	47.6%
Average Markup – African-Americans	$970	$656	$684
Average Markup – Whites	$462	$244	$337
Additional Markup Paid by African-Americans	$508	$412	***$347***
Ratio of African-American to White Markup	2.10	2.69	***2.03***
Average Markup – African-Americans (Markup if >0)	$1,351	$1,229	$1,412
Average Markup – Whites (Markup if >0)	$989	$867	$1,090
Additional Markup Paid by African-Americans (Markup if >0)	$362	$362	***$322***
Ratio of African-American to White Markup	1.37	1.42	***1.30***
# Standard Deviations–Incidents of Markup - (Actual to Expected)	99.0	178.8	***104.1***

African-Americans and $462 for Whites, a difference of $508.[6] 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.

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 2.10 for FMCC customers - indicating that an African-American borrower is 210%

[6] 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. While the FMCC time period covers 1994-2003, because the data only cover currently active cases, the bulk of transactions (89.1%) are from 2000-2003. Note, however, that the average markup (and markup differentials) are very similar in all three cases when looking only at those customers who were marked up. In the case of customers who were marked up, the average markup was $1,351 for NMAC, $1,229 for GMAC, and $1,412 for FMCC. Similarly, the additional markup paid by African-American customers (if they are marked up) was $362 in NMAC, $362 in GMAC, and $322 in FMCC.

as likely to experience a markup as a White borrower.[7] Thus, African-American borrowers nationwide are 210% as likely to receive the subjective markup as White borrowers.

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 FMCC 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 FMCC 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 $p < .05$, one can confidently reject the "null hypothesis." Generally, a finding with a p-value below 0.01 is considered "highly significant."[8]

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[7] Based on 48.5% of African-Americans and 30.9% of Whites who receive a markup, African-Americans have higher odds of receiving a markup - 0.94 (calculated as .485/.515) as opposed to Whites who have significantly lower odds, 0.447 (.309/.691). These figures can also be expressed as the **relative odds** of receiving a markup. Thus, African-Americans are 2.10 times as likely as Whites to receive a markup (0.94/.447) - indicating that they have a 210% higher rate of being charged a markup. Similarly, Whites have a relative odds ratio of 0.476, (.447/0.94) indicating that they are only 47.6% as likely to receive a markup as African-Americans.

[8] "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).

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.[9] In the nationwide FMCC data, the actual values are 104.1 times the standard deviation - a level that is highly statistically significant.[10] 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 FMCC pricing policy of allowing subjective markups has a highly statistically significant disparate impact on African-American borrowers who are charged with this markup more often than expected. While the legal standard of statistical significance is 2-3 times the

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

[10] In the race-coded sample, African-American borrowers represent approximately 11.6% of the total number of borrowers. Since there are 282,252 borrowers (out of 855,989) that receive this markup, the expected number of African-Americans who would be marked up is 32,741 (11.6% x 282,252). In fact, there were a total of 48,164 African-Americans who received a markup. Put differently, the difference between the expected and actual number of African-Americans who received this markup is 15,423. 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 (99,347) times the percentage of the full population that is marked up (32.97%) 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 [99,347*.3297*(1-.3297)] = 148.2. Since the Black markup exceeds the expected markup by 15,423, this exceeds the standard deviation by 104.1 times (15,423/148.2 = 104.1).

standard deviation, the difference between the actual and expected probability of being marked up for an African-American FMCC customer is 104.1 times the standard deviation.

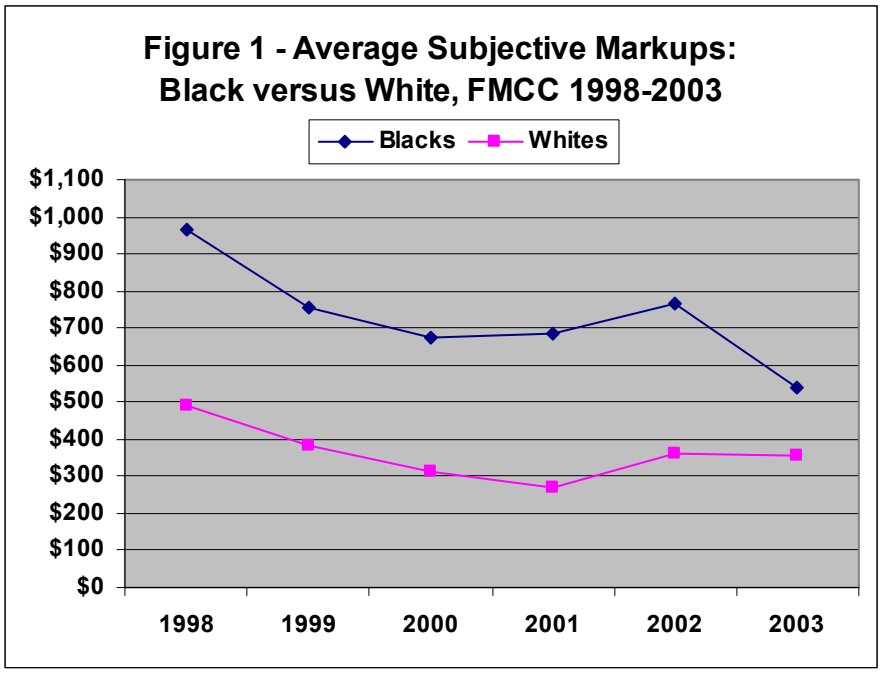
B. Subjective Markups Over Time

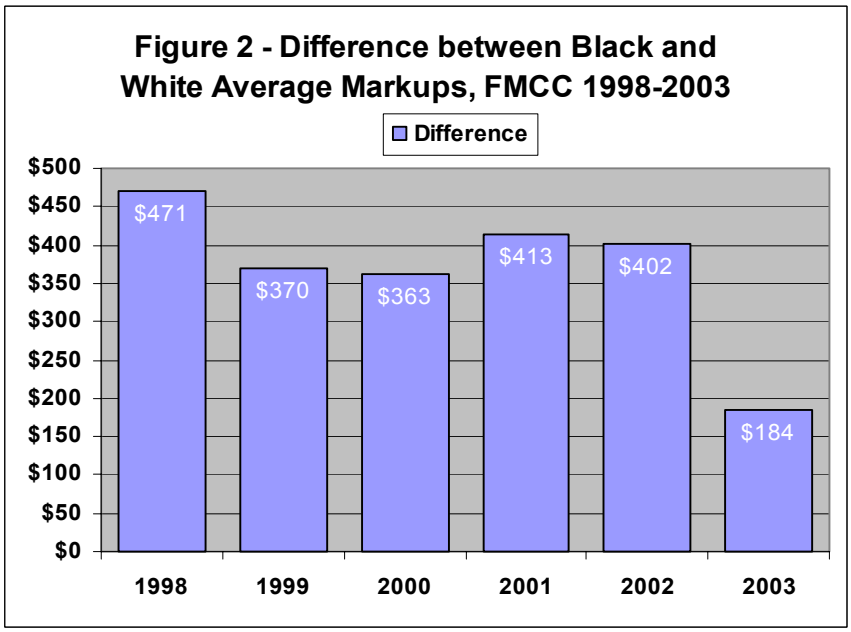
Figure 1 compares the subjective markup over time.[11] Over the 1998 to 2003 time period, the markup has generally been declining.[12] For example, while the average markup for African-Americans was $963 in 1998, it was $755 in 1999; and $673 in 2000. It increased to $683 in 2001 and $766 in 2002; and decreased to $538 in 2003. However, throughout this entire time period, African-Americans have consistently paid a higher markup than Whites at statistically significant levels.

Figure 2 examines the difference between the average markup that African-Americans and Whites pay over time. Throughout the entire period from 1998-2003, this differential markup has persisted, and has varied from approximately $184 to $471 on average.

[11] While the data include customers from 1994, since only active accounts were included, most transactions occurred during 1998-2003. Only 6 transactions are from 1994, 54 from 1995, 241 from 1996, and 2,197 from 1997. Collectively, these four years account for only 0.3% of all cases. Thus, annual data are reported beginning 1998, when a total of 24,564 cases were included.

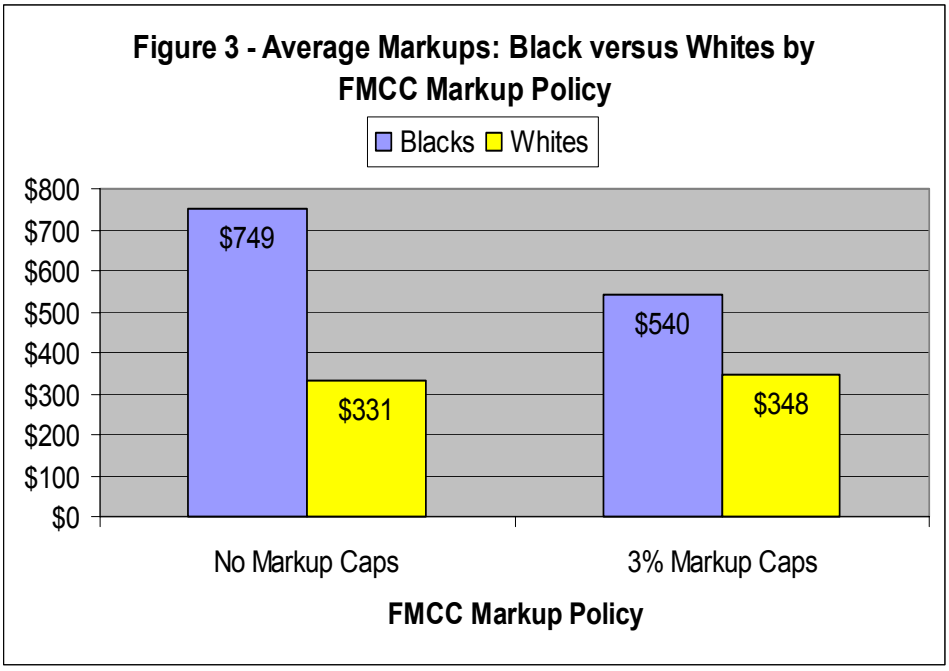
[12] Note that the lawsuits against NMAC and GMAC were first filed in 1998.





Prior to November 1, 2002, FMCC's subjective markup policy did not limit the percentage rate that dealers could add to the stated buy rate. Thus,

there was no effective "cap" on markups other than state usury laws.[13] On November 1, 2002, FMCC instituted a 3% cap on markups across-the-board. As shown in Figure 3, average markups for Whites increased slightly from $331 to $348 under the 3% cap, while the African-American markup decreased from $749 to $540.



During the time period that this markup cap has been in effect, it has had the additional effect of reducing the disparity between White and African-American markups. Figure 4 compares the difference between African-American and White markups during the different FMCC policies. Prior to the imposition of markup caps, African-Americans paid $418 more on average in markup than Whites. This differential was reduced to $192 under the 3% cap. In

[13] Plaintiffs' counsel informs me that FMCC also had an overall APR limit of 26% for new and current used cars and 36% for one-year-old and older used cars.

other words, the 3% markup cap reduced the disparity by more than 50%. This reduction in the differential was statistically significant at $p < .01$.

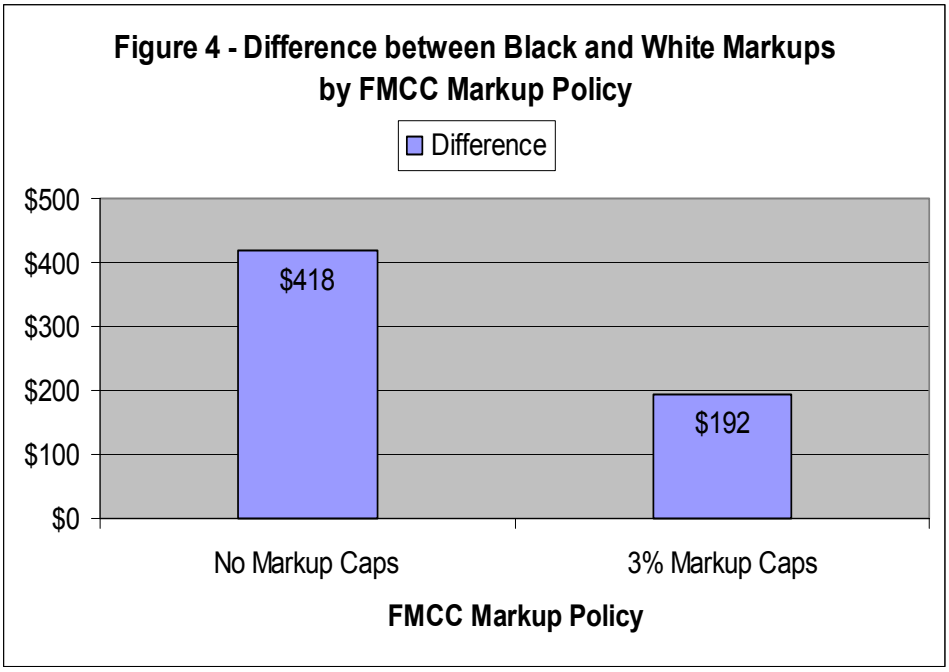
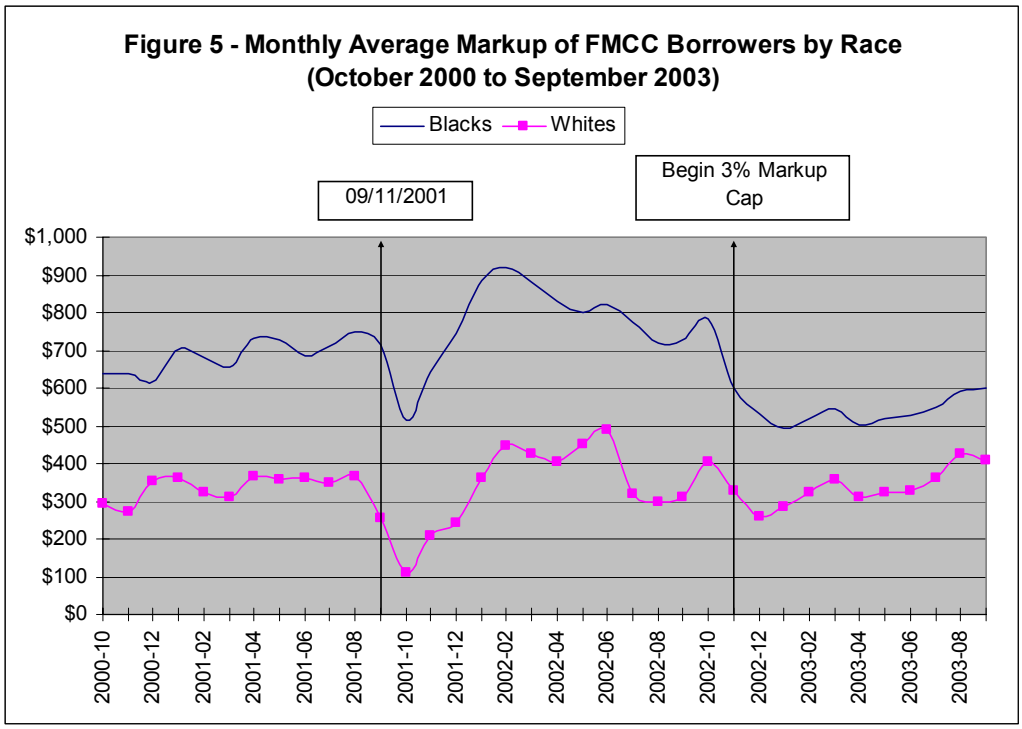
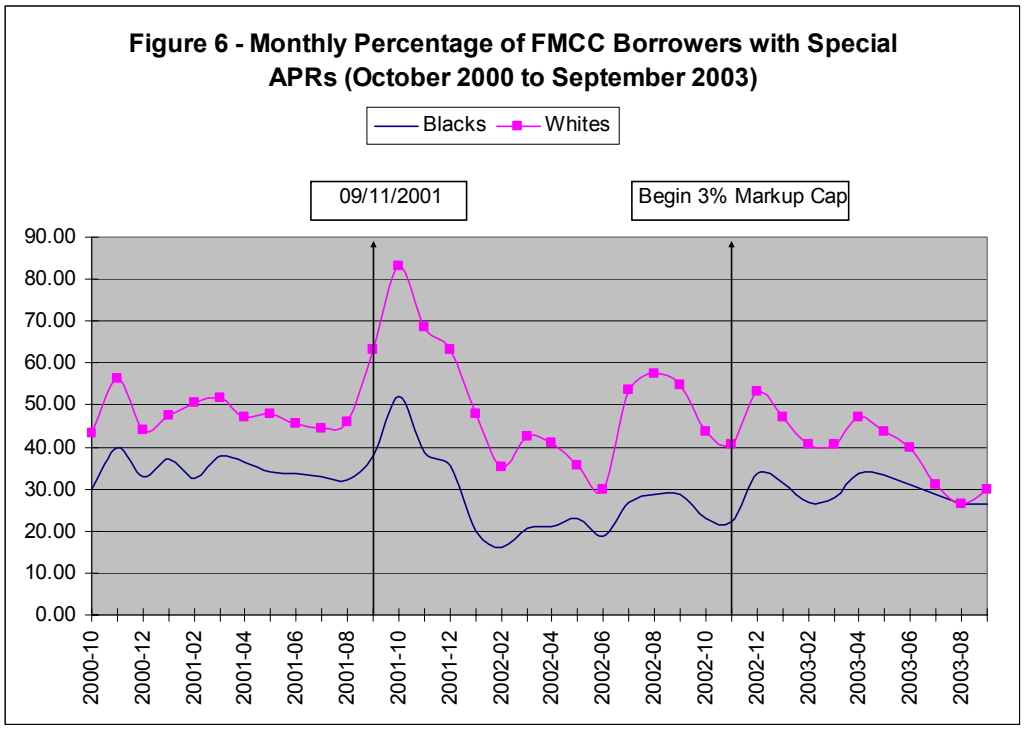


Figure 5 reports on the monthly average markup for African-Americans and Whites between October 2000 and September 2003. As shown, there was a significant drop in average markups – for both African-Americans and Whites - following September 11, 2001. However, this drop quickly ended and markups actually became higher than before by February 2002. Regardless, the disparity (i.e., the gap between the markup paid by African-American and White customers) did not begin to recede somewhat until the 3% markup cap was instituted in November 2002.



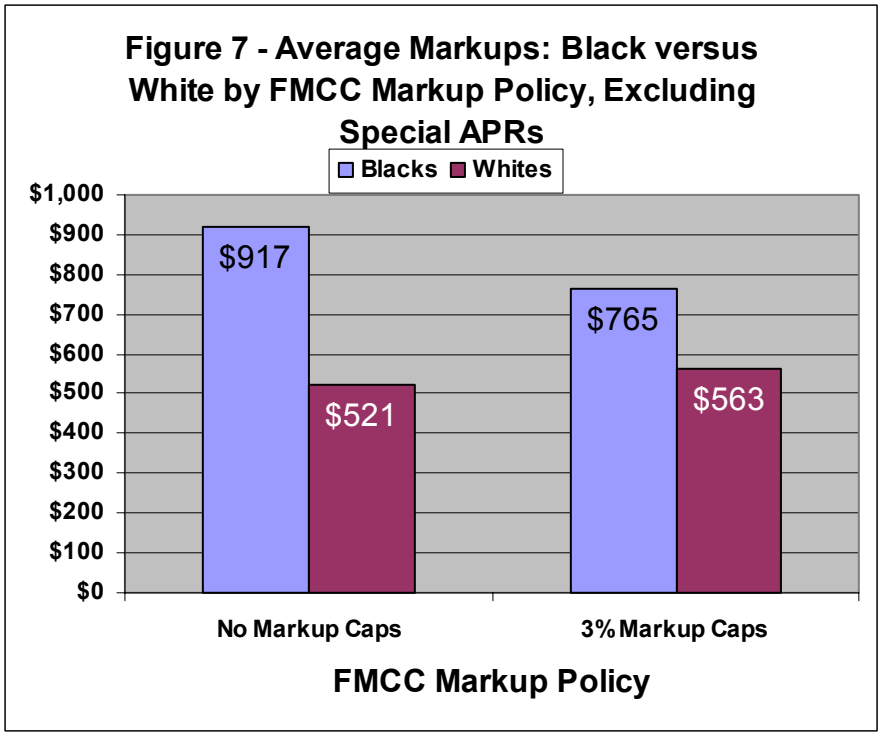
As shown in Figure 6, much of the reason behind the reduced markups is that FMCC increased significantly the percentage of "Special APR" contracts immediately following 9/11. As shown, Whites have consistently received Special APRs at a higher rate than African-Americans. This has been true in every month. However, in August 2003, the percentage of African-American customers receiving special APRs was almost identical to that of Whites (26.3% for African-Americans versus 26.6% for Whites).

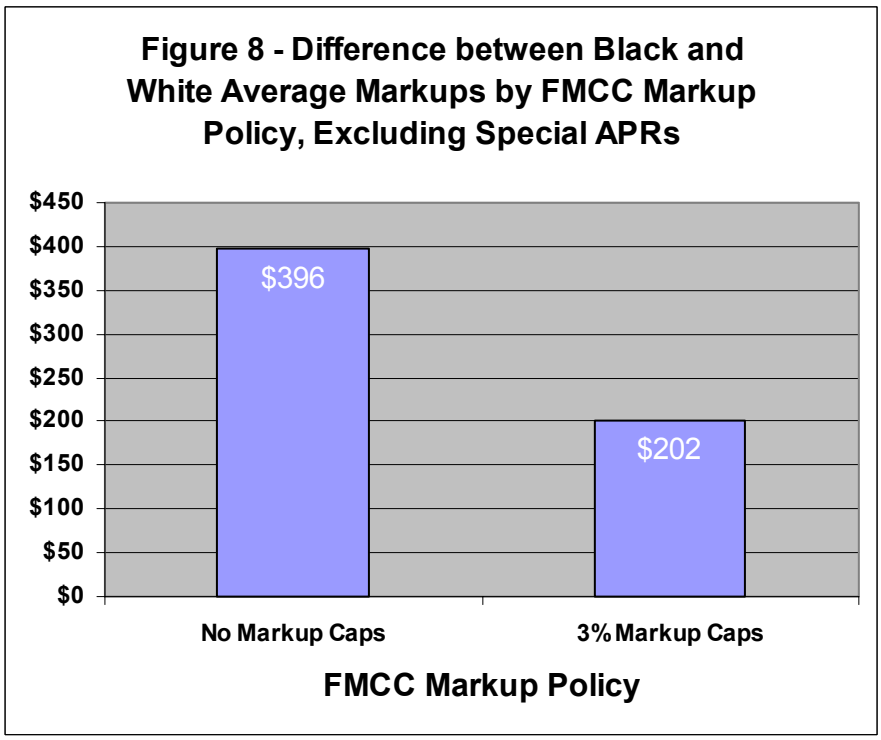


Since the use of Special APR programs has fluctuated, I have also examined the average markups for those contracts that were *not* booked under a Special APR program. Figures 7 and 8 compare average markups and the difference between average markups for African-American and White borrowers during the two different FMCC markup policy periods – restricting the data to only those contracts that were "standard rate contracts," *i.e.,* eliminating Special APR contracts from my analysis.

As shown in Figure 7, the 3% markup cap had a significant effect on average markups. Average markups decreased for African-Americans from $917 to $765, while White markups actually increased from $521 to $563. As shown in Figure 8, the difference between African-Americans and Whites

changed significantly following the imposition of the 3% markup cap. At that point, the gap was reduced to about $202.





C. Subjective Markup in 14 State Sample

Tables 2 compares the subjective markup by state.[14] CLC Technologies, Inc. matched drivers license data with FMCC records in fourteen states. African-American customers in Louisiana and Wisconsin had the highest markups as compared to their White counterparts, with African-Americans in those states being charged approximately $400 to $500 over the average markup of Whites. Alabama, Oklahoma and Texas had the smallest dollar difference between White and African-American markups - approximately $125-$200 additional markup. In Wisconsin, African-Americans were charged three times the amount of markup as Whites ($753 versus $249). In all but two states, these differences were statistically significant at $p < .01$. The difference in Nebraska was only $94 ($290 versus $216) and is not statistically significant; however, the number of African-American customers was also very small (197).[15]

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[14] This analysis is not necessary to establish the fact that in the sample of cases provided by FMCC, 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 virtually no difference between Black and White markups. This finding further supports the view that FMCC'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, FMCC could significantly reduce or even eliminate this disparity.

[15] Note that it is less likely to find statistical significance in a small sample than in a large sample. Nebraska has the smallest number of cases of any of the 14 states in my sample, other than Arkansas (which has statutory limits on markups). *See* Kaye and Freedman (*supra* note 5) for a discussion on sample size. Also see Deposition of James C. Horr, August 7, 2003 at 164-5 (aggregate statistical analysis performed in connection with calibrating FMCC's internal

In addition, the difference in markup in Arkansas was only $2, with African-Americans being charged $45 versus $43 for Whites. It is my understanding that statutory limitations affect FMCC's markup policy in Arkansas, restricting the ability of dealers to mark up interest rates as high as they might otherwise under current FMCC policy. This finding supports the view that FMCC'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 interest rates can be marked up, FMCC could significantly reduce or eliminate this disparity.

Table 2
Differences in African-American versus White Markups
(14 States with Race-Coded Drivers Licenses)

State	Black (Number)	White (Number)	Black Markup	White Markup	Difference	Ratio B to W
AL	2,327	17,075	$443	$247	**$196**	1.8
AR	390	4,069	$45	$43	$2	1.0
FL	26,389	228,421	$690	$369	**$321**	1.9
IA	808	40,806	$499	$235	**$264**	2.1
LA	19,188	65,935	$797	$366	**$431**	2.2
MD	3,846	11,533	$763	$434	**$330**	1.8
MS	4,084	16,266	$657	$295	**$362**	2.2
NC	4,292	31,192	$548	$334	**$214**	1.6
NE	197	6,348	$290	$216	$74	1.3
OK	1,523	28,480	$464	$296	**$168**	1.6
SC	13,356	51,550	$725	$343	**$382**	2.1
TN	11,077	88,130	$739	$374	**$365**	2.0
TX	9,205	97,986	$482	$357	**$125**	1.3
WI	2,665	68,851	$753	$249	**$504**	3.0
Combined	99,347	756,642	$684	$337	**$347**	2.0

Note: All differences between African-American and White markups are significant at $p < .01$ (except Arkansas 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.

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risk models because "a larger sample size is more reliable than a smaller sample size.")

III. Analysis of Subjective Markup Distribution

The previous section largely compared average markups, showing that African-Americans on average pay more than two times the amount of subjective markup than Whites. However, as discussed below, it is not just average markups that are relevant to an analysis of disparate impact. Instead, it is instructive to look at the entire distribution of markups. As shown earlier in Table 1, only 30.9% of White customers received any subjective markup at all, compared to 48.5% of African-American customers. Moreover, the average markup was $684 for African-Americans and $337 for Whites. However, as shown in Table 3, a significant percentage of customers receive markups of $1,000 - $2,000 - $3,000 or more, known in the industry as "home run" markups.

Table 3 reports on the range of subjective markup for each year. In 1998, 57.1% of FMCC borrowers received a zero markup. This percentage increased to 65.0% in 1999; 70.7% in 2000; and 74.1% in 2001; but dropped to 66.6% in 2002 and 62.2% in 2003. Depending on the year, between 10-20% of borrowers were charged $1000 or more in markup, while 3-9% were changed with $2,000 or more in markup.

Table 3
Subjective Markup Range by Year

Markup Range	1998	1999	2000	2001	2002	2003
	%	%	%	%	%	%
$0	57.1	65.0	70.7	74.1	66.6	62.2
>$0 and <= $250	2.6	2.9	2.8	2.9	3.1	3.4
> $250 and <= $500	6.0	5.4	4.6	4.2	5.2	6.6
> $500 and <= $750	6.2	5.2	4.4	3.8	5.1	6.7
> $750 and <= $1000	5.3	4.4	3.7	3.2	4.3	5.7
> $1000 and <= $1250	4.5	3.5	3.1	2.6	3.4	4.7
> $1250 and <= $1500	3.9	3.0	2.5	2.0	2.9	3.6
> $1500 and <= $2000	5.2	4.1	3.3	2.8	3.8	3.9
> $2000 and <= $3000	5.8	4.0	3.1	2.7	3.4	2.5
> $3000	3.4	2.5	1.8	1.6	2.1	0.6

Table 4 compares subjective markups paid by African-American versus White FMCC customers. For example, the first row indicates that there were 522,554 White borrowers and 51,183 African-American borrowers who paid zero markup. The next column indicates that African-Americans represent 8.9% of borrowers who paid a zero markup. Note that overall, African-Americans represent 11.6% of the sample. The fifth column compares the percentage of African-Americans in that row to their percentage in FMCC's customer base. Thus, African-Americans are under-represented by 2.7 percentage points compared to their representation overall in FMCC's customer base. The last row indicates that African-Americans make up 30.4% of those borrowers who were charged more than $3,000 in markup, compared to their 11.6% in the population of FMCC borrowers. Thus, African-Americans are over-represented in this category of markup relative to their frequency in the FMCC database by 18.8%. The last column of Table 4 reports on the additional average monthly payments that African-American FMCC customers pay in markup. For

example, there were 3,985 African-American customers whose markup was greater than $3,000 and whose monthly payments as a result were $70.42 on average higher than they would have been had there been no markup.

Table 4
Distribution of FMCC Black versus White Borrowers by Markup Range

Dealer Markup Range	Whites	Blacks	Black % of Range	Over / Under Representation of Black Customers	Average Monthly Cost to Black FMCC Customers
$0	522,554	51,183	8.9	**-2.7**	$0.00
>$0 and <= $250	23,095	3,275	12.4	**0.8**	$3.30
> $250 and <= $500	40,508	5,474	11.9	**0.3**	$7.60
> $500 and <= $750	39,024	6,050	13.4	**1.8**	$11.63
> $750 and <= $1000	32,410	5,985	15.6	**4.0**	$15.62
> $1000 and <= $1250	25,869	5,476	17.5	**5.9**	$19.67
> $1250 and <= $1500	20,185	4,795	19.2	**7.6**	$23.55
> $1500 and <= $2000	24,236	6,641	21.5	**9.9**	$29.41
> $2000 and <= $3000	19,624	6,483	24.8	**13.2**	$40.90
> $3000	9,137	3,985	30.4	**18.8**	$70.42
Total	**756,642**	**99,347**	**11.6**		

Table 5 reports on the percentage of the total dollar markups charged to the 1% of customers who were charged the highest markups, as well as the top 5%, 10%, and 25%. A total of $323.1 million was charged to 855,989 customers in the race-coded data set. Of this amount, 5.6% ($18.1 million) was charged to the top 1% of customers. 18.0% of the total amount ($58.0 million) was charged to the top 5% of customers. 29.2% ($94.3 million) was charged to the top 10% of customers. Over half of the markup (53.1%) was charged to the top 25% of customers. This distribution is also shown in Figure 9.

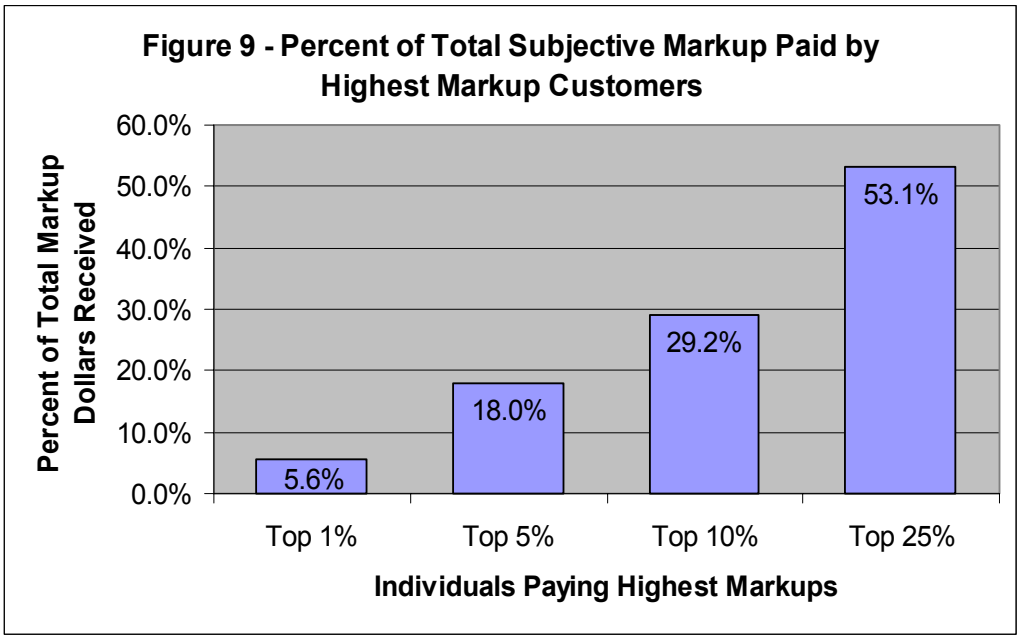
Also shown in Table 8 is the total dollar amount and percentage of African-Americans in each category. While African-Americans make up 11.6%

of FMCC race-coded customers, they make up 32.4% of those in the top 1% of markup dollars. While the top 1% were charged $18.1 million in markup, African-Americans in that group were charged $5.5 million, or 30.4% of the total dollars in that category. Similar results are shown for the top 5%, 10% and 25%, where African-Americans are over-represented in each category. As shown in the last row, while African-Americans represent 11.6% of all customers, they were charged 21.0% of the subjective markup dollars. In each category from the top 1% to the top 25%, the difference between the expected frequency (11.6%) and the actual frequency of African-American FMCC borrowers is highly statistically significant.[16]

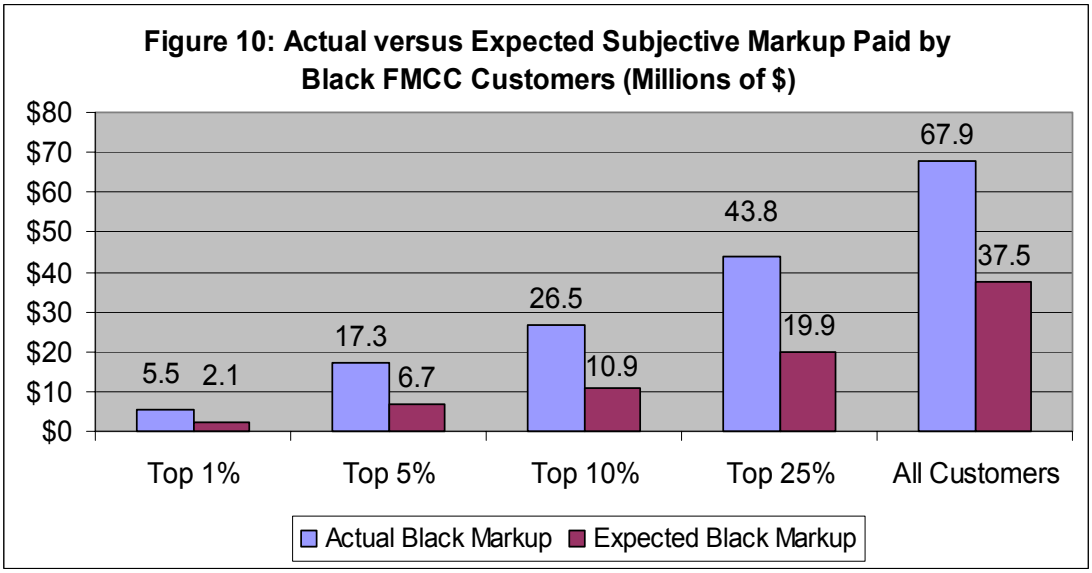
Table 5
Dollar Markup Paid by Highest Markup Customers

Contracts with Highest Markups	All Race-Coded Customers		African-American Customers		
	Total Dollar Markup	Percent of Total	Total Dollar Markups	Percent of Category	Percent of Total Dollars
Top 1%	$18,074,871	5.6%	$5,500,821	32.4%	30.4%
Top 5%	$58,003,303	18.0%	$17,301,488	30.0%	29.8%
Top 10%	$94,273,798	29.2%	$26,546,109	27.7%	28.2%
Top 25%	$171,618,971	53.1%	$43,822,196	24.4%	25.5%
All Customers	$323,108,806	100.0%	$67,991,142	11.6%	21.0%

[16] For example, using a chi-square test, the probability of randomly observing 24.4% Blacks in the top 25% of customers when we expect to find 11.6% is less than one in a million.



As shown in Figure 10, African-American FMCC customers in the top 1% markup category were charged $5.5 million in markup compared to $2.1 million they would expect to pay based on their relative frequency in the FMCC database. Those in the top 5% were charged $17.3 million compared to the $6.7 million they are expected to pay.



In addition to analyzing the top percentiles, I also examined the largest 500 subjective markups in the FMCC race-coded sample. I find that African-Americans are over-represented in the top 500 markups relative to their frequency in the FMCC population. This is true both for the dollar markup and the percentage rate markup.

In particular, based on 11.6% of FMCC customers being African-American, we would expect there to be 58 (11.6% x 500) African-Americans in the "top 500" dollar markups. Instead, we find that 191 out of the top 500 markups were imposed upon African-American customers – more than three times their relative frequency. This difference is highly statistically significant at $p < .01$.[17] The African-American customer who paid the most in subjective markup financed $31,406 and paid $7,391 in risk-based markup 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.

[17] Statistically, the chi-square test for goodness of fit determines how well an observed distribution conforms to an expected distribution. For instance if we know that African-Americans comprise roughly 11.6 percent of FMCC customers, in a random sample of 500 contracts we would expect to find approximately 58 (500 x 11.6%) African-Americans. However, if we actually observe 191 African-Americans in our random sample, the chi-square test for goodness of fit, will tell us the probability of finding this discrepancy by simple chance. In fact, the chi-square coefficient in this case is 345.0 and the p-value is less than .001. Thus, probability that we would observe 191 African-Americans in the top 500 markups, given that we would expect to find only 58 is essentially 0. Hence, we can conclude that African-Americans are significantly over-represented in the top 500 markups.

The list of "top 500" dollar markups included 12 African-Americans who were charged $10,000 or more in subjective markup, and over 100 who were charged $6,000 or more.

I conducted a similar ranking of the top 500 finance percentage rate markups. Most of the largest markups are in the best credit tiers (0 and 1), with very few in the lowest credit tiers. The African-American borrower who paid the highest percentage rate markup financed $8,400 for 48 months. The risk-based buy rate for this loan was 11.45%, based on a credit tier of 2. However, the FMCC customer was charged 24.55% markup – more than twice the cost of the risk-based finance charge. Total dollar markup in this case was $5,449, compared to the risk-based finance charge of $2,109. Compared to the 58 African-Americans that would be expected in this group of "top 500" percentage rate markups, I found 168 African-Americans. This difference is statistically significant at $p<.01$.

The data on the "top 500" markups are not consistent with any conceivable business justification defense that I can fathom. If there is any additional cost of servicing certain customers during their credit application process, it simply could not cost the dealer or FMCC $5,000, $10,000 or $15,000 extra to do so.

IV. Preferential ("Special APR") Interest Rates

In addition to being charged a higher markup on average, African-American customers of FMCC are less likely than White customers to be

offered preferential interest rates below their credit-based "buy rate." In the earlier sections of this report, I constrained the subjective markup to be zero. However, in cases where the interest rate was below the buy rate, customers receive preferential interest rates and essentially receive a "negative" markup.

Table 6 estimates the number and percent of FMCC contracts that were subject to these "Special APRs," when offered to customers below the buy rate versus standard APRs that are not discounted below market. These "Special APRs" are generally not subject to markup. While the majority of contracts in 2000 (88.2%) were standard APR, this figure has declined to 42.7% in 2001, and increased to 56.2% in 2002, and 63.5% in 2003.

As shown in Figure 11, African-Americans are substantially less likely to receive Special APR contracts. Overall, 21.8% of African-Americans received Special APRs, compared to 37.1% of White customers.

Table 6
Estimated "Special APRs" by Year
(All Black and White Race-coded FMCC Contracts)

Category	2000	2001	2002	2003
Standard APRs				
Number	106,522	85,952	92,894	174,874
Percent	88.2	42.7	56.2	63.5
Special APRs				
Number	14,211	115,167	72,406	100,619
Percent	11.8	57.3	43.8	36.5
Total Contracts				
Number	120,733	201,119	165,300	275,493
Percent	100	100	100	100

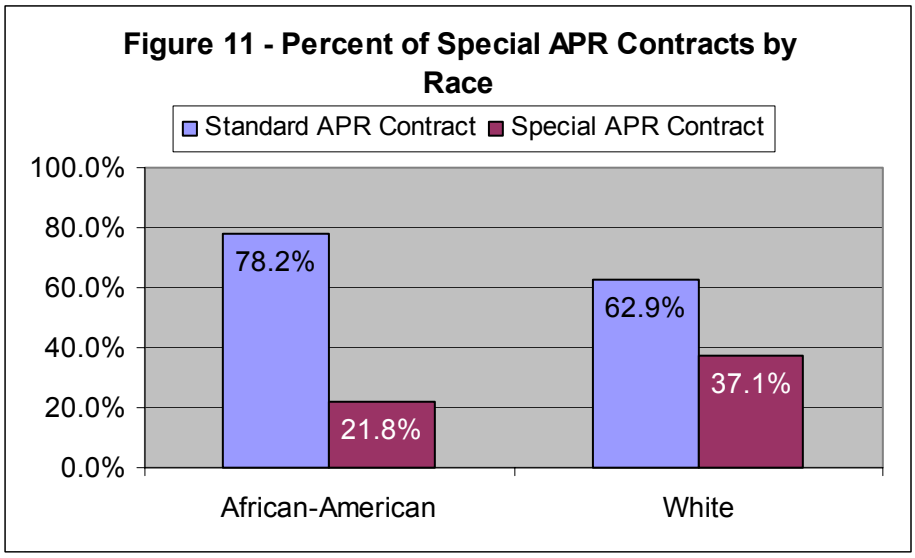


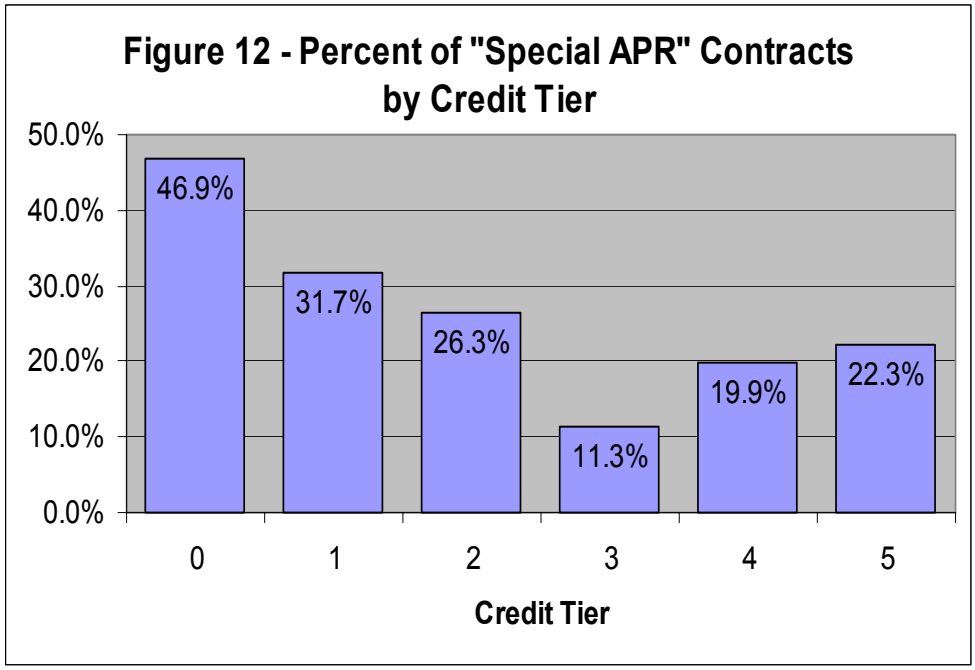
Table 7 shows a similar pattern, with African-Americans significantly less likely to receive Special APR contracts than Whites. While African-Americans make up 11.6% of the FMCC customer base, they represent 14.0% of those who receive standard APR contracts but only 7.2% of those who receive Special APR contracts. The difference between these percentages and the 11.6% African-Americans in the FMCC population are all highly statistically significant at $p < .01$.

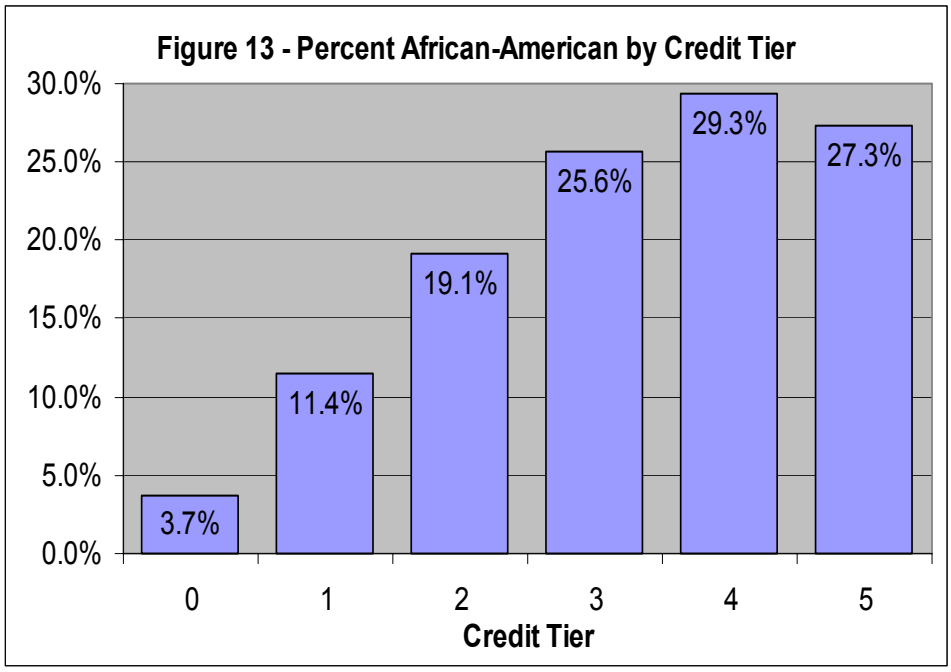
Table 7
Racial Breakdown of FMCC Contracts (Standard versus Special APR)

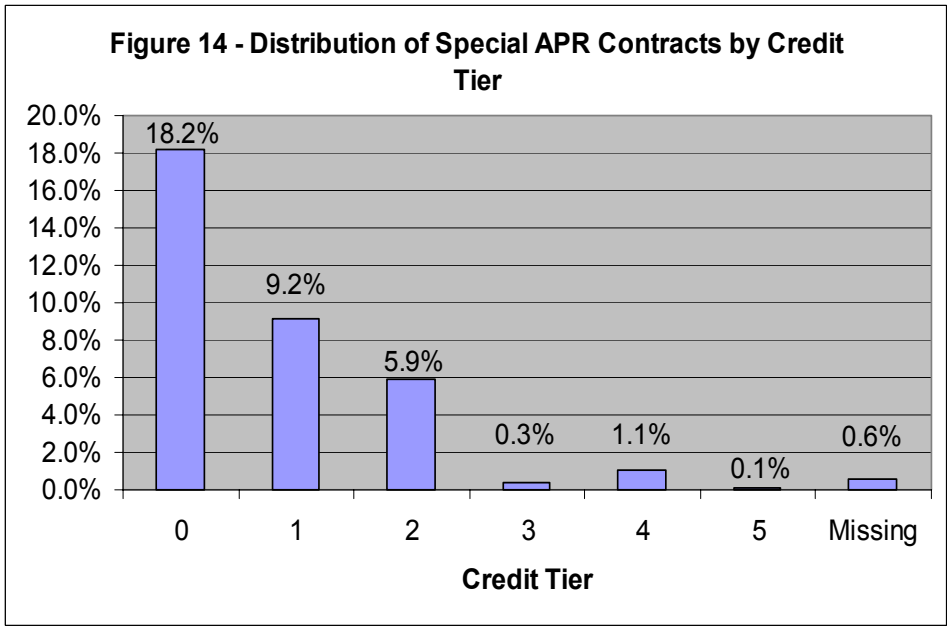
Category	Percent Black	Percent White
Standard APRs	14.0%	86.0%
Special APRs	7.2%	92.8%

Special APR contracts have been made available in all credit tiers. As shown in Figure 12, 46.9% of all contracts in credit tier 0 were booked under Special APR programs. This percentage decreases for credit tiers 1 (31.7%), 2

(26.3%), and 3 (11.3%), but increases slightly for credit tiers 4 (19.9%) and 5 (22.3%). As shown in Figure 13, the percentage of African-Americans increases with each credit tier. Thus, while the largest percentage of Special APRs are in credit tier 0 (46.9% as shown in Figure 12), this tier has the lowest percentage of African-Americans, 3.7%. Credit tier 4 has the largest percentage of African-Americans (29.3%) and the second smallest percentage of Special APRs (19.9%). Figure 14 reports on the percentage of all contracts that are Special APRs. Thus, while 18.2% of all contracts are Special APRs in credit tier 0, only 1.1% of all contracts are Special APRs in credit tier 4.



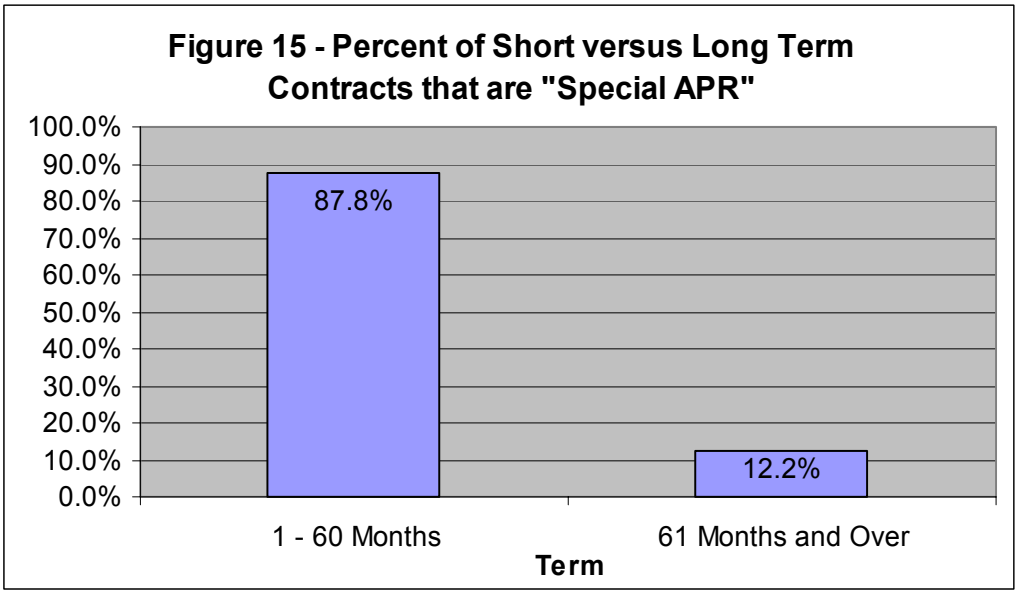




Figures 15-17 compare Special APR programs by length of contract term. I have labeled contracts that are financed for 60 months or less as "short-term," while those that are more than 60 months are labeled "long-term." As

shown in Figure 15, 87.8% of all Special APR contracts are short-term, while only 12.2% are long-term contracts. Figure 16 indicates that African-Americans make up a smaller percentage of those who finance long-term (10.4%) than those who finance short-term (11.8%). As shown in Figure 17, approximately 34.7% of contracts are short-term "special APR" contracts, while 40.5% are long-term "special APR" contracts.

Figures 18-20 compare Special APR programs by new versus used cars. As shown in Figure 18, 53.9% of all new car FMCC loans are booked under Special APR programs, compared to only 0.1% of used car loans. As shown in Figure 19, African-Americans represent 16.8% of all used car FMCC customers, compared to only 8.9% of all FMCC new car loan customers. However, as shown in Figure 20, relatively few FMCC contracts are used car, Special APR contracts (0.002% overall). In contrast, new car, Special APR contracts represent 35.2% of all FMCC contracts.



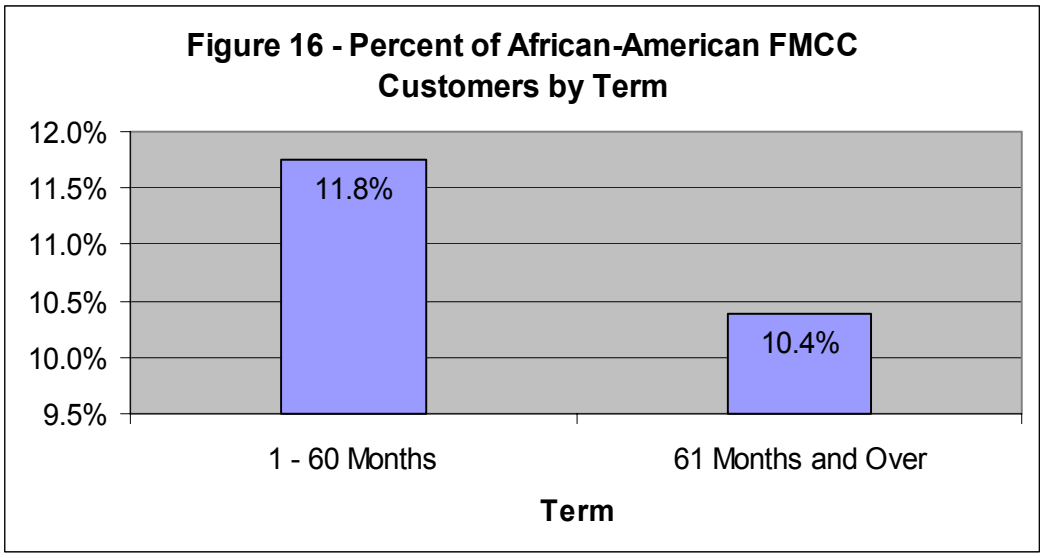


Figure 16 - Percent of African-American FMCC Customers by Term
12.0%
11.5%
11.0%
10.5%
10.0%
9.5%
11.8%
10.4%
1 - 60 Months
61 Months and Over
Term

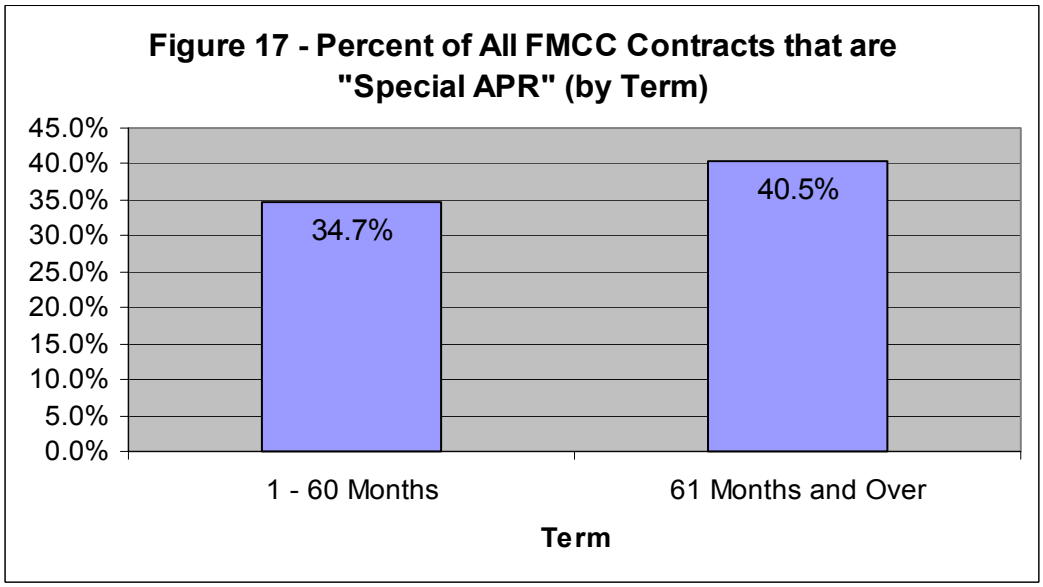


Figure 17 - Percent of All FMCC Contracts that are "Special APR" (by Term)
45.0%
40.0%
35.0%
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
34.7%
40.5%
1 - 60 Months
61 Months and Over
Term

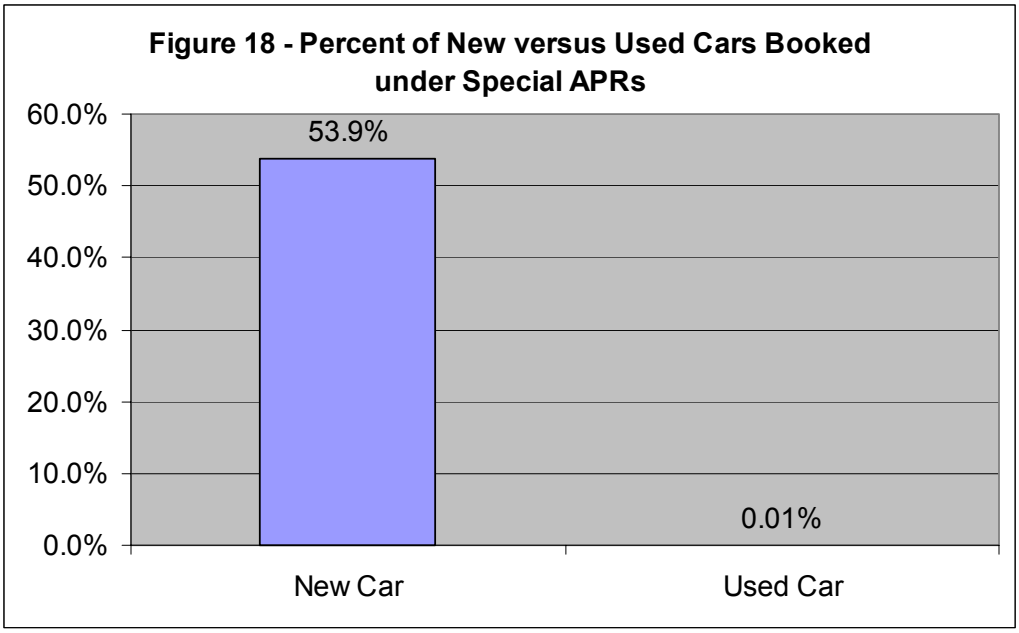


Figure 18 - Percent of New versus Used Cars Booked under Special APRs
60.0%
50.0%
40.0%
30.0%
20.0%
10.0%
0.0%
53.9%
0.01%
New Car
Used Car

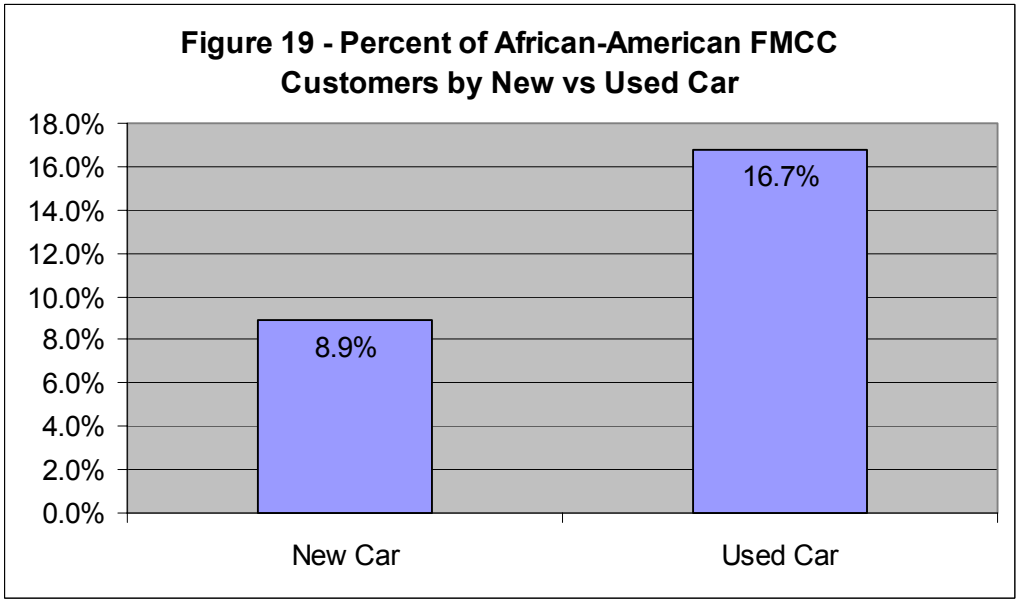


Figure 19 - Percent of African-American FMCC Customers by New vs Used Car
18.0%
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
8.9%
16.7%
New Car
Used Car

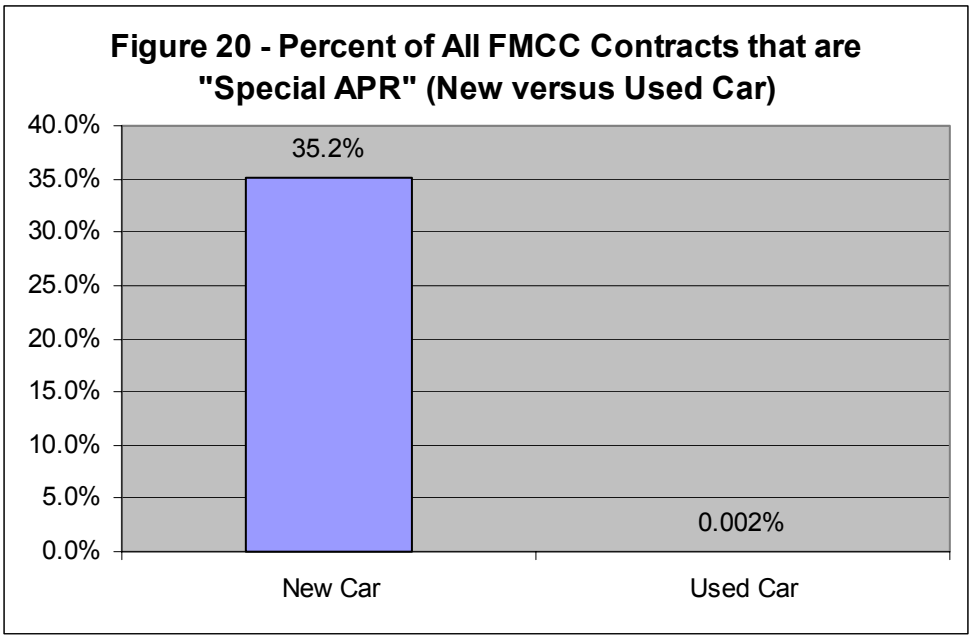


Table 8 compares the percentage of African-American versus White FMCC customers who receive standard and Special APR contracts.[18] This is shown for each credit tier. For example, in the best credit tier (0) in 2001, African-Americans represented 4.67% of all standard APR contracts compared to 2.47% of all Special APR contracts. The last column displays the difference between these two figures –2.20%, which indicates that African-Americans are under-represented in the Special APR category relative to their frequency in the 0 tier category. As shown in Table 8, in virtually every year in every credit tier, African-Americans are under-represented in the Special APR category. The only exceptions are in tiers 0 and 5 in 2003. In tier 0, African-Americans made up 3.55% of standard APR compared to 3.67% of special APR customers. In tier 5, they made up 30.34% of standard APR customers compared to 30.47% who received the special APR.

[18] Table 8 is based on the sample of 839,467 cases that eliminates inaccurate buy rate customers, discussed at note 4 above.

Table 8
Frequency of APR Type by Credit Tier and Race

Credit Tier	2000 Standard APRs		2000 Special APRs		% Black Difference
	% Black	% White	% Black	% White	
0	3.95%	96.05%	3.50%	96.50%	-0.45%
1	13.08%	86.92%	10.78%	89.22%	-2.29%
2	21.55%	78.45%	17.59%	82.41%	-3.96%
3	25.91%	74.09%	21.61%	78.39%	-4.30%
4	31.19%	68.81%	26.37%	73.63%	-4.82%
Credit Tier	2001 Standard APRs		2001 Standard APRs		% Black Difference
	% Black	% White	% Black	% White	
0	4.67%	95.33%	2.47%	97.53%	-2.20%
1	12.73%	87.27%	8.59%	91.41%	-4.14%
2	21.41%	78.59%	15.40%	84.60%	-6.01%
3	26.32%	73.68%	20.68%	79.32%	-5.64%
4	31.65%	68.35%	25.22%	74.78%	-6.44%
5	42.11%	57.89%	31.58%	68.42%	-10.53%
Credit Tier	2002 Standard APRs		2002 Special APRs		% Black Difference
	% Black	% White	% Black	% White	
0	5.31%	94.69%	2.38%	97.62%	-2.93%
1	12.54%	87.46%	7.18%	92.82%	-5.36%
2	20.82%	79.18%	12.14%	87.86%	-8.68%
3	25.50%	74.50%	24.80%	75.20%	-0.70%
4	28.55%	71.45%	23.84%	76.16%	-4.72%
5	30.23%	69.77%	27.59%	72.41%	-2.65%
Credit Tier	2003 Standard APRs		2003 Special APRs		% Black Difference
	% Black	% White	% Black	% White	
0	3.55%	96.45%	3.67%	96.33%	0.12%
1	11.76%	88.24%	8.65%	91.35%	-3.12%
2	19.04%	80.96%	13.46%	86.54%	-5.58%
3	23.80%	76.20%	17.41%	82.59%	-6.39%
4	25.39%	74.61%	21.96%	78.04%	-3.43%
5	30.34%	69.66%	30.47%	69.53%	0.14%

Table 9 displays similar data by length of contract term. In all categories of contract term, African-Americans are materially under-represented in the Special APR categories.

Table 9
Frequency of APR Type by Term and Race

Term	2000 Standard APRs		2000 Special APRs		% Black Difference
	% Black	% White	% Black	% White	
1 - 12 Months	N/A	N/A	N/A	N/A	N/A
13 - 24 Months	50.0%	50.0%	N/A	N/A	N/A
25 - 36 Months	6.3%	93.7%	N/A	N/A	N/A
37 - 48 Months	12.9%	87.1%	2.5%	97.5%	-10.4%
49 - 60 Months	14.4%	85.6%	5.4%	94.6%	-9.1%
Over 60 Months	12.7%	87.3%	10.6%	89.4%	-2.1%
Term	2001 Standard APRs		2001 Standard APRs		% Black Difference
	% Black	% White	% Black	% White	
1 - 12 Months	N/A	N/A	N/A	N/A	N/A
13 - 24 Months	18.1%	81.9%	6.7%	93.3%	-11.4%
25 - 36 Months	14.9%	85.1%	2.0%	98.0%	-12.9%
37 - 48 Months	15.4%	84.6%	3.4%	96.6%	-12.0%
49 - 60 Months	15.9%	84.1%	8.6%	91.4%	-7.4%
Over 60 Months	10.4%	89.6%	N/A	N/A	N/A
Term	2002 Standard APRs		2002 Special APRs		% Black Difference
	% Black	% White	% Black	% White	
1 - 12 Months	15.7%	84.3%	0.0%	100.0%	-15.7%
13 - 24 Months	18.0%	82.0%	1.5%	98.5%	-16.5%
25 - 36 Months	13.9%	86.1%	2.6%	97.4%	-11.4%
37 - 48 Months	15.6%	84.4%	3.8%	96.2%	-11.8%
49 - 60 Months	15.4%	84.6%	7.1%	92.9%	-8.3%
Over 60 Months	11.4%	88.6%	7.0%	93.0%	-4.4%
Term	2003 Standard APRs		2003 Special APRs		% Black Difference
	% Black	% White	% Black	% White	
1 - 12 Months	4.2%	95.8%	0.0%	100.0%	-4.2%
13 - 24 Months	8.7%	91.3%	4.6%	95.4%	-4.0%
25 - 36 Months	9.0%	91.0%	2.4%	97.6%	-6.6%
37 - 48 Months	12.2%	87.8%	4.3%	95.7%	-7.9%
49 - 60 Months	11.5%	88.5%	8.4%	91.6%	-3.1%
Over 60 Months	11.1%	88.9%	8.8%	91.2%	-2.3%

In Section II of this report, where I empirically found that the subjective markup policy of FMCC creates a disparate impact against African-American customers, I ignored the possibility of a "negative" markup. Thus, I established the disparate impact solely on the basis of the subjective markup itself. Yet, FMCC policy allows dealers to offer these special interest rates - which significantly reduces the commissions they receive. Thus, dealers have an incentive not to offer these special interest rates unless required to do so in order to make a sale. Based on the data and tables shown in this section, I conclude that in addition to the fact that African-Americans pay a larger subjective markup over the stated buy-rate, FMCC's credit pricing policy also has a disparate impact on African-Americans who are under-represented in Special APR programs.

V. Additional Statistical Analysis

This section contains additional statistical analyses that provide further information regarding the impact of the subjective markup found in the FMCC data.

A. Credit Tier, Term Length and New/Used Vehicles

Table 10 reports on the percentage of African-Americans and Whites in each credit tier, financing new versus used cars, and by length of term. While the largest percentage of African-Americans are in tiers 2 (36.9%) and 1 (28.5%), the largest percentage of Whites are in Tiers 0 (42.3%) and 1 (29.0%). African-Americans are more likely to finance a used car (49.7% used cars) than

White customers (32.4% used cars). African-Americans are less likely to finance their autos for relatively short terms of 25-36 months (4.5% of African-American customers versus 9.4% of White customers), more likely to finance for 49-60 months (75.6% versus 69.2%), and slightly less likely to finance 61+ months (9.6% of African-Americans compared to 10.8% of Whites).

Table 10
Percent of FMCC Borrowers by Credit Tier, New/Used and Term by Race

Credit Tier	Blacks	Whites
0	12.2%	42.3%
1	28.5%	29.0%
2	36.9%	20.5%
3	6.6%	2.5%
4	13.9%	4.4%
5	0.7%	0.2%
New / Used *		
New Car	50.0%	67.4%
Used Car	49.7%	32.4%
Finance Term		
1 - 12 Months	0.1%	0.1%
13 - 24 Months	0.8%	0.8%
25 - 36 Months	4.5%	9.4%
37 - 48 Months	9.5%	9.6%
49 - 60 Months	75.6%	69.2%
Over 60 Months	9.6%	10.8%

* Note: A small number of "demonstrator" cars are excluded from this new/used distinction; thus the numbers do not add up to 100%.

B. Average Markups by Race – Including versus Excluding Special APRs

Table 11 compares the average markup paid by African-American versus White customers when Special APR programs are included versus

excluded from the analysis. As shown, the average markup for African-Americans is $347 higher than Whites when all contracts are compared. If we exclude Special APRs, this difference becomes $339.

Table 11
Comparison of Average Markup by Race
Including Special APR Programs – Excluding Special APR Programs

Special APR Programs	Blacks		Whites		Difference
	Number	Average	Number	Average	
Included	99,347	$684	756,642	$337	$347
Excluded	77,731	$875	475,855	$536	$339

C. Markups by Race by Credit Tier

Table 12 compares the average markup by White versus African-American FMCC customers within each tier category.[19] While the differential between African-American and White markup is persistent across credit tiers, the highest average markups are generally in Tiers 1 and 2. The highest disparity between African-American and White customers is highest in tier 1 ($330) and lowest in tier 4 ($113).

Note that in 2001, African-Americans in credit tier 5, the least creditworthiness tier, have lower subjective markup than White customers in credit tier 5. However, as shown in Table 13, there were only 38 race-coded customers in tier 5 that year, 14 of whom were African-American. The difference in markup, $38, is not statistically significant. There are no tier 5 cases prior to 2001.

[19] Table 12 is based on the sample of 839,467 cases that eliminates inaccurate buy rate customers, described at note 4, above.

Table 12
Average Markup by Race, Year and Credit Tier

Year	Credit Tier = 0			Credit Tier = 1			Credit Tier = 2		
	Black	White	Diff.	Black	White	Diff.	Black	White	Diff.
1998	$625	$233	$392	$1,100	$532	$568	$1,193	$676	$517
1999	$391	$131	$260	$826	$466	$360	$991	$622	$369
2000	$293	$90	$203	$786	$419	$368	$880	$574	$306
2001	$238	$66	$172	$771	$394	$377	$882	$561	$321
2002	$326	$105	$221	$858	$479	$379	$939	$592	$347
2003	$381	$273	$108	$598	$414	$185	$669	$473	$196
Overall	$339	$150	$189	$763	$432	$330	$867	$553	$314

(Table 12 Cont.)

Year	Credit Tier = 3			Credit Tier = 4			Credit Tier = 5		
	Black	White	Diff.	Black	White	Diff.	Black	White	Diff.
1998	$987	$671	$316	$469	$249	$220	**N/A**	**N/A**	**N/A**
1999	$828	$615	$213	$366	$260	$106	N/A	N/A	N/A
2000	$667	$533	$134	$317	$222	$94	N/A	N/A	N/A
2001	$721	$542	$179	$361	$255	$106	$152	$190	-$38
2002	$768	$597	$171	$352	$272	$80	$112	$69	$43
2003	$529	$367	$162	$259	$181	$79	$175	$95	$81
Overall	$736	$539	$197	$351	$239	$113	$147	$85	$62

Table 13 compares the number of contracts written to African-American versus White customers by year in each credit tier.[20] Overall, African-Americans made up only 3.65% of tier 0 customers and 11.45% of tier 1 customers. However, they made up 29.47% of tier 4 customers and 30.11% of tier 5 customers.

[20] Table 13 is based on the sample of 839,467 cases that eliminates inaccurate buy rate customers, described at note 4, above.

Table 13
Number of FMCC Contracts by Race, Year and Credit Tier

Year	Credit Tier = 0			Credit Tier = 1			Credit Tier = 2		
	Black	White	Diff.	Black	White	Diff.	Black	White	Diff.
1998	425	4,831	8.09%	1,285	6,152	17.28%	1,787	5,417	24.81%
1999	1,207	19,556	5.81%	2,858	17,003	14.39%	3,660	12,543	22.59%
2000	1,808	44,784	3.88%	4,133	28,005	12.86%	5,530	20,506	21.24%
2001	2,704	87,761	2.99%	5,654	46,265	10.89%	7,603	32,131	19.13%
2002	1,976	56,214	3.40%	5,289	44,551	10.61%	7,342	33,269	18.08%
2003	3,838	102,922	3.59%	8,432	72,393	10.43%	9,807	47,721	17.05%
Overall	11,975	316,145	3.65%	27,763	214,659	11.45%	35,970	152,092	19.13%

(Table 13 Cont.)

Year	Credit Tier = 3			Credit Tier = 4			Credit Tier = 5		
	Black	White	Diff.	Black	White	Diff.	Black	White	Diff.
1998	454	1,089	29.42%	1,009	1,899	34.70%	N/A	N/A	N/A
1999	861	2,156	28.54%	2,007	3,657	35.43%	N/A	N/A	N/A
2000	1,249	3,623	25.64%	2,907	6,561	30.70%	N/A	N/A	N/A
2001	1,496	4,527	24.84%	2,830	6,994	28.81%	14	24	36.84%
2002	1,187	3,478	25.44%	1,722	4,518	27.60%	246	588	29.50%
2003	1,039	3,495	22.92%	2,459	7,602	24.44%	292	669	30.39%
Overall	6,412	18,568	25.67%	13,279	31,773	29.47%	552	1,281	30.11%

E. Markups by Median, 10th and 90th Percentiles

Table 14A computes the median markups. The median is the middle of a distribution. Thus, in the entire file of 855,989 race-coded customers, the median markup was zero. If we exclude all of the zero markups, the median is $899.73 This means that 50% of the markups were greater than $899.73, while 50% were less than this amount. Including zero markups, the median markup for both African-Americans and Whites was zero. This is consistent with the fact that in both cases, under 50% of customers were marked up (see Table 1 where it is shown that 48.5% of African-Americans were marked up, compared

to 30.9% of Whites). Similar results are shown in Table 14B, which excludes Special APR contracts. Excluding special APR contracts, the median markup for African-Americans when including zero markups is $521.72, compared to zero for Whites.

Table 14A
Median Markups

Sample of Cases	Number of Cases	Zero Markups	Median Markup
Blacks & Whites Combined	855,989	Included	$0.00
Blacks & Whites Combined	282,252	Excluded	$899.73
Blacks	99,347	Included	$0.00
Whites	756,642	Included	$0.00
Blacks	48,164	Excluded	$1,147.01
Whites	234,088	Excluded	$856.06

Table 14B
Median Markups – Special APRs Excluded

Sample of Cases	Number of Cases	Zero Markups	Median Markup
Blacks & Whites Combined	553,586	Included	$79.42
Blacks & Whites Combined	281,730	Excluded	$901.12
Blacks	77,731	Included	$521.72
Whites	475,855	Included	$0.00
Blacks	48,133	Excluded	$1,147.80
Whites	233,597	Excluded	$857.51

Table 15A reports median markups by credit tier, for African-American and White customers combined. Median markups are greatest in tiers 0 ($1,688.97), 2 ($1,094.65) and 3 ($1,046.39). Median markups are lowest in

tiers 0 ($614.06) and 4 ($748.78). Similar results are shown in Table 15B, which excludes Special APR contracts.

Table 16A breaks these data down further by African-American versus White FMCC customers. When excluding zero markups, the African-American medians are always higher than White medians in the same credit tier, except for tier 5 customers. Thus, for example, while the median markup for African-Americans in tier 0 is $792.98, it is $606.62 for Whites in tier 0. Similar results are shown in Table 16B, which excludes Special APR contracts. The exception, tier 5, has only a small number of FMCC customers. The median markup for the 235 African-American customers in tier 5 was $1,229.48, while the 738 White customers in tier 5 were charged $1,808.65.

Table 15A
Median Markups by Credit Tier

Sample of Cases	Number of Cases	Zero Markups	Median Markup
Credit Tier = 0	332,228	Included	$0.00
Credit Tier = 0	66,562	Excluded	$614.06
Credit Tier = 1	247,365	Included	$0.00
Credit Tier = 1	97,347	Excluded	$956.95
Credit Tier = 2	191,773	Included	$0.00
Credit Tier = 2	87,582	Excluded	$1,094.65
Credit Tier = 3	25,617	Included	$0.00
Credit Tier = 3	12,569	Excluded	$1,046.39
Credit Tier = 4	47,090	Included	$0.00
Credit Tier = 4	14,856	Excluded	$748.78
Credit Tier = 5	2,642	Included	$0.00
Credit Tier = 5	973	Excluded	$1,688.97

Table 15B
Median Markups by Credit Tier – Special APRs Excluded

Sample of Cases	Number of Cases	Zero Markups	Median Markup
Credit Tier = 0	176,437	Included	$0.00
Credit Tier = 0	66,156	Excluded	$617.52
Credit Tier = 1	168,862	Included	$356.91
Credit Tier = 1	97,251	Excluded	$957.72
Credit Tier = 2	141,287	Included	$535.55
Credit Tier = 2	87,572	Excluded	$1,094.73
Credit Tier = 3	22,715	Included	$296.96
Credit Tier = 3	12,562	Excluded	$1,046.40
Credit Tier = 4	37,735	Included	$0.00
Credit Tier = 4	14,855	Excluded	$748.79
Credit Tier = 5	2,053	Included	$0.00
Credit Tier = 5	973	Excluded	$1,688.97

Table 16A
Median Markups by Credit Tier and Race

Tier / Zero Markups	Black Number	White Number	Black Median	White Median
Zero Markups Included				
Credit Tier = 0	12,154	320,074	$0.00	$0.00
Credit Tier = 1	28,270	219,095	$191.24	$0.00
Credit Tier = 2	36,664	155,109	$427.37	$0.00
Credit Tier = 3	6,564	19,053	$298.50	$0.00
Credit Tier = 4	13,801	33,289	$0.00	$0.00
Credit Tier = 5	721	1,921	$0.00	$0.00
Zero Markups Excluded				
Credit Tier = 0	3,938	62,624	$792.98	$605.62
Credit Tier = 1	14,664	82,683	$1,188.38	$921.63
Credit Tier = 2	20,467	67,115	$1,272.15	$1,046.47
Credit Tier = 3	3,593	8,976	$1,170.95	$999.58
Credit Tier = 4	4,988	9,868	$816.20	$715.61
Credit Tier = 5	235	738	$1,229.48	$1,808.65

Table 16B
Median Markups by Credit Tier and Race – Special APRs Excluded

Tier / Zero Markups	Black Number	White Number	Black Median	White Median
Zero Markups Included				
Credit Tier = 0	7,770	168,667	$46.87	$0.00
Credit Tier = 1	21,694	147,168	$687.73	$309.34
Credit Tier = 2	29,662	111,625	$803.79	$472.28
Credit Tier = 3	5,966	16,749	$484.04	$226.13
Credit Tier = 4	11,540	26,195	$0.00	$0.00
Credit Tier = 5	548	1,505	$0.00	$0.00
Zero Markups Excluded				
Credit Tier = 0	3,924	62,232	$797.40	$608.96
Credit Tier = 1	14,651	82,600	$1,188.93	$922.31
Credit Tier = 2	20,467	67,105	$1,272.15	$1,046.57
Credit Tier = 3	3,590	8,972	$1,171.10	$999.58
Credit Tier = 4	4,988	9,867	$816.20	$715.64
Credit Tier = 5	235	738	$1,229.48	$1,808.65

Table 17A reports on the 10th and 90th percentile of markups. For example, when zeros are included, the 90th percentile is $1,338.21, which means that 90 percent of FMCC customers pay less than this amount in subjective markup. These figures are also broken down by tier. Similar results are shown in Table 17B, which excludes Special APR contracts.

Table 17A
10th and 90th Percentile Markups

Credit Tiers	10th Percentile		90th Percentile	
	Zeros Included	Zeros Excluded	Zeros Included	Zeros Excluded
All Tiers	****$0.00	$261.67	$1,338.21	$2,292.16
0	*****$0.00	$178.30	$615.46	$1,579.55
1	****$0.00	$300.99	$1,540.70	$2,348.56
2	****$0.00	$360.39	$1,860.21	$2,604.77
3	****$0.00	$305.47	$1,795.98	$2,381.00
4	****$0.00	$154.19	$1,131.19	$2,168.35
5	****$0.00	$134.01	$2,591.11	$3,640.94

**** = The values for the 10th through the 50th percentiles = 0
***** = The values for the 10th through the 75th percentiles = 0

Table 17B
10th and 90th Percentile Markups – Special APRs Excluded

Credit Tiers	10th Percentile		90th Percentile	
	Zeros Included	Zeros Excluded	Zeros Included	Zeros Excluded
All Tiers	$0.00	$263.14	$1,697.33	$2,293.57
0	$0.00	$180.97	$1,010.84	$1,582.27
1	$0.00	$301.73	$1,861.58	$2,349.41
2	$0.00	$360.48	$2,149.98	$2,604.95
3	$0.00	$305.67	$1,899.08	$2,381.11
4	$0.00	$154.18	$1,319.88	$2,168.52
5	$0.00	$134.01	$2,804.83	$3,640.94

Table 18A reports on the frequency distribution and percentage of contracts by the percentage points of subjective markup. For example, 67.0% of all contracts have zero markup. African-Americans represent 8.9% of those with zero markups, compared to their 11.6% representation overall. Thus, African-Americans are under-represented by 2.7% points in the zero markup category. Put differently, the ratio of "observed" to "expected" is 0.77, indicating that we only observe 77% as many "zero markup" contracts among African-Americans as we would expect in the full population of FMCC customers. While they represent 11.6% of FMCC customers, they are 28.5% of the customers who receive a markup of between 4% and 5%. Thus, they are 2.46 times as likely to be in the "4% to 5%" category as expected. Similar results are shown in Table 18B, where Special APR contracts are excluded.

Table 18A
Frequency Distribution of Point Markup Range – Including Special APRs

Point Markup Range	% of Total Contracts	Black Number	Black Percent	Black % Over/Under 11.6%	Black Ratio of Observed to Expected % in Each Category
0%	67.0%	51,183	8.9%	-2.7%	0.77
0 > and <= 1%	7.8%	7,612	11.5%	-0.1%	0.99
1 > and <= 2%	9.1%	10,313	13.3%	1.7%	1.14
2 > and <= 3%	9.2%	14,964	18.9%	7.3%	1.63
3 > and <= 4%	2.1%	4,125	22.8%	11.2%	1.96
4 > and <= 5%	1.7%	4,041	28.5%	16.9%	2.46
5 > and <= 6%	0.9%	1,965	25.8%	14.2%	2.22
6 > and <= 7%	0.6%	1,383	26.6%	15.0%	2.29
7 > and <= 8%	0.4%	1,077	28.0%	16.4%	2.41
8 > and <= 9%	0.3%	724	28.4%	16.7%	2.44
9 > and <= 10%	0.2%	560	28.6%	17.0%	2.46
0 > 10%	0.7%	1,400	24.8%	13.3%	2.14
Total		99,347	11.6%		

Table 18B
Frequency Distribution of Point Markup Range – Excluding Special APRs

Point Markup Range	% of Total Contracts	Black Number	Black Percent	Black % Over/Under 11.6%	Black Ratio of Observed to Expected % in Each Category
0%	49.1%	29,598	10.9%	-0.7%	0.94
0 > and <= 1%	11.9%	7,585	11.5%	-0.1%	0.99
1 > and <= 2%	14.0%	10,309	13.3%	1.7%	1.14
2 > and <= 3%	14.3%	14,964	18.9%	7.3%	1.63
3 > and <= 4%	3.3%	4,125	22.8%	11.2%	1.96
4 > and <= 5%	2.6%	4,041	28.5%	16.9%	2.46
5 > and <= 6%	1.4%	1,965	25.8%	14.2%	2.22
6 > and <= 7%	0.9%	1,383	26.6%	15.0%	2.29
7 > and <= 8%	0.7%	1,077	28.0%	16.4%	2.41
8 > and <= 9%	0.5%	724	28.4%	16.7%	2.44
9 > and <= 10%	0.4%	560	28.6%	17.0%	2.46
0 > 10%	1.0%	1,400	24.9%	13.3%	2.14
Total		77,731	14.04%		

Table 19 reports on the distribution of Special APRs by Tier by race for each year in the sample. Table 20 displays this information by term of loan.

Table 19
Special APRs by Credit Tier and Race

All FMCC Customers	2000	2001	2002	2003
Credit Tier = 0	53.82%	60.08%	52.52%	40.67%
Credit Tier = 1	21.27%	20.03%	24.73%	34.29%
Credit Tier = 2	14.48%	13.07%	17.71%	20.42%
Credit Tier = 3	2.18%	1.38%	0.52%	0.62%
Credit Tier = 4	6.70%	3.77%	1.75%	2.77%
Credit Tier = 5	0.00%	0.02%	0.32%	0.34%
Credit Tier = Missing	1.55%	1.65%	2.44%	0.88%
Total	100.00%	100.00%	100.00%	100.00%
Black FMCC Customers	2000	2001	2002	2003
Credit Tier = 0	20.63%	22.28%	20.39%	18.30%
Credit Tier = 1	25.10%	25.81%	28.95%	36.38%
Credit Tier = 2	27.87%	30.21%	35.08%	33.69%
Credit Tier = 3	5.16%	4.27%	2.12%	1.33%
Credit Tier = 4	19.32%	14.28%	6.80%	7.46%
Credit Tier = 5	0.00%	0.08%	1.44%	1.26%
Credit Tier = Missing	1.92%	3.07%	5.21%	1.58%
Total	100.00%	100.00%	100.00%	100.00%
White FMCC Customers	2000	2001	2002	2003
Credit Tier = 0	57.16%	62.78%	54.62%	42.66%
Credit Tier = 1	20.89%	19.62%	24.46%	34.11%
Credit Tier = 2	13.14%	11.85%	16.58%	19.24%
Credit Tier = 3	1.88%	1.17%	0.42%	0.56%
Credit Tier = 4	5.43%	3.02%	1.42%	2.36%
Credit Tier = 5	0.00%	0.01%	0.25%	0.25%
Credit Tier = Missing	1.51%	1.55%	2.26%	0.82%
Total	100.00%	100.00%	100.00%	100.00%

Table 20
Special APRs by Term and Race

All FMCC Customers	2000	2001	2002	2003
1 - 12 Months	0.00%	0.00%	0.00%	0.01%
13 - 24 Months	0.00%	0.05%	0.09%	0.06%
25 - 36 Months	14.97%	21.20%	16.93%	4.05%
37 - 48 Months	5.26%	9.79%	6.28%	2.94%
49 - 60 Months	79.76%	68.95%	68.41%	62.10%
Over 60 Months	0.00%	0.00%	8.29%	30.84%
Total	100.00%	100.00%	100.00%	100.00%
Black FMCC Customers	2000	2001	2002	2003
1 - 12 Months	0.00%	0.00%	0.00%	0.00%
13 - 24 Months	0.00%	0.05%	0.02%	0.04%
25 - 36 Months	4.08%	6.33%	7.12%	1.21%
37 - 48 Months	3.08%	4.99%	3.88%	1.55%
49 - 60 Months	92.84%	88.63%	79.50%	63.90%
Over 60 Months	0.00%	0.00%	9.49%	33.30%
Total	100.00%	100.00%	100.00%	100.00%
White FMCC Customers	2000	2001	2002	2003
1 - 12 Months	0.00%	0.00%	0.00%	0.01%
13 - 24 Months	0.00%	0.05%	0.10%	0.07%
25 - 36 Months	16.07%	22.26%	17.57%	4.30%
37 - 48 Months	5.48%	10.14%	6.43%	3.07%
49 - 60 Months	78.45%	67.55%	67.68%	61.94%
Over 60 Months	0.00%	0.00%	8.21%	30.62%
Total	100.00%	100.00%	100.00%	100.00%

F. Markup by Vehicle Make and Race of Borrower

Table 21 reports on average subjective finance charge markups by vehicle make for both African-American and White FMCC customers. Regardless of the vehicle make, African-Americans have a higher probability of being marked up, as evidenced by the fact that the "relative odds" of being marked up are always higher than 100%. Thus, for example, African-Americans who finance Mercury vehicles are 275 times as likely to be marked up as Whites. Whites who finance Mercury vehicles are only 36% likely to be marked up as African-Americans. The average subjective markup is $224 higher for African-Americans who finance Buicks than Whites. Excluding zero markups, African-Americans who do receive a markup pay $387 more than Whites who pay a subjective markup, and these differences are always statistically significant at $p < .01$. The largest markup difference is for purchasers of Lincoln vehicles, where African-Americans pay on average $475 more in subjective markup than Whites, while the smallest markup difference is for Kia vehicles, where African-Americans on average pay $194 more.

Table 21
Markup by Vehicle Make and Race

Vehicle Make	Number of Cases		Blacks		Whites		Zero Markups Included			Zero Markups Excluded		
	Blacks	Whites	% With Markup	**Relative Odds**	% With Markup	Relative Odds	Black Markup	White Markup	**Diff.**	Black Markup	White Markup	**Diff.**
Buick	434	1,442	76.73%	**146%**	69.28%	68%	$841	$617	**$224**	$1,096	$891	**$205**
Cadillac	499	603	75.55%	**137%**	69.32%	73%	$1,103	$803	**$300**	$1,460	$1,158	**$302**
Chevrolet	2,949	15,448	79.01%	**152%**	71.26%	66%	$1,018	$745	**$272**	$1,288	$1,046	**$242**
Dodge	1,978	12,577	81.29%	**177%**	71.05%	56%	$1,098	$809	**$289**	$1,351	$1,139	**$212**
Ford	67,719	601,442	40.61%	**188%**	26.64%	53%	$577	$293	**$284**	$1,420	$1,098	**$322**
GMC	502	2,821	77.49%	**160%**	68.27%	63%	$1,108	$773	**$335**	$1,430	$1,132	**$298**
Honda	1,237	3,537	75.42%	**157%**	66.16%	64%	$1,012	$721	**$291**	$1,342	$1,090	**$252**
Hyundai	577	1,941	78.51%	**195%**	65.17%	51%	$965	$655	**$310**	$1,229	$1,005	**$224**
Isuzu	431	1,597	78.19%	**169%**	68.00%	59%	$1,239	$869	**$370**	$1,585	$1,278	**$306**
Jeep	473	4,048	78.65%	**178%**	67.39%	56%	$1,100	$717	**$383**	$1,399	$1,064	**$334**
Kia	550	1,960	81.27%	**137%**	75.97%	73%	$959	$765	**$194**	$1,180	$1,007	**$173**
Lincoln	6,157	27,591	42.65%	**255%**	22.55%	39%	$734	$259	**$475**	$1,721	$1,149	**$572**
Mazda	967	2,832	74.25%	**149%**	66.00%	67%	$1,023	$681	**$342**	$1,378	$1,032	**$346**
Mercury	7,341	50,636	51.51%	**275%**	27.86%	36%	$670	$255	**$415**	$1,301	$914	**$387**
Mitsubishi	757	1,893	77.01%	**141%**	70.42%	71%	$1,059	$794	**$265**	$1,375	$1,128	**$247**
Nissan	1,474	4,879	79.51%	**182%**	68.11%	55%	$1,159	$769	**$390**	$1,458	$1,129	**$329**
Oldsmobile	577	1,729	78.16%	**156%**	69.64%	64%	$1,019	$638	**$381**	$1,304	$916	**$388**
Plymouth	353	1,545	84.42%	**198%**	73.20%	50%	$1,152	$690	**$462**	$1,364	$942	**$422**
Pontiac	953	4,540	82.90%	**193%**	71.48%	52%	$1,047	$695	**$352**	$1,263	$972	**$291**
Saturn	283	1,436	80.21%	**151%**	72.91%	66%	$857	$606	**$251**	$1,069	$832	**$237**
Toyota	1,590	5,553	78.49%	**195%**	65.15%	51%	$1,131	$740	**$391**	$1,441	$1,137	**$305**

* All of the differences between Black and White markups are significant at $p < 0.01$

VII. Conclusion

I have conducted an extensive empirical analysis of 855,989 FMCC customer records that have been race-coded by CLC Compliance Technologies, Inc. These data provide strong empirical evidence of a disparate impact on African-American borrowers in 13 states. This effect is persistent over the entire time period from1994 through 2003, across geographic boundaries, controlling for factors such as term of loan, type of vehicle, credit worthiness of borrower, etc. African-American FMCC borrowers on average paid about $682 in markups - about $352 more than White borrowers on average. African-Americans were both more likely to be marked up (49.0% versus 31.1%) and to pay a higher markup if they are marked up ($1,392 versus $1,062). While African-Americans make up 11.6% of the race-coded data, they pay 21.0% of the total dollar amount of subjective markup. While the average markups are a few hundred dollars, a small but significant percentage of FMCC customers pay $5,000, $10,000 or even more in subjective markup. African-Americans are highly over-represented among those who pay the top markup dollars.

The findings that African-Americans FMCC customers pay a significantly higher subjective markup than White customers is consistent with my understanding of the automobile financing market and my previous analyses 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 FMCC's credit pricing policy and a disparate impact on African-American customers.

VIII. Qualifications

I received my Ph.D. in Economics from Carnegie-Mellon University in 1985. I currently hold the Justin Potter Chair in American Competitive Business and serve as Senior Associate Dean at the Owen Graduate School of Management, Vanderbilt University. I also hold the position of Honorary Visiting Professor of Criminal Justice Economics at the University of York (UK). From 1998-2003, I served as Chairman of the American Statistical Association's Committee on Law and Justice Statistics. My research and expertise includes the areas of law and economics, crime and justice, environmental management, and statistical analysis of legal and policy issues. Prior to joining the faculty at Vanderbilt, I worked as an economist at the Federal Trade Commission analyzing consumer protection issues including matters of unfair and deceptive trade practices, consumer fraud and fair lending practices. I also worked at the U.S. Sentencing Commission analyzing judicial sentences for street crime and White collar and corporate crime.

Since 1986, I have been retained as an expert by both plaintiff and defense counsel on numerous matters including damages in personal injury and wrongful death cases; antitrust violations; contract and business disputes; age, race and sex discrimination lawsuits; consumer fraud; and other matters requiring expert testimony on economics or statistical issues. I have been qualified as an expert to testify on economics and statistics issues in the U.S. District Court for the Middle District of Tennessee as well as numerous Tennessee State Circuit courts.

My curriculum vita, which includes all of my publications, and a list of prior cases in which I have given deposition or trial testimony over the previous four years is attached as Appendix B.

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Mark A. Cohen, Ph.D.

APPENDIX A: Sources Consulted

Preliminary Report on Racial Impact of FMCC's Finance Charge Markup Policy
Mark A. Cohen
January 9, 2004

(1) "Final Report on Racial Impact of NMAC's Finance Charge Markup Policy," Mark A. Cohen, May 17, 2001. (Robert F. and Betty T. Cason et al., v. Nissan Motors Acceptance Corporation).

(2) "Supplemental Report on Racial Impact of NMAC's Finance Charge Markup Policy," Mark A. Cohen August 28, 2001. (Robert F. and Betty T. Cason et al., v. Nissan Motors Acceptance Corporation).

(3) "Impact of NMAC's Credit Pricing Policy on Hispanic Borrowers," Mark A. Cohen, October 17, 2002. (Robert F. and Betty T. Cason et al., v. Nissan Motors Acceptance Corporation).

(4) "Expert Report of Ian Ayres, Ph.D." May 25, 2001. (Robert F. and Betty T. Cason et al., v. Nissan Motors Acceptance Corporation).

(5) "Report on Racial Impact of GMAC's Finance Charge Markup Policy," Mark A. Cohen, July 19, 2000. (Addie T. Coleman, et al. v. General Motors Acceptance Corporation, et al.)

(6) "Report on Racial Impact of GMAC's Finance Charge Markup Policy," Mark A. Cohen, August 29, 2003 (Addie T. Coleman, et al. v. General Motors Acceptance Corporation)

(7) "Report of Dr. Calvin P. Bradford," July 21, 2000. (Addie T. Coleman, et al. v. General Motors Acceptance Corporation, et al.)

(8) "Declaration of Mark A. Cohen, Ph.D.," August 19, 2003 (Joyce Jones et al. v. Ford Motor Credit Company).

(9) Depositions in the matter of Joyce Jones et al. v. Ford Motor Credit Company: (1) Douglas A. Swancutt, October 3, 2002; (2) Randall J. DeBruyne, October 2, 2002; (3) Richard Pierorazio, September 15, 2003; (4) James C. Horr, August 7, 2003;

(10) Various data dictionaries provided by FMCC for the LA Receivables and Pinnacle databases.