Gender, Age, and Race in Subprime America

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Abstract: For almost twenty years, evidence from journalists' reports, Congressional testimony, and consumer protection litigation suggested that predatory practices in the subprime market were especially harmful for elderly African American women, many of them widows. Much of this evidence has been dismissed as anecdotal, however, and lending research has generally ignored feminist theory -- obscuring the relations among race/ethnicity, gender, and age. In this paper, we draw on two complementary datasets to test the hypothesis that subprime inequalities were intensified for African American women. Analysis of Home Mortgage Disclosure Act (HMDA) data confirms that gender inequalities exacerbate racial/ethnic inequalities in the segmentation of high-cost subprime credit, while the National Mortgage Data Repository provides limited circumstantial evidence of disproportionate representation of elderly African American women. Loan terms *among* subprime borrowers in the NMDR display only modest variations by gender and race/ethnicity, however, although there is some evidence of bait-and-switch tactics and persistently higher total fees among African American women. The veneer of equal treatment *within* an exploitative subprime market conceals the wider context of structural inequalities of race/ethnicity, gender, and age in housing and credit.

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The Plural of 'Anecdote'

Risky and abusive credit practices are nothing new in America (Boyer 1973; Harvey 1974; Wachter 1980). In the early 1990s, however, major newspaper coverage of a case brought by the Massachusetts Attorney General's office highlighted a new term -- "predatory" -- to denote an unusually aggressive syndrome of dangerous industry practices (Zuckoff 1992). Over the next fifteen years, several submarkets flourished in a dramatic expansion of a particular type of credit -- "subprime" or "B-and-C" lending -- with a distinctive mixture of risks and profits (Engel and McCoy 2002; Immergluck 2009; Mansfield 2000; Squires 2003.) As lucrative profit margins and up-front fee income attracted mainstream banks and Wall Street investment houses to a business once dominated by locally-notorious storefront predators, a growing body of evidence documented a troubling, generalized diffusion of various types of deceptive tactics and discriminatory targeting throughout the American mortgage market (Apgar and Fishbein 2005; Ashton 2009; Immergluck 2004, 2008; Squires 2003, 2004; White 2004; Williams et al. 2005). Until the collapse of the subprime industry in the spring and summer of 2007, however, the voluminous evidence was repeatedly dismissed as "anecdotal." Indeed, the more deplorable any individual case of deception or abuse, the more strident and insistent were the dismissals of the evidence as *only* anecdotal. Among the most egregious cases highlighted in journalists' accounts and lawsuits involved discrimination along multiple axes of social identity: the deception and financial abuse of elderly African American women, many of them widows living on fixed incomes.

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Among the most famous econometric one-liners is the sardonic observation that the plural of anecdote is not 'data.' The quip is pedagogically powerful, but terribly misleading. Etymology forces us to confront the distortions of contemporary debate on social inequality and public policy. An anecdote is defined as "a short account of an interesting or amusing incident or event, often biographical" (Cayne 1990, p. 34) but the word comes from the Middle Latin, from the Greek *anekdota*, for "things not published." The first definition of the singular of data, *datum*, is "a known fact," but this is simply Latin for "a thing done."

The vertiginous months of the global financial crisis -- and the many years leading up to that catastrophe -- offered incontrovertible evidence that when it came to key decisions by powerful individuals and institutions, the plural of "short accounts of interesting events" often was defined quite specifically in terms of *things done*. A decade ago, when a man repeatedly told the personal story of how his mother worked overtime to support three children and a disabled husband, and was fortunate enough to get a high-interest-rate mortgage from a finance company to buy a small house, it was just an anecdote. But since the man (Phil Gramm) was the Chair of the Senate Banking Committee with a doctorate in economics, repetition of the interesting story was used to do very specific things: to ridicule all reasonable efforts to define predatory lending (Engel and McCoy 2002, pp. 1259-1260), and to fight off any attempt to interfere with the freedom of lenders and brokers to engage in predatory practices (Lipton and Labaton 2008). Alan Greenspan also told very interesting stories, and so did Ben Bernanke, Timothy Geithner, and Hank Paulson. In the summer and fall of 2008, when investors were not reassured by anecdotes about bazookas or were confused by other interesting stories that seemed contradictory (Bear Stearns saved, Lehman Brothers allowed to fall) then Paulson, Bernanke, Geithner, and

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other men were forced to tell new stories and do other things once considered unthinkable (the GSE conservatorship, the AIG bailout, TARP, and dozens of other extraordinary measures). All of these *data* -- these things done -- grew out of what Bernanke knew all too well as the ultimate historical-economic anecdote: "As a scholar of the Great Depression, I honestly believe that September and October of 2008 was the worst financial crisis in global history, including the Great Depression." (quoted in FCIC 2001, p. 354).

Ontological performativity has a simple equation: anecdote + power = fact. Unfortunately, some of the most egregious cases of abuse in the subprime market have victimized individuals who do not command power or publicity. In particular, the abuses of single, elderly African American women, many of them retired widows, have been repeatedly dismissed as anecdotal. While anecdotes about or by powerful men like Phil Gramm, Hank Paulson, or Dick Fuld cannot be ignored, methodological and ideological conservatives find it all too easy to dismiss stories about or by women like Beatrice Troup, Veronica Harding, Anna Mae Dawson, or Addie Polk. In this paper, we analyze how age, race, and gender disparities reflect systemic inequalities in American housing and credit markets. Before we delve into the details of theory and method, however, we should first meet the anecdotes.

"Brokers Usually Worked out a Loan at her Kitchen Table"

In 1996, an elderly African American woman named Beatrice closed on a mortgage to finance a few renovations on her home in a predominantly Black neighborhood in Newark, New Jersey. The adjustable-rate loan carried an initial interest rate double the prevailing rate for adjustables,

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discount points almost three times the prevailing level, a balloon payment over $41,000 due after fifteen years, and a $2,325 yield-spread premium paid to the broker who brought Beatrice in as a customer; (he brought her in literally, sending a limousine to take Beatrice in with her son to the lender's office). Litigation in the wake of Beatrice's loan eventually led to a decision by the Superior Court of New Jersey affirming that predatory lending may be a violation of state and federal civil rights laws, if demonstrated by targeting of individuals on the basis of race or through disparate racial impacts (*Associates v. Troup*, 343 N.J. 254 [Appellate Division 2001). In an unrelated case the next year (*Matthews v. New Century*), a court held that plaintiffs had demonstrated gender and age discrimination "based on targeting where they had alleged that the lenders sent agents to the homes of elderly widows who had not initiated contact with the lenders or in any way sought their services." (Johnson 2008, p. 1203; 185 F. Supp. 2d 874, S.D. Ohio 2002).

In 1997, a 71-year old African American woman named Veronica Harding needed money for repairs on her rowhouse in North Philadelphia, and wound up with a $35,000 loan from a firm called American Mortgage Reduction, Inc (AMR). The loan carried an interest rate of 11.4 percent, settlement fees of $4,400, a broker's fee of $3,500, a $2,815 insurance policy financed at an interest rate of 22.5 percent, and a balloon payment of $32,000 due in 27 years. The AMR loan was only the most recent mortgage for Harding – she had taken out 14 over the previous dozen years – and she explained that "brokers usually worked out a loan at her kitchen table. … 'They make it so easy…. They tell you they are going to pay off all of your bills. And then they give you a check. But a couple of months later you are in more debt than before.'" (quoted in Davies 2001). Only a few minutes after a reporter arrived to interview Harding for a series on

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predatory lending in Philadelphia, "a bill collector called. About a half hour later, a different company called to offer Harding a loan." (Davies 2001).

In 1999, the New York Attorney General secured a settlement with Delta Funding Corporation, a notoriously aggressive subprime mortgage lender accused of targeting predominantly Black neighborhoods in East New York, Bedford-Stuyvesant, and Jamaica, Queens. Delta was also accused of engaging in loan flipping, illegal penalty interest rates, and asset-based lending (Kennedy 1999). Immediately after the settlement, Delta issued a deceptive, self-serving press release – "Delta … announces best practices lending program: company takes lead in standardizing lending practices." (Kennedy 1999; Santiago 2000). Within weeks, the Department of Justice, the Department of Housing and Urban Development, and the Federal Trade Commission filed a complaint accusing Delta of paying kickbacks to brokers, and of charging African American females significantly higher rates than otherwise similarly qualified White males (Mayer 2000). One of these African American females was Anna Mae Dawson, an elderly widow who had lived in Bedford-Stuyvesant for nearly 25 years (Zinner 2002). With a monthly income of $700 from her deceased husband's Social Security and pension survivor's benefits, Anna Mae was lured by an unlicensed broker and home improvement firm into an inflated, usurious contract that eventually involved a $99,000 mortgage with Delta. The monthly payments ($1,017.57) exceeded her total monthly income by more than $300. Delta had refinanced Dawson's existing low-interest, city-financed home repair loans into a new note with an interest rate three times as high – all without her knowledge. The broker had also submitted an employment letter from a business that did not exist, and a fake lease showing non-existent rental income, in order to underwrite the loan. Anna Mae was told that she would have no

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problem affording the loan, but "unable to make payments on the loan from its inception, Ms. Dawson went into default almost immediately." (Zinner 2002, p. 7).

In Chicago, a 70-year old widow who had lived in her home for 25 years, with a total monthly income of $1,250 from pension and Social Security benefits, sought a loan of $4,000 to repair the front steps to her home. The lender told her that the loan had to roll in several existing home improvement debts and other charges to make the transaction "worthwhile." The transaction culminated in a $93,500 loan with an $8,925 broker fee and a monthly payment of $1,035 (*Illinois Association of Mortgage Brokers v. Office of Banks and Real Estate* 2001).

In the late 1990s, an African American woman in Akron, Ohio named Addie Polk took out a series of mortgages on a home that she had purchased with her husband Robert in 1970 (Trexler 2008). Addie and Robert had paid off the mortgage for the home by 1982, but then Robert died in 1995, and Addie began to find it more difficult to keep up with expenses. In 2004, Addie received a 30-year mortgage from Countrywide for $45,620, along with an additional line of credit of $11,380; the total loan put Addie in debt for 180 percent of the home's assessed value. Addie eventually fell behind on the payments, and Countrywide began foreclosure proceedings. Fannie Mae assumed the loan from Countrywide, and then Fannie Mae acquired the home at sheriff's auction. Addie, who was by then 90 years old, began receiving a series of foreclosure notices. On October 1, 2008, two sheriff's deputies arrived to enforce an eviction order against Addie. There was no answer when the deputies pounded on the door, but then they heard loud banging noises from the second floor. A neighbor grabbed a stepladder to investigate, and discovered that Addie had shot herself with a small-caliber handgun. Addie survived. She was

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taken to Akron General Medical Center. A few days later, Representative Dennis Kucinich (D-OH) read about Addie Polk, and went to the House floor to read the entire story into the *Congressional Record* (Kucinich 2008). "This is a human face for a great national tragedy," Kucinich later told a reporter (Trexler et al. 2008). A few hours later Fannie Mae dismissed the foreclosure action, forgave the mortgage, and announced that Addie could return to her home upon recovery and release from the hospital.

These stories present a small, random sample from scores – perhaps hundreds or thousands – of similar accounts over the years (see also Engel and McCoy 2011, pp. 21-25). They illustrate the stark inequalities of the subprime lending boom and its catastrophic collapse. In some ways, these accounts fit well into the familiar narrative of American housing and credit, and the entrenched discrimination against African American borrowers and African American neighborhoods. Age and gender, however, add clarity to the image of horrifying exploitation: elderly, low-income women, often widowed, living alone, often in distressed urban neighborhoods in old homes, in desperate need of cash to pay for repairs or to pay off debt. Targeted for abusive, high-cost, high-risk predatory loans, these women's desperate situations go from bad to worse. A former manager who had worked at several large finance companies testified before the U.S. Senate Special Commission on Aging, describing the "perfect customer": "an uneducated widow who is on a fixed income – hopefully from her deceased husband's pension and Social Security – who has her house paid off, is living off credit cards, but having a difficult time keeping up with her payments, and who must make a car payment in addition to her credit-card payments." (cited in Rath 2000). The Director of the Home Defense Program for the Atlanta Legal Aid Society (Brennan 2000, p. 112) put it succinctly:

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> "These companies target groups based on age, race, and sex. I see that all the time. … My typical client is an elderly African American widow. I have file drawers filled with these cases. I believe [the brokers] do it for reasons that make sense to them. They target the elderly because they have paid down their mortgages by living in their homes a long time and they have retired, so they are cash-poor and equity-rich. They are prime targets for subprime lenders."

Is it safe to generalize from stories like these? These are the kinds of accounts that are routinely and reflexively dismissed as "anecdotal." For more than twenty years, the more shocking the stories became, the more likely they were to be challenged as not representative of any broader market problem. The de-regulated regime of risk-based pricing was applauded as a "market completion" model (Chinloy and Macdonald 2005), with advances in credit scoring, automated underwriting, and "product and institutional innovations that match higher-risk borrowers with lenders and investors" (Ashton 2009, p. 3). Risk-based pricing was celebrated as an efficient market solution to the historical problems of asymmetric information and credit rationing (Stiglitz and Weiss 1981), providing service to consumers who would otherwise have been excluded from borrowing opportunities. Stories of predatory abuses were dismissed as unusual, exceptional cases -- a few unfortunate consumers victimized by a few bad-apple lenders or brokers -- in part because such evidence did not make sense within the confines of orthodox economic theory. The collapse of the subprime market in 2007 and the cascading credit crisis of 2008 prompted a belated -- but brief -- mainstream questioning of orthodox theory (Fukuyama and Colby 2009; Skidelsky and Wigström 2010). But if a rigid commitment to efficient-market theories of equilibrium, competition, and consumer choice made it hard to explain the paradox of

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once-excluded people being abused by *too much* credit, there had been ample warning from legal research, history, sociology, geography, and other pluralist disciplines (Ashton 2009; Boyer 1973; Engel and McCoy 2002; Harvey 1974; Immergluck 2004; Mansfield 2000; White 2004; Williams et al. 2005). It became clear that the twisted incentives yielding lucrative profits from quick-default Federal Housing Administration (FHA) insurance in the early 1970s (see Wachter 1980) had been privatized and integrated into national and transnational securitization networks. The old Stiglitz-Weiss (1981) information asymmetries between cautious lenders and profligate borrowers had been transformed (Ashton 2009; Engel and McCoy 2011, pp. 27-29, 207-223). In the old model, profligate borrowers were hungry for credit that cautious lenders carefully guarded; in the new model, lenders eventually became desperate to find a sufficient number of borrowers willing to sign up for credit, so that the fees and profits enabled by the voracious demands of the mortgage-backed securities market could continue to expand.

On the matter of racial and ethnic disparities in credit markets, there is a vast body of rigorous research -- internal disagreements notwithstanding -- that acknowledges the significance of systemic inequalities in observed outcomes (Galster 1993; Ross and Yinger 2002; Schill and Wachter 1993; Turner and Skidmore 1999; Williams et al. 2005). Gender, however, has received very little attention in the research literature. Models of lending decisions sometimes include controls for borrower sex, but there is little explicit consideration of gender disparities. Age has also been ignored, in part because of severe data limitations. Research, therefore, has been distorted by a partial and disjointed view of social inequalities, while public policy has been impoverished by the small research infrastructure. Race *and* sex discrimination are prohibited under the Fair Housing Act, and the Equal Credit Opportunity Act prohibits different credit

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terms based on (i*nter alia*) race, color, national origin, sex, marital status, and age. The purpose of this paper is to analyze the relations among race/ethnicity, gender, and age in America's subprime lending boom. What, if anything, is distinctive in the lending outcomes of women -- especially African American women, and particularly *elderly* African American women? Are the stories of exploitation just isolated cases, or does the evidence suggest a representation of broader trends?

We begin with a brief review of the reasons why we should expect distinctive outcomes for older Black women. Then we describe two datasets that allow complementary methods of analysis of mortgage market outcomes by race/ethnicity, gender, and age. Next, we present the results of a series of simple tabulations and regression models. Finally, we offer a few conclusions on the generalizability of individual cases of predatory exploitation.

Theorizing Race/Ethnicity, Gender, and Age in Mortgage Markets

It has been more than two decades since the Boston Fed study catalyzed a wide-ranging and interdisciplinary debate on the persistence and severity of discrimination in mortgage credit (Munnell et al. 1992, 1996; Carr and Megbolugbe 1993; Turner and Skidmore 1999; Ross and Yinger 2002). The vast majority of discrimination research has focused on race and ethnicity -- especially the historically entrenched exclusion of non-Hispanic African Americans from mainstream credit markets (Feagin and Sykes 1994; Schill and Wachter 1993; Yinger 1995). Discrimination on the basis of age and gender -- also prohibited categories in fair housing and civil rights law -- has received far less scrutiny. There is a growing body of policy and advocacy

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research documenting a greater prevalence of deceptive and/or high-cost credit practices targeting women and/or elderly borrowers (Calandra 2008; Consumers Union 2002; Ferguson and King 2006; McGhee and Dract 2005; Smith et al. 2009; NCRC 2003; Sarto 2010; GAO 2004, pp. 14-15; Walters and Hermanson 2002); even so, the connections and interdependencies among race/ethnicity, gender, and age remain undertheorized.

There are compelling theoretical reasons to anticipate cumulative credit disparities by race/ethnicity, gender, and age. To begin with, the flourishing of subprime credit over the past twenty-five years has fundamentally altered discrimination theory's own *methodenstreit*. The orthodox portrayal of discrimination as an irrational forfeiture of profit opportunities to satisfy a taste for social, cultural, or patriarchal bigotry (Becker 1957; Friedman 1962, pp. 110-111; Ladd 1998) is built on the axioms of credit rationing in which lenders seek to maximize revenue from a stream of mortgage interest payments while minimizing the risk that a borrower will fail to repay (Stiglitz and Weiss 1981). Non-prime lending emerged through regulatory loopholes that reoriented revenues away from stable, long-term interest rate spreads towards an array of up-front fees, hidden charges, and other speedy alternatives, while the growth of securitization gradually transformed mortgage originators into feeder funds for transnational pools of investment capital aggressively pursuing higher yields (Ashton 2009; Gotham 2009; McCoy and Renuart 2008). While the economics of exclusionary rationing and inequalities in access to credit persist in the prime market, in the subprime sector a powerful set of incentives made it rational to alter underwriting criteria to de-emphasize default probability, to maximize short-term, up-front revenues at the expense of long-term repayment ability, and to pursue those borrowers who are (or who are believed to be) most willing to accept risky, complex, and

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expensive credit. Demand-driven adverse selection gave way to supply-side adverse selection: all of the non-economic socio-cultural perceptions and prejudices that prime lenders used to minimize default probabilities under conditions of asymmetric information and rationing (Stiglitz and Weiss 1981) became the guideposts to subprime profit when the loans (and certain default risks) could be passed off into an expanding infrastructure of mortgage-backed securities, collateralized debt obligations, and credit default swaps (FCIC 2011; Gotham 2009; Immergluck 2009; Engel and McCoy 2011). Similarly, cultural-affinity explanations for unequal rejection rates (Hunter and Walker 1995) must be revised to account for the different roles of brokers and lenders in supply-driven environments. In credit rationing, cultural affinity is seen as a factor in loan officers' contingent willingness to coach those with whom they identify in order to secure approval for a prime loan; in supply-driven subprime lending, however, cultural affinity risks creating incentives for "insiders" to exploit distinctive perceptions, needs, or fears in order to draw borrowers into abusive transactions.

In America, race/ethnicity may indeed be the most pervasive socio-cultural construct that is embedded in the economics of market transactions (West 1999). But race/ethnicity is interwoven with (*inter alia*) gender and age. Fundamental to critical race theory, as well as second- and third-wave feminist theory, is the recognition that prevailing axes of social inequality are cumulative, interactive, and co-constitutive, not simply static or additive (Omi and Winant 1994; Pratt 2009). In credit markets, racial/ethnic disparities are magnified by all of the gendered dichotomies of American society (home/work, private/public, unpaid household work / paid wage work) (Hanson and Pratt 1989). To the degree that African Americans experience disparate racial impacts in lending, African American *women's* experience will further reflect

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wage discrimination (Kunze 2008), occupational sex segregation (Parks 2010), the wage penalties of career interruptions for childbirth and parenting (Budig and England 2001), and the effects of patriarchal family structures and divorce on women's assets (Sanders and Porterfield 2010).[2] The aging process reinforces and widens these gaps over time (Ferguson and King 2006; Walters and Hermanson 2002). Crucially, the empirical veracity of differential qualifications is less relevant than the perceptions and actions of lenders, brokers, home improvement contractors, real estate agents, and other industry actors. If lenders, brokers, and others *believe* -- and act on the belief -- that elderly African American women are less qualified for prime credit or more vulnerable to predatory, hard-sell tactics, for example, then the inequalities will quickly become real. This is one aspect of the performativity of housing markets diagnosed by Smith et al. (2006).

Mortgage lenders cannot be held responsible for all of the societal conditions that produce inequality among potential customers before they apply for credit. We do not seek to confine the causal roots of unequal outcomes within the boundaries of the mortgage transaction itself; rather, mortgage market disparities are used to explore the broader, socially embedded relations of gender, race/ethnicity, and age in American housing and credit (Polanyi 2001[1944]; Young 2010; Smith et al. 2006). Racialized and gendered assumptions in outreach and marketing create powerful selection biases in all the antecedents of the underwriting process. At that point, racialized and gendered assumptions embedded in seemingly neutral underwriting criteria have

[2] Along the continuum between disparate treatment and disparate impact, fairly explicit gender biases do occur. HUD recently secured a settlement with a mortgage lender that rescinded a loan approval when it learned that the customer was on maternity leave -- despite the fact that her leave provided full salary. HUD continues to investigate other, similar complaints (Bernard 2011).

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disproportionate impacts depending on the borrower's age, and reproduce unequal outcomes even in the absence of discriminatory intent. Legitimate, business-necessity considerations -- earnings, employment history, employment stability, net worth -- are endogenous to the social reproduction of gender inequalities. One consequence is that econometric analyses that follow the example of the Boston Fed study's extensive "search for omitted variables" have the effect of *controlling for* the subject of inquiry -- ripping the lending transaction out of context, obscuring the most important inequalities by comparing "otherwise identical" customers in an unequal society where opportunities are anything but identical.[3] This *ceteris paribus* approach is intuitive and widely recognized, of course, and so we cannot avoid using it in parts of this study; the results, however, should be regarded as conservatively biased against findings of discrimination or inequality.

A final set of considerations merit attention as we seek to theorize one notorious mortgage broker's exclamation, "It's time to go granny hunting!" (quoted in Ginty 2010, p. 2). People age, and so do houses and neighborhoods. In 1968 the white suburban privilege of Federal Housing Administration (FHA) insurance was reversed to provide opportunities for first-time moderate-income homebuyers, in a shift that offered disproportionate benefits for minority borrowers and minority urban neighborhoods. This policy shift created its own distorted incentives (Boyer 1973; Wachter 1980), but it was part of a wider range of policies that finally opened homeownership to a vast cohort of African Americans. Many of the young African American

[3] Hyman (forthcoming, p. 228) wryly observes that with the inclusion of extensive arrays of seemingly objective measures, "the correlated variable would acquire the predictive power of the protected category," with discrimination erasing its own evidence.

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couples buying homes shortly after this late 1960s shift were approaching retirement age thirty years later, living in older homes in modest urban or inner-ring suburban neighborhoods, just in time for the late 1990s boom in predatory refinancing and home improvement schemes (Engel and McCoy 2002; Immergluck 2004; Mansfield 2000). Meanwhile, demography also takes its toll. For African Americans born in 1950, females' life expectancy exceeded males' by almost four years (62.9 years vs. 59.1), and this gap widened to 5.2 years for those born in 1960 and 8.7 years a decade later (NCHS 2009, p. 203). In 2005, African American women at age 65 had a life expectancy of 18.7 additional years, three and a half years longer than African American men of the same age (NCHS 2009, p. 203).

Demography, residential segregation, and urban morphology combined to create a large cohort of elderly African American women living on fixed incomes in older homes, often entirely paid off, and in need of cash and credit for home repairs and other needs. It is thus not surprising that women are more likely than men to be mortgage holders among all African Americans (NCNW 2009), or that increasing a neighborhood's share of over-65 residents from 0 to 100 percent boosts the subprime market share by 31 percent in cities like St. Louis (NCRC 2003, p. 7).

Taken together, all of these theoretical considerations imply what is best understood as a *discriminatory trinity*. We anticipate that discriminatory impacts in the subprime boom were greater among African Americans compared to otherwise similar non-Hispanic Whites, more severe among African American women, and even more pronounced among older African American women.

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Data and Methods

Data limitations make it difficult to provide a direct, precise test of the hypothesis of a discriminatory trinity. A rich description of all the complex social, financial, and geographical circumstances of the phenomenon would require measuring multiple demographic characteristics of borrowers, along with comprehensive financial details about the loans they receive. Such information is difficult to obtain, of varied quality, and almost always scattered across different datasets, each with incompatible sample frames and levels of temporal and geographical detail. Recently, however, it has become possible to draw limited inferences across two complementary datasets. The first is the familiar Home Mortgage Disclosure Act (HMDA) application records (FFIEC annual), which since 2004 have identified loan originations that are "high cost" or "rate-spread" -- loans where the annual percentage rate borrowing cost (including fees and points) is at least three percentage points above Treasury yields of comparable maturity for first-lien loans, and five points for subordinate liens. HMDA has many well-known limitations, but it provides the most extensive coverage of the market available anywhere: this is not a sample, but rather a regulatory full enumeration.[4] HMDA also includes more detail on demographic information than many researchers realize. It is possible, for instance, to analyze the determinants of high-cost loans made to non-Hispanic African American females filing applications alone, with no co-applicant, versus loans to "traditional" non-Hispanic White couples (male primary applicant, female co-applicant).

[4] This is not to say, of course, that the regulatory goal of complete coverage is achieved. Penalties for non-disclosure under HMDA are negligible compared to the potential liability for civil rights violations that HMDA records could signal, and thus it is likely that HMDA reports are most likely to be missing for some of the worst offenders.

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Unfortunately, HMDA does not provide age, and the various publicly available data series that do provide age offer very limited information on credit or mortgage terms. For a small sample of subprime borrowers, however, there is now a specialized dataset that combines demographic information with detailed financial circumstances of mortgage transactions. With support from the Ford Foundation and the National Consumer Law Center, Renuart, McCoy, and Ross (2009) built the National Mortgage Data Repository (NMDR). The NMDR provides unprecedented detail for approximately six hundred loans originated between 1994 and 2008. The database is compiled from anonymized loan files obtained from public-interest law firms, state agencies, nonprofit loan counselors, and others working directly with borrowers who wound up with risky and/or high-cost loans that eventually caused problems for borrowers. Every loan in the NMDR can be considered subprime, and most should be regarded as predatory: the database was specifically designed to capture "high quality, credible data on the nature and extent of subprime and predatory mortgage lending loans and other lending practices from 1994 through the present." (Renuart, McCoy, and Ross 2009, Ch. 1, p. 1).

It is impossible to establish a direct link between the panoramic, extensive coverage of HMDA and the intensive, close-up detail of the NMDR.[5] Our approach is thus circumstantial, using both datasets to evaluate the preponderance of evidence; the results are suggestive, but not definitive beyond doubt. HMDA records are used to analyze how African American women are segmented into the subprime market, while the NMDR is used to study selected facets of what

[5] Even if it were possible to use Ross and Yinger's (2002) matching procedures to link individual NMDR and HMDA records, the small NMDR sample would be spread too thin across space and time to permit sufficient inferential tests for geographical representation.

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happens to them in the subprime world: what, if anything, distinguishes the terms of subprime loans to Black women, especially older Black women, compared to other subprime borrowers?

First, HMDA records from the peak year of the boom (2006) were used to identify all conventional originations backed by single-family homes in metropolitan areas in the contiguous U.S. and the District of Columbia. Excluding records with validity or quality edit failures coded by the Federal Financial Institutions Examination Council (FFIEC), the database includes about 9 million loans approved and originated; about 330 thousand of these loans were made to non-Hispanic African American women submitting applications alone. While first-generation HMDA research focused on redlining and the spatial allocation of aggregate credit flows, and second-generation studies modeled lenders' "accept/reject" decisions on whether to give credit (Schill and Wachter 1993, pp. 247-248), we follow the current, third-generation analysis of variations in the terms of the loans approved (Ashton 2009; Bocian et al. 2008; Immergluck 2008, 2009; Karikari et al. 2009). Binary logistic regressions are used to model the division between high-cost loans versus all other originations, as a function of applicant characteristics (income, loan-to-income ratio, loan purpose, owner occupancy, pre-approval status) and supply-side decisions on securitization (loan sales to secondary-market purchasers). Unfortunately, HMDA does not include information on applicant credit history or net worth.[6]

[6] The absence of credit history information is a direct result of industry lobbyists' pressures to minimize the expansion of Regulation C in 2002. Immergluck (2004, p. 219) accurately predicted the public discourse that greeted the release of the new loan-pricing data in early 2005: "...without some credit history data, lenders will dismiss disparities as due primarily to differentials in credit history, without having to offer any evidence in this regard. ... banks argued against including such data in HMDA, but later they will almost certainly argue that,

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The second database sacrifices breadth to maximize depth. The NMDR only includes information on 619 loans made between 1994 and 2008,[7] and the institutional cooperation required to obtain borrowers' consent made it impossible to achieve a perfectly representative, pure random sample. Yet the NMDR offers unparalleled details on the terms and conditions of each individual loan (Table 1). From the loan application files, we extracted borrower demographic information, income, net worth, and (as a proxy for credit history) applicants' declaration regarding bankruptcy in the previous seven years. The HUD1/HUD1-a settlement documents provided breakdowns of various fees and pay-outs from the loan origination. To measure the cost of credit, the Truth in Lending Act (TILA) APR disclosure was compared with prevailing yields on Treasury securities of comparable maturities, producing a rate-spread variable similar to the (left-censored) HMDA trigger.[8] Several additional variables provide discrete indicators of broker/lender/borrower interactions: the filing of multiple applications, whether the application was taken face-to-face, the provision of multiple good-faith estimates of

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without such data, the pricing information cannot be interpreted." For a description of lobbyists' efforts to spin the new data in early 2005, see Wyly et al. (2007, pp. 2139-2141).

[7] This figure is correspondingly reduced when records are excluded on the basis of missing information on key variables.

[8] The TILA APR is a problematic measure of the cost of credit (see Immergluck 2004, pp. 218-219, and Sovern 2010) but it is the only summary expense figure reported for all borrowers for all types of loans. In multivariate analysis, including controls for adjustable-rate and pay-option mortgages helps to mitigate the systemic distortions of the meaning of the APR for these types of instruments. The benchmark for our TILA spreads are the market yields for constant-maturity U.S. Treasury securities of comparable duration (10-year, 15-year, 30-year) from the Federal Reserve's H-15 series; simple linear interpolation was used for the few loan notes with unusual durations. The U.S. Treasury's published extrapolation factors were used to estimate 30-year yields for the 2002-2006 period when the benchmark Treasury long bond was not sold.

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closing costs, and whether borrowers applying for standard fixed-rate mortgages eventually wound up with adjustable-rate or pay-option mortgages.

Since the NMDR is limited to subprime loans, we cannot analyze the determinants of the prime/subprime division; but we can test whether different groups of subprime borrowers receive different kinds of loan terms. We estimate a series of binary logistic models to test whether and how loan terms vary between non-Hispanic African American women (n=72) and other groups of borrowers: non-Hispanic African American men (54), non-Hispanic White women (88), non-Hispanic White men (197), and all others, including those with unreported race/ethnicity/sex information (189).[9]

Results

Dramatic racial and ethnic change, and continued shifts in household composition, are transforming American housing. Yet historically familiar patterns persist in the mortgage market. The "traditional" market for home mortgages in the bygone era of locally-oriented lenders -- the non-Hispanic White man applying with a non-Hispanic White female co-applicant -- was still a plurality of all borrowers at the height of the credit boom in 2006 (Table 2). Of these 2 million borrowers, fully 85 percent got prime loans; the only borrowers with lower subprime market penetration are non-Hispanic Asian traditional couples (11.8 percent). Within racial/ethnic groups, gender disparities are negligible or counterintuitive. A quarter of non-

[9] Applicants were classified on the basis of the race/ethnicity/sex information of the primary applicant; in the case of loan files with multiple applications, the first document with full demographic information was used.

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Hispanic White females applying alone received subprime loans, but the share was higher for single non-Hispanic White males. The same pattern holds for non-Hispanic African Americans, Hispanic Whites, and American Indians and Alaska Natives. Single females are slightly more likely to get rate-spread loans compared to single males for non-Hispanic Asians and Hispanic Blacks, but the disparity is very small.

Gender inequalities, however, are deeply intertwined with racial/ethnic disparities. Compared with non-Hispanic White male-female couples, non-Hispanic Black couples are almost three times as likely to receive subprime loans. For Hispanic couples (those who identify themselves as White as well as those who consider themselves as Black) the disparity is about two-to-one. Borrowers with the worst subprime market penetration -- about 58 percent -- are single Hispanic men or women who identify themselves as Black. This market segment is extremely small, however -- only about 7 thousand borrowers -- and once we look beyond this group it is clear that the subprime wave hit African Americans hardest. The next highest rates are for single Black males (57.7 percent), single Black women (54.3) and Black couples where the primary applicant is female (53.6). Those of particular concern to us here, of course, are the 330 thousand non-Hispanic African American women who obtained mortgages as single applicants; these borrowers constituted only 3.65 percent of the national market for all mortgage originations, but were almost twice as important (6.69 percent) for the subprime sector. Almost 180 thousand non-Hispanic African American women borrowing alone wound up with high-cost loans in 2006. Non-Hispanic African American women stand out as distinctive across all racial/ethnic groups: lone female borrowers constitute the largest share (40.1 percent) for non-Hispanic Blacks. This is almost double the share for non-Hispanic Whites.

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These differences have major implications for lender and broker specialization. If a lender focuses on subprime credit and markets primarily to non-Hispanic White customers and communities, then a quarter of their customers will be single-applicant women. For subprime brokers and lenders focused on African American communities, the share is 42.6 percent. Lone female borrowers outnumber lone male applicants among non-Hispanic Blacks, and not for any other racial/ethnic group. In other ways, the pronounced feminization of risky credit for African Americans signals the growing exceptionalism of America's mid-twentieth century Anglo White tradition: the traditional couple with a male applicant and female co-applicant still outnumbers single female borrowers among non-Hispanic Whites. Among all other racial/ethnic groups, however, single women outnumber traditional couples -- in both prime and subprime sectors. For African Americans in the subprime market, single women outnumber traditional couples by more than three to one.

Racial, Ethnic and Gender Segmentation in National Context

Are these racial/ethnic and gender disparities structural effects that persist even after accounting for income and other qualifications? To test for systemic inequalities, we estimated two sets of binary logistic regressions. First, we model the divisions between subprime and prime credit, with a right-hand-side indicator for single non-Hispanic African American female borrowers. Separate models are estimated to highlight comparisons between Black women and other reference groups (Table 3).[10] Single African American women are much more likely to wind up

[10] Significance tests for coefficients in our HMDA models are not reported, for two reasons. First, HMDA is a full enumeration, not a sample. Second, the large number of observations mean that nearly every coefficient estimate

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in the subprime market even after considering income, loan to income ratio, owner occupancy, loan purpose, and secondary securitization. Compared with otherwise identical traditional, non-Hispanic White couples, single Black women are 4.84 times more likely to receive rate-spread loans. The disparity is 3.15 when African American women are compared with single, non-Hispanic White female borrowers. Even when controlling for racial/ethnic inequality, however, gender exacerbates the divisions: single Black females are 1.22 times more likely to receive subprime credit compared with otherwise identical traditional Black couples. Race, ethnicity, and gender trace out sharp divisions of mutually reinforcing inequalities. The odds ratios for single African American women exceed many of the indicators for secondary loan sales, suggesting that in postmortems of the crisis (e.g., FCIC 2011), perhaps gendered racial inequalities merit the same level of scrutiny applied to loan securitization networks.

The gendered dimensions of racial divisions (Young 2010) reflect broader urban and regional inequalities in housing and credit. We estimated the model comparing single Black women to traditional Black couples (Table 3, Model 2) for all metropolitan counties in the continental U.S. with at least 500 Black female subprime borrowers (Figure 1). In a single county -- Mecklenburg, North Carolina (Charlotte) -- the subprime segmentation of single Black women is significantly less than for similar traditional Black couples. Elsewhere, the worst cases of gender intensifying racial/ethnic inequality highlight a mixture of exurban and small-city places in the

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achieves statistical significance, even if the difference from zero is *practically* insignificant. In the models for Table 3, only a single estimate (home improvement loans in Model 1) fails to achieve a significance level of 0.05; all other estimates achieve P<0.001. Multicollinearity diagnostics for Table 3 indicate no problems: all variables have tolerances well above the 0.20 threshold recommended by Menard (2002). Most tolerances are in the 0.75-0.90 range, with the lowest values above 0.26 for Model 1, 0.38 for Model 2, and 0.35 for Model 3.

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South (Rockdale and Henry Counties, Georgia), New York City's outer boroughs and suburbs (the Bronx, Brooklyn, Queens, Nassau), and a number of California cities and suburbs (San Diego, Riverside, Sacramento, Alameda, Contra Costa, San Bernardino). A different urban system emerges if we limit the focus to those places where a) single Black women are overrepresented among subprime borrowers, b) they face a greater than average odds ratio of segmentation into high-cost loans compared to traditional Black couples, and c) the black/white disparity among traditional couples is worst (over 4.0). These criteria highlight Detroit, Memphis, St. Louis (County, not the city), Milwaukee, New York (Brooklyn, Queens, and Nassau), Fort Bend, Texas (outside Houston), and Oakland County, Michigan (Pontiac). Modeling key aspects of Black women's credit outcomes as a function of aggregate, county-level conditions offers circumstantial evidence that the experiences of Beatrice Troup, Veronica Harding, Anna Mae Dawson, and Addie Polk may indeed be representative of broader problems.[11] Subprime market penetration among single Black women is significantly raised in counties with higher shares of housing built before 1939, and in areas with higher odds ratios between Black couples and traditional White couples. Lone Black women in the subprime market are significantly over-represented, all else constant, in counties with higher shares of residents over age 65.

An alternative modeling approach reveals complementary aspects of segmentation. We estimated a series of binary logistic models to identify the variables distinguishing single Black females from other types of borrowers. Adding rate-spread status as a right-hand-side indicator

[11] Full county-level regressions are not presented here, but are available on request.

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tests whether the market targets high-cost credit to single Black women, after controlling for income, loan purpose, and secondary market securitization (Table 4).[12]

The racial/ethnic and gender disparities closely mirror the results from the first modeling approach. All else constant, a loan is 4.65 times more likely to go to a single Black woman, rather than to a traditional White couple, if it is a rate-spread loan; the disparity is 3.16 compared to single non-Hispanic White women, and 1.21 compared to traditional Black couples. But if these results are substantively identical to the earlier specification (Table 3), the alternative formulation gives an entirely new meaning to the right-hand-side independent variables measuring securitization. Loans to single Black women are much more likely to be sold in the same calendar year (71 percent, versus 60 percent for traditional White couples). Traditional White couples' loans are much more likely to be sold to one of the GSEs (22 percent, twice the share as for single Black women). Loan sales are much more likely to go through private, lightly-regulated securitization channels when the borrower is a single African American woman. Compared to a loan held in portfolio, a loan sold in the same calendar year to a private, non-agency purchaser is 1.82 times more likely to go to a single Black woman than to an otherwise similar non-Hispanic White traditional couple; similar effects are apparent for loans sold to finance companies (1.43), affiliates of multi-subsidiary conglomerates (1.39), and "other" purchasers (1.74).[13] A similar pattern emerges when single Black women are compared with

[12] Multicollinearity diagnostics again indicate no bias: the lowest tolerances for the three models in Table 4 are 0.27, 0.40, and 0.34. All coefficients in Table 4 attain statistical significance at $P<0.05$, and all except two at $P<0.001$.

[13] Most of these "other" sales go to the special-purpose vehicles (SPVs) established as trusts for large mortgage-backed securities offerings.

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traditional Black couples. These effects persist after accounting for all available borrower characteristics, including the distinction between prime and rate-spread loans. Put another way, one of the more reliable predictors of whether a particular loan will go to a single Black woman is the decision on what to do with the mortgage obligation once it has been consummated. Consumers have no control over these decisions: what matters are the strategies, preferences, and judgments of originators, investment banks, trust administrators, credit-ratings agencies, and investors in mortgage-backed securities. All of these decisions yielded a clear preference on the part of private, non-agency mortgage capital for single Black women -- while the industry's traditional-couple White clients had a greater reliance on the more closely supervised activities of Fannie Mae and Freddie Mac. Mortgage securitization networks attest to the durability of White privilege in American credit markets (Nguyen and Pontell 2011), but these result reveal the gendered dimensions of private mortgage capital (Young 2010). The deeply masculine, testosterone-fuelled offices of Wall Street investment houses (see McDonald 2009; Lewis 2010; Tett 2009) relied in part on the systemic targeting of single African American women for risky, high-cost loans.

Differences Within the Subprime Market

The evidence presented thus far offers substantial, albeit circumstantial evidence supporting the idea of a discriminatory trinity: All else constant, African American women are much more likely to receive high-cost credit when compared with White couples, White women, or Black couples, and there is at least a suggestive county-level linkage between elderly residents and Black women's greater representation in the subprime market. For a more nuanced portrait of

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the relations between race/ethnicity, age, and the terms of credit, we turn to the subprime loans included in the NMDR. While a direct test of sample representation is not possible, a rough approximation suggests that the NMDR's racial/gender breakdown is very close for White women (14.7 percent, versus 14.2 nationwide for 2006), and for Black men (9.0 vs. 8.0). There is a greater over-representation for both Black women (12.0 vs. 7.7) and White men (32.8 vs. 27.9).[14]

Severe inequality in African American women's segmentation into the subprime market does not mean dramatic disparities in treatment *within* this market. Racial and gender disparities in the cost of credit as proxied by the TILA annual percentage rate (APR) spread, for instance, are either negligible or counterintuitive (Table 5, Model 1). The most important demographic determinant of APR spread is the apparent discount negotiated by borrowers who do not supply age information.[15] The TILA APR itself, however, is a deeply problematic measure (Sovern

[14] Exact correspondence is rendered impossible by the wide temporal range of the NMDR (1994-2008), interacting with loopholes in the Regulation C provisions pertaining to the collection of data on race/ethnicity/gender (see Huck 2001). Some of these loopholes were closed in the 2002 Regulation C revisions. Our estimates compare the NMDR race-gender identifications of the first borrower with the lead-applicant tabulations for 2006 as reported in Table 2.

[15] Age-missing borrowers are not representative, and thus do not satisfy the condition of missing completely at random (MCAR) (Allison 2002). But for the rate-spread models, the non-random bias is not tied to race/ethnicity or gender. Age-missing stepwise models (pseudo-R-squared of 0.62) indicate a significantly greater prevalence among higher-income, non-occupant, non-face-to-face applicants for purchase mortgages, who apply for fixed-rate loans and then agree to adjustable-rate notes while avoiding prepayment penalties. This profile is broadly consistent with the high-risk lending industry's gradual reorientation from refi/home improvement to purchase credit, and from urban minority equity stripping to diverse middle-class leveraged home-buying and speculative accumulation (Williams et al. 2005; Immergluck 2009).

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2010), and thus we should approach this indicator with deliberative caution. Among a wide range of loan terms and applicant financial circumstances, the single most important determinant of the APR presented on a TILA disclosure to a borrower is this: the borrower applied for a standard fixed-rate mortgage, but eventually wound up in an adjustable-rate note (see the standardized coefficients in Table 5, the full Model 2 and the stepwise Model 3 at $P<0.05$). After controlling for this bait-and-switch effect, adjustable-rate notes have higher costs, while borrowers paying higher fees tend to pay higher APRs as well. All of these results corroborate the legal and institutional analyses that highlight a proliferation of deceptive practices as the industry evolved from the traditional "originate-to-hold" mode to a more predatory "originate-to-distribute" system of volume- and fee-driven securitization (Apgar and Fishbein 2005; Gotham 2009; cf. Wachter 1980).

To further analyze social contrasts within the subprime market, we estimated a series of binary logistic regression models separating non-Hispanic African American women from other types of borrowers (Table 6). These models provide rigorous multivariate tests for our main research question, although the specification is not explicitly causal: the approach is more akin to the analytical style of discriminant analysis, but with the more robust statistical properties of logistic maximum-likelihood estimation (compare Chapters 8 and 10 of Sharma 1996). Given the small sample size of the NMDR and the inescapably subjective judgment of what threshold qualifies as statistically significant, we present the full array of coefficient probability estimates; two types of standardized effects are also presented (Sharma 1996; Menard 2002).[16]

[16] Overall model fit is encouraging, with re-scaled Nagelkerke (1991) pseudo-R^2 values between 0.39 and 0.70.

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Three main results are clear. First, age intensifies gender and racial inequalities, even when the focus is limited to borrowers in the subprime market. The univariate statistics (Table 1) indicate that among the African American women sampled in the NMDR, 18.1 percent are over age 65, double the share for all other borrowers (9.0 percent). Viewed in a multivariate setting, elderly subprime borrowers are much more likely to be African American women, even after controlling for a wide range of financial qualifications and loan terms (Table 6, Model 1). Compared to the reference category of borrowers younger than age 30, over-65 borrowers are 15 times as likely to be African American women (P=0.037). This age disparity does not distinguish African American women from African American men (of whom 25.9 percent are over age 65). But the age contrast with all other borrowers in general is robust, even when accounting for the large proportion of African American women for whom age information is missing.[17] On the other

[17] Age information is not reported for almost a third of African American women; this figure is three times the rate for White women, and twice the proportion for White men. The figure is not as high, however, as that for all other applicant types (51.3 percent -- see Table 1); this reflects interdependency between non-reporting of age, race/ethnicity, and gender (Huck 2001). Multivariate tests, however, indicate a robust result for our over-65 variables in Table 6. As noted earlier, the age-missing data do not satisfy MCAR conditions (Allison 2002). As Allison (2002, pp. 6-7) notes, however, "if the probability of missing data on any of the independent variables" is a regression "does *not* depend on the values of the *dependent* variable, then regression coefficients using listwise deletion will be unbiased (if all the usual assumptions of the regression model are satisfied." A stepwise logistic regression of the age-missing indicator (an independent variable in Table 6) does not select the variable for African American women (the dependent variable). The stepwise age-missing model, in fact, does not select any of the gender or race variables; the algorithm instead selects a total of nine variables measuring various aspects of applicant finances and loan terms -- but does *not* give any results that trigger Allison's (2002) warnings. Listwise deletion was therefore applied to a model similar to that in Table 6, Model 1 (quasi-complete separation required omission of one variable, the switch from fixed-rate application to pay-option loan note). The standardized

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hand, these results are subject to some multicollinearity bias, and the odds ratio for over-65 borrowers drops to the 1.75 - 2.50 range in alternative model specifications to eliminate multicollinearity.[18] Even so, the contrast with White women remains pronounced (ratio of 5.30, P=0.094) in Model 3, where the age variables display no problematic multicollinearity.[19] Given the limitations of the sample, a precise, definitive conclusion beyond doubt is impossible; but the evidence is fairly suggestive of a link between disparate impacts by age, gender, and race for African American women.

The second main finding involves the cost of credit. Compared with White women, Black women with the same income, net worth, and other qualifications have much higher interest-rate spreads: increasing the TILA spread by one standard deviation increases the odds that a borrower is a Black woman by 2.34 (P=0.033). As noted earlier, however, the TILA measure is problematic, and there are no APR contrasts when Black women are compared with Black men, or with White men. A more reliable set of measures highlight contrasts in the various pay-outs and fees disbursed at settlement. Compared with all others, those who wind up paying more than 5 percentage points of the loan amount are 2.33 time more likely to be Black women (P=0.015);

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coefficient for over-65 borrowers increases from 0.475 (P=0.043) to 0.833 (P=0.038) when age-missing borrowers are excluded.

[18] Of the 122 coefficient estimates in Table 6, fourteen dip below the 0.20 threshold that is generally regarded as cause for concern. Most of these involve the age variables in Models 1 and 4. Various alternative specifications of Model 1 reduce the magnitude of the over-65 odds ratio as well as its significance level (to a range between 0.10 and 0.25). In all estimations, however, the effect remains positive for older borrowers.

[19] One coefficient in Model 3 yields a tolerance below the 0.20 threshold; eliminating this variable (loan amount) yields an odds ratio for the over-65 variable of 4.87 (P=0.103).

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the disparity is even more pronounced in direct comparisons with White women (ratio 3.15, P=0.054) and White men (4.49, P=0.020). Interestingly, Black women do not pay higher costs for the selected major categories itemized in the models, and in several cases (discount points, attorneys' fees, loan processing fees) the costs are significantly lower. The insignificance of the broker fee and yield-spread premium measure, and the lower incidence of prepayment penalties when compared to Whites, are also at odds with qualitative accounts of Black women's treatment. But the *total* fee disparity persists across all comparisons, and the itemized fee categories are simply the largest entries among several dozen different kinds of charges. The average Black woman pays total fees of 12.7 percent of the loan amount, a full 3.8 percentage points above the 95-percentile figure for a large sample of FHA loans analyzed by the Urban Institute (Woodward 2008). The NMDR average for Black women is 1.92 percentage points above the corresponding figure for Black men, 2.85 above White women, and 3.18 above White men. If Black women do not pay more in the specific categories of major fees, this does not mean that they are not profitable as sources of fee income for a wide range of other, smaller line items.

The third main result involves the social and demographic circumstances of the mortgage transaction. Only a few of the variables available in the NMDR provide clues to the kinds of encounters between borrowers, brokers, and mortgage lenders highlighted in legal research, qualitative studies, journalists' accounts, and regulatory investigations (Renuart 2004; Lehe 2010; Newman 2009; Sovern 2010). Yet the results for these variables line up reasonably well with expectations derived from the qualitative accounts: compared with all other subprime borrowers, African American women are significantly more likely (P<0.05) to be unmarried,

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seeking credit on their primary residence, and to file applications through face-to-face meetings with lenders or brokers. This is close as we are likely to ever get to a quantitative test that Veronica Harding's experience -- brokers working out loans at her kitchen table -- was a systemic, pervasive feature of America's subprime era. While these contrasts do not attain statistical significance across all of the comparison groups in Table 6, the results do seem consistent with portrayals of the supply-driven, push-marketing of risky credit through networks of local brokers working door to door in target neighborhoods (Renuart 2004; Newman 2009). African American women are also more likely than other borrowers to apply for fixed-rate loans, and to eventually wind up in adjustable-rate mortgages. The files for African American women, moreover, are much more likely to involve multiple applications, and multiple good-faith estimates (GFEs). Lenders are required to provide GFEs within three days of receipt of a loan application, but "lenders and brokers are not held liable for failure to provide" the notice in a timely fashion (Lehe 2010, p. 2062), and "there are no meaningful standards for originators in providing GFEs of settlement costs" (Bunce et al. 2009, p. 119). Settlement documents at closing, therefore, often itemize a wide array of surprise fees not corresponding to the categories on the GFE; a common deceptive tactic is to issue revised loan documents at closing, where consumers are most likely to feel pressure to cooperate when presented with a "stack of documents about an inch thick for the homeowners to either sign or initial" (Renuart 2004, p. 490).

An additional set of models confirms that older African American females are distinct even when compared with the generalized racial inequalities affecting African American subprime

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borrowers, and the gender disparities among women.[20] Compared with Black men, older Black women are less than a quarter as likely to be married, 8.8 times more likely to have multiple applications, and 7.3 times more likely to pay high total fees. Compared to White women, older African American women are less likely to have adjustable-rate notes, but they are 3.9 times more likely to have high total settlement costs.

Overall, the contrasts among borrowers in the NMDR are suggestive rather than definitive beyond doubt. Recall, however, that African American women are almost five times more likely than otherwise similar non-Hispanic White couples to wind up in the subprime market. Even in the case where *none* of the contrasts among borrowers in the NMDR were accepted as statistically or practically significant, a five-to-one disparity in subprime selection functions to conceal enormous inequalities *if the focus is limited to those already in the subprime market*. The absence of disparate treatment by age, race, or gender *within* the subprime market should not be confused with an absence of broader disparate impacts throughout the mortgage market. A situation of procedural equality among all customers in the subprime market is entirely compatible with an environment of structural discrimination in who winds up being a subprime customer.

[20] These models achieve pseudo-R^2 values of 0.47 when comparing older Black women to Black men, and 0.39 compared to White women. Due to sample size constraints, older African American women are defined as those over age 50 (n=27). All tolerances are above 0.20, with the sole exception of loan amount in the comparison with Black men (0.19).

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Conclusions

Near the end of February, 2007, the global banking giant HSBC issued an unprecedented earnings warning, a legacy of speedier-than expected defaults on the loans made by Household Finance, a notorious American subprime lender acquired several years earlier. The reactions of financial analysts to HSBC's warning began to expose the transnational networks of debt, risk, leverage, and deception that had been constructed through regulatory evasion over the previous twenty years. The ensuing global financial crises -- and the subsequent waves of job losses, foreclosures, and sovereign debt pressures of an enduring Great Recession -- are usually portrayed in narrow, technocratic economic terms. Gender relations are ignored in the narratives of analysis, policy, and politics (Young 2010; Smith et al. 2006). Yet gender relations were important in the boom leading up to the crisis, and remain crucial in the aftermath. Gender relations are visible at innumerable sites and moments as soon as soon as we look for the evidence. Dissident short-sellers inside the deeply masculinist world of Lehman Brothers, dubious of the firm's aggressive mortgage bets in 2006, sneak away from Manhattan for a trip to California to see New Century Mortgage for themselves; they know about some of the firm's abuses, like the case of "an elderly lady about to be evicted from her three-bedroom home northwest of Stockton," who "had been made an enormous 'senior citizen loan'" by New Century on the basis of documents leaving the income section entirely blank (McDonald 2009, p. 186). The short-sellers furtively explore the bars and restaurants near New Century's headquarters, and they chat up a few of the lender's hyper-machismo, well-paid "bodybuilders":

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> "You could not miss them, with their slick hair, toned muscles ... tight-fitting shirts. You could smell them as well, expensive cologne in the middle of the day, reeking of success, and so cocky. ... They were confident, slightly too loud. ... These guys were pleased with themselves, pleased to be talking about sport, girls, or automobiles." (McDonald 2009, p. 184).

Meanwhile, regulation and industry practice in underwriting concealed the disparate impacts of gender (and race) in a "collision of statistics with racist and sexist labor markets," and the broader gender relations of households and families; Hyman (forthcoming, p. 229) notes that "Divorce ... is such a strong predictor of default that Citibank struggled in the 1980s to make its credit models predict default and not just marriages breaking up." Elsewhere, in the aftermath of the crisis, the *Financial Times* announced the Icelandic government's explicit move to bring in women bankers to clean up the "young men's mess," (O'Connor 2008), appointing women as chief executives to "signal a new culture within the banking system by curbing the bonus-driven risk-taking male-culture which is believed to have been responsible for the banking collapse" (Young 2010, p. 259). The *London Times* blamed men for the "testosterone-fuelled fantasy" of risky, leveraged arbitrage (Syed 2008). And still the hegemony of aggregate economic statistics continues to hide disparate gender impacts. Brigitte Young (2010, p. 268), Professor of International and Comparative Political Economy at Germany's University of Muenster, struggled to find reliable data on the gendered dimensions of the foreclosure disaster:

> "I made numerous telephone calls to obtain gender disaggregated data ... from Fannie Mae, Freddie Mac, Ginnie Mae, the Treasury Department, the Federal

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> Reserve, the Census Bureau, the Federal Housing Finance Agency ... but was told that the home ownership data (and thus data for foreclosures) existed for households only."

All of these stories, of course, are anecdotal. So are the stories of Beatrice Troup, Veronica Harding, Anna Mae Dawson, Addie Polk, and other elderly African American women victimized by predatory lenders and brokers. But so are the stories about Phil Gramm's mother, Hank Paulson kneeling before Nancy Pelosi, the Lehman Brothers collapse, AIG, the negotiations over TARP, and Rick Santelli's angry call from the trading room of the Chicago Board of Trade for a "tea party" to protest proposals to help distressed homeowners facing foreclosure. Some anecdotes are ignored, while others have far-reaching consequences. In this paper, our evidence is suggestive if not definitive beyond doubt. Race/ethnicity, gender, and age do seem to be linked in a discriminatory trinity of disparate impacts. Single female subprime borrowers outnumber single males as well as couples among non-Hispanic African Americans, and not for any other racial/ethnic group. Single African American women are five times more likely than non-Hispanic White couples with the same incomes and loan to income ratios to wind up with subprime loans; disparities persist even when single Black women are compared with single White women and African American couples. Even after accounting for income, loan amount, and loan purpose, the joint decisions of securitizers and originators in the lightly-regulated, private non-agency secondary market display a significant preference for loans made to single African American women. Evidence from the National Mortgage Data Repository (NMDR) indicates no significant age or gender effects on the costs of credit as proxied in the APR disclosures mandated under the Truth in Lending Act (TILA). Yet elderly subprime borrowers

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appear to be much more likely to be African American women even after controlling for income, net worth, bankruptcy history, and other financial characteristics. There is also strongly suggestive evidence of a greater prevalence of bait-and-switch tactics and higher total fees among older African American women. In general, however, the somewhat modest age/gender/race contrasts among subprime borrowers imply that the significance of, say, Addie Polk's experience is not that she was treated so much worse than an otherwise similar White or Latino man in the subprime market. The greatest disparity was the disproportionate targeting that made African American women so much more likely to be subprime customers in the first place.

All of this evidence, then, provides a strong circumstantial case that there is something representative and generalizable from stories like those of Beatrice, Veronica, Anna Mae, and Addie. The evidence does fall short of a definitive, uncontestable proof of randomly-sampled statistical inference with small standard errors and narrow confidence intervals. For decades now, the industry's resistance to expanded disclosure requirements has ensured that such definitive proof will never be permitted. Too often, methodological conservatism abets ideological conservatism. What is certain is that without structural legal changes that go well beyond the much-needed revisions of the Dodd-Frank financial reform legislation, the systemic inequalities of America's political economy will worsen. These inequalities will continue to produce outcomes that, if measured in the full detail demanded by conservatives, will highlight an infinite heteroskedasticity of unique, statistically non-representative outcomes that reflect the particularities of specific circumstances. When we control for everything, however, we lose control. In the boom before the crash, the deregulated infrastructure of financialization deployed

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what amounted to a semi-automated bootstrap sampling premised on the probability assumptions of sophisticated models of home prices, loan default speeds, CDO tranche loss ratios, and credit default swap payouts. Abstracted from social context and deployed at accelerating speed, the Bernoulli trials of financialization eventually yielded what Bernanke (quoted in FCIC 2011, p. 354) surely hopes is an anecdotal, non-representative random sampling error many standard errors away from the midpoint estimate of economic policy -- "the worst financial crisis in global history, including the Great Depression."

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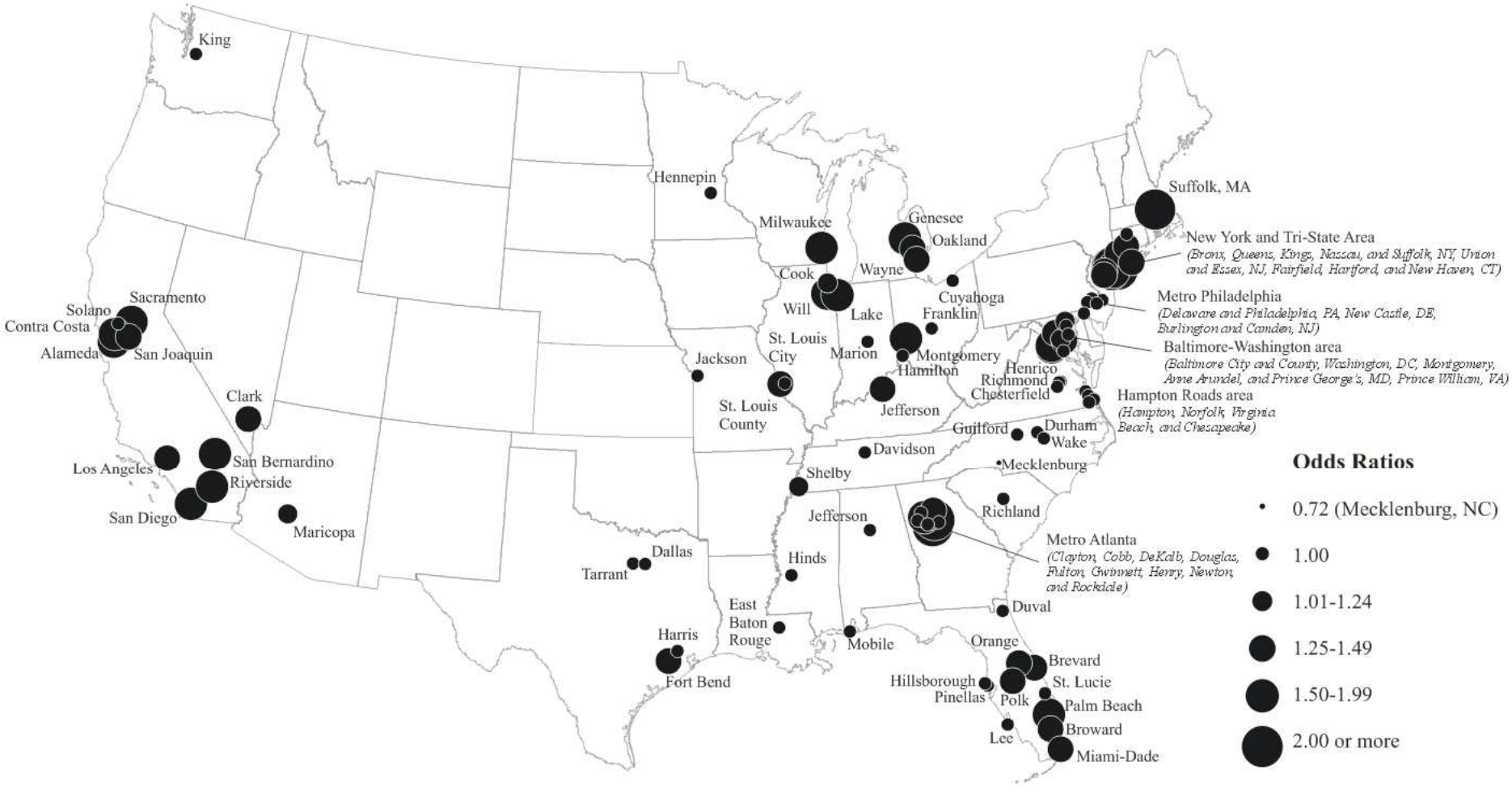

Figure 1. Odds Ratios, Subprime Likelihood for Lone non-Hispanic African American Females vs. Traditional non-Hispanic African American Couples, 2006. Models estimated only for counties with at least 500 lone non-Hispanic Black female subprime borrowers. Data Source: FFIEC (2007).

Table 1. Selected Variables from the National Mortgage Data Repository.

Variable	Source	Mean Values: Black females	Black males	White females	White males	All others
Age 30-44	Application	0.167	0.111	0.205	0.173	0.101
Age 45-54	Application	0.236	0.185	0.318	0.325	0.127
Age 55-64	Application	0.069	0.259	0.284	0.218	0.122
Age 65+	Application	0.181	0.259	0.091	0.102	0.090
Age unknown	Application	0.333	0.185	0.102	0.157	0.513
Married	Application	0.153	0.667	0.284	0.827	0.492
Home purchase	Application	0.194	0.074	0.034	0.030	0.127
Primary residence	Application	0.972	0.926	0.943	0.964	0.841
Face to face application	Application	0.528	0.704	0.750	0.772	0.249
Multiple applications	Application	0.375	0.148	0.159	0.137	0.132
Multiple good-faith estimates	Good-faith estimate	0.250	0.130	0.091	0.061	0.233
Switch: fixed-rate application, adjustable-rate note	Loan note, application	0.139	0.037	0.045	0.071	0.228
Switch: fixed-rate application, pay-option loan note	Loan note, application	0.056	0.037	0.045	0.056	0.196
Borrower net worth ($)	Application	67,437	109,057	95,251	67,927	35,340
Possible bankruptcy in previous seven years (includes "yes" and "not answered")	Application	0.181	0.056	0.057	0.056	0.254
Total monthly income ($)	Application	3,315	3,671	3,021	4,274	4,383
Loan amount ($)	Application	115,931	102,334	94,822	118,082	176,456
APR spread	Loan note, Treasury yield benchmark	5.842	6.512	6.649	6.654	5.014
Adjustable rate loan	Loan note	0.472	0.500	0.500	0.665	0.492
Prepayment penalty (includes "yes" and "at lender's option")	Loan note	0.472	0.815	0.864	0.858	0.524
Cash-out to borrower, as percentage of loan amount	HUD 1/1a Settlement document	0.151	0.111	0.152	0.082	0.135
Cash from borrower at closing ($)	HUD 1/1a Settlement document	1,775	433	161	1,419	686
Total settlement fees > 5 percent of loan amount	HUD 1/1a Settlement document	0.569	0.463	0.443	0.492	0.418
Loan origination fee > 1 percent of loan amount	HUD 1/1a Settlement document	0.528	0.759	0.761	0.797	0.397
Loan discount fee > 1 percent of loan amount	HUD 1/1a Settlement document	0.069	0.074	0.068	0.056	0.206
Broker fees and yield spread premiums > 3 percent of loan amount	HUD 1/1a Settlement document	0.222	0.130	0.080	0.061	0.196
Loan processing fee > 1 percent of loan amount	HUD 1/1a Settlement document	0.069	0.167	0.170	0.066	0.048
Attorney fees over 0.5 percent of loan amount	HUD 1/1a Settlement document	0.069	0.111	0.239	0.147	0.116
Paid out to credit card > 1 percent of loan amount	HUD 1/1a Settlement document	0.208	0.519	0.534	0.447	0.206
Paid out to auto loan > 1 percent of loan amount	HUD 1/1a Settlement document	0.014	0.019	0.057	0.041	0.058
Paid out to other > 1 percent of loan amount	HUD 1/1a Settlement document	0.417	0.593	0.545	0.538	0.471
Number of observations		72	54	88	197	189

Data Source: Renuart, McCoy, and Ross (2009).

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Table 2. Applicant Type and Subprime Market Penetration, 2006.

		Originations	Share of all all originations	Rate-spread originations	Rate-spread share	Lone females, as share by race/ethnicity
Non-Hispanic White						
	Couple, male primary applicant	1,984,845	21.91	300,003	15.1	
	Couple, female primary applicant	400,429	4.42	91,399	22.8	
	Sole male applicant	1,617,515	17.86	450,396	27.8	
	Sole female applicant	1,141,010	12.60	289,610	25.4	21.1
	Other	264,712	2.92	64,860	24.5	
Non-Hispanic Black						
	Couple, male primary applicant	122,450	1.35	54,448	44.5	
	Couple, female primary applicant	50,783	0.56	27,219	53.6	
	Sole male applicant	276,425	3.05	159,598	57.7	
	Sole female applicant	330,436	3.65	179,605	54.4	40.1
	Other	44,624	0.49	21,896	49.1	
Non-Hispanic Asian						
	Couple, male primary applicant	90,115	0.99	10,611	11.8	
	Couple, female primary applicant	24,061	0.27	4,899	20.4	
	Sole male applicant	128,105	1.41	30,913	24.1	
	Sole female applicant	97,917	1.08	24,507	25.0	26.5
	Other	29,689	0.33	5,645	19.0	
Hispanic Black						
	Couple, male primary applicant	1,065	0.01	360	33.8	
	Couple, female primary applicant	377	0.00	160	42.4	
	Sole male applicant	6,325	0.07	3,729	59.0	
	Sole female applicant	5,925	0.07	3,430	57.9	37.1
	Other	2,270	0.03	1,056	46.5	
Hispanic White						
	Couple, male primary applicant	194,072	2.14	62,039	32.0	
	Couple, female primary applicant	49,525	0.55	21,555	43.5	
	Sole male applicant	468,360	5.17	239,065	51.0	
	Sole female applicant	277,725	3.07	140,460	50.6	25.9
	Other	82,568	0.91	27,859	33.7	
American Indian and Alaska Native						
	Couple, male primary applicant	12,451	0.14	3,109	25.0	
	Couple, female primary applicant	3,276	0.04	1,135	34.6	
	Sole male applicant	23,874	0.26	9,197	38.5	
	Sole female applicant	16,248	0.18	6,120	37.7	24.0
	Other	11,748	0.13	3,253	27.7	
All other racial-ethnic and applicant type combinations		1,298,505	14.34	447,592	34.5	
Total		9,057,430	100.00	2,685,728	29.7	

Data Source: Federal Financial Institutions Examination Council (2007).

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Table 3. Subprime Segmentation of African American Women.

Variable	**Model 1**: Compared with Non-Hispanic Traditional White Couples			**Model 2**: Compared with Non-Hispanic Traditional Black Couples			**Model 3**: Compared with Non-Hispanic Lone White Females		
	Mean values			*Mean values*			*Mean values*		
	Rate-spread originations	All other originations	Odds Ratio	Rate-spread originations	All other originations	Odds Ratio	Rate-spread originations	All other originations	Odds Ratio
Applicant income[a]	86,861	117,297	0.494	74,451	82,899	0.702	75,588	77,299	0.810
Income squared[a]			1.458			1.187			1.104
Income to loan amount ratio[a]	1.105	1.146	1.071	0.875	0.858	1.054	0.922	0.820	1.096
Pre-approval	0.014	0.044	0.360	0.013	0.047	0.258	0.017	0.049	0.343
Owner-occupied	0.883	0.900	0.575	0.881	0.897	0.696	0.886	0.919	0.620
Home improvement	0.074	0.090	0.998	0.057	0.080	0.779	0.056	0.075	0.839
Refinance	0.519	0.445	1.284	0.472	0.492	0.867	0.486	0.447	1.084
Loan sold to GSE	0.028	0.254	0.131	0.022	0.223	0.145	0.028	0.262	0.150
Loan sold to private investor	0.106	0.031	3.775	0.124	0.043	4.199	0.114	0.039	3.764
Loan sold to bank	0.050	0.052	1.267	0.053	0.038	2.145	0.053	0.047	1.616
Loan sold to finance company	0.195	0.090	2.431	0.209	0.099	3.156	0.212	0.097	2.913
Loan sold to affiliate institution	0.067	0.066	1.185	0.067	0.074	1.316	0.069	0.073	1.245
Loan sold to other type of purchaser	0.235	0.123	2.150	0.278	0.152	2.785	0.268	0.144	2.544
Lone Non-Hispanic Black Female	0.374	0.082	4.838	0.767	0.689	1.224	0.383	0.150	3.150
Number of observations	479,608	1,835,673	2,315,281	234,053	218,833	452,886	469,215	1,002,231	1,471,446
Max-rescaled Nagelkerke (1991) pseudo R^2			0.285			0.236			0.262
Percent concordant			79.2			73.3			76.2

[a] Continuous variable. For continuous variables, odds ratios report the change in odds with a one standard deviation increase in the predictor.

Data Source: Federal Financial Institutions Examination Council (2007).

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Table 4. An Alternative View of Subprime Targeting of Black Women.

	Model 1: Lone non-Hispanic Black Females, vs. non-Hispanic Traditional White Couples			**Model 2**: Lone non-Hispanic Black Females, vs. non-Hispanic Traditional Black Couples			**Model 3**: Lone non-Hispanic Black Females, vs. Lone non-Hispanic White Females		
	Mean values			*Mean values*			*Mean values*		
Variable	Lone Black Females	Traditional White Couples	Odds Ratio	Lone Black Females	Traditional Black Couples	Odds Ratio	Lone Black Females	Lone White Females	Odds Ratio
Applicant income[a]	70,526	117,729	0.171	70,526	100,142	0.338	70,526	78,557	0.837
Income squared[a]			2.468			2.609			1.017
Income to loan amount ratio[a]	0.800	1.194	0.703	0.800	1.049	0.915	0.800	0.867	0.904
Pre-approval	0.031	0.039	0.927	0.031	0.027	0.934	0.031	0.042	0.901
Owner-occupied	0.892	0.898	0.561	0.892	0.882	0.714	0.892	0.914	0.722
Home improvement	0.062	0.091	0.777	0.062	0.083	0.622	0.062	0.071	0.963
Refinance	0.466	0.460	0.776	0.466	0.525	0.673	0.466	0.457	0.951
Loan sold to GSE	0.113	0.223	0.803	0.113	0.136	0.939	0.113	0.209	0.743
Loan sold to private investor	0.088	0.040	1.821	0.088	0.077	1.272	0.088	0.055	1.203
Loan sold to bank	0.047	0.052	1.114	0.047	0.045	1.204	0.047	0.050	0.897
Loan sold to finance company	0.162	0.104	1.435	0.162	0.141	1.297	0.162	0.126	1.048
Loan sold to affiliate institution	0.072	0.066	1.395	0.072	0.066	1.299	0.072	0.072	1.025
Loan sold to other type of purchaser	0.229	0.133	1.743	0.229	0.186	1.425	0.229	0.171	1.158
Rate-spread origination	0.544	0.151	4.654	0.544	0.445	1.208	0.544	0.254	3.156
Number of observations	330,436	1,984,845	2,315,281	330,436	122,450	452,886	330,436	1,141,010	1,471,446
Max-rescaled Nagelkerke (1991) pseudo R^2			0.262			0.122			0.105
Percent concordant			80.3			70.0			66.7

[a] Continuous variable. For continuous variables, odds ratios report the change in odds with a one standard deviation increase in the predictor.

Data Source: Federal Financial Institutions Examination Council (2007).

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Table 5. Rate-Spread Models.

Dependent variable: TILA APR spread

Variable	Model 1				Model 2				Model 3			
	Parameter Estimate	Pr > |t|	Standardized Estimate	Tolerance	Parameter Estimate	Pr > |t|	Standardized Estimate	Tolerance	Parameter Estimate	Pr > |t|	Standardized Estimate	Tolerance
Intercept	5.639	<.0001			5.765	<.0001			5.727	<.0001		
Age 30-44	0.641	0.387	0.080	0.166	0.072	0.900	0.009	0.152				
Age 45-54	0.697	0.335	0.104	0.122	0.073	0.897	0.011	0.109				
Age 55-64	0.155	0.833	0.021	0.143	-0.503	0.383	-0.068	0.129				
Age 65+	0.651	0.388	0.074	0.191	-0.350	0.555	-0.040	0.172				
Age unknown	-1.667	0.019	-0.263	0.112	-0.100	0.859	-0.016	0.098				
White male	0.840	0.003	0.138	0.641	0.265	0.279	0.043	0.486				
White female	0.724	0.045	0.089	0.710	0.089	0.761	0.011	0.593				
Black male	0.772	0.065	0.077	0.802	0.142	0.669	0.014	0.704				
Black female	0.359	0.332	0.041	0.798	0.147	0.627	0.017	0.659				
Married					0.256	0.200	0.045	0.645				
Purchase					-0.779	0.020	-0.076	0.741	-0.763	0.012	-0.074	0.892
Primary residence					-0.797	0.015	-0.076	0.810	-0.676	0.028	-0.064	0.917
Face to face application					-0.007	0.975	-0.001	0.501				
Multiple applications					0.115	0.630	0.015	0.800				
Multiple good-faith estimates					-0.835	0.002	-0.104	0.714	-0.852	0.001	-0.106	0.777
Switch: fixed-rate application, adjustable-rate note					-0.240	0.651	-0.027	0.212				
Switch: fixed-rate application, pay-option loan note					-3.464	<.0001	-0.358	0.187	-4.034	<.0001	-0.417	0.478
Borrower net worth ($)					0.000	0.254	-0.035	0.839				
Possible bankruptcy in previous seven years					0.213	0.428	0.025	0.767				
Total monthly income ($)					-0.0001	0.062	-0.072	0.534				
Loan amount ($)					-0.000003	0.001	-0.133	0.483	-0.000003	<.0001	-0.151	0.549
Adjustable rate loan					0.844	<.0001	0.147	0.658	0.840	<.0001	0.146	0.805
Prepayment penalty (includes "yes" and "at lender's option")					-0.017	0.944	-0.003	0.548				
Cash-out to borrower, as percentage of loan amount					2.224	<.0001	0.155	0.861	2.010	<.0001	0.140	0.920
Cash from borrower at closing ($)					0.00001	0.387	0.026	0.868				
Total settlement fees > 5 percent of loan amount					0.377	0.034	0.066	0.810	0.455	0.007	0.079	0.904
Loan origination fee > 1 percent of loan amount					0.854	0.001	0.144	0.443	0.746	<.0001	0.126	0.755
Loan discount fee > 1 percent of loan amount					-0.166	0.596	-0.018	0.672				
Broker fees and yield spread premiums > 3 percent of loan amount					0.270	0.350	0.032	0.673				
Loan processing fee > 1 percent of loan amount					1.253	<.0001	0.122	0.876	1.198	<.0001	0.117	0.935
Attorney fees over 0.5 percent of loan amount					0.364	0.145	0.044	0.864				
Paid out to credit card > 1 percent of loan amount					0.499	0.012	0.084	0.713	0.494	0.009	0.083	0.785
Paid out to auto loan > 1 percent of loan amount					0.367	0.374	0.026	0.904				
Paid out to other > 1 percent of loan amount					0.408	0.021	0.071	0.821	0.418	0.016	0.073	0.856
Number of observations	600				600				600			
Adjusted R^2	0.159				0.533				0.533			

Data Source: Renuart, McCoy, and Ross (2009).

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Table 6. Rate-Spread Models.

	Model 1				*Model 2*				*Model 3*				*Model 4*			
	Black Women vs. All Other Borrowers				**Black Women vs. Black Men**				**Black Women vs. White Women**				**Black Women vs. White Men**			
Variable	Coefficient Estimate	P > ChiSq	Standardized Coefficient Estimate	Standardized Odds Ratio	Coefficient Estimate	P > ChiSq	Standardized Coefficient Estimate	Standardized Odds Ratio	Coefficient Estimate	P > ChiSq	Standardized Coefficient Estimate	Standardized Odds Ratio	Coefficient Estimate	P > ChiSq	Standardized Coefficient Estimate	Standardized Odds Ratio
Intercept	-5.389	0.001			2.076	0.517			-4.946	0.045			-0.806	0.732		
Age 30-44	2.248	0.083	0.441	9.469									1.793	0.315	0.373	6.005
Age 45-54	2.630	0.042	0.618	13.871	0.191	0.857	0.043	1.210	0.881	0.250	0.219	2.413	2.023	0.248	0.513	7.558
Age 55-64	1.439	0.294	0.307	4.217	-1.121	0.359	-0.222	0.326	-0.130	0.893	-0.028	0.878	-0.053	0.977	-0.011	0.949
Age 65+	2.743	0.037	0.492	15.530	-0.815	0.460	-0.185	0.443	1.669	0.094	0.312	5.304	2.094	0.260	0.379	8.114
Age unknown	2.660	0.039	0.663	14.295	1.493	0.301	0.367	4.448	1.932	0.070	0.432	6.902	1.214	0.492	0.270	3.366
Married	-2.545	<.0001	-0.699	0.078	-3.603	<.0001	-0.965	0.027	-0.974	0.129	-0.225	0.378	-3.812	<.0001	-1.006	0.022
Purchase	0.600	0.266	0.092	1.823	-1.786	0.317	-0.346	0.168	-0.792	0.486	-0.135	0.453	1.465	0.154	0.212	4.329
Primary residence	1.828	0.028	0.274	6.222	1.130	0.463	0.133	3.094	1.401	0.420	0.159	4.059	1.742	0.232	0.173	5.708
Face to face application	0.957	0.016	0.262	2.603	-0.688	0.402	-0.186	0.502	0.671	0.312	0.177	1.956	0.739	0.262	0.186	2.093
Multiple applications	1.232	0.001	0.254	3.427	1.383	0.102	0.343	3.986	1.938	0.006	0.468	6.942	0.649	0.305	0.144	1.914
Multiple good-faith estimates	1.043	0.016	0.205	2.837	0.491	0.659	0.108	1.634	0.510	0.534	0.104	1.664	0.990	0.186	0.172	2.691
Switch: fixed-rate application, adjustable-rate note	1.735	0.018	0.313	5.667	2.605	0.329	0.423	13.531	4.152	0.039	0.649	63.573	1.355	0.246	0.213	3.876
Switch: fixed-rate application, pay-option loan note	-1.810	0.062	-0.295	0.164	-3.874	0.144	-0.457	0.021	-5.577	0.027	-0.672	0.004	-3.493	0.082	-0.443	0.030
Borrower net worth ($)[a]	-0.0000004	0.712	-0.029	0.948	-0.000004	0.034	-0.420	0.467	-0.0000004	0.900	-0.024	0.957	0.000001	0.695	0.055	1.104
Possible bankruptcy in previous seven years	0.019	0.968	0.003	1.019	-0.178	0.882	-0.033	0.837	0.407	0.602	0.071	1.503	0.865	0.330	0.136	2.375
Total monthly income ($)[a]	-0.0001	0.527	-0.092	0.846	-0.0002	0.388	-0.325	0.555	0.0001	0.370	0.171	1.363	-0.0003	0.059	-0.497	0.406
Loan amount ($)[a]	-0.000001	0.725	-0.081	0.863	0.000002	0.825	0.089	1.174	0.00001	0.022	0.639	3.185	0.00001	0.030	0.715	3.655
HELA APR Spread[a]	-0.002	0.984	-0.003	0.995	0.006	0.976	0.009	1.017	0.306	0.033	0.468	2.336	-0.118	0.353	-0.165	0.741
Adjustable rate loan	-0.147	0.720	-0.041	0.863	0.144	0.872	0.040	1.155	-0.884	0.227	-0.244	0.413	-0.991	0.140	-0.267	0.371
Prepayment penalty (includes "yes" and "at lender's option")	-0.205	0.626	-0.052	0.815	-0.833	0.355	-0.224	0.435	-2.182	0.004	-0.559	0.113	-1.633	0.021	-0.388	0.195
Cash-out to borrower, as percentage of loan amount[a]	0.736	0.284	0.081	1.158	2.003	0.218	0.267	1.624	0.970	0.446	0.129	1.264	1.895	0.119	0.198	1.433
Cash from borrower at closing ($)[a]	0.00001	0.459	0.044	1.083	0.0001	0.316	0.566	2.792	0.0002	0.159	0.695	3.528	-0.00001	0.544	-0.098	0.837
Total settlement fees > 5 percent of loan amount	0.844	0.015	0.233	2.326	2.305	0.009	0.637	10.019	1.147	0.054	0.317	3.149	1.502	0.020	0.415	4.492
Loan origination fee > 1 percent of loan amount	-0.610	0.144	-0.162	0.544	-0.039	0.975	-0.010	0.962	-0.228	0.777	-0.060	0.796	-1.129	0.121	-0.278	0.323
Loan discount fee > 1 percent of loan amount	-1.334	0.036	-0.229	0.263	0.214	0.895	0.031	1.239	-0.528	0.644	-0.074	0.590	-0.274	0.824	-0.036	0.760
Broker fees & yield spread premiums > 3 pct of loan amount	-0.088	0.852	-0.016	0.916	-1.413	0.261	-0.302	0.243	0.367	0.716	0.071	1.443	-0.743	0.410	-0.125	0.476
Loan processing fee > 1 percent of loan amount	-0.965	0.140	-0.148	0.381	-2.747	0.026	-0.478	0.064	-1.262	0.187	-0.231	0.283	-1.392	0.174	-0.192	0.249
Attorney fees over 0.5 percent of loan amount	-1.043	0.063	-0.199	0.352	-1.762	0.205	-0.275	0.172	-2.141	0.020	-0.437	0.118	-1.637	0.064	-0.301	0.195
Paid out to credit card > 1 percent of loan amount	-0.596	0.133	-0.158	0.551	-0.799	0.325	-0.210	0.450	-1.008	0.083	-0.272	0.365	-0.181	0.756	-0.049	0.834
Paid out to auto loan > 1 percent of loan amount	-0.821	0.470	-0.092	0.440	1.941	0.773	0.134	6.968	-2.318	0.107	-0.244	0.098	-0.816	0.620	-0.081	0.442
Paid out to other > 1 percent of loan amount	-0.358	0.302	-0.099	0.699	-0.700	0.352	-0.194	0.497	0.272	0.639	0.075	1.312	-1.002	0.071	-0.277	0.367
Number of observations	600				126				160				269			
Max-rescaled Nagelkerke (1991) pseudo R^2	0.392				0.683				0.595				0.700			
Percent concordant	86.4				93.0				90.2				94.6			

[a] Continuous variable. For continuous variables, standardized odds ratios report the change in odds with a one standard deviation increase in the predictor.

Data Source: Renuart, McCoy, and Ross (2009).

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