Stock Market Milestones and Mortgage Demand: Evidence from US[1]

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Abstract

We document that after the stock market index reaches a milestone number (round 1000), more households apply mortgage for home purchase, and they are more likely to apply mortgage for second homes compared to non-milestone historical maxima. The loan amount also increases after the milestone event. These results are mainly driven by households with high equity holdings. The applicants are more likely to have high equity holdings and high FICO scores, but the mortgage loan terms are riskier with higher interest rate, LTV, and DTI, and the applicants are more likely to default in the two years after loan originations. We investigate the mechanisms and show that the effect is driven by the attention effect rather than the wealth effect. We also show that the results are unlikely to be driven by other events around the milestone or banks' supply-side response. Our results highlight the linkage between the stock market and the housing market.

Keywords: Stock market wealth; Rounding number bias; Mortgage

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1. Introduction

Stockholding reaches more than $42 trillion by the end of 2021 in the US, representing the largest share of financial asset on households' balance sheet. A large literature has studied the impact of stock market wealth on consumption and labor market (Poterba 2000; Baker et al., 2007; Chodorow-Reich et al. 2019; Di Maggio et al. 2020). Literature in behavioral finance show that limited attention can affect investors behavior and asset price in stock market (Barber and Odean 2007; Hirshleifer, Lim, and Teoh 2009; DellaVigna and Pollet 2009). When the stock market index reaches a 1000-point round number, it often grabs much attention of media and investors. There is some evidence about the effect of round numbers on stock return and transaction volume (Johnson et al. 2007; Bhattacharya et al. 2012). However, less evidence on the effect of round number on significant household finance decisions, such as mortgage and car demand.

In this paper, we fill the gap and study whether households change the demand for credit, mortgage, and cars when the stock market index reaches a 1000-point round number for the first time, i.e. stock index milestone. We define stock index milestone as the Dow Jones Index reaches a 1000-point round number (1000, 2000, 3000, …) and it is also the historical maximum. While reaching a 1000-point round number has no economic importance, it increases news—and therefore attention—of the increase in wealth. We further investigate whether stock market affect housing demand through a simple wealth effect or an additional attention effect since the milestone events often draw investors' attention.

It is challenging to identify the effect of round number on household credit and mortgage demand due to research design and limited data. First, analyzing the relationship between stock market data and transaction data in household credit or mortgage cannot answer the question since these transactions are equilibriums outcome of credit demand and supply. Second, it is difficult to distinguish the wealth effect and the attention effect since large increases in stock market both increase the wealth of investors and grab the attention of investors.

We overcome the first challenge by exploiting rich datasets with detailed information at mortgage loan application to measure mortgage demand. To distinguish the wealth effect and the attention effect, we compare the effect of milestone and similar historical maximum on demand for household credit, mortgage, and cars. To fix ideas, consider Scenario A when stock index closes at 985, 995 and 990 at day -1, day 0, and day 1, and this is the first time the stock index reaches 995. Consider scenario B when stock index closes at 995, 1005 and 1000 at day

-1, day 0, and day 1, and this is the first time the stock index reaches 1005. Then, we refer scenario A as the stock index reaches the historical maximum. We refer Scenario B as the stock index reaches the 1000-point milestone. Note that the milestone is a history maximum crossing 1000-point round number. Scenario A and B have similar return before reaching the maximum and reaching a 1000-point round number has no additional economic importance compared to a non-round number maximum. Thus, the key difference between the historical maximum (Scenario A) and milestone (Scenario B) is that the milestone event grabs more attention of investors and remind investors about their wealth increase. We show that both the milestone event and the maximum event have similar wealth effect, but the milestone event draw more attention from investors. The estimated differential effects between the milestone and the historical maximum capture the attention effect in addition to the wealth effect.

We start by documenting the media exposure of stock market milestone. We find that when stock market reaches certain milestones, media coverage increases substantially along with public awareness of the stock market. For example, in the week of the milestone, the frequency of TV mentions on the stock market doubles relative to the average, whereas in the following six weeks it remains 50 percent above the average value. Similarly, individual investors' bullishness sentiment also increases substantially. The share of individual investors that are bullish in the week of the milestone increase 7 percent relative to the average week, and that this effect holds in the six weeks following a milestone. Overall, these results show a clear pattern that the milestone event leads to larger media coverage of the stock market, increases public awareness of the positive performance of the stock market, and increases the confidence of individual investors.

We then show our main results: housing demand increases when Dow Jones Index reaches its milestones. Compared to weeks with a maximum, the loan values increase by 1 percentage point in the week after the milestone and remains 1.2 percentage points higher than average through the 8^{th} week following the milestone. Moreover, in the 12 weeks following a milestone the composition of applications that are destined to second homes increases by 0.5 percentage points, which is a large and economically significant number given that second homes only account for 11.9 percent of loan applications on average. There are no effects on home appraisal value and approval rates.

We also show that the composition of housing demand changes when Dow Jones Index reaches its milestones. There is an increase in participation in the mortgage market of agents more

exposed to the stock market in weeks following a stock market milestone. The risk profile of mortgages increased even though the credit rating of applicants remained constant. Consistent with higher riskiness of loans, we find that default rates on the loans extended after a milestone also increase by almost 10 percent. Using loan level data, we further show that home value appraisals and housing price index increase following a stock market milestone.

To strengthen our identification, we test whether the impact of milestones on loan application value was relatively larger in locations where applicants had larger exposure to the stock market. We observe that the loan application value does not change after the milestone event for counties with low equity holdings. In contrast, the loan application value increases by 2 percent after the milestone event for counties with high equity holdings, and the effect is persistent until week 7. The results show that the milestone event increases loan application value, and the effect is stronger for loan applications in counties with high equity holdings. These results suggest that stock market exposure has an impact on how large stock market index milestone event influences housing demand, which further supports our main results.

The stock market milestone event might not only affect housing demand, but also demand for other durable goods, such as cars. We find that the value of total car sales increases by 0.14 percent in the month of the milestone, with this effect lasting until the second month after the milestone. The number of car purchase also increase after the milestone. The effect is mainly driven by purchasing new cars but not used cars.

Why does housing demand increase when Dow Jones Index reaches milestones? There are two possible explanations: wealth effect and attention effect. Wealth effect means that increases in stock market index increase equity holders' wealth since stock market milestones are historical maxima. It implies that an event with a similar magnitude of stock market index increase would increase the housing demand of equity holders. Attention effect means that stock market milestone is an attention-grabbing event, and it will amplify the standard wealth effect. It implies that milestone events would have larger effects on housing demand than other historical maximum event or event with similar magnitude of stock market index increases. We distinguish these two channels by estimating the additional effect of milestone event while controlling for the effect of historical maximum event. Our results show that indeed the stock market index milestone event indeed has additional effects on housing demand compared to non-milestone maximum event. We also conduct a placebo test to define placebo milestone as the stock index reach the 1000 points number in other bases from base 6 to base 14 (e.g. 1000

in base 9 is 729 in base 10). We find no effects of these placebo milestones on media coverage and loan values that do not grab attention. These results suggest that attention effect is an important channel of the effect of stock market performance on housing demand. We also conduct additional tests to show that our results of increasing housing demand are unlikely to be driven by other events around the milestone or banks' supply side response.

This paper contributes to several strands of research. First, we contribute to the literature on salience and attention, in particular the effect of round numbers (Johnson et al. 2007; Bhattacharya et al. 2012; Lacetera et al. 2012). For example, Johnson et al. (2007) show that returns following closing prices just above a round number benchmark are significantly higher than returns following prices just below. Bhattacharya et al. (2012) find excess buying (selling) by liquidity demanders at all price points one penny below (above) round numbers. The effect becomes much stronger when the ask falls (bid rises) to reach the integer than when it crosses the integer. Lacetera et al. (2012) study the used car market and show that changes in round numbers in odometer values discontinuously change prices for sold cars, which means partial inattention to mileage has a significant impact on the used-car market. Similarly, in the marketing literature, consumers tend to drop off or pay less attention to the rightmost two digits, which is called the drop-off mechanism. The drop-off mechanism may contribute to the effectiveness of 9-ending pricing (Bizer & Schindler, 2005). The existing literature mainly show that the round numbers affect the demand for the particular stock, or product. We add to the literature by providing evidence that the round number has the effect on significant household finance decisions: for stockholders, reaching the round numbers of stock index (milestones) increase the demand for household credit, mortgage, and cars.

Second, we also contribute to the literature studying the relationship stock market wealth, housing wealth and household consumption. A large literature has studied the impact of stock market wealth on consumption (Poterba 2000; Baker et al., 2007; Chodorow-Reich et al. 2019; Di Maggio et al. 2020). For example, Baker et al., 2007 show that investors have a higher propensity to consume from stock returns in the form of dividends. Di Maggio et al. (2020) find that the MPC out of capital gain for households in the bottom half of the distribution who own less than 7 percent of overall stockholdings is significantly higher at about 13 percent but flat 5 percent for the rest of the distribution, and households' consumption is significantly more responsive to dividend payouts across all parts of the wealth distribution. Most research in this literature focus on the outcome of household consumption non-durable goods, but not much on household consumption on durable goods and housing. We fill this gap and study the impact

of stock market index milestone on housing and household consumption on durable goods (cars).

There is also large literature that study the impact of housing wealth on consumption (Agarwal and Qian 2017). For example, (Case et al., 2005) show a statistically significant and rather large effect of housing wealth upon household consumption based on a panel US data. The immediate (first-quarter) impact of housing wealth on aggregate consumption is estimated to have been relatively small, but over a time span of several years we estimate that it has on average accumulated to the 4–10 cent range in U.S. case (Carroll et al., 2011). Agarwal and Qian (2017) find that consumers with higher home equity respond more negatively to the policy that reduces the access to housing equity and have a significant reduction in their total card spending.

Moreover, many studies focus on the relationship between housing wealth and stock market demand (Cocco 2005; Chetty et al. 2017; Vestman 2019). For example, Chetty et al. (2017) find that increases in property value (holding home equity constant) reduce stockholding, while increases in home equity wealth (holding property value constant) raise stockholding. In this paper, we study the impact of stock market index milestone on housing demand.

Third, we contribute to the literature studying what determines housing demand. The demand for housing can be driven by several factors, such as demographics, household income and wealth, credit supply and beliefs about future housing demand (Mian and Sufi 2009; Adelino et al., 2012; Favara and Imbs 2015; Kaplan et al. 2017; Liu et al., 2019). Expansion in the supply of mortgage credit is a primary cause of house price appreciation in high latent demand zip codes from 2001 to 2005 and subsequent large increase in default rates (Mian and Sufi 2009). Exogenous changes in the availability of credit due to changes in the conforming loan limit (CLL) have a significant effect on the pricing of houses that can be financed more easily using a conforming loan (Adelino et al., 2012). Heterogeneous-agent model for housing demand shocks indicates that a credit supply shock has a large impact on the house price and the price-to-rent ratio but not on the rent (Liu et al., 2019). We use rich transaction level data to document the impact of stock market index milestone on housing demand. Our results suggest that attention effect is another important channel beyond wealth effect that links stock market to housing demand. That is, stock market milestone is an attention-grabbing event, and it will amplify the standard wealth effect.

2. Background and Data

We use several datasets in this paper. The first set of datasets includes readily available information on a series of stock market and macroeconomic outcomes. We use the panel of weekly information on the value of the Dow-Jones index provided by the Bloomberg terminal. This allows us to compile the weeks in which the index reached maxima and milestones. To evaluate the relative frothiness of the market, we use the Price-to-Earnings ratio of the S&P 500 index provided by Bloomberg.[1] Panel A of Table 1A displays the main summary statistics of interest. Figure 1 shows the Dow Jones Index from 1997 to 2016. We define maximum as the historical maximum and define milestone as Dow Jones Index reaches the round 1000 points, and it is also the historical maximum. Thus, milestone is the subset of the historical maxima. Over our study period from 1997 to 2016, there are 166 maxima and 21 milestones.

Data on individual investors' confidence in the stock market is obtained from the American Association of Individual Investors, which compile a weekly measure of individual investor sentiment. Data on the monthly misery outcomes (inflation plus seasonally adjusted unemployment) is obtained from the U.S. Department of Labor. Data on economic past and expected performance of states is obtained from the coincident and leading activity state-level indicators published Philadelphia Fed. U.S. Economic Uncertainty is obtained from the Economic Policy Uncertainty website. Data on consumer confidence is obtained from the survey of consumers collected by the University of Michigan. Value of 30-year mortgage rates is collected from the Wall Street Journal. Finally, to use the information on the equity holdings across zip codes and income level we use data provided by the Statistics of Income (SOI) provided by the Internal Revenue Service. The SOI dataset is a yearly dataset with statistics at the zip code-income level. The statistics are obtained from the administrative records of individual income tax returns (Forms 1040). The annual income level of households is split into six groups: i) Annual income under USD25,000; ii) between USD25,000 and USD49,999; iii) between USD50,000 and USD74,999; iv) between USD75,000 and USD99,999, v) between USD100,000 and USD199,999; and vi) USD200,000 or more. For each zip code-income level, we have information on the number of returns, the aggregate income level, the number of

[1] We use the S&P 500 PE ratio instead of the Dow-Jones PE-Ratio given that it is more representative of the relative valuations of the market as a whole. As a robustness we also use the Dow-Jones PE ratio, and the results are unchanged.

returns with dividends, along with the aggregate value of dividends. Panel B of Table 1A displays the main summary statistics of these variables.

The second set of datasets, contain information on the impact that the stock-market milestones have on media mentions on the stock market, along with internet searches and bullishness of individual investors. Regarding media mentions, we obtain information on the amount of references on television regarding the stock market, along with newspaper articles. The information on the TV references is obtained from GDLET using data from the Internet Archive's Television News Archive. It includes data on all 163 searchable television stations that the Internet Archive's Television News Archive has monitored since 2009. It breaks each broadcast into a sequence of 15-second clips and searches for certain keywords/phrases within a given clip. Results are, therefore, the percent of 15-second clips monitored from a station in a given day that contained a relevant keyword, meaning results represent the percent of monitored airtime from each station focusing on your topic (at the resolution of 15-second clips).[2] More concretely, in this paper we calculate the frequency of mentions in CNN, Fox and MSNBC in a given week of the terms "Dow-Jones" or related queries. The information on newspaper mentions of the stock market is obtained from Proquest. The dataset enables users to search for certain keywords in newspaper articles. More concretely, in this paper, we analyze the number of weekly mentions of terms "Dow-Jones" or related queries, from six newspapers (Boston Globe, Chicago Tribune, New York Times, Wall Street Journal, Los Angeles Times and Washington Post). The data on internet searches on stock market developments is obtained from Google Trends, which for a given week provides information on the frequency of internet searches of terms "Dow-Jones" or related queries in a given week. Panel C of Table 1A display the main summary statistics of these variables.

The next set of datasets includes information on a series of housing variables, such as mortgage applications, mortgage performance and housing prices. The main dataset used is the Home Mortgage Disclosure Act (HMDA) database. This dataset includes information reported by depository institutions and certain for-profit, non-depository institutions, as required by the original legislation in 1975 and subsequent legislative amendments. The data are compiled each year by the Federal Financial Institutions Examination Council (FFIEC). The data include records on originations and purchases of mortgages and records on loan applications that did

[2] A single mention of your keyword in a given 15 second clip will count that entire clip as matching, so 10 matching clips does not mean that 10 times 15 seconds of airtime focused on your search, just that 10 distinct clips mentioned your keyword somewhere in that 15 seconds. Note that phrases that span across two clips are counted towards only the first clip to prevent double counting.

not result in originations (including, for example, applications that are denied or withdrawn), along with information on the loan characteristics, such as amount, loan application date, home location and the applicant's income. The second dataset is the McDash Core Data, is provided by Black Knight Financial Service (BKFS). This data is comprised mainly of the servicing portfolios of the largest residential mortgage servicers in the US, at one time from the top mortgage servicers. It covers approximately two-thirds of installment-type loans in the residential mortgage servicing market. As of April 2014, the database contained about 30 million active loans. Overall, this database contains about 151 million individual loans with about 5.5 billion records of monthly performance history. This dataset has detailed loan origination information such as home appraisal value, borrowers' credit scores, loan-to-value ratios, and subsequent loan performances such as payments and defaults. The database provides historical data from April 1992. Since the largest servicers span the full spectrum of RMS, this RMS database contains investor types such as Fannie Mae, Freddie Mac, Ginnie Mae, private securitized and portfolio loans. It contains subprime (separately identified), nonagency prime jumbos, and Alt A. Product wise, the database contains fixed rate, option arms and all types of hybrid arms (including 2/28s, 3/27s and others). Loan-level attributes include borrower characteristics (credit scores, owner occupancy, documentation type and loan purpose); collateral characteristics (LTV, property type, zip code); and loan characteristics (product type, loan balance, and loan status). Each month Black Knight submits a dataset containing the monthly performance of all the active loans in their system. The third dataset is CoreLogic data. We use the Home Property Value Index from CoreLogic data to analyse the impact of stock market milestone on local level house price changes. It consists of regional monthly housing price indices dating back to 1976. They are calculated using the weighted repeat sales methodology. Indices are normalized by setting the index value for January 2000 to 100. Indices are available at several levels of granularity from census region, state, Core Based Statistical Area (CBSA), county and zip code. Separate indices are also available for several different tiers. Tiers are available based on property type, home purchase price, time elapsed between sales dates and conforming/non-conforming loan limits. Up to 12 different tiers are available for each property. At the highest level are indices that use all sale data to produce a single-family combined index and another excluding all distressed sales. The data used to form the combined index is further split to form indices for single-family detached homes and single-family attached homes (i.e., condominiums). Finally, the data used to form the single-family detached index is further subdivided by purchase price, sale age and conforming loan limit. There are four purchase price tiers depending on whether the home sold for less than 75 percent

of the area median price, for between 75 percent and 100 percent of the area median, for between 100 percent and 125 percent of the area median and for more than 125 percent of the area median. There are two sale age tiers created from the single-family detached data; one for homes that sold less than 5 years after prior sale date and one for homes that sold more than 5 years after a prior sale. Finally, the single-family detached data is split into two conforming/non-conforming tiers depending on whether a home's purchase price was less than 125 percent of the conforming GSE loan limit or more than 125 percent of the GSE loan limit. Panel D of Table 1A provides a series of summary statistics of the main variables of interest.

Finally, the last dataset we use is a weekly vehicle sales dataset provided by J.D. Power's Power Information Network (PIN). This database gathers daily point-of-sale transaction data both for new and used light vehicles from dealership Finance and Insurance (F&I) systems from thousands of automotive franchises. PIN data include more than 250 key observations for each vehicle transaction, such as price, cost, profit, finance, lease, and trade-in measures, as well as average actual prices of vehicles sold and the value of manufacturers' incentives (cash rebates and interest subvention). The weekly PIN report is a trend of the last eight weeks of new and used data, and the data are filtered by Type of Sale, Model Year, as well as an Industry/Car/Truck field. Panel E of Table 1A provides the main summary statistics of interest.

3. Empirical Design

The main econometric challenge to study the impact of stock market performance on housing market is the endogeneity problem: aggregate stock market index is endogenous with respect to other macroeconomic variables, such as interest rate and expectations of future income growth. Consequently, the correlation between stock market performance and housing market might be due to the change in these omitted variables.

Our empirical design exploits the sharp change in stock market index: reaching milestones and historical maxima. We define milestone as Dow Jones Index reaches the round 1000 points and, it is also the historical maximum. We perform event study analysis to assess the impacts of stock market milestones and historical maxima on housing demand around a narrow window of several weeks. We estimate the differential impact between milestones and similar historical maxima. Since milestones are historical maxima which cross round 1000 points, the estimated differential effects capture the additional impact of milestone events on housing market.

Our main assumption is that macroeconomic conditions are similar when the stock market index reaches milestones and historical maxima. We show empirically that main macroeconomic indicators such as interest rate are similar during the narrow window before and after the maximum and milestone events. More concretely, in Table 1B, we compare the behavior of a series of financial and macroeconomic variables around the weeks when the Dow Jones Index reaches the historical maximum and milestone. In the first four columns, we compare the average and standard deviations of relevant financial and macroeconomic variables, while in the final column, we display the normalized difference of means. The Misery index, the economic policy uncertainty index and PE ratio are similar in the week of maximum and milestones. In the past 4 weeks before the Dow Jones Index reaches the maximum, the growth rate of the index is on average 3.4 percent. The growth rate is lower 4 weeks after the maximum, which is on average 0.9 percent. The pattern is similar for milestones.

We perform event study analysis to assess whether stock market performance impacts both media coverage, investor bullishness along with the housing market. To do this analysis more formally, we compare two events in stock market: when the Dow Jones Index reaches the historical maximum and milestone. Our assumption is that there is no economic relevance to the fact that the stock-market index reaches a round number. However, while there is no economic importance of reaching a round number, we argue and show that there is an impact on the media coverage of the stock market and the attention and bullishness of individual investors. Consequently, our benchmark specification to understand the impact of milestones on media coverage, attention and investor bullishness is as follows:

$$y_w = \alpha + \sum_{\tau=-3}^{6} \beta_\tau MS_{w+\tau} + \sum_{\tau=-3}^{6} \gamma_\tau Max_{w+\tau} + \delta X_w + \mu_q + \varepsilon_m \quad (1)$$

where the dependent variable y_w is a proxy for media exposure in week w. More concretely, we analyze four different weekly outcomes. The frequency of reference to the stock market in newspapers, references to the stock market in television, frequency of internet search queries on the stock market and the degree of bullishness of individual investors. The independent variables $MS_{w+\tau}$ ($Max_{w+\tau}$) are indicators of whether week $w+\tau$ was a milestone (maximum) event.[3] We also include a series of financial time-varying variables X_w such as past and future stock market growth, PE ratio, and mortgage rates along with other macroeconomic variables

[3] For exposition reasons in the vast majority of tables in the paper we only report the set of β coefficients which indicate the additional effects on the dependent variable of a milestone event compared to maximum event.

such as policy uncertainty and misery index. Finally, we also include a set of quarter fixed effects μ_q to control for persistent variations in the dependent variables. Consequently, with this specification, we posit that in the weeks in which the stock market reaches a milestone, investors receive a signal that their wealth received a positive shock. By comparing weeks in which the stock market reached a maximum and weeks in which it reached a milestone, we argue that we are able to capture the impact of this positive shock on wealth.

After establishing that milestones have an impact on attentiveness of the media, of households and of individual investors, on the stock market, we then analyze formally whether milestones also have an impact on the demand for housing. To do this, we run specification 2

$$y_{i,b,w} = \alpha + \sum_{\tau=-3}^{6} \beta_\tau MS_{w+\tau} + \sum_{\tau=-3}^{6} \gamma_\tau Max_{w+\tau} + \theta X_i + \delta X_{s,w} + \mu_{b,y} + \mu_{m,y} + \varepsilon_m \quad (2)$$

where the dependent variables $y_{i,b,w}$ are a set of mortgage-related characteristics (e.g. mortgage value (in logs), home value (in logs), etc.) of the application of individual *i* made to bank *b* in week *w*. As before, the independent variables $MS_{w+\tau}$ ($Max_{w+\tau}$) are indicators of whether week $w+\tau$ was a milestone (maximum) event. In some specifications, we also include some applicant controls X_i such as gender, race and income (in logs) controls. Furthermore, we also include a series of financial time-varying variables $X_{s,w}$ at the state-time level, such as coincident and leading activity indicators of state *s* in which application was made, along with other national variables such as past and future stock market growth, PE ratio, and mortgage rates along with other macroeconomic variables such as policy uncertainty and misery index. To control for variations in bank supply, we also include bank*year fixed effects $\mu_{b,y}$. Finally, to control for yearly variations in demand at the local level, we include MSA*year fixed effects.

Finally, our last specification uses the fact that variations in demand produced by stock-market movements should be relatively stronger in locations in which households have a larger exposure to the stock market. Therefore, this specification is a difference-in-difference equation with a continuous treatment which is the predicted stock-market exposure of applicant *i*. This stock market exposure is proxied by the average share of households with income in the form of dividends. More concretely, we run specification 3

$$y_{i,b,w} = \alpha + \sum_{\tau=-3}^{6} \beta_\tau MS_{w+\tau} + \sum_{\tau=-3}^{6} \beta_\tau MS_{w+\tau} EquityHoldings_{z,m,y-1} + \sum_{\tau=-3}^{6} \gamma_\tau Max_{w+\tau} + \quad (3)$$
$$\sum_{\tau=-3}^{6} \gamma_\tau Max_{w+\tau} + \theta X_i + \delta X_{s,w} + \mu_{b,y} + \mu_{m,y} + \varepsilon_m$$

where all variables with the exception of $EquityHoldings_{z,m,y-1}$ are as defined above. The variable $EquityHoldings_{z,m,y-1}$ is the share of households in zip code *z*, income group *m* that received dividends in year *y-1*.

4. Empirical Results

4.1. Impact of Milestones on Media, Attention and Investor Confidence

This section presents the main results of the event studies, where we analyze the impact of the milestone on media coverage of the stock market, public attention on the stock market, and individual investor bullishness.

Prior to analyzing more formally the impact of milestones on media coverage and awareness, we display the raw data in Figure 2. In the top panel to the left, we display the TV mentions of the stock market in the weeks surrounding a milestone. As can be shown, there are two large increases in mentions of the stock market in the week of the milestone and in the following week. Similarly, in the top panel to the right, we show that on the weeks following the milestones the mentions of stock market on newspapers are significantly larger than in the weeks preceding the milestone. Finally, in the bottom panels we present two event studies of the number of newspaper articles in the weeks in which the Dow Jones index surpassed 10,000 and 20,000 points for the first time. It is clear in both cases that there were very large spikes in the number of articles mentioning the stock market in both cases.

We now analyze more formally the impact of milestones on stock market mentions in the media and investor awareness. For that we run specification 1 on our four outcomes of interest and display the results in Table 2. In column (1), the dependent variable *TV* is the frequency of mentions in CNN, Fox and MSNBC week *w* of the terms "Dow-Jones" or related queries. In column (2), the dependent variable *Newspapers* is the number of mentions in week *w* of terms "Dow-Jones" or related queries, from six newspapers (Boston Globe, Chicago Tribune, New York Times, Wall Street Journal, Los Angeles Times and Washington Post). In column (3), the dependent variable *Searches* is the frequency of internet searches, according to Google Trends, of terms "Dow-Jones" or related queries in week *w*. In column (4), the dependent variable *Bullish* is a weekly measure of individual investor sentiment produced by the American Association of Individual Investors.

From column (1), we infer that the increase in TV exposure is larger in the week of the milestone event than that in the week of the maximum event. The effects are persistent until six weeks after the milestone event. More concretely, in the week of the milestone, the frequency of TV mentions on the stock market doubles relative to the average, whereas in the following six weeks it remains 50 percent above the average value. Similarly, there is an important increase in the number of newspaper articles. Again the number of articles doubles, relative to the unconditional mean, in the week of the milestone, and it remains roughly 40 percent above average on the 12 weeks following the milestone.[4] In column (3) we show that it is not only the number of media mentions of the stock market that increase after a milestone, but that the awareness of individuals also appears to increase in the weeks following a milestone. For example, regarding the number of internet searches obtained from Google Trends, we find that queries of the stock market significantly increase 1.3 percent in the week of the milestone. However, unlike the media mentions, there is relatively low persistence on internet searches. Finally, we show that there is an increase in individual investor confidence in the weeks following a milestone as measured by the share of individual investors that are bullish. In column (4), we show that the share of individual investors that are bullish in the week of the milestone increase 7 percent relative to the average week, and that this effect holds in the six weeks following a milestone. Overall, these results show a clear pattern that the milestone event leads to larger media coverage of the stock market, it increases public awareness of the positive performance of the stock market, and it increases the confidence of individual investors.

4.2. Impact of Milestones on Housing Demand

Given that milestones increase awareness of a positive performance in the stock market, we now analyze whether this increased perception of an increase in wealth leads to different behavior of agents. We start by studying the impact of stock market milestones on household debt. Then we proceed to the impact on housing and mortgage demand such as number of mortgage applications, amount of the mortgage loan (in logs), value of the home (in logs), indicator of whether the loan is for a second home, approval rate of the loans, along with other variables such as loan-to-value, debt-to-value, and loan performance.

[4] For exposure purposes, in Figure A1 in the Appendix, we provide the evolution of the milestone coefficients given the weeks to/from milestone along with the confidence intervals.

We first show the impact of stock market milestones on total household debt and revolving credit in Table 3 using quarterly CCP-Equifax data. We use specification 2 and regress total household credit and revolving credit on the indicators of the quarters surrounding a milestone. Including time-varying macro controls along with zip code*year fixed effects and borrower*year fixed effects. Columns (1)-(3) presents the results for total credit, which is the value (in logs) of total outstanding debt. We find that there is no clear change in total outstanding debt one quarter before the Dow Jones Index reaches a milestone. However, the pattern is quite different after a milestone. We observe that the total outstanding debt increases by 1.9 percent in the quarter of the milestone. There is no effect one quarter after the milestone event. This is consistent with the pattern in Figure 2 that the increase in attention in stock market is not persistent. Columns (4)-(6) presents the results for revolving credit. We observe a similar pattern to columns (1)-(3). These results suggest that the stock market milestone increases the outstanding debt of individuals compared to history maximum.

The above analysis on household debt has two limitations. First, the total outstanding debt and revolving credit are equilibrium outcomes determined by both supply and demand. Second, the CCP-Equifax data only has quarterly data on household debt. There might be other events during one quarter. To sharpen our analysis, we use HMDA dataset and McDash dataset to study the impact of the stock market milestone on mortgage demand. Both datasets are transaction level data so we can aggregate them into weekly level mortgage data. Morevoer, HMDA dataset includes loan applications that did not result in originations (including, for example, applications that are denied or withdrawn) so we can measure the mortgage demand.

We next study the relationship between milestones and mortgage characteristics. The first set of results are present in Table 4A and center on the loan and home characteristics, while the second set of results focuses more on the riskiness of the loan. For all the results in both tables we ran specification 2, including time-varying macro controls along with MSA*year fixed effects and bank*year fixed effects.

Starting with Table 4A, in column (1), we analyze whether there is a shift in the composition of homes from primary residence to secondary residence, which tend to be more discretionary and which account for 11.9 percent of applications. We find that it is indeed the case that stock market milestones increase the relative demand for second homes, and the effect is relatively large. More concretely, in the 12 weeks following a milestone the composition of applications that are destined to second homes increases by 0.35 percentage points, which is a large and

economically significant number given that second homes only account for 11.9 percent of loan applications on average.[5] In column (2), we present the coefficients of the regression of the loan amount on the indicators of the weeks surrounding a milestone. The results indicate that there is no clear change in mortgage application value for applications six weeks before the Dow Jones Index reaches a milestone. However, the pattern is quite different after a milestone. We observe that the loan values increase by 1.0 percent in 3rd and 4th week after the milestone. In Figure 3, we show present graphically the results of column (2) and it shows that the loan values increase after the milestone events. In column (3), we analyze the impact of stock market milestones on the appraised value of the homes underlying the application. The result shows that the appraisal value of home value does not change persistently after milestone event.

Table 4B presents a series of results on the risk characteristics of the loans that were actually originated. More concretely, we analyze the impact of milestones on applicant income, on FICO score, on an indicator of loan-to-value above 80 percent (i.e., loans requiring mortgage insurance), on an indicator of debt-to-income ratio above 43 percent (i.e. ratio above which borrowers cannot obtain a qualified loan), on the mortgage interest rate, and finally, an indicator of whether the loan becomes delinquent in the two years following loan origination.

In column (1), we study the impact of milestone on the selection of applicant income. The result shows that high income applicants are more likely to apply for mortgage after milestone event. In column (2), we study the impact of milestone on the selection of applicant FICO score. We find that the average credit rating of borrowers actually increased after a milestone. More concretely, in the weeks following a milestone the average FICO score of the applicants was roughly 1 point higher than in weeks where the stock market simply reached a maximum. In column (3), we present the results of the impact of milestones on an indicator of whether the loan has a loan-to-value above 80 percent. We find in the 3rd through 10th weeks after the milestone the share of loans with high loan-to-value increase by 0.7-1.0 percentage points on average. In column (4), we find that mortgage interest rate is higher after the milestone event. These results suggest that lenders are extending riskier loans, but that these loans were not obtained by borrowers with weaker credit ratings. Finally, in column (5), we analyze the performance of mortgages. More concretely, we analyze the default rate of mortgages in the 2

[5] In Table A3B in the Appendix we present a series of regressions testing the impact of the value of loan applications when limiting the sample to applications towards second homes. Results are consistent with the results including primary residence, but have a relatively stronger magnitude. On average, the loan value of applications of second homes increases 2 percent after the milestone, and it is relatively persistent until 10 weeks after the milestone.

years after origination. We find that not only were loans riskier at origination, but default rates were significantly larger following origination. More concretely, in the weeks following the milestone the default rate of loans increased on average by around 0.20 percentage points. The default rate increased by 0.30 percentage points 12 weeks after the milestones. This is about 4-6 percent of mortgages in our sample defaulted.

Table 5C present the results on the extensive margin. We use specification 2, and regress the total number of mortgage applications on the indicators of the months surrounding a milestone. Since the stock market milestone only affects individuals with stock holdings, we study two subsamples with different exposure to stock market. We define applicants in counties with below median equity holdings as low equity group and those in counties with above median equity holdings as high equity group. Columns (1)-(2) presents the results for borrowers in high equity group. We find that there is no clear change in the number of loans before the Dow Jones Index reaches a milestone. However, the number of applications increase by 8 percent in the month of the milestone compared to an average history maximum. The effect is persistent to at least 3 months after the milestone event. In contrast, Columns (3)-(4) show that borrowers in low equity group have no differential effect for stock market milestone and history maximum. These results suggest that stock market milestone increases the mortgage demand compared to history maximum, and the effect is mainly driven by high equity groups.

We then study the heterogeneous effects of milestone event based on the share of equity holdings in mortgage applicants. We split the sample into 10 deciles of equity holdings of the income-zip code pair. Lower deciles imply that households in the zip code-income pair have fewer equity holdings. We plot the coefficients of ten different regressions given these deciles. In Figure 4, the dependent variable is the value of home equity loan. We find that households in higher deciles of equity holdings have larger increase in home equity loans. In Figure 5, the dependent variable is an indicator of whether the mortgage application is for a second home. We find that households in higher deciles of equity holdings are more likely to apply mortgage for a second home. Consistent with the results of Table 4C, the effect of milestone is mainly driven by high equity groups.

We have shown that milestones lead to a spike in the demand for housing, especially among the zip code-income pairs with higher equity holdings. Consequently, we test whether housing prices also increase with a milestone driven by the increase in demand. More concretely, using house price indices at the zip code-month level provided by Corelogic, we run a specification

akin to equation 2, including macro regressors control for time-varying changes in demand, along with zip code*year fixed effects to control for yearly fluctuations in prices within a zip code. The results of this exercise are displayed in Table A4. Using the sample containing all zip code, we find that house prices increase 0.55 percent in the month of the milestone but have relatively low persistence.

Overall, the results in this section suggest that after a milestone, the number of mortgage applications increases, and the loan applications for second homes increase. We also find that the value of loan applications increased roughly 1.05 percent but that the appraised value of houses did not increase. Finally, we find that the risk profile of mortgages increased even though the credit rating of applicants remained constant. Consistent with the higher riskiness of loans, we find that default rates on the loans extended after a milestone also increase by almost 4-6 percent.

4.3 Impact of Milestones on the Car Market

The stock market milestone event might affect not only housing demand, but also demand for other durable goods, such as cars. In this section, we test whether it is indeed the case that demand for autos is impacted by milestones. For that we use data from the Price Information Network compiled by JDPower. The data is provided at the weekly frequency. To test whether milestones have any impact on demand, we run specification 1, using macro controls along with quarterly fixed effects to absorb seasonal effects. We test for the impact of milestones on the total value of car trades (in logs), on the average price of new cars (in logs), share of cars that are purchased (relative to purchased and leased cars), share of purchases that do not require financing, along with the average price of used cars (in logs). Results of this exercise are displayed in Table 5. Results on the impact of total car sales are displayed in column 1. They show that in the month in which of the milestone, the value of total car sales increases by 0.14 percent, with this effect lasting until the second month after the milestone. The result on the impact of the price of the average new car is displayed in column 2. They show that the average price of a new car increases by 0.74 percent in the month in which the stock market reaches a milestone. The impact on the share of purchases and on the share of cash purchases are displayed in columns 3 and 4. We find that the share of purchases increases roughly 0.4 percentage points in the months following a milestone, whereas the share of all cash purchases increases 0.4 percentage points in the month after the milestone. This is about 2 percent

increase since 24.5 percent of total cars are purchased without financing. Finally, we analyze the impact of milestones on the price of a used car. Results are displayed in column 5, and they show that the price of used cars does not appear to be impacted by milestones. Overall, these results suggest that variation in the perceived stock market wealth does not only affect housing demand, but it also impacts the demand for new cars.

5. Possible Explanations

Why does housing demand increase when Dow Jones Index reaches milestones? In this section, we discuss in detail about two possible explanations: the wealth effect and the attention effect. We also discuss other alternative explanations such as macroeconomic environment and interest rate expectation, and banks' supply-side response.

We first study two possible explanations: the wealth effect and attention effect. The wealth effect means that increases in the stock market index increase equity holders' wealth since stock market milestones are historical maxima. Then equity holders tend to spend more on consumption and buy houses, increasing mortgage demand. It implies that event with similar magnitude of stock market index increase would increase the housing demand of equity holders. Attention effect means that stock market milestone is an attention-grabbing event. The milestone event attracts much attention of investors and reminds them about the wealth increase. In addition to the wealth effect, the attention effect might amplify the wealth effect during the milestone effects. It implies that milestone events would have larger effects on housing demand than other historical maximum event or event with similar magnitude of stock market index increases.

We provide two pieces of evidence to distinguish these two channels. First, our main specifications estimate the differential impact between milestones and non-milestone history maximum. When the stock index reaches the history maximum, there is a constant stock index increase before the history maximum. Thus, all history maximum events have wealth effects on equity holders. Since milestones are all history maximum, and the difference is that the milestones reach the round 1000 points number, the estimated difference already controls for wealth effects. Thus, our main results in Table 4C estimate capture the attention effects: the additional effect of milestone event while controlling for the effect of non-milestone history maximum event. Moreover, we show in Table 2 that milestone event indeed gran more media

attention compared to non-milestone history maximum. These results suggest that attention effect is an important channel of the effect of stock market performance on housing demand.

Second, if the results are driven by attention effects, the milestone event should be salient. And we should not see the results if the milestone event is not salient. In our main analysis, wee define the milestones as the stock index reaches the round 1000 points number, which is a round number in base 10. We conduct a placebo test to define placebo milestone as the stock index reaches the 1000 points number in other bases from base 6 to base 14. For example, in base 9, the first round number "1000" is 9^3 = 729 in base 10. In base 11, the first round number "1000" is 11^3=1331 in base 10. In the placebo tests, we define the first milestone as 729 in base 9 case and 1331 in base 11 case. We redefine these placebo milestones from base 6 to base 14. We first run the regressions in specification (1) using newspaper mentions as a dependent variable. Figure A2 reports the coefficients of newspaper mentions in the milestone week. We find that there is no significant difference between the milestone and history maximum in placebo base 6, 7, 8, 9, 11, 12, 13, and 14. The milestone event has larger impact on newspaper mentions only in the salient base 10. We then run the regression in specification (1) using loan values as a dependent variable. Figure A3 reports the coefficients of loan values in the milestone week. We find that there is no significant difference between the milestone and history maximum in placebo base 6, 7, 8, 9, 11, 12, 13, and 14. The milestone event has larger impact on loan values only in the salient base 10. These results further support that our estimated difference between milestone event and non-milestone history maximum is driven by attention effects.

It is possible that stock market milestone is correlated with other events, such as expectations on macroeconomics or interest rate, and the change in expectations affect housing demand. For example, a booming stock market might increase the expectation of future interest rate, and thus increase the housing demand now due to low mortgage costs.

We provide two pieces of evidence to study the explanations of other events. First, we study the heterogeneous effects of milestone event based on the share of equity holdings in mortgage applicants, and the selection of mortgage applicants after milestone events. If our results are driven by the stock market event, the increase in stock market should have different impact on households with varying degrees of exposure to the stock market. Otherwise, if our results are driven by other events, we should not observe the heterogeneous effect based on the share of equity holdings. We define applicants in counties with below median equity holdings as low

equity group and those in counties with above median equity holdings as high equity group. In Table 4C, we show that stock market milestone increases the mortgage demand compared to history maximum, and the effect is mainly driven by high equity groups.

We further compare the equity holdings of mortgage applicants in weeks in which the stock market reached a maximum and weeks in which it reached a milestone.[6] In Figure A4, we compare the kernel density of equity holdings of households these two types of weeks. Left panel includes all mortgage applications, right panel includes mortgage applications for second homes. As can be seen, while the densities of both groups are relatively similar, households with a larger share of equity holdings tend to be relatively more present in the weeks in which the stock market reaches a milestone.

To analyze more formally the impact of stock market milestones on the equity holdings of mortgage applicants, we run specification 2 using as a dependent variable the share of equity holdings of households that live in the zip code in which the home is located and who are in the income group of the applicant. The results of this specification are displayed in Table 6. In the first column we include MSA and year fixed effects. The results show that compared to weeks with a maximum, the week of a milestone leads to an average increase of the share of equity holdings of applicants of around 0.23 percentage points out of an unconditional average of equity holdings of 27 percent. Interestingly, this effect is relatively persistent, albeit declining with time, and the effect remains statistically and economically significant even 12 weeks after the impact of the milestone. In column (2), we present the results of the same specification with the same MSA and year fixed effects but with the inclusion of time-varying macro controls such as mortgage rates, stock market growth, stock market valuations, coincident and leading state-level activity among other variables to control for overall variations in demand. The results remain virtually identical albeit a touch weaker. In column (3), we include stronger controls in the form of MSA*year and bank*year fixed effects. These fixed effects control for variation in demand within an MSA in a given year, along with variations in the supply of credit of a bank within a year. The results of this specification remain very similar to the ones in columns (1) and (2), and show that in the weeks following a milestone, there is an significant increase in the average share of equity holdings of applicants. In column (4), we include borrower controls such as applicant income (in logs) along with other characteristics such as gender and race. Therefore, in this specification, we are checking

[6] For motivation purposes, in Figure A2 in the Appendix, we display the average equity holdings for all zip code-income pairs.

whether for similar borrowers there is a relative increase of those applying for homes in locations where the average location-income pair has stronger participation in the stock market. The results of this specification remain positive and significant, indicating that there is an increase in participation in the mortgage market of agents who are more exposed to the stock market in weeks following a milestone. Finally, in the last column, we limit the sample to borrowers with an income level above USD 75,000 in 2008 prices and which on average have higher average equity holdings. The results remain robust and continue to indicate that individuals with high share of equity holdings are more likely to apply for mortgage after the milestone event compared to the history maximum. The results of this regression can also be observed graphically in Figure A5, where we display the biweekly coefficients along with the confidence intervals. In sum, the results from Table 4C and Table 6 imply that the milestone effect is driven by the stock market rather than other events around the same time.

Second, the expectation of future interest will not only affect mortgage demand for home purchase, but also home refinance. We analyze the impact of stock market milestone on the value of loan applications for refinancing purposes. Results are displayed in Table IA1 in the Appendix. We find that milestones have no impact on the value of refinancing loans. It implies that our results are not driven by changes in expectation of future interest.

Another alternative explanation of increasing housing demand is that stock market milestone is correlated with banks' supply side response. If the increase of banks credit supply coincides with stock market milestone, we would also observe our results. To examine the banks' supply side response, we test whether the approval rate of banks varies with milestones weeks. The results are displayed in Table IA2. The results suggest that milestones do not have an impact on approval rates. This effect is consistent with the uncovered results not driven by banks' supply side responses for mortgages.

6. Conclusion

In this paper, we study to what extent stock market performance affect housing demand. In particular, we study whether the housing demand changes when the stock market index reaches its milestones. Using several large datasets of mortgage application and household credit in the past 20 years in the US, we document that after stock market index reaches a milestone number

(round 1000), more households apply for mortgage for home purchase, and they are more likely to apply mortgage for second homes compared to non-milestone history maxima. The loan amount also increases after the milestone event. These results are mainly driven by households with high equity holdings. The applicants are more likely to have high equity holdings and high FICO scores, but the mortgage loan terms are riskier with higher interest rates, LTV, and DTI, and the applicants are more likely to default in the two years after loan originations. We investigate the mechanisms and show that the effect is driven by the attention effect rather than the wealth effect. We also show that the results are unlikely to be driven by other events around the milestone or banks' supply side response.

Our results highlight the linkage between stock market and housing market, and have implication for monetary policy. We show that attention effect is another important channel beyond wealth effect that link stock market to housing demand. That is, stock market milestone is an attention-grabbing event, and it will amplify the standard wealth effect. We also contribute to the literature studying the relationship among stock market wealth, housing wealth and household consumption, especially on durable goods.

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Table 1A. Summary Statistics

This table displays the main summary statistics of the variables used. Detailed variable definitions in Table A1.

	Observations	Average	p10	p50	p90	Std. Deviation
A. Stock Market Variables						
Max_w	1,371	0.19	0.00	0.00	1.00	0.39
$Milestone_w$	1,371	0.01	0.00	0.00	0.00	0.12
$PE\text{-}Ratio_w$	1,371	25.7	16.0	20.8	33.9	17.2
$Dow\text{-}Jones\ Growth_w$	1,371	6.0	-3.9	1.0	4.5	3.7
B. Macroeconomic Variables						
$Bullish_w$	1,371	40.0	27.9	39.5	53	9.5
$Misery_m$	1,371	8.1	6.0	8.1	10.7	1.7
$Coincident_{s,m}$	16,200	90.5	72.4	90.8	106.6	14.0
$Leading_{s,m}$	16,200	1.25	0.13	1.52	2.48	1.03
$Uncertainty_m$	1,371	112	67	101	177	45
$Confidence_m$	1,371	35.8	10.0	35.0	71.0	19.5
30-year Mortgage $Rate_m$	1,371	5.9	3.8	6.0	7.9	1.5
C. Media Variables						
$Newspapers_w$	1,371	9.3	5.5	8.0	14.0	4.2
TV_w	508	0.1	0.0	0.1	0.2	0.1
$Searches_w$	795	63.7	32.0	63.0	94.0	26.0
D. Consumer Credit Variables						
$Credit_{i,q}$	9,830,633	48,804	0	0	167,338	127,743
Revolving $Credit_{i,q}$	9,830,633	47	0	0	0	1,476
Home-Equity $Loan_{i,q}$	9,830,633	3,682	0	0	0	24,164
E. Housing Variables						
HMDA						
$NumberLoans_{w,g}$	1,964	17,720	172	16,708	34,439	13,133
Second $Home_{i,b,w}$	86,253,490	11.9	0	0	100	33.8
Loan $Amount_{i,b,w}$	86,253,490	194	48	155	378	166
Applicant $Income_{i,b,w}$	86,253,490	96	34	75	165	90
$Approval_{i,b,w}$	79,548,740	85	0	100	100	35
$EquityHoldings_{z,y}$	86,253,490	27.7	7.6	23.9	53.4	17.9
McDash						
$HomeValue_{i,b,w}$	13,112,546	309,851	104,563	229,278	561,453	514,627
$FICO_{i,b,w}$	9,809,093	734	648	747	798	58
High $LTV_{i,b,w}$	13,112,546	37.9	0	0	100	48.5
High $DTI_{i,b,w}$	6,854,124	18.3	0	0	100	38.7
Interest $Rate_{i,b,w}$	13,189,879	5.7	3.6	5.9	7.9	1.7
$Default_{i,b,w}$	11,626,515	3.1	0.0	0.0	0.0	17.3
CoreLogic						

$HousePriceIndex_{z,m}$	485,800	99.0	132.0	215.3	45.7	21.7
F. Car-Market Variables						
$CarSales_m$	956	1,580	991	1,558	2,162	441
$PriceNewCar_m$	956	29,772	28,629	29,726	31,079	1,013
$Purchases_m$	956	24.5	17	25	32	5.4
$Cash_m$	956	79.5	71	80	87	5.4
$PriceUsedCar_m$	956	17,231	16,341	17,168	18,295	737

Table 1B. Comparison Dow-Jones Maximum and Milestone

This table compares a series of macroeconomic and financial variables around Maximum weeks as well as Milestone weeks. *, **, *** denote statistically significant levels at 10%, 5% and 1% respectively. Detailed variable definitions in Table A1.

	Maximum		Milestone		
	Average	Standard Deviation	Average	Standard Deviation	Norm. Difference
	(1)	(2)	(3)	(4)	(5)
A. Stock Market Variables					
PE Ratio$_w$	21.0	4.8	20.6	5.1	0.06
DJ Growth Rate in the Previous:					
Month$_w$	3.2	2.0	3.1	1.4	0.04
Quarter$_w$	6.7	3.5	7.3	4.1	-0.11
Semester$_w$	10.0	5.1	10.3	5.7	-0.04
Year$_w$	15.9	8.0	14.7	8.8	0.10
DJ Growth Rate in the Following:					
Month$_w$	0.5	3.0	1.1	2.8	-0.15
Quarter$_w$	1.2	4.5	3.5	3.7	-0.39
Semester$_w$	2.8	6.4	4.3	6.4	-0.17
Year$_w$	8.4	9.5	9.5	8.2	-0.09
B. Macroeconomic Variables					
Bullish$_w$	42.4	8.5	45.0	7.2	-0.23
Misery$_m$	8.4	1.6	7.9	1.7	0.21
Coincident$_{s,m}$	86.0	19.0	93.2	16.2	-0.24
Leading$_{s,m}$	1.43	0.94	1.50	0.89	-0.05
Uncertainty$_m$	97.3	36.2	100.6	51.9	-0.05
Confidence$_m$	35.0	18.2	38.8	18.1	-0.15
30-year Mortgage Rate$_m$	6.6	1.9	6.0	1.8	0.23

Table 2. Milestones and Media Exposure

This table presents the relationship between Dow Jones Index milestone and media exposure from specification (1). The sample is from 1990 to 2016. $Newspapers_w$ is the number of mentions in week w of terms "Dow-Jones" or related queries, from six newspapers (Boston Globe, Chicago Tribune, New York Times, Wall Street Journal, Los Angeles Times, and Washington Post). TV_w is the frequency of mentions in CNN, Fox, and MSNBC week *w* of the terms "Dow-Jones" or related queries. $Searches_w$ is the frequency of internet searches, according to Google Trends, of terms "Dow-Jones" or related queries in week *w*. Finally, $Bullish_w$ is a weekly measure of individual investor sentiment produced to the American Association of Individual Investors. *, **, ***. Detailed variable definitions in Table A1.

	$Newspapers_w$	TV_w	$Searches_w$	$Bullish_w$
	(1)	(2)	(3)	(4)
$Pre_{5w-6w}*MS_w$	-0.36	0.00	-0.08	1.44
	(0.38)	(0.02)	(0.39)	(1.13)
$Pre_{3w-4w}*MS_w$	-0.24	0.01	-0.65	1.96
	(0.32)	(0.02)	(0.40)	(1.28)
$Pre_{1w-2w}*MS_w$	0.14	-0.01	0.39	1.45
	(0.50)	(0.02)	(0.64)	(1.39)
Max_w*MS_w	1.21***	0.08***	0.80***	3.21**
	(0.41)	(0.03)	(0.31)	(1.36)
$Post_{1w-2w}*MS_w$	1.12***	-0.00	0.35	3.93***
	(0.39)	(0.02)	(0.40)	(1.38)
$Post_{3w-4w}*MS_w$	0.80*	0.03	0.52	2.10
	(0.48)	(0.02)	(0.45)	(1.30)
$Post_{5w-6w}*MS_w$	0.85*	0.09***	-0.03	3.17**
	(0.44)	(0.03)	(0.34)	(1.32)
$Post_{7w-8w}*MS_w$	-0.11	-0.00	-0.65**	1.95*
	(0.38)	(0.02)	(0.30)	(1.12)
$Post_{9w-10w}*MS_w$	-0.33	0.05***	0.12	1.68
	(0.32)	(0.02)	(0.48)	(1.12)
$Post_{11w-12w}*MS_w$	0.13	0.03*	0.23	-0.26
	(0.34)	(0.02)	(0.30)	(1.15)
Observations	1,304	415	697	1,302
R-squared	0.72	0.28	0.62	0.64
Macro Controls	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes
Average Dependent Variable	9.3	0.1	63.7	40.0

Table 3 – Milestones, Total and Revolving Credit

This table presents the relationship between milestones and total credit and total revolving credit of individuals using quarterly CCP-Equifax data. *Credit*$_{i,q}$ is the value (in 100*logs) of total outstanding debt of individual *i* in quarter *q*. *Revolving Credit*$_{i,q}$ is the value (in 100*logs) of total revolving debt of individual *i* in quarter *q*. Sample from 1999 to 2017. *, **, *** denote statistically significant levels at 10%, 5% and 1% respectively. Detailed variable definitions in Table A1.

	Credit$_{i,q}$			Revolving Credit$_{i,q}$		
	(1)	(2)	(3)	(4)	(5)	(6)
Pre_{1q}*MS_q	-0.28	-0.30	0.20	0.88	0.91	1.45
	(0.85)	(1.10)	(1.22)	(0.63)	(0.80)	(0.99)
Max_q*MS_q	1.93*	2.43*	2.00	2.77***	2.98***	2.97***
	(1.05)	(1.25)	(1.46)	(1.00)	(1.09)	(1.12)
$Post_{1q}$*MS_q	0.95	1.76	2.22*	0.78	1.16	1.47
	(1.21)	(1.31)	(1.32)	(1.00)	(1.09)	(0.99)
Observations	9,824,110	9,774,309	7,797,229	9,824,110	9,774,309	7,797,229
R-squared	0.18	0.92	0.92	0.19	0.94	0.94
Macro Controls	Yes	Yes	Yes	Yes	Yes	Yes
Zip*Year FE	Yes	-	-	Yes	-	-
Borrower*Year FE	No	Yes	Yes	No	Yes	Yes
Borrowers	All	All	FICO>580	All	All	FICO>580

Table 4A. Milestones and Mortgage Characteristics

This table presents the relationship between milestones and mortgage characteristics. The sample is from 1990 to 2016 in HMDA, on borrowers with high share of equity holdings. The variable *Second Home* is an indicator of whether the property is not the primary residence of the applicant. The dependent variable *Loan Amount*$_{i,b,w}$. is the value of the loan *i* extended by bank *b* in week *w* (in 100*log). The dependent variable *HomeValue*$_{i,b,w}$ is the appraisal value of the home of loan *i* extended by bank *b* in month *m* (in 100*logs). Dependent variables in columns 1, 2, and (3) from HMDA (McDash). The independent variables are month indicators of loan applications in the window three months before and after the milestone event. *, **, *** denote statistically significant levels at 10%, 5% and 1% respectively.

	Loan Amount$_{i,b,w}$	Second Home$_{i,b,w}$	Home Value$_{i,b,w}$
	(1)	(2)	(3)
$Pre_{5w-6w}*MS_w$	-1.10***	0.07	0.11
	(0.42)	(0.14)	(0.33)
$Pre_{3w-4w}*MS_w$	-0.52	0.17	-0.22
	(0.34)	(0.15)	(0.33)
$Pre_{1w-2w}*MS_w$	-0.39	0.32*	0.02
	(0.36)	(0.17)	(0.31)
Max_w*MS_w	0.07	0.37***	0.50*
	(0.41)	(0.12)	(0.31)
$Post_{1w-2w}*MS_w$	0.51	0.35***	0.14
	(0.41)	(0.12)	(0.32)
$Post_{3w-4w}*MS_w$	1.05**	0.38***	0.25
	(0.47)	(0.10)	(0.36)
$Post_{5w-6w}*MS_w$	0.99**	0.33***	0.52*
	(0.41)	(0.11)	(0.34)
$Post_{7w-8w}*MS_w$	0.44	0.39***	0.43
	(0.39)	(0.08)	(0.35)
$Post_{9w-10w}*MS_w$	0.23	0.44***	0.39
	(0.42)	(0.10)	(0.33)
$Post_{11w-12w}*MS_w$	-0.02	0.35***	0.55*
	(0.49)	(0.08)	(0.33)
Observations	62,857,797	62,857,797	6,871,703
R-squared	0.17	0.40	0.37
Macro Controls	Yes	Yes	Yes
MSA*Year FE	Yes	Yes	Yes
Bank*Year FE	Yes	Yes	Yes

Table 4B – Milestones and Mortgage Risk

This table presents the relationship between milestones and mortgage characteristics. The sample is from 1990 to 2016 in HMDA, on borrowers with high share of equity holdings. The variable High LTV is an indicator that the loan to value ratio is above 80 percent. High DTI is an indicator that the borrower has a debt-to-income ratio above 43 percent, the maximum ratio above which borrowers cannot obtain a qualified loan. Recourse is an indicator that the lender has a recourse on the borrowers' assets in addition to the property. Interest Rate is the annualized interest rate of the mortgage. FICO is the FICO score of the applicant now of the purchase. Defaulti,b,w is an indicator that loan i extended by bank b in week w will become delinquent within two years of its origination. Dependent variables in column 1 (2 through 6) from HMDA (McDash). The independent variables are month indicators of loan applications in the window around the milestone event. *, **, *** denote statistically significant levels at 10%, 5% and 1% respectively.

	Applicant Income$_{i,b,w}$	FICO$_{i,b,w}$	High LTV$_{i,b,w}$	Interest Rate$_{i,b,w}$	Default$_{i,b,w}$
	(1)	(2)	(3)	(4)	(5)
$Pre_{5w-6w}*MS_w$	0.26	0.78	-0.10	0.02	0.06
	(0.30)	(0.48)	(0.41)	(0.02)	(0.08)
$Pre_{3w-4w}*MS_w$	0.43	0.40	-0.03	0.02	0.23
	(0.32)	(0.54)	(0.32)	(0.02)	(0.16)
$Pre_{1w-2w}*MS_w$	0.04	0.93*	-0.18	0.04*	0.25
	(0.25)	(0.50)	(0.28)	(0.02)	(0.20)
Max_w*MS_w	-0.13	1.23***	0.22	0.02**	0.20**
	(0.22)	(0.47)	(0.35)	(0.01)	(0.08)
$Post_{1w-2w}*MS_w$	0.15	1.17**	0.67*	0.02**	0.26***
	(0.18)	(0.52)	(0.39)	(0.01)	(0.08)
$Post_{3w-4w}*MS_w$	0.33*	1.07**	1.03**	0.02**	0.27***
	(0.20)	(0.46)	(0.42)	(0.01)	(0.07)
$Post_{5w-6w}*MS_w$	0.42***	0.62	0.91**	0.02**	0.32***
	(0.16)	(0.47)	(0.38)	(0.01)	(0.09)
$Post_{7w-8w}*MS_w$	0.29*	0.47	0.98**	0.01	0.32***
	(0.16)	(0.36)	(0.40)	(0.01)	(0.07)
$Post_{9w-10w}*MS_w$	0.25	0.42	0.93***	0.01	0.39***
	(0.18)	(0.29)	(0.35)	(0.01)	(0.10)
$Post_{11w-12w}*MS_w$	0.25	-0.29	-0.03	0.02**	0.30***
	(0.17)	(0.36)	(0.44)	(0.01)	(0.07)
Observations	62,857,797	6,871,703	8,090,364	8,143,307	2,553,882
R-squared	0.26	0.15	0.07	0.79	0.07
Macro Controls	Yes	Yes	Yes	Yes	Yes
MSA*Year FE	Yes	Yes	Yes	Yes	Yes
Bank*Year FE	Yes	Yes	Yes	Yes	Yes

Table 4C. Milestones and Number of Mortgage Applications per Equity Holdings

This table presents the relationship between Dow Jones Index milestone and the total number of mortgage applications. The sample is from 1990 to 2016 in CoreLogic data. The dependent variable $NumberLoans_{w,g}$ is the number of loans (in logs) in week w of equity-holdings group *g*. The independent variables are month indicators in the window three months before and after the milestone event. *, **, *** denote statistically significant levels at 10%, 5% and 1% respectively.

	$NumberLoans_{w,g}$			
	(1)	(2)	(3)	(4)
$Pre_{2m}*MS_m$	0.01	0.02	0.00	0.00
	(0.03)	(0.03)	(0.03)	(0.03)
$Pre_{1m}*MS_m$	-0.01	-0.00	-0.04*	-0.04*
	(0.03)	(0.03)	(0.03)	(0.03)
Max_m*MS_m	0.08*	0.09*	-0.02	-0.02
	(0.05)	(0.05)	(0.03)	(0.03)
$Post_{1m}*MS_m$	0.11*	0.11*	-0.03	-0.03
	(0.06)	(0.06)	(0.03)	(0.03)
$Post_{2m}*MS_m$	-0.01	-0.00	-0.00	-0.01
	(0.05)	(0.05)	(0.03)	(0.03)
$Post_{3m}*MS_m$	0.11***	0.11**	0.03*	0.03
	(0.04)	(0.04)	(0.02)	(0.02)
Observations	975	975	851	851
R-squared	0.97	0.97	0.92	0.92
Year FE	Yes	Yes	Yes	Yes
Marco Controls	No	Yes	No	Yes
Sample	High Equity	High Equity	Low Equity	Low Equity

Table 5. Milestones and the Automobile Market

This table presents the relationship between Dow Jones Index milestone and car transactions from specification (1). The sample is from 1990 to 2016. Data on auto sales and leasing is obtained from JDPower and is at weekly frequency. The dependent variable $CarSales_w$ the value of new car sales in week w (in 100*logs). $PriceNewCar_w$ is the price of a new car in week w (in 100*logs). $Purchases_w$ is the number of purchases over the sum of number of purchases plus number of car leasing in week w. $Cash_w$ is the fraction of purchases done without financing in week w. $PriceUsedCar_w$ is the average price of a used car in week w (in 100*logs). The independent variables are weekly indicators of loan applications in the window three months before and after the milestone event. *, **, *** denote statistically significant levels at 10%, 5% and 1% respectively.

	$CarSales_w$	$PriceNewCar_w$	$Purchases_w$	$Cash_w$	$PriceUsedCar_w$
	(1)	(2)	(3)	(4)	(5)
$Pre_{3m}*MS_m$	0.05	0.33	0.21	-0.06	-0.86**
	(0.06)	(0.26)	(0.17)	(0.21)	(0.36)
$Pre_{2m}*MS_m$	0.13*	0.36	0.11	-0.33	-0.39
	(0.07)	(0.27)	(0.23)	(0.21)	(0.36)
$Pre_{1m}*MS_m$	0.08	0.29	0.08	0.17	-0.07
	(0.07)	(0.30)	(0.18)	(0.21)	(0.36)
Max_m*MS_m	0.14***	0.74***	0.36**	0.20	0.27
	(0.05)	(0.25)	(0.17)	(0.19)	(0.36)
$Post_{1m}*MS_m$	0.12*	0.70**	0.41*	0.43*	0.21
	(0.07)	(0.30)	(0.21)	(0.23)	(0.47)
$Post_{2m}*MS_m$	0.14**	0.08	0.45**	0.24	-0.15
	(0.07)	(0.26)	(0.20)	(0.22)	(0.46)
$Post_{3m}*MS_m$	-0.01	0.32	0.47**	0.17	-1.32***
	(0.06)	(0.24)	(0.21)	(0.22)	(0.41)
Observations	730	938	938	938	878
R-squared	0.57	0.80	0.95	0.93	0.82
Controls	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes
Avg(Dependent Variable)	-	-	79.5	24.5	-

Table 6 – Milestones and Equity Holdings of Mortgage Applicants

This table presents the relationship between milestones and the share of equity holdings of the applicant. The independent variables are biweekly indicators of loan applications in the window around the milestone event. *Macro Controls* include lagged stock market growth, PE ratio, coincident and lead activity indicators at the state-month level, misery, and uncertainty indices. *Borrower Controls* include applicant income, gender, and race. *, **, *** denote statistically significant levels at 10%, 5% and 1% respectively.

	Equity Holdings$_{i,b,w}$				
	(1)	(2)	(3)	(4)	(5)
$Pre_{5w-6w}*MS_w$	-0.05	-0.07	-0.07	-0.01	0.01
	(0.06)	(0.06)	(0.08)	(0.04)	(0.04)
$Pre_{3w-4w}*MS_w$	0.01	0.01	-0.00	0.02	-0.04
	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)
$Pre_{1w-2w}*MS_w$	0.02	0.02	-0.03	-0.05	-0.08
	(0.07)	(0.06)	(0.07)	(0.05)	(0.05)
Max_w*MS_w	0.06	0.05	-0.01	-0.02	-0.01
	(0.08)	(0.08)	(0.07)	(0.05)	(0.05)
$Post_{1w-2w}*MS_w$	0.23***	0.17**	0.14*	0.08	0.08*
	(0.08)	(0.07)	(0.07)	(0.05)	(0.04)
$Post_{3w-4w}*MS_w$	0.31***	0.25***	0.21***	0.12**	0.12***
	(0.08)	(0.08)	(0.07)	(0.05)	(0.04)
$Post_{5w-6w}*MS_w$	0.28***	0.25***	0.19***	0.12**	0.09*
	(0.06)	(0.07)	(0.07)	(0.05)	(0.05)
$Post_{7w-8w}*MS_w$	0.21***	0.19***	0.11*	0.10**	0.06
	(0.06)	(0.07)	(0.06)	(0.04)	(0.05)
$Post_{9w-10w}*MS_w$	0.12**	0.09	0.02	0.04	0.01
	(0.05)	(0.06)	(0.06)	(0.05)	(0.05)
$Post_{11w-12w}*MS_w$	0.22***	0.20***	0.13*	0.09**	0.02
	(0.06)	(0.06)	(0.07)	(0.05)	(0.05)
Observations	62,131,007	62,131,007	62,130,144	62,113,854	30,371,906
R-squared	0.16	0.16	0.18	0.26	0.24
Macro Controls	No	Yes	Yes	Yes	Yes
MSA FE	Yes	Yes	-	-	-
Year FE	Yes	Yes	-	-	-
MSA*Year FE	No	No	Yes	Yes	Yes
Bank*Year FE	No	No	No	Yes	Yes
Borrower Controls	No	No	No	Yes	Yes
Applicant Income	All	All	All	All	>$75,000
Average(EquityHoldings$_{i,b,w}$)	27.1	27.1	27.1	27.1	40.2

Figure 1. Dow Jones Index from 1995 to 2016

This figure plots Dow Jones Index from 1995 to 2016. The vertical lines highlight the milestones, which we define as Dow Jones Index reaches the round 1000 points and it is also the historical maximum

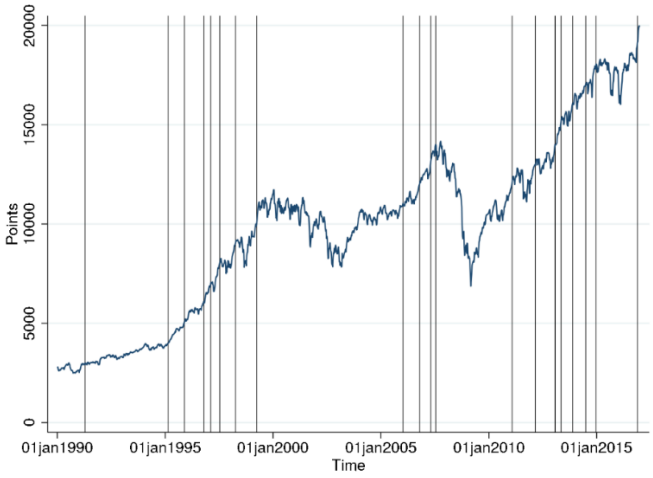
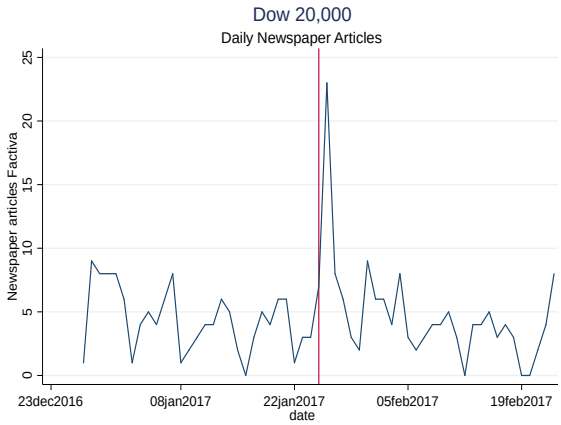
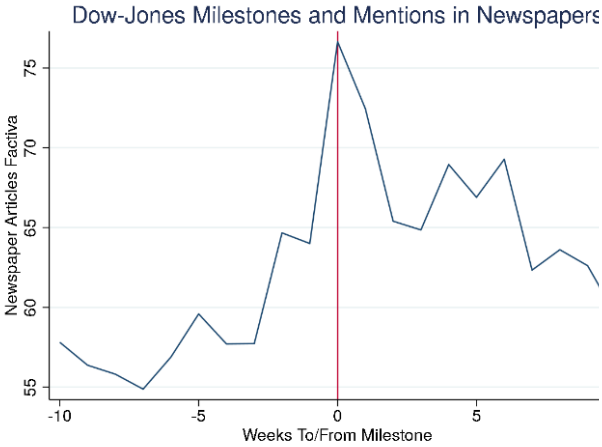
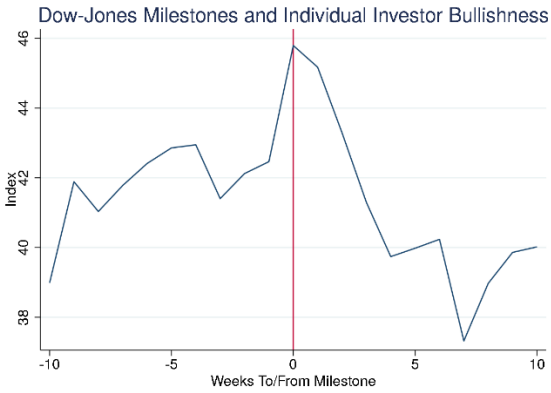


Figure 2. Dow-Jones Milestones and Media Coverage

The left and right panels display the frequency of newspaper articles containing the term "Dow-Jones" and related queries, on the days in which the index reached 10,000 and 20,000 for the first time. The horizontal axis is calendar date the milestone event. The vertical axis is the number of daily newspaper articles.







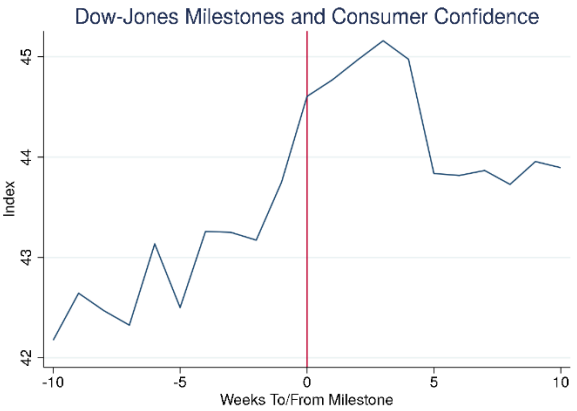


Figure 3. Milestones and Mortgage Application Value

This figure plots the coefficients from specification (1) with the value of loan applications (in logs) as dependent variable in the window around a milestone event. The horizontal axis is the number of weeks to/from the milestone event. The vertical axis is percent changes in average equity holdings of applicants. The vertical bars re confidence intervals at the 95 percent confidence level. Observations at the mortgage level.

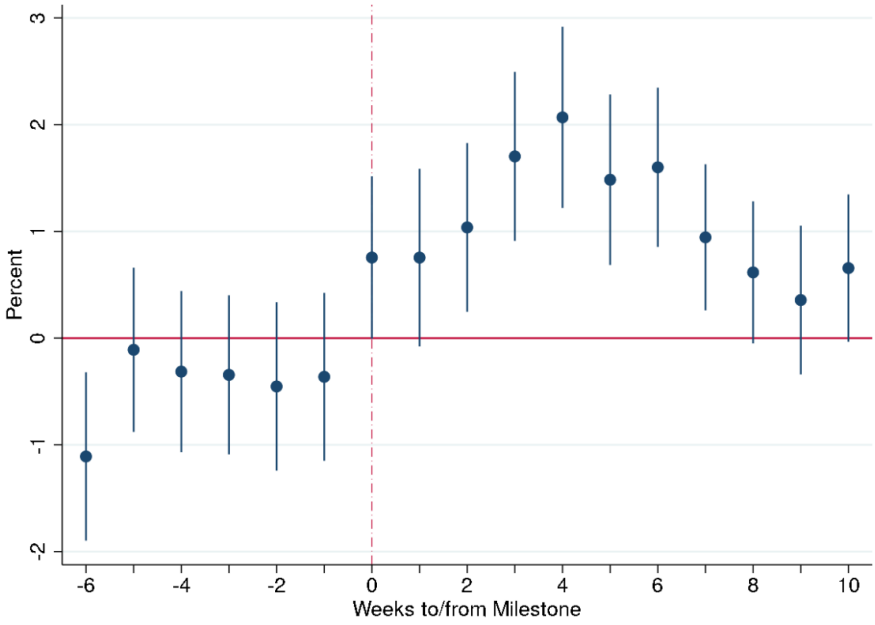


Figure 4. Milestones, Equity Holdings and Home-Equity Loans

This figure plots the coefficients of ten different regressions given the decile of equity holdings of the zip code. Lower deciles imply that households in the zip code have fewer equity holdings. Each regression follows specification (1) with the value of home equity loan (in logs) dependent variable. The figure displays the coefficient of the quarter of the milestone. The vertical axis is percent increase in the value of home-equity loans. The vertical bars are confidence intervals at the 95 percent confidence level. Observations at the individual-quarter level.

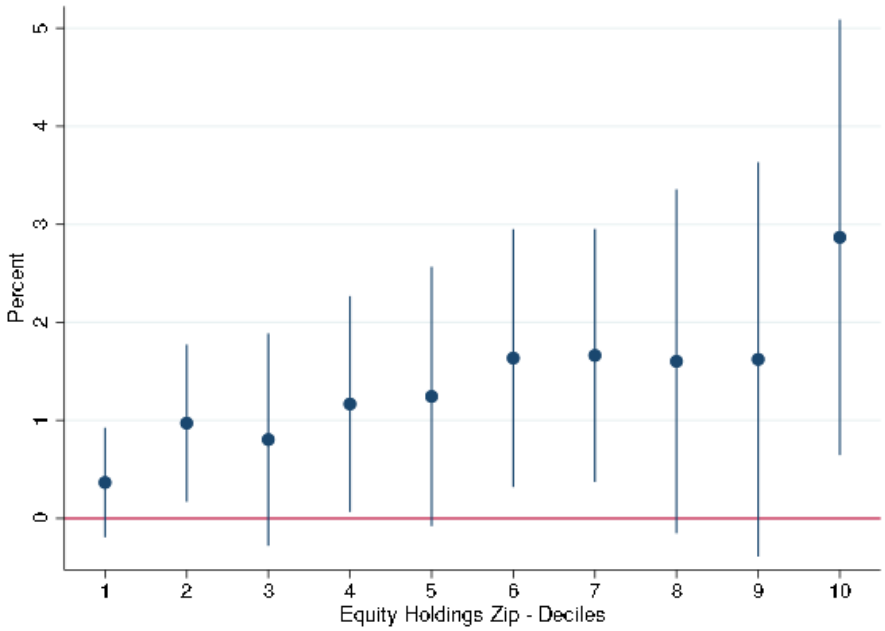


Figure 5. Milestones, Equity Holdings and Second-Home Mortgage Applications

This figure plots the coefficients of ten different regressions given the decile of equity holdings of the income-zip code pair. Lower deciles imply that households in the zip code-income pair have fewer equity holdings. Each regression follows specification (1) with an indicator of whether the mortgage application is for a second home as dependent variable. The figure displays the coefficient of the quarter of the milestone. The vertical axis is the probability that the mortgage application is for a second home. The vertical bars are confidence intervals at the 95 percent confidence level. Observations at the individual-quarter level.

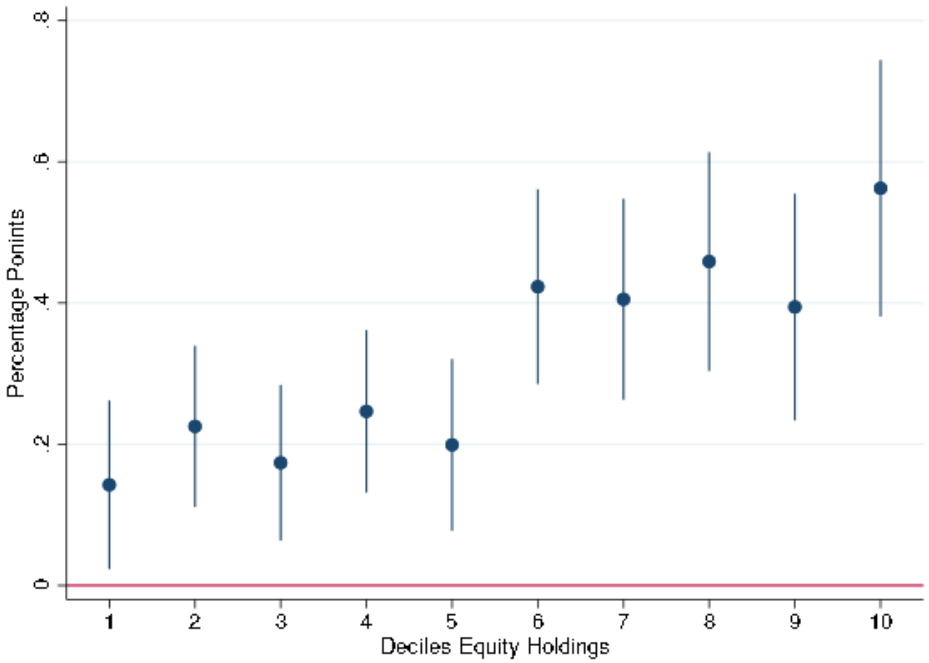


Table A1. – Variable Definitions

Mentions in Media	
$Newspapers_w$	Number of mentions in week *w* for mentions of "Dow Jones Industrial Average" and related queries, for six newspapers (Boston Globe, Chicago Tribune, New York Times, Wall Street Journal, LA Times, and Washington Post). Data obtained from ProQuest.
TV_w	Frequency of mentions in week *w* in CNN, Fox, and MSNBC of the terms "Stock Market" or "Dow". Data obtained from GDELT Project.
$Searches_w$	Frequency of searches in of the term "Stock Market" or "Dow" in week *w*. Data obtained from Google Trends
Stock Market Variables	
Max_w	Indicator that the Dow-Jones Index reached an historical maximum in week *w*.
MS_w	Indicator that the Dow-Jones Index reached a maximum and a milestone in week *w*.
$PE\text{-}Ratio_w$	Price-to-Earnings ratio of Dow-Jones index in week w
$PreGrowth\text{-}z_w$	Growth rate of the Dow-Jones Index in week w over the previous z weeks.
$PostGrowth\text{-}z_w$	Growth rate of the Dow-Jones Index in week w over the following z weeks.
$Equity_{m,y}$	Share of households in MSA m in year y that have taxable returns from equities, from IRS.
Macroeconomic Variables	
$Misery_m$	Sum of inflation rate and unemployment rate in month *m*
$Uncertainty_m$	Economic policy uncertainty index in month *m* from Baker, Bloom and Davis.
GDP_q	Quarterly GDP growth in quarter *q*.
$Confidence_m$	Confidence indicator in month *m* from Michigan survey.
$30year_m$	Rate for a conforming 30-year fixed rate loan in month *m*, from Wall Street Journal.
$Coincident_{s,m}$	Monthly coincident index for each 50-state released by the Federal Reserve Bank of Philadelphia. It summarizes current economic conditions in a single statistic, using four indicators: nonfarm payroll employment, average hours worked in manufacturing, the unemployment rate, and wage and salary disbursements.
$Lead_{s,m}$	Monthly leading index for each state, released by the Federal Reserve Bank of Philadelphia. The leading index for each state predicts the six-month growth rate of the state's coincident index. In addition to the coincident index, the models include other variables that lead the economy: housing permits (1 to 4 units), initial unemployment insurance claims, delivery times, and the interest rate spread between the 10-year Treasury bond and the 3-month Treasury bill.
Housing Variables	
$Approval_{i,b,w}$	Indicator of whether loan application *i* made to bank *b* in week *w* was approved. Data obtained from HMDA.
$AppIncome_{i,b,w}$	Household income of applicant of loan *i* to bank *b* in week w (in logs). Data collected from HMDA.
$Loan\ Amount_{i,b,w}$	Value of the loan i extended by bank b in week w (in logs). Data collected from HMDA.
$Loan\text{-}to\text{-}Income_{i,b,w}$	Ratio of loan to income of loan *i* extended by bank *b* in week w. Data collected from HMDA.
$Non\text{-}Conventional_{i,b,w}$	Indicator of loan with less than 20 percent of down payment
$Late_{i,b,w}$	Indicator that loan i extended by bank b in week w will become delinquent within two years of its origination.
$Late\text{-}HighFICO_{i,b,w}$	Indicator of loan late in the 2 years following start for individuals FICO above 720
$HomeValue_{i,b,w}$	Appraisal value of the home of loan *i* extended by bank *b* in week w (in logs). Data obtained from McDash.
$HousePriceIndex_{z,m}$	Repeat sales, value weighted, econometric Home Price Model Index of zip code z in month m obtained from CoreLogic.
Equifax Variables	
$Credit_{i,m}$	Total outstanding credit (in logs) of individual *i* in quarter *q*. It is the sum of mortgage loan, home-equity loan, HELOC, credit card, auto loan and retail credit.
$Revolving\ Credit_{i,m}$	Total revolving credit (in logs) of individual *i* in quarter *q*. It is the sum of HELOC, credit card debt, and retail credit.
Car-Market Variables	
$CarSales_m$	New car sales car in month *m* (in logs). Data from JDPower.

$PriceNewCar_m$	Price of a new car in month *m* (in logs). Data from JDPower.
$PriceUsedCar_m$	Price of used car in month *m* (in logs). Data from JDPower.
$Purchases_m$	Number of purchases as a fraction of total number of purchases and leases in month *m* (percent).
$Cash_m$	Number of cash purchases as a fraction of total number of cash purchases plus purchases using financing in month *m* (percent).

Table A3A - Milestones and Value of Mortgage Applications given Borrower Characteristics

This table presents the relationship between Dow Jones Index milestone and mortgage loan value from specification (1). The sample is from 1990 to 2016 from HMDA. The dependent variable *Loan Amount*$_{i,b,w}$. is the value of the loan *i* extended by bank *b* in week *w* (in 100*log). The independent variables are month indicators of loan applications in the window three months before and after the milestone event. Controls include borrowers' characteristics, along with MSA-year fixed effects. In columns 4 to 6, we split the sample into three terciles based on average share of households reporting equity income at the zip code level. *, **, *** denote statistically significant levels at 10%, 5% and 1% respectively.

	Loan Amount$_{i,b,w}$					
	(1)	(2)	(3)	(4)	(5)	(6)
$Pre_{3w-4w}*MS_w$	-0.39	-0.60	-0.43	-0.23	-0.50	-0.23
	(0.59)	(0.54)	(0.55)	(0.59)	(0.56)	(0.54)
$Pre_{1w-2w}*MS_w$	-0.24	-0.21	-0.35	0.44	-0.01	-0.22
	(0.58)	(0.51)	(0.54)	(0.63)	(0.55)	(0.53)
Max_w*MS_w	-0.16	0.65	-0.42	1.61*	0.98	-0.59
	(0.69)	(0.61)	(0.62)	(0.84)	(0.67)	(0.63)
$Post_{1w-2w}*MS_w$	0.66	1.22**	0.21	2.51***	1.68**	0.16
	(0.64)	(0.58)	(0.56)	(0.81)	(0.67)	(0.53)
$Post_{3w-4w}*MS_w$	1.37**	1.99***	0.93*	3.21***	2.33***	0.78
	(0.63)	(0.65)	(0.56)	(0.88)	(0.72)	(0.52)
$Post_{5w-6w}*MS_w$	1.36**	1.77***	1.10**	2.49***	2.05***	0.89*
	(0.62)	(0.62)	(0.53)	(0.87)	(0.71)	(0.49)
$Post_{7w-8w}*MS_w$	0.30	0.91	0.27	1.17	0.80	0.20
	(0.63)	(0.63)	(0.55)	(0.81)	(0.67)	(0.52)
$Post_{9w-10w}*MS_w$	0.20	0.99	0.14	1.33	0.84	0.03
	(0.63)	(0.62)	(0.54)	(0.84)	(0.68)	(0.52)
$Post_{11w-12w}*MS_w$	-0.00	0.19	-0.03	0.31	0.15	-0.05
	(0.69)	(0.70)	(0.58)	(1.05)	(0.78)	(0.55)
Observations	43,663,209	16,440,404	43,177,735	14,550,114	29,218,637	30,170,749
R-squared	0.26	0.32	0.26	0.31	0.30	0.27
Macro Controls	Yes	Yes	Yes	Yes	Yes	Yes
MSA*Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Bank*Year FE	No	Yes	No	Yes	No	Yes
Sample	Not Female	Female	Non-Minority	Minority	No-Co-applicant	Co-applicant

Table A3B. Milestones and Mortgage Applications for Second Homes

This table presents the relationship between Dow Jones Index milestone and mortgage loan value applications for non-owner-occupied properties (e.g. second home). The sample is from 1990 to 2016 from HMDA. The dependent variable *Loan Amount*$_{i,b,w}$. is the value of the loan *i* extended by bank *b* in week *w* (in 100*log). The independent variables are month indicators of loan applications in the window three months before and after the milestone event. Controls include borrowers' characteristics, along with MSA-year fixed effects. In columns 4 to 6, we split the sample into three terciles based on average share of households reporting equity income at the zip code level. *, **, *** denote statistically significant levels at 10%, 5% and 1% respectively.

	Loan Amount$_{i,b,w}$			
	(1)	(2)	(3)	(4)
Pre_{3w-4w}*MS_w	-0.18	0.13	0.23	0.21
	(0.57)	(0.57)	(0.67)	(0.59)
Pre_{1w-2w}*MS_w	0.03	0.35	0.41	0.40
	(0.77)	(0.68)	(0.84)	(0.69)
Max_w*MS_w	0.91	1.15*	0.92	1.17*
	(0.64)	(0.60)	(0.77)	(0.64)
$Post_{1w-2w}$*MS_w	0.02	0.16	0.07	0.46
	(0.60)	(0.59)	(0.79)	(0.67)
$Post_{3w-4w}$*MS_w	2.03***	2.29***	2.01**	2.14***
	(0.68)	(0.60)	(0.86)	(0.73)
$Post_{5w-6w}$*MS_w	0.85	0.98	0.90	0.96
	(0.71)	(0.61)	(0.85)	(0.74)
$Post_{7w-8w}$*MS_w	1.93***	2.16***	2.01**	2.21***
	(0.69)	(0.62)	(0.80)	(0.72)
$Post_{9w-10w}$*MS_w	1.45**	1.42**	1.59**	0.99*
	(0.62)	(0.60)	(0.72)	(0.58)
$Post_{11w-12w}$*MS_w	0.30	0.17	0.43	0.33
	(0.54)	(0.48)	(0.60)	(0.55)
Observations	7,006,820	7,006,820	7,006,446	6,949,122
R-squared	0.30	0.30	0.33	0.44
Controls	Yes	Yes	Yes	Yes
MSA FE	Yes	Yes	-	-
Time FE	Yes	Yes	-	-
MSA*Time FE	No	No	Yes	Yes
Bank*Time FE	No	No	No	Yes

Table A4. Milestones and House Price Index

This table presents the relationship between Dow Jones Index milestone and house price index from specification (1). The sample is from 1990 to 2016 in CoreLogic data. The dependent variable $HousePriceIndex_{z,m}$ is the index of house prices of zip code z in month m obtained from CoreLogic. The independent variables are month indicators in the window three months before and after the milestone event. Column 1 shows the results from full sample of house price index. In columns 2 to 4, we split the sample into three terciles based on the zip codes of the home: bottom tercile equity, second tercile equity, and third tercile equity. *, **, *** denote statistically significant levels at 10%, 5% and 1% respectively.

	$HousePriceIndex_{z,m}$			
	(1)	(2)	(3)	(4)
$Pre_{1m}*MS_m$	-0.01	-0.00	-0.04*	-0.04*
	(0.03)	(0.03)	(0.03)	(0.03)
Max_m*MS_m	0.08*	0.09*	-0.02	-0.02
	(0.05)	(0.05)	(0.03)	(0.03)
$Post_{1m}*MS_m$	0.11*	0.11*	-0.03	-0.03
	(0.06)	(0.06)	(0.03)	(0.03)
Observations	975	975	851	851
R-squared	0.97	0.97	0.92	0.92
Controls	Yes	Yes	Yes	Yes
Zip FE	Yes	-	Yes	-
Year FE	Yes	-	Yes	-
Zip-Year FE	No	Yes	No	Yes
Sample	High Equity	High Equity	Low Equity	Low Equity

Figure A1. Newspaper Mentions of Stock Market

This figure plots the coefficients from the same regression calculated using specification (1) regressing the number of newspaper mentions of the stock market in the window around a milestone event. The horizontal axis is the number of weeks to/from the milestone event. The vertical axis the relative number of newspaper mentions of the stock market. The vertical bars are confidence intervals at the 95 percent confidence level.

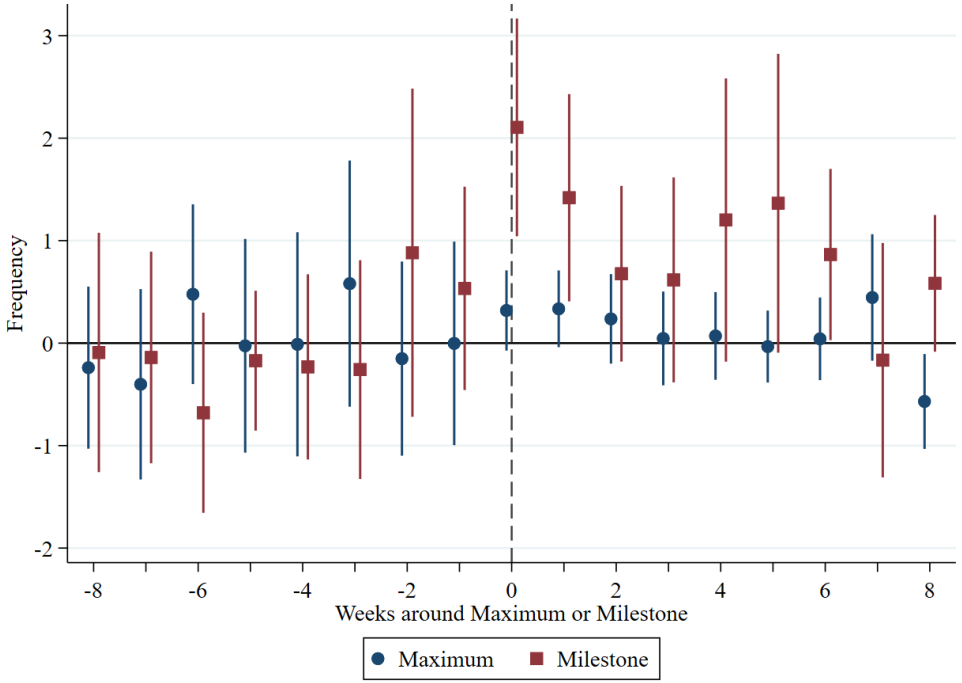


Figure A2. Dow-Jones Milestones and Media Coverage (Placebo)

This figure plots the coefficients a series of regressions calculating milestone events using different bases. On the horizontal axis we display the coefficient of the regressor MS_w for different bases. The vertical axis is the relative number of newspaper mentions of the stock market. The vertical bars are confidence intervals at the 95 percent confidence level.

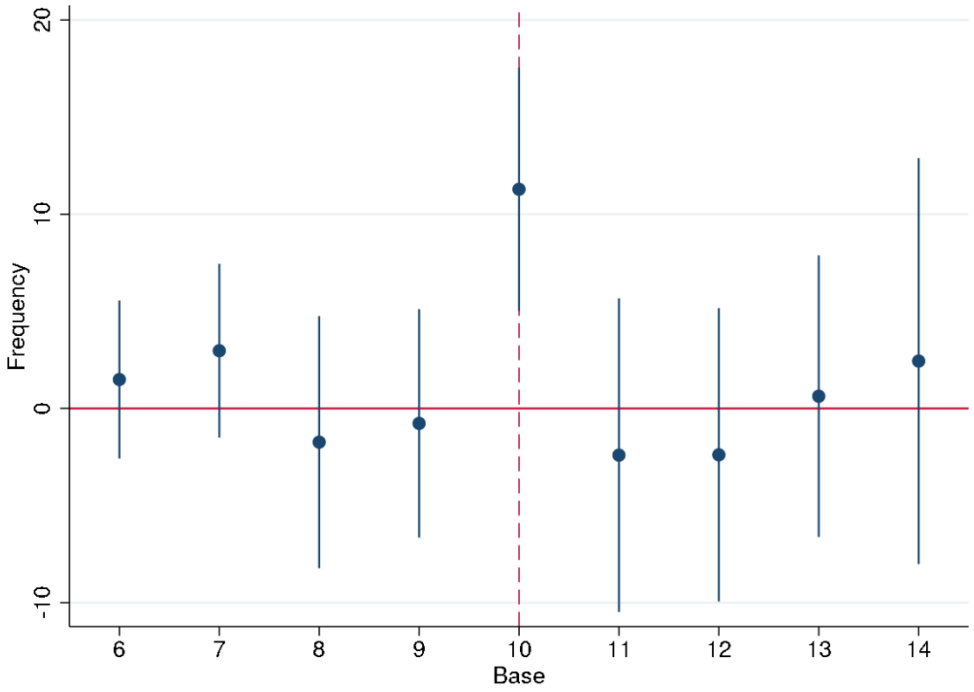


Figure A3. Dow-Jones Milestones and Loan Value (Placebo)

This figure plots the coefficients a series of regressions calculating milestone events using different bases. On the horizontal axis we display the coefficient of the regressor MS_w for different bases. The vertical axis is the average amount of loan size. The vertical bars are confidence intervals at the 95 percent confidence level.

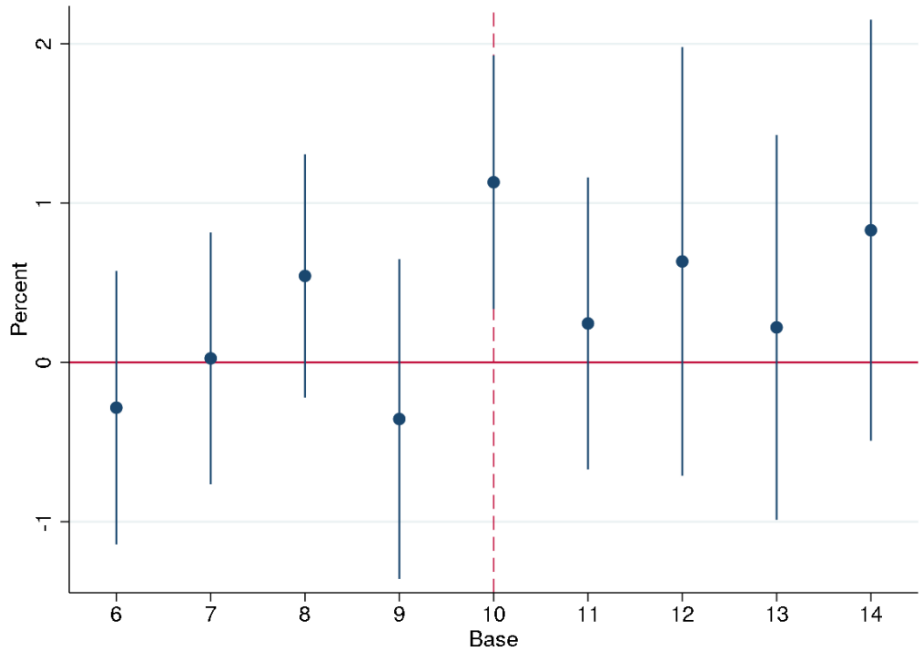


Figure A4. Mortgage Applications and Equity Holdings of MSAs

In this graph we plot the kernel density distributions of the equity holdings of MSAs from which mortgages have originated. Left panel includes all mortgage applications, right panel includes mortgage applications for second homes.

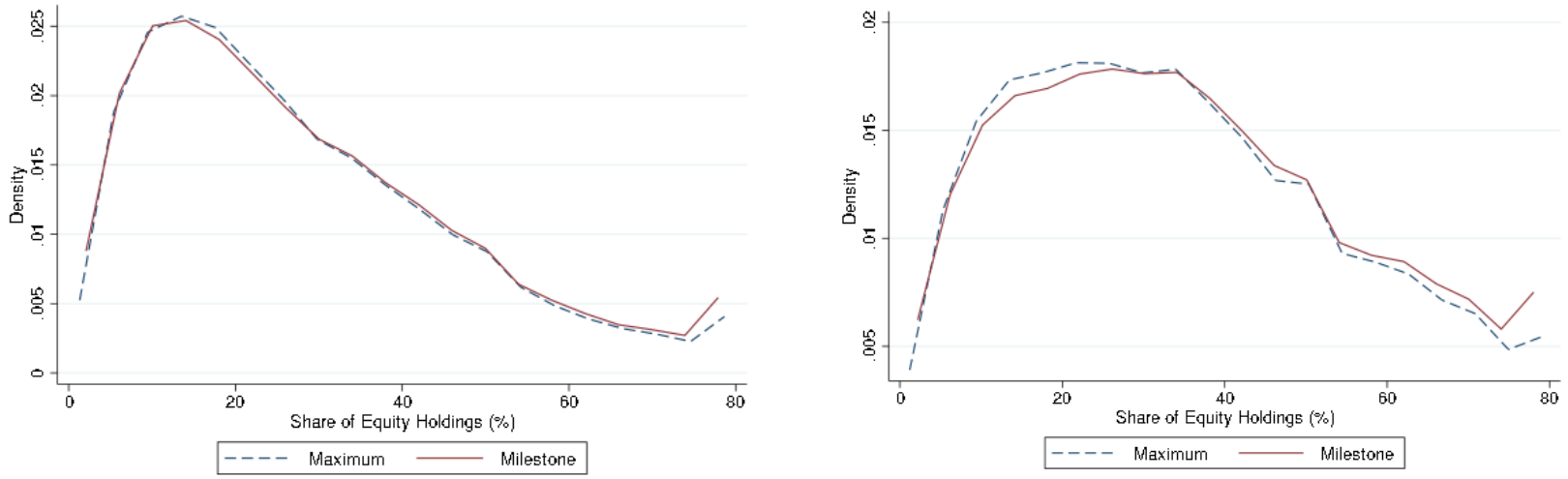


Figure A5. Milestones and Equity Holdings of Applicants

This figure plots the coefficients from specification (1) with the fraction of equity holdings of applicants as dependent variable in the window around a milestone event. The horizontal axis is the number of weeks to/from the milestone event. The vertical axis is percent changes in average equity holdings of applicants. The vertical bars re confidence intervals at the 95 percent confidence level. Observations at the mortgage level.

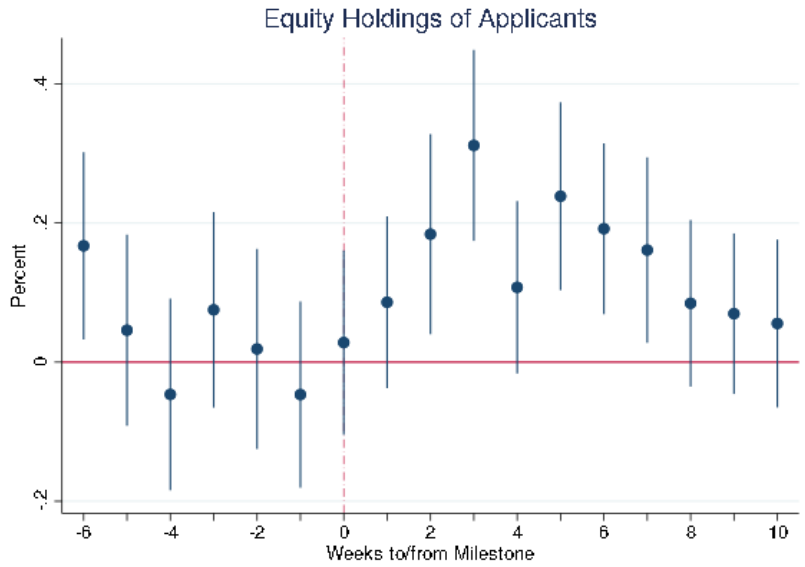


Figure A6. Income and Equity Holdings

This table displays the relation between household income at the MSA level and share of income from equity holdings (dividends). The left panel displays the share of equity income as a share of total income per income group as classified by the IRS.

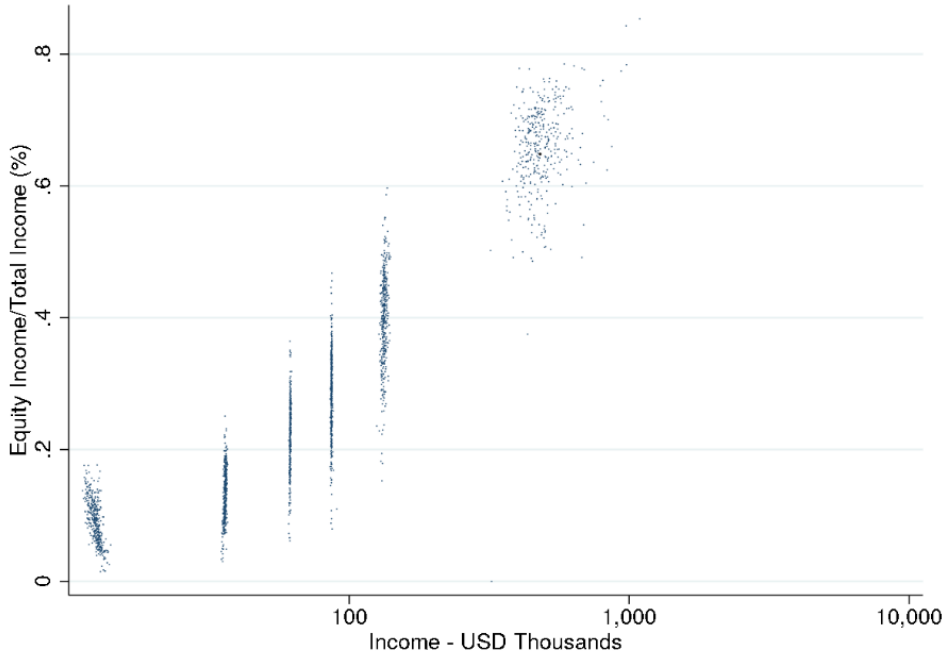


Table IA1. Milestones and Mortgage Applications for Refinancing

This table presents the relationship between Dow Jones Index milestone and mortgage loan value applications for refinancing. The sample is from 1990 to 2016 from HMDA. The dependent variable *Loan Amount*$_{i,b,w}$. is the value of the loan *i* extended by bank *b* in week *w* (in 100*log). The independent variables are month indicators of loan applications in the window three months before and after the milestone event. Controls include borrowers' characteristics, along with MSA-year fixed effects. *, **, *** denote statistically significant levels at 10%, 5% and 1% respectively.

	Loan Amount$_{i,b,w}$			
	(1)	(2)	(3)	(4)
Pre_{5w-6w}*MS_w	-1.00	-0.26	-0.24	-0.08
	(0.83)	(0.61)	(0.60)	(0.41)
Pre_{3w-4w}*MS_w	-2.54	-0.55	-0.49	0.08
	(1.86)	(0.80)	(0.85)	(0.51)
Pre_{1w-2w}*MS_w	-1.89**	-0.71	-0.65	0.17
	(0.87)	(0.65)	(0.71)	(0.45)
Max_w*MS_w	-2.26**	-0.87	-0.87	-0.28
	(0.90)	(0.71)	(0.78)	(0.47)
$Post_{1w-2w}$*MS_w	-2.52***	-0.94	-0.95	-0.31
	(0.96)	(0.61)	(0.68)	(0.50)
$Post_{3w-4w}$*MS_w	-1.95*	0.33	0.21	0.35
	(1.03)	(0.69)	(0.76)	(0.56)
$Post_{5w-6w}$*MS_w	-2.33**	-0.19	-0.15	0.13
	(1.04)	(0.63)	(0.71)	(0.45)
$Post_{7w-8w}$*MS_w	-2.14*	-0.17	-0.16	0.26
	(1.22)	(0.79)	(0.87)	(0.55)
$Post_{9w-10w}$*MS_w	-1.61	-0.17	-0.09	0.28
	(1.05)	(0.73)	(0.79)	(0.45)
$Post_{11w-12w}$*MS_w	-1.08	0.06	0.15	0.05
	(1.03)	(0.68)	(0.71)	(0.39)
Observations	124,471,259	124,471,259	124,471,186	120,398,330
R-squared	0.26	0.26	0.27	0.42
Controls	Yes	Yes	Yes	Yes
MSA FE	Yes	Yes	-	-
Time FE	Yes	Yes	-	-
MSA*Time FE	No	No	Yes	Yes
Bank*Time FE	No	No	No	Yes

Table IA2. Milestones and Mortgage Approval Rate

This table presents the relationship between Dow Jones Index milestone and mortgage loan value from specification (1). The sample is the approved loans from 1990 to 2016 in HMDA. The dependent variable $Approval_{i,b,w}$ is an indicator of whether loan application *i* made to bank *b* in week *w* was approved. The independent variables are month indicators of loan applications in the window three months before and after the milestone event. *, **, *** denote statistically significant levels at 10%, 5% and 1% respectively.

	$Approval_{i,b,w}$			
	(1)	(2)	(3)	(4)
$Pre_{5w-6w}*MS_w$	-0.71**	-0.45**	-0.36	-0.50**
	(0.32)	(0.20)	(0.24)	(0.22)
$Pre_{3w-4w}*MS_w$	-0.45	-0.53*	-0.62**	-0.50*
	(0.37)	(0.29)	(0.29)	(0.30)
$Pre_{1w-2w}*MS_w$	-0.38	-0.47*	-0.38	-0.48
	(0.41)	(0.28)	(0.33)	(0.30)
Max_w*MS_w	-0.23	-0.20	0.02	-0.33
	(0.43)	(0.27)	(0.30)	(0.27)
$Post_{1w-2w}*MS_w$	-0.11	-0.22	0.11	-0.39**
	(0.35)	(0.16)	(0.20)	(0.16)
$Post_{3w-4w}*MS_w$	0.01	-0.39***	-0.06	-0.56***
	(0.37)	(0.15)	(0.22)	(0.15)
$Post_{5w-6w}*MS_w$	0.42	-0.17	0.05	-0.32**
	(0.30)	(0.13)	(0.21)	(0.15)
$Post_{7w-8w}*MS_w$	0.24	-0.31*	-0.34	-0.31*
	(0.27)	(0.16)	(0.23)	(0.18)
$Post_{9w-10w}*MS_w$	0.13	-0.38*	-0.26	-0.46**
	(0.23)	(0.22)	(0.26)	(0.23)
$Post_{11w-12w}*MS_w$	0.03	0.20	0.17	0.24
	(0.19)	(0.21)	(0.22)	(0.22)
Observations	62,267,349	62,197,018	62,435,503	59,701,120
R-squared	0.07	0.25	0.31	0.18
Controls	Yes	Yes	Yes	Yes
MSA FE	Yes	Yes	-	-
Time FE	Yes	Yes	-	-
MSA*Time FE	No	No	Yes	Yes
Bank*Time FE	No	No	No	Yes