Advertising Expensive Mortgages

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ABSTRACT

We use a unique dataset that combines information on advertising by subprime lenders and mortgages originated by them from 2002 to 2007 to show that lenders use advertising to steer consumers toward expensive mortgages. The positive relationship between the intensity of advertising and the expensiveness of mortgages extended by such lenders survives even after conditioning for borrower, regional, and loan characteristics and is identified using within-lender variation. The relationship is strongest for advertising through newspapers, the most heavily used channel for local advertising of mortgages. We exploit variation in mortgage advertising induced by the entry of Craigslist across different regions to demonstrate that the relation between advertising and expensiveness of mortgages is not likely to be spurious. We also corroborate that advertising is most effective when targeted at groups that might be less informed about mortgages, such as the poor, the less educated and minorities. These findings are inconsistent with the "informative view" under which advertising allows consumers to find better products, and instead support the "persuasive view" that advertising in the subprime mortgage market was used to steer consumers into bad choices.

JEL: E65, G18, G21, H3, L85

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I. Introduction

The aftermath of the housing crisis has led to extensive new regulation in the mortgage market, such as the genesis of the Consumer Financial Protection Bureau and the sections of the Dodd-Frank Act concerning lending practices. The perception guiding several of these policy changes centers around the claim that naïve consumers were duped by advertising to enter expensive mortgages. This sentiment is directly reflected in the actions of regulators. The Federal Reserve (Fed), the Federal Deposit Insurance Corporation (FDIC), and the Federal Trade Commission (FTC) each argued that advertising confused potential borrowers by steering them into expensive adjustable rate mortgages (ARMs). In response they have penalized lenders for deceptive practices[1] and implemented explicit regulation of mortgage advertising.[2] The *New York Times* summarized this prevailing view: "One of the most important lessons of the mortgage collapse is that potential borrowers need clear explanations of exactly what kind of commitment they are making" (October 1, 2010). While several anecdotes have been used to justify claims of deceptive advertising—which have driven these regulatory changes—there is no empirical study that has investigated these claims systematically. In this paper we hope to provide such evidence.

Our unique dataset combines local advertising by subprime lenders with the contract, region, and borrower characteristics of mortgages originated by them over the period 2002 to 2007. Using this data we provide facts relating advertising to the nature of mortgages obtained by consumers. We find a strong positive relationship between the intensity of local advertising and the expensiveness of mortgages extended by lenders within a given region. This pattern survives even after conditioning for a rich set of borrower and loan characteristics and exploiting differences in advertising within a given lender. The relationship is strongest for mortgages issued to less educated, minorities and poor consumers whom the previous literature has identified as less informed about mortgages. Advertising is most effective through newspapers, the most heavily used channel for local advertising of mortgages. We exploit variation in mortgage advertising induced by the entry of Craigslist across different regions to demonstrate that the relationship between advertising and expensiveness of mortgages is not likely to be spurious. Last, we corroborate that lenders use advertising to target groups that might be less informed about mortgages.

The starting point of our analysis is the recent literature that shows the importance of search in the mortgage market (Hall and Woodward 2012). Consumers do not frequently transact in this

[1] The Fed fined Wells Fargo $85 million for steering consumers into expensive mortgages. Ten thousand borrowers could potentially receive compensation ranging from $1,000 to $20,000. Furthermore, on July 12, 2012, the Department of Justice reached a $175 million settlement with Wells Fargo to resolve fair lending claims (http://www.justice.gov/opa/pr/2012/July/12-dag-869.html).

[2] The FDIC implemented Regulation Z in 2008 and the FTC passed the Mortgage Acts and Practices Advertising rule in 2011, both of which directly regulate advertising of mortgages.

market. They do not observe all prices, but instead have to find the best-priced mortgage through search. Moreover, some important characteristics of mortgages, such as the reset rates in ARMs, are not very salient and thus require consumers to have specific knowledge. Even though mortgages are relatively homogenous products, these search frictions create a demand for information about mortgages that lenders can cater to. There are two broad views on how lenders use advertising to supply this information to consumers. On the one hand, the "informative view" says that advertising decreases search costs and allows consumers to find better products (Nelson 1974). On the other hand, the "persuasive view" suggests that advertising is used to steer consumers into bad choices (Braithwaite 1928; Thaler 2009).

The obvious difficulty in separating these views is that one needs to identify "better" and "worse" mortgages, and then relate the choices of consumers, who may not be otherwise identical, to lender advertising. We measure whether mortgages are relatively better or worse for the consumer by computing the extent to which identical consumers pay different prices for otherwise similar mortgages: we contend that cheaper mortgages, all else equal, are better products from the perspective of the consumer.

We focus on ARM reset rates, which are less salient and have been at the center of lawsuits and regulatory scrutiny that contend that advertising focused consumers' attention on the introductory interest rate giving them the impression that the rate would be permanent, rather than reset after the first few years.[3] We exploit the richness of our data and measure the relative "expensiveness" of a given mortgage as the excess reset rate of a mortgage after accounting for a broad set of borrower, contract, and regional characteristics associated with a given mortgage, including the initial interest rate. The essence of the relative expensiveness measure is that if identical consumers obtain the same mortgage with different reset rates, then the difference in the reset rates measures how much worse the choice of the consumer with the higher reset rate was.

Our results show large dispersion in mortgage expensiveness within geographic regions (designated market areas or DMAs). On average, the difference in reset rates between the 95th and 5th percentile mortgages in a given region after conditioning on the initial interest rate and borrower, loan, and regional characteristics is 3.1 percentage points. This represents substantial dispersion in ARM reset rates obtained by borrowers with the same observable characteristics. In the raw data, without adjusting for characteristics, this difference is 5.8 percentage points. Such high price dispersion is not unusual for financial products: Hortacsu and Syverson (2004), for

[3] For example, Regulation Z implemented by the FDIC creates new restrictions on all mortgage advertising and prohibits the unqualified use of the word "fixed" in ads for variable rate mortgages or mortgages with increasing payments, unless the mortgagee prominently displays the duration under which the rate is invariable.

example, find substantial dispersion among S&P 500 index funds with the 90-10 percentile price ratio of 8.2.

Next, we assess whether loan prices differ because there is dispersion in the loan prices charged by a given lender, or because lenders charge on average different prices. We find large differences in average reset rates charged by lenders after conditioning on borrower, loan, and regional characteristics: the difference between the 95th and 5th percentile lender in a given region is 2.8 percentage points. Thus, in the first part of our analysis we find substantial difference in reset rates—some customers obtain more expensive mortgages than others, all else equal. A large part of that variation is driven by differences in mortgage pricing between lenders—some lenders are on average more expensive than others.

The second part of our analysis focuses on examining the relationship between the expensiveness of a lender and the degree of advertising by that lender. This allows us to evaluate which of the two views, "informative" or "persuasive," can best explain the patterns in the data. Under the informative view, lenders use costly advertising to signal low prices to consumers who search (Robert and Stahl 1993). Consequently, cheaper lenders should use it to attract customers to their mortgages. Alternatively, under the persuasive view, advertising causes consumers to enter worse mortgages. As a result, under this view, we should observe that advertising draws consumers to relatively more expensive mortgages—those which contain higher reset rates, all else equal. Given that mortgages are nonbranded goods[4], using advertising to mislead consumers requires some limited rationality on the part of consumers. If advertising lures consumers to high-reset-rate mortgages, it has to be that consumers have a difficult time understanding resets, possibly because reset rates are less salient or shrouded attributes of a mortgage (Gabaix and Laibson 2006, Bordalo, Gennaioli and Shleifer, 2012).[5]

In estimating the correlation between lender expensiveness and advertising we exploit variation in relative advertising of lenders within a given location. Thus, our finding is not driven by the simple notion that lenders advertise more in regions with higher mortgage prices. In addition, exploiting variation within lenders also allows us to avoid concerns that it is lender characteristics, such as the lender's brand, propensity to renegotiate or securitize, or marginal costs, which may be correlated with advertising, that are driving the results.

[4] For instance, customers are unlikely to differentiate mortgages based on servicer quality. In many instances the bank offering the mortgage itself is the servicer. However, in many other instances the bank originating the mortgage could outsource the servicing to a third party. Customers, at least at the time they get the mortgage, are unlikely to know who their mortgage servicer is.

[5] To see this, consider a scenario in which lenders who advertise are systematically more expensive. Thus, if consumers are rational and understand the equilibrium one would expect them to avoid such lenders. Consequently, advertising, which is costly, would not be used.

Our results show that, keeping observable borrower characteristics fixed, lenders charge higher mortgage prices relative to other lenders in regions in which they advertise relatively more. We find that the effect of advertising on expensiveness of ARMs is driven by advertising in newspapers, the most heavily used channel for local advertising of mortgages. In particular, the effect of spending an additional dollar on newspaper advertising on mortgage reset rates is approximately 16% larger than spending a dollar on advertising in general.

Our final analysis assesses whether our findings are consistent with the alternative explanation that advertising attracts a pool of borrowers who are less likely to repay a loan and are charged higher reset rates due to their lower ability to repay. This alternative could explain our findings if true borrower "quality" is not captured by our rich set of conditioning variables. We conduct two tests to explore this alternative. First, if advertising lenders lend to borrowers who are less likely to repay a loan, then we should find that such borrowers are indeed less likely to repay a loan in the future. We find no evidence for this conjecture when examining borrowers' repayment behavior.

Second, we exploit variation in mortgage advertising induced by staggered entry of Craigslist across different regions and times. We show that the Craigslist introduction, which was orthogonal to the mortgage market, had a significant impact on mortgage advertising. We find the highest impact on newspaper advertising, which Craigslist online classifieds substitute most directly for. Next, we exploit this Craigslist-induced variation in advertising to show that the impact of advertising on mortgage prices that we found earlier is not spurious. Our evidence is consistent with advertisers using mortgage advertising for persuasive purposes—to steer consumers into expensive mortgages. The magnitudes are large and suggest that a consumer who obtains the mortgage from a lender who advertises on average pays approximately $7,440 more in present-value terms. Our estimates are on the same order of magnitude as the estimates of losses faced by mortgage borrowers because they do not properly account for broker service fees estimated in Hall and Woodward (2012).

We end our analysis with more evidence supporting the persuasive view of advertising. We first examine whether advertising is more effective at inducing more expensive mortgage choices when aimed at groups of borrowers who are more susceptible to manipulation because they are potentially less informed. We find that our results are driven by mortgage advertisers who tilt their portfolio toward less-educated borrowers, minority borrowers, and the poor. These are groups of borrowers that have been identified in the literature as potentially less informed (Hall and Woodward 2012). Next, we examine which regions are targeted by advertising. Since advertising is most effective when targeted at minorities, the poor and the less educated, we want to explore whether advertisers target their advertising at regions with these demographic characteristics. We find that lenders do tend to advertise in regions that have a higher share of

minorities and fewer college-educated households. By construction, subprime lenders—the lenders in our data—tend to do their lending in low-income regions (i.e., subprime regions). Strikingly, even within such regions, there exists a relation between advertising conducted by these lenders and characteristics of the population that might be more susceptible to persuasion.

Our paper is connected to several strands of literature. It is related most directly to the recent literature on the causes and consequences of the financial crisis (e.g., Agarwal et al. 2011; Barlevy and Fisher 2010; Ben-David 2011; Keys et al. 2009, 2010; Loutskina and Strahan 2011; Mayer and Pence 2009; Mayer et al. 2011; Mian and Sufi 2009), and in particular to studies that examine the role of predatory lending in fueling the crisis (see Agarwal et al. 2011; Financial Crisis Inquiry Commission 2011). Our findings are consistent with those of Agarwal and Evanoff (2013) who examine data that overlaps with our sample period and conclude that brokers or real estate professional steer higher-quality borrowers to lenders who offer unattractive terms. To the best of our knowledge, ours is the first paper to identify an economically meaningful relation between advertising and lending activity of subprime lenders. In doing so, it contributes to the recent discussions on the regulation of mortgage markets.

Our paper is also related to the literature on firms' responses to consumers' limited ability to process information and their biases (e.g. Malmendier and DellaVigna 2006). For example, Gabaix and Laibson (2006) and Bordalo et al. (2012), study how consumers may focus on more salient features of products. Gabaix and Laibson characterize an equilibrium outcome in which the existence of myopic consumers creates shrouding even under competitive pressure from nonshrouding firms that educate other firms' customers to win their business. In financial markets, such biases provide incentives for firms to hide information to benefit from consumer biases leading to obfuscation. Closest to our paper are the studies which relate the use of advertising and pricing of homogenous products. Hastings et al. (2011) study the use of advertising activity of private social security funds in Mexico and show that the use of advertising is related to pricing of these funds. Also related is the work by Carlin and Manso (2011) who point out that another solution, educating customers, might be ineffective since small educational initiatives could induce further obfuscation by firms. Our findings are consistent with their view since we find the larger effect of advertising on mortgage prices for less educated consumers.

Our paper also relates to the relatively nascent literature on the effects of limited attention on financial outcomes. This literature argues that uninformed investors tend to ignore less salient information that is critical to firm value. Rather, such investors tend to respond more quickly to information that catches their attention (Hirshleifer and Teoh, 2003). Several papers have used advertising as a measure of "attention-grabbing" event to attract uninformed investors including Grullon et al. (2004) who show that advertising increases demand of uninformed investors and

Lou (2013) who shows that firms opportunistically use advertising to pump up prices to maximize the proceeds from insider and other equity sales. Our findings compliment these papers since, similar to this work, we present evidence that advertising makes agents who respond to it worse off.

More broadly, our paper is related to literature on how persuasion affects consumer choices (see Bagwell 2007 and DellaVigna and Gentzkow 2010 for a detailed recent review of this literature). Within this literature, our work is closely related to Agarwal and Ambrose (2011) who assess the effect of advertising on consumer choice of home equity debt contracts by examining a direct mail advertising experiment done by a large bank. They find that relative pricing variables were less relevant in explaining consumer contract choice for a subset of consumers who received a direct mail solicitation, even though they were presented with a full menu of debt contracts. Their evidence, conducted on a sample of substantially higher quality borrowers than ours, also support the persuasive view of advertising in the mortgage market.[6] Bertrand et al (2010) use a field experiment to show that advertising increases demand for consumer loans and study the effect of different advertising features. DellaVigna and Gentzkow (2010) point out that it is difficult for the literature to draw causal interpretations because advertising is endogenous to several firm characteristics. Our paper attempts to draw such a link by exploiting both the richness of our data and the Craigslist test.

The rest of the paper is organized as follows: In Section II we discuss the institutional background, including the anecdotal evidence on the deceptive use of advertising in mortgage markets. In Section III we present our data sources. Section IV outlines the empirical results. Section V discusses the findings and reports some auxiliary tests. Section VI concludes.

II. Institutional Background

II.A. Anecdotal evidence of deceptive advertising in the mortgage market

As we discuss in detail in Section III, lenders target potential consumers through advertisements in local newspapers and in television, radio, and outdoor spots. Several discussions in the popular press as well as policy discussions suggest that mortgage lenders have employed advertising to confuse consumers into making "bad" decisions. A *Wall Street Journal* article on February 15, 2005, describes a then-popular practice of advertising low teaser (initial) rates on ARM mortgages as a way to attract consumers who do not realize that these rates will be substantially higher after the reset date. Consider, for example, the advertisement placed by DCG

[6] The sample in Agarwal and Ambrose consists of borrowers whose average FICO score is around 720. This is about 100 points higher than the average borrower in our sample (FICO score around 630).

Mortgage in the *New York Post* on January 18, 2007. The advertisement offered "low introductory teaser interest rate" of 1% on mortgage loans and low monthly payment amounts at that rate of $529.69 per month on a $200,000 loan. According to the settlement agreement between New York Banking Department and Sage Credit Company (formerly named DCG Mortgage), this particular advertisement failed to "clearly and conspicuously disclose the actual terms of repayment of the loans, including that the advertised low interest rate and low monthly payments are subject to increase and do not last over the life of the loan."[7]

Not surprisingly, such discussions in the popular press have not gone unnoticed. Several high-profile lawsuits have been directed at lenders for using false advertising to attract potential consumers and steer them into "bad" mortgages. The Office of the Attorney General's Consumer Protection Section in Colorado has sued or settled with sixteen mortgage lenders regarding "deceptive advertising" by "unscrupulous brokers who were taking advantage of borrowers … Consumers often were surprised to learn that the fixed payment schedule they believed they had signed up for actually resulted in … owing more than the original loan."[8] One of the lenders was Green River, who placed an advertisement in the *Rocky Mountain News* and the *Denver Post*, advertising an option ARM, whose rate reset in the future, as a "10 Year Fixed Payment Plan" or "10 Year Fixed" at 3.95% and 4.05% APR in March and April of 2006.[9] These advertisements were deemed deceptive and misleading because they suggested that the initial teaser rate was a fixed interest rate for an extended period of time. Similar lawsuits were filed by the Arizona Office of Attorney General against Home Loan Center for mortgages originated from 2004 to 2007 and against Wells Fargo Bank relating to similar practices and advertising by Wachovia Corporation and Golden West Corporation (both acquired by Wells Fargo).

The lawsuits against mortgage lenders frequently allege that these ads were targeted at minorities, who are potentially more vulnerable to misinformation. For instance, in the lawsuit against Countrywide Financial Corporation/Bank of America by the State of Illinois, the attorney general found that Countrywide steered "prime-eligible" minority community borrowers into

[7] There were other misleading pieces of information in the advertising by this mortgage lender as well. Statements in the advertisement implied that "no income verification" and "no asset verification" loans are products that are particularly suited to those with bad credit. Other advertised terms were not only misleading but also factually incorrect: the advertising offered mortgage loans with "40–50 year" terms. According to General Regulations of the Banking Board, Part 82.2(d), the term of any mortgage loan given on a one- to four-family owner-occupied residence cannot exceed forty years. Finally, the advertisement suggested that mortgage broker would fund all mortgage loans itself, despite the rule of General Regulations of the Banking Board Part 38.2(d) that says, "No advertisement by a mortgage broker shall contain language which indicates or suggests that the mortgage broker will fund a mortgage loan. Any advertisement by a mortgage broker must contain a statement to the effect that the mortgage broker arranges mortgage loans with third-party providers."

[8] http://www.coloradoattorneygeneral.gov/departments/consumer_protection/mortgage_fraud_information_center/learn_more_about_attorney_general%E2%80%99

[9] Mortgage Toolbox was even more brazen in advertising with ARMs advertised below a heading of "30 year fixed."

high-fee subprime ARM loans relative to similarly situated white borrowers from 2005 to 2007. Aggressive marketing and advertising on radio, in newspapers and on television were alleged to have played a major role in "pitching such products to minorities." For example, to target advertising at Latinos, Countrywide used advertising on the TV reality show *Lo dejo en tus manos*. Similarly, it also targeted Latinos by partnering with a Spanish newspaper, *La Raza*. In another high-profile example, class action documents filed in October 2012 by the ACLU against Morgan Stanley state that the lender discriminated against "African Americans in the Detroit, Michigan metropolitan area," steering them into exceedingly high-cost and high-risk residential mortgage loans.[10]

Resulting Regulation

In response to concerns about unfair and deceptive mortgage lending and servicing practices, the Board of Governors of the Federal Reserve System issued significant new mortgage lending rules, Regulation Z, which took effect on October 1, 2009. The purpose of this regulation is to promote the informed use of consumer credit by requiring disclosures about its terms and cost. Since one of the primary concerns was that advertising lured consumers into ARMs with high reset rates, Regulation Z included several rules to govern mortgage advertisement, especially relating to ARMs.

Under the new rules, advertisements for home-secured loans may include only the simple annual interest rate, or the rate at which interest will accrue. If an advertisement includes an annual interest rate such as a teaser rate, and more than one rate may apply during the loan's term, the advertisement must disclose all interest rates, the time period for which they apply, and the loan's APR. In addition to outlining what mortgage lenders need to disclose in advertising, Regulation Z also prohibits some advertising practices. Two prohibitions which try to prevent misinformation about ARM reset rates are : (1) using the term "fixed" when advertising a variable-rate loan or ARM, and (2) comparing the advertised rate to an actual (or hypothetical) rate without disclosing costs that make the comparison misleading, thus hiding important information.[11]

The Federal Trade Commission proposed its own Mortgage Acts and Practices Advertising rule

[10] http://www.aclu.org/files/assets/10-15-12-filed_complaint_re_morgan_stanley.pdf

[11] Regulation Z creates new restrictions on all mortgage advertising and prohibits the following: (a) the unqualified use of the word "fixed" in ads for variable-rate mortgages or mortgages with increasing payments, unless the mortgagee prominently displays the duration under which the rate is invariable; (b) comparing rates where the advertised rate will not be available for the full duration of the loan; (c) falsely advertising a loan or mortgage as "government-endorsed"; (d) false claims of debt elimination; (e) using the word "counselor" in the context of for-profit sale of mortgages; and (f) in foreign language advertisement, providing only trigger terms in the foreign language while providing other terms in English.

relating to "unfair or deceptive acts and practices that may occur with regard to mortgage advertising." In seeking public comments on this rule, the FTC highlighted that deceptive claims were frequently aimed at borrowers in the subprime market. These contained "claims of low 'teaser' rates and payment amounts, without disclosing that the rates and payments would increase substantially after a limited period of time and misrepresentations that rates were fixed for the full term of the loan."[12] In response, "Section 321.3(g) prohibits misrepresentations pertaining to the variability of interest, payments, or other terms of mortgage credit products, including, but not limited to, misrepresentations using the word 'fixed' when terms are, in fact, variable or limited in duration."

The other major change in the regulatory landscape following the financial crisis was the establishment of the Consumer Financial Protection Bureau (CFPB).[13] This federal agency holds primary responsibility for regulating consumer protection in the area of financial products and services. The bureau has authority to write and enforce rules for banks and other firms, aiming to protect consumers from deceptive and abusive loans and other financial products and services.
In response to Dodd-Frank Act directives, the CFPB proposed Integrated Mortgage Disclosures, aiming to reduce inconsistencies in mortgage disclosure forms. The CFPB proposal suggests forms that use clear language and design to make it easier for consumers to locate key information, such as the interest rate, monthly payments, and costs to close the loan. The forms also provide more information to help consumers decide whether they can afford the loan and compare the costs of different loan offers, including the cost of the loans over time.

The CFPB also has authority to consider complaints regarding misleading financial advertisements. The Dodd-Frank Act dictates that it is unlawful for any provider of consumer financial products or services to engage in any unfair, deceptive, or abusive act or practice (UDAAP). The act also provides the CFPB with rule-making authority to prosecute such acts or practices. According to this mandate, the CFPB collects and documents advertisements that contain ambiguous language to create deception.[14]

III. Data

Our data come from two main sources. The first source provides information on advertising, while the other source provides information on the mortgages. The data on advertising are from the TNS Media Intelligence (TNSMI) database. TNSMI monitors eleven media channels and

[12] http://www.ftc.gov/os/fedreg/2010/september/100922mortgageadvertising.pdf
[13] More specifically, this agency was founded as a result of the Dodd-Frank financial reform legislation. The Dodd-Frank Wall Street Reform and Consumer Protection Act was passed in 2011, during the 111th United States Congress. The bureau was set up as an independent unit located inside, and funded by, the Federal Reserve.
[14] http://files.consumerfinance.gov/f/201210_cfpb_supervision-and-examination-manual-v2.pdf

collects information about advertisements at the national and designated market area (DMA) levels. DMA regions are geographic areas in the United States in which the population receives similar television, radio, and newspaper offerings. DMAs define boundaries of targeted local advertising and direct marketing campaigns across multiple media. A DMA typically refers to a certain geographic area rather than a city or county, and may contain zip codes from neighboring states. For example, New York DMA includes Pike County, Pennsylvania, although no part of Pennsylvania is part of the New York metropolitan area. In addition, a state may be divided into multiple DMAs (e.g., New York, New York, and Rochester, New York). Furthermore, if an area contains a few large cities apart from each other, these cities may be grouped together under the same DMA (e.g., Wichita-Hutchinson, Kansas; Chico-Redding, California).

A record in our advertising database is the amount a firm spent over a month in a given media channel in a DMA. The media channels include TV (network, cable, syndication, and spot), radio (network and local), newspapers (local and national), magazines, and outdoor advertising, which we describe in detail in Appendix A.[15] In our analysis we focus on local DMA-level advertising. Compared with national advertising, local advertising is particularly useful in allowing us to exploit cross-sectional variation across DMAs.

The data on mortgages come from LoanPerformance, a loan-level database that provides a detailed perspective on the nonagency securities market. The data include, as of December 2006, more than 7,000 active home equity and nonprime loan pools that contain more than 7 million active loans with over $1.6 trillion in outstanding balances. LoanPerformance estimates that, as of 2006, the data cover over 90% of the universe of securitized nonprime loans. The dataset includes all standard loan application variables, such as the loan amount, loan-to-value (LTV) ratio, FICO credit score, interest rate information about the property being financed by the borrower, and purpose of the loan. We have information on the type of mortgage loan (fixed rate, adjustable rate, balloon, or hybrid) and the zip code where the dwelling is located. The data also provide information on monthly loan-level performance for approved loans, which we use in some of our analysis. We follow the convention in the literature (e.g., Keys et al. 2010) and use an indicator variable of loan performance that takes a value of 1 if the borrower becomes late by 90 days or more (90+ delinquent) in making payments within two years of origination, and 0 otherwise.

In general, borrower creditworthiness can be assessed along two dimensions. First, one can use borrower credit scores, known as FICO scores, as a measure of credit risk. These scores provide a ranking of potential borrowers by the probability of having a negative credit event in the next

[15] Although the data allow us to observe how much firms spend in these channels, we cannot identify which specific outlet in that specific channel was used.

two years, with nearly all scores between 500 and 800 (see Avery et al. 2000). Second, one can use the level of documentation of income and assets collected by the lender as a proxy of borrower quality. Documentation in the market (and reported in the database) is categorized as full, limited, or no documentation. Borrowers with full documentation verify both income and assets. Borrowers with limited documentation usually provide no information about their income but do provide some about their assets. "No-documentation" borrowers provide no information about income or assets, which is a very rare degree of screening lenience on the part of lenders. In our analysis, we combine limited and no-documentation borrowers and call them low-documentation borrowers.

Typically loans are classified as either for purchase or for refinance. In this paper we focus exclusively on loans for home purchases. We restrict our sample to cover owner-occupied single-family residences, townhouses, or condominiums (single-unit loans account for more than 90% of the loans in our sample). We drop nonconventional properties, such as those that are FHA- or VA-insured or pledged properties, and also exclude buy-down mortgages. Only those loans with valid FICO scores are used in our sample.

Since the advertising and mortgage datasets do not have unique identifiers that allow us to match them directly, we need to rely on matching the datasets using lender names. We proceed in two steps. First, we clean the names of lenders in the two datasets, accounting for spelling errors (e.g., Bank of America, Bnk of America) or abbreviations (e.g., New Century, NC, NC corporation). In the next step we hand-match company names reported by TNSMI to the corresponding mortgage providers using a conservative approach: names for which we cannot identify a unique match are excluded from the sample.

In our data, we are able to match unique mortgage provider names from the TNSMI database with 571 out of nearly a thousand company names that exist in the mortgage database. Our matched sample covers 105 of the 210 DMAs, which corresponds to 92% of the population in the United States. Our data reliably cover advertising information between 2002 and 2006, and as a result we will be conducting analysis over this period whenever using information about advertising.

IV. Empirical Analysis

IV.A. Descriptive Statistics

The matched mortgage providers in our sample advertised in all of the DMAs over our sample period (January 2002 to December 2006). Los Angeles DMA has the highest number of mortgage advertisers (49 unique mortgage advertisers). New York DMA had 38 and

Philadelphia DMA had 27 unique mortgage advertisers throughout the sample period. In terms of total expenditures, the top five DMAs include Los Angeles, New York, San Francisco, Philadelphia, and Chicago. Panel A of Table 1 reports the total advertising expenditures in the top five DMAs.

More than 96% of DMA-level mortgage advertising goes through three main channels: local newspaper, spot TV, and outdoor advertising (i.e., billboards).[16] The average quarterly spending for mortgage lenders in local newspapers, spot TV, and outdoor advertising is $3.255 million, $619,000, and $609,000 respectively. In Figure 1(a), we plot the total advertising expenditures in these three outlets over the sample period by our matched sample of lenders. As can be observed from this figure, there is significant variation in advertising expenditures both over time and within a year: mortgage advertising expenditures are typically 25% lower in the first quarter of the year compared to the average for the rest of the year. Year 2002 advertising expenditures are considerably lower than the rest of the sample ($7 million). The yearly total-advertising expenditure increases from $15 million to $23.5 million from 2003 to 2006.

Mortgage lenders use newspapers as the dominant channel of local advertising, accounting for 70% of total advertising expenditures, relative to 14% spent on spot TV and 14% on outdoor advertising. As can be seen from Figure 1(b), there is considerable variation in these expenditure shares over time. For instance, the newspaper expenditure share is lowest in the first quarter of 2003 (53%). By the end of 2006 this amount increases to 80%. Similarly, spot TV (outdoor) expenditures range between 2% (1%) and 31% (25%).

In Figure 2 we display the geographic distribution of regional advertising expenditure by mortgage lenders in the 206 DMAs across the U.S. This includes DMAs in which our vendor did collect data (represented in yellow; e.g. Mobile, Al - Pensacola, FL DMA). Red DMAs signify regions where lenders spent between 10 and 50 million USD on local mortgage advertising over the sample period (e.g. Orlando-Daytona Beach-Melbourne, FL DMA), while orange DMAS are regions where lenders spent less than 10 million USD in local mortgage advertising (e.g. Charleston, SC). Finally, DMAs in Brown represents regions where lenders spent more than 50 million USD for local advertising (e.g., San Francisco-Oakland-San Jose DMA).

It is worth noting that there is substantial variation in the use of local advertising channels discussed earlier. For instance, in Orlando the two dominant channels were newspapers (48%) and outdoor advertising (36%). In contrast, in Charleston, SC, the two main channels were spot TV (56%) and outdoor advertising (30%). Similarly, in San Francisco, the two lead channels of

[16] The remaining 4% is spent in cable TV and magazine categories.

local advertising used by mortgage lenders were newspapers (56%) and spot TV (27%) with the remainder spent on outdoor advertising.

The map clearly shows that there is wide heterogeneity in the intensity and channels of advertising used by lenders across regions. Importantly, there is variation within regions with booming real estate markets leading up to the crisis, which includes coastal markets such as Florida and California. It is this regional variation that will be useful for us to identify the effects of advertising on lending decisions.

Finally, Panels B and C of Table 1 present summary statistics of ARM and FRM loans originated by banks over the sample period. The characteristics of loans originated by these banks are comparable to those in other studies of LP data (Keys et al. 2010): the average loan-to-value ratio is 82%, the average FICO score is 654, and the average interest rate at origination is around 8–9%.

IV.B. Main Results

In this section we present the main analysis of the paper. We start by computing the degree of relative "expensiveness" of a given mortgage. This is defined as the price of a mortgage relative to other mortgages after accounting for a rich set of borrower, contract, and regional characteristics associated with a given mortgage. Next, we relate the expensiveness of the mortgage sold by a lender to the degree of advertising by that lender, to study the role of advertising in this market. Finally, we relate the expensiveness of the mortgage sold to subsequent delinquencies on the mortgage. This helps us evaluate whether "expensiveness"—even though constructed after conditioning on a rich set of controls—could reflect borrower risk.

IV.B.1. Measuring Mortgage Expensiveness

We first measure whether some mortgages are relatively more expensive than others. We start by computing this measure for adjustable-rate mortgages (ARMs) and focus on reset rates, which are anecdotally less salient and have been discussed by policy makers as a source of consumers' confusion. We compute expensiveness based on the idea that if two identical consumers obtain two ARMs of equal size and characteristics and with the same initial interest rate, but the reset rate for one consumer is higher, then the consumer with the higher reset rate is worse off, since she obtains a relatively more "expensive" loan. In this simple example, given that consumers are identical, the difference in the reset rates would give the degree of mortgage expensiveness. We apply this intuition in a regression framework: we compute mortgage expensiveness as the residual of the following specification:

$$y_{ijlt} = \beta i_{ijlt} + \alpha_t + \alpha_l + \Gamma_{ilt} X_{ilt} + \varepsilon_{ijlt}.$$

In this specification, i indexes the loan, j indexes the lender, t indexes the quarter, and l indexes the market (DMA). Our dependent variable is the reset rate on the ARM mortgage, y_{ijlt}.

The vector X_{ilt} contains loan and borrower characteristics such as the loan-to-value ratio, FICO score, whether the loan has a prepayment penalty, income characteristics and information on income, and racial and educational composition of the census tract in which the loan was issued.

We also condition on the initial interest rate of the loan, i_{ilt}, in order to hold mortgage characteristics as comparable as possible. The initial interest rate was set using all the information at the lender's disposal. It may therefore incorporate information on borrower quality that is potentially relevant for loan repayment and which we may not possess. The specification also includes quarter fixed effect, α_t, to absorb aggregate shocks to mortgage pricing, which can be driven by aggregate housing demand, interest rate policy, or credit supply expansion. Finally, the specification also includes location fixed effect, α_l, to proxy for local real estate and mortgage market conditions that could affect loan repayment, such as the elasticity of housing supply or competition in the mortgage market.

The results are presented in Table 2. As can be seen from column 1, the observable loan characteristics have the expected coefficients. More creditworthy borrowers, as measured by higher FICO scores, are charged lower interest rates. Mortgages backed by less collateral, with higher loan-to-value ratios, have higher reset rates. The presence of a prepayment penalty reduces the reset rate, and if the loan is low-documentation, it increases the reset rates. The coefficient on the initial interest rate (β) is positive and statistically significant. Thus, conditional on observed borrower characteristics, a high initial interest rate is positively correlated with the reset rate, indicating that it reflects additional information on the borrower not reflected in other observable characteristics. Not all the mortgages in our data are ARMs. Approximately 27% are fixed-rate mortgages (FRMs). One downside of using FRMs is that they have only one interest rate. As a result, these regressions cannot condition on as much information as ARMs: we cannot use the initial interest rate to control for lenders' information that is not contained in observable borrower characteristics. As a robustness check we also compute expensiveness by including FRMs and present the results in column 2 of Table 2. To compute expensiveness for these mortgages we use the initial interest as the dependent variable.

As can be observed, the results are similar to those obtained for ARMs. For instance, as before, the coefficient on credit score is negative, while the loan-to-value ratio coefficient is positive.

Overall, our model does well in explaining the substantial variation in reset rates in our sample with an adjusted R^2 of 56%. The residual measures the ARM reset rate the borrower was charged relative to the average borrower with the same set of observable characteristics, the same initial interest rate, in the same region and the same quarter:

$$\hat{\varepsilon}_{ijlt} = y_{ijlt} - \left(\hat{\beta} i_{ijlt} + \hat{\alpha}_t + \hat{\alpha}_l + \hat{\Gamma}_{ilt} X_{ilt}\right).$$

Since the measure is computed from residuals it can take negative and positive values: mortgages with negative (positive) expensiveness are cheaper (more expensive) than the mean mortgage with the same characteristics. In interpreting the results using this measure it is important to reemphasize that the essence of this metric is that if identical consumers obtain the same mortgage with different reset rates, then the difference in the reset rates measures how much worse was the choice of the consumer with the higher reset rate. In Figure 3(a) we plot these residuals for ARMs. As can be observed, we find large differences in reset rates charged to borrowers with the same characteristics in a given location. For completeness, in Figure 3(b) we repeat this analysis for all mortgages and find similar patterns. Note that when we compute expensiveness for all mortgages, we take the residuals for ARM loans using the regression specification in column (1) of Table 2 and for FRM loans using the specification in column (2) of Table 2.

A simple way of assessing the patterns in expensiveness is to plot the difference in mortgage expensiveness between the 95th and 5th percentiles in a given DMA in a given quarter. We do this in Figure 4(a). The mean difference in reset rates after conditioning on borrower, loan, and regional characteristics is 3.1 percentage points. This is a large difference—in the raw data, without adjusting for any lender, mortgage, or geographic characteristics, this difference is 5.8 percentage points. Such high dispersion in interest rates is not unusual for financial products: Hortacsu and Syverson (2004), for example, find substantial dispersion among S&P 500 index funds with the 90-10 percentile price (fee) ratio of 8.2.

Borrowers with the same characteristics obtain substantially different ARM reset rates during the sample period. These rates can differ because there is dispersion in the rates charged by a given lender while all lenders charge on average the same rate; alternatively, lenders may charge on average different mortgage rates, with some lenders being more expensive than others. To compute whether a lender charges on average higher prices than other lenders in the same market in a given quarter we average the expensiveness of individual loans for this lender in that location and quarter. Formally, lender expensiveness is computed as:

$$p_{jlt} = \sum_{jlt} \hat{\varepsilon}_{ijlt}$$

Computing average lender expensiveness is also useful because we want to use this variable as an input in regressions with advertising, which we observe at the lender level.

Figure 4(b) shows distribution of differences between the 95th and 5th percentiles of lender expensiveness in a given location and quarter. There are substantial differences in average residual reset rates charged by different lenders. This distribution is somewhat less spread out when compared with the difference across individual mortgages presented in Figure 3(a). This is expected, since some of the dispersion at the loan level may be due to noise, and aggregating decreases the amount of noise in our variable. The mean difference in reset rates charged by a lender between the 95th and 5th percentiles is 2.8 percentage points. Thus, there is a substantial variation among the average prices lenders charge for mortgages in a given market in the same quarter.

In unreported tests we also recompute the distribution estimating the regressions at a much finer level of geography (zip codes rather than DMAs). This alleviates concerns that differences in regional factors vary significantly within the level of location that is defined in our regressions. Our inferences are unchanged.

IV.B.2. Advertising and Expensiveness

In this section we explore the central question in the paper: does advertising persuade consumers to enter expensive mortgages or does it provide information allowing the consumers to make better mortgage choices? If mortgage advertising provides information to consumers, then the cheaper lenders should be advertising. If, on the other hand, advertising misleads consumers, then it is expensive lenders who do the advertising, using it to steer consumers to borrow from them rather than from cheaper lenders. We test these hypotheses by examining whether advertisers are relatively more "expensive."

We first examine this hypothesis by plotting the distribution of residual reset rates[17] for advertisers and nonadvertisers in Figure 5. As can be observed, the distribution of reset rates of advertisers is shifted to the right of nonadvertisers. A Kolmogorov-Smirnov test rejects the equality of the two distributions at the 1% level. Thus, consistent with the persuasive view, lenders who advertise sell more expensive mortgages.

[17] In this plot we purge the initial interest rate, borrower characteristics, location, and year fixed effects when plotting the residuals.

While this simple cut of the data is suggestive of the persuasive view of advertising, we now explore whether advertisers sell more expensive mortgages more systematically in a regression framework by estimating the following specification:

$$p_{jlt} = \beta advertising_{jlt} + \alpha_j + \alpha_t + \alpha_l + \varepsilon_{jlt},$$

where $advertising_{jlt}$ is the independent variable of interest and measures the total dollar value of local advertising of lender j in market l in quarter t. In subsequent specifications we also use $advertising_{ilt}$ to denote dollar value of local advertising through different media.

When we construct our measure of lender expensiveness, we already condition on borrower characteristics and mortgage characteristics, including the initial interest, and compute the expensiveness of a mortgage relative to other loans in the same location. In effect, we measure how expensive a lender is in a given location relative to other lenders in the same location. This is our dependent variable p_{jlt}.

The specification includes lender fixed effect, α_j, since we are interested in exploiting within lender variation in advertising. For example, if predatory lenders are likely to advertise, our lender fixed effect will absorb that variation. Similarly, lender fixed effects will control for differences in lenders' propensity to securitize mortgages (see Keys et al. 2010) or provide renegotiations in the case of borrower distress (see Piskorski et al. 2010), or if some lenders are more "consumer friendly," have a better brand or cheaper access to capital.

The specification we estimate also includes location fixed effects, α_l. Consequently, the results we find are not driven by the notion that lenders advertise more in more attractive locations in which they can charge more for mortgages because of local real estate and mortgage market conditions. The specification also includes quarter fixed effect, α_t, to absorb aggregate shocks to mortgage pricing that may be correlated with advertising due to trends in advertising in the data. Intuitively, in the specification above we compare whether a lender is more expensive relative to nonadvertisers in regions in which it advertises more.

The results are presented in Table 3. The coefficient on the advertising in column 1 is positive and statistically significant at 5 percent. This implies that, keeping observable borrower characteristics fixed, lenders charge higher mortgage prices relative to other lenders in regions in which they advertise relatively more. This result is inconsistent with the view that advertising provided more information to consumers in the mortgage market. Instead, it suggests that

advertising drew consumers to expensive mortgages, leading them to worse mortgage choices than they would have otherwise made. This is the baseline result of this paper.

We examine whether the relationship between local advertising and mortgage pricing varies across different types of media. Newspapers are the largest medium of local mortgage advertising (see Table 1, Panel A and Figure 1(b)). Since other mediums of advertising are significantly smaller, we aggregate them into a category called "other" advertising. The results from this analysis are presented in columns 2 and 3. The effect of advertising on expensiveness of ARM mortgages is driven by advertising in newspapers—the coefficient on newspaper advertising is 17% larger than the coefficient on total advertising. This is an economically large effect. The coefficient implies that a one-standard-deviation increase in advertising increases the average reset rate a lender charges in that location by roughly 80 basis points, or approximately one-half of a standard deviation in reset rates. Other advertising has a positive coefficient that is slightly smaller than the coefficient on total advertising and is statistically insignificant.

We also replicate our results by adding data on FRMs. As mentioned above, we compute expensiveness for all mortgages by taking the residuals for ARM loans using the regression specification in column (1) of Table 2 and for FRM loans using the specification in column (2) of Table 2. Together, the results presented above are consistent with the persuasive view of advertising, that advertising allows lenders to steer mortgage borrowers into more expensive choices. In the remainder of the paper we dig deeper into the sources of this correlation and show that it is unlikely to be driven by spurious factors.

IV.B.3. Delinquency

In the previous section we show that lenders sell relatively more expensive mortgages in geographies in which they advertise relatively more and claim that this is evidence of lenders using advertising to steer consumers into expensive mortgages. A potential alternative explanation is that even after we condition on extensive observable borrower and loan characteristics as well as the region and time period, these variables only partially capture borrowers' true ability to repay a loan. Advertisers charging higher mortgage rates might reflect the fact that they lend to a pool of borrowers who are less likely to repay a loan.
We confront this alternative head-on and test whether advertising is positively correlated with borrowers falling behind on their loan payments using the following regression:

$$delinquent_{jlt} = \beta advertising_{jlt} + \alpha_j + \alpha_t + \alpha_l + \varepsilon_{jlt}.$$

Here, $delinquent_{jlt}$ measurers the percent of loans made by lender j in location l in quarter t that turned out to be delinquent. As is standard in the literature, we define delinquency based on the loan falling behind by 90 days within the first two years of its origination. To make the specification comparable to the earlier one, we include location, time, and lender fixed effects, α_l, α_t, and α_j respectively. Thus, in this specification, similar to those used in Table 3, we will exploit the variation within a lender in a given location and in a given quarter.

The results of this exercise are presented in Table 4. If the alternative explanation holds and advertisers attract borrowers who are less likely to repay a loan, we should find that these borrowers are more likely to fall behind on their payments, and the coefficient on advertising in the regression would be *positive*. In fact, the correlation of advertising and delinquency is *negative*, whether we measure delinquency on the main sample of ARM loans or if we include FRM loans. These findings are at odds with the alternative explanation outlined earlier.

Moreover, if advertising does not change the pool of borrowers, then it raises the interest rate a borrower of a given type pays. For a given borrower, higher interest rates should directly lead to more delinquency and default, an effect that is independent of advertising since a borrower with a given income stream has a more difficult time repaying a loan with higher interest payments. This indirect effect of advertising through higher interest rates generates a *positive* correlation between advertisers, who on average charge higher interest rates, and delinquency.

The fact that we find a negative, albeit statistically insignificant, relationship between advertising and delinquency would suggest that advertising attracts borrowers who are more likely to repay a loan. This effect is strong enough to overcome the indirect effect that advertising has on delinquency because of increased interest rates. These delinquency results suggest that advertisers should charge *lower* reset rates than nonadvertisers to borrowers who look the same on observable characteristics, if pricing only reflected borrower characteristics. Our estimates of the effect of advertising on loan prices are probably an underestimate of the true effect. Using instrumental variables in the next section will allow us to obtain a better estimate of the true effect of advertising.

IV.C. Evidence from Craigslist

In this section we explicitly address the concern that lenders advertise in regions with borrowers who are worse on unobservables, by exploiting variation in advertising that is uncorrelated with borrowers' ability to repay. We use the introduction of Craigslist into different markets over time to obtain variation in mortgage advertising. Craigslist is one of the largest online forums for classified advertisement. While its main business is to provide a forum for free advertising of

goods, jobs, apartments for rent, and personal ads, it also provides a forum for free mortgage advertising in its financial services section. In Appendix B we provide a few historical examples of mortgage classifieds on Craigslist during our sample period. For example, from July 16, 2005 to August 13, 2005 the Jacksonville, FL, Craigslist page had had 90 financial services classified, and 15 were mortgage related.

Craigslist introduction could plausibly decrease the amount of local mortgage advertising, especially in newspapers. Craigslist's appeal is large enough that it has had a significant impact on job advertising in newspapers (Kroft and Pope 2012). Moreover, in a 2011 survey, 21 percent of consumers reported that they obtain most information about "Local Housing and Real Estate" from "other websites", defined as a "NOT print or TV news org. site or gov't site, includes nat'l sites that offer local info, such as weather.com, *craigslist* [emphasis added], or patch.com" (Pew Research Center, 2011, p. 57).

We first show that Craigslist's introduction, while unrelated to the mortgage market conditions, indeed decreased mortgage advertising. Next, we exploit the entry of Craigslist into different markets to estimate the impact that the Craigslist induced drop in advertising had on mortgage prices.

The advantage of Craigslist is that it is segregated across markets. The Website for San Francisco classifieds is separate from the Chicago Website. Further, as Figure 6 shows, the introduction of Craigslist has been staggered across the United States. The service was first introduced in San Francisco in 1999, and the geographic expansion continued through the duration of our sample, in the United States and abroad. These features allow us to exploit the introduction of Craigslist across different regions during our sample period.

IV.C.1 Descriptive analysis

Before we formally exploit the variation in advertising induced by Craigslist, and the resulting impact on mortgage pricing, we first study whether the introduction of Craigslist has the hypothesized effect on mortgage pricing graphically. We expect that mortgage advertising decreases upon Craigslist entry, also decreasing mortgage pricing of advertisers.

In Figure 7 we plot the distribution of residual reset rates[18] for advertisers and nonadvertisers across our sample, separated based on whether the observation had a Craigslist presence or not. Nonadvertisers should not be affected by Craigslist entry and are the control group. Indeed, Craigslist has little effect on pricing of mortgages by nonadvertisers. The modes of the

[18] We purge the initial interest rate, borrower characteristics, location, and year fixed effects.

distribution are the same, as is the left tail—the only difference is that reset rates are slightly higher for Craigslist observations in the right tail. Craigslist entry has a different effect on advertisers, which are our treatment group. The distribution of interest rates for advertisers is shifted to the left after Craigslist entry, including shifting the mode of the distribution left. The right tail shifts up in the same way as in the control group. This left shift in the distribution suggests that Craigslist induces advertisers to decrease reset rates relative to non-advertisers.

IV.C.2 Regression analysis

We now more formally examine whether Craigslist entry leads to a decrease in advertising, and whether this shift in advertising leads to a change in mortgage pricing. We first estimate the effect that the introduction of Craigslist has on mortgage advertising:

$$advertising_{jlt} = \beta_1 After\ Craigslist\ Entry_{lt} + \alpha_j + \alpha_t + \alpha_l + \nu_{jlt},$$

where $After\ Craigslist\ Entry_{lt}$ is a dummy variable indicating the presence of Craigslist in a given location *l* in period *t*. These specifications include market, time, and lender fixed effects, α_l, α_t, and α_j respectively. Market fixed effects account for the fact that Craigslist enters markets where advertising happens to be high. Time fixed effects control for the fact that advertising and Craigslist reach expanded during our sample. Lender fixed effects control for the possibility that lenders that advertise happen to do so in markets that Craigslist enters. Therefore, by using this specification, we are exploiting variation in advertising of a given lender in a given market.

A simple example helps illustrate the empirical strategy. Suppose there are two markets A and B with Craigslist entering market A at some point during our sample. Market A forms the treatment group while Market B forms the control group. Our specification compares the amount of advertising that lender *j* did in Market A before Craigslist entry to the amount of advertising the same lender did after Craigslist entry. We compare this change to the change in advertising of lender *j* in Market B, which did not experience Craigslist entry.

We present the results from the first stage in Table 5, Panel A. We find that Craigslist entry in a market decreases the amount of advertising. The economic impact is large and suggests a reduction in amount of advertising by $2,465 per quarter for a given lender. This result is highly statistically significant and exceeds the Stock and Yogo (2005) statistical tests for weak instruments. We next examine if the effect is larger for newspaper classifieds, which are close substitutes to free classifieds provided by Craigslist. As is shown in columns 2 and 3, the Craigslist introduction decreases newspaper advertising by $1553, twice as much as other

advertising, $652. These results resonate well with findings in Kroft and Pope (2012), who show that Craigslist had a large effect on job advertising in newspapers.

Now that we have established that the entry of Craigslist had a large and significant impact on mortgage advertising, we want to exploit this variation in an instrumental variable setting to assess the effect of advertising on the overpricing of ARM mortgages. Recall that our calculation of overpricing p_{jlt} already conditions on consumers' observable characteristics and location fixed effects. The endogeneity concern we had in the baseline specification was that *unobservable* consumer characteristics, which are not reflected in the delinquency rate but affect lenders' profitability, are correlated with advertising. When we use the Craigslist instrument, our identifying assumption is that Craigslist does not enter regions in which mortgage advertising has already decreased, and that during the same time lenders who advertise in this area also experience an increase in unobservable borrower quality relative to other nonadvertising lenders in this region.

While we do not believe that this alternative to our exclusion restriction is very plausible, especially since mortgage advertising is a relatively small part of Craigslist advertising, we nevertheless explore this argument further. First, if Craigslist entry is correlated with changes in unobservable borrower characteristics, we might also expect it to be correlated with observable borrower characteristics. In Table 6 we show that Craigslist entry does not predict changes in the borrower pool relative to regions that did not experience the introduction of Craigslist. This is the case for borrower quality as measured by credit scores, loan-to-value ratios, prepayment penalty, or the share of low-documentation loans. The coefficients around the Craigslist effect are economically small, statistically weak, and unstable. For example, for the loan-to-value ratio the largest coefficient is 0.231, where the mean ratio is 87 and the effect disappears a quarter after Craigslist entry. The case for low-documentation loans is similar, with magnitudes being small and coefficients unstable. The most stable change in observables correlated with Craigslist entry is the prepayment pool, but the magnitudes are also economically small.

Second, to explore whether Craigslist enters areas in which mortgage advertising is in decline, we examine the timing of the advertising decline relative to Craigslist entry and present the results in Table 6. Advertising starts declining only one quarter before Craigslist entry, but the magnitude of the decline significantly increases upon entry and already doubles a quarter after entry. The one-quarter lead suggests that Craigslist entry in a market is not a complete surprise to

the market participants, who decrease their advertising a bit expecting the entry that is soon to follow.[19]

So far we have demonstrated that Craigslist entry decreases mortgage advertising and it plausibly satisfies the necessary exclusion restriction. We conclude our analysis by exploiting variation in Craigslist entry to estimate the effect of advertising on the pricing of ARM mortgages with the following equation:

$$p_{jlt} = \beta \widehat{advertising}_{jlt} + \alpha_j + \alpha_t + \alpha_l + \varepsilon_{jlt},$$

where $\widehat{advertising}_{jlt}$ is the fitted value from the first stage. The standard errors reported in our analysis account for the generated regressor from the first stage. The analysis from the second stage is presented in Table 5, Panel B. Column 1 shows that the coefficient on advertising is positive and highly statistically significant. This confirms our hypothesis that advertising is used in mortgage markets to steer consumers to more expensive mortgages, rather than providing information, which would lead consumers to obtain better, cheaper mortgages.

In columns 2 and 3, we separately estimate the effect of advertising across various types of media and find that advertising in newspapers has the largest effect on mortgage prices. The coefficient on advertising in other media is highly statistically significant, but economically smaller. The effects are similar, both quantitatively and qualitatively, if we include FRMs as a robustness check (Panel C). Jointly, results up to this point confirm that mortgage advertising was used to steer consumers into ARM mortgages with higher reset rates, leading consumers into suboptimal choices. This stands in stark contrast to the view that advertising in mortgage markets provides an informational role, helping consumers choose better products.

V. Discussion of Results

V.A. Magnitude of the effect

We now provide a simple back-of-the-envelope calculation to interpret the magnitude of our estimates. We use the instrumental variable estimate, because it is identified by the cleanest source of variation. The coefficient of 0.0711 implies that a $1,000 increase in quarterly advertising expenses increases the average reset rate of loans made by that lender by 7.1 basis

[19] This notion is reasonable since the entry is discussed in several online forums in the few periods before Craigslist enters a given market. In particular, individuals can request that Craigslist add a city in a forum, where user votes can potentially influence such a decision. http://www.ehow.com/how_10065823_city-added-craigslist.html

points. The average lender that advertises spends $25,460 per quarter, which translates into a reset rate 181 basis points higher.

For ease of comparison we provide other ways of interpreting these magnitudes. The average mortgage amount in our data is approximately $200,000. To obtain the upper bound of this effect, assume that the mortgages are not prepaid or renegotiated, nor do they default. This calculation would be appropriate for borrowers who continue to obtain mortgages from advertisers and continuously pay the higher rate even upon refinancing a mortgage. For the average ARM mortgage in the data, the reset rate comes into effect after two years and lasts for fifteen years. Further, assume a 10% discount rate on the mortgage payments to bring them to present value. This implies that the consumer who obtains a mortgage from an average advertising lender pays approximately $21,250 more in present-value terms.

As stated, this estimate is an upper bound on the possible overpayment amount through higher interest payments. In reality, mortgages default, are prepaid, or are renegotiated. Therefore, the borrower's effective time of overpayment is shorter than the duration of the mortgage. For instance, if the average borrower pays the reset on an ARM for three years and the overpayment of the current mortgage does not spill into the next mortgage, then the present value of overpayment is approximately $7,440. While this is a substantial amount, it is in the same order of magnitude as the estimates of losses faced by mortgage borrowers because they do not properly account for broker service fees given in Hall and Woodward (2012).

It is worth noting that this back-of-the-envelope calculation relies on several simplifying assumptions. For example, if ARMs have prepayment penalties, and higher reset rates ex post lead to larger penalties, this will increase borrowers' mortgage cost. Therefore, our calculations should be interpreted with appropriate caution. Moreover, the IV estimate that we use represents a local treatment effect, so the usual caution about its broader applicability is in order when interpreting these magnitudes. Nevertheless, we find that the back-of-the-envelope serves as a useful benchmark when asserting that consumers choose economically significantly worse mortgages as a consequence of mortgage advertising.

Further, our calculation only considers the direct cost that borrowers incur from being steered to a more expensive mortgage through advertising. Mortgages with higher interest rates also have the indirect effect of increasing consumers' probability of default. For instance, Rajan et al. (2010) find that increasing the interest rate by a percentage point significantly increases the

probability of default.[20] The cost of this indirect effect is difficult to quantify in dollar terms but can represent a significant welfare loss to the consumer.

V.B. Mortgage Advertising and Target Groups

If advertising exploits uninformed consumers and steers them into expensive mortgages, then we would expect mortgage advertising to be most effective with consumers who are potentially less informed about mortgages and therefore more vulnerable to manipulation. Woodward and Hall (2012) show that groups that are likely less informed, such as minorities and the less educated, are charged higher brokerage fees in the mortgage market.

We examine whether the effect of advertising on mortgage pricing differs across these groups. We first compute the share of loans to minorities by weighing each loan by the share of minorities in the zip code in which the loan was issued for each lender/year/quarter. We define observations with a share of minorities below the median as low minority share and those with an above the median share of minorities as high minority share. We use the same approach to find lenders with a high and low share of educated (households with a BA degree) and poor borrowers (as defined by the Census).

We reestimate our baseline specification,

$$p_{jlt} = \beta advertising_{jlt} + \alpha_j + \alpha_t + \alpha_l + \varepsilon_{jlt},$$

on the subsamples of loans with high and low minority share, high and low education share, and high and low poverty share. The results are presented in Panel A of Table 7. As predicted, the effect of advertising on mortgage pricing is concentrated in lenders with high-minority portfolio areas. This suggests that within lenders, advertising is effective at drawing borrowers into more expensive mortgages only for lenders who lend heavily to minorities. We find no such effect for lenders with a low minority share. Similarly, the effect of advertising is concentrated in lenders who lend to less-educated areas and areas with a higher share of poor borrowers. Together these results strongly suggest that mortgage advertising was used to steer consumers with little information into ARM mortgages with higher reset rates, leading this subset of consumers into suboptimal choices.

[20] In our data advertising has a negative correlation with borrower defaults, conditioning on borrowers' observable characteristics. From that we infer that the unobservable quality of borrowers who are attracted to advertising is better than suggested by their observable characteristics. Conditioning on borrowers' true underlying quality, higher ARM reset rates would lead to more defaults.

Last we examine whether advertising in the mortgage market is targeted at groups that are less informed and more susceptible to deceptive advertising, consistent with our earlier hypothesis that advertising in the mortgage market was used to persuade consumers and steer them into expensive mortgages. Anecdotal evidence, such as the recent ACLU lawsuit of Morgan Stanley, suggests that lenders systematically targeted African-American borrowers, using advertising to steer them into ARM mortgages with high interest rates.[21]

We examine the demographic characteristics of markets and correlate them to advertising activities. Our information on characteristics of regions—such as the demographics—comes from census tract information collected in 2000. Because we have no variation in demographic characteristics of a market, we collapse the data to the market/lender level. We estimate the following regression:

$$advertise_{jl} = \alpha_j + \Gamma_{jl} X_{jl} + \varepsilon_{jl}.$$

In this specification j indexes the lender and l indexes the market. The dependent variable $advertise_{jl}$ is the average advertising for lender j in market l over the quarters in which j was active in market l. The vector X_{jl} contains information on income and racial composition of the DMA in which the lender was active.[22] As before, the specification includes lender fixed effect, α_j, to absorb any differences in lending across lenders. We present the results in Table 7, Panel B.

We find that lenders advertise more in regions with higher shares of minority households regardless of the means of advertising. Moreover, they dedicate more total advertising dollars in areas with a lower percentage of educated households. They do not seem to target poor households. The coefficient on the share of poor households is small, negative and very noisy.[23] It is likely that, while poor borrowers are more susceptible to advertising, they are less likely to be issued a loan, which makes advertising less profitable in those areas. It is worth noting that, by construction, subprime lenders tend to originate mortgages in low-income regions (i.e., subprime regions). These results demonstrate that, even within such regions, they target advertising at certain populations.

Finally, we provide some more descriptive statistics that are also suggestive of the broader role that advertising plays in the mortgage market. Reset rates in ARMs, which we examine, are one

[21] http://www.aclu.org/files/assets/10-15-12-filed_complaint_re_morgan_stanley.pdf

[22] To compute the demographic characteristics of a DMA we weigh the demographic characteristics of zip codes by the number of households.

[23] An alternative specification that does not include lender fixed effects, which examines the unconditional use of advertising, yields quantitatively similar results with similar levels of statistical precision.

feature of mortgage products that has been anecdotally described as difficult to understand or observe by consumers. The other has been "nontraditional" mortgages. These "nontraditional" mortgages include ARM mortgages as well as others whose payments change in the future, such as interest-only (IO) mortgages and those with balloon payments. In unreported tests we find that lenders who advertise more are more likely to originate "nontraditional" mortgages.

Overall, the findings in this section suggest that the mortgage lenders advertised in regions that are low-income and dominated by minorities. Moreover, the products originated by lenders who are heavy advertisers tend to be nontraditional. These results are consistent with our previous analysis, which suggests that lenders exploit the lack of information consumers have about the nature and price of mortgage products and use advertising to steer consumers toward expensive mortgages.

VI. Conclusion

We use a unique dataset that combines information on advertising by subprime lenders and the mortgages originated by them over the period 2002 to 2007 to show that lenders use advertising to steer consumers toward expensive mortgages. The collage of evidence in the paper is inconsistent with the "informative view" that says that advertising decreases search costs and allows consumers to find better products, and instead supports the "persuasive view" that suggests that lenders use advertising to mislead consumers who lack the knowledge and experience to make informed choices in the mortgage market.

The large number of delinquencies in the mortgage market in the recent financial crisis—the highest since the Great Depression—has provoked an immediate response from policy makers. A large thrust of this regulation was predicated upon the idea that lenders used advertising to steer naïve consumers toward expensive mortgages. The political imperative to act quickly prevented any empirical analysis to substantiate this premise. Our paper is the first systematic empirical study that investigates and provides support for the claim that there was misconduct in mortgage advertising. It is important to note that while the new financial regulation--new rules that ask lenders to provide clearer information on ARM reset rates as well as the new regulatory structure--attempts to implement these rules effectively, our work provides no guidance on whether they will result in advertising playing an informational role and helping consumers choose better mortgages. Understanding these issues remains a fruitful area of research (see Agarwal et al. 2012).

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Table 1: Descriptive Statistics

This table presents summary statistics of different datasets used in our analysis. Panel A reports the total advertising expenditures in the top five DMAs between 2002 and 2006. Panels B and C present summary statistics of ARM and FRM loans originated by banks over the sample period. Loan-specific attributes include Reset Rate, Initial Interest Rate, Reset Time, loan-to-value ratio (LTV), Loan Amount, credit score (FICO), Prepay Penalty Indicator, and Low Documentation Indicator. Panels B and C also summarize demographic information of the areas where these loans were given (% Minority, Median Household Income, % Poor, % Educated (college degree), % Female, and Average House Value).

Panel A. Total Advertising Expenditures in top five DMAs (2002–2006) (in thousands)

		Total	Newspaper	Spot TV	Outdoor
1	Los Angeles	31,451	25,131	2,702	2,345
2	New York	15,331	11,265	458	1,577
3	San Francisco	8,101	3,722	727	3,031
4	Philadelphia	5,057	3,591	399	569
5	Chicago	4,924	1,735	1,704	1,157

Panel B. ARM Loans

	Mean	Std. Dev.	N
Reset Rate	8.59	1.59	1,015,964
Initial Interest Rate	7.8	1.32	1,084,101
Reset Time	28.24	6.59	1,015,964
LTV	84.68	8.51	1,084,101
Loan Amount	168,601	107,004	1,084,101
FICO	626.02	53.7	1,084,101
Prepay Penalty Indicator	0.77	0.42	1,068,640
Low Doc Indicator	0.4	0.49	1,084,101
% Minority	25.74	23.24	1,066,544
Median HH Income	47,241	15,035	1,066,336
% Poor	10.86	7.56	1,066,336
% Educated	14.99	23.24	1,066,540
% Female	51.08	2.08	1,066,336
Average House Value	147,978	77,007	1,066,336

Table 1: Descriptive Statistics (contd.)

Panel C. FRM Loans

	Mean	Std. Dev	N
Reset Rate	8.59	1.59	1,015,964
Initial Interest Rate	9.33	2.15	390,768
Reset Time	28.24	6.59	1,015,964
LTV	91.55	11.77	390,768
Loan Amount	104,228	101,500	390,768
FICO	640.39	50.82	390,768
Prepay Penalty Indicator	0.59	0.49	382,656
Low Doc Indicator	0.38	0.48	390,768
% Minority	25.02	22.61	383,260
Median HH Income	48,096	15,582	383,260
% Poor	10.87	7.65	383,260
% Educated	15.37	0.08	383,260
% Female	51	2.09	383,260
Average House Value	153,438	81,787	383,260

Table 2. Measuring Mortgage Expensiveness

This table reports the estimation of the following specification: $y_{ijlt} = \beta i_{ilt} + \alpha_t + \alpha_l + \Gamma_{ilt} X_{ilt} + \varepsilon_{ijlt}$, where *i* indexes the loan, *j* indexes the lender, *t* indexes the quarter, and *l* indexes the market. The dependent variable is the reset rate on the ARM mortgage (first column) or the initial interest rate on the FRM loan (second column). Low Doc is an indicator for loans that require low documentation at loan application. Other controls include the demographic information for the zip codes in which the loans are made (% nonwhite, median and mean household income, % poor, % female, % with BA degree, median and mean house value). Standard errors are clustered by quarter and reported in parentheses under coefficient estimates. (***), (**), and (*) denote statistical significance for 1%, 5%, and 10% levels.

	Y=Reset Rate [ARM Loans] (1)	Y = Initial Interest Rate [FRM Loans] (2)
Initial Rate	0.625***	
	(0.0615)	
Reset Time (x10)	-0.206***	
	(0.0347)	
LTV (x10)	0.109***	0.606***
	(0.0214)	(0.0441)
Loan Amount (x10,000)	-0.00548***	-0.0738***
	(0.00177)	(0.0135)
FICO (x100)	-0. 295***	-1.09***
	(0.0675)	(0.0358)
Prepay Penalty	0.196***	-0.210***
	(0.0292)	(0.0550)
Low Doc	0.112***	0.406***
	(0.0358)	(0.0524)
Other Controls	Yes	Yes
Quarter Fixed Effects	Yes	Yes
Region Fixed Effects	Yes	Yes
Observations	1,182,080	464,530
R-squared	0.563	0.473

Table 3. Advertising and Expensiveness

In this table, we estimate the following specification: $p_{jlt} = \beta advertising_{jlt} + \alpha_j + \alpha_t + \alpha_l + \varepsilon_{jjt}$, where the dependent variable measures how expensive mortgages are in a region from a lender. Lender "expensiveness" is computed by aggregating individual loan level residuals obtained from specification reported in Table 2. *Advertising* is the total dollar value of local advertising of lender *j* in market *l* in quarter *t*. Panel A reports the coefficients using the ARM loan sample. Panel B reports the coefficients using all mortgages. We compute expensiveness for all mortgages using residuals from the specification estimated in column (1) of Table 2 for ARM loans and in column (2) of Table 2 for FRM loans. Standard errors are reported in parentheses under coefficient estimates. (***), (**), and (*) denote statistical significance for 1%, 5%, and 10% levels.

Panel A. ARM Loan Sample

	Y = Lender Expensiveness		
	(1)	(2)	(3)
Advertising (all) (x100)	0.0314**		
	(0.0115)		
Advertising (others) (x100)		0.111	
		(0.0816)	
Advertising (newspapers)(x100)			0.0368***
			(0.0122)
Quarter Fixed Effects	Yes	Yes	Yes
Lender Fixed Effects	Yes	Yes	Yes
Region Fixed Effects	Yes	Yes	Yes
Observations	51,895	51,895	51,895
R-squared	0.139	0.139	0.139

Panel B. All Mortgages

	Y = Lender Expensiveness		
	(1)	(2)	(3)
Advertising (all) (x100)	0.0239**		
	(0.00880)		
Advertising (others) (x100)		0.0894	
		(0.0723)	
Advertising (newspapers) (x100)			0.0299***
			(0.00915)
Quarter Fixed Effects	Yes	Yes	Yes
Lender Fixed Effects	Yes	Yes	Yes
Region Fixed Effects	Yes	Yes	Yes
Observations	51,895	51,895	51,895
R-squared	0.140	0.140	0.140

Table 4. Delinquency

In this table, we estimate the following specification: $delinquent_{jlt} = \beta advertising_{jlt} + \alpha_j + \alpha_t + \alpha_l + \varepsilon_{jlt}$, where the percent of loans made by lender *j* in location *l* in quarter *t* that turned out to be 90-day delinquent within the first two years of origination. *Advertising* is the total dollar value of local advertising of lender *j* in market *l* in quarter *t*. Panel A reports the coefficients using the ARM loan sample. Panel B reports the coefficients using all mortgages. Standard errors are reported in parentheses under coefficient estimates. (***), (**), and (*) denote statistical significance for 1%, 5%, and 10% levels.

Panel A. ARM Loans

	Y= 1 if 90-day delinquent within 2 years of origination		
	(1)	(2)	(3)
Advertising (all) (x100)	-0.00247		
	(0.00272)		
Advertising (others) (x100)		0.00301	
		(0.0143)	
Advertising (newspapers) (x100)			-0.00282
			(0.00352)
Quarter Fixed Effects	Yes	Yes	Yes
Lender Fixed Effects	Yes	Yes	Yes
Region Fixed Effects	Yes	Yes	Yes
Observations	51,895	51,895	51,895
R-squared	0.122	0.122	0.122

Panel B. All Mortgages

	Y= 1 if 90-day delinquent within 2 years of origination		
	(1)	(2)	(3)
Advertising (all) (x100)	-0.00216		
	(0.00265)		
Advertising (others) (x100)		0.00386	
		(0.0126)	
Advertising (newspapers) (x100)			-0.00268
			(0.00347)
Quarter Fixed Effects	Yes	Yes	Yes
Lender Fixed Effects	Yes	Yes	Yes
Region Fixed Effects	Yes	Yes	Yes
Observations	51,895	51,895	51,895
R-squared	0.134	0.134	0.134

Table 5. Craigslist Entry and Mortgage Advertising

In this table, we estimate the following specification using 2SLS: $p_{jlt} = \beta advertising_{jlt} + \alpha_j + \alpha_t + \alpha_l + \varepsilon_{ijt}$, where the dependent variable measures how expensive mortgages are in a region from a lender. Lender "expensiveness" is computed by aggregating individual loan level residuals obtained from specification reported in Table 2. *Advertising* is the total dollar value of local advertising of lender *j* in market *l* in quarter *t*. We use Craigslist entry to a region as an instrument in the first stage. Panel A reports the results of the first stage estimation for different measures of advertising (Total, Other, and Newspaper) using the following specification: $advertising_{jlt} = \beta_1 After\ Craigslist\ Entry_{lt} + \alpha_j + \alpha_t + \alpha_l + \nu_{jlt}$. *After Craigslist Entry* is a dummy variable indicating the presence of Craigslist in a given location *l* in period *t*. Panel B reports the coefficients of the second stage using the ARM loan sample. Panel C reports the coefficients of the second stage using all mortgages. Standard errors are reported in parentheses under coefficient estimates. (***), (**), and (*) denote statistical significance for 1%, 5%, and 10% levels.

Panel A. First Stage -- Craigslist entry

	Y= Advertising		
	Total Advertising	Other Advertising	Newspaper Advertising
	(1)	(2)	(3)
After Craigslist Entry	-1.217***	-0.321***	-0.764***
	(0.2470)	(0.0794)	(0.1704)
Quarter Fixed Effects	Yes	Yes	Yes
Lender Fixed Effects	Yes	Yes	Yes
Region Fixed Effects	Yes	Yes	Yes
Observations	51,895	51,895	51,895
Partial R-squared	0.0002	0.0003	0.0003

Panel B. Second Stage -- Instrumented Advertising and ARM Loans

	Y= Expensiveness		
	(1)	(2)	(3)
Advertising (all)	0.0715***		
	(0.0181)		
Advertising (others)		0.271***	
		(0.0877)	
Advertising (newspapers)			0.114***
			(0.0269)
Quarter Fixed Effects	Yes	Yes	Yes
Lender Fixed Effects	Yes	Yes	Yes
Region Fixed Effects	Yes	Yes	Yes
Observations	51,895	51,895	51,895
R-squared	-3.477	-3.094	-5.622

Table 5. Craigslist Entry and Mortgage Advertising (contd.)

Panel C: Second Stage – Instrumented Advertising and All Mortgages

	Y= Expensiveness		
	(1)	(2)	(3)
Advertising (all)	0.0675***		
	(0.0164)		
Advertising (others)		0.256***	
		(0.0817)	
Advertising (newspapers)			0.108***
			(0.0241)
Quarter Fixed Effects	Yes	Yes	Yes
Lender Fixed Effects	Yes	Yes	Yes
Region Fixed Effects	Yes	Yes	Yes
Observations	51,895	51,895	51,895
R-squared	-3.543	-3.152	-5.725

Table 6. Craigslist Entry and Timing

In this table, *Advertising* is the total dollar value of local advertising of lender *j* in market *l* in quarter *t*. We use Craigslist entry to a region as an instrument in the first stage. Panel A reports the results of the first stage estimation for different measures of advertising (Total, Other, and Newspaper) using the following specification: $advertising_{jlt} = \sum_{k=-2}^{2} \beta_i After\ Craigslist\ Entry_{lk} + \alpha_j + \alpha_t + \alpha_l + \nu_{jlt}$. *After Craig List Entry* is a dummy variable indicating the presence of Craigslist in a given location *l* in period *k*, and *k+2* indicates times 2 or larger. The omitted category is the presence of Craigslist before time -2. Standard errors are reported in parentheses under coefficient estimates. (***), (**), and (*) denote statistical significance for 1%, 5%, and 10% levels.

	Y=Advertising			***Y=Observables***			
	Total Adv.	Other Adv.	Newspaper Adv.	FICO	LTV	Prepay Penalty	Low Doc.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Craigslist Entry before -2	-0.146	0.0151	-0.169	1.274	-0.0240	0.0129	-0.00372
	(0.179)	(0.0970)	(0.0994)	(0.827)	(0.120)	(0.00839)	(0.00775)
Craigslist Entry -1	-0.512**	-0.118	-0.361***	-0.538	0.274	0.0101	-0.0115
	(0.183)	(0.0688)	(0.123)	(1.033)	(0.164)	(0.0112)	(0.00707)
Craigslist Entry 0	-0.796***	-0.219**	-0.499***	0.580	0.231**	0.0286**	-0.0169**
	(0.269)	(0.100)	(0.151)	(0.769)	(0.107)	(0.0106)	(0.00625)
Craigslist Entry +1	-0.925***	-0.184**	-0.660***	0.0758	0.106	0.0214**	-0.00395
	(0.190)	(0.0751)	(0.118)	(0.802)	(0.124)	(0.00872)	(0.00886)
Craigslist Entry after +2	-1.646***	-0.413***	-1.088***	0.260	0.0433	0.0443***	-0.0154***
	(0.286)	(0.115)	(0.199)	(0.864)	(0.150)	(0.0115)	(0.00509)
Quarter Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lender Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	42,632	42,632	42,632	42,632	42,632	42,632	42,632
Partial R-squared	0.114	0.204	0.087	0.292	0.233	0.574	0.298

Table 7. Advertising and Demographics

In Panel A we estimate the following specification: $p_{jlt} = \beta advertising_{jlt} + \alpha_j + \alpha_t + \alpha_l + \varepsilon_{jlt}$, where the dependent variable measures how expensive mortgages are in a region from a lender. Lender "expensiveness" is computed by aggregating individual loan level residuals obtained from the specification reported in Table 2 using the ARM loan sample. *Advertising* is the total dollar value of local advertising of lender *j* in market *l* in quarter *t*. We split the sample of lender/quarter/DMA observations by the share of loans weighted by the demographic characteristics of the area the loan was made in. High/Low represent observations above/below the median of the characteristic. Educated is the percentage of households with a BA degree. Panel B estimates the following specification: $advertising_{jlt} = \beta_1 minority_{jlt} + \beta_2 educated_{jlt} + \beta_3 poor_{jlt} + \alpha_j + \alpha_t + \alpha_l + \varepsilon_{ijt}$. Standard errors are clustered by quarter and reported in parentheses under coefficient estimates. (***), (**), and (*) denote statistical significance for 1%, 5%, and 10% levels.

Panel A. Advertising and Expensiveness

	Y = Lender Expensiveness					
	Minority % Low	Minority % High	Educated % Low	Educated % High	Poor % Low	Poor % High
	(1)	(2)	(3)	(4)	(5)	(6)
Advertising (all) (x100)	-0.0461	0.0338***	0.0708***	0.00616	0.00246	0.0369**
	(0.0564)	(0.0111)	(0.0197)	(0.0126)	(0.0192)	(0.0130)
Quarter Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Lender Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Region Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	25,922	25,973	26,008	25,887	26,093	25,802
R-squared	0.150	0.158	0.151	0.160	0.157	0.148

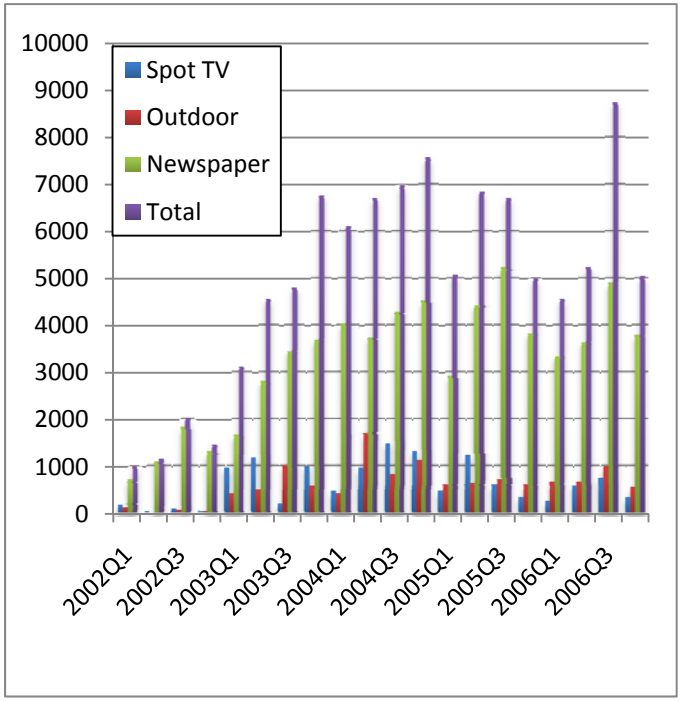
Table 7. Advertising and Demographics (contd.)

Panel B. Where do advertisers advertise?

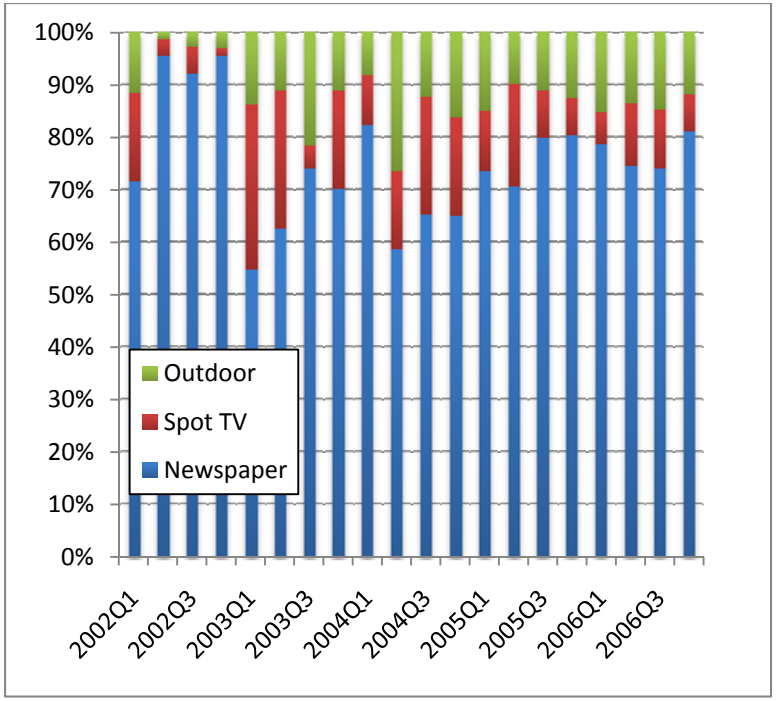
	Advertising		
	All	Others	Newspapers
	(1)	(2)	(3)
Minority %	6.924***	2.082**	4.045***
	(2.054)	(0.920)	(1.514)
Educated %	14.57**	4.477	7.354
	(7.247)	(3.245)	(5.342)
Poor %	-0.0253	-0.0244	-0.000894
	(0.0640)	(0.0287)	(0.0472)
Lender Fixed Effects	Yes	Yes	Yes
Observations	9,471	9,471	9,471
R-squared	0.377	0.429	0.180

Figure 1. Evolution of Mortgage Advertising over Time

This figure plots the time series of advertising expenditures for the matched lenders over the sample period. Figure 1(a) plots the total advertising expenditures and the expenditures in the three outlets over the sample period by our sample of lenders. Figure 1(b) provides the time series evolution of the percent advertising expenditures by the three dominant channels used by lenders in our sample.



(a) Advertising Expenses in a DMA



(b) Advertising Expenses in Top Three Outlets

Figure 2. Geographic Distribution of DMA level Advertising of Mortgage Lenders

This map displays the spatial distribution of DMA level advertising expenditure by mortgage lenders in the 206 DMAs across the U. S over our sample period. We use four colors to represent the total advertising expenditure over our sample period in a given DMA (yellow signifies DMAs for which we do not have advertising information). Advertising numbers in legend are represented in thousands.

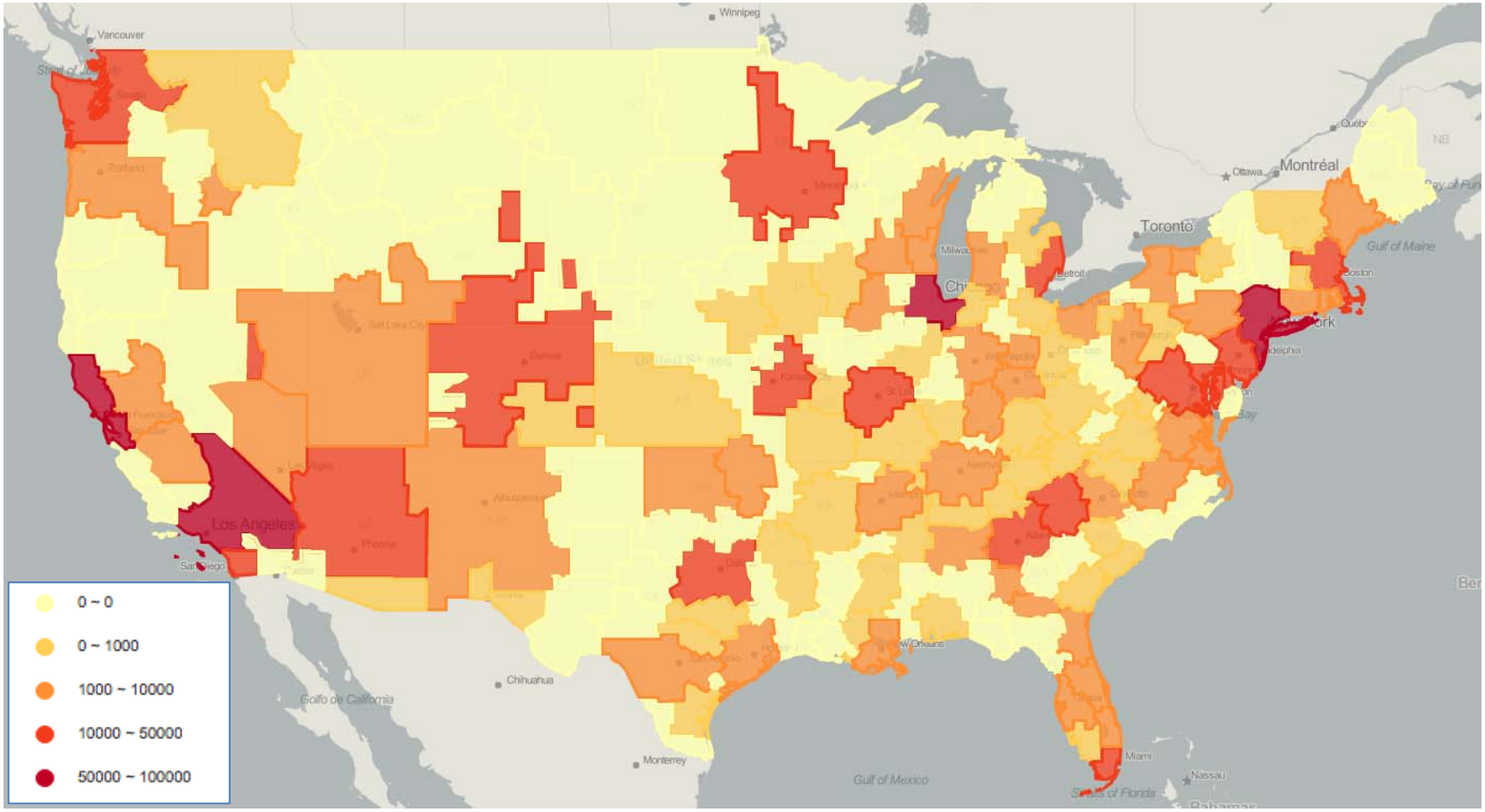
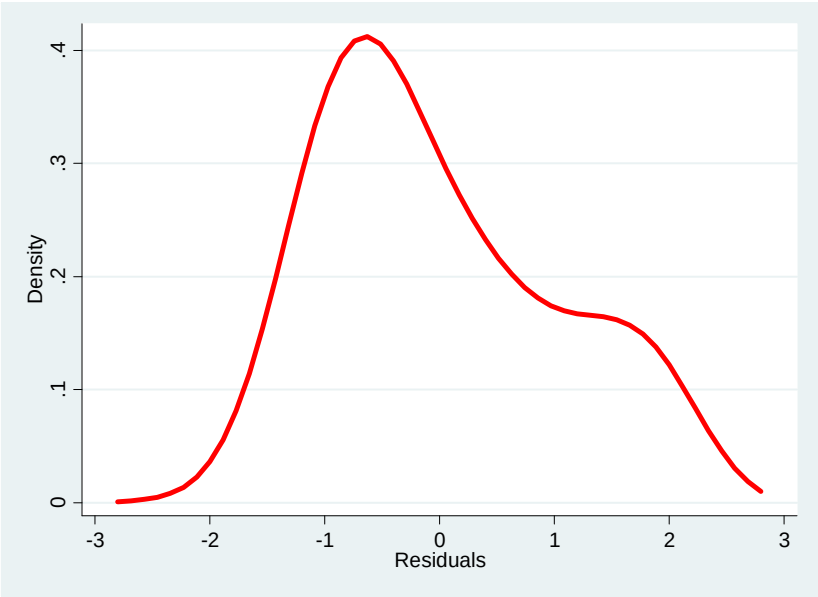
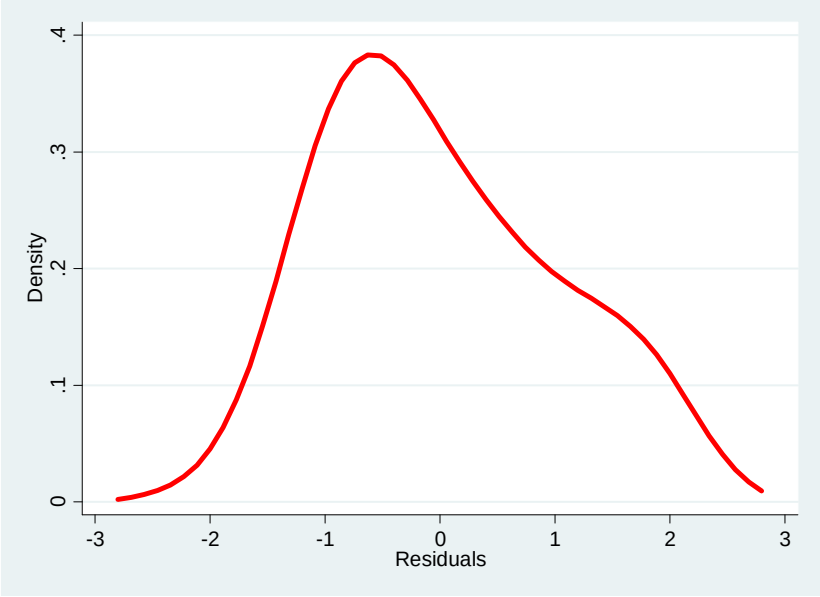


Figure 3: Kernel Density of Residuals

Figure 2(a) plots the kernel density of residual ARM reset rate a borrower was charged. The reset rate residuals are computed from the regression presented in Column 1 of Table 2. Figure 2(b) plots the kernel density of residual interest rate a borrower was charged. The plotted residuals are the combined ARM and FRM residuals from regressions presented in Column 1 and 2 of Table 2.



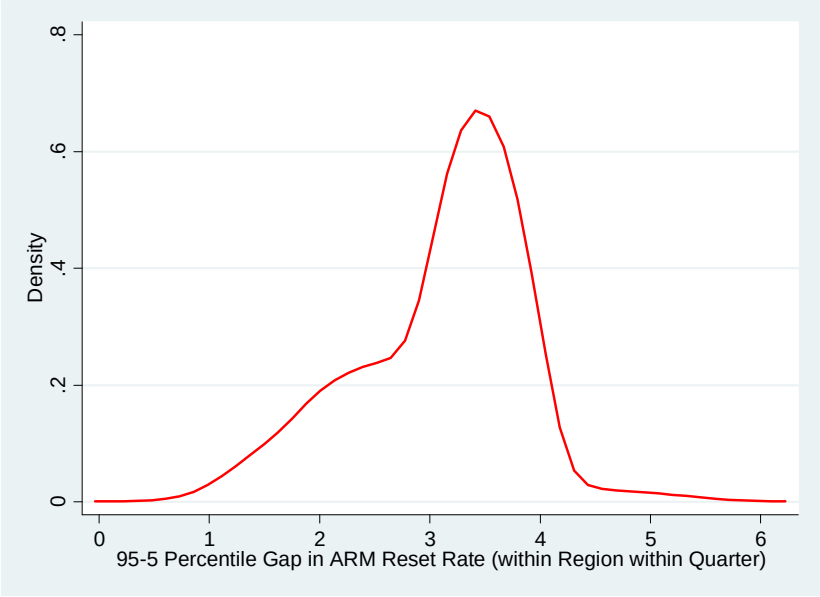
(a) ARM Reset Rate



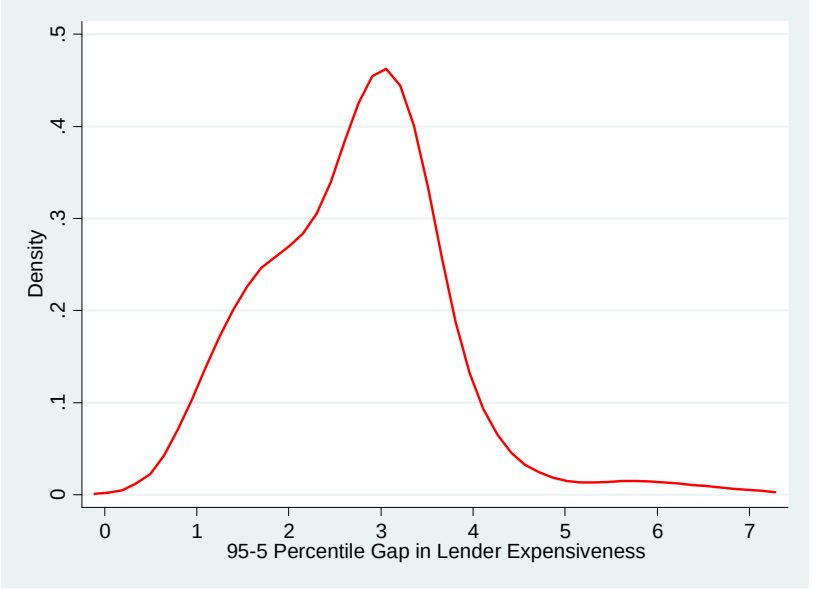
(b) Interest Rate on All Mortgages

Figure 4: Kernel Density of Dispersion within Region and within a Quarter

Figure 3(a) plots the kernel density of difference in mortgage expensiveness between the 95th and 5th percentiles in a given DMA in a given quarter. Expensiveness of a loan is defined as the residual ARM reset rate that a borrower was charged relative to the reset rate paid by an average borrower with the same set of observable characteristics, the same initial interest rate, in the same region and the same quarter (the residual from Column 1, Table 2, averaged within lender quarter DMA). Figure 3(b) shows the kernel density of differences between the 95th and 5th percentiles of lender expensiveness in a given location and quarter. Lender expensiveness is computed as the average the expensiveness of individual loans for this lender in that location and quarter (combined residuals from Columns 1 and 2, Table 2, averaged within lender quarter DMA).



(a) Dispersion in ARM Reset Rate



(b) Dispersion in Lender Expensiveness

Figure 5: Kernel Density Plot of Residual Reset ARM Rates for Advertisers and Nonadvertisers

This figure plots the kernel density of residual ARM reset rate a borrower was charged. The residual is computed for the borrower as the reset rate paid by the borrower relative to the reset rate of the average borrower with the same set of observable characteristics, the same initial interest rate, in the same region and the same quarter. We plot the kernel density for lenders who advertise, defined as those with positive advertising spending in a given quarter and DMA and for lenders who do not advertise, defined as those with no advertising spending in a given quarter and DMA.

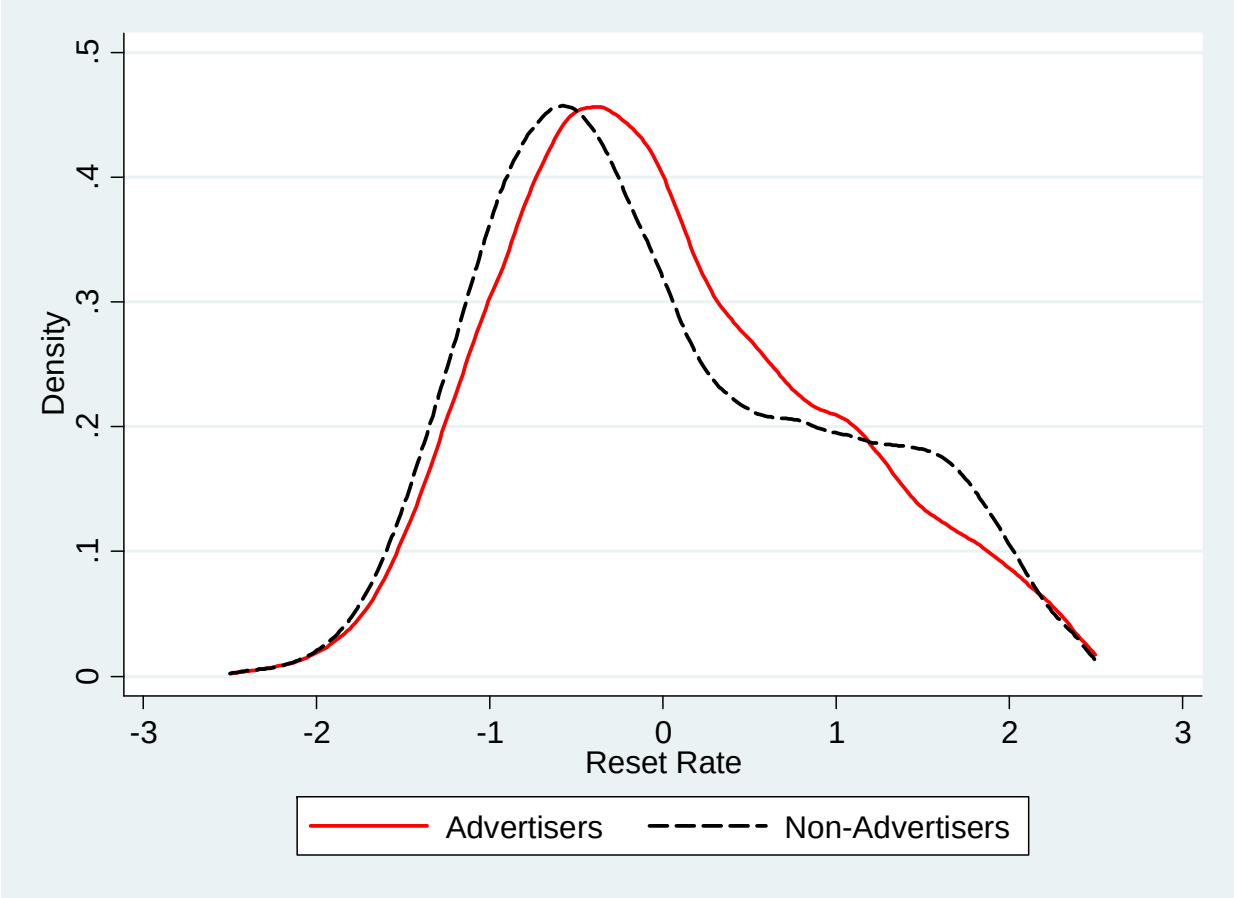


Figure 6. Timeline of Craigslist Entry

This figure plots the time line of the introduction of Craigslist across various states in the United States, starting in 1999 till 2008. (Source: http://www.craigslist.org/about/expansion)

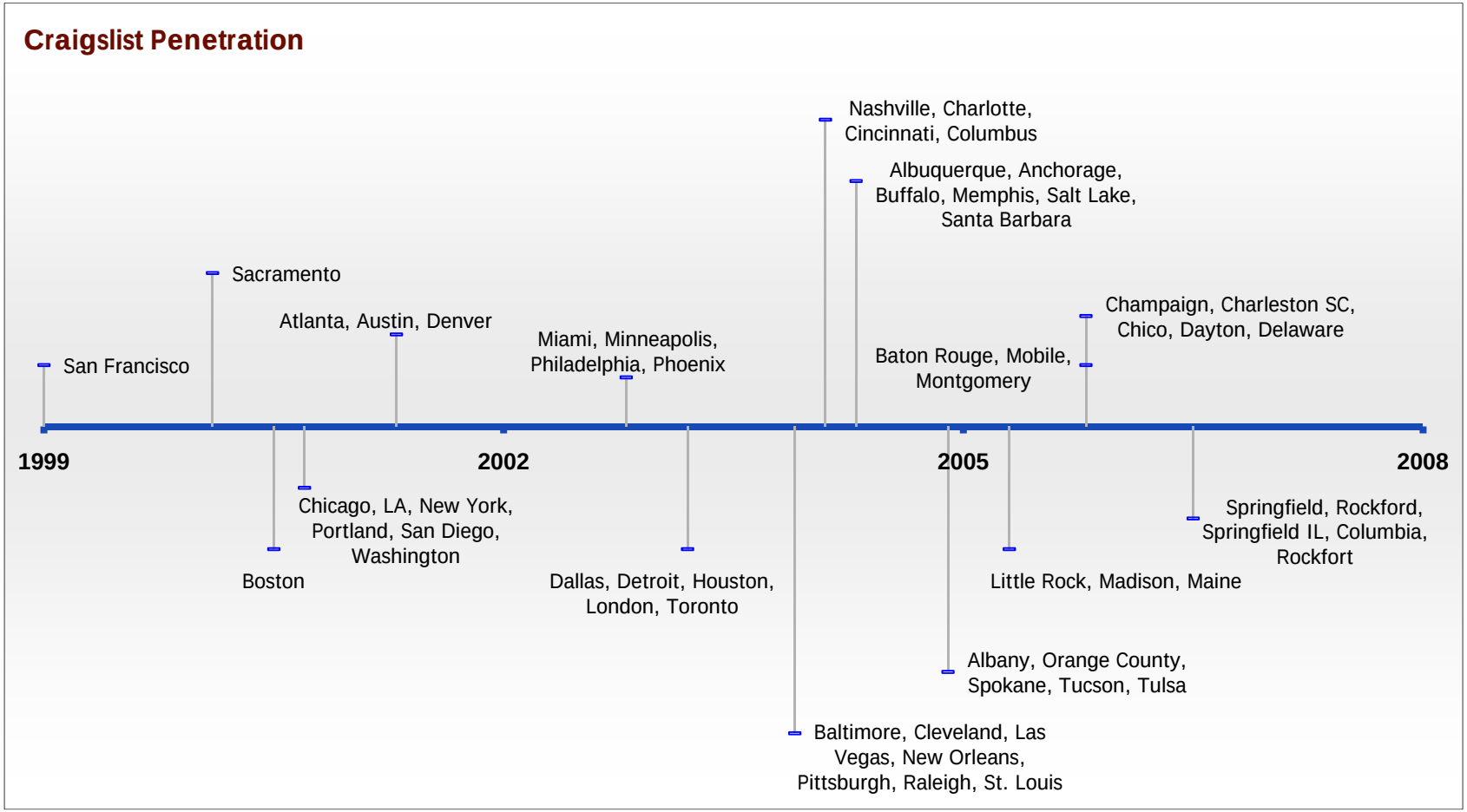
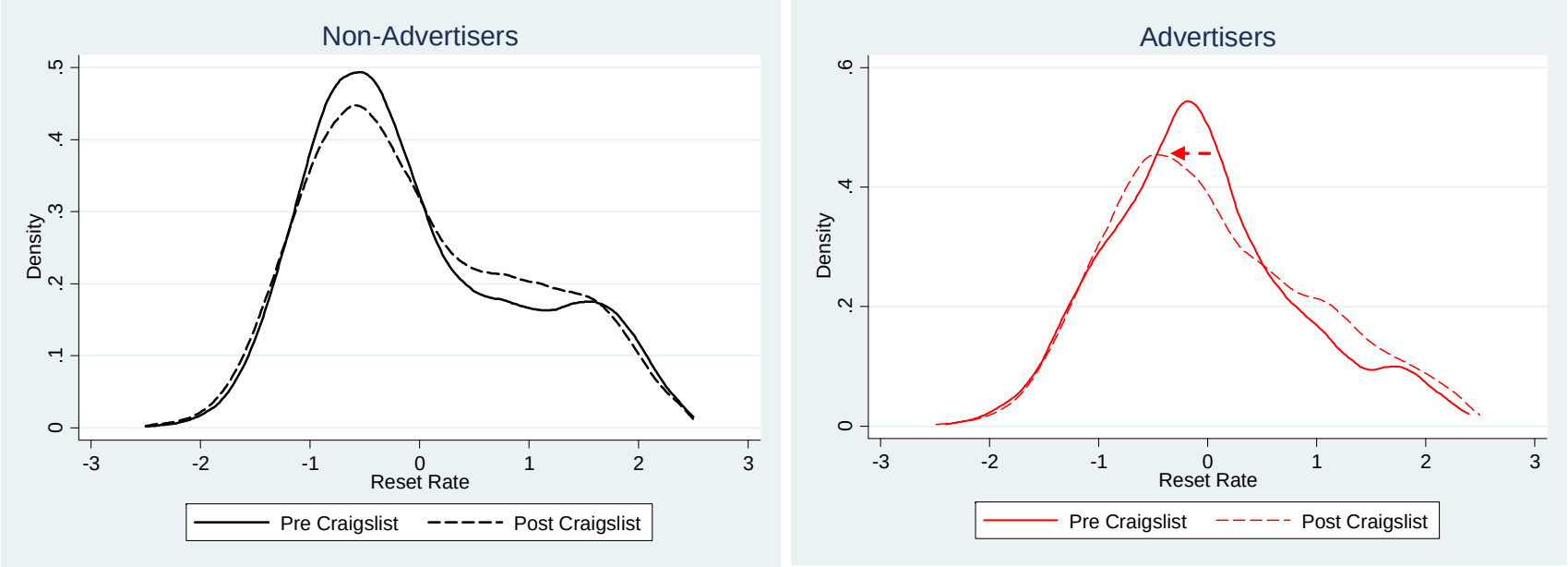


Figure 7. Kernel Density Plot of Residual Reset ARM Rates Pre- and Post-Craigslist for Advertisers and Nonadvertisers

This figure plots the kernel density of residual ARM reset rate a borrower was charged. The residual is computed for the borrower as the reset rate paid by the borrower relative to reset rate of the average borrower with the same set of observable characteristics, the same initial interest rate, in the same region and the same quarter. We plot the kernel density for lenders who advertise, defined as those with positive advertising spending in a given quarter and DMA and for lenders who do not advertise, defined as those with no advertising spending in a given quarter and DMA. In addition, we plot the distributions separately for the period before Craigslist entry in a given location and for the period after Craigslist entry.



Appendix A. Media Outlets from Which the Advertising Data Are Collected

TNS Media Intelligence (TNSMI) provides advertising expenditures (as defined by TNSMI) across eleven advertising categories, as listed below.

1. **Network TV:** The Network TV service provides expenditure information for seven broadcast networks: ABC, CBS, Fox, NBC, PAX/I, MNTV, and CW.
2. **Cable TV:** The Cable TV service provides expenditure information for fifty-two cable television networks.
3. **Syndication TV:** The Syndication TV service provides expenditure information for major local markets. Syndication advertising scope is somewhere in between that of Network TV and that of Spot TV.
4. **Spot TV:** The Spot TV service provides expenditure information for major local markets.
5. **Magazine:** This service measures and compiles all expenditure data for Publishers Information Bureau, Inc. (PIB). Publications measured must be members of PIB, and currently include more than 350 consumer magazines.
6. **Sunday Magazines:** The Sunday Magazines service measures five PIB Sunday magazines: *New York Times Magazine*, *Los Angeles Times Magazine*, *Life Magazine*, *Parade*, and *USA Weekend*.
7. **National Newspapers:** This service measures advertising in three national newspapers: *New York Times*, *USA Today*, and *Wall Street Journal*.
8. **Other Newspapers:** This service measures advertising in more than 250 daily and Sunday newspaper editions and Sunday magazines.
9. **Network Radio:** Network Radio includes the following networks: ABC, American Urban, Premier, and Westwood.
10. **Spot Radio:** National Spot Radio service provides nationally placed spot radio data for approximately 4,000 stations in major local markets.
11. **Outdoor:** Outdoor advertising service reports billboard expenditures in major local markets in the United States.

Appendix B: Mortgage Advertising on Craigslist

This section presents some examples of mortgage advertising on Craigslist. These examples are obtained from the Wayback Machine, which is created by the Internet Archive, a non-profit digital library that offers permanent storage of and free public access to collections of digitized materials, including websites such as Craigslist.[1] We use the Wayback machine to obtain historical Craigslist listings as Craigslist does not maintain postings older than 30 days in most cases. The Wayback Machine (http://archive.org/web/web.php) keeps more than 2500 crawls of Craigslist going back to 1998. Using these crawls, we are able to access any Craigslist market that was operational during our sample period (http://web.archive.org/web/*/http://craigslist.org). In this appendix, we provide examples from 2004, 2005, and 2006, from Washington DC, Jacksonville, FL and Indianapolis, IN, respectively. Note that Craigslist became operational in August 2000, January 2005 and February 2004 in Washington DC, Jacksonville, and Indianapolis, respectively.

We provide the snapshot of how Craigslist's "financial services" section looked like at the time of the crawl being used. In particular, Appendix B.1 contains postings under "financial services" section between May 27, 2004 and June 5, 2004 in Washington DC. Similarly, Appendix B.2 contains postings between July 16, 2005 and August 13, 2005 in Jacksonville, Florida. Finally, Appendix B.3 contains postings under "financial services" section between April 13, 2006 and April 29, 2006 in Indianapolis, IN. Note that in several cases in these posts, while we observe the posting, we are not able to access the content of the posts because the links are not functional.

In each of these Appendices that follow we have highlighted the mortgage advertisements that appeared in the financial services section during the period being considered. As can be observed, there is evidence of mortgage advertising on Craigslist of the kind we had described in the paper. For instance, between May 27, 2004 and June 5, 2004 in Washington DC, there are 6 mortgage related advertisements out of 40 advertisements that are related to financial services. Similarly, Jacksonville had 15 mortgage related advertisements out of around 90 advertisements that are related to financial services. Finally, Indianapolis had 17 mortgage related advertisements out of 93 advertisements that were posted under financial services.

[1] As of October 2012 it held over 10 petabytes in cultural material
(see http://blog.archive.org/2012/10/26/10000000000000000-bytes-archived/)

Appendix B.1.
Craigslist screen snapshot of
"Financial services" section

Market: Washington DC

Date Range: May 27,2004- June 5, 2004

INTERNET ARCHIVE WayBackMachine
http://washingtondc.craigslist.org/fns/ Go
81 captures
2 Feb 04 - 21 Jan 13
APR JUN AUG
2003 2004 2005

craigslist > washington, DC > financial services [help] [post]

keywords: financial services search

[Sat, 05 Jun 15:37:18] [ask for references!] [success story?] ☺ register to vote! ☺
[warning: spoofed craigslist emails]

Sat Jun 05

Mortgage Lenders Compete for Your Business. Check Average Rates. (Washington DC, Area)

Fri Jun 04

Need a Mortgage? (MD/DC)

Mortgage Lenders Compete for Your Business. Check Average Rates. (Washington DC, Area)

We help people to get out of debt (Washington, DC/Nationwide)

True Debt Relief - Stop Payments Immediately! (us)

►►►Get Help With Your Taxes! FREE Consultation

Position Available - Home Based Opportunity (USA)

Hard Money Loans. Commercial or Residential. Lenders Compete. High LTV (Washington DC)

Thu Jun 03

Lets Trade Markets???? (Bethesda, MD)

Mortgage lenders compete for your business. Check Rates. (Washington DC, Area)

Would you like to get out of debt? (800-294-3724)

Help Wanted: We are Expanding (USA)

REAL ESTATE FINANCIAL OPPORTUNITY

balance transfer credit cards (us)

►FREE Foreign Currency Trading Report

Wed Jun 02

Home Based Employment: Call for an Interview (Nationwide)

I need treatment and the treatment center needs cash up front (NOVA)

help me out here (dc/md/va)

INTERNET ARCHIVE WaybackMachine Go
81 captures
2 Feb 04 - 21 Jan 13
APR JUN AUG Clos
2003 2004 2005 Hel

Tue Jun 01

Hard Money Loans. Commercial or Residential. Lenders Compete. High LTV (Washington DC)

Let us help you get money (Virginia/Maryland/DC)

$2000 needed to help get my store open. (usa)

►►►Foreign Currency Trading

Accounting and Taxes for Individuals and Small Businesses (VA/DC/MD)

►►►Tax Problems?

Day trade Japanese yen Forex, euro Forex www.yenman.com for yourself. (Pasadena and worldwide)

Mon May 31

$25 free for opening a No minimum savings account. 2.0% interest (usa)

Small Business Accounting & Tax (Silver Spring)

▪▪▪► Make $1,000s Referring Website Clients (Available 24 Hours 202-832-8009)

Sun May 30

TIRED OF JUGGLING THE TWO CAREER ACT ? (Worldwide)

Eliminate your Debt Legally & Ethically (1-800-294-3724)

Easy $ Opportunity: No Start-up cost!!! ((800) 243-2142)

Run Your Own Mortgage Company

Is your Credit Card Debt becoming a PROBLEM? (USA)

Sat May 29

Mortgage rates as low as 1.25% (1-800-294-3724)

Legally and morally eliminate credit card debt

Huge Income Oppty: No Investment; No Selling ((800) 243-2142)

Fri May 28

Want to get out of Debt? (USA)

Need for $5000 educational loan for international Student (Fairfax, VA)

$ Credit Card Touch-tone Processing, No eqmnt reqd. - only phone! (USA)

Thu May 27

Appendix B.2.
Craigslist screen snapshot of
"Financial services" section

Market: Jacksonville, Florida

Date Range: July 16,2005- August 13, 2005

INTERNET ARCHIVE WayBackMachine
http://jacksonville.craigslist.org/fns/ Go
44 captures
19 Jan 05 - 21 Jan 13
JAN AU 14 2004 2005 2006
RSS (2) add to My Yahoo!

craigslist > jacksonville > financial services [help] [post]

keywords: financial services Search

[Sun, 14 Aug 04:39:31] [ask for references!] [success story?] [download firefox]
[unofficial flagging faq] [feedback forum]

Sat Aug 13

Good Mortgage Leads **Live Transfers$45

Time To Refinance & Lock In Your Loan Rate

Credit Card>>Business>>Student>>Secured>>Reward>>PrePaid

Reduce the Debt On All Your Credit Cards Now...

Fri Aug 12

EARN $39,000 PLUS IN LESS THAN 5 MONTHS, FOR A ONE-TIME FEE OF $19!

100% Financing, 1.25% Rates (Florida)

>>>>>>>>>>Second Mortgage Low As 4% A.P.R.<<<<<<<<<<

$$$$ Here For Your.....

Thu Aug 11

Refinance A Home Mortgage

Save Money on Your Home Loan...

We Need 1,500 People Who Want A Money Make Over!

++++++++++ETHICAL CREDIT RESTORATION SERVICE++++++++++

We want YOU to KEEP YOUR HOME! We Stop Foreclosure for You! (USA)

Loan officers-refer your clients

Wed Aug 10

Looking for an Investor.. 40% return every week guarenteed

What Would Your Life Be Like with a New Social Security Number? (Jacksonville)

INTERNET ARCHIVE WaybackMachine Go
44 captures
19 Jan 05 - 21 Jan 13
JAN AUG SEP
2004 14 2005 2006

NEW HOME BUYERS WELCOME !!!

Need Cash Now…Fast Payday Loan?

BOOST Credit Report Scores in 1 to 3 weeks (USA)

IMPROVE YOUR PERSONAL OR BUSINESS CREDIT RATING (USA)

Mon Aug 08

Divorce Financial Planning

INFINITY LOAN PROCESSING WANTS YOUR LOANS TO PROCESS!!!

STOMP OUT YOUR TAX DEBTS! TAX COUNSELOR CAN DO IT FOR YOU!

$25 for opening an online savings account

Sat Aug 06

free money to save

I WILL BUY YOUR NOTES OR STRUCTURED SETTLEMENTS

**********EXPERT CREDIT REPAIR**********

Fri Aug 05

Good Loans even for Bad Credit (Florida)

PURCHASES OR REFINANCING - HAVE YOU FILED BANKRUPTCY? I CAN HELP !!!

WE REALLY ARE MAKING $5K+/WK, YOU CAN TOO

Mortgage Loans (USA)

100% Cash Out Refinance - Try Interest Only!!!!!!!!!!!!

Thu Aug 04

We want YOU to KEEP YOUR HOME! We Stop Foreclosure for You! (USA)

++++++++++PROFESSIONAL CREDIT REPAIR++++++++++

Wed Aug 03

Unsecured Line Of Credit For Real Estate Investors (nationwide)

Refinance Now

PAY OFF YOUR OLD DEBTS 40-80% SAVED

INTERNET ARCHIVE WayBackMachine Go
44 captures
19 Jan 05 - 21 Jan 13
JAN AUG SEP
2004 14 2005 2006

100% CASH OUT REFINANCE - SELF EMPLOYED - BAD CREDIT OKAY

Mon Aug 01

COMMERCIAL LOANS (Nationwide)

A SERIOUS $5K+/WK ENDEAVOR

Financial help here, nothing to buy just information & help.

We want YOU to KEEP YOUR HOME! We Stop Foreclosure for You! (USA)

Sun Jul 31

Second Mortgage As Low As 4% A.P.R

Sat Jul 30

I will put a positive reference on your credit file

++++++++++++++++WOULD YOU LIKE TO HAVE GOOD CREDIT++++++++++++++++

Fri Jul 29

Be DEBT FREE! Legally STOP your Credit Card payments TODAY... (1-800-648-5755)

((((((((((You are going to say "This has got to be a joke")))))))))) (Jacksonville)

Thu Jul 28

100% Home Equity Loan - Bad Credit Okay!

Wed Jul 27

Raise Your Credit Report Scores!!!!!!!!!!!!!!

DIRECT MORTGAGE LENDER-LOW RATES-FREE APPRAISALS-SE HABLA ESPANOL! (ALL-FLORIDA)

Home Equity Loans Low as 4%!!!!!!!!!!!!!!!!!!!!!!!!

Tue Jul 26

Credit Card>>Business>>Student>>Reward>>Secured>>PrePaid ( )

100% Home Loan - Refinance - Purchase - Second - Bad Credit Okay!

**********Rising Star Specializes in Credit Restoration**********

Wealth Without a JOB

Mon Jul 25

INTERNET ARCHIVE WaybackMachine Go
44 captures
19 Jan 05 - 21 Jan 13
JAN AUG SEP
2004 14 2005 2006
Clo
He

Multi-Unit Financing!

Option ARM! Choose from up to 4 different payments each month!

Full-Spectrum Financing!

** UPDATED** make money with paypal!! (as seen on Oprah)

great real estate investment opportunity in a booming Az market!

################ DO YOU HAVE CREDIT PROBLEMS ################

MORTGAGE LOANS - GREAT RATES AND HONEST SERVICE (all of florida)

AUTOMATIC, MATHEMATICAL stock trading for GREATER PROFITS- in seconds!

SMART MANS GUIDE TO RICHES, HUGE OPPTY

Investor Financing & Aggressive Mortgage Programs!

Sun Jul 24

Interest Loan Mortgage Only Refinance

WOW

Hays Mortgage Consultants/Over 145 Lenders

Consumer Loan News & Information

Sat Jul 23

Get a LUMP SUM of CASH for your mortgage note payments. (Nationwide)

DONALD TRUMP WISHES!

Fri Jul 22

GET YOUR FREE NOTE QUOTE HERE>>>$$$

Refinance before rates rise again!

Your home -- your new ATM!

I will answer any financial question and help build your net worth !!!

Re-fi Time? Why Pay $1K to delete NEG Credit Items? Add A+ Items. (ALL USA)

Thu Jul 21

The Secret to Financial Freedom Revealed

I will put a positive $30k+ credit reference on your credit report.

INTERNET ARCHIVE WayBackMachine Go
44 captures
19 Jan 05 - 21 Jan 13
JAN AUG SEP
2004 14 2005 2006

Wed Jul 20

100% Financing and 99% Approved on Home Loans

++++++++++NEED A MORTGAGE OR TO REFI -- LOW RATES / NO CREDIT CHECK++++

PURCHAE OR REFINANCE WITH BAD CREDIT! (JACKSONVILLE, US)

Accept credit card payments online with PayPal!

Tue Jul 19

MAKE THOUSANDS ON PAYPAL THIS SUMMER!! NO BS!

Let Us Negotiate With Your Creditors! No Obligation / No Risk!

CREDIT CARD COMPANIES RAISE PENALTIES

Mon Jul 18

BOOKKEEEPING SERVICES, Credit Repair (Jacksonville)

Need Loans? Why Pay $100 to delete 1 NEGATIVE Credit Item? (ALL)

Improve Your Bad Credit - Guaranteed! (USA)

$5K+/WK IS NOT HARD HERE

Investor Financing & Aggressive Mortgage Programs!

Sun Jul 17

FREE MONEY!!

Let your investments work for you!

Why pay your landlords mortgage

Sat Jul 16

BUSINESS LOANS: Purchase Order Financing; Factor Receivables/Invoices

next 100 postings

Copyright © 2005 craigslist, inc.

Appendix B.3.
Craigslist screen snapshot of
"Financial services" section

Market: Indianapolis

Date Range: April 13,2006- April 29, 2006

INTERNET ARCHIVE WayBackMachine
http://indianapolis.craigslist.org/fns/ Go
47 captures
23 Jun 04 - 21 Jan 13
FEB APR JUN
2004 29 2006 2007

indianapolis craigslist > financial services [**help**] [**post**]

keywords: financial services Search

[Sat, 29 Apr 15:37:29] [ask for references!] [success story?] [download firefox] [unofficial flagging faq] [full text mode]

RSS (?) add to My Yahoo!

Sat Apr 29

Attn BROKERS & LOAN OFFICERS- Hard Money Seminar June 17 in San Fran

^^^^RESIDENTIAL MORTGAGES^^COMMERCIAL LOANS^^MOBILE HOME MORTGAGES^^^^

Explosive growth-Online Gaming company expanding-Big money opportunity

loan ofer !!!!!!!!!!!!!!!

Fri Apr 28

BAD CREDIT? WE SPECIALIZE IN GIVING 2ND OPPORTUNITIES!!

Do You Know Where Your Social Security Number Is?

Real Estate Investors Only

A-1 Credit Guaranteed, Quick Credit Fix

*** TAX HELP – Current and Prior Years Tax Returns ***

About Mortgages and Home Loans

Thu Apr 27

Pitbull Mortgage School- Hard Money Seminar June 17th in San Francisco

Private Loan (usa)

Need to consolidate your debts? Lower your credit card debts

^^^^^JUST CHECK IT OUT^^^^^

Mortgage Purchase and Refinance

CREDIT CHALLENGES? CALL US TODAY!!

Consolidate your debts into one single monthly payment. Lower your mo

Need to borrow 1,500 for personal loan/ good intrest rate for lender (anywhere)

Consolidate your debts into one single monthly payment.

INTERNET ARCHIVE WaybackMachine Go
47 captures
23 Jun 04 - 21 Jan 13
FEB APR JUN
2004 29 2007
2006
Clo
He

EARN CASH AND HAVE FUN TOO!! (Indianapolis)

Wed Apr 26

LOAN WITH 5% INTEREST RATE APPLY IN GOOD FAIHT""" (ALL)

$$$$$ CASH FOR YOUR OWNER FINANCED MORTGAGE & BUSINESS NOTES

$$$$$$$$$$$$$$$$Quickly and securely find$$$$$$$$$$$$$$$$$

THIS IS HOW I MAKE $20K+/MONTH, IT IS NO JOKE!

Life Settlements and Life Insurance Settlements - Trinity Settlements

NATIONAL MORTGAGE NETWORK WITH RESIDENTIAL & COMMERCIAL MORTGAGES

HOME LOANS -- YOUR BEST OPTIONS WITH A DIRECT LENDER

Tue Apr 25

Very Quick Mortgage Loans For Indianapolis.

IF YOU OWN SHARES IN A PUBLIC COMPANY AND NEED CASH ?

CASH IN ONE HOUR, NO CREDIT CHECK

Thought you COULDN?T REFINANCE? THINK AGAIN! (Indianapolis)

I need to Refinance Property (Any USA)

@@@@Moving truck investment. $90K= $45K per year (Phoenix)

HOME REMODEL/FIX UP LOANS (Indianapolis)

Consolidate your debts into one single monthly payment.

GET A LOAN AT 3% MONTHLY

Pre-Foreclosure assistance (619) 846-4886 (Nationwide)

Take Advantage of Great Low Rates (Indianapolis)

Mon Apr 24

LOAN OFFER AT LOW INTEREST RATE (LONDON)

Do you need financing? I can help!

☺Commercial RE loans for multi-tenant properties☺ (1-866-92-FUNDS)

****Get a Piece of $2,000,000,000,000 TRILLION $ a Day W/ Forex FREE T

FAST FUNDING LOANS - POOR CREDIT WELCOME (Indianapolis)

80% LTV Hard Money Available in 48 States (Indianapolis)

INTERNET ARCHIVE WayBackMachine Go
47 captures
23 Jun 04 - 21 Jan 13
FEB APR JUN
2004 29 2006 2007
Clo
He

Become an affiliate, make lots of $$$

DEBT SETTLEMENT MAY BE THE ANSWER AS OPPOSED TO DEBT CONSOLIDATION (nationwide)

** Affordable Health Insurance Quote

CREDIT SCORE CAUSING YOU TO NOT GET THAT LOAN--FREE HELP!

Sat Apr 22

RESIDENTIAL - LAND - COMMERCIAL MORTGAGES - FROM INDEPENDENT BROKER

Reduce your debt up to 60% - become debt free in 12-36mo.

Fri Apr 21

WE CAN GET YOU THE BEST MORTGAGE RATE!! $0 DOWN 1% (FREE 3 DAY CRUISE FOR TWO W/ LOAN!! 866-937-6100)

NEED A MORTGAGE LOAN? (Indianapolis)

Thu Apr 20

If you're in debt and need to lower your monthly payments, read this

loans to all why the wait (all locations)

CONVERT YOUR BOOKS TO QUICKBOOKS (FT WAYNE AREA)

Debt Programs and Resources

GET YOUR LOAN AT CHEAPEST RATE EVER (ALL LOCATION.)

$$$ CASH FOR YOUR SELLER FINANCED BUSINESS NOTES

~EASY DAY TRADE SYSTEM~Make $200-$2000+ Each Day, in 2 Hours & Less~ (Indianapolis)

$150,000 In Business Working Capital. Not A Loan.

FAST FUNDING LOANS - POOR CREDIT WELCOME (Indianapolis)

80% LTV Hard Money Available in 48 States (indianapolis)

Mortgage Refinance

URGENT LOAN OFFER!!!

Rewrite Your Financial History!

Wed Apr 19

Lenders, leads included with new web system.

INDIANA BASED MORTGAGE NETWORK WITH LOANS TO SUPPLY

Accounting Services Made Simple (The AM Link LLC) (Chicago, IL)

INTERNET ARCHIVE WayBackMachine Go
47 captures
23 Jun 04 - 21 Jan 13
FEB APR JUN
2004 29 2007
2006
Clo
He

Tue Apr 18

AWESOME INCOME OPPORTUNITY...

GUARANTEED funding for new and existing businesses

Fast Cash For Indianapolis Home Owners

**** BANKRUPTCY, IS IT THE ANSWER OR NOT ****

Mon Apr 17

Forex-Inside Pays 2.5% Daily and Automatically!

$ INVESTING 101::Stop Working::Start Investing::FREE ONLINE PRIMER $ (Indianapolis)

Refinance Today and Save Today

GIVE ME 45 MINUTES OF YOUR TIME, AND I'LL SHOW YOU HOW TO EARN $5K+/WK

WE CAN GET YOU THE BEST MORTGAGE RATE!! $0 DOWN 1% (FREE 3 DAY CRUISE FOR TWO W/ LOAN!! 866-937-6100)

About Mortgages and Home Loans

Sun Apr 16

NATIONWIDE MORTGAGE NETWORK

Sat Apr 15

INDY, NEW FINANCIAL PRODUCT PAYS OFF 30 YR LOANS IN 3 YRS!!! (NATIONWIDE)

~EASY DAY TRADE SYSTEM~Earn $200-$2000+ Each Day, in 2 Hours & Less~ (Indianapolis)

Fri Apr 14

Default Resolutions(619) 846-4886 (Nationwide)

May We Recommend a Financial opportunity in Health Sciences -

Need a loan?? We can help you!

CATCH THE MONEY FEVER!!!! (US)

JUMBO LOAN!!!!!!!!!!!!!

Thu Apr 13

HORSE RACING -STRONG ROI- YOU HANDLE ALL MONIES (West)

Solve Your Credit Problems - Lower your payments 50-60% (Nationwide)

Solve Your Credit Problems - Let us help you. (Nationwide)

Mortgage Purchase and Refinance