Asymmetric Underreactions and House Price Revisions*

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Abstract

Larger reductions in house list prices from initial to final listings are followed by greater final-list-to-sales-price declines, whereas list-price increases show no momentum when instrumenting list-price revisions with exogenous monetary policy shocks. The proportion of listing-period visits by buyers with below-list-price budgets and an adverse down-payment policy change before the final listing predict final-list-to-sales-price declines, whereas above-list-price budgets and a favorable policy change do not predict increases. At the neighborhood level, larger initial-to-final-list-price cuts are associated with lower subsequent housing returns. These patterns support a search-and-bargaining model in which sellers underreact more than buyers to negative information shocks.

Keywords: Housing Market, Monetary Policy Surprise, List Price, Price Revision, Price Momentum, Underreaction, Loss Aversion, Buyer Budget, Down-payment Ratio

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1 Introduction

Using a comprehensive database of U.S. housing transactions and listing histories, along with a large Chinese dataset that includes transactions, listing histories, and prospective buyers' budgets, we document systematic asymmetries in how market participants respond to information shocks during the list period. Specifically, we find that larger decreases in list prices from initial to final listings are followed by greater declines from final list to transaction prices, while list price increases exhibit no momentum. Our identification strategy exploits U.S. monetary policy surprises and China's buyer-budget data and down-payment policy shifts. Additionally, at the neighborhood level, we find that larger average decreases from initial to final list prices are associated with lower subsequent housing returns. We develop a micro-level search-and-bargaining model to explain these empirical patterns. In this model, buyers and sellers update reservation prices as new information arrives after listing, sellers revise list prices accordingly, and bilateral bargaining determines the transaction price.[1] Drawing on the literature on behavioral traits such as underreaction and loss aversion (e.g., Andersen et al., 2022; Genesove and Mayer, 2001; Glaeser and Nathanson, 2017; Tversky and Kahneman, 1991), the model embeds asymmetric underreaction by buyers and sellers to information shocks.

Our empirical analysis begins by regressing the percentage revision from the final list price to the sales price on the percentage revision from the initial to the final list price, which we interpret as a measure of information arrival during the listing period. For brevity, we refer to these two variables as the initial-to-final-list-price revision and the final-list-to-sales-price revision, respectively. The seller and potential buyers may use the initial list price as a reference point when adjusting their reservation prices in response to new information. Due to loss aversion, their responses may depend on whether the information is positive or negative. Consequently, we distinguish between upward and downward initial-

[1] See Han and Strange (2015) for a nice review of direct search models.

to-final-list-price revisions. Negative information shocks are more likely to activate seller loss aversion, leading sellers to adjust their reservation prices less than buyers. As such, our model predicts momentum in list price decreases. Existing rational-expectations theories based on time-to-sell variation, Bayesian learning, or concave demand also predict momentum in list price decreases (see Anenberg, 2016; Guren, 2018; Head et al., 2014). In contrast, whether momentum exists in list price increases is less clear. Our model suggests that positive shocks, which activate buyer loss aversion, may lead to reversals in list price increases. However, this reversal effect may be countered or attenuated by other factors. These rational-expectations theories predict momentum in both list price decreases and increases. Additionally, buyers' loss aversion relative to the seller-set initial list price is likely weak.

The infrequent trading of individual houses complicates efforts to control for time-invariant house quality when studying returns based on transaction prices. Case and Shiller (1989) and many others alleviate this problem by focusing on houses with repeat sales. However, these houses may differ from single-sale properties. Additionally, the interval between repeat sales of a house can be lengthy, during which its quality may undergo substantial changes. We mitigate these problems by tracking changes from the initial to the final list prices, and ultimately to sales prices, for the same house over a relatively short time span.

Using data from both the U.S. and China, we find strong evidence that initial-to-final-list-price revisions and final-list-to-sales-price revisions are positively related, even after controlling for the duration between initial and final listings, house characteristics, neighborhood fixed effects, and year-month fixed effects. Larger downward revisions to list prices are associated with larger declines from final list to sales prices. These findings remain robust when we control for house fixed effects in a subsample of U.S. properties with repeat sales. In contrast, upward list-price revisions are not consistently associated with increases from final list to sales prices.

Our finding of the positive relation between the decrease from the initial to the final list price and the subsequent revision from the final list price to the sales price can arise if the seller initially sets an initial list price that is too high and then revises it downward. Anenberg (2016) suggests that stronger short-run aggregate price appreciation preceding the initial listing may result in a higher initial list price and a lower sales price. Importantly, even after controlling for potential initial mispricing and short-term aggregate price appreciation preceding the initial listing, our major results remain largely unchanged.

Even after controlling for the two additional variables above, one might still argue that initial-to-final-list-price revisions capture factors beyond exogenous information shocks arriving during the listing period. To further alleviate this concern, we estimate two-stage least squares regressions in which we instrument initial-to-final-list-price revisions with high-frequency monetary policy shocks constructed by Bauer and Swanson (2023). These shocks are the residuals from regressions of interest rate changes, measured over 30-minute windows around Federal Open Market Committee (FOMC) announcements, on six pre-announcement macroeconomic and financial variables.[2] Our first-stage results show that listing-period interest rate shocks are negatively related to initial-to-final-list-price revisions. In the second stage, we find that larger list-price cuts are followed by greater declines from final list to sales prices, whereas list-price increases exhibit no momentum. List-price momentum is driven entirely by momentum in list-price decreases. These findings are predicted by our model when sellers are less responsive than buyers to negative shocks but are similarly responsive to positive shocks. The "menu cost" of changing list prices in the model of Merlo et al. (2015) does not drive these findings, unless the interest rate shocks themselves simply reflect such costs. Furthermore, rational-expectations theories based on variation in time-to-sell, Bayesian learning, or concave demand do not predict the asymmetric effects of positive versus negative information shocks (see Anenberg, 2016; Guren, 2018; Head et al., 2014).

In addition to exploiting exogenous interest rate shocks in the U.S., we leverage prospective buyers' budget data and two major down-payment policy shifts in China to ensure that

[2] Aastveit and Anundsen (2022) and Abramson et al. (2025), among others, also use monetary policy shocks as instrumental variables.

initial-to-final-list-price revisions capture listing-period information shocks rather than confounding influences. Information about house visitor budgets is highly valuable to sellers. In the U.S., it is typically conveyed orally by buyers to their agents and is not systematically recorded, making it inaccessible to researchers. By contrast, upon registering with the real estate brokerage firm that supplies our Chinese data, prospective buyers must disclose their budget range, which is generally not updated thereafter. When buyers disclose their budgets accurately, they are more likely to be shown properties that fit within those limits. We find that the list price tends to undergo a greater downward (upward) adjustment after a visit if it is above (below) the visitor's budget range. Furthermore, a higher proportion of pre-final-listing house visits by prospective buyers whose budget range is below the at-visit list price is related to a larger decrease from the final list price to the sales price. In contrast, the share of visits by prospective buyers with budget ranges above the list price shows no statistically significant relation with the final-list-to-sales-price revision. These results tend to arise in our model if sellers are less responsive than buyers to negative information arrivals but are as responsive to positive information arrivals.

During our sample period, two major policy shifts in minimum down-payment requirements for house purchases occurred in City A, China, providing a natural experiment setting to alleviate potential endogeneity concerns about our findings of asymmetric reactions to information. On September 30, 2016, the minimum down-payment ratio was increased from 30% to 35% for purchasing the first ordinary self-occupied home and from 30% to 40% for the first non-ordinary self-occupied home, aiming to reduce demand. On March 30, 2015, the ratio was decreased from 60% to 40% for residents with one property and an outstanding mortgage seeking to purchase a second property, aiming to stimulate demand. The two policies, respectively, indeed reduced or boosted demand. We further find that the 2016 policy change is followed by a 1.1% decrease in the final-list-to-sales-price revision for houses with the final list date within 14 days after the policy change, compared to houses sold within 14 days before (e.g., −1.2% versus −0.1%). In contrast, the 2015 policy change has no significant effect on the final-list-to-sales-price revision for houses with the final list date shortly after the shock. These findings indicate that sellers adjust reservation prices less in response to negative shocks than buyers, yet display comparable responsiveness to positive shocks.

Although it is important to examine whether a house's initial-to-final-list-price revision helps predict its future returns, another transaction of the house is typically unavailable shortly after this transaction. Thus, we examine whether the average initial-to-final-list-price revisions of the houses sold in month t in a neighborhood can predict the neighborhood's returns based on house sales in future months. We compute neighborhood-level returns using a neighborhood-level hedonic index purged of the effects of various house characteristics for all houses or an index purged of house fixed effects for houses with repeat sales. In both the U.S. and China, we find that greater downward average initial-to-final-list-price revisions of the houses sold in month t in a neighborhood are followed by lower average returns in the five months from $t+2$ to $t+6$ in the same neighborhood. The coefficients are economically significant. For example, in one specification, a 1% decrease (e.g., from -0.1% to -1.1%) in the downward average initial-to-final-list-price revision is related to a 0.27% decrease in the average return in the U.S. and a 0.98% decrease in the average return in China from $t+2$ to $t+6$. According to our model, this neighborhood-level momentum pattern is more likely to arise when both buyers and sellers under-adjust their reservation prices in response to negative information arrivals than when either or both groups over-adjust.

Our paper makes four major contributions to the literature, summarized below, with a detailed literature review provided in the next section. First and most importantly, we provide strong evidence of asymmetric patterns in list-price revisions and exploit exogenous information shocks to explain these patterns. We find that larger list price cuts are followed by greater declines from final list to sales prices, while list-price increases exhibit no momentum when instrumenting list price revisions with exogenous policy shocks. We also find that the proportion of listing-period visits by buyers with below-list-price budgets and an adverse down-payment policy change before final listing are followed by decreases from final list to sales prices, while the proportion of above-list-price budgets and a favorable down-payment policy change before final listing are not associated with increases. Empirical housing research on momentum typically relies on aggregate housing prices. At the micro level, although some studies show that higher initial list prices relate to larger downward list-price revisions and lower sales prices, they do not incorporate exogenous information arriving during the listing period and therefore do not establish causal effects (e.g., Gordon and Winkler, 2017; Knight, 2002; Mateen et al., 2021). Existing rational-expectations theories based on variation in the time it takes to sell houses, Bayesian learning, and concave demand cannot simultaneously explain the presence of momentum in list-price reductions and its absence in list-price increases (e.g., Anenberg, 2016; Guren, 2018; Head et al., 2014).

Second, we contribute to the literature on behavioral biases, particularly loss aversion and underreaction (e.g., Andersen et al., 2022; Anenberg and Ringo, 2025; Genesove and Mayer, 2001; Giacoletti and Parsons, 2023; Glaeser and Nathanson, 2017; Guo, 2025). We develop a bargaining-and-search model that attributes momentum in list prices to asymmetric underreactions of buyers and sellers to positive versus negative information arrivals. In our model, buyers and sellers use the initial list price as a reference point. Empirically, we show that sellers are less responsive than buyers to negative information that emerges during the listing period but are similarly responsive to positive information.

Finally, we examine the role of disclosures of prospective buyers' budgets, contributing to the literature on housing demand and supply and on the formation of list prices (e.g., Anenberg and Ringo, 2024; Han et al., 2018; Han and Strange, 2014, 2016).

2 Literature Review

Numerous papers explore momentum in individual stock returns (e.g., Hong and Stein, 1999; Jegadeesh and Titman, 1993). In contrast, corresponding housing research is constrained by the infrequent trading of individual houses. The seminal work of Case and Shiller (1989) provides evidence of momentum in aggregate housing returns. At the micro level, empirical housing work on momentum focuses on small geographic areas and short time periods. Knight (2002) examines 2,759 detached single-family dwelling sales in 1997 and 1998 in Stockton, California. Gordon and Winkler (2017) examine 13,461 single-family home sales in the Huntsville metropolitan area between January 2004 and March 2012. These two papers find that high initial list prices result in larger downward revisions of list prices and lower sales prices. Merlo and Ortalo-Magne (2004) study 780 residential properties sold via a real estate agency in England and find that 77.8% of the sellers never changed the initial list price. Merlo et al. (2015)'s model shows that a tiny fixed "menu cost" of changing the list price is sufficient to explain the stickiness. Head et al. (2014) build a model where rising values of living in a city spur housing search activity, while variation in the time it takes to sell houses causes sales prices to exhibit serially correlated growth. Anenberg (2016) models how information frictions in home sellers' micro-level decision-making can generate momentum in short-term aggregate price appreciation. He empirically validates his model using a dataset of single-family homes listed with a realtor in California's two largest metropolitan areas between 2007 and 2009. Guren (2018) builds a model based on concave demand to explain momentum in house prices and provides supportive empirical evidence using microdata on listings for three California metropolitan areas from 2008 to 2013. He concludes that demand concavity amplifies momentum by a factor of two to three. Head et al. (2014), Anenberg (2016), and Guren (2018) do not model the responses of buyers and sellers to information that arrives during the listing period. Their models cannot simultaneously explain the presence of momentum in list-price reductions and its absence in list-price increases.

Behavioral traits can help explain momentum and related patterns. In prospect theory, losses relative to a reference point have a greater impact on preferences than gains (e.g., Barberis and Xiong, 2009; Grinblatt and Han, 2005; Kahneman and Tversky, 2013; Tversky and Kahneman, 1991, 1992). Genesove and Mayer (2001) find that, in the 1990s, condominium owners from downtown Boston subject to nominal losses set higher asking prices of

25-35% of the difference between the expected selling price and the original purchase price. Hayunga and Pace (2017) use survey data and find that sellers who expect more losses set higher list prices. Andersen et al. (2022) study administrative data on Danish housing listings, transactions, the housing stock, and sellers' demographic and financial information. Their structural model finds that losses relative to the original purchase price hurt sellers about 2.5 times more than gains help. Using data from the house sales and rentals market in California, Giacoletti and Parsons (2023) find that sales prices (or rents) depend on both the original purchase prices of sellers (or landlords) and those of their competitors. Homes purchased during periods of higher marketwide prices tend to fetch higher resale prices and rents, even many years later. Guo (2025) finds that home sellers update their reference point from the original purchase price to the appraised value for a recent refinance mortgage. Anenberg and Ringo (2025) find that shocks that increase the for-sale supply mostly clear through longer selling time rather than list-price reductions. Glaeser and Nathanson (2017) use extrapolative expectations to model momentum, mean reversion, and excess longer-term volatility relative to fundamentals in the housing market. In our model, home buyers and sellers use the initial list price as a reference point when adjusting reservation prices, and they may underreact or overreact. Our finding that list-price reductions exhibit momentum while list-price increases do not cannot be jointly accounted for by time-to-sell variation, gradual learning, or concave demand, but is readily explained by seller loss aversion.

Many papers examine the pros and cons of high versus low list prices (e.g., Gargano and Giacoletti, 2025; Guren, 2018; Han and Strange, 2014, 2016; Knight, 2002). Although our finding of a positive relation between a downward initial-to-final-list-price revision and a downward final-list-to-sales-price revision could result from a seller initially setting an excessively high list price and subsequently lowering it, we continue to find this positive relation after controlling for initial overpricing and instrumenting the initial-to-final-list-price revision with monetary policy surprises during the listing period.

Several recent papers use large samples of Multiple Listing Service (MLS) data but do not examine list price revisions (e.g., Cunningham et al., 2024; Gilbukh, 2023; Gilbukh and Goldsmith-Pinkham, 2024; Mateen et al., 2024; Reher and Valkanov, 2024). Mateen et al. (2021) examine 146,609 U.S. properties listed on Redfin from 2012 to September 9, 2019, and find that the difference between the final and initial list prices is positively related to the difference between the sales price and the final list price. However, they do not provide a causal explanation for this relation by leveraging exogenous information arrivals such as interest-rate and down-payment policy shocks, nor do they document asymmetric responses of buyers and sellers or examine visitor-budget information and future neighborhood-level returns.

Housing demand and supply are shaped by household income, land availability, population structure, migration, interest rates, credit conditions, government policies, investor activity, consumer sentiment, and numerous other factors (e.g., Aiello et al., 2025a,b; Anenberg and Ringo, 2024; Gorback et al., 2025; Guren and McQuade, 2020; Han et al., 2018). Once a house is listed for sale, information from visits, buyer budgets, and policy changes may emerge. New information leads the seller and potential buyers to adjust their reservation prices, prompting the seller to revise the list price. Empirical research has been constrained by the lack of some important information on buyers' financial capacity and other buyer and seller characteristics. Harding et al. (2003) address this limitation using the American Housing Survey, showing that household wealth, gender, and other demographic traits influence bargaining power in housing transactions. A house visitor's budget provides a useful proxy for the visitor's reservation price.[3] Visitor budget information could facilitate house showings, price negotiations, and the matching between buyers and sellers. Existing research has been limited by the absence of data on actual house visits and visitor budgets. In contrast, we draw on a large sample of house visits in China that includes detailed visitor budget information. This unique dataset allows us to examine how buyers and sellers

[3] In China, many homebuyers receive financial support from parents, making income an especially noisy measure of purchasing capacity.

respond to prospective visitors' budget information and how list prices adjust in response to down-payment policy shocks.

3 Model

3.1 Setup

We develop a search-and-bargaining model to interpret primarily the following empirical finding: when sellers revise list prices downward, the percentage change from the initial to the final list price is positively correlated with the percentage change from the final list price to the transaction price. In this model, the key mechanism for interpreting this finding is that sellers are reluctant to fully incorporate negative information shocks into their reservation prices. The model also assists in the interpretation of our other empirical findings.

There are two types of agents in the market: buyers and sellers. Each property listing has one seller and a continuum of buyers (normalized to measure 1) searching for a match to negotiate the sales price. Let P_0 denote the normalized "fair" and "fundamental" property value at the time of initial listing for each of all properties.

Sellers: We assume sellers are homogeneous in the market. Let P_s represent the seller's reservation price of the property. For simplicity, we assume that $P_s = P_0$. When the buyers meet the seller, they cannot observe the seller's reservation price P_s directly. The seller chooses an initial list price $P_l \geq P_s$ to send a signal about his reservation price, denoted as $f(P_l)$. As in Yavas and Yang (1995), we assume f is common knowledge with $f'(\cdot) \geq 0$ and $f(P_l) \geq P_s$. As in Shimer and Smith (2001), each unmatched seller searches for buyers with exogenous intensity ρ at cost $C(\rho)$, with $C'(\cdot) > 0$.

Buyers: Buyers are identified by their reservation price $\tilde{P}_b$. We assume the seller anticipates $\tilde{P}_b = P_0 + \tilde{\epsilon}$ and $\tilde{\epsilon}$ is uniformly distributed over $[-\sigma, \sigma]$. The seller forms a prior of the upper bound of the uniform distribution, denoted as P_u, based on market-level information when he sets the initial list price. Subsequently, interested buyers meet with the seller and reveal the upper bound of their budget. This information arrival allows the seller to update his prior for P_u.

Matching and Bargaining: To obtain a positive surplus, buyers' strategy is to match with a seller with list price P_l such that $f(P_l) \leq \tilde{P}_b$. Thus, the bargaining will be over the price interval $[f(P_l), \tilde{P}_b]$. The final sales price is set through bilateral Nash Bargaining. Let ω denote the bargaining power of the sellers. The sales price divides the surplus such that the seller receives a ω proportion.

We simplify the model by parameterizing $f(P_l) = \theta P_l$, where $\theta > 0$ is a constant.[4] The seller's problem is to choose P_l to maximize his expected return:

$$\max_{P_l} \rho \int_{\theta P_l}^{P_u} \left[\theta P_l + \omega \left(\tilde{P}_b - \theta P_l\right) - P_s\right] d\tilde{P}_b - C(\rho). \tag{1}$$

In setting the listing price P_l, the seller faces a strategic trade-off: a higher price increases the potential bargaining surplus but simultaneously reduces the likelihood of completing a transaction. Specifically, only buyers with reservation values in the range $[\theta P_l, P_u]$ will engage in bargaining with the seller. Holding the distribution of buyer reservation prices $\tilde{P}_b$ constant, an increase in P_l raises the seller's surplus per transaction but reduces the probability of matching with a buyer. The first-order condition (F.O.C.) is

$$\rho\theta \left(\underbrace{(1-\omega)(P_u - \theta P_l)}_{W_1} \underbrace{-(\theta P_l - P_s)}_{W_2} \right) = 0. \tag{2}$$

In the F.O.C., the term $W_1 = (1-\omega)(P_u - \theta P_l)$ reflects the positive marginal effect of a higher list price on bargaining surplus, while $W_2 = -(\theta P_l - P_s)$ reflects the negative marginal effect of a higher list price on transaction probability. The optimal P_l is given by

[4] We assume $P_l \geq P_s$ and $\theta P_l \geq P_s$. If $\theta \in (0,1)$, $\theta P_l \geq P_s$ is more restrictive. If $\theta > 1$, $P_l \geq P_s$ is more restrictive. If $\theta \in (0,1)$, the sales price, $\theta P_l + \omega \left(\tilde{P}_b - \theta P_l\right)$, could be lower than the initial list price, P_l.

$$P_l^* = \frac{(1-\omega)P_u + P_s}{\theta(2-\omega)}. \tag{3}$$

The optimization problem's second order condition (S.O.C.) below is satisfied: $\rho\theta^2(\omega-2) < 0$. Therefore, P_l^* in Equation (3) is the solution to the seller's maximization problem.[5]

3.2 Price Revision Behavior

This section analyzes the seller's price revision behavior in response to exogenous information shocks. Both the seller and buyers revise their reservation prices upon information arrival. The seller revisits the optimization problem to adjust the list price based on the updated reservation prices of both the seller and buyers. Initially, the seller's reservation price is $P_s = P_0$, and the upper bound of the buyers' reservation price is $P_u = P_0 + \sigma$. Therefore, the initial list price P_{il} is given by

$$P_{il}^* = \frac{(1-\omega)P_u + P_s}{\theta(2-\omega)} = \frac{(1-\omega)(P_0+\sigma) + P_0}{\theta(2-\omega)}. \tag{4}$$

Unexpected Information Shock: Let $\tilde{\delta}$ denote an unexpected micro or macro information shock, a random variable that varies across properties or time. $\tilde{\delta} < 0$ when the shock is negative. At the shock, the seller's and buyers' reservation prices change to $\tilde{P}_{s,fl} = P_0 + \beta\tilde{\delta}$ and $\tilde{P}_{b,fl} = P_0 + \alpha\tilde{\delta} + \tilde{\epsilon}$, where β and α capture the effects of new information on sellers and buyers, respectively. $\beta < 1$ or $\alpha < 1$ captures under-adjustments. If $\beta \neq \alpha$, new information influences sellers and buyers to different extents. The long-run fundamental property value is $P_0 + \tilde{\delta}$. When the information shock occurs, the seller revises the initial list price P_{il} to the final list price $\tilde{P}_{fl}$:

$$\tilde{P_{fl}}^* = \frac{(1-\omega)\tilde{P}_u + \tilde{P}_{s,fl}}{\theta(2-\omega)} = \frac{(1-\omega)(P_0 + \alpha\tilde{\delta} + \sigma) + P_0 + \beta\tilde{\delta}}{\theta(2-\omega)}. \tag{5}$$

[5]The optimal ρ can be obtained by solving $C'(\rho) = \int_{\theta P_l^*}^{P_u} \left[\theta P_l^* + \omega\left(\tilde{P}_b - \theta P_l^*\right) - P_s\right] d\tilde{P}_b$.

Note that, as in prospect theory, β and α could stay constant at one set of values for positive shocks but at a different set of values for negative shocks, i.e., $\tilde{P}_{s,fl} = P_0 + \beta_1\tilde{\delta}$ and $\tilde{P}_{b,fl} = P_0 + \alpha_1\tilde{\delta} + \tilde{\epsilon}$ for positive shocks and $\tilde{P}_{s,fl} = P_0 + \beta_2\tilde{\delta}$ and $\tilde{P}_{b,fl} = P_0 + \alpha_2\tilde{\delta} + \tilde{\epsilon}$ for negative shocks. In that case, the seller just solves the optimal final list prices for positive and negative shocks separately.

Assume that at the beginning of the bargaining process, the seller observes ϵ, a realized value of $\tilde{\epsilon}$, so the transaction price, determined through the bargaining process, is given by

$$\tilde{P_{t,n}} = f(\tilde{P}_{fl}) + \omega(\tilde{P}_{b,fl} - f(\tilde{P}_{fl})) = \theta\tilde{P}_{fl} + \omega(P_0 + \alpha\tilde{\delta} + \epsilon - \theta\tilde{P}_{fl}). \tag{6}$$

3.3 Transaction-Level Results

This section examines the relation between price revision percentages across two stages. The first stage involves the revision from the initial to the final list price, and the second stage involves the revision from the final list price to the transaction price. The following propositions illustrate the mechanism behind our empirical findings.

Lemma 1: If $\frac{\alpha}{\beta} > \frac{P_0+\epsilon}{(1-\omega)(\sigma-\epsilon)+P_0}$, then the percentage final-list-to-sales-price revision is positively correlated with the information shock.

The condition indicates that the influence of the information shock on buyers (α) must exceed a certain multiple of its influence on sellers (β). In other words, when the relative impact on buyers compared to sellers exceeds a threshold, the percentage change from the final list price to the transaction price is positively correlated with the information shock.

Proposition 1.1 (Less Responsive Seller and Positive Relation between Initial-to-final-list-price and Final-list-to-sales-price Revisions): If $\frac{\alpha}{\beta} > \frac{P_0+\epsilon}{(1-\omega)(\sigma-\epsilon)+P_0}$, the percentage change from the initial list price to the final list price, $\frac{\tilde{P}_{fl}-P_{il}}{P_{il}}$, is positively correlated with the percentage change from the final list price to the sales price, $\frac{\tilde{P_{t,n}}-\tilde{P}_{fl}}{\tilde{P}_{fl}}$.

Proposition 1.2 (More Responsive Seller and Negative Relation between Initial-to-final-list-price and Final-list-to-sales-price Revisions): If $\frac{\alpha}{\beta} < \frac{P_0+\epsilon}{(1-\omega)(\sigma-\epsilon)+P_0}$, the percentage change from the initial list price to the final list price, $\frac{\tilde{P}_{fl}-P_{il}}{P_{il}}$, is negatively correlated with the percentage change from the final list price to the sales price, $\frac{\tilde{P}_{t}-\tilde{P}_{fl}}{\tilde{P}_{fl}}$.

Proof: See proofs of Lemma 1, Propositions 1.1 & 1.2 in Appendix A.1.

The condition of Proposition 1.1 is the same as that of Lemma 1, indicating that the influence of the information shock on potential buyers relative to the seller is greater than a certain threshold. Because of loss aversion, when negative shocks occur, the seller is perhaps less responsive than the buyer, and the condition tends to hold. Because $\sigma - \epsilon \geq 0$, the condition is more likely to hold when ω, the seller's proportion of the total surplus, is smaller. This condition is also more likely to hold when σ, the dispersion of prospective buyers' reservation prices, is larger. Note that this condition may hold when both the seller and the buyer overreact to negative information shocks (i.e., $\alpha > 1$ and $\beta > 1$) but it does not necessarily hold when both underreact (i.e., $\alpha < 1$ and $\beta < 1$). If both σ and ϵ are much less than P_0, the condition of Proposition 1.1 simplifies to $\alpha > \beta$.

When positive information arrives, buyers may be more reluctant than sellers to raise their reservation prices, causing the condition in Proposition 1.2 to hold. However, this reversal effect may be attenuated or countered by other factors. Buyers' loss aversion relative to the initial list price—set by the seller and influenced by the seller's original purchase price—may be relatively weak. Additionally, sellers might hesitate to increase their reservation prices due to factors such as buyers' concave demand (see Guren, 2018). As a result, the responsiveness of buyers and sellers to positive shocks can be similar. If both σ and ϵ are much less than P_0, the condition of Proposition 1.2 simplifies to $\alpha < \beta$.

3.4 Neighborhood-Level Results

In this section, we examine the correlations between neighborhood-level outcomes, specifically between the future neighborhood-level price index change and the average percentage change from the initial to the final list price at the neighborhood level. We assume that the properties in a neighborhood experience a common shock, $\tilde{\delta_n}$. In the long run, the price of each property in the neighborhood converges to the true value with the shock, $P_0 + \tilde{\delta_n}$. The future neighborhood-level price index change is $\frac{P_0+\tilde{\delta_n}-\tilde{P}_{t,n}}{\tilde{P}_{t,n}}$ and the average percentage change from the initial to the final list price at the neighborhood level is $\frac{\tilde{P}_{fl,n}-P_{il}}{P_{il}}$. For simplicity, assume that at the neighborhood level, buyer type, ϵ, has no effect on the average average final list price and the average transaction price.

Lemma 2: If $\alpha + (1-\omega)\beta < (2-\omega) + \frac{(1-\omega)^2\sigma}{P_0}$, then the price index change is positively correlated with the information shock.

The smaller α and β, the more likely the condition holds. Intuitively, the information shock $\tilde{\delta_n}$ influences the relative price deviation $\frac{P_0+\tilde{\delta_n}-\tilde{P}_{t,n}}{\tilde{P}_{t,n}}$ through two channels: it affects both the long-run fundamental price $P_0 + \tilde{\delta_n}$ and the average transaction price $\tilde{P}_{t,n}$. Given that $\tilde{P}_{t,n} = \theta\tilde{P}_{fl,n} + \omega(P_0 + \alpha\tilde{\delta_n} - \theta\tilde{P}_{fl,n})$ and $P^{\tilde{*}}_{fl,n} = \frac{(1-\omega)(P_0+\alpha\tilde{\delta_n}+\sigma)+P_0+\beta\tilde{\delta_n}}{\theta(2-\omega)}$, the impact of $\tilde{\delta_n}$ on $\tilde{P}_{t,n}$ depends on α and β. When both α and β are small, the effect of the information shock on $\tilde{P}_{t,n}$ remains limited. Consequently, the numerator in the expression above is largely driven by $P_0 + \tilde{\delta_n}$, which, in turn, influences future changes in the neighborhood-level price index. As a result, fluctuations in the price index are positively correlated with the information shock.

Proposition 2 (Underreaction and Positive Relation between Initial-to-final-list-price Revision and Future Returns at the Neighborhood-Level): If $\alpha + (1-\omega)\beta < (2-\omega) + \frac{(1-\omega)^2\sigma}{P_0}$, then the percentage initial-to-final-list-price revision is positively related to subsequent percentage changes in the price index.

Proof: See proofs of Lemma 2 and Proposition 2 in Appendix A.2.

Proposition 2 establishes the condition under which initial-to-final price revisions relate to changes in the neighborhood price index. This condition is identical to that specified in Lemma 2. The condition indicates that the combined response of the seller and buyers to an information shock is constrained. A sufficient condition for Proposition 2 is $\alpha < 1$ and $\beta < 1$. When both the seller and the buyer only partially incorporate the information shock, a momentum effect is observed at the neighborhood level. However, it is not a necessary condition. This momentum effect can be observed even if $\alpha > 1$ or $\beta > 1$.

We also explore the relation between the final-list-to-sales-price revision and future returns at the neighborhood level. We find that, assuming no information arrivals from the final list date to the transaction date, this relation depends on both the relation between the initial-to-final-list-price and final-list-to-sales-price revisions at the transaction level and the relation between the final-list-to-sales-price revision and future returns at the neighborhood level. For brevity, the details are not reported.

In Online Appendix OA.A, we endogenize β by allowing it to be positively related to $\tilde{\delta}$. The extended model accommodates the basic model as a special case and can also explain our empirical findings.

4 Data

We obtain data for the U.S. housing market from CoreLogic's Multiple Listing Enterprise Solutions database, which covers successful transactions on Multiple Listing Service (MLS) platforms. Additionally, we supplement missing property characteristics in the MLS data with information from CoreLogic's tax history database. Following Mateen et al. (2024), we exclude rental properties, foreclosures, and short sales from our sample, focusing exclusively on single-family homes and townhouses. Some properties are strategically delisted and relisted. If a property is relisted within 30 days of being delisted, we consolidate the two events into a single listing event (as illustrated in Figure 1 Panel (a)). Relistings occurring after 30 days are treated as new listing events (as shown in Figure 1 Panel (b)).

[Insert Figure 1 about here.]

The MLS platforms record key event dates and prices for a property, including its initial listing, all subsequent price revisions, and the final transaction details. We refer to the first listing date as the initial listing date and the corresponding price as the initial list price. Similarly, the last price change date before a transaction is termed the final listing date, and the associated price is considered the final list price. Figure 2 shows the timeline of the house price revisions. Our final sample comprises 26,329,203 unique houses and 37,882,391 transactions from 2000 to 2019, covering 50 states (including Washington D.C.).

[Insert Figure 2 about here.]

We also obtain data from one of the largest Chinese real estate brokerage firms. This brokerage firm operates an online platform for rental and second-hand house transactions. Its dataset includes a multitude of data items on house transactions, house characteristics, buyer and seller characteristics, house show histories, and price modification histories.We examine a sample of 279,147 house transactions from January 2013 to October 2018 in seven big cities. City A has 196,985 transactions located in 6,230 subdivisions (residential communities) within 228 business areas (housing districts), each of which contains multiple subdivisions. Together, these transactions account for 70.57% of the sample.The buyer's budget range is available for 260,172 house transactions in our sample. Table B.1 provides detailed definitions of all variables.

5 Empirical Results in the U.S.

5.1 Summary Statistics of House Transactions in the U.S.

Table 1 reports the summary statistics of house sales prices, list prices, price revisions, days on market, and house characteristics for U.S. house transactions from 2000−2019. Panel A reports the results for the full sample. The average sales price, initial list price, and final list price are \$277,515, \$297,769, and \$285,113, respectively. The initial-final-list price revision, *Revision_initial_final*, equals 100 × (final list price − initial list price)

÷ initial list price and has an average of -3.48% and a standard deviation of 8.15%. In the un-tabulated results, we observe that 14,032,698 (37.07%), 22,181,163 (58.59%), and 1,642,577 (4.34%) transactions in our sample have the final list price that is less than, equal to, and greater than the initial list price, respectively.[6] The final-list-to-sales-price revision, *Revision_final_sales*, equals 100 × (sales price − final list price) ÷ final list price and has an average of -2.74%. $DOM\_initial\_final$, the number of days between the initial and the final list dates, averages 15.63 days. The number of days between the final list date and contract date (DOM_final_sale) averages 66.13 days. The average natural log of lot size in acres, *Ln(Land)*, is -1.29. The average natural log of house size in square feet, *Ln(House Size)*, is 7.48.[7] $House\ Age$ is on average 34 years. The average house features 3.26 bedrooms, 2.24 bathrooms, and 1.55 stories. The percentages of houses equipped with cooling, heating, a fireplace, parking, and a swimming pool, respectively, are 95%, 100%, 84%, 93%, and 70%.[8] The summary statistics for the repeat sales sample in Panel B are generally comparable to those for the full sample in Panel A.

[Insert Table 1 about here.]

Figure 3 shows the distribution of U.S. house transactions by year and quarter. The number of transactions increased over time, with a notable trough from the fourth quarter of 2007 to the first quarter of 2012.

[Insert Figure 3 about here.]

[6]In comparison, in the sample of Merlo and Ortalo-Magne (2004), 23.2% of transactions exhibit at least one change in the list price.

[7]MLS platforms contain multiple fields reporting the size of the living area, and CoreLogic generates a standardized estimate based on them. We use the standardized measure.

[8]The summary statistics of the dummy variables are based on non-missing values. Among the houses with a non-missing "Heating" value, 34,163,779 have a heating system, and 113,971 don't. Thus, the average of the heating dummy variable is nearly 100%.

5.2 Asymmetric Reactions and Final-list-to-sales-price Revisions at the Transaction Level in the U.S.

We first estimate regressions using *Revision_final_sales*, the percentage revision from the current list price to the sales price, as the dependent variable. The key independent variables include *Revision_initial_final*, *Revision_initial_final*+, and *Revision_initial_final*−. *Revision_initial_final* is the percentage revision from the initial list price to the current list price. *Revision_initial_final*+ equals the greater of *Revision_initial_final* and zero. *Revision_initial_final*− equals the smaller of *Revision_initial_final* and zero. The three price revision variables help to capture information arrivals during the listing period (i.e., from the initial list date to the final list date), whereas many house characteristics remain constant and do not effectively capture information arrivals. To ensure the accuracy of the final list date, we exclude observations where the final list price differs from the initial list price but the final list date is identical to the initial list date. After this adjustment, the sample is reduced to 25,607,623 observations, comprising 3,309,866 (12.93%), 21,960,218 (85.76%), and 337,539 (1.32%) transactions where the final list price is less than, equal to, and greater than the initial list price, respectively. To avoid dropping observations where some characteristics have a missing value, we set the missing value of a characteristic to zero and include a dummy variable that equals one if its value is missing and zero otherwise (see Online Appendix Tables OA.1 and OA.2).

Table 2 presents the results of the key independent variables. For the results of the controls, see Tables OA.1 and OA.2. Regressions (1)−(3) use the full sample and control for ZIP-code fixed effects (FEs), while (4)−(6) use the subsample of repeat sales and control for house FEs. Regressions (1) and (4) control for house characteristics and year-month FEs, while the other four regressions further control for days on market. Regressions (7)−(12) have the same model specifications as Regressions (1)−(6) but include two additional controls.

[Insert Table 2 about here.]

In Regression (1), the coefficient on the initial-to-final-list-price revision is positive and statistically significant. The coefficient remains positive and statistically significant after we control for $DOM\_initial\_final$ and $DOM\_initial\_final^2$ in Regression (2), although the economic magnitude decreases. In Regression (3), we distinguish between positive and negative revisions from the initial to the final list price. The positive coefficient for the negative initial-to-final-list-price revision can be explained by Proposition 1.1 of our model when sellers are less responsive than buyers to negative information shocks than buyers. The negative coefficient for the positive initial-to-final-list-price revision can be explained by Proposition 1.2 when sellers are more responsive than buyers to negative shocks.[9] Regressions (4)−(6) use the subsample of houses with repeat sales and control for house FEs. Our major results remain qualitatively the same, suggesting that they are not driven by time-invariant house characteristics.

The positive relation between the initial-to-final-list-price and final-list-to-sales-price revisions can arise if the seller initially sets a list price that is too high and then revises it downward (Knight (2002) and Gordon and Winkler (2017)). To control for potential initial list price mispricing, we include *Relative_initial_list_price* as an independent variable. It is defined as the initial list price of the house per square foot ÷ the average sales price per square foot of the houses in the same ZIP code sold during the three months before the initial listing. Furthermore, Anenberg (2016) finds that for two comparable homes that are first listed in a given period, the home in the neighborhood that experienced greater sales price depreciation in the previous four months has a higher initial list price and a lower sales price, other things being held equal. Therefore, we also control for *Price_appreciation*, defined as the percentage growth from the average sales price per square foot of the houses sold during the first half of the three months in the ZIP code before the initial listing of a house to the

[9]For our full sample, it is computationally time-consuming for Stata to estimate the panel regressions with ZIP-code-year-month FEs. Therefore, in Table 2, we only control ZIP-code FEs and year-month FEs. To see whether our results are robust, we randomly select 20% samples and run panel regression with ZIP-code-year-month FEs. The results are reported in Table OA.3. Our major results are robust.

average of the houses sold during the second half of the three months.

Regressions (7)−(12) control for *Relative_initial_list_price* and *Price_appreciation*. The coefficient on the relative initial list price is negative and statistically significant, suggesting that a higher initial list price is indeed associated with a lower final-list-to-sales-price revision. However, the coefficient on the price appreciation rate is not statistically significant. Importantly, after including these two control variables, the results on *Revision_initial_final*, *Revision_initial_final*+, and *Revision_initial_final*− remain qualitatively the same.

The ordinary least squares (OLS) estimates above should be interpreted with caution. In these regressions, even with many control variables, one could still argue that the initial-to-final-list-price revision does not necessarily reflect exogenous information shocks during the initial-to-final-list period. To further alleviate this concern, we instrument the initial-to-final-list-price revision with exogenous monetary policy shocks that Bauer and Swanson (2023) construct in the following two steps. First, they identify high-frequency changes in interest rates over 30-minute windows around FOMC announcements. Second, they regress these rate changes on six macro and financial variables before the announcement, including the surprise component of the most recent nonfarm payrolls release, the logarithmic change in nonfarm payrolls, stock market returns, the change in the yield curve slope, the logarithmic change in a commodity spot price index, and the implied skewness of the 10-year Treasury yield. The regression residuals are used as exogenous interest rate shocks.

We estimate two-stage least squares (2SLS) regressions. We use the sum of the exogenous interest rate shocks during the listing period, MPS_ORTH, as the instrumental variable (IV) for $Revision\_initial\_final$. The IVs for $Revision\_initial\_final+$ and $Revision\_initial\_final-$ are MPS_ORTH+ and MPS_ORTH-, defined as max(*MPS_ORT*, 0) and min(*MPS_ORT*, 0), respectively. Table OA.4 reports the first-stage results. The Sanderson-Windmeijer F-tests show that the IVs are strong IVs. Table 3 report the second-stage results for the key variables. See Table OA.5 for the results for other variables. The coefficients for $Revision\_initial\_final$ are positive and statistically significant. Economically, in

Regression (1), a 1% increase in $Revision\_initial\_final$ is associated with a 0.094% increase in the final-list-to-sales-price revision. While the coefficients for $Revision\_initial\_final+$ are negative and statistically significant in Table 2, they become statistically insignificant in Table 3, indicating the importance of using IVs. The coefficients for *Revision_initial_final–* remain positive and statistically significant. In Regression (6), a 1% increase in *Revision_initial_final–* is associated with a 0.097% increase in the final-list-to-sales-price revision. These results suggest that momentum in list price revisions is driven by momentum in list-price reductions. House sellers are reluctant to fully incorporate negative information into their reservation prices, consistent with Genesove and Mayer (2001)'s finding.

[Insert Table 3 about here.]

We also estimate reduced-form regressions and report the results in Table OA.6. The reduced-form results show that MPS_ORTH and MPS_ORTH+ are negatively related to the final-list-to-sales-price revision.

5.3 Underreaction and Future Returns at the ZIP Code Level in the U.S.

If information shocks are not accurately incorporated into house sales prices, there can be abnormal future returns. Ideally, researchers would like to use the price of a future transaction of the same house to compute the return. As is well known, however, houses are much less frequently traded than stocks. To overcome this challenge caused by illiquidity, housing research often focuses on city-level returns, using price index changes at the city level in past periods to predict price index changes at the city level in future periods (Case and Shiller, 1989). We examine U.S. housing returns at the ZIP code level. The houses in the same ZIP code are more homogeneous than the houses in the same city.

We construct two monthly price indexes at the ZIP code level: (1) the hedonic index, which removes the effects of various house characteristics, and (2) the repeat sales index, which removes the effects of time-invariant house characteristics. We begin by estimating regressions using the natural log of the sales price as the dependent variable. For the hedonic index, we use the full sample and include ZIP-code-year-month FEs and various house characteristics as independent variables. For the repeat sales index, we use the subsample of houses with repeat sales and include ZIP-code-year-month FEs and house FEs as independent variables. The estimated ZIP-code-year-month FEs are then used as the purged price index. Finally, the return for a ZIP code in a year and month is computed as the difference in the purged price index between this month and the previous month. Appendix OA.B provides the details on the price indexes.[10]

We use the average initial-to-final-list-price revision of houses in the same ZIP code sold in month t, a measure of information arrivals, to predict future returns at the ZIP code level. In the U.S. market, list and sales prices are publicly available. If the initial-to-final-list-price revision can predict future returns, the housing market is inefficient. In Table 4, the returns are based on the repeat sales index.

[Insert Table 4 about here.]

In Regressions (1) and (2) of Table 4, the dependent variable is $Return_{t+2}$, defined as the percentage growth in the ZIP-code-level index from month t+1 to month t+2. In Regressions (3) and (4) of this table, we use $Return_{t+2,\ t+6}$ as the dependent variable, defined as the percentage growth in the ZIP-code-level index from month t+1 to month t+6.[11] In

[10]Our approach is slightly different from that of Baum-Snow and Han (2024). However, our major results remain robust when we strictly follow their approach.

[11]Since the computation of $Return_{t+1}$ uses the sales prices of the houses sold in month t, $Return_{t+1}$ can be mechanically related to the average initial-to-final-list-price revision of houses sold in month t. For example, assume there is only one house sold in each month in each ZIP code. In month t, house A is sold. In month $t+1$, house B is sold. Then $Return_{t+1}$ = (house B's sales price in $t+1$ − house A's sales price in t) ÷ house A's sales price in t. Assume that before house A's final list date, negative information specific to house A arrived, causing house A's sales price in t to be lower than the hypothetical sales price of house B in t. Then we would see a mechanical negative relation between the price revision of house A and $Return_{t+1}$. By skipping a month, we can avoid this mechanical effect due to house-specific information arrivals. Another reason for skipping a month is that a significant relation between the average price revision of houses sold

Regressions (1) and (3), the independent variable is the average initial-to-final-list-price revision for all houses sold in month t in the same ZIP code, *Average_revision_initial_final*. In Regressions (2) and (4), we distinguish between positive and negative revisions: *Average_revision_initial_final+*, and *Average_revision_initial_final-*.

The coefficients on the three price revision variables are generally positive and statistically significant. The economic magnitude of the coefficients is larger in Regressions (3) and (4) than in Regressions (1) and (2). For example, a 1% decrease in *Average_revision_initial_final-* is followed by a 0.056% decrease and a 0.266% decrease in $Return_{t+2}$ and $Return_{t+2,\ t+6}$ in Regressions (2) and (4), respectively. The positive coefficients can be explained by Proposition 2 of our model when the seller and the buyer collectively underadjust their reservation prices, providing some preliminary evidence for underreaction.

In the Online Appendix Table OA.7, we report the results when the neighborhood-level returns are based on the full-sample hedonic index instead of the subsample repeat sales index. Our major results remain qualitatively the same.

6 Empirical Results in China

6.1 Summary Statistics of House Transactions in China

We report the summary statistics for the sample of Chinese house transactions in Table 5. The average sales price, initial list price, and final list price per square meter are 38,970, 40,130, and 39,840 Chinese Yuans (CNYs), respectively. The final-list-to-sales-price revision, *Revision_final_sales*, has an average of -2.15% and a standard deviation of 2.65%. The initial-to-final-list-price revision, *Revision_initial_final*, has an average and a standard deviation of -0.60% and 5.52%, respectively. In un-tabulated results, we find that the fractions of the sample transactions with the final list price being less than, equal to, and greater than the

in month t and $Return_{t+1}$ based on houses sold in months t and $t+1$ does not represent an implementable trading strategy.

initial list price, respectively, are 37.4%, 38.6%, and 24.0%.[12] In 61.4% of cases, the initial and final list prices differ, compared to 41.4% in our U.S. sample. The likelihood of an upward revision in list prices is higher in China than in the U.S., perhaps reflecting differences in market conditions and institutional rules.[13] Between January 2013 and October 2018, the Chinese housing market experienced a sustained boom.

[Insert Table 5 about here.]

Relative_initial_list_price is defined as the initial list price of the house per square meter ÷ the average sales price per square meter of the houses in the same subdivision during the three months before the initial listing and has an average of 1.12. *Price_appreciation* is the percentage growth from the average sales price per square meter of the houses sold during the first half of the three months in the subdivision before the initial listing to the average of the houses sold during the second half of the three months. Its average is 4.67%, reflecting a bull housing market.

House_visits_total equals the total number of visits from the initial listing to the transaction. The number of house visits ranges from 1 to 567, with an average of 28.26 visits. *DOM_final_sales* equals the number of days from the final listing to the transaction. *DOM_initial_final* equals the number of days between the initial and final listings. The averages of the two variables are 31.94 days and 41.49 days, respectively.

[12] Among our sample, 64.66% have at least one list price revision, including 27.02%, 16.36%, 9.33%, 5.18%, and 6.77% with one, two, three, four, and at least five revisions, respectively. Note that it is possible for the final list price, after multiple changes, to revert to the initial list price.

[13] In China, increasing a property's list price typically involves the following steps: (1) The seller submits a request to the online broker's agent, specifying the desired price increase and the rationale (e.g., market changes, renovations, or buyer interest). (2) The agent reviews the request based on current market trends and comparable transactions, and advises whether the adjustment is reasonable. If the increase is substantial, the agent may caution that it could reduce listing visibility and sales potential. However, the final decision typically rests with the seller. The agent may comply after documenting their professional advice, even if they disagree. (3) If the property has an exclusive listing agreement, a price change may require a supplementary agreement or online confirmation. For standard (non-exclusive) listings, usually only online confirmation is needed. (4) The agent updates the list price in the platform's system.

In our sample, 73% of the houses are in a high-quality school district, and 65% are close to a subway station. The average house size is 86.46 square meters. The floor on which our sample houses are located ranges from a low of -8 to a high of 85. The average house features 2.15 bedrooms, 1.29 living rooms, and 1.24 bathrooms. The average management fee is CNY1.49 per square meter per month. The average house is 14.9 years old. 52% of the buyers and 54% of the sellers are males. The average buyer is 35.53 years old, while the average seller is 45.79 years old.

Final_list_price_above_budget is a dummy variable that equals one if the final list price is above the buyer's budget range and zero otherwise. *Final_list_price_below _budget* equals one if the final list price is below the buyer's budget range and zero otherwise. Both variables equal zero if the final list price is in the budget range. For our Chinese sample of house transactions, 34% of the buyers have a budget below the final list price, and 12% of the buyers have a budget above the final list price.[14]

Figure 4 shows the distribution of house transactions by the year and month of the transaction. The vast majority of the house transactions in our sample occurred from 2015-2017, with substantial variations across months.

[Insert Figure 4 about here.]

6.2 Asymmetric Reactions and Final-list-to-sales-price Revisions at the Transaction Level in China

Table 6 reports the results of 12 regressions using the percentage revision from the final list price to the sales price, *Revision_final_sales*, as the dependent variable. This table reports

[14]For 94,411 house transactions, there is information on the buyer's visits to this house and other houses listed on the real estate brokerage firm. The average number of visits of the buyer is 10.96. On average, the buyer spends 63.61 days on the market. As indicated by the buyer, 74% of the buyers prefer a high-quality school district, and 67% of the buyers prefer a house close to a subway station. For brevity, these numbers are not reported in Table 5.

only the results of the key variables. Tables OA.8 and OA.9 in the Online Appendix report the results of the other independent variables. The number of observations for a specific regression may be reduced due to the need for non-missing control variables.

[Insert Table 6 about here.]

Regressions (1)−(3) include the percentage initial-to-final-list-price revision as an independent variable (*Revision_initial_final*). Regressions (4)−(6) distinguish between a positive revision and a negative revision. Regressions (3) and (6) control for $DOM\_initial\_final$ and $DOM\_initial\_final^2$. All regressions control for house characteristics and seller age. Regressions (2)−(3) and (5)−(6) control for subdivision FEs and year-quarter FEs (22 dummy variables from the first quarter of 2013 to the third quarter of 2018).

In Regressions (1)−(3), the coefficient on *Revision_initial_final* is positive and statistically significant. The coefficient on *Revision_initial_final+* is positive and statistically significant in Regressions (4)−(5) but is not statistically significant in Regression (6). The coefficient on *Revision_initial_final−* is always positive and statistically significant in Regressions (4)−(6). This positive coefficient can be explained by our model's Proposition 1.1 when the seller is less responsive to negative information shocks than the buyer. In Regression (4), the coefficient on *Revision_initial_final−* suggests that a 1% decrease in this variable is associated with a decrease of 0.078% from the final list price to the sales price. Consistent with the results using U.S. houses, the results using Chinese houses suggest that the positive relation between the initial-to-final-list-price revision and the final-list-to-sales-price revision is largely because of sellers' reluctance to fully incorporate negative information into their reservation prices.

We also estimate Regressions (7)−(12) with two more controls: *Relative_initial_list_price* and *Price_appreciation*. In all six regressions, the coefficient on *Relative_initial_list_price* is negative and statistically significant, and the coefficient on *Price_appreciation* is positive and statistically significant, as expected. Importantly, the results on *Revision_initial_final*, *Revision_initial_final+*, and *Revision_initial_final−* remain qualitatively the same.

To mitigate the concern that initial-to-final-list-price revisions may reflect factors beyond information arriving during the listing period, we also draw on two concrete sources of listing-period information in China: buyer visit activity and two major down-payment policy changes. As shown in Lemma 1 of our model, information shocks during the listing period can directly predict final-list-to-sales-price revisions, further motivating the empirical analyses that follow.

6.3 Reactions to Visitor Budgets in China

The Chinese database permits us to study house visitor budgets, an important type of information that arrives during the listing period. After determining the list price, the seller can further discover demand based on house visits and visitor characteristics. If visitor budgets are informative, sellers may adjust their list prices. To study the relation between visitor budgets and subsequent list price revisions, we estimate regressions using house-visit observations. The dependent variable, denoted as *Post_visit_list_revision*, equals the percentage change from the list price at the time of visit to the ending list price over the 7, 14, 21, and 28 days following the visit.[15] The independent variables include *List_price_above_budget* and *List_price_below_budget*. *List_price_above_budget* equals one if the at-visit list price exceeds the upper bound of the visitor's budget and zero otherwise. *List_price_below_budget* equals one if the at-visit list price is below the budget's lower bound and zero otherwise. House FEs and year-quarter FEs are included as control variables.

Table 7 reports the results. In all regressions, the coefficients on *List_price_above _budget* are negative and statistically significant, while the coefficients on *List_price _below_budget* are positive and statistically significant. In Regression (1), their coefficients are -0.072 and 0.038, respectively. The absolute values of the coefficients on these two variables in Regressions

[15] If the house was sold in the period, we use the final list price as the ending list price. If there were multiple changes in the list price during the period, we use the last list price as the ending list price. If the list price was not modified during the period, then *Post_visit_list_revision* is equal to 0.

(1)-(4) increase monotonically from 0.072 to 0.141 and from 0.038 to 0.083, respectively. Based on Regression (4), the total economic effect of having a budget range above instead of below the list price at the time of visit is 0.224% of the at-visit list price.

[Insert Table 7 about here.]

In addition to the pooled regressions of house-visits, we try two alternative approaches. In the first alternative approach, we estimate one regression for each house, using *Post_visit_list_revision* as the dependent variable and *List_price_above_budget* and *List_price_below_budget* as independent variables. We then compute the averages and t-statistics of the estimated coefficients across the houses, as well as the fraction of the coefficients that are positive, the fraction of the coefficients that are negative, the fraction of the coefficients that are positive and statistically significant, and the fraction of the coefficients that are negative and statistically significant. Table OA.10 reports the results. In another approach, we aggregate the visits of each house in week t and estimate regressions using the house-week observations to explain the list price revision in week t+1, defined as the percentage change in the list price from the end of week t to the end of week t+1.[16] Table OA.11 reports the results. The major results using the alternative approaches remain qualitatively the same, confirming that budget information is related to subsequent list price revisions.

To better understand the informativeness of house visitor budgets, we also examine whether visitor budgets can help predict house transactions (see the Online Appendix Table OA.12). We find that if the budget of a house visitor is higher, the seller is more likely to successfully sell the house in the following 7, 14, 21, or 28 days.

We further examine whether a house's final list price accurately incorporates the visitors' budget information revealed during the listing period. Specifically, we estimate regressions using the final-list-to-sales-price revision as the dependent variable and *List_price_above_budget_fraction* and *List_price_below_budget_fraction* as two key independent variables, defined as

[16] If the house is sold during week t+1, we use the final list price as the end-of-week-$t+1$ list price.

the fractions of visits during the listing period with the list price at the time of visit being above or below the visitor's budget range, respectively. If the budget information is accurately reflected in the reservation prices of both the seller and the buyer and subsequently in the final list price, no statistically significant relation is expected between the budget information and the final-list-to-sales-price revision.

Table 8 reports the results of the key variables, and Table OA.13 reports the full results. The sample for this table excludes the houses with no visit during the listing period, so it is smaller than that for Table 6. In Regression (1), the coefficient on *List_price_above_budget_fraction* is -0.298 with a t-statistic of -12.88, suggesting that the final-list-to-sales-price change is 3% lower if *List_price_above_budget_fraction* increases by 10%. This finding suggests that sellers are less responsive to negative shocks than buyers (see our model's Lemma 1). However, the coefficient on *List_price_below_budget_fraction* is not statistically significant, suggesting that sellers are not necessarily less responsive than buyers to positive shocks. In all regressions, the coefficients on the two budget variables remain qualitatively the same.

[Insert Table 8 about here.]

Regressions (2)-(6) control for *Visit_intensity*, defined as the number of house visits ÷ (1 + the number of days) from the initial listing to the final listing. This variable could capture the strength of buyer interest revealed during the listing period. As expected, the coefficient on *Visit_intensity* is positive and statistically significant. Regression (5) controls for *Revision_initial_final*. Its coefficient is positive and statistically significant. Regression (6) replaces *Revision_initial_final* with *Revision_initial_final*+ and *Revision_initial_final*−. The coefficients on both variables are positive and statistically significant. However, the coefficient on *Revision_initial_final*− is larger and statistically more significant than the coefficient on *Revision_initial_final*+. The coefficients on the price revision variables are generally consistent with those in Table 6. All regressions control for various house characteristics, seller age, subdivision FEs, and quarter FEs.

6.4 Down-payment Policy Changes and Price Revisions in China

In addition to visitor budget levels, policy changes can shape house list prices. We further analyze how two major down-payment policy changes affect revisions from the final list price to the sales price.

On September 30, 2016, City A increased the minimum down-payment ratio from 30% to 35% for purchasing the first ordinary self-occupied home and from 30% to 40% for the first non-ordinary self-occupied home (excluding policy-based homes such as self-occupied commodity housing and homes with certain restrictions). Additionally, a policy change was implemented to stimulate housing demand. On March 30, 2015, the People's Bank of China, the Ministry of Housing and Urban-Rural Development of China, and the China Banking and Insurance Regulatory Commission jointly issued a notice, adjusting the minimum down-payment ratio for residents with one property and an outstanding mortgage seeking a second property from 60% to 40%.

To understand the effects of these two policy changes, we examine the houses in City A. Figure 5 shows the percentages of the listed houses in City A with an increase or decrease in the list price each day. Panel (a) shows the daily percentages from August 1, 2016, to December 31, 2016. Panel (b) shows the daily percentages from March 1, 2015, to June 30, 2015. The percentage of houses with a decrease in the list price showed a strong upward trend from September 30 to November 1, 2016. By comparison, the percentage of houses with a price increase sharply increased from March 30 to April 1, 2015, and stayed largely flat during the subsequent months. The patterns in Figure 5 suggest that the two policy changes had their intended effects. More importantly, there appeared to be a delayed reaction to the 2016 policy change and an immediate reaction to the 2015 policy change.

[Insert Figure 5]

To assess whether the information content of the policy changes is accurately incorporated into the list price revised shortly after the changes, we estimate regressions with various control variables and report the results in Table 9. The dependent variable is the final-list-to-sales-price revision (in percentages), denoted as *Revision_final_sales*.

[Insert Table 9 about here.]

Panel A of Table 9 reports the results of the 2016 policy change. The regression sample includes 880 transactions with the final list date being within 14 days after the policy change and with the transaction date being within 28 days after the final list date, and 3,445 transactions with the transaction date being within 14 days before the policy change and the final list date being within 28 days before the transaction date. The key independent variable, *Post_dummy*, equals one for the 880 transactions and zero for the 3,445 transactions. The coefficient on *Post_dummy* is negative and statistically significant in all eight regressions and is not very sensitive to the presence of the control variables. The negative policy change caused a 1.1% decrease in the final-list-to-sales-price revision. For a house with a final list price of CNY3 million, the coefficient represents CNY33,000 or $4,967 based on the average exchange rate (CNY6.6434 for one dollar) in 2016. Therefore, consistent with Lemma 1 of our model, sellers are less responsive than buyers to the negative demand shock on September 30, 2016. The coefficients on the buyer budget variables in Regressions (4) and (8) are consistent with those in Table 8.

Panel B of Table 9 reports the results of the 2015 policy change. In this panel, the regression sample includes 901 transactions with the final list date within 14 days after the policy change and the transaction date being within 28 days after the final list date, and 1,272 transactions with the transaction date being within 14 days before the policy change and the final list date being within 28 days before the transaction date. The key independent variable, *Post_dummy*, equals one for the 901 transactions and zero for the 1,272 transactions. The coefficient on *Post_dummy* is not statistically significant in each regression. Therefore, sellers were no less responsive than buyers to the positive demand shock.

6.5 Underreaction and Future Returns at the Subdivision Level in China

We use the average initial-list-to-sales price revision of the houses sold in month t in a subdivision to predict the subdivision's returns in month t+2 and months t+2 to t+6. The returns are based on the monthly hedonic index at the subdivision level (see Online Appendix OA.B). Table 10 reports the results. The regression specifications in this table are the same as those in Table 4. The dependent variables are the returns at the subdivision level in month t+2 and in months t+2 to t+6, respectively.

[Insert Table 10 about here.]

In all regressions of Table 10, the coefficients on *Average_revision _initial_final* and *Average_revision_initial_final–* are positive and statistically significant. In Regression (4), the coefficient on *Average_revision_initial_final–* is 0.98. With a 1% increase in this variable, the return for the houses in the subdivision from month t+2 to t+6 increases by 0.98%. This finding is consistent with our model's Proposition 2 when the seller and the buyer collectively underadjust their reservation prices upon negative information arrivals, providing some preliminary evidence for underreaction. In contrast, the coefficients on *Average_revision_initial_final+* and their t-statistics suggest that the seller and the buyer do not collectively underadjust their reservation prices upon positive information shocks.

7 Asymmetric Patterns in Empirical Results

Regression results across Tables 2, 3, 6, 8, and 9 consistently show strong momentum in initial-to-final-list-price decreases. In contrast, the evidence for list-price increases is mixed unless the list-price revisions are credibly linked to information arriving during the listing period. In the U.S. sample, the OLS estimates in Table 2 indicate reversals following list-price increases, while in the Chinese sample, the OLS estimates in Table 6 show no momentum once controlling for listing duration, property and seller characteristics, subdivision fixed effects, and year-quarter fixed effects. However, these OLS patterns may reflect influences beyond information flows, such as initial overpricing or other seller-specific factors.

To address these concerns, Table 3 instruments list-price revisions using high-frequency U.S. monetary-policy shocks, isolating revisions triggered by plausibly exogenous information arrivals. Similarly, Tables 8, and 9 exploit detailed buyer-budget data together with two major down-payment policy shifts in China, which restrict the analysis to settings where increases in list prices must reflect new information about market fundamentals rather than other influences. Across all of these settings, the evidence is consistent: there is no momentum in list-price increases. Momentum emerges only when sellers reduce list prices in response to negative information.

Tables 4 and 10 show that, in both the U.S. and China, greater average decreases from initial to final list prices are followed by lower returns in subsequent months at the neighborhood level. In contrast, the relation between average upward initial-to-final-list-price revisions and future returns is unclear in the U.S. and statistically insignificant in China. These results reinforce the asymmetry documented at the individual listing level: only downward revisions—reflecting negative information—reliably predict subsequent market movements.

8 Conclusions

We develop a search-and-bargaining model in which home buyers and sellers update their reservation prices in response to micro- and macro-level information that arrives during the listing period. In contrast to standard rational-expectations models based on variation in time-to-sell, gradual learning, or concave demand, our framework captures asymmetric responses to new information by incorporating behavioral features such as underreaction and seller loss aversion. Using rich housing market data from both the U.S. and China, we document transaction-level evidence of momentum in list price decreases, consistent with loss-averse seller behavior, and no momentum in list price increases. When combined with these rational-expectations theories, our model explains the asymmetric effects of positive versus negative shocks. At the neighborhood level, we find preliminary evidence that both buyers and sellers underreact to negative information shocks.

We provide strong evidence that, in both countries, larger cuts from initial to final list prices are followed by greater decreases from final list to sales prices, even after accounting for listing duration, house characteristics, neighborhood, and year–month fixed effects, potential initial mispricing, and pre-listing short-run aggregate price appreciation. In the U.S., downward revisions continue to exhibit momentum even with house fixed effects and when the initial-to-final-list-price revisions are instrumented using exogenous monetary policy shocks. By contrast, upward revisions show neither momentum nor reversal: once instrumented with monetary policy shocks, they are not significantly related to subsequent changes from the final list to sales prices.

In China, a house visitor's budget is positively associated with subsequent list-price revisions, and policies that lowered or raised the minimum down-payment ratio produced their intended effects. Moreover, the share of listing-period visits by prospective buyers with budgets below the at-visit list price predicts larger decreases from the final list price to the sales price, whereas the share of visits with above-list-price budgets has no significant explanatory power. Similarly, a negative minimum down-payment policy shock before the final list date is followed by an additional decline from the final list price to the sales price, while a positive minimum down-payment policy shock does not have a statistically significant effect on subsequent price changes.

Finally, in both the U.S. and China, larger average decreases from initial to final list prices are associated with lower housing returns in subsequent months at the neighborhood level, perhaps because sellers and buyers only partially adjust their reservation prices in response to negative information.

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Figure 1: Identifying Listing Events

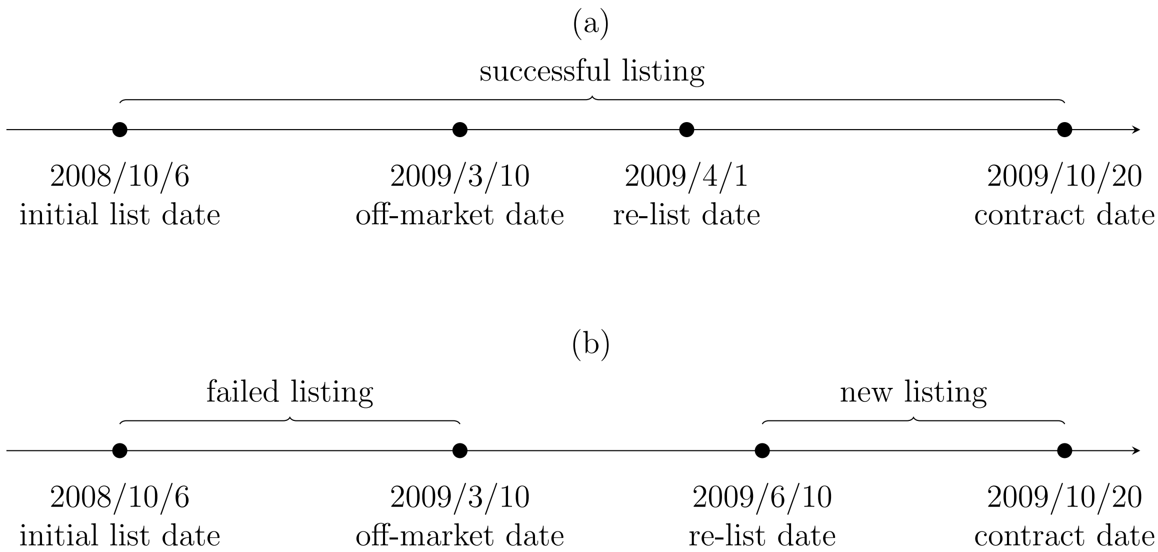


Figure 2: Price Revision Timeline

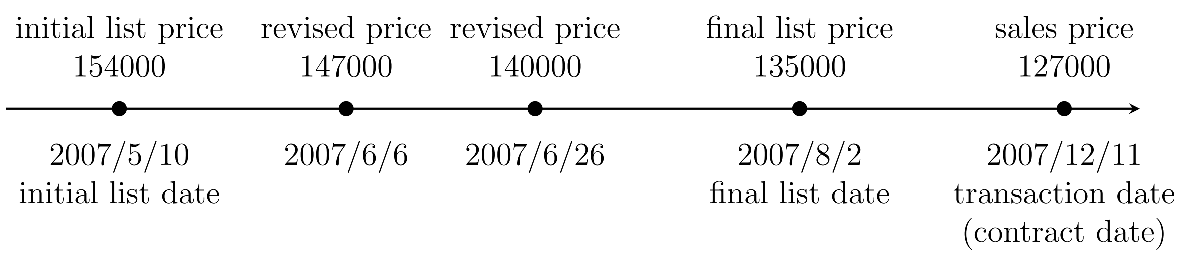


Figure 3: Sample Distribution of House Transactions in the U.S.

This figure shows the distribution of house transactions in the U.S. by year and quarter. Our data spans from January 2000 to December 2019.

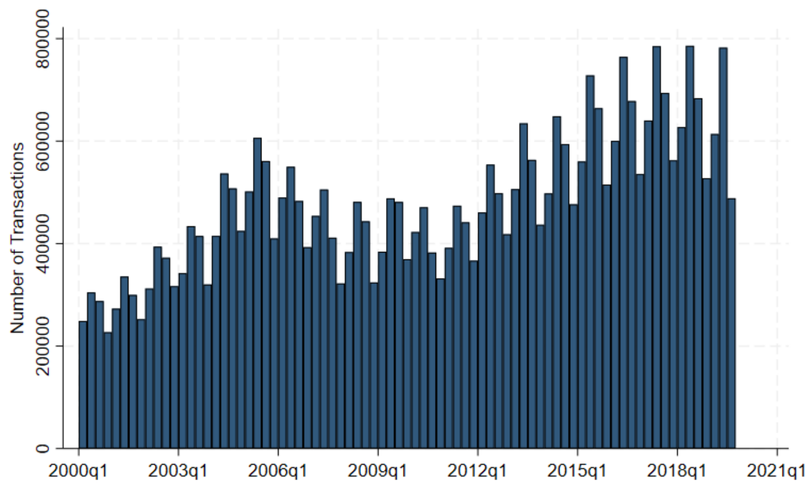


Figure 4: Sample Distribution of House Transactions in China

This figure shows the distribution of house transactions in China by year and quarter. Our data spans from January 2013 to October 2018.

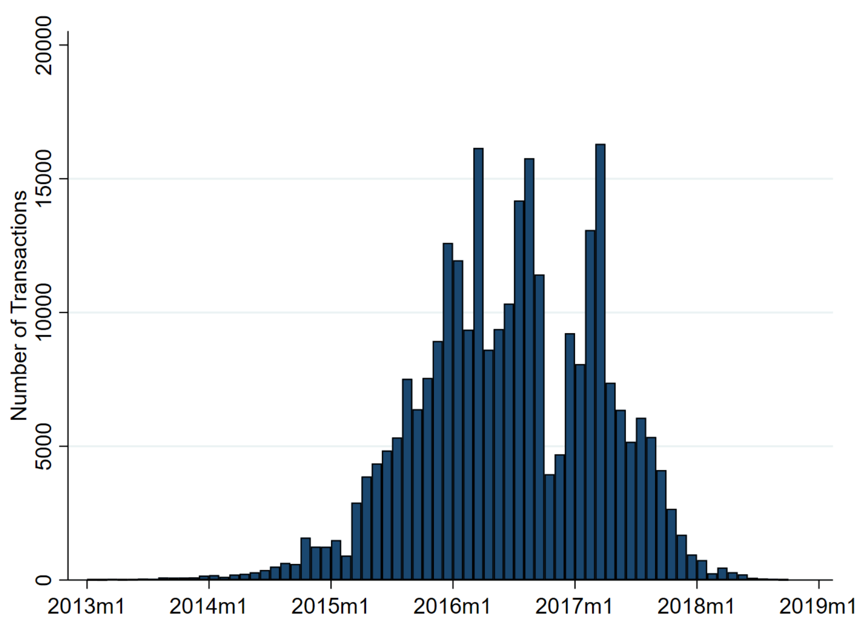
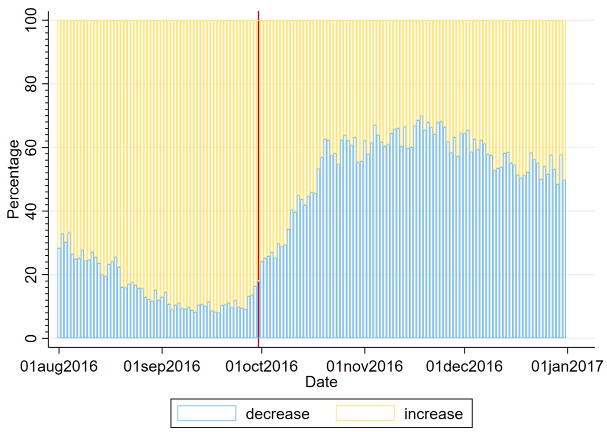
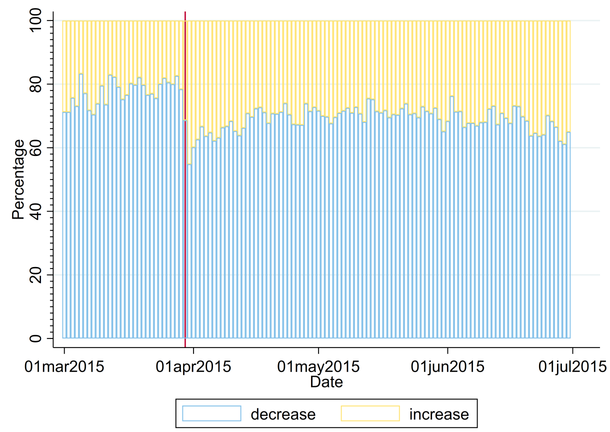


Figure 5: Price Revisions around Down-payment Policy Changes in City A, China

The figure shows the percentage of the house price revisions with an increase or a decrease from the prior list price each day. Panel (a) shows the daily percentages from August 1, 2016 to December 31, 2016. Panel (b) shows the daily percentage from March 1, 2015 to June 30, 2015. On September 30, 2016, the minimum down-payment ratio was increased from 30% to 35% for purchasing the first ordinary self-occupied home and from 30% to 40% for the first non-ordinary self-occupied home. On March 30, 2015, the ratio was lowered from 60% to 40% for residents with one property and an outstanding mortgage seeking to purchase a second property .



(a) Policy Change on September 30, 2016



(b) Policy Change on March 30, 2015

Table 1: Summary Statistics for House Transactions in the U.S.

This table reports the summary statistics (the number of observations, mean, standard deviation, minimum, 25th, 50th, and 75th percentiles, and maximum) for the U.S. houses transacted from January 2000 to December 2019. See Appendix B.1 for variable definitions. $Ln(X)$ denotes the natural log of X. Panel A reports the summary statistics for the full sample, and Panel B reports the summary statistics for the subsample with repeat sales.

Variable	#Obs.	Mean	SD	Min	p25	p50	p75	Max
Panel A: Full Sample								
Sales Price($)	37651602	277515.19	261866.97	2490	128000	208000	339000	2000000
Initial List Price($)	37857835	297768.82	295592	2500	135000	219900	355000	2395000
Final List Price($)	37862344	285113.39	271824.11	2600	129950	214000	348530.5	2100000
Revision_initial_final	37856438	-3.48	8.15	-52.94	-4.37	0	0	19.44
Revision_final_sales	37631673	-2.74	6.44	-37.5	-4.65	-1.65	0	22.8
DOM_initial_final	37693529	15.63	58.75	0	0	0	0	536
DOM_final_sales	35521343	66.13	79.11	0	12	38	90	556
Ln(Land)	27307820	-1.29	1.17	-3.91	-1.97	-1.55	-0.84	3.35
Ln(House Size)	31365967	7.48	0.42	6.44	7.19	7.46	7.76	8.7
House Age	36624576	33.87	28.5	0	11	27	52	132
Number of Bedrooms	37716642	3.26	0.83	0	3	3	4	5
Number of Bathrooms	37882391	2.24	0.93	0	2	2	3	6
Number of Stories	31237758	1.55	0.63	0.1	1	1	2	4
Cooling	30518437	0.95	0.21	0	1	1	1	1
Heating	34277750	1.00	0.06	0	1	1	1	1
Fireplace	24709108	0.84	0.37	0	1	1	1	1
Parking	31816075	0.93	0.26	0	1	1	1	1
Swimming Pool	14269330	0.70	0.46	0	0	1	1	1
Panel B: Repeat Sales Subsample								
Sales Price($)	19961068	273796.06	257228.85	2490	129900	205000	330000	2000000
Initial List Price($)	20091213	292977.64	289981.31	2500	135500	217000	349900	2395000
Final List Price($)	20093220	280563.86	266629.54	2600	131000	209900	339000	2100000
Revision_initial_final	20090546	-3.39	8.02	-52.94	-4.21	0	0	19.44
Revision_final_sales	19953231	-2.42	6.07	-37.5	-4.26	-1.46	0	22.8
DOM_initial_final	20015795	15.64	57.86	0	0	0	0	536
DOM_final_sales	18897289	62.05	74.27	0	11	36	85	556
Ln(Land)	14395777	-1.41	1.07	-3.91	-1.97	-1.61	-1.05	3.35
Ln(House Size)	16797998	7.48	0.41	6.44	7.19	7.45	7.74	8.7
House Age	19748237	33.69	28.22	0	11	26	51	132
Number of Bedrooms	20041929	3.26	0.81	0	3	3	4	5
Number of Baths	20101099	2.24	0.91	0	2	2	3	6
Number of Stories	16793063	1.54	0.63	0.1	1	1	2	4
Cooling	16253624	0.96	0.2	0	1	1	1	1
Heating	18224147	1.00	0.05	0	1	1	1	1
Fireplace	13406066	0.84	0.36	0	1	1	1	1
Parking	16962048	0.93	0.26	0	1	1	1	1
Swimming Pool	7976918	0.70	0.46	0	0	1	1	1

Table 2: Asymmetric Reactions and Final-list-to-sales-price Revisions in the U.S.

This table reports the regression results for the percentage final-list-to-sales-price revision, See Appendix B.1 for variable definitions. The coefficients and t-statistics of house characteristics are reported in Tables OA.1 and OA.2. FEs denote fixed effects. The samples comprise the houses transacted from 2000 to 2019 in the U.S. To ensure the final list date is accurate, the samples exclude observations where the final list price differs from the initial list price but the final list date is the same as the initial list date. T-statistics are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	All Houses			Houses with Repeat Sales		
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Revision_initial_final	0.062***	0.034***		0.045***	0.020***	
	(39.55)	(18.24)		(45.97)	(16.72)	
Revision_initial_final+			-0.059***			-0.068***
			(-22.46)			(-20.74)
Revision_initial_final−			0.044***			0.030***
			(20.06)			(22.84)
DOM_initial_final	No	Yes	Yes	No	Yes	Yes
House Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
ZIP-code FEs	Yes	Yes	Yes	No	No	No
House FEs	No	No	No	Yes	Yes	Yes
Year-month FEs	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.132	0.132	0.132	0.155	0.156	0.156
Observations	25,445,853	25,263,773	25,263,773	10,493,341	10,385,659	10,385,659
	(7)	(8)	(9)	(10)	(11)	(12)
Revision_initial_final	0.057***	0.030***		0.035***	0.009***	
	(33.03)	(13.76)		(12.99)	(3.08)	
Revision_initial_final+			-0.069***			-0.085***
			(-24.31)			(-14.63)
Revision_initial_final−			0.040***			0.019***
			(16.48)			(6.92)
Relative_initial_list_price	-0.514***	-0.507***	-0.514***	-1.004***	-1.039***	-1.050***
	(-8.39)	(-8.14)	(-8.16)	(-4.46)	(-4.26)	(-4.25)
Price_appreciation	0.000	0.000	0.000	0.000	0.000	0.000
	(1.22)	(1.16)	(1.19)	(0.28)	(0.68)	(0.79)
DOM_initial_final	No	Yes	Yes	No	Yes	Yes
House Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
ZIP-code FEs	Yes	Yes	Yes	No	No	No
House FEs	No	No	No	Yes	Yes	Yes
Year-month FEs	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.130	0.129	0.130	0.157	0.157	0.158
Observations	24,540,134	24,379,933	24,379,933	10,142,406	10,047,065	10,047,065

Table 3: Asymmetric Reactions and Final-list-to-sales-price Revisions in the U.S.: 2SLS Regressions Using Monetary Policy Surprises as Instruments

This table reports the second-stage estimates of the revision from the final list price to the sales price, *Revision_final_sales*. The instrumental variable (IV) for $Revision\_initial\_final$ is the sum of the exogenous interest rate shocks between the initial and final list dates (MPS_ORTH). The IVs for $Revision\_initial\_final+$ and $Revision\_initial\_final-$ are MPS_ORTH+ and MPS_ORTH-. The coefficients and t-statistics of house characteristics are reported in Tables OA.5. FEs denote fixed effects. The samples comprise the houses transacted from 2000 to 2019 in the U.S. To ensure the final list date is accurate, the samples exclude observations where the final list price differs from the initial list price but the final list date is the same as the initial list date. T-statistics are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	All Houses			Houses with Repeat Sales		
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
$Revision\_initial\_final$	0.094***	0.071***		0.086***	0.080***	
	(15.99)	(4.49)		(23.12)	(8.88)	
$Revision\_initial\_final+$			-0.153			-0.227
			(-0.71)			(-1.24)
$Revision\_initial\_final-$			0.084***			0.097***
			(3.96)			(7.14)
$DOM\_initial\_final$	No	Yes	Yes	No	Yes	Yes
House Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
ZIP-code FEs	Yes	Yes	Yes	No	No	No
House FEs	No	No	No	Yes	Yes	Yes
Year-month FEs	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.023	0.024	0.024	0.005	0.006	0.006
Observations	25,445,853	25,263,773	25,263,773	10,493,341	10,385,659	10,385,659

Table 4: Underreaction and Future Returns at the ZIP Code Level in the U.S.

This table reports the regression results for future percentage returns based on the repeat sales subsample monthly price index at the ZIP code level (see Online Appendix OA.B). The monthly repeat sales index (RSI) for each ZIP code is derived by estimating ZIP-code–year–month fixed effects, while purging the index of house fixed effects. $Return_{t+2}$, the return in month $t+2$, equals $100 \times (\ln RSI_{t+2} - \ln RSI_{t+1})$. $Return_{t+2,\ t+6}$, the return in months t+2 to t+6, equals $100 \times (\ln RSI_{t+6} - \ln RSI_{t+1})$. *Average_revision_initial_final*, is the average initial-to-final-list-price revisions of houses in the same ZIP code sold in month t. $X+$ equals X if $X > 0$ and zero otherwise. $X-$ equals X if $X < 0$ and zero otherwise. Columns (1) and (2) show the ZIP-code-level return in month $t+2$. Columns (3) and (4) show the ZIP-code-level return from month $t+2$ to month $t+6$. The sample includes houses transacted from 2000 to 2019 in the U.S. T-statistics are in the parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)
	$Return_{t+2}$		$Return_{t+2,\ t+6}$	
$Average\_revision\_initial\_final$	0.054***		0.271***	
	(6.06)		(29.37)	
$Average\_revision\_initial\_final+$		-0.044		0.633***
		(-0.38)		(4.68)
$Average\_revision\_initial\_final-$		0.056***		0.266***
		(6.12)		(28.30)
Constant	0.527***	0.537***	2.650***	2.615***
	(13.42)	(13.40)	(64.01)	(61.82)
Observations	1,367,606	1,367,606	1,332,180	1,332,180
Adjusted R^2	0.000	0.000	0.001	0.001

Table 5: Summary Statistics for House Transactions in China

This table reports the summary statistics (the number of observations, mean, standard deviation, minimum, 25th, 50th, and 75th percentiles, and maximum) for the houses sold from January 2013 to October 2018 in China. *Sales Price*, *Initial List Price* and *Final List Price* are in CNYs per square meter. *Revision_initial_final* = 100 × (final list price − initial list price) ÷ initial list price. *Revision_final_sales* = 100 × (sales price − final list price) ÷ final list price. *Relative_initial_list_price* = initial list price of the house per square meter ÷ average sales price per square meter of the houses in the same subdivision during the three months before the house's initial list date. *Price_appreciation* = percentage growth from the average sales price per square meter of the houses in the subdivision sold during the first half of the three-month period before the initial listing to the average of the houses sold during the second half of the period. *DOM_initial_final* = number of days between initial and final listings. *DOM_final_sales* = number of days from final listing to transaction. *School* equals one if the house is in a high-quality school district and zero otherwise. *Subway* equals one if the house is close to a subway station and zero otherwise. *House Size* is in square meters. *Management Fee* is in CNYs per square meter per month. *Buyer Male* and *Seller Male* are dummy variables that equal one if yes and zero if no. *Final_list_price_above_budget* equals one if the final list price is above the buyer's budget range and zero otherwise. *Final_list_price_below_budget* equals one if the final list price is below the buyer's budget range and zero otherwise.

Variable	#Obs.	Mean	SD	Min	p25	p50	p75	Max
Sales Price (Thousand)	279138	38.97	23.53	5.31	21.21	35.52	51.92	125.48
Initial List Price (Thousand)	279138	40.13	24.20	5.46	22.09	36.68	53.39	129.63
Final List Price (Thousand)	279138	39.84	24.07	5.45	21.74	36.33	53.03	128.42
Revision_initial_final	279147	-0.60	5.52	-20.36	-2.78	0	0	27.78
Revision_final_sales	279147	-2.15	2.65	-22.58	-3.08	-1.61	-0.43	6.77
Relative_initial_list_price	135700	1.12	0.12	0.73	1.04	1.11	1.19	1.60
Price_appreciation	165721	4.67	8.98	-25.65	-0.57	4.10	9.41	45.37
House_visits_total	279146	28.26	32.44	1	8	18	36	567
DOM_initial_final	279132	41.49	77.5	0	0	8	51	1414
DOM_final_sales	275117	31.94	47.34	0	6	16	39	1182
School	279147	0.73	0.45	0	0	1	1	1
Subway	279147	0.65	0.48	0	0	1	1	1
House Size	279147	86.46	37.21	29.80	59.95	79.84	101.54	260.89
Floor Number	278529	8.35	6.97	-8	3	6	12	85
Number of Bedrooms	279125	2.15	0.82	1	2	2	3	9
Number of Living Rooms	279143	1.29	0.57	0	1	1	2	6
Number of Bathrooms	279144	1.24	0.49	0	1	1	1	9
Management Fee	277784	1.49	1.06	0	0.64	1.42	2.10	6.50
House Age	242926	14.9	8.55	0	9	13	20	74
Buyer Male	279147	0.52	0.5	0	0	1	1	1
Seller Male	279147	0.54	0.5	0	0	1	1	1
Buyer Age	277868	35.53	9.85	0	29	33	38	97
Seller Age	274660	45.79	13.84	1	35	43	55	97
Final_list_price_above_budget	260172	0.34	0.47	0	0	0	1	1
Final_list_price_below_budget	260172	0.12	0.33	0	0	0	0	1

Table 6: Asymmetric Reactions and Final-list-to-sales-price Revisions in China

This table reports the regression results for the percentage revision from the final list price to the sales price, *Revision_final_sales*. The key independent variables are *Revision_initial_final*, *Revision_initial_final+*, and *Revision_initial_final−*. $X+$ equals X if $X > 0$ and zero otherwise. $X-$ equals X if $X < 0$ and zero otherwise. We also control for days on market from the initial list date to the final list date, house characteristics, and seller age. The coefficients and t-statistics of the house characteristics and seller age are reported in Tables OA.8 and OA.9. Regressions (7)−(12) control for *Relative_initial_list_price* and *Price_appreciation*. The sample comprises the houses transacted from January 2013 to October 2018 in seven cities. FEs denote fixed effects. T-statistics are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Revision_initial_final	0.043***	0.026***	0.026***			
	(39.29)	(22.87)	(23.27)			
Revision_initial_final+				0.006***	0.009***	0.002
				(3.58)	(5.37)	(0.86)
Revision_initial_final−				0.078***	0.043***	0.053***
				(46.73)	(24.18)	(26.83)
DOM_initial_final	No	No	Yes	No	No	Yes
House & Seller Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Subdivision FEs	No	Yes	Yes	No	Yes	Yes
Year-Quarter FEs	No	Yes	Yes	No	Yes	Yes
Observations	275,117	271,160	266,714	275,117	271,160	266,714
Adjusted R^2	0.008	0.166	0.167	0.012	0.167	0.168
	(7)	(8)	(9)	(10)	(11)	(12)
Revision_initial_final	0.036***	0.022***	0.022***			
	(23.22)	(13.71)	(12.82)			
Revision_initial_final+				0.007***	0.007***	-0.003
				(3.42)	(3.14)	(-1.37)
Revision_initial_final−				0.079***	0.047***	0.057***
				(27.84)	(15.02)	(17.80)
Relative_initial_list_price	-0.213***	-0.203***	-0.228***	-0.122**	-0.154**	-0.198***
	(-3.75)	(-2.92)	(-3.24)	(-2.14)	(-2.20)	(-2.80)
Price_appreciation	0.002**	0.004***	0.004***	0.002**	0.003***	0.003***
	(2.44)	(3.96)	(4.10)	(2.25)	(3.75)	(3.89)
DOM_initial_final	No	No	Yes	No	No	Yes
House & Seller Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Subdivision FEs	No	Yes	Yes	No	Yes	Yes
Year-Quarter FEs	No	Yes	Yes	No	Yes	Yes
Observations	129,131	128,459	127,047	129,131	128,459	127,047
Adjusted R^2	0.007	0.127	0.129	0.012	0.129	0.131

Table 7: Responses to Visitor Budgets in China

This table reports the results of the regressions using house-visit observations with house and time fixed effects (FEs). The dependent variables are list price revisions (in percentages) over the 7, 14, 21, and 28 days following each visit, denoted as *Post_visit_list_revision*. *List_price_above_budget* equals one if the list price at the time of visit is above the budget range of the visitor and zero otherwise. *List_price_below_budget* equals one if the list price at the time of visit is below the budget range of the visitor and zero otherwise. The sample comprises house visits from November 2009 to November 2017 in seven cities. T-statistics are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

VARIABLES	(1) [0,7]	(2) [0,14]	(3) [0,21]	(4) [0,27]
List_price_above_budget	-0.072***	-0.104***	-0.127***	-0.141***
	(-45.38)	(-52.24)	(-56.61)	(-58.35)
List_price_below_budget	0.038***	0.057***	0.071***	0.083***
	(19.22)	(22.57)	(24.84)	(26.47)
Constant	0.010	0.087	0.064	0.046
	(0.18)	(1.18)	(0.75)	(0.47)
House FEs	Yes	Yes	Yes	Yes
Year-quarter FEs	Yes	Yes	Yes	Yes
Observations	7,347,908	7,347,908	7,347,908	7,347,908
Adjusted R^2	0.262	0.340	0.396	0.441
Number of Houses	1,162,205	1,162,205	1,162,205	1,162,205

Table 8: Listing-Period Visitor Budgets and Final-list-to-sales-price Revision in China

This table reports the regression results of the percentage revision from the final list price to the sales price, *Revision_final_sales*. The key independent variables include the fraction of visits for which the list price at the time of visit is above the visitor's budget range, *List_price_above_budget_fraction*, and the fraction of visits for which the list price at the time of visit is below the visitor's budget range, *List_price_below_budget_fraction*. $Visit\_intensity$ = the number of house visits ÷ (1 + the number of days) from the initial listing to the final listing. See Tables 5 and 6 for the definitions of *Revision_initial_final*, *Revision_initial_final+*, and *Revision_initial_final−*. We also control for house characteristics, seller age, *DOM_initial_final*, subdivision fixed effects (FEs), and quarter FEs. The coefficients and t-statistics of house characteristics, seller age, and *DOM_initial_final* are reported in Table OA.13. The sample comprises the houses transacted from January 2013 to October 2018 in seven cities. T-statistics are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
$List\_price\_above\_budget\_fraction$	-0.298***	-0.299***	-0.257***	-0.248***	-0.219***	-0.217***
	(-12.88)	(-12.91)	(-10.93)	(-10.50)	(-9.30)	(-9.21)
$List\_price\_below\_budget\_fraction$	-0.013	-0.012	-0.009	-0.013	-0.006	-0.001
	(-0.43)	(-0.41)	(-0.30)	(-0.43)	(-0.21)	(-0.04)
$Visit\_intensity$		0.257***	0.200***	0.328***	0.229***	0.210***
		(4.69)	(3.64)	(5.35)	(3.73)	(3.43)
$Revision\_initial\_final$					0.027***	
					(20.52)	
$Revision\_initial\_final+$						0.005**
						(2.06)
$Revision\_initial\_final-$						0.053***
						(21.60)
$DOM\_initial\_final$	No	No	Yes	No	No	Yes
House & Seller Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Subdivision FEs	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FEs	Yes	Yes	Yes	Yes	Yes	Yes
Observations	126,169	126,169	126,165	124,123	124,123	124,123
Adjusted R^2	0.173	0.173	0.177	0.178	0.183	0.185

Table 9: Policy Changes and the Informativeness of the Final List Price in China

This table reports the regression results for the final-list-to-sales-price revision of houses transacted shortly before and after a policy change in City A, China. Panels A and B report the results for the policy changes on September 30, 2016, and March 30, 2015, respectively. The dependent variable is the percentage revision from the final list price to the sales price. The key independent variable, *Post_dummy*, equals one if the final list date of the house is within 14 days after the policy change and the transaction date is within 28 days after the final list date, and equals zero if the transaction date of the house is within 14 days before the policy change and the final list date is within 28 days before the transaction date. *Final_List_price_above_budget* equals one if the final list price is above the buyer's budget range and zero otherwise. *Final_List_price_below_budget* equals one if the final list price is below the buyer's budget range and zero otherwise. FEs denote fixed effects. T-statistics are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Policy on September 30, 2016								
Post_dummy	-1.100***	-1.093***	-1.088***	-1.103***	-1.111***	-1.094***	-1.088***	-1.100***
	(-13.56)	(-13.07)	(-12.99)	(-12.87)	(-13.32)	(-12.54)	(-12.49)	(-12.38)
Final_List_price_above_budget				-0.286***				-0.276***
				(-4.31)				(-4.01)
Final_List_price_below_budget				0.206**				0.226**
				(2.22)				(2.39)
House Characteristics	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Buyer&Seller Characteristics	No	No	Yes	Yes	No	No	Yes	Yes
Business Area FEs	No	No	No	No	Yes	Yes	Yes	Yes
Observations	4,325	3,939	3,895	3,718	4,318	3,931	3,887	3,710
Adjusted R^2	0.050	0.074	0.080	0.087	0.067	0.084	0.089	0.101
Panel B: Policy on March 30, 2015								
Post_dummy	0.033	0.105	0.077	0.062	0.076	0.082	0.054	0.027
	(0.36)	(1.12)	(0.82)	(0.64)	(0.85)	(0.86)	(0.57)	(0.27)
Final_List_price_above_budget				-0.330***				-0.340***
				(-2.96)				(-2.94)
Final_List_price_below_budget				0.144				0.137
				(1.07)				(1.00)
House Characteristics	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Buyer&Seller Characteristics	No	No	Yes	Yes	No	No	Yes	Yes
Business Area FEs	No	No	No	No	Yes	Yes	Yes	Yes
Observations	2,173	2,026	2,002	1,873	2,157	2,010	1,985	1,852
Adjusted R^2	0.000	0.059	0.062	0.072	0.122	0.154	0.155	0.162

Table 10: Underreaction and Future Returns at the Subdivision Level in China

This table reports the regression results for future returns based on the monthly hedonic index at the subdivision level (see Appendix OA.B). The monthly hedonic index (HI) for each subdivision is derived by estimating subdivision–year–month fixed effects, while purging the index of the differences in house characteristics. $Return_{t+2}$, the return in month $t+2$, equals $100 \times (\ln HI_{t+2} - \ln HI_{t+1})$. $Return_{t+2,\ t+6}$, the return in months t+2 to t+6, equals $100 \times (\ln HI_{t+6} - \ln HI_{t+1})$. *Average_revision_initial_final* is the average initial-to-final-list-price revisions of houses in the same subdivision sold in month t. $X+$ equals X if $X > 0$ and zero otherwise. $X-$ equals X if $X < 0$ and zero otherwise. Columns (1) and (2) show the return in month $t+2$. Columns (3) and (4) show the return from month $t+2$ to month $t+6$. The sample includes houses transacted from January 2013 to October 2018 in seven cities. T-statistics are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)
	$Return_{t+2}$		$Return_{t+2,\ t+6}$	
$Average\_revision\_initial\_final$	0.155***		0.674***	
	(7.60)		(20.12)	
$Average\_revision\_initial\_final+$		0.028		0.068
		(0.69)		(0.95)
$Average\_revision\_initial\_final-$		0.243***		0.979***
		(8.26)		(22.28)
Constant	3.798***	4.035***	16.177***	17.120***
	(57.96)	(47.00)	(146.78)	(121.10)
Observations	14,323	14,323	10,937	10,937
Adjusted R^2	0.005	0.006	0.044	0.054

Appendix

A Proofs for the Basic Model

A.1 Transaction Level

This section presents the proof of Propositions 1.1 and 1.2, establish the relationship between the percentage change from the initial listing price, P_{il}, to the final listing price, $\tilde{P_{fl}}$, and the percentage change from the final listing price, $\tilde{P_{fl}}$, to the transaction price, $\tilde{P_{t,n}}$. Given the model setup, we obtain:

$$P_{il}^{*} = \frac{(1-\omega)P_u + P_s}{\theta(2-\omega)} = \frac{(1-\omega)(P_0+\sigma)+P_0}{\theta(2-\omega)} \tag{A.1}$$

$$\tilde{P_{fl}^{*}}(\tilde{\delta}) = \frac{(1-\omega)\tilde{P}_{u,fl} + \tilde{P}_{s,fl}}{\theta(2-\omega)} = \frac{(1-\omega)(P_0+\alpha\tilde{\delta}+\sigma)+P_0+\beta\tilde{\delta}}{\theta(2-\omega)} \tag{A.2}$$

$$\tilde{P_t}(\tilde{\delta}) = f(\tilde{P}_{fl}) + \omega(\tilde{P}_{b,fl} - f(\tilde{P}_{fl})) = \theta\tilde{P_{fl}}(\tilde{\delta}) + \omega(P_0 + \alpha\tilde{\delta} + \epsilon - \theta\tilde{P}_{fl}(\tilde{\delta})) \tag{A.3}$$

We define the percentage change in the transaction price relative to the final list price as: $A = \frac{\tilde{P}_t - \tilde{P}_{fl}}{\tilde{P}_{fl}}$. Similarly, the percentage change from the initial to the final listing price is defined as: $B = \frac{\tilde{P}_{fl} - P_{il}}{P_{il}}$. From the above definitions, we derive:

$$\begin{aligned} A = \frac{\tilde{P}_t - \tilde{P}_{fl}}{\tilde{P}_{fl}} &= \frac{\theta\tilde{P}_{fl} + \omega(\tilde{P}_{b,fl} - \theta\tilde{P}_{fl}) - \tilde{P}_{fl}}{\tilde{P}_{fl}} = (\theta(1-\omega)-1) + \frac{\omega\tilde{P}_{b,fl}}{\tilde{P}_{fl}} \\ =&(\theta(1-\omega)-1) + \frac{\omega(P_0+\alpha\tilde{\delta}+\epsilon)\theta(2-\omega)}{(1-\omega)(P_0+\alpha\tilde{\delta}+\sigma)+P_0+\beta\tilde{\delta}} \end{aligned} \tag{A.4}$$

$$B = \frac{\tilde{P}_{fl} - P_{il}}{P_{il}} = \frac{(1-\omega)\alpha\tilde{\delta}+\beta\tilde{\delta}}{(1-\omega)(P_0+\sigma)+P_0} \tag{A.5}$$

Rearranging, we obtain: $\tilde{\delta} = \frac{B((1-\omega)(P_0+\sigma)+P_0)}{(1-\omega)\alpha+\beta}$. Taking derivatives, we have:

$$\frac{\partial A}{\partial\tilde{\delta}} = \frac{\omega\theta(2-\omega)[\alpha(1-\omega)(\sigma-\epsilon)+(\alpha-\beta)P_0-\epsilon\beta]}{((1-\omega)(P_0+\alpha\tilde{\delta}+\sigma)+P_0+\beta\tilde{\delta})^2} \tag{A.6}$$

$$\frac{\partial\tilde{\delta}}{\partial B} = \frac{(1-\omega)(P_0+\sigma)+P_0}{(1-\omega)\alpha+\beta} = \frac{(2-\omega)P_0+(1-\omega)\sigma}{(1-\omega)\alpha+\beta} > 0 \tag{A.7}$$

Lemma 1. If $\alpha(1-\omega)(\sigma-\epsilon)+(\alpha-\beta)P_0-\epsilon\beta > 0$, then $\frac{\partial A}{\partial\tilde{\delta}} > 0$. This result implies that a larger positive shock increases the final-list-to-sales-price revision.

Given the condition in Lemma 1, we obtain: $\frac{\partial A}{\partial B} = \frac{\partial A}{\partial\tilde{\delta}}\frac{\partial\tilde{\delta}}{\partial B} > 0$. Instead, if $\frac{\partial A}{\partial\tilde{\delta}} < 0$, then $\frac{\partial A}{\partial B} = \frac{\partial A}{\partial\tilde{\delta}}\frac{\partial\tilde{\delta}}{\partial B} < 0$. This completes the proof of Propositions 1.1 and 1.2.

A.2 Neighborhood Level

Define the neighborhood-level price index change as: $C = \frac{(P_0+\tilde{\delta_n})-\tilde{P}_{t,n}}{\tilde{P}_{t,n}}$, where $P_0 + \tilde{\delta_n}$ represents the long-run fundamental property value in the neighborhood, and $\tilde{P}_{t,n}$ is the average transaction price of buyers with different reservation prices at time t in the neighborhood. This variable captures the percentage change from the market value at time t to the long-run equilibrium value of houses.

We then express C as:

$$\begin{aligned} C &= \frac{P_0 + \tilde{\delta_n}}{\theta \tilde{P}_{fl,n} + \omega(\tilde{P}_{b,fl} - \theta \tilde{P}_{fl,n})} - 1 \\ &= \frac{(P_0 + \tilde{\delta_n})(2-\omega)}{(2-\omega)P_0 + (\alpha + (1-\omega)\beta)\tilde{\delta_n} + (1+\omega^2 - 2\omega)\sigma} - 1 \end{aligned} \tag{A.8}$$

Taking derivatives, we have:

$$\frac{\partial C}{\partial \tilde{\delta_n}} = \frac{(2-\omega)^2 P_0 + (1-\omega)^2(2-\omega)\sigma - P_0(2-\omega)(\alpha + (1-\omega)\beta)}{((2-\omega)P_0 + (\alpha + (1-\omega)\beta)\tilde{\delta_n} + (1+\omega^2 - 2\omega)\sigma)^2} \tag{A.9}$$

Lemma 2. If $(2-\omega)P_0 + (1-\omega)^2\sigma - P_0(\alpha + (1-\omega)\beta) > 0$, then $\frac{\partial C}{\partial \tilde{\delta_n}} > 0$.

Given the condition in Lemma 2, and we know that $\frac{\partial \tilde{\delta_n}}{\partial B} > 0$, we obtain $\frac{\partial C}{\partial B} = \frac{\partial C}{\partial \tilde{\delta_n}} \frac{\partial \tilde{\delta_n}}{\partial B} > 0$. This completes the proof of Proposition 2.

Note that, if β and α stay constant at one set of values for positive shocks but at a different set of values for negative shocks, we need to compute $\frac{\partial A}{\partial \tilde{\delta_n}}$, $\frac{\partial B}{\partial \tilde{\delta_n}}$, $\frac{\partial A}{\partial B}$, $\frac{\partial C}{\partial \tilde{\delta_n}}$, and $\frac{\partial C}{\partial B}$ for positive and negative shocks separately.

B Definition of Variables

Table B.1: Definition of Variables

Variable	Definition	Data
	Panel A: House-Level Variables	
Revision_final_sales	100 × (sales price - final list price) ÷ final list price, winsorized at the 0.5th and 99.5th percentiles	U.S./China
Revision_initial_final	100 × (final list price - initial list price) ÷ initial list price, winsorized at the 0.5th and 99.5th percentiles	U.S./China
Revision_initial_final+	Max(Revision_initial_final,0)	U.S./China
Revision_initial_final-	Min(Revision_initial_final,0)	U.S./China
MPS_ORTH	Sum of monetary policy surprises from initial to final listings (excluding initial and final list dates)	U.S.
MPS_ORTH+	Max(MPS_ORTH,0)	U.S.
MPS_ORTH-	Min(MPS_ORTH,0)	U.S.
DOM_initial_final	Number of days between initial and final listings	U.S./China
DOM_final_sales	Number of days from final listing to transaction	U.S./China
Relative_initial_list_price	Initial list price of the house per square meter ÷ average sales price per square meter of the houses in the same subdivision during the three months before the house's initial list date.	U.S./China
Price_appreciation	Percentage growth from the average sales price per square meter of the houses in the subdivision sold during the first half of the three-month period before the initial listing to the average of the houses sold during the second half of the period.	U.S./China
Land	Lot area in acres	U.S.
House Size	House area in square feet in U.S. (in square meters in China)	U.S./China
House Age	Number of years between the construction of the house and its sale. If the building of the listed property was remodeled (meaning the property was significantly improved) during this period, then the house age is calculated based on the number of years from the remodeling to the sale.	U.S./China
Number of Bedrooms	Number of bedrooms	U.S./China
Number of Bathrooms	Number of bathrooms	U.S./China
Number of Living Rooms	Number of living rooms	China
Number of Stories	Number of stories	U.S.
Floor Number	Number of floors	China
Cooling	Equals one if the house has a cooling system and zero otherwise	U.S.
Heating	Equals one if the house has a heating system and zero otherwise	U.S.

Table B.1 continued.

Variable	Definition	Data
Fireplace	Equals one if the house has a firepalce and zero otherwise	U.S.
Parking	Equals one if the property has a parking lot and zero otherwise	U.S.
Swimming Pool	Equals one if the property has swimming pool and zero otherwise	U.S.
Management Fee	In CNYs per square meter per month	China
School	Equals one if the house is in a high-quality school district and zero otherwise	China
Subway	Equals one if the house is close to a subway station and zero otherwise	China
Buyer Male	Equals one if the buyer is male and zero otherwise	China
Seller Male	Equals one if the seller is male and zero otherwise	China
Buyer Age	Age of the buyer	China
Seller Age	Age of the seller	China
House_visit_total	Total number of visits from the initial listing to the transaction	China
Visit_intensity	Number of house visits ÷ (1 + the number of days from the initial listing to the final listing)	China
Final_list_price_above_budget	Equals one if the final list price is above the buyer's budget range and zero otherwise	China
Final_list_price_below_budget	Equals one if the final list price is below the buyer's budget range and zero otherwise	China
List_price_above_budget_fraction	Fraction of visits during the listing period with the list price at the time of visit being above the visitor's budget range	China
List_price_below_budget_fraction	Fraction of visits during the listing period with the list price at the time of visit being below the visitor's budget range	China
	Panel B: House-Visit-Level Variables	
List_price_above_budget	Equals one if the list price at the time of visit is above the budget range of the visitor and zero otherwise	China
List_price_below_budget	Equals one if the list price at the time of visit is below the budget range of the visitor and zero otherwise	China
	Panel C: Neighborhood-Level Variables	
Average_revision_initial_final	Average percentage initial-to-final-list-price revisions of houses in the same ZIP code or subdivision sold during a given period	U.S./China
Average_revision_initial_final+	Max(Average_revision_initial_final,0)	U.S./China
Average_revision_initial_final-	Min(Average_revision_initial_final,0)	U.S./China
Return	100 × ending log price index − beginning log price index) for a neighborhood over a given period (see Appendix OA.B for details)	U.S./China

Online Appendix

OA.A The Extended Model – Endogenizing β

OA.A.1 Transaction Level

This section analyzes the seller's price revision behavior in response to unexpected information shocks. The seller revisits the optimization problem to adjust the list price based on the updated reservation prices of both the seller and buyers. According to our assumption, changes in reservation prices are positively and linearly related to the information shock.

Initially, the seller's reservation price is $P_s = P_0$, and the upper bound of the buyers' reservation price is $P_u = P_0 + \sigma$. Therefore, the initial list price P_{il} is given by

$$P_{il}^{*} = \frac{(1-\omega)P_u + \tilde{P}_{s,fl}}{\theta(2-\omega)} = \frac{(1-\omega)(P_0+\sigma) + P_0}{\theta(2-\omega)}. \tag{OA.1}$$

When an information shock occurs, the seller's reservation price adjusts to $\tilde{P}_{s,fl} = P_0 + \beta(\tilde{\delta})\tilde{\delta}$, and the upper bound of the buyers' reservation price shifts to $\tilde{P}_{u,fl} = P_0 + \alpha\tilde{\delta} + \sigma$. Without loss of generality, we assume that α is constant, while β depends on the information shock $\tilde{\delta}$, such that $\beta'(\tilde{\delta}) > 0$. This assumption reflects a key mechanism: sellers tend to incorporate positive information, and the stronger the positive signal, the larger the proportion the seller incorporates. If the seller's response does not depend on $\tilde{\delta}$, then $\beta'(\tilde{\delta}) = 0$.

Condition 1: The necessary and sufficient condition for the seller's reservation price $\tilde{P}_{s,fl}$ to be positively correlated with the information shock $\tilde{\delta}$ is $\beta'(\tilde{\delta})\tilde{\delta} + \beta(\tilde{\delta}) > 0$.

Proof:

$$\frac{\partial \tilde{P}_{s,fl}}{\partial \tilde{\delta}} = \frac{\partial (P_0 + \beta(\tilde{\delta})\tilde{\delta})}{\partial \tilde{\delta}} > 0 \tag{OA.2}$$

$$\Leftrightarrow \beta'(\tilde{\delta})\tilde{\delta} + \beta(\tilde{\delta}) > 0 \tag{OA.3}$$

Since $\tilde{P}_{s,fl} = P_0 + \beta(\tilde{\delta})\tilde{\delta}$, Condition 1 is set to satisfy the basic setting that the reservation price of sellers $\tilde{P}_{s,fl}$ is positively correlated with the information shock $\tilde{\delta}$.

The seller then re-optimizes and revises the list price, now referred to as the "final list price," as follows:

$$\tilde{P}_{fl}^{*} = \frac{(1-\omega)\tilde{P}_{u,fl} + \tilde{P}_{s,fl}}{\theta(2-\omega)} = \frac{(1-\omega)(P_0 + \alpha\tilde{\delta} + \sigma) + P_0 + \beta(\tilde{\delta})\tilde{\delta}}{\theta(2-\omega)} \tag{OA.4}$$

Once the seller revises the list price, the transaction price, determined through the bargaining process, is given by

$$\tilde{P}_t = \theta\tilde{P}_{fl} + \omega(P_0 + \alpha\tilde{\delta} + \epsilon - \theta\tilde{P}_{fl}) \tag{OA.5}$$

The following section examines the correlation between price revision percentages at two stages and identifies the key factors influencing this relationship. The first stage involves the revision from the initial to the final list price, while the second stage consists of the revision from the final list price to the transaction price. The following propositions explain the mechanism underlying our empirical findings.

Lemma 3: If $\alpha(1-\omega)(\sigma-\epsilon) + (\alpha - \beta(\tilde{\delta}))P_0 - \beta(\tilde{\delta})\epsilon - \beta'(\tilde{\delta})\tilde{\delta}(P_0 + \alpha\tilde{\delta} + \epsilon) > 0$, then the percentage change from the final list price to the transaction price is positively correlated with the information shock.

This condition is equivalent to

$$\alpha\left[P_0 + \underbrace{(1-\omega)}_{\text{Buyers' bargaining power}} \underbrace{(\sigma-\epsilon)}_{\text{Distance from upper bound } \tilde{P}_u}\right]$$
$$> \beta(\tilde{\delta}) \underbrace{(P_0+\epsilon)}_{\text{Buyer's reservation price before shock}} + \underbrace{\beta'(\tilde{\delta})\tilde{\delta}}_{\text{Scale of Information Shock}} (P_0 + \alpha\tilde{\delta} + \epsilon).$$

The left-hand side remains constant, as α, P_0, ω, σ, and ϵ are fixed, whereas the right-hand side increases with $\tilde{\delta}$. Specifically, as $\tilde{\delta}$ decreases, $\beta(\tilde{\delta})$ also decreases, reducing the right-hand side of the inequality.[1] If σ, ϵ, and $\tilde{\delta}$ are much less than P_0, then the equation simplifies to $\alpha > \beta(\tilde{\delta}) + \beta'(\tilde{\delta})\tilde{\delta}$.

For simplicity, we define the cutoff value of the information shock as $\tilde{\delta}^*$, which satisfies $\alpha\left[P_0 + (1-\omega)(\sigma-\epsilon)\right] = \beta(\tilde{\delta}^*)(P_0+\epsilon) + \beta'(\tilde{\delta}^*)\tilde{\delta}^*(P_0+\alpha\tilde{\delta}^*+\epsilon)$. Thus, the condition in Lemma 3 is equivalent to $\tilde{\delta} < \tilde{\delta}^*$, meaning that the percentage change from the final list price to the transaction price, $\frac{\tilde{P}_t - \tilde{P}_{fl}}{\tilde{P}_{fl}}$, decreases as the information shock $\tilde{\delta}$ decreases.

Additionally, Lemma 3 is also equivalent to

$$\frac{\alpha}{\beta(\tilde{\delta})} > \frac{P_0+\epsilon}{P_0 + (1-\omega)(\sigma-\epsilon) - \tilde{\delta}^2\beta'(\tilde{\delta})}\left(1 + \frac{\partial \ln(\beta(\tilde{\delta}))}{\partial\tilde{\delta}}\tilde{\delta}\right).$$

Under the assumption that $\beta'(\tilde{\delta})$ is a constant close to zero, this inequality reduces to

$$\frac{\alpha}{\beta(\tilde{\delta})} > \frac{P_0+\epsilon}{P_0 + (1-\omega)(\sigma-\epsilon)}.$$

[1] A sufficient condition to ensure that the right-hand side increases with $\tilde{\delta}$ is $\beta'' * \tilde{\delta} > 0$.

This inequality indicates that the influence of the information shock on buyers (α) must exceed a certain multiple of its influence on sellers (β). In other words, when the relative impact on buyers compared to sellers exceeds a threshold, the percentage change from the final list price to the transaction price is positively correlated with the information shock.

Proposition 3.1 (Less Responsive Seller and Positive Relation between initial-to-final-list-price Revision and final-list-to-sales-price Revision): If $\tilde{\delta} < \tilde{\delta}^*$, the percentage from the initial list price of a house to the final list price, $\frac{\tilde{P}_{fl}-P_{il}}{P_{il}}$, is positively correlated with the percentage change from the final list price to the transaction price, $\frac{\tilde{P}_t-\tilde{P}_{fl}}{\tilde{P}_{fl}}$. The condition of Proposition 3.1 is the same as Lemma 3.

Proposition 3.2 (More Responsive Seller and Negative Relation between initial-to-final-list-price Revision and final-list-to-sales-price Revision): If $\tilde{\delta} > \tilde{\delta}^*$, the percentage from the initial list price of a house to the final list price, $\frac{\tilde{P}_{fl}-P_{il}}{P_{il}}$, is negatively correlated with the percentage change from the final list price to the transaction price, $\frac{\tilde{P}_t-\tilde{P}_{fl}}{\tilde{P}_{fl}}$.

Proof:

According to the equation (OA.1), (OA.4) and (OA.5), we can define the percentage change in the final list price relative to the transaction price as:

$$A = \frac{\tilde{P}_t - \tilde{P}_{fl}}{\tilde{P}_{fl}} = (\theta(1-\omega)-1) + \frac{\omega(P_0+\alpha\tilde{\delta}+\epsilon)\theta(2-\omega)}{(1-\omega)(P_0+\alpha\tilde{\delta}+\sigma)+P_0+\beta(\tilde{\delta})\tilde{\delta}} \quad \text{(OA.6)}$$

Similarly, the percentage change from the initial to final listing price is defined as:

$$B = \frac{\tilde{P}_{fl} - P_{il}}{P_{il}} = \frac{(1-\omega)\alpha\tilde{\delta}+\beta(\tilde{\delta})\tilde{\delta}}{(1-\omega)(P_0+\sigma)+P_0} \quad \text{(OA.7)}$$

Take the derivative of A with respect to $\tilde{\delta}$, we have

$$\frac{\partial A}{\partial \tilde{\delta}} = \frac{\omega\theta(2-\omega)[\alpha(1-\omega)(\sigma-\epsilon)+(\alpha-\beta(\tilde{\delta}))P_0-\beta(\tilde{\delta})\epsilon-\beta'(\tilde{\delta})\tilde{\delta}(P_0+\alpha\tilde{\delta}+\epsilon)]}{((1-\omega)(P_0+\alpha\tilde{\delta}+\sigma)+P_0+\beta(\tilde{\delta})\tilde{\delta})^2} \quad \text{(OA.8)}$$

Hence Lemma 3 follows: If $\alpha(1-\omega)(\tilde{\delta}-\epsilon)+(\alpha-\beta(\tilde{\delta}))P_0-\beta(\tilde{\delta})\epsilon-\beta'(\tilde{\delta})\tilde{\delta}(P_0+\alpha\tilde{\delta}+\epsilon) > 0$, then $\frac{\partial A}{\partial \tilde{\delta}} > 0$. The condition can be rewritten as:

$$\frac{\alpha}{\beta(\tilde{\delta})} > \frac{P_0+\epsilon}{P_0+(1-\omega)(\sigma-\epsilon)} + \frac{\partial \ln(\beta(\tilde{\delta}))}{\partial \tilde{\delta}} \frac{\tilde{\delta}\tilde{P}_{b,fl}}{P_0+(1-\omega)(\sigma-\epsilon)}.$$

Let

$$G = \frac{(1-\omega)\alpha\tilde{\delta}+\beta(\tilde{\delta})\tilde{\delta}}{(1-\omega)(P_0+\sigma)+P_0} - B.$$

Using the Implicit Function Theorem, we have

$$\frac{\partial \tilde{\delta}}{\partial B} = -\frac{\partial G/\partial B}{\partial G/\partial \tilde{\delta}} = \frac{(1-\omega)(P_0+\sigma)+P_0}{(1-\omega)\alpha + \beta'(\tilde{\delta})\tilde{\delta} + \beta(\tilde{\delta})} \tag{OA.9}$$

Under Condition 1, we have $\frac{\partial \tilde{\delta}}{\partial B} > 0$. We can express $\frac{\partial A}{\partial B}$ as $\frac{\partial A}{\partial B} = \frac{\partial A}{\partial \tilde{\delta}} \frac{\partial \tilde{\delta}}{\partial B}$ Hence, Proposition 3.1 and Proposition 3.2 follow. ■

When $\tilde{\delta} < \tilde{\delta}^*$, it follows that $\beta(\tilde{\delta}) < \beta(\tilde{\delta}^*)$, indicating that the seller's response to the information shock is below a certain threshold. According to Proposition 3.1, under this condition, the percentage change from the initial to the final list price is positively correlated with the percentage change from the final list price to the transaction price.

OA.A.2 Neighborhood Level

In this section, we examine how the future percentage price index change at neighborhood-level $\frac{(P_0+\tilde{\delta_n})-\tilde{P}_{t,n}}{\tilde{P}_{t,n}}$ is related to the percentage change from the initial to the final list price $\frac{\tilde{P}_{fl,n}-P_{il}}{P_{il}}$ and the percentage change from the final list price to the transaction price $\frac{\tilde{P}_{t,n}-\tilde{P}_{fl,n}}{\tilde{P}_{fl,n}}$. These relations provide insight into how price adjustments evolve at the neighborhood level.

Lemma 4: If $\alpha P_0 + P_0(1-\omega)\beta(\tilde{\delta_n}) + \beta'(\tilde{\delta_n})\tilde{\delta_n}(1-\omega)(P_0+\tilde{\delta_n}) < (2-\omega)P_0 + (1-\omega)^2\sigma$, then the price index change is positively correlated with the information shock.

Using notation to represent the constant coefficients in Lemma 4, we can rewrite the condition as

$$\mathbf{X}\alpha + \mathbf{Y}\beta(\tilde{\delta_n}) + \mathbf{Z}\beta'(\tilde{\delta_n})\tilde{\delta_n} < \mathbf{W},$$

where $\mathbf{X} = P_0$, $\mathbf{Y} = P_0(1-\omega)$, $\mathbf{Z} = (1-\omega)(P_0+\tilde{\delta_n})$, and $\mathbf{W} = (2-\omega)P_0 + (1-\omega)^2\sigma$. These parameters remain constant within the model.

When both α and β are less than 1, the condition in Lemma 4 is more likely to hold. This implies that when agents do not fully incorporate the information shock ($\alpha < 1$ and $\beta < 1$), underreaction behavior is more likely to be observed at the neighborhood level.

Intuitively, the information shock $\tilde{\delta_n}$ influences the price index change

$$\frac{(P_0+\tilde{\delta_n})-\tilde{P}_{t,n}}{\tilde{P}_{t,n}}$$

through two channels: it affects both the long-run fundamental price $P_0+\tilde{\delta_n}$ and the expected transaction price $\tilde{P}_{t,n}$. Given that

$$\tilde{P}_{t,n} = \theta\tilde{P}_{fl,n} + \omega(P_0 + \alpha\tilde{\delta_n} - \theta\tilde{P}_{fl,n})$$

and

$$P_{fl}^* = \frac{(1-\omega)(P_0 + \alpha\tilde{\delta_n} + \sigma) + P_0 + \beta(\tilde{\delta_n})\tilde{\delta_n}}{\theta(2-\omega)},$$

the impact of $\tilde{\delta_n}$ on $\tilde{P}_{t,n}$ is primarily determined by α and β. When both α and β are small, the effect of the information shock on $\tilde{P}_{t,n}$ remains limited. Consequently, the numerator in the expression above is largely driven by $P_0 + \tilde{\delta_n}$, which, in turn, influences future changes in the neighborhood-level price index. As a result, the price index change is positively correlated with the information shock.

Proposition 4 (Underreaction and Positive Relation between initial-to-final-list-price Revision and Future Returns at the Neighborhood Level): If $\mathbf{X}\alpha + \mathbf{Y}\beta(\tilde{\delta_n}) + \mathbf{Z}\beta'(\tilde{\delta_n})\tilde{\delta_n} < \mathbf{W}$, then the percentage change from the initial to the final list price is positively correlated with the percentage change in the price index.

Proof: We can define neighborhood level price index change as $C = \frac{(P_0+\tilde{\delta_n})-\tilde{P}_{t,n}}{\tilde{P}_{t,n}}$. Then we have

$$\begin{aligned} C =& \frac{(P_0 + \tilde{\delta_n}) - \tilde{P}_{t,n}}{\tilde{P}_{t,n}} \\ =& \frac{P_0 + \tilde{\delta_n}}{\theta\tilde{P}_{fl,n} + \omega(\tilde{P}_{b,fl} - \theta\tilde{P}_{fl,n})} - 1 \\ =& \frac{(P_0 + \tilde{\delta_n})(2-\omega)}{(2-\omega)P_0 + (\alpha + (1-\omega)\beta(\tilde{\delta_n}))\tilde{\delta_n} + (1+\omega^2 - 2\omega)\sigma} - 1 \end{aligned} \tag{OA.10}$$

$$\frac{\partial C}{\partial \tilde{\delta_n}} = \frac{(2-\omega)^2 P_0 + (1-\omega)^2(2-\omega)\sigma - P_0(2-\omega)(\alpha + (1-\omega)\beta(\tilde{\delta_n})) - \beta'(\tilde{\delta_n})\tilde{\delta_n}(2-\omega)(2-\omega)(P_0 + \tilde{\delta_n})}{((2-\omega)P_0 + (\alpha + (1-\omega)\beta(\tilde{\delta_n}))\tilde{\delta_n} + (1+\omega^2 - 2\omega)\sigma)^2} \tag{OA.11}$$

Then we can obtain Lemma 4.

We have $\frac{\partial C}{\partial B} = \frac{\partial C}{\partial \tilde{\delta_n}} \frac{\partial \tilde{\delta_n}}{\partial B}$. Lemma 4 gives the condition for $\frac{\partial C}{\partial \tilde{\delta_n}} > 0$, and we know it holds that $\frac{\partial \tilde{\delta_n}}{\partial B} > 0$ under Condition 1, hence we complete the proof of Proposition 4.

Proposition 4 establishes the conditions under which the initial-to-final-list price revision relates to changes in the neighborhood-level price index. Specifically, the condition

$$\mathbf{X}\alpha + \mathbf{Y}\beta(\tilde{\delta_n}) + \mathbf{Z}\beta'(\tilde{\delta_n})\tilde{\delta_n} < \mathbf{W}$$

indicates that the combined responses of the seller and buyer to an information shock are constrained.

OA.B Hedonic Index and Repeat Sales Index

We construct a dynamic house price index for each location by controlling for observed and unobserved attributes of individual properties. To calculate the monthly Hedonic Index (HI), we follow the spirit of Baum-Snow and Han (2024) by first estimating the regression as follows:

$$Ln(SalePrice_{i,y,m}) = a_{s,y,m} + X_{i,y,m}\gamma + e_{i,y,m} \tag{OA.12}$$

where $ln(SalePrice_{i,y,m})$ is the natural log of the sales price of house i sold in year y and month m in location s. The location s represents the ZIP code for U.S. data and the subdivision for Chinese data. $X_{i,y,m}$ denotes a set of house characteristics, including the number of bedrooms, living rooms, bathrooms, floors, size, etc. The property age is omitted in the regression for Chinese data because the houses in the same subdivision were built around the same time. To alleviate noises in the Chinese sample, before the estimation we first remove 26.3% of Chinese house transactions for which the number of transactions in a subdivision during a year-month is less than 3. $\hat{a}_{s,y,m}$, the estimate of $a_{s,y,m}$, is used as the log hedonic index of location s in year y and month m, $Ln(HI_{s,y,m})$. $Ln(HI)$ holds house quality constant across time by purging all price variations due to differences in house attributes.

Denote time t as the combination of (y, m). The percentage return for location s in month t is calculated as the difference in the log hedonic index between the end of two adjacent months:

$$Return^{HI}_{s,t} = 100 \times (\ln HI_{s,t} - \ln HI_{s,t-1}) \tag{OA.13}$$

To account for unobserved heterogeneity in house quality for the U.S. sample, we construct a repeat sales index (RSI) at the ZIP-code-year-month level. We incorporate house fixed effects (FEs) η_i in the following regression to control for individual house characteristics that remain constant over time:

$$Ln(SalePrice_{i,y,m}) = a_{s,y,m} + \eta_i + e_{i,y,m} \tag{OA.14}$$

The estimate of $a_{s,y,m}$ in the above regression forms our repeat sales index, $Ln(RSI_{s,y,m})$. The percentage return for ZIP code s in year-month t using the repeat sales index is calculated as follows:

$$Return^{RSI}_{s,t} = 100 \times (\ln RSI_{s,t} - \ln RSI_{s,t-1}) \tag{OA.15}$$

Our hedonic model and repeat sales model differ slightly from those presented in Baum-Snow and Han (2024). Instead of separately estimating location-year FEs and month FEs, we estimate location-year-month FEs to calculate the price index for each location at a monthly frequency.

OA.C Online Appendix Tables

Table OA.1: Asymmetric Reactions and Final-list-to-sales-price Revisions in the U.S.– Full sample

This table reports the regression results of the percentage revision from the final list price to the sales price, *Revision_final_sales*. *Revision_initial_final* is the percentage revision from the initial to the final list price. $X+$ equals X if $X > 0$ and zero otherwise. $X-$ equals X if $X < 0$ and zero otherwise. *DOM_initial_final* is the number of days from the initial list date to the final list date. For ease of reading, we divided DOM by 100 in the regression. *Land* is in acres, and *House Size* is in square feet. $Ln(X)$ denotes the natural log of X. $X = .$ is a dummy variable that equals one if X has a missing value and zero otherwise. For example, $Bedrooms = .$ is a dummy variable that equals one if the number of bedrooms is missing and equals zero otherwise. $Bedrooms = X$, $Bedrooms \geq X$, $Heating = Yes$, $Cooling = Yes$, $Fireplace = Yes$, $Parking = Yes$, $Swimming\ Pool = Yes$ and $Townhouse = Yes$ are all dummy variables that equal one if the condition is met and zero otherwise. $Bathrooms\_(X, Y]$ ($Stories\_(X, Y]$) equals one if the number of bathrooms (stories) is greater than X and not greater than Y and zero otherwise. *Bathrooms_5+* (*Stories_3+*) equals one if there are more than five bathrooms (three stories) and zero otherwise. Regressions (1)−(3) control for ZIP code fixed effects (FEs) and year-month FEs. Regressions (4)−(6) control for house FEs and year-month FEs. The samples comprise the houses transacted from 2000 to 2019 in the U.S. To ensure the final list date is accurate, the samples exclude observations where the final list price differs from the initial list price but the final list date is the same as the initial list date. *T*-statistics are in parenthesis. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	All Houses			Houses with Repeat Sales		
Revision_initial_final	0.062***	0.034***		0.045***	0.020***	
	(39.55)	(18.24)		(45.97)	(16.72)	
Revision_initial_final+			-0.059***			-0.068***
			(-22.46)			(-20.74)
Revision_initial_final−			0.044***			0.030***
			(20.06)			(22.84)
DOM_initial_final		-0.764***	-0.628***		-0.802***	-0.669***
		(-28.80)	(-21.97)		(-48.34)	(-37.23)
$DOM\_initial\_final^2$		0.127***	0.107***		0.145***	0.126***
		(23.77)	(19.47)		(37.26)	(31.57)
$Ln(Land)$	-0.192***	-0.188***	-0.187***	-0.011	-0.006	-0.006
	(-26.98)	(-26.39)	(-26.34)	(-1.38)	(-0.82)	(-0.79)
$Ln(Land) = .$	-0.070***	-0.065***	-0.064***	0.009	0.015	0.016
	(-3.62)	(-3.37)	(-3.32)	(0.70)	(1.19)	(1.27)
$Ln(House\ Size)$	17.140***	16.570***	16.564***	10.766***	10.563***	10.622***
	(39.48)	(38.25)	(38.22)	(20.30)	(19.71)	(19.83)
$(Ln(House\ Size))^2$	-1.187***	-1.147***	-1.147***	-0.729***	-0.714***	-0.719***
	(-41.52)	(-40.24)	(-40.21)	(-20.79)	(-20.16)	(-20.28)
$Ln(House\ Size) = .$	-0.193***	-0.182***	-0.183***	-0.027*	-0.024	-0.026
	(-8.03)	(-7.66)	(-7.67)	(-1.68)	(-1.50)	(-1.62)
House Age	-0.028***	-0.029***	-0.029***	-0.056***	-0.057***	-0.057***
	(-31.74)	(-32.82)	(-32.88)	(-37.59)	(-37.57)	(-37.97)
$(House\ Age)^2$	0.000***	0.000***	0.000***	0.001***	0.001***	0.001***
	(16.22)	(17.06)	(17.24)	(37.61)	(37.63)	(38.10)
$House\ Age = .$	0.225***	0.228***	0.234***	2.329***	2.310***	2.320***
	(4.25)	(4.30)	(4.40)	(32.61)	(32.13)	(32.22)
$Bedrooms = 0$	-0.319***	-0.315***	-0.316***	0.033	0.063	0.070
	(-2.80)	(-2.78)	(-2.79)	(0.24)	(0.47)	(0.52)
$Bedrooms = 2$	0.849***	0.853***	0.854***	0.523***	0.537***	0.544***
	(14.60)	(14.65)	(14.67)	(7.17)	(7.31)	(7.41)
$Bedrooms = 3$	1.447***	1.454***	1.455***	0.770***	0.800***	0.808***
	(24.34)	(24.46)	(24.50)	(10.31)	(10.64)	(10.75)

Table OA.1 continued.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
$Bedrooms = 4$	1.479***	1.490***	1.492***	0.602***	0.646***	0.655***
	(24.70)	(24.88)	(24.92)	(7.90)	(8.42)	(8.54)
$Bedrooms \geq 5$	1.432***	1.442***	1.444***	0.236***	0.295***	0.306***
	(23.21)	(23.35)	(23.42)	(2.99)	(3.73)	(3.86)
$Bedrooms = .$	-3.047***	-3.024***	-3.024***	-4.427***	-4.375***	-4.371***
	(-14.18)	(-13.99)	(-14.00)	(-22.90)	(-22.58)	(-22.58)
$Bathrooms\_0$	1.425***	1.441***	1.440***	0.727***	0.759***	0.754***
	(8.85)	(8.98)	(8.97)	(2.92)	(3.06)	(3.05)
$Bathrooms\_(0.5, 1]$	1.470***	1.476***	1.476***	0.103	0.121	0.116
	(9.95)	(10.04)	(10.03)	(0.42)	(0.49)	(0.47)
$Bathrooms\_(1, 1.5]$	1.959***	1.966***	1.963***	0.643***	0.671***	0.664***
	(13.10)	(13.21)	(13.18)	(2.60)	(2.72)	(2.69)
$Bathrooms\_(1.5, 2]$	1.877***	1.887***	1.885***	0.916***	0.953***	0.947***
	(12.49)	(12.62)	(12.60)	(3.73)	(3.89)	(3.87)
$Bathrooms\_(2, 2.5]$	1.803***	1.819***	1.816***	1.119***	1.173***	1.167***
	(11.95)	(12.12)	(12.09)	(4.55)	(4.78)	(4.76)
$Bathrooms\_(2.5, 3]$	1.699***	1.716***	1.714***	0.914***	0.967***	0.962***
	(11.26)	(11.43)	(11.40)	(3.73)	(3.95)	(3.93)
$Bathrooms\_(3, 3.5]$	1.522***	1.556***	1.553***	0.966***	1.032***	1.029***
	(10.05)	(10.32)	(10.29)	(3.90)	(4.17)	(4.16)
$Bathrooms\_(3.5, 4]$	1.483***	1.508***	1.506***	0.691***	0.749***	0.746***
	(9.76)	(9.97)	(9.95)	(2.80)	(3.04)	(3.03)
$Bathrooms\_(4, 4.5]$	1.153***	1.211***	1.208***	0.451*	0.526**	0.520**
	(7.33)	(7.74)	(7.71)	(1.77)	(2.08)	(2.06)
$Bathrooms\_(4.5, 5]$	1.153***	1.199***	1.198***	0.245	0.336	0.333
	(7.48)	(7.81)	(7.80)	(0.96)	(1.33)	(1.31)
$Bathrooms\_5+$	0.440***	0.560***	0.565***	0.213	0.322	0.323
	(2.82)	(3.63)	(3.65)	(0.84)	(1.27)	(1.28)
$Stories\_(0, 1]$	-0.056***	-0.058***	-0.059***	0.133***	0.127***	0.127***
	(-3.57)	(-3.68)	(-3.72)	(4.38)	(4.20)	(4.18)
$Stories\_(1.5, 2]$	-0.072***	-0.070***	-0.071***	0.051*	0.057**	0.056**
	(-4.58)	(-4.46)	(-4.48)	(1.92)	(2.13)	(2.11)
$Stories\_(2, 2.5]$	-0.078	-0.072	-0.075	-0.143	-0.128	-0.132
	(-1.14)	(-1.04)	(-1.08)	(-1.62)	(-1.43)	(-1.48)
$Stories\_(2.5, 3]$	-0.155***	-0.151***	-0.151***	-0.024	-0.022	-0.023
	(-6.68)	(-6.52)	(-6.53)	(-0.71)	(-0.64)	(-0.68)
$Stories\_3+$	-0.218***	-0.222***	-0.223***	0.016	0.033	0.032
	(-3.44)	(-3.52)	(-3.54)	(0.23)	(0.49)	(0.49)
$Stories = .$	-0.278***	-0.283***	-0.283***	-0.085***	-0.096***	-0.096***
	(-11.17)	(-11.52)	(-11.49)	(-2.64)	(-2.98)	(-3.01)
$Heating = Yes$	1.392***	1.416***	1.412***	0.388***	0.387***	0.383***
	(13.38)	(13.65)	(13.62)	(4.04)	(4.01)	(3.97)
$Heating = .$	1.298***	1.311***	1.308***	0.206**	0.194**	0.190**
	(12.24)	(12.39)	(12.37)	(2.14)	(2.01)	(1.97)
$Cooling = Yes$	0.597***	0.608***	0.604***	0.343***	0.362***	0.360***
	(15.77)	(16.01)	(15.96)	(14.62)	(15.48)	(15.39)
$Cooling = .$	0.234***	0.231***	0.233***	0.194***	0.200***	0.203***
	(5.60)	(5.52)	(5.58)	(7.60)	(7.84)	(7.96)
$Fireplace = Yes$	-0.046***	-0.045**	-0.047***	-0.172***	-0.163***	-0.163***
	(-2.64)	(-2.58)	(-2.67)	(-9.04)	(-8.58)	(-8.57)
$Fireplace = .$	-0.109***	-0.117***	-0.116***	0.075***	0.070***	0.073***
	(-4.92)	(-5.34)	(-5.28)	(3.57)	(3.35)	(3.49)
$Parking = Yes$	0.538***	0.538***	0.536***	0.143***	0.151***	0.151***
	(19.07)	(19.05)	(18.98)	(4.90)	(5.18)	(5.21)
$Parking = .$	-0.011	-0.013	-0.013	0.093***	0.096***	0.095***
	(-0.32)	(-0.37)	(-0.39)	(2.86)	(2.95)	(2.93)
$SwimmingPool = Yes$	-0.151***	-0.150***	-0.152***	-0.281***	-0.265***	-0.268***
	(-5.41)	(-5.40)	(-5.45)	(-11.41)	(-10.88)	(-10.95)

Table OA.1 continued.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
$SwimmingPool = .$	-0.036	-0.040	-0.041	0.001	0.003	0.002
	(-1.28)	(-1.45)	(-1.46)	(0.06)	(0.14)	(0.09)
$Townhouse = Yes$	-0.114***	-0.125***	-0.124***	0.049	0.039	0.037
	(-4.20)	(-4.61)	(-4.60)	(1.32)	(1.06)	(1.00)
Constant	-68.421***	-66.343***	-66.298***	-42.875***	-42.173***	-42.375***
	(-41.00)	(-39.80)	(-39.77)	(-21.30)	(-20.74)	(-20.85)
ZIP code FEs	Yes	Yes	Yes			
House FEs				Yes	Yes	Yes
Year-month FEs	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.132	0.132	0.132	0.155	0.156	0.156
Observations	25,445,853	25,263,773	25,263,773	10,493,341	10,385,659	10,385,659

Table OA.2: Asymmetric Reactions and Final-list-to-sales-price Revisions in the U.S., with Relative Initial List Price and Price Appreciation as Additional Controls

This table reports the regression results of the percentage revision from the final list price to the sales price, with two additional independent variables: *Relative_initial_list_price* and *Price_appreciation*. *Relative_initial_list_price* equals the initial list price of the house per square foot ÷ the average sales price per square foot of the houses in the same ZIP code during the three months before the house's initial list date. *Price_appreciation* is the percentage growth from the average sales price per square foot of the houses sold during the first half of the three months in the ZIP code before the initial listing to the average of the houses sold during the second half of the three months. See Table OA.1 for the definitions of other variables. Regressions (1)−(3) control for ZIP code fixed effects (FEs) and year-month FEs. Regressions (4)−(6) control for house FEs and year-month FEs. The samples comprise the houses transacted from 2000 to 2019 in the U.S. To ensure the final list date is accurate, the samples exclude observations where the final list price differs from the initial list price but the final list date is the same as the initial list date. *T*-statistics are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	All Houses			Houses with Repeat Sales		
Revision_initial_final	0.057***	0.030***		0.035***	0.009***	
	(33.03)	(13.76)		(12.99)	(3.08)	
Revision_initial_final+			-0.069***			-0.085***
			(-24.31)			(-14.63)
Revision_initial_final−			0.040***			0.019***
			(16.48)			(6.92)
Relative_initial_list_price	-0.514***	-0.507***	-0.514***	-1.004***	-1.039***	-1.050***
	(-8.39)	(-8.14)	(-8.16)	(-4.46)	(-4.26)	(-4.25)
Price_appreciation	0.000	0.000	0.000	0.000	0.000	0.000
	(1.22)	(1.16)	(1.19)	(0.28)	(0.68)	(0.79)
DOM_initial_final		-0.766***	-0.623***		-0.798***	-0.656***
		(-28.56)	(-21.91)		(-47.22)	(-34.63)
DOM_initial_final^2		0.129***	0.108***		0.143***	0.123***
		(23.69)	(19.51)		(36.14)	(29.76)
Ln(*Land*)	-0.144***	-0.141***	-0.140***	0.002	0.006	0.006
	(-13.56)	(-13.30)	(-13.13)	(0.18)	(0.66)	(0.68)
Ln(*Land*) = .	-0.100***	-0.095***	-0.094***	0.007	0.013	0.015
	(-4.84)	(-4.59)	(-4.55)	(0.53)	(1.06)	(1.16)
Ln(*House Size*)	15.843***	15.307***	15.289***	11.018***	10.718***	10.775***
	(33.55)	(32.23)	(32.16)	(19.62)	(18.94)	(19.02)
(*Ln*(*House Size*))^2	-1.121***	-1.083***	-1.082***	-0.805***	-0.785***	-0.790***
	(-36.87)	(-35.49)	(-35.43)	(-18.87)	(-18.06)	(-18.07)
Ln(*House Size*) = .	-0.140***	-0.132***	-0.132***	0.014	0.018	0.016
	(-5.69)	(-5.40)	(-5.39)	(0.77)	(0.98)	(0.90)
House Age	-0.030***	-0.031***	-0.031***	-0.061***	-0.062***	-0.062***
	(-30.55)	(-31.24)	(-31.31)	(-31.80)	(-31.17)	(-31.28)
(*House Age*)^2	0.000***	0.000***	0.000***	0.001***	0.001***	0.001***
	(16.42)	(17.03)	(17.21)	(34.79)	(34.51)	(34.82)
House Age = .	0.328***	0.330***	0.337***	2.403***	2.394***	2.405***
	(5.77)	(5.80)	(5.90)	(33.13)	(32.85)	(32.89)
Bedroosms = 0	-0.217*	-0.214*	-0.214*	0.215	0.230*	0.239*
	(-1.76)	(-1.75)	(-1.75)	(1.55)	(1.66)	(1.72)
Bedrooms = 2	0.893***	0.897***	0.898***	0.605***	0.623***	0.631***
	(14.45)	(14.51)	(14.54)	(7.96)	(8.14)	(8.24)
Bedrooms = 3	1.520***	1.526***	1.528***	0.932***	0.969***	0.980***
	(23.50)	(23.60)	(23.64)	(11.21)	(11.44)	(11.53)
Bedrooms = 4	1.573***	1.583***	1.586***	0.823***	0.875***	0.888***
	(23.87)	(24.01)	(24.06)	(9.18)	(9.52)	(9.61)
Bedrooms ≥ 5	1.528***	1.536***	1.541***	0.479***	0.547***	0.561***
	(22.63)	(22.75)	(22.81)	(5.09)	(5.68)	(5.79)
Bedrooms = .	-3.276***	-3.233***	-3.235***	-4.968***	-4.922***	-4.922***

Table OA.2 continued.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	(-14.39)	(-14.10)	(-14.12)	(-22.19)	(-21.54)	(-21.51)
Bathrooms_0	1.247***	1.256***	1.255***	0.627**	0.669***	0.664***
	(7.28)	(7.38)	(7.37)	(2.56)	(2.71)	(2.69)
*Bathrooms_*$(0.5, 1]$	1.206***	1.209***	1.207***	-0.138	-0.114	-0.121
	(7.88)	(7.96)	(7.94)	(-0.57)	(-0.47)	(-0.50)
*Bathrooms_*$(1, 1.5]$	1.726***	1.729***	1.726***	0.498**	0.537**	0.529**
	(11.14)	(11.23)	(11.20)	(2.04)	(2.18)	(2.15)
*Bathrooms_*$(1.5, 2]$	1.670***	1.675***	1.673***	0.861***	0.912***	0.906***
	(10.80)	(10.91)	(10.89)	(3.54)	(3.71)	(3.69)
*Bathrooms_*$(2, 2.5]$	1.655***	1.665***	1.663***	1.177***	1.250***	1.244***
	(10.64)	(10.77)	(10.75)	(4.74)	(4.97)	(4.96)
*Bathrooms_*$(2.5, 3]$	1.568***	1.579***	1.577***	0.988***	1.059***	1.055***
	(10.08)	(10.22)	(10.20)	(3.97)	(4.20)	(4.19)
*Bathrooms_*$(3, 3.5]$	1.496***	1.521***	1.519***	1.159***	1.244***	1.243***
	(9.53)	(9.75)	(9.72)	(4.49)	(4.76)	(4.75)
*Bathrooms_*$(3.5, 4]$	1.438***	1.454***	1.453***	0.850***	0.929***	0.927***
	(9.16)	(9.31)	(9.30)	(3.33)	(3.58)	(3.57)
*Bathrooms_*$(4, 4.5]$	1.273***	1.316***	1.316***	0.765***	0.861***	0.858***
	(7.79)	(8.09)	(8.08)	(2.77)	(3.08)	(3.07)
*Bathrooms_*$(4.5, 5]$	1.226***	1.258***	1.259***	0.507*	0.618**	0.618**
	(7.66)	(7.89)	(7.89)	(1.88)	(2.26)	(2.26)
Bathrooms_5+	0.635***	0.732***	0.741***	0.482*	0.613**	0.617**
	(3.84)	(4.46)	(4.51)	(1.78)	(2.23)	(2.24)
*Stories_*$(0, 1]$	-0.034**	-0.035**	-0.035**	0.123***	0.119***	0.118***
	(-2.01)	(-2.08)	(-2.11)	(3.95)	(3.84)	(3.82)
*Stories_*$(1.5, 2]$	-0.072***	-0.070***	-0.071***	0.100***	0.109***	0.109***
	(-4.40)	(-4.26)	(-4.29)	(3.51)	(3.78)	(3.77)
*Stories_*$(2, 2.5]$	-0.098	-0.091	-0.094	-0.074	-0.051	-0.055
	(-1.36)	(-1.25)	(-1.30)	(-0.81)	(-0.55)	(-0.60)
*Stories_*$(2.5, 3]$	-0.143***	-0.140***	-0.140***	0.033	0.040	0.039
	(-5.99)	(-5.83)	(-5.84)	(0.94)	(1.12)	(1.09)
Stories_3+	-0.223***	-0.224***	-0.225***	0.043	0.069	0.069
	(-3.45)	(-3.49)	(-3.51)	(0.63)	(1.02)	(1.02)
$Stories = .$	-0.301***	-0.307***	-0.307***	-0.117***	-0.131***	-0.132***
	(-11.29)	(-11.63)	(-11.61)	(-3.42)	(-3.78)	(-3.80)
$Heating = Yes$	1.389***	1.414***	1.411***	0.524***	0.535***	0.532***
	(12.90)	(13.20)	(13.17)	(5.00)	(5.02)	(4.99)
$Heating = .$	1.294***	1.308***	1.306***	0.313***	0.313***	0.311***
	(11.67)	(11.84)	(11.82)	(3.03)	(3.00)	(2.97)
$Cooling = Yes$	0.645***	0.655***	0.652***	0.450***	0.474***	0.473***
	(16.15)	(16.36)	(16.31)	(12.84)	(12.94)	(12.83)
$Cooling = .$	0.250***	0.246***	0.249***	0.220***	0.226***	0.230***
	(5.54)	(5.46)	(5.52)	(8.15)	(8.33)	(8.46)
$Fireplace = Yes$	-0.004	-0.003	-0.004	-0.165***	-0.155***	-0.154***
	(-0.21)	(-0.17)	(-0.22)	(-8.35)	(-7.81)	(-7.79)
$Fireplace = .$	-0.130***	-0.136***	-0.135***	0.061***	0.059***	0.062***
	(-5.67)	(-5.99)	(-5.94)	(2.78)	(2.67)	(2.81)
$Parking = Yes$	0.602***	0.601***	0.599***	0.199***	0.204***	0.205***
	(19.42)	(19.37)	(19.30)	(6.29)	(6.44)	(6.47)
$Parking = .$	-0.015	-0.016	-0.016	0.123***	0.122***	0.120***
	(-0.40)	(-0.43)	(-0.45)	(3.67)	(3.64)	(3.61)
$SwimmingPool = Yes$	-0.138***	-0.136***	-0.138***	-0.254***	-0.237***	-0.240***
	(-4.90)	(-4.89)	(-4.93)	(-10.06)	(-9.42)	(-9.50)
$SwimmingPool = .$	-0.056*	-0.060**	-0.060**	-0.002	-0.001	-0.003
	(-1.97)	(-2.09)	(-2.10)	(-0.11)	(-0.05)	(-0.11)
$Townhouse = Yes$	-0.212***	-0.221***	-0.222***	0.059	0.049	0.046
	(-7.07)	(-7.36)	(-7.37)	(1.56)	(1.31)	(1.23)
Constant	-61.695***	-59.773***	-59.666***	-39.739***	-38.593***	-38.744***

Table OA.2 continued.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	(-32.93)	(-31.64)	(-31.54)	(-19.15)	(-18.35)	(-18.44)
ZIP code FEs	Yes	Yes	Yes			
House FEs				Yes	Yes	Yes
Year-month FEs	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.130	0.129	0.130	0.157	0.157	0.158
Observations	24,540,134	24,379,933	24,379,933	10,142,406	10,047,065	10,047,065

Table OA.3: Asymmetric Reactions and Final-list-to-sales-price Revisions in the U.S.– 20% sample

This table reports the regression results of the revision from the final list price to the sales price, *Revision_final_sales*. See Table OA.1 for the definitions of other variables. Regressions (1)−(3) control for ZIP-code-year-month fixed effects (FEs). Regressions (4)−(6) control for house FEs and ZIP-code-year-month FEs. We randomly selected 20% of the properties from the whole MLS data, which include the houses transacted from 2000 to 2019 in the U.S. To ensure the final list date is accurate, the samples exclude observations where the final list price differs from the initial list price but the final list date is the same as the initial list date. *T*-statistics are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	All Houses			Houses with Repeat Sales		
Revision_initial_final	0.051***	0.024***		0.031***	0.011***	
	(57.89)	(21.62)		(17.71)	(5.07)	
Revision_initial_final+			-0.071***			-0.070***
			(-20.43)			(-9.66)
Revision_initial_final−			0.036***			0.021***
			(28.15)			(9.00)
DOM_initial_final		-0.708***	-0.559***		-0.651***	-0.511***
		(-50.75)	(-37.54)		(-19.99)	(-15.02)
DOM_initial_final		0.114***	0.093***		0.112***	0.093***
		(28.03)	(22.52)		(11.49)	(9.44)
Ln(Land)	-0.219***	-0.214***	-0.213***	0.090***	0.084***	0.084***
	(-44.92)	(-43.88)	(-43.74)	(4.03)	(3.78)	(3.76)
Ln(Land) = .	-0.020**	-0.020*	-0.019*	0.058**	0.057**	0.059**
	(-1.97)	(-1.89)	(-1.80)	(2.08)	(2.05)	(2.11)
Ln(House Size)	16.298***	15.759***	15.755***	15.341***	15.671***	15.751***
	(47.18)	(45.57)	(45.57)	(9.79)	(9.92)	(9.97)
Ln(House Size)^2	-1.135***	-1.097***	-1.097***	-1.038***	-1.060***	-1.065***
	(-49.91)	(-48.19)	(-48.19)	(-9.99)	(-10.12)	(-10.18)
Ln(House Size) = .	-0.323***	-0.317***	-0.317***	-0.105**	-0.099**	-0.103**
	(-19.28)	(-18.93)	(-18.96)	(-2.27)	(-2.15)	(-2.23)
House Age	-0.024***	-0.025***	-0.025***	-0.045***	-0.046***	-0.046***
	(-53.88)	(-55.63)	(-55.84)	(-13.21)	(-13.47)	(-13.52)
House Age^2	0.000***	0.000***	0.000***	0.001***	0.001***	0.001***
	(19.00)	(20.35)	(20.66)	(15.28)	(15.56)	(15.60)
House Age = .	0.346***	0.357***	0.364***	2.342***	2.286***	2.298***
	(12.38)	(12.73)	(12.98)	(14.87)	(14.64)	(14.71)
Bedrooms = 0	-0.089	-0.098	-0.100	0.209	0.197	0.203
	(-0.64)	(-0.70)	(-0.71)	(0.62)	(0.59)	(0.60)
Bedrooms = 2	0.878***	0.869***	0.870***	0.086	0.090	0.099
	(18.89)	(18.68)	(18.70)	(0.40)	(0.41)	(0.45)
Bedrooms = 3	1.484***	1.476***	1.477***	0.409*	0.399*	0.410*
	(31.15)	(30.94)	(30.97)	(1.85)	(1.80)	(1.85)
Bedrooms = 4	1.532***	1.526***	1.528***	0.300	0.292	0.304
	(31.58)	(31.43)	(31.48)	(1.34)	(1.30)	(1.36)
Bedrooms ≥ 5	1.513***	1.503***	1.506***	-0.095	-0.087	-0.072
	(30.33)	(30.12)	(30.19)	(-0.41)	(-0.38)	(-0.32)
Bedrooms = .	-3.243***	-3.210***	-3.213***	-4.403***	-4.162***	-4.167***
	(-22.59)	(-22.21)	(-22.23)	(-11.67)	(-10.93)	(-10.95)
Bathrooms_0	1.088***	1.043***	1.038***	0.060	-0.130	-0.145
	(3.14)	(3.02)	(3.00)	(0.10)	(-0.21)	(-0.23)
*Bathrooms_*(0.5, 1]	1.296***	1.248***	1.242***	-0.188	-0.407	-0.422
	(3.89)	(3.75)	(3.73)	(-0.31)	(-0.68)	(-0.70)
*Bathrooms_*(1, 1.5]	1.664***	1.617***	1.609***	0.008	-0.223	-0.241
	(4.98)	(4.86)	(4.83)	(0.01)	(-0.37)	(-0.39)
*Bathrooms_*(1.5, 2]	1.587***	1.540***	1.532***	0.260	0.057	0.041

Table OA.3 continued.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	(4.76)	(4.63)	(4.61)	(0.43)	(0.10)	(0.07)
*Bathrooms*_(2, 2.5]	1.480***	1.438***	1.429***	0.384	0.194	0.178
	(4.44)	(4.32)	(4.30)	(0.64)	(0.32)	(0.29)
*Bathrooms*_(2.5, 3]	1.387***	1.350***	1.342***	0.243	0.048	0.033
	(4.16)	(4.06)	(4.03)	(0.41)	(0.08)	(0.06)
*Bathrooms*_(3, 3.5]	1.232***	1.201***	1.192***	0.388	0.188	0.174
	(3.69)	(3.61)	(3.58)	(0.64)	(0.31)	(0.29)
*Bathrooms*_(3.5, 4]	1.215***	1.184***	1.176***	0.033	-0.142	-0.158
	(3.64)	(3.56)	(3.53)	(0.05)	(-0.24)	(-0.26)
*Bathrooms*_(4, 4.5]	0.866***	0.870***	0.860**	-0.182	-0.189	-0.203
	(2.58)	(2.60)	(2.57)	(-0.29)	(-0.30)	(-0.32)
*Bathrooms*_(4.5, 5]	0.899***	0.896***	0.889***	-0.331	-0.489	-0.500
	(2.69)	(2.69)	(2.66)	(-0.54)	(-0.79)	(-0.81)
*Bathrooms*_5+	0.189	0.267	0.264	-0.407	-0.590	-0.602
	(0.56)	(0.80)	(0.79)	(-0.64)	(-0.92)	(-0.94)
*Stories*_(0, 1]	-0.045**	-0.049**	-0.050**	0.079	0.115	0.114
	(-2.20)	(-2.38)	(-2.42)	(0.89)	(1.29)	(1.28)
*Stories*_(1.5, 2]	-0.060***	-0.060***	-0.061***	-0.019	0.038	0.036
	(-2.95)	(-2.98)	(-3.00)	(-0.23)	(0.45)	(0.44)
*Stories*_(2, 2.5]	-0.121	-0.121	-0.124	0.140	0.198	0.193
	(-1.31)	(-1.31)	(-1.33)	(0.42)	(0.59)	(0.58)
*Stories*_(2.5, 3]	-0.149***	-0.148***	-0.148***	-0.040	-0.029	-0.025
	(-5.93)	(-5.91)	(-5.88)	(-0.38)	(-0.27)	(-0.23)
*Stories*_3+	-0.226***	-0.225***	-0.224***	-0.235	-0.229	-0.228
	(-4.46)	(-4.43)	(-4.43)	(-1.26)	(-1.23)	(-1.22)
$Stories = .$	-0.258***	-0.271***	-0.269***	0.186**	0.205**	0.215**
	(-11.32)	(-11.87)	(-11.77)	(2.01)	(2.20)	(2.31)
$Heating = Yes$	1.005***	1.042***	1.037***	0.304	0.361	0.363
	(8.20)	(8.47)	(8.44)	(1.24)	(1.46)	(1.48)
$Heating = .$	1.175***	1.197***	1.193***	0.446*	0.491*	0.495**
	(9.45)	(9.59)	(9.56)	(1.79)	(1.95)	(1.97)
$Cooling = Yes$	0.506***	0.512***	0.508***	0.069	0.087	0.087
	(18.39)	(18.57)	(18.45)	(0.98)	(1.23)	(1.22)
$Cooling = .$	0.205***	0.204***	0.205***	0.117	0.139*	0.144*
	(6.68)	(6.63)	(6.68)	(1.57)	(1.86)	(1.93)
$Fireplace = Yes$	-0.030**	-0.030**	-0.032**	-0.191***	-0.178***	-0.178***
	(-2.20)	(-2.19)	(-2.30)	(-3.01)	(-2.79)	(-2.78)
$Fireplace = .$	-0.128***	-0.134***	-0.133***	-0.114*	-0.107	-0.104
	(-7.87)	(-8.26)	(-8.21)	(-1.69)	(-1.58)	(-1.55)
$Parking = Yes$	0.533***	0.524***	0.522***	0.162	0.158	0.159
	(25.65)	(25.22)	(25.10)	(1.49)	(1.44)	(1.45)
$Parking = .$	-0.028	-0.037	-0.037	0.066	0.053	0.054
	(-1.09)	(-1.46)	(-1.45)	(0.57)	(0.46)	(0.46)
$SwimmingPool = Yes$	-0.072***	-0.075***	-0.077***	-0.160***	-0.158***	-0.161***
	(-4.40)	(-4.62)	(-4.73)	(-2.95)	(-2.91)	(-2.96)
$SwimmingPool = .$	0.002	-0.005	-0.005	0.024	0.005	0.004
	(0.13)	(-0.28)	(-0.29)	(0.40)	(0.08)	(0.07)
$Townhouse = Yes$	-0.107***	-0.118***	-0.118***	0.063	0.059	0.057
	(-6.18)	(-6.78)	(-6.79)	(0.63)	(0.59)	(0.58)
Constant	-64.353***	-62.317***	-62.273***	-58.176***	-59.237***	-59.513***
	(-47.76)	(-46.22)	(-46.19)	(-9.81)	(-9.91)	(-9.96)
House FEs				Yes	Yes	Yes
ZIP-code-year-month FEs	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.188	0.187	0.188	0.208	0.207	0.207
Observations	4,512,402	4,477,301	4,477,301	1,229,591	1,211,909	1,211,909

Table OA.4: First-Stage Results: Exogenous Interest Rate Shocks and Initial-to-final-list-price Revisions in the U.S.

This table reports the first-stage results of the regressions linking exogenous interest rate shocks to the revision from initial to final list prices. MPS_ORTH is the sum of the exogenous interest rate shocks (in percentage) between the initial and final list dates, excluding these dates. $X+$ equals X if $X > 0$ and zero otherwise. $X-$ equals X if $X < 0$ and zero otherwise. See Table OA.1 for the definitions of other variables. Regressions (1)−(3) control for ZIP-code-year-month fixed effects (FEs). Regressions (4)−(6) control for house FEs and ZIP-code-year-month FEs. We include the houses transacted from 2000 to 2019 in the U.S. To ensure the final list date is accurate, the samples exclude observations where the final list price differs from the initial list price but the final list date is the same as the initial list date. T-statistics are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Revision		*Revision+*	*Revision−*	*Revision*		*Revision+*	*Revision−*
	All houses				Repeat sales			
MPS_ORTH	-0.391***	-0.150***			-0.397***	-0.118***		
	(-9.38)	(-7.67)			(-15.48)	(-13.96)		
MPS_ORTH+			-0.007***	-0.257***			-0.009***	-0.293***
			(-4.26)	(-9.33)			(-7.79)	(-16.68)
MPS_ORTH-			-0.885***	3.072			-1.020***	1.771
			(-5.81)	(1.27)			(-9.18)	(1.21)
$DOM\_initial\_final$		-8.554***	0.479***	-8.380***		-8.653***	0.491***	-8.406***
		(-45.20)	(30.28)	(-48.31)		(-72.15)	(43.41)	(-75.37)
$DOM\_initial\_final^2$		1.223***	-0.070***	1.201***		1.235***	-0.070***	1.201***
		(45.75)	(-23.01)	(46.20)		(71.55)	(-30.32)	(67.41)
Ln(Land)	-0.174***	-0.060***	-0.001*	-0.059***	-0.016*	0.045***	0.007***	0.036***
	(-31.07)	(-17.80)	(-1.90)	(-18.80)	(-1.71)	(6.47)	(3.67)	(5.67)
Ln(Land) = .	-0.000	0.037***	0.013***	0.023**	-0.148***	-0.033***	0.008***	-0.042***
	(-0.00)	(3.39)	(9.76)	(2.17)	(-11.21)	(-3.35)	(4.02)	(-4.31)
Ln(House Size)	12.034***	1.879***	0.117***	1.834***	8.256***	2.727***	0.879***	2.079***
	(27.70)	(9.06)	(2.67)	(9.24)	(14.20)	(5.97)	(7.90)	(5.02)
Ln(House Size)^2	-0.859***	-0.136***	-0.010***	-0.131***	-0.569***	-0.173***	-0.060***	-0.129***
	(-28.82)	(-9.77)	(-3.30)	(-9.88)	(-14.62)	(-5.71)	(-8.07)	(-4.71)
Ln(House Size)=.	-0.003	0.067***	-0.002	0.068***	0.108***	0.097***	-0.012***	0.104***
	(-0.14)	(4.75)	(-1.18)	(4.94)	(5.97)	(6.82)	(-4.59)	(7.86)
House Age	-0.013***	-0.019***	-0.003***	-0.016***	-0.008***	-0.015***	-0.003***	-0.012***
	(-17.64)	(-27.34)	(-35.34)	(-23.80)	(-3.93)	(-9.36)	(-20.17)	(-7.39)
House Age^2	0.000**	0.000***	0.000***	0.000***	-0.000**	0.000***	0.000***	0.000**
	(2.53)	(16.99)	(34.64)	(12.99)	(-2.40)	(4.26)	(20.04)	(2.46)
House Age = .	0.433***	0.250***	0.081***	0.166***	1.229***	0.333***	0.135***	0.192***
	(14.55)	(12.28)	(15.45)	(9.47)	(16.80)	(6.08)	(10.15)	(3.87)
Bedrooms = 0	0.180***	0.022	-0.003	0.029	-0.053	0.165*	0.087***	0.090
	(3.03)	(0.49)	(-0.42)	(0.69)	(-0.45)	(1.73)	(3.45)	(1.02)
Bedrooms = 2	-0.033	0.041**	0.007***	0.032**	0.109	0.259***	0.096***	0.166***
	(-1.41)	(2.56)	(3.18)	(2.06)	(1.51)	(4.36)	(6.51)	(3.07)
Bedrooms = 3	-0.027	0.082***	0.017***	0.066***	0.122	0.465***	0.134***	0.335***
	(-1.03)	(4.66)	(6.52)	(3.80)	(1.59)	(7.29)	(9.10)	(5.73)
Bedrooms = 4	-0.045	0.116***	0.025***	0.093***	0.044	0.571***	0.155***	0.423***
	(-1.62)	(6.24)	(9.35)	(5.12)	(0.56)	(8.55)	(10.54)	(6.82)
Bedrooms ≥ 5	-0.105***	0.076***	0.032***	0.046**	-0.201**	0.537***	0.163***	0.383***
	(-3.27)	(3.65)	(10.66)	(2.25)	(-2.41)	(7.54)	(10.35)	(5.80)
Bedrooms = .	-0.609***	0.256***	0.019*	0.249***	-0.663***	0.486***	0.089***	0.427***
	(-4.63)	(3.01)	(1.80)	(3.04)	(-3.97)	(3.73)	(3.33)	(3.51)
Bathrooms_0	-0.368***	-0.113	-0.017	-0.097	-0.610***	-0.320*	-0.076*	-0.244
	(-3.67)	(-1.50)	(-1.05)	(-1.35)	(-2.68)	(-1.82)	(-1.76)	(-1.55)
*Bathrooms_*(0.5, 1]	-0.548***	-0.195***	-0.022	-0.160**	-0.944***	-0.639***	-0.111***	-0.510***
	(-5.76)	(-2.96)	(-1.41)	(-2.59)	(-4.24)	(-3.73)	(-2.60)	(-3.34)

Table OA.4 continued.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
*Bathrooms_*$(1, 1.5]$	-0.440***	-0.075	-0.032**	-0.031	-0.858***	-0.371**	-0.105**	-0.246
	(-4.67)	(-1.14)	(-1.99)	(-0.50)	(-3.82)	(-2.15)	(-2.48)	(-1.59)
*Bathrooms_*$(1.5, 2]$	-0.557***	-0.132**	-0.033**	-0.087	-0.845***	-0.312*	-0.090**	-0.200
	(-5.89)	(-2.03)	(-2.07)	(-1.42)	(-3.80)	(-1.81)	(-2.11)	(-1.31)
*Bathrooms_*$(2, 2.5]$	-0.534***	-0.023	-0.030*	0.021	-0.667***	0.019	-0.061	0.098
	(-5.58)	(-0.35)	(-1.90)	(0.33)	(-3.01)	(0.11)	(-1.43)	(0.64)
*Bathrooms_*$(2.5, 3]$	-0.641***	-0.090	-0.031*	-0.046	-0.768***	-0.043	-0.049	0.025
	(-6.73)	(-1.39)	(-1.91)	(-0.75)	(-3.47)	(-0.25)	(-1.13)	(0.17)
*Bathrooms_*$(3, 3.5]$	-0.743***	0.018	-0.032**	0.061	-0.826***	0.022	-0.027	0.066
	(-7.64)	(0.27)	(-2.00)	(0.97)	(-3.69)	(0.13)	(-0.63)	(0.42)
*Bathrooms_*$(3.5, 4]$	-0.818***	-0.122*	-0.033**	-0.077	-1.064***	-0.177	-0.054	-0.107
	(-8.41)	(-1.85)	(-2.04)	(-1.23)	(-4.79)	(-1.03)	(-1.25)	(-0.70)
*Bathrooms_*$(4, 4.5]$	-1.113***	-0.059	-0.038**	-0.018	-1.361***	-0.027	-0.059	0.042
	(-10.78)	(-0.86)	(-2.24)	(-0.27)	(-5.85)	(-0.14)	(-1.29)	(0.25)
*Bathrooms_*$(4.5, 5]$	-1.193***	-0.189***	-0.029*	-0.150**	-1.350***	-0.015	-0.033	0.026
	(-11.70)	(-2.75)	(-1.77)	(-2.28)	(-5.87)	(-0.09)	(-0.75)	(0.16)
Bathrooms_5+	-2.261***	-0.401***	0.007	-0.405***	-1.796***	0.053	0.021	0.030
	(-19.44)	(-5.38)	(0.41)	(-5.78)	(-7.65)	(0.29)	(0.46)	(0.18)
*Stories_*$(0, 1]$	0.196***	0.119***	0.006***	0.112***	0.122***	0.090***	0.002	0.089***
	(9.86)	(8.59)	(4.94)	(8.30)	(3.53)	(3.48)	(0.41)	(3.62)
*Stories_*$(1.5, 2]$	0.053***	0.077***	0.005***	0.071***	0.328***	0.381***	0.030***	0.346***
	(3.07)	(5.49)	(3.56)	(5.24)	(9.38)	(13.58)	(6.95)	(12.94)
*Stories_*$(2, 2.5]$	-0.004	0.131***	-0.016***	0.151***	0.049	0.363***	-0.006	0.374***
	(-0.06)	(3.27)	(-2.99)	(3.82)	(0.50)	(4.71)	(-0.39)	(5.07)
*Stories_*$(2.5, 3]$	-0.023	0.041**	0.004**	0.036**	0.193***	0.312***	0.017***	0.295***
	(-1.10)	(2.57)	(2.04)	(2.32)	(5.00)	(9.39)	(2.63)	(9.42)
Stories_3+	-0.065	0.003	-0.008*	0.012	-0.009	0.047	0.003	0.044
	(-1.55)	(0.11)	(-1.87)	(0.41)	(-0.12)	(0.77)	(0.21)	(0.75)
Stories = .	-0.112***	-0.152***	-0.011***	-0.141***	-0.574***	-0.512***	-0.058***	-0.454***
	(-3.36)	(-4.77)	(-5.38)	(-4.52)	(-11.60)	(-11.43)	(-11.20)	(-10.66)
Heating = *Yes*	0.173***	0.387***	-0.005	0.387***	0.248***	0.409***	-0.006	0.411***
	(3.77)	(10.56)	(-0.95)	(11.19)	(2.98)	(6.22)	(-0.43)	(6.68)
Heating = .	-0.031	0.169***	-0.015**	0.179***	-0.066	0.127*	-0.024	0.146**
	(-0.50)	(3.60)	(-2.38)	(4.01)	(-0.76)	(1.83)	(-1.64)	(2.26)
Cooling = *Yes*	0.281***	0.348***	0.001	0.345***	0.223***	0.405***	0.016***	0.388***
	(10.17)	(13.39)	(0.27)	(13.61)	(7.61)	(14.88)	(3.45)	(15.29)
Cooling = .	-0.011	-0.028	0.017***	-0.047**	-0.011	0.026	0.033***	-0.009
	(-0.40)	(-1.19)	(6.93)	(-1.99)	(-0.40)	(1.12)	(6.96)	(-0.42)
Fireplace = *Yes*	-0.006	0.030***	-0.011***	0.042***	-0.236***	-0.057***	-0.005	-0.048***
	(-0.43)	(3.02)	(-7.53)	(4.41)	(-9.57)	(-2.96)	(-1.06)	(-2.68)
Fireplace = .	-0.052***	-0.096***	0.003*	-0.100***	-0.329***	-0.254***	0.007	-0.259***
	(-3.06)	(-7.81)	(1.74)	(-8.53)	(-10.32)	(-10.41)	(1.31)	(-11.39)
Parking = *Yes*	0.291***	0.215***	-0.004**	0.219***	0.133***	0.176***	0.025***	0.151***
	(17.70)	(17.60)	(-2.44)	(18.30)	(4.15)	(6.95)	(4.67)	(6.32)
Parking = .	0.066***	0.024	-0.002	0.026*	0.148***	0.060**	-0.003	0.063**
	(2.98)	(1.49)	(-0.78)	(1.67)	(3.93)	(2.07)	(-0.53)	(2.30)
Swimming Pool = *Yes*	0.126***	0.089***	-0.011***	0.099***	0.090*	0.173***	-0.018***	0.191***
	(3.04)	(2.94)	(-3.87)	(3.42)	(1.83)	(4.44)	(-3.34)	(5.14)
Swimming Pool=.	0.144***	0.049*	0.001	0.046	0.128***	0.041	-0.007	0.047
	(3.56)	(1.68)	(0.35)	(1.65)	(2.74)	(1.11)	(-1.30)	(1.33)
Townhouse = *Yes*	0.137***	-0.012	0.003	-0.014	0.229***	0.141***	-0.008	0.154***
	(6.09)	(-0.92)	(1.21)	(-1.18)	(5.69)	(4.26)	(-0.85)	(5.12)
Constant	-43.355***	-7.080***	-0.238	-7.100***	-30.699***	-11.552***	-3.217***	-9.183***
	(-27.36)	(-9.07)	(-1.46)	(-9.50)	(-13.98)	(-6.72)	(-7.71)	(-5.88)
Zipcode FE	Yes	Yes	Yes	Yes				
House FE					Yes	Yes	Yes	Yes
Year-Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table OA.4 continued.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sanderson-Windmeijer F	87.94	58.81	28.23	43.71	239.6	194.9	77.17	119.5
P-value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted R^2	0.119	0.405	0.032	0.464	0.123	0.388	0.014	0.453
Observations	25,445,853	25,263,773	25,263,773	25,263,773	10,493,341	10,385,659	10,385,659	10,385,659

Table OA.5: Asymmetric Reactions and Final-list-to-sales-price Revisions in the U.S. – 2SLS Regressions Using Monetary Policy Surprises as Instruments

This table reports the second-stage results of the revision from the final list price to the sales price, *Revision_final_sales*. The instrumental variable (IV) for *Revision_initial_final* is the sum of the exogenous interest rate shocks between the initial and final list dates (MPS_ORTH). The IVs for *Revision_initial_final*+ and *Revision_initial_final*− in column (3) and (6) are MPS_ORTH+ and MPS_ORTH-. See Table OA.1 for the definitions of other variables. Regressions (1)−(3) control for ZIP-code-year-month fixed effects (FEs). Regressions (4)−(6) control for house FEs and ZIP-code-year-month FEs. We include the houses transacted from 2000 to 2019 in the U.S. To ensure the final list date is accurate, the samples exclude observations where the final list price differs from the initial list price but the final list date is the same as the initial list date. T-statistics are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	All Houses			Houses with Repeat Sales		
Revision_initial_final	0.094***	0.071***		0.086***	0.080***	
	(15.99)	(4.49)		(23.12)	(8.88)	
Revision_initial_final+			-0.153			-0.227
			(-0.71)			(-1.24)
Revision_initial_final−			0.084***			0.097***
			(3.96)			(7.14)
DOM_initial_final		-0.444***	-0.220		-0.278***	0.028
		(-3.32)	(-0.83)		(-3.58)	(0.14)
$DOM\_initial\_final^2$		0.082***	0.050		0.072***	0.028
		(4.22)	(1.30)		(6.30)	(1.01)
Ln(Land)	-0.186***	-0.186***	-0.185***	-0.010	-0.009	-0.008
	(-25.90)	(-25.80)	(-25.65)	(-1.28)	(-1.15)	(-0.96)
Ln(Land) = .	-0.070***	-0.067***	-0.064***	0.015	0.017	0.020
	(-3.65)	(-3.47)	(-3.29)	(1.17)	(1.33)	(1.52)
Ln(House Size)	16.732***	16.504***	16.508***	10.401***	10.396***	10.635***
	(37.72)	(37.83)	(37.80)	(19.45)	(19.25)	(18.83)
$Ln(House\ Size)^2$	-1.158***	-1.142***	-1.143***	-0.704***	-0.704***	-0.720***
	(-39.54)	(-39.75)	(-39.73)	(-19.90)	(-19.71)	(-19.23)
Ln(House Size) = .	-0.192***	-0.185***	-0.186***	-0.031*	-0.030*	-0.035**
	(-8.03)	(-7.71)	(-7.69)	(-1.91)	(-1.81)	(-2.05)
House Age	-0.027***	-0.028***	-0.028***	-0.056***	-0.056***	-0.057***
	(-31.15)	(-29.68)	(-28.63)	(-38.55)	(-38.23)	(-37.41)
$House\ Age^2$	0.000***	0.000***	0.000***	0.001***	0.001***	0.001***
	(16.29)	(16.33)	(15.94)	(38.94)	(38.91)	(37.62)
House Age = .	0.212***	0.219***	0.235***	2.276***	2.290***	2.328***
	(4.02)	(4.12)	(4.20)	(32.00)	(31.97)	(30.93)
Bedrooms = 0	-0.325***	-0.316***	-0.317***	0.035	0.053	0.078
	(-2.86)	(-2.78)	(-2.80)	(0.26)	(0.39)	(0.58)
Bedrooms = 2	0.850***	0.852***	0.853***	0.519***	0.522***	0.548***
	(14.69)	(14.68)	(14.76)	(7.11)	(7.09)	(7.36)
Bedrooms = 3	1.448***	1.451***	1.454***	0.765***	0.771***	0.807***
	(24.48)	(24.50)	(24.64)	(10.23)	(10.23)	(10.43)
Bedrooms = 4	1.480***	1.486***	1.490***	0.601***	0.611***	0.652***
	(24.85)	(24.90)	(25.06)	(7.87)	(7.93)	(8.22)
Bedrooms ≥ 5	1.435***	1.439***	1.446***	0.245***	0.263***	0.306***
	(23.39)	(23.39)	(23.54)	(3.10)	(3.29)	(3.73)
Bedrooms = .	-3.028***	-3.034***	-3.033***	-4.402***	-4.407***	-4.386***
	(-14.21)	(-14.08)	(-14.07)	(-23.06)	(-22.90)	(-22.69)
Bathrooms_0	1.437***	1.445***	1.443***	0.752***	0.778***	0.759***
	(8.94)	(9.02)	(8.98)	(3.02)	(3.13)	(3.06)
Bathrooms_(0.5, 1]	1.488***	1.483***	1.480***	0.141	0.158	0.133
	(10.05)	(10.08)	(10.06)	(0.57)	(0.64)	(0.54)
Bathrooms_(1, 1.5]	1.974***	1.969***	1.962***	0.678***	0.692***	0.665***

Table OA.5 continued.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	(13.18)	(13.22)	(13.17)	(2.73)	(2.80)	(2.68)
*Bathrooms*_(1.5, 2]	1.896***	1.892***	1.886***	0.950***	0.971***	0.947***
	(12.60)	(12.65)	(12.60)	(3.86)	(3.95)	(3.85)
*Bathrooms*_(2, 2.5]	1.821***	1.820***	1.813***	1.146***	1.171***	1.151***
	(12.05)	(12.11)	(12.07)	(4.66)	(4.76)	(4.68)
*Bathrooms*_(2.5, 3]	1.720***	1.719***	1.713***	0.946***	0.969***	0.954***
	(11.38)	(11.44)	(11.40)	(3.85)	(3.94)	(3.89)
*Bathrooms*_(3, 3.5]	1.547***	1.555***	1.548***	1.000***	1.030***	1.021***
	(10.20)	(10.30)	(10.26)	(4.03)	(4.15)	(4.13)
*Bathrooms*_(3.5, 4]	1.510***	1.512***	1.506***	0.735***	0.760***	0.745***
	(9.92)	(9.99)	(9.95)	(2.97)	(3.07)	(3.02)
*Bathrooms*_(4, 4.5]	1.191***	1.213***	1.205***	0.508**	0.528**	0.509**
	(7.56)	(7.75)	(7.69)	(1.99)	(2.08)	(2.01)
*Bathrooms*_(4.5, 5]	1.193***	1.206***	1.202***	0.302	0.337	0.327
	(7.73)	(7.85)	(7.81)	(1.19)	(1.33)	(1.29)
*Bathrooms*_5+	0.517***	0.574***	0.581***	0.291	0.319	0.325
	(3.31)	(3.72)	(3.75)	(1.14)	(1.26)	(1.29)
*Stories*_(0, 1]	-0.063***	-0.062***	-0.062***	0.127***	0.122***	0.121***
	(-4.00)	(-3.94)	(-3.95)	(4.20)	(4.02)	(4.02)
*Stories*_(1.5, 2]	-0.074***	-0.073***	-0.073***	0.038	0.034	0.037
	(-4.75)	(-4.67)	(-4.65)	(1.42)	(1.27)	(1.39)
*Stories*_(2, 2.5]	-0.078	-0.077	-0.082	-0.145	-0.150*	-0.158*
	(-1.14)	(-1.11)	(-1.19)	(-1.64)	(-1.67)	(-1.76)
*Stories*_(2.5, 3]	-0.154***	-0.153***	-0.152***	-0.032	-0.041	-0.040
	(-6.72)	(-6.63)	(-6.60)	(-0.94)	(-1.19)	(-1.18)
*Stories*_3+	-0.216***	-0.222***	-0.224***	0.015	0.029	0.030
	(-3.45)	(-3.54)	(-3.58)	(0.22)	(0.44)	(0.45)
Stories = .	-0.274***	-0.278***	-0.278***	-0.062*	-0.065**	-0.075**
	(-11.09)	(-11.41)	(-11.38)	(-1.92)	(-2.03)	(-2.30)
Heating = *Yes*	1.388***	1.402***	1.396***	0.378***	0.363***	0.354***
	(13.37)	(13.49)	(13.32)	(3.95)	(3.78)	(3.66)
Heating = .	1.300***	1.305***	1.299***	0.209**	0.187*	0.177*
	(12.34)	(12.38)	(12.24)	(2.19)	(1.95)	(1.83)
Cooling = *Yes*	0.589***	0.595***	0.591***	0.334***	0.338***	0.336***
	(15.58)	(15.47)	(15.19)	(14.15)	(13.88)	(13.72)
Cooling = .	0.234***	0.232***	0.236***	0.194***	0.198***	0.209***
	(5.64)	(5.57)	(5.60)	(7.62)	(7.77)	(7.93)
Fireplace = *Yes*	-0.046***	-0.046***	-0.049***	-0.161***	-0.159***	-0.160***
	(-2.65)	(-2.66)	(-2.80)	(-8.46)	(-8.36)	(-8.38)
Fireplace = .	-0.108***	-0.114***	-0.112***	0.089***	0.086***	0.092***
	(-4.88)	(-5.17)	(-4.98)	(4.21)	(4.02)	(4.11)
Parking = *Yes*	0.529***	0.531***	0.527***	0.137***	0.140***	0.145***
	(18.89)	(18.82)	(18.39)	(4.71)	(4.81)	(4.99)
Parking = .	-0.013	-0.014	-0.014	0.087***	0.093***	0.091***
	(-0.38)	(-0.40)	(-0.42)	(2.66)	(2.83)	(2.76)
SwimmingPool = *Yes*	-0.156***	-0.153***	-0.157***	-0.286***	-0.276***	-0.284***
	(-5.51)	(-5.46)	(-5.37)	(-11.32)	(-10.97)	(-10.58)
SwimmingPool = .	-0.041	-0.042	-0.043	-0.005	0.000	-0.003
	(-1.45)	(-1.51)	(-1.51)	(-0.22)	(0.01)	(-0.11)
Townhouse = *Yes*	-0.118***	-0.124***	-0.123***	0.039	0.031	0.026
	(-4.41)	(-4.62)	(-4.58)	(1.05)	(0.83)	(0.69)
Zipcode FE	Yes	Yes	Yes			
House FE				Yes	Yes	Yes
Year-Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.023	0.024	0.024	0.005	0.006	0.006
Observations	25,445,853	25,263,773	25,263,773	10,493,341	10,385,659	10,385,659

Table OA.6: Reduced-Form Results: Exogenous Interest Rate Shocks and Final-list-to-sales-price Revisions in the U.S.

This table reports the reduced-form regressions of the final-to-sale price revisions on exogenous interest rate shocks. MPS_ORTH is the sum of the exogenous interest rate shocks (in percentage) between the initial and final list dates. $X+$ equals X if $X > 0$ and zero otherwise. $X-$ equals X if $X < 0$ and zero otherwise. See Table OA.1 for the definitions of other variables. Regressions (1)−(3) control for ZIP code fixed effects (FEs) and year-month FEs. Regressions (4)−(6) control for house FEs and year-month FEs. The samples comprise the houses transacted from 2000 to 2019 in the U.S. To ensure the final list date is accurate, the samples exclude observations where the final list price differs from the initial list price but the final list date is the same as the initial list date. T-statistics are in parenthesis. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	All Houses			Houses with Repeat Sales		
MPS_ORTH	-0.037***	-0.011***		-0.035***	-0.014***	
	(-9.61)	(-4.48)		(-15.18)	(-7.98)	
MPS_ORTH+			-0.020***			-0.027***
			(-4.48)			(-7.95)
MPS_ORTH-			0.004			0.004
			(1.10)			(1.52)
$DOM\_initial\_final$		-1.054***	-0.998***		-0.973***	-0.900***
		(-39.82)	(-36.03)		(-55.51)	(-48.04)
$DOM\_initial\_final^2$		0.169***	0.161***		0.171***	0.161***
		(30.85)	(29.67)		(40.63)	(39.38)
$Ln(Land)$	-0.202***	-0.190***	-0.190***	-0.011	-0.006	-0.006
	(-28.29)	(-26.64)	(-26.65)	(-1.39)	(-0.70)	(-0.72)
$Ln(Land) = .$	-0.069***	-0.064***	-0.064***	0.004	0.014	0.014
	(-3.48)	(-3.30)	(-3.30)	(0.32)	(1.12)	(1.11)
$Ln(House\ Size)$	17.848***	16.637***	16.643***	11.092***	10.607***	10.630***
	(40.04)	(38.26)	(38.27)	(20.91)	(19.81)	(19.86)
$Ln(House\ Size)^2$	-1.238***	-1.152***	-1.152***	-0.752***	-0.717***	-0.719***
	(-42.09)	(-40.26)	(-40.27)	(-21.43)	(-20.25)	(-20.29)
$Ln(House\ Size) = .$	-0.192***	-0.180***	-0.180***	-0.021	-0.022	-0.022
	(-7.98)	(-7.57)	(-7.57)	(-1.33)	(-1.35)	(-1.37)
$House\ Age$	-0.028***	-0.029***	-0.029***	-0.056***	-0.057***	-0.057***
	(-32.36)	(-33.54)	(-33.55)	(-36.28)	(-37.24)	(-37.23)
$HouseAge^2$	0.000***	0.000***	0.000***	0.001***	0.001***	0.001***
	(16.20)	(17.42)	(17.42)	(35.82)	(37.15)	(37.16)
$House\ Age = .$	0.252***	0.237***	0.236***	2.379***	2.317***	2.316***
	(4.68)	(4.44)	(4.44)	(33.02)	(32.15)	(32.16)
$Bedrooms = 0$	-0.308***	-0.314***	-0.314***	0.037	0.068	0.069
	(-2.71)	(-2.77)	(-2.77)	(0.27)	(0.51)	(0.52)
$Bedrooms = 2$	0.847***	0.855***	0.855***	0.529***	0.541***	0.541***
	(14.43)	(14.62)	(14.62)	(7.25)	(7.37)	(7.37)
$Bedrooms = 3$	1.446***	1.457***	1.457***	0.779***	0.807***	0.807***
	(24.10)	(24.43)	(24.43)	(10.45)	(10.74)	(10.75)
$Bedrooms = 4$	1.477***	1.494***	1.494***	0.609***	0.655***	0.656***
	(24.44)	(24.87)	(24.87)	(8.02)	(8.55)	(8.56)
$Bedrooms \geq 5$	1.427***	1.444***	1.444***	0.232***	0.304***	0.305***
	(22.90)	(23.33)	(23.33)	(2.94)	(3.84)	(3.85)
$Bedrooms = .$	-3.083***	-3.016***	-3.015***	-4.454***	-4.369***	-4.365***
	(-14.11)	(-13.91)	(-13.90)	(-22.77)	(-22.47)	(-22.45)
$Bathrooms\_0$	1.400***	1.434***	1.434***	0.692***	0.745***	0.745***
	(8.69)	(8.94)	(8.94)	(2.78)	(3.01)	(3.01)
$Bathrooms\_(0.5, 1]$	1.433***	1.466***	1.467***	0.055	0.101	0.103
	(9.73)	(9.98)	(9.99)	(0.22)	(0.41)	(0.42)
$Bathrooms\_(1, 1.5]$	1.929***	1.960***	1.961***	0.599**	0.657***	0.659***
	(12.94)	(13.18)	(13.19)	(2.42)	(2.66)	(2.67)
$Bathrooms\_(1.5, 2]$	1.840***	1.879***	1.880***	0.872***	0.940***	0.942***

Table OA.6 continued.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	(12.29)	(12.58)	(12.59)	(3.56)	(3.84)	(3.85)
Bathrooms_(2, 2.5]	1.768***	1.814***	1.816***	1.083***	1.166***	1.168***
	(11.76)	(12.10)	(12.11)	(4.41)	(4.76)	(4.76)
Bathrooms_(2.5, 3]	1.658***	1.709***	1.710***	0.875***	0.959***	0.961***
	(11.02)	(11.39)	(11.40)	(3.57)	(3.92)	(3.93)
Bathrooms_(3, 3.5]	1.475***	1.553***	1.554***	0.927***	1.028***	1.030***
	(9.78)	(10.31)	(10.32)	(3.74)	(4.16)	(4.16)
Bathrooms_(3.5, 4]	1.431***	1.500***	1.501***	0.636**	0.739***	0.741***
	(9.45)	(9.93)	(9.93)	(2.58)	(3.00)	(3.01)
Bathrooms_(4, 4.5]	1.084***	1.205***	1.206***	0.388	0.520**	0.521**
	(6.93)	(7.71)	(7.71)	(1.53)	(2.06)	(2.06)
Bathrooms_(4.5, 5]	1.079***	1.189***	1.190***	0.181	0.330	0.331
	(7.02)	(7.76)	(7.76)	(0.72)	(1.30)	(1.31)
Bathrooms_5+	0.303*	0.542***	0.542***	0.129	0.317	0.317
	(1.95)	(3.51)	(3.52)	(0.51)	(1.25)	(1.25)
Stories_(0, 1]	-0.044***	-0.054***	-0.054***	0.140***	0.129***	0.129***
	(-2.67)	(-3.38)	(-3.38)	(4.59)	(4.25)	(4.25)
Stories_(1.5, 2]	-0.068***	-0.068***	-0.068***	0.068**	0.065**	0.065**
	(-4.23)	(-4.24)	(-4.24)	(2.57)	(2.43)	(2.41)
Stories_(2, 2.5]	-0.078	-0.068	-0.067	-0.139	-0.121	-0.120
	(-1.14)	(-0.97)	(-0.97)	(-1.57)	(-1.35)	(-1.35)
Stories_(2.5, 3]	-0.156***	-0.150***	-0.150***	-0.013	-0.015	-0.015
	(-6.60)	(-6.42)	(-6.42)	(-0.38)	(-0.45)	(-0.45)
Stories_3+	-0.222***	-0.222***	-0.222***	0.016	0.033	0.033
	(-3.42)	(-3.50)	(-3.50)	(0.23)	(0.49)	(0.49)
$Stories = .$	-0.285***	-0.289***	-0.289***	-0.110***	-0.106***	-0.106***
	(-11.38)	(-11.75)	(-11.75)	(-3.43)	(-3.33)	(-3.33)
$Heating = Yes$	1.404***	1.430***	1.429***	0.400***	0.396***	0.396***
	(13.41)	(13.74)	(13.74)	(4.14)	(4.10)	(4.10)
$Heating = .$	1.296***	1.317***	1.316***	0.203**	0.198**	0.197**
	(12.08)	(12.39)	(12.38)	(2.10)	(2.04)	(2.04)
$Cooling = Yes$	0.616***	0.620***	0.620***	0.355***	0.371***	0.371***
	(16.06)	(16.19)	(16.19)	(15.14)	(15.88)	(15.87)
$Cooling = .$	0.234***	0.230***	0.230***	0.196***	0.202***	0.201***
	(5.55)	(5.47)	(5.47)	(7.66)	(7.89)	(7.89)
$Fireplace = Yes$	-0.047***	-0.044**	-0.044**	-0.183***	-0.164***	-0.163***
	(-2.61)	(-2.51)	(-2.51)	(-9.60)	(-8.61)	(-8.59)
$Fireplace = .$	-0.113***	-0.120***	-0.120***	0.060***	0.066***	0.066***
	(-5.02)	(-5.45)	(-5.45)	(2.82)	(3.12)	(3.13)
$Parking = Yes$	0.557***	0.546***	0.546***	0.149***	0.154***	0.154***
	(19.40)	(19.18)	(19.18)	(5.12)	(5.30)	(5.30)
$Parking = .$	-0.007	-0.012	-0.012	0.101***	0.098***	0.098***
	(-0.19)	(-0.34)	(-0.34)	(3.08)	(3.00)	(3.00)
$SwimmingPool = Yes$	-0.144***	-0.147***	-0.147***	-0.280***	-0.262***	-0.262***
	(-5.25)	(-5.34)	(-5.34)	(-11.53)	(-10.83)	(-10.83)
$SwimmingPool = .$	-0.027	-0.039	-0.039	0.007	0.004	0.003
	(-0.98)	(-1.41)	(-1.41)	(0.30)	(0.16)	(0.15)
$Townhouse = Yes$	-0.105***	-0.125***	-0.125***	0.059	0.042	0.042
	(-3.79)	(-4.60)	(-4.60)	(1.59)	(1.12)	(1.13)
Constant	-70.961***	-66.590***	-66.612***	-44.065***	-42.360***	-42.443***
	(-41.50)	(-39.81)	(-39.82)	(-21.87)	(-20.84)	(-20.89)
Zip-code FE	Yes	Yes	Yes			
House FE				Yes	Yes	Yes
Year-Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.129	0.131	0.131	0.153	0.155	0.155
Observations	25,451,567	25,264,799	25,264,799	10,496,956	10,386,304	10,386,304

Table OA.7: Underreaction and Future Returns at Neighborhood Level in the U.S. Based on Full-sample Hedonic Index

This table reports the results for the regressions of returns based on the full sample hedonic model at the ZIP code level. The hedonic index is purged of the differences in house characteristics (see Appendix OA.B). Column (1) and (2) show the ZIP-code-level return in $t+2$. Column (3) and (4) shows the return from month $t+2$ to $t+6$. The sample includes houses transacted from 2000 to 2019 in the U.S. T-statistics are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)
	$Return_{t+2}$		$Return_{t+2,\ t+6}$	
$Average\_revision\_initial\_final$	0.036***		0.141***	
	(6.46)		(24.34)	
$Average\_revision\_initial\_final+$		0.063		0.209***
		(1.21)		(3.95)
$Average\_revision\_initial\_final-$		0.036***		0.140***
		(6.22)		(23.55)
Constant	0.356***	0.352***	1.666***	1.656***
	(13.55)	(13.04)	(59.96)	(58.04)
Observations	1,875,813	1,875,813	1,823,998	1,823,998
Adjusted R^2	0.000	0.000	0.001	0.001

Table OA.8: Asymmetric Reactions and Final-list-to-sales-price Revisions in China

This table reports the regression results for the percentage revision from the final list price to the sales price, *Revision_final_sales*. *DOM_initial_final* is the number of days between the initial and final listings. For ease of reading, we divided DOM by 100 in the regression. $Ln(X)$ denotes the natural log of X. $Floor\_0-$ equals one if the house is on or below the ground floor and zero otherwise. $Floor\_(10,20]$ equals one if the house is above the 10th floor and below the 21st floor and zero otherwise. $Floor\_(20,30]$ is similarly defined. $Floor\_30+$ equals one if the house is above the 30th floor and zero otherwise. $Bedrooms = X$, $Bedrooms \geq 4$, $Livingrooms = X$, $Livingrooms \geq 3$, $Bathrooms = X$, and $Bathrooms \geq 4$ are all dummy variables that equal one if the condition is met and zero otherwise. See Tables 5 and 6 for the definitions of other variables. Regressions (2)−(4) and (6)−(8) control for subdivision fixed effects (FEs) and year-quarter FEs. The sample comprises the houses transacted from January 2013 to October 2018 in seven cities. T-statistics are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
$Revision\_initial\_final$	0.043***	0.026***	0.026***			
	(39.29)	(22.87)	(23.27)			
$Revision\_initial\_final+$				0.006***	0.009***	0.002
				(3.58)	(5.37)	(0.86)
$Revision\_initial\_final-$				0.078***	0.043***	0.053***
				(46.73)	(24.18)	(26.83)
$DOM\_initial\_final$			0.024*			0.137***
			(1.77)			(8.98)
$DOM\_initial\_final^2$			0.006*			-0.007**
			(1.73)			(-2.08)
$Ln(House\ Size)$		3.800***	3.728***		3.789***	3.697***
		(9.03)	(8.81)		(9.00)	(8.73)
$(Ln(House\ Size))^2$		-0.484***	-0.475***		-0.480***	-0.470***
		(-9.88)	(-9.64)		(-9.81)	(-9.53)
$Floor\_0-$		-1.213***	-1.227***		-1.197***	-1.218***
		(-8.02)	(-8.04)		(-7.93)	(-8.01)
$Floor\_(10,20]$		0.037***	0.039***		0.034**	0.039***
		(2.72)	(2.91)		(2.56)	(2.89)
$Floor\_(20,30]$		0.018	0.018		0.017	0.019
		(0.82)	(0.81)		(0.77)	(0.83)
$Floor\_30+$		-0.057	-0.065		-0.058	-0.067
		(-1.03)	(-1.15)		(-1.04)	(-1.19)
$Bedrooms = 2$		0.154***	0.152***		0.147***	0.149***
		(7.47)	(7.40)		(7.15)	(7.24)
$Bedrooms = 3$		0.160***	0.156***		0.152***	0.152***
		(5.31)	(5.16)		(5.04)	(5.04)
$Bedrooms \geq 4$		-0.019	-0.033		-0.023	-0.034
		(-0.35)	(-0.61)		(-0.44)	(-0.64)
$Livingrooms = 1$		0.053*	0.056*		0.050*	0.054*
		(1.86)	(1.96)		(1.76)	(1.89)

Table OA.8 continued.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
$Livingrooms = 2$		0.109***	0.110***		0.104***	0.107***
		(3.35)	(3.38)		(3.20)	(3.28)
$Livingrooms \geq 3$		-0.111	-0.116		-0.106	-0.112
		(-0.98)	(-1.02)		(-0.95)	(-0.98)
$Bathrooms = 1$		0.086	0.099		0.085	0.104
		(0.59)	(0.65)		(0.58)	(0.68)
$Bathrooms = 2$		0.140	0.152		0.140	0.156
		(0.95)	(1.00)		(0.95)	(1.03)
$Bathrooms = 3$		-0.009	-0.001		-0.011	-0.001
		(-0.05)	(-0.01)		(-0.07)	(-0.00)
$Bathrooms \geq 4$		-0.371*	-0.329		-0.384*	-0.338
		(-1.71)	(-1.46)		(-1.76)	(-1.50)
Seller Age			-0.001***			-0.001***
			(-3.05)			(-3.12)
Constant	-2.115***	-9.684***	-9.512***	-1.998***	-9.633***	-9.411***
	(-427.68)	(-10.75)	(-10.50)	(-328.70)	(-10.70)	(-10.38)
Subdivision FEs	No	Yes	Yes	No	Yes	Yes
Year-Quarter FEs	No	Yes	Yes	No	Yes	Yes
Observations	275,117	271,160	266,714	275,117	271,160	266,714
Adjusted R^2	0.008	0.166	0.167	0.012	0.167	0.168

Table OA.9: Asymmetric Reactions and Final-list-to-sales-price Revisions in China – with Relative Initial List Price and Price Appreciation

This table reports the results of the revision from the final list price to the sales price, *Revision_final_sales*. The key independent variables includes *Revision_initial_final*, *Revision_initial_final+*, *Revision_initial_final−*. We also control for *Relative_initial_list_price*, *Price_appreciation*, and house and seller characteristics. *Relative_initial_list_price* is defined as the initial list price of the house per square meter ÷ the average sales price per square meter of the houses in the same subdivision during the three months before the house's initial list date. *Price_appreciation* is the percentage growth from the average sales price per square meter of the houses sold during the first half of the three months in the subdivision before the initial listing to the average of the houses sold during the second half of the three months. *DOM_initial_final* is the number of days between the initial and final listings. See Tables 5, 6, and OA.8 for the definitions of other variables. Regressions (2)−(3) and (5)−(6) control for subdivision fixed effects (FEs) and year-quarter FEs. The sample comprises the houses transacted from January 2013 to October 2018 in seven cities. *T*-statistics are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Revision_initial_final	0.036***	0.022***	0.022***			
	(23.22)	(13.71)	(12.82)			
Revision_initial_final+				0.007***	0.007***	-0.003
				(3.42)	(3.14)	(-1.37)
Revision_initial_final−				0.079***	0.047***	0.057***
				(27.84)	(15.02)	(17.80)
Relative_initial_list_price	-0.213***	-0.203***	-0.228***	-0.122**	-0.154**	-0.198***
	(-3.75)	(-2.92)	(-3.24)	(-2.14)	(-2.20)	(-2.80)
Price_appreciation	0.002**	0.004***	0.004***	0.002**	0.003***	0.003***
	(2.44)	(3.96)	(4.10)	(2.25)	(3.75)	(3.89)
DOM_initial_final			0.100***			0.309***
			(3.26)			(9.21)
$DOM\_initial\_final^2$			-0.020			-0.066***
			(-1.31)			(-4.05)
Ln(House Size)		3.851***	3.959***		3.808***	3.876***
		(6.16)	(6.26)		(6.06)	(6.09)
$(Ln(House\ Size))^2$		-0.491***	-0.506***		-0.483***	-0.495***
		(-6.82)	(-6.94)		(-6.68)	(-6.74)
Floor_0−		-1.384***	-1.408***		-1.346***	-1.379***
		(-5.66)	(-5.69)		(-5.50)	(-5.56)
*Floor_*(10, 20]		0.027*	0.031*		0.025	0.031*
		(1.68)	(1.89)		(1.53)	(1.89)
*Floor_*(20, 30]		0.031	0.027		0.030	0.027
		(1.17)	(1.01)		(1.10)	(0.98)
Floor_30+		0.002	-0.021		0.001	-0.023
		(0.03)	(-0.28)		(0.02)	(-0.31)
Bedrooms = 2		0.154***	0.150***		0.143***	0.144***
		(5.41)	(5.31)		(5.05)	(5.10)
Bedrooms = 3		0.187***	0.182***		0.173***	0.174***
		(4.53)	(4.43)		(4.20)	(4.24)
Bedrooms ≥ 4		0.115	0.098		0.105	0.095
		(1.60)	(1.34)		(1.46)	(1.30)
Livingrooms = 1		0.104***	0.110***		0.095***	0.106***
		(2.84)	(3.01)		(2.61)	(2.88)
Livingrooms = 2		0.157***	0.170***		0.147***	0.164***
		(3.80)	(4.11)		(3.54)	(3.94)
Livingrooms ≥ 3		-0.153	-0.134		-0.153	-0.134
		(-0.82)	(-0.70)		(-0.82)	(-0.70)
Bathrooms = 1		0.064	0.044		0.070	0.042
		(0.29)	(0.20)		(0.32)	(0.20)
Bathrooms = 2		0.118	0.104		0.122	0.100

Table OA.9 continued.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
		(0.53)	(0.47)		(0.55)	(0.46)
Bathrooms $= 3$		-0.117	-0.130		-0.123	-0.143
		(-0.46)	(-0.51)		(-0.48)	(-0.57)
Bathrooms ≥ 4		-0.061	-0.105		-0.068	-0.125
		(-0.17)	(-0.28)		(-0.19)	(-0.34)
Seller Age			-0.000			-0.000
			(-0.07)			(-0.10)
Constant	-1.572***	-9.283***	-9.452***	-1.572***	-9.242***	-9.285***
	(-24.95)	(-6.78)	(-6.84)	(-24.99)	(-6.73)	(-6.68)
Subdivision FEs	No	Yes	Yes	No	Yes	Yes
Year-Quarter FEs	No	Yes	Yes	No	Yes	Yes
Observations	129,131	128,459	127,047	129,131	128,459	127,047
Adjusted R^2	0.007	0.127	0.129	0.012	0.129	0.131

Table OA.10: Reactions to Visitor Budgets in China – Individual House Regressions

This table examines the relation between a visitor's budget and the subsequent list price revision. We estimate a regression for each house. The dependent variables are list price revisions (in percentages) over the following 7, 14, 21, and 28 days, denoted as *Post_visit_list_revision*. *List_price_above_budget* equals one if the list price at the time of visit is above the budget range of the visitor and zero otherwise. *List_price_below_budget* equals one if the list price at the time of visit is below the budget range of the visitor and zero otherwise. This table summarizes the results of regressions for each house. The average coefficients and the corresponding t-statistics are reported. The sample comprises houses listed from November 2009 to November 2017 in seven cities. T-statistics are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

VARIABLES	(1) [0,7]	(2) [0,14]	(3) [0,21]	(4) [0,27]
List_price_above_budget	-0.132***	-0.170***	-0.197***	-0.209***
T-statistic	(-27.47)	(-33.11)	(-36.46)	(-37.46)
% positive	45.86%	45.50%	45.22%	45.18%
% positive+significant	3.52%	3.81%	3.91%	3.95%
% negative	53.10%	53.60%	53.94%	54.00%
% negative+significant	5.36%	5.03%	5.28%	6.86%
List_price_below_budget	0.058***	0.088***	0.109***	0.126***
T-statistic	(10.65)	(14.93)	(17.69)	(19.60)
% positive	49.85%	50.84%	51.42%	51.84%
% positive+significant	4.88%	6.14%	4.63%	5.34%
% negative	47.41%	46.75%	46.32%	45.99%
% negative+significant	3.86%	4.03%	4.12%	4.21%
Average Number of Visits	22.6	21.7	21.4	21.2
Number of House	124,273	137,495	142,850	145,576

Table OA.11: Reactions to Visitor Budgets in China – Regressions at Weekly Frequency

This table examines the relationship between a visitor's budget and the subsequent list price revision. We aggregate the visits of each house in each week and estimate their effect on the percentage change in the list price from the end of week t to the end of week $t+1$, denoted as *Weekly_list_revision*. *List_price_above_budget_fraction* and *List_price_below_budget_fraction* are the fractions of visits each week with the list price at the time of visit being above and below the visitor's budget range, respectively. *Num_visits* is the total number of visits each week. *Ln(Num_visits)* is set to zero when there is no visit. *Dummy_visit*) is a dummy variable that equals one if there is at least one visit during the week and zero otherwise. The sample comprises houses listed from November 2009 to November 2017 in seven cities. FEs denotes fixed effects. $Ln(X)$ denotes the natural log of X. T-statistics are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
List_price_above_budget_fraction	-0.600***	-0.596***	-0.595***	-0.076***	-0.076***	-0.076***	-0.616***	-0.609***	-0.608***
	(-20.93)	(-20.81)	(-20.75)	(-29.34)	(-29.15)	(-29.04)	(-14.33)	(-14.19)	(-14.17)
List_price_below_budget_fraction	0.230***	0.228***	0.228***	0.039***	0.038***	0.038***	0.297***	0.283***	0.279***
	(6.03)	(6.00)	(6.00)	(11.34)	(11.10)	(11.05)	(5.29)	(5.05)	(4.98)
Num_visits		0.038***			0.024***			0.127***	
		(7.10)			(7.02)			(18.24)	
Ln(Num_visits)			0.209***			0.139***			0.705***
			(8.01)			(48.51)			(19.79)
Dummy_visit	0.611***	0.540***	0.413***						
	(29.70)	(23.56)	(12.76)						
Constant	-0.019***	-0.022***	-0.023***	0.091***	0.041***	-0.048***	0.958***	0.634***	0.175***
	(-6.25)	(-7.06)	(-7.29)	(71.39)	(5.73)	(-15.50)	(44.95)	(22.92)	(3.89)
House FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-Quarter FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Zero Revision	Excluded	Excluded	Excluded	Included	Included	Included	Excluded	Excluded	Excluded
Zero # Visits	Included	Included	Included	Excluded	Excluded	Excluded	Excluded	Excluded	Excluded
Observations	1,205,905	1,205,905	1,205,905	3,194,855	3,194,855	3,194,855	134,780	134,780	134,780
Adjusted R^2	0.202	0.202	0.202	0.027	0.027	0.028	0.243	0.246	0.247

Table OA.12: Visitor Budget and House Transaction Likelihood in China

This table examines the relation between visitor budgets and the likelihood of a house transaction in the following days. The dependent variables equal one if the house is transacted in the subsequent 7, 14, 21, or 28 days and zero otherwise. *List_price_above_budget* equals one if the list price at the time of visit is above the visitor's budget range and zero otherwise. *List_price_below_budget* equals one if the list price at the time of visit is below the visitor's budget range and zero otherwise. The sample comprises houses transacted from January 2013 to October 2018 in seven cities. FEs denotes fixed effects. T-statistics are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

VARIABLES	(1)	(2) [0,7]	(3)	(4)	(5) [0,14]	(6)	(7)	(8) [0,21]	(9)	(10)	(11) [0,28]	(12)
List_price_above_budget	-0.019***		-0.007***	-0.022***		-0.007***	-0.024***		-0.008***	-0.024***		-0.008***
	(-33.16)		(-11.64)	(-34.77)		(-11.68)	(-36.06)		(-12.25)	(-37.70)		(-12.90)
List_price_below_budget		0.010***	0.002***		0.013***	0.005***		0.015***	0.006***		0.016***	0.007***
		(12.95)	(2.84)		(15.93)	(6.31)		(17.40)	(7.51)		(20.00)	(9.26)
Constant	0.284***	0.276***	1.476***	0.439***	0.428***	2.275***	0.548***	0.537***	2.719***	0.631***	0.619***	2.983***
	(790.91)	(889.31)	(75.84)	(1,109.54)	(1,247.99)	(89.92)	(1,381.92)	(1,552.81)	(98.00)	(1,640.05)	(1,838.64)	(102.01)
House FEs	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
Year-quarter FEs	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
Observations	2,508,520	2,508,520	2,508,520	2,508,520	2,508,520	2,508,520	2,508,520	2,508,520	2,508,520	2,508,520	2,508,520	2,508,520
Adjusted R^2	0.000	0.000	0.402	0.000	0.000	0.460	0.001	0.000	0.498	0.001	0.000	0.526
Number of Houses			281,607			281,607			281,607			281,607

Table OA.13: Seller Underreaction to Negative Budget Information in China

This table reports the results of the percentage revision from the final list price to the transaction price *Revision_final_sales*. *List_price_above_budget_fraction* and *List_price_below_budget_fraction* are the fraction of visits for which the list price at the time of visit is above the visitor's budget range and the fraction of visits for which the list price at the time of visit is below the visitor's budget range, respectively. $Visit\_intensity$ = the number of house visits ÷ (1 + the number of days) from the initial listing to the final listing. We also control house characteristics, seller age, *DOM_initial_final*, subdivision fixed effects (FEs), and time FEs. *DOM_initial_final* is the number of days between the initial and final listings. See Tables 5−6, 8, and OA.8 for the definitions of other variables. The sample comprises the houses transacted from January 2013 to October 2018 in seven cities. $Ln(X)$ denotes the natural log of X. T-statistics are in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
$List\_price\_above\_budget\_fraction$	-0.298***	-0.299***	-0.257***	-0.248***	-0.219***	-0.217***
	(-12.88)	(-12.91)	(-10.93)	(-10.50)	(-9.30)	(-9.21)
$List\_price\_below\_budget\_fraction$	-0.013	-0.012	-0.009	-0.013	-0.006	-0.001
	(-0.43)	(-0.41)	(-0.30)	(-0.43)	(-0.21)	(-0.04)
$Visit\_intensity$		0.257***	0.200***	0.328***	0.229***	0.210***
		(4.69)	(3.64)	(5.35)	(3.73)	(3.43)
$Revision\_initial\_final$					0.027***	
					(20.52)	
$Revision\_initial\_final+$						0.005**
						(2.06)
$Revision\_initial\_final-$						0.053***
						(21.60)
$DOM\_initial\_final \div 100$				0.049**	0.027	0.085***
				(2.47)	(1.37)	(4.12)
$(DOM\_initial\_final \div 100)^2$				0.002	0.005	-0.000
				(0.40)	(1.22)	(-0.08)
$Ln(House\ Size)$			3.607***	3.395***	3.393***	3.312***
			(7.07)	(6.80)	(6.79)	(6.63)
$(Ln(House\ Size))^2$			-0.448***	-0.423***	-0.423***	-0.413***
			(-7.57)	(-7.30)	(-7.31)	(-7.14)
$Floor\_0-$			-1.2784***	-1.295***	-1.259***	-1.232***
			(-6.08)	(-6.15)	(-5.95)	(-5.84)
$Floor\_(10, 20]$			0.057***	0.065***	0.060***	0.059***
			(2.98)	(3.35)	(3.11)	(3.08)
$Floor\_(20, 30]$			0.021	0.022	0.017	0.017
			(0.64)	(0.68)	(0.53)	(0.52)
$Floor\_30+$			-0.096	-0.097	-0.100	-0.100
			(-1.18)	(-1.16)	(-1.20)	(-1.21)
$Bedrooms = 2$			0.149***	0.146***	0.146***	0.138***
			(5.41)	(5.33)	(5.32)	(5.06)
$Bedrooms = 3$			0.118***	0.111***	0.108***	0.102**
			(2.83)	(2.67)	(2.62)	(2.46)
$Bedrooms \geq 4$			-0.045	-0.063	-0.061	-0.065
			(-0.61)	(-0.83)	(-0.82)	(-0.87)
$Livingrooms = 1$			0.005	0.018	0.016	0.014
			(0.12)	(0.45)	(0.41)	(0.35)
$Livingrooms = 2$			0.028	0.043	0.040	0.036
			(0.61)	(0.93)	(0.88)	(0.79)
$Livingrooms \geq 3$			-0.374**	-0.363**	-0.354**	-0.348**
			(-2.25)	(-2.16)	(-2.10)	(-2.07)
$Bathrooms = 1$			0.209	0.236	0.210	0.217
			(1.06)	(1.17)	(1.04)	(1.07)
$Bathrooms = 2$			0.304	0.322	0.296	0.302
			(1.54)	(1.59)	(1.45)	(1.49)
$Bathrooms = 3$			0.321	0.322	0.303	0.307

Table OA.13 continued.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
			(1.44)	(1.42)	(1.34)	(1.35)
Bathrooms ≥ 4			-0.121	0.001	0.013	-0.001
			(-0.41)	(0.00)	(0.04)	(-0.00)
Seller Age				-0.001	-0.001	-0.001
				(-1.40)	(-1.28)	(-1.19)
Constant	-1.980***	-1.997***	-9.499***	-9.106***	-9.027***	-8.779***
	(-164.45)	(-161.34)	(-8.66)	(-8.46)	(-8.38)	(-8.16)
Subdivision FEs	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FEs	Yes	Yes	Yes	Yes	Yes	Yes
Observations	126,169	126,169	126,165	124,123	124,123	124,123
Adjusted R^2	0.173	0.173	0.177	0.178	0.183	0.185