

# Speculators and Middlemen: The Role of Flippers in the Housing Market

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## **Abstract**

We study the behavior, strategy, and performance of investors who purchase homes with the intention of quickly re-selling or "flipping" them for a profit. Using detailed micro-level data on transactions in the Los Angeles metro area from 1988-2008 and a novel research design, we identify the presence of two very distinct types of flippers in the market. The first type act as middlemen: buying at below-market prices from motivated sellers and re-selling relatively quickly. Their strategy is not based on market timing per se and, as a result, they operate throughout the market cycle and in all neighborhoods. The second type of flippers act as speculators, choosing locations and timing to hold assets during periods of rapid appreciation. These investors hold assets for longer periods of time, obtain about average prices when buying and selling, and are strongly associated with price instability in the neighborhoods that they target. Home purchases by speculators (including many newly drawn into the business during the boom), reached a peak just as market prices maxed out in 2006, and their purchase and holding decisions during this period suggest that many may not have been particularly well informed or sophisticated. Collectively, speculative activity in the Los Angeles market is strongly associated with the boom-bust cycle at both the metropolitan and neighborhood levels.

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# 1 Introduction

Local, regional, and even national housing markets periodically experience substantial booms and busts that have significant impacts on the real economy. Yet our understanding of the root causes of these phenomena remains incomplete. Recent research on the US housing market during the 2000s shows that the share of homes purchased by investors, i.e., those purchasing a home to hold or rent not as a primary residence, increased very rapidly in exactly those metropolitan areas that experience the largest housing bubbles during this period. The primary goal of this paper is to study the behavior of these investors in much greater detail.

Housing provides a prime example of a thin market for high value, durable goods. In such markets, intermediaries often play a number of important economic roles. In housing markets, these intermediaries are often referred to as “flippers”, a term used to describe individuals or firms that buy homes with no intention to reside in or rent the property, but simply to quickly resell at a profit. Flippers may serve as *middlemen*, purchasing from sellers with substantial holding costs who cannot afford to wait for the right buyer, thereby providing liquidity in this heterogeneous market. They may also make important *physical investments* in houses, if improvements are optimally made when a house is empty or can be done by them at relatively low cost.<sup>1</sup> And, they may operate as *speculators*, seeking to exploit arbitrage opportunities made possible through either superior information about market fundamentals, or by exploiting deviations from the fundamentals resulting from naïve decision-making on the part of other market actors.

The goal of this paper is to identify the activity of flippers operating in these three distinct economic roles and to study their impact on the housing market. Our analysis is based on comprehensive micro-level house transaction data from the Los Angeles metro area from 1988-2008 that allows us to identify flippers and study their activity. We introduce a novel research design to decompose observed returns on each flipped home into four components: (i) any discount on the transaction price at the time of purchase, (ii) any premium on the price at the time of sale, (iii) market returns during the holding period, and (iv) any physical improvements made to the property by flippers. This last source of returns presents an econometric challenge for us since improvements are not directly observable in the data. It is here that our research design exploits the panel nature of the data to identify these components of the return. In particular, by examining sales prices in transactions between pairs of non-flippers both prior to and following the period where a flipper buys and sells the property, we are able to control for any persistent changes in the houses unobservable quality that may have been due to flipper investment.

We establish that middlemen and speculators (i) follow very distinct strategies for when and where to buy and (ii) generate returns from almost completely distinct sources.<sup>2</sup> Middlemen hold

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<sup>1</sup>In this role, flippers may not only generate returns for themselves (if they can make these improvements at relatively low cost), but may serve to maintain and restore the housing infrastructure of a community, leading to positive externalities in terms of house values and the local tax base for neighboring homeowners.

<sup>2</sup>Although not the primary focus of the paper, our research design also enables us to measure the impact that flippers have on the market through investment in physical home improvements. We estimate that flippers of both types (speculators and middlemen) invest little more than the typical homeowner in their homes, implying that their

properties for very short periods of time (a median of six months) and earn most of their return by buying houses relatively cheaply. Flippers in this role tend to be professionals; the same individuals are observed transacting numerous properties throughout the sample period. Market timing is not an important source for their returns; they operate throughout booms and busts in the housing market and target submarkets that, if anything, are appreciating more slowly than the rest of the metro area.

By contrast, speculators tend to enter the housing market at an increasing rate as prices rise. They do not buy at much of a discount or sell at a premium, but instead earn almost their entire return through timing the market, i.e., earning the average market return. They operate only during boom times and target submarkets of the Los Angeles area that experience both an above average rate of appreciation in the short term (next 1-2 years) and a sharp decline in the intermediate term (3-5 years). In this way, entry by speculative flippers is strongly associated with the amplification of local housing price cycles.

Interestingly, there are a number of signs that the speculators that entered the market during the most recent housing boom may not be particularly sophisticated . First, perhaps fueled by access to equity in their primary residence as prices rise, speculators tend to be amateurs that are not particularly experienced at flipping houses. Secondly, many speculators continue to purchase properties at a rapid rate through the point that market reaches its peak and hold a large fraction of their purchased properties well past the peak, thereby experiencing substantial losses.<sup>3,4</sup> Here, our paper is related to Brunnermeier and Nagel (2004) who examine the potentially destabilizing force of hedge funds during the technology bubble. While their findings suggest hedge funds may be more sophisticated than the speculators that we study (a fact which should not be terribly surprising), like their paper, ours too calls into question a central tenet of the efficient markets hypothesis: that it is always optimal for rational speculators to attack a bubble.

Taken together, our analysis provides strong evidence that flippers play multiple economic roles in the housing market. As middlemen, flippers may significantly enhance welfare by providing liquidity to high holding cost sellers. As investors in durable good quality, they may promote neighborhood gentrification. Finally, as speculators, they are strongly associated with, and likely contribute to, increased volatility in local housing markets, which has serious economic and social consequences. Given these roles' dueling implications for welfare, and the fact that much of their activity occurs over short holding periods, it may be difficult and suboptimal to target flippers with anti-speculative policy prescriptions such as transaction taxes, which have been suggested in other

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impact on the market comes primarily from their roles in transacting and holding properties.

<sup>3</sup>While our research design allows us to decompose the returns for a particular flipped house, it does not allow us to measure the returns to operating in the flipping business *per se*. In particular, because the same individuals that flip certain properties may hold others for a very long time (presumably as rental units), the lack of information on rents in our dataset precludes us from calculating returns for individual flippers. Moreover, our analysis provides only an *ex post* estimate of the particular realization of returns for Los Angeles over the study period, rather than an *ex ante* measure of expected returns. For these reasons, we confine the focus of our paper to a study of the behavior and decomposition of the sources of returns for the distinct types of flippers described above.

<sup>4</sup>Whether the current boom and bust cycle was in fact a bubble in housing is a subject of intense debate. See Himmelberg, Mayer, and Sinai (2005) for a detailed discussion.

speculative markets<sup>5</sup>, or by limiting their ability to finance investment.<sup>6</sup>

The paper proceeds as follows: Section 2 presents a simple theoretical discussion of the economic roles of flippers as middlemen and speculators. Section 3 describes the unique dataset used and the definition of a flipper. Section 4 outlines the research design that will allow us to identify flipper returns and investment. Section 5 gives our primary empirical results as well as robustness checks for these findings. Section 7 extends our analysis to the neighborhood level and focuses on what types of neighborhoods flippers target and their impact on these neighborhoods. Section 8 investigates whether some flippers were caught holding houses when the housing market turned. Section 9 concludes.

## 2 A Conceptual Framework

To frame the empirical analysis, it is helpful to present a conceptual discussion that highlights the potential economic roles of flippers as middlemen and speculators.

### 2.1 Flippers as Middlemen

Housing markets are a classic example of a thin market for high-valued durable goods and, as a result, the home-selling problem is generally modeled in a search theoretic framework (add cites). When selling a home, a household lists the property for sale and waits for offers from buyer(s) to arrive, determining its reservation price (i.e., minimum acceptable offer) as a function of market conditions and its motivation to sell or holding costs. In general, holding costs for comparable properties vary across sellers depending on how quickly they need to relocate, their consumption value from residing in the house (if they continue to do so), and their borrowing costs.

Flipper who purchases a property with plans to immediately put the house back on the market face an analogous home-selling problem to that of other home-owners. As a result, flippers will be able to profitably bid above the seller's reservation price only when their holding costs are lower than that of the seller. The holding costs of flippers will generally be governed by their borrowing costs or, more generally, their cost of capital.

Because flippers do not receive consumption value from residing in the home, their holding costs will generally be greater than those of a large fraction of sellers who can continue to reside in their home while waiting for offers to arrive and face little pressure to sell quickly. A motivated seller, however, may have a holding cost that exceeds those of flippers if, for example, the seller needs to relocate to a new city or sell a house quickly to settle a divorce.<sup>7</sup> When transaction costs are sufficiently low, a flipper's maximum bid will exceed the reservation price of

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<sup>5</sup>See, for example, Tobin (1974), Tobin (1978), Eichengreen, Tobin, and Wyplosz (1995) or Summers and Summers (1988).

<sup>6</sup>A 2006 HUD regulation preventing FHA financing for houses sold within 90 days of purchase likely had this effect. More generally there is reason to believe a wave of "anti-flipper" sentiment may lead to further, similar legislation.

<sup>7</sup>Springer (1996) finds that distressed sellers deal more quickly and sell for less than other sellers. Glower, Haurin, and Hendershott (2003) find that when a seller takes a new job, he sells faster than average, indicating he likely has a higher holding cost.

sufficiently motivated sellers and flippers will be able to purchase the property with the intention to immediately re-list it for sale, waiting more patiently than the existing home-owner for a strong offer to arrive.

The economic function of flippers that buy properties from especially motivated sellers, hold them for a short period, and then sell them to a buyer that places a sufficiently high value on the property is that of a middleman. When flippers operate as middlemen, motivated sellers are dynamically matched to future buyers that place a higher value on the property (on average) than those who the seller would have sold to in the absence of flippers. In this capacity, flippers provide liquidity to the market, essentially providing a price floor that is a function of their cost of capital and market conditions, and their presence generally improves the economic efficiency of the market.

## 2.2 Flippers as Speculators

The theoretical finance literature supports (at least) two broad rationales for the existence of speculators in the housing market. Most obviously, efficient market theory admits an economic role for speculators that have access to better information than the broad set of agents participating in a market. Given the decentralized nature of the housing market, with many individuals participating in the home buying or selling process only a handful of times during their lives, it is easy to imagine that some market professionals might be especially well-informed or be able to process information in a sophisticated way that generates arbitrage opportunities. In the classic theory of efficient markets, speculators, acting on the basis of their superior information, serve to align prices more closely with market fundamentals, generally improving the efficiency of the market.

Modern finance theory admits a wider range of strategies for speculators and a much more ambiguous understanding of their impact on welfare and efficiency.<sup>8</sup> One starting point for much of modern finance theory is the presence of a set of naïve market actors, noise traders, who are subject to expectations and sentiments that are not fully justified by information about market fundamentals. By following simple strategies, such as chasing trends, or by sticking to rules of thumb, noise traders can create distortions between prices and market fundamentals.

In this setting, potential arbitrageurs face multiple risks. Even if they are fully aware that prices have temporarily deviated from the fundamentals, there is a risk that they might deviate further in the short-run (depending on the beliefs and activity of the noise traders) before eventually falling back in line with the fundamentals. It is not always optimal, therefore, for arbitrageurs to simply take a short position on any observed market deviations from the fundamentals.

In fact, it can be optimal to pursue a much wider range of strategies. If, for example, noise traders engage in positive feedback trading - i.e., have a tendency to extrapolate or to chase the trend, it can be optimal for rational speculators to jump on the bandwagon (De Long, Shleifer, Summers, and Waldmann (1990)). By buying as noise traders begin to get interested in a market, speculators actually fuel the positive feedback trading that motivates the noise traders. And, by selling out as the market nears a peak, speculators speed the return of the market to the

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<sup>8</sup>See Shleifer and Summers (1990), Barberis and Thaler (2003) and Shiller (2003) for summaries of this literature.

fundamentals. In this case, rational speculators take advantage of the noise traders by strategically selling out before the noise traders realize the bubble is about to burst. In this way, it is easy to see that the welfare consequences of the existence of speculators need not be positive. To the extent that their actions fuel bubbles and increase volatility in the market, speculators tend to decrease welfare and market efficiency.

Finally, it is important to keep in mind that the relatively high holding costs of flippers, operating as either speculators or middlemen, limit their overall impact on the market. Because flippers generally do not reside in the property while holding it, they will only purchase properties when their expected returns, whether achieved by buying low from motivated sellers or speculating on market appreciation, exceed their expected holding and transactions costs. For middlemen, opportunities to buy may occur under any market conditions, provided they are able to identify especially motivated sellers (those with higher holding costs than their own). Speculators will require expected market appreciation to be sufficiently high to justify their purchases and, therefore, will be active in only those times and places where conditions are right.

### 3 Data

The main goal of our paper is to study the behavior of flippers operating as either middlemen or speculators in a housing market over a long period of time. The primary data set that we have assembled for our analysis is based on a large database of housing transactions from Dataquick. For each transaction, the Dataquick data contain the names of the buyer and seller, the transaction price, the address and property identification number, the transaction date, and numerous characteristics including, for example, square footage, year built, number of bathrooms and bedrooms, lot size and whether the house has a pool.

The data set that we use for our analysis includes the complete census of housing transactions in the five largest counties in the Los Angeles metropolitan area (Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties), between 1988 and 2009. Dataquick collects information from two sources. Its transaction variables, which include the date, price, and names of the buyer and seller are based on publicly available data and thus cover every transaction in the Los Angeles metropolitan area during the study period. Its housing attribute variables are drawn from a second public source, the local tax assessor's office. A key drawback is that Dataquick only maintains a current assessor file, overwriting historical information, so that only the attributes of a house are only known as of 2009, rather than the date a sale took place. This prevents researchers from tracking major home improvements by using changes in house characteristics over time. This drawback motivates the research design that we introduce below to address the possibility of unobserved improvements to properties. /footnoteA research design to address the possibility of unobserved improvements to properties would be necessary even if Dataquick kept track of housing attributes on a continuous basis, as many home improvements (e.g., a renovated kitchen or bathroom) would not generally affect the more basic attributes of the home (e.g., lot size, square footage) collected

by the tax assessor).

From the initial set of transactions we drop a small number of observations in order to ensure that data used in the analysis is of especially high quality. In particular, we drop observations if a property was subdivided or split into several smaller properties and resold, the price of the house was less than \$1,<sup>9</sup> the house sold more than once in a single day, the price or square footage was in the top or bottom one percent of the sample, there is a potential inconsistency in the data such as the transaction year being earlier than the year the house was built, or the sum of mortgages is \$5,000 more than the house price as this may indicate that the buyer intends to do substantial renovations. Table 1 provides summary statistics of our primary data set.

	Mean	Std. Dev
Price	280,823	195,478
Square Footage	1,605	615
Transaction Year	1999.8	4.99
Year Built	1970.2	21.2
Has Loan?	0.908	0.289
Loan to Value	0.786	0.288
Number of Transactions	2.20	1.17

Table 1: The table shows transaction-level summary statistics for data that cover five counties in the LA area (Los Angeles, Orange, Riverside, San Bernardino, and Ventura). Based on 3,544,615 transactions from 1988-2009. Loan to value is measured relative to the price paid.

Table 1 provides summary statistics for our primary data set based on a full sample of over 3.5 million transactions between 1988-2009. Homes in the Los Angeles area are relatively expensive, especially considering their relatively small size, and recently built, compared to those in many other American cities. The vast majority of buyers take out a mortgage, with an average loan-value ratio of approximately 80 percent. Finally, for the homes that we observe sell at least once, the mean number of transactions during the sample period is 2.20, indicating that these homes sell on average once every 9-10 years.

Figure 1 shows the basic dynamics of prices and transaction volume for the Los Angeles metropolitan area over the study period. Following a rapid increase in prices in the late 1980s, the early 1990s were a "cold" market period for Los Angeles, with prices declining by roughly 30 percent between 1992 and 1997 and transaction volume average only a little more than 30K houses per quarter during this period. Starting in the late 1990s and continuing until early 2006, the Los Angeles housing market experienced a major boom, with house prices more than tripling and volume roughly doubling to just short of 60K homes transacted per quarter. Most of the house price appreciation experienced during the boom, had already been conceded back by the end of 2008, with transaction volume falling to record low levels (less than 20K per quarter) over this period in late 2007 and early 2008.

<sup>9</sup>A price of zero suggests that the seller did not put the house on the open market and instead transferred ownership to a family member or friend.

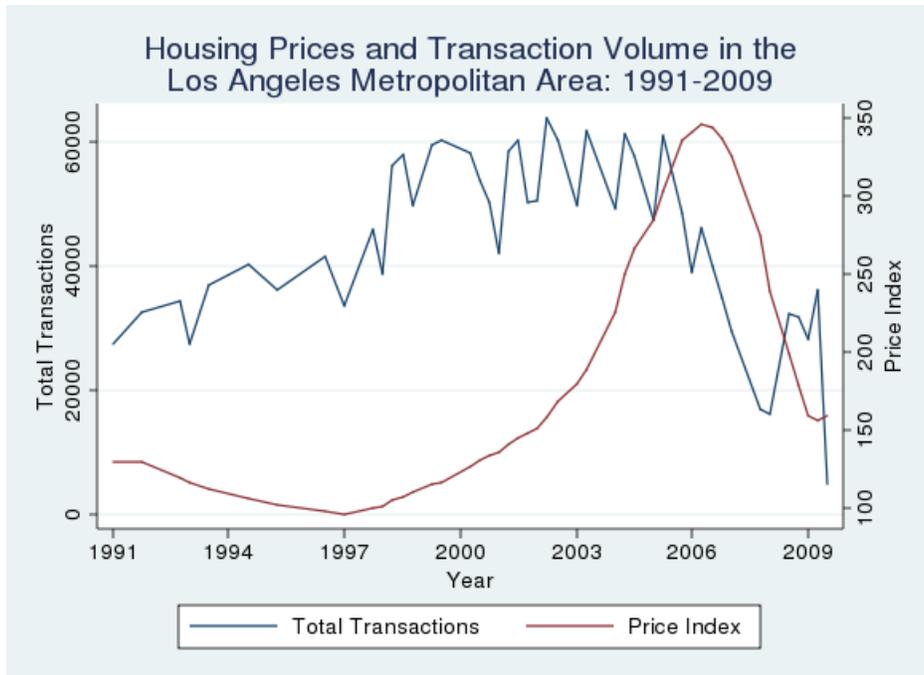


Figure 1: Annual transaction volume cover five counties in the LA area (Los Angeles, Orange, Riverside, San Bernardino, and Ventura), from 1988-2009.

In our analysis below, we will find it helpful to distinguish three key market periods: the "cold" market period in the early 1990's (1992-1998), the "hot" or boom market period in the late 1990's and early 2000's (1999-2005) and the "post-peak" period (2006-2009).

### 3.1 Flippers

A basic measurement challenge for anyone wishing to study the behavior of market actors that we might refer to as flippers, speculators, middlemen, or investors is how to identify them in the data. A clever approach utilized by ? is to examine credit reports, looking for cases where the same individual is observed to hold mortgages on multiple properties. While some instances of second home purchases may be motivated by reasons other than pure investment (e.g., vacation properties, first homes purchased for children), by carefully documenting the pattern of new home purchases by individuals who own multiple properties, these authors are able to provide a reasonable proxy for the amount of investor activity in a market at a given point in time. As mentioned in the Introduction, ? document that a large fraction of new mortgage originations (upwards of 50 percent in some markets) during 2004-2006 in the states that experienced the largest housing booms/busts were made to individuals who already owned at least one house.

Figure 2 reports the time series for three distinct proxies for investor and flipper behavior in the Los Angeles market between 1991-2009 derived from our transaction data set. The first of these, labeled "Second Homes" is constructed in the spirit of ?. In particular, we categorize a home as a second home if the buyer's name matches that of an individual that we also observe

to be simultaneously holding another property in our dataset. A fundamental problem with this definition, of course, is that for an individual to be observed as a home-owner at all, they need to have purchased a home since the beginning of our study period in 1988. Thus, our measure of "Second Homes" is likely to substantially understate the amount of actual second home purchases, especially near the beginning of the sample period. For the latter reason, it is important not to over-interpret the trends in the measure. However, even subject to this limitation, our measure of second home purchases tracks that of ? very closely, rising to a peak of nearly 30 percent of the market in 2006. <sup>10</sup>

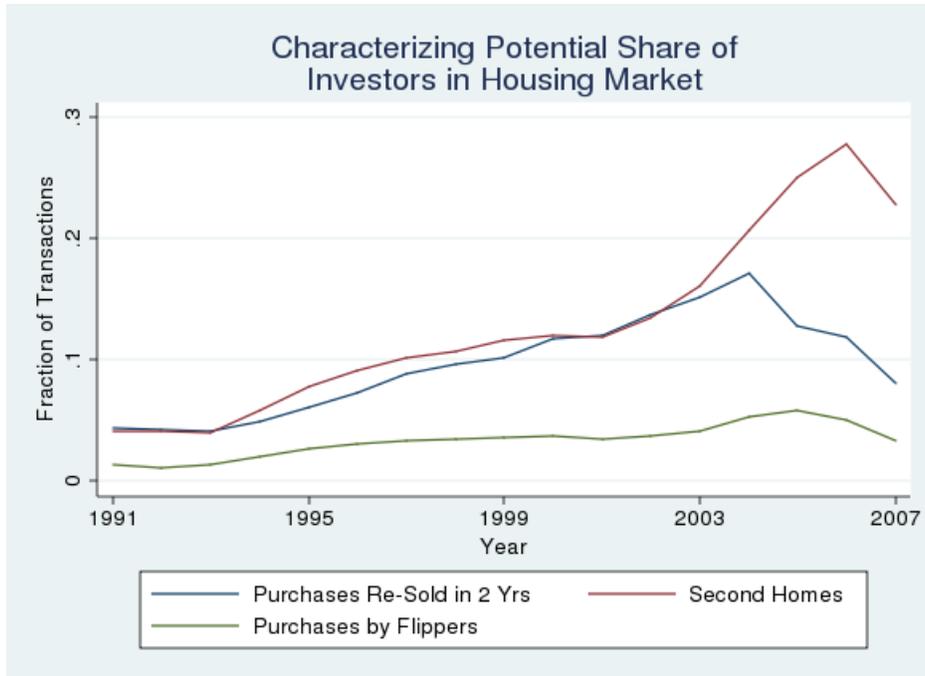


Figure 2: The figure plots three data series that serve as proxies for investor and flipper activity. "Second Homes" plots the fraction of new purchases by individuals with names matching those of a current home-owner in the data set. "Re-Sole within Two Years" plots the fraction of all homes purchased in a given quarter that are res-sold within two years. "Flipper Purchases" depicts the fraction of homes purchased by individuals that are identified as flippers for the purposes of our analysis. The data cover five counties in the LA area (Los Angeles, Orange, Riverside, San Bernardino, and Ventura), from 1988-2008.

The broad category of housing market investors, of course, includes many that would not be consider flippers operating in the role of middleman, speculator, or physical improver of a property. Instead, many investors purchase properties with the plan to rent the property to a tenant and hold it for an intermediate or long period of time. To identify flippers, therefore, we look for evidence that an individual is generally engaged in a strategy of purchasing homes with the intention of

<sup>10</sup>A second limitation of our definition of second home purchases is that it is based on name matches and, therefore, might be overstated because of false matches of different individuals with the same name. The qualitative pattern of a sharp peak in the presence of second home purchasers in 2004-2006, however, is not affected by the exclusion of the most common names observed in the data set.

re-selling the property after a relatively short holding period.

A second time series shown in Figure 2, "Purchases Re-Sold within Two Years" simply reports the fraction of all homes (regardless of the buyer) purchased in a given quarter that are re-sold within two years. Well over 15 percent of all homes purchased near the peak of the boom in 2003-2005 were re-sold within two years, a rate that is more than triple the corresponding rate for the cold market period of 1991-1994, when home prices were declining. While certainly a portion of the buyers that re-sell homes within two years of purchase are owner-occupants rather than investors, this time-series provides a proxy for flipper-like behavior in the market throughout the cycle, providing a sense that this activity is both highly pro-cyclical and economically significant.

For the vast majority of our analysis, we focus not on flipped home per se, but on a set of individuals and firms that we identify as "flippers". We identify flippers using two pieces of information in our dataset: the period of time that a house was held and the names of buyers and sellers. We define a flipper to be anyone that we observe buying and selling at least  $X$  different properties while holding for less than  $Y$  years. For the vast majority of our analysis we set  $X=2$  and  $Y=2$ , (i.e., flippers are those who have bought and sold at least two properties, each with a holding period of less than two years), but we also explore in detail how flipper behavior, strategy, and returns are affected by variation in  $X$  and how robust our results are to variation in  $Y$ .

Limiting our definition of flippers to individuals that we observe buying and selling multiple homes after a short holding period provides a conservative measure of flipper activity, as we certainly miss any individuals who engage in this activity only once during the sample period or who tend to hold properties for slightly longer periods of time. We do so to make sure that we avoid (as much as possible) counting normal owner-occupants as flippers. The final data series, "Flipper Purchase" shown in Fig 2 reports the fraction of housing transactions in each quarter that were made by individuals that we define as flippers. Note that this measure includes all homes purchased by flippers regardless of how quickly these homes are re-sold. This time series generally tracks housing market conditions, peaking at over 5 percent of all purchases in 2006, a rate that is 4-5 times higher than the rate of flipper activity in the early 1990s.

Overall, the three broad metrics of investor or flipper activity shown in Fig 2 show a consistent pattern of pro-cyclical behavior, with purchases by these agents reaching a maximum at the peak of the housing boom, at levels that are roughly three times the level activity observed during the market trough in the early 1990s.

### **3.2 Purchase Activity by Flippers**

In the analysis that follows, we document consider heterogeneity in flipper behavior, strategy, and outcomes that is strongly associated with experience, i.e., the number of times that we observe them buying and selling homes after holding for a short period. Figure 3 shows the percentage of all homes purchased in a given quarter by flippers in four experience categories. In particular, we define the category Flipper 1 as those flipping 2 or 3 houses, Flipper 2 as those flipping 4-6 houses, Flipper 3 as those flipping 7-10 homes, and Flipper 4 as those flipping 11 or more homes. For the

purposes of this definition, we count a purchase as a flipped home if it was re-sold within two years and we categorize flippers on the basis of their activity over the full sample period. The sum of all four data series presented in Figure 3 produces the total count of flipper purchases shown in Figure 2.

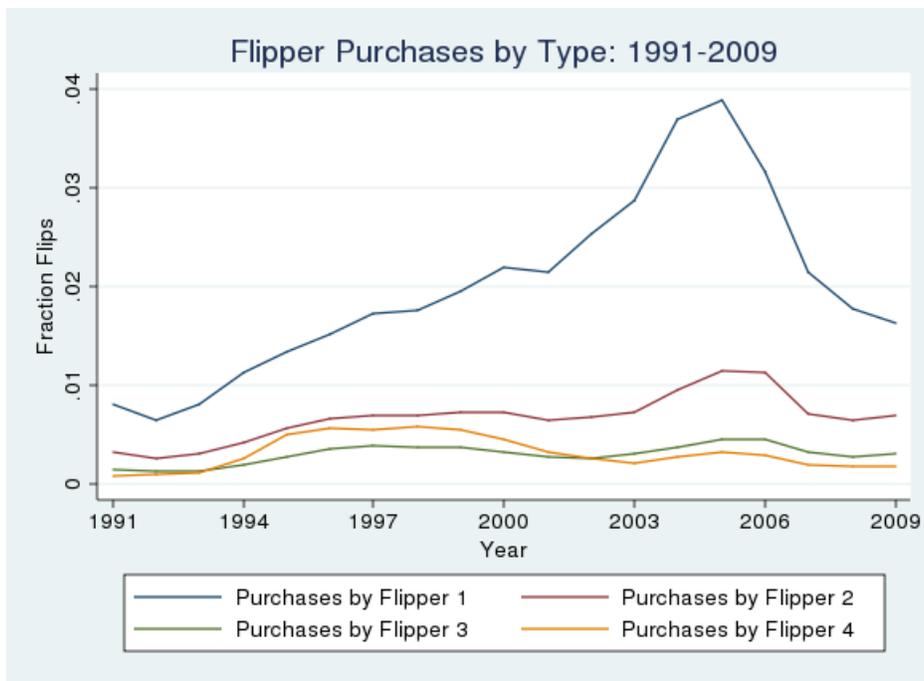


Figure 3: The figure plots flipper sales by year. Flipper 1’s: 2-3 flips, flipper 2’s: 4-6 flips, flipper 3’s: 7-10 flips, flipper 4’s: 11 or more flips. The data cover five counties in the LA area (Los Angeles, Orange, Riverside, San Bernardino, and Ventura), from 1988-2008.

Figure 3 shows a very different pattern of activity on the basis of experience. The purchase activity (as a percentage of all homes sold) by more experienced flippers (Flipper 3 and Flipper 4) is relatively constant over the study period, actually peaking in the colder market period of the mid-1990s. This pattern of activity is consistent with the view that the more experienced flippers tend to operate as middlemen, looking for opportunities to buy from very motivated sellers with higher holding costs than their own, opportunities that are just as (or perhaps more) likely to arise in cold versus hot market conditions.

The purchase activity by inexperienced flippers (Flipper 2 and especially Flipper 1) is highly pro-cyclical, rising from a very small percentage of the overall market in the early-mid 1990s to almost 5 percent of the market in 2004-2006. This pattern of activity is consistent with the view that many inexperienced investors were drawn into the market during the boom period. While a measure of activity is not enough to establish the motives of these flippers, the timing of their purchases is certainly consistent with a view that they are seeking to make a quick speculative gain on the basis of market appreciation.

It is worth noting at the outset that that our definition of flipper experience is far from perfect. In particular, our measure of experience is based on activity over the full study period. Thus, many

of the flippers that we categorize as inexperienced may, in fact, ultimately become more experienced if they continue to flip homes after our study period ends. Moreover, we certainly expect survival in the flipping business to be non-random, with those that perform better and can operate profitably lasting long enough in the business to reach the higher experience categories. In each section of our analysis below, we will explicitly address these and other issues that arise due to our definition of flipper experience.

A final aspect of flipper purchase activity that is important to describe at the outset of our analysis is the heterogeneity in the attributes of homes purchased by flippers of each type. To this end, Table ?? summarized some basic characteristics of the homes purchases by flippers of each type.

Flipper Type	All Flips				All Houses
	1	2	3	4	
Year Built	1965.1 (23.2)	1959.8 (23.6)	1955.4 (23.6)	1949.6 (22.6)	1971.0 (20.9)
Year Bought	2001.9 (3.19)	2001.4 (3.56)	2001.0 (3.71)	1999.6 (3.81)	2000.2 (5.00)
Square Feet	1,504 (592)	1,438 (513)	1,360 (516)	1,284 (440)	1,563 (592)
N	25,181	5,678	2,322	2,596	2,187,081

Table 2: The table shows house-level summary statistics by type of flipper for data that cover five counties in the LA area (Los Angeles, Orange, Riverside, San Bernardino, and Ventura). Standard deviations in parentheses. The right hand column includes repeat sales (homes that sell at least twice), which form the basis for our analysis below.

As the table makes clear, flippers, especially experienced flippers, generally purchase properties that are somewhat older and smaller than the homes that sell in the market as a whole over our study period. The research design that we present below for estimating the sources of flipper returns is motivated in large part by the very real possibility that flippers may systematically purchase older homes or "fixer-uppers" that can benefit from substantial renovations or improvements before being re-sold. We also take additional steps to ensure that we compare the sources of returns for flippers for comparable houses - in particular, at the mean of homes that are sold in the market during the sample period.

### 3.3 Flipper Holding Times

Before turning to our analysis of the sources of flipper returns, we present a final descriptive characterization of the heterogeneous behavior of flippers at each experience level. In particular, Table ?? reports the fraction of homes purchased by flippers of each type within 1-4 years of the purchase. The table reports these statistics for our main study period of 1992-2005 and separately for purchases made in the cold market period of 1992-1998 and the hot market period of 1999-2005. To measure holding periods of up to four years, it is, of course, necessary to restrict attention to

homes that were purchase at least four years from the end of the sample in 2009.

Table ??

	All 1992-2005				Cold 1992-1998				Hot 1999-2005			
Flipper Type	1	2	3	4	1	2	3	4	1	2	3	4
Sell Within:												
1 Year	0.263	0.269	0.321	0.571	0.227	0.312	0.429	0.684	0.308	0.302	0.328	0.562
2 Years	0.447	0.370	0.410	0.636	0.367	0.379	0.487	0.738	0.531	0.429	0.438	0.633
3 Years	0.512	0.443	0.474	0.676	0.425	0.435	0.532	0.763	0.597	0.504	0.507	0.679
4 Years	0.556	0.490	0.519	0.705	0.486	0.488	0.576	0.789	0.643	0.560	0.566	0.714

Table 3: The table reports the fraction of the homes purchased by flippers of different types sold with 1, 2, 3, and 4 years, respectively, in the LA area (Los Angeles, Orange, Riverside, San Bernardino, and Ventura).

The figures reported in Table 3 show that flippers of all types hold a significant fraction of the properties that they purchase for more than four years. This may reflect the fact that these investors intend to hold some properties as rental units or may reflect the fact that one of the purchases that we observe in the data is the flippers primary residence.

Table 3 also reveals significant heterogeneity in holding periods by both flipper type and market conditions. Experienced flippers, in particular those in category Flipper 4, are much more likely to re-sell homes after very short holding periods. In fact, they sell close to 57 percent of all of the homes they purchase within the first year and more that 70 percent within four years. During the cold market condition, this pattern is even more pronounced as Flipper 4’s sell almost 70 percent of their purchases within a year and almost 80 percent within four years. This pattern is consistent with the notion that Flipper 4’s purchase many homes with the intent to put them immediately back on the market and is consistent with the notion that these experienced flippers may be serving the economic function of a middleman, seeking to buy low from motivated sellers and re-sell quickly rather than hold properties during periods of rapid market appreciation.

By contrast, the figures for inexperienced flippers are qualitatively very distinct. Flipper 1’s, for example, sell only 26 percent of their purchases within a year of purchase, a figure that steadily rises to 56 percent by the four year mark. This pattern of behavior is more consistent with a strategy of buying properties with the intention of capturing market appreciation – a strategy which, of course, requires a reasonable holding period.

## 4 Measuring the Sources of Flipper Returns - Research Design

Having documented time series pattern of purchase activity by flippers and experiences, we turn next to an analysis of the sources of their returns. At the outset, it is important to note several key limitations of this analysis that shape the interpretation of the results of our analysis. In particular, we do not observe (i) whether a home is rented to a tenant during a holding period,

(ii) any transactions costs that a flipper might pay while buying and selling a house, and (iii) the borrowing costs (or, more broadly, the cost of capital) that a flipper faces when procuring a mortgage (or cash investments) in order to purchase a property. Thus, we will not be able to calculate the profit, return, or rate of return that a flipper receives on each investment.

Instead, we will focus on only on the components of the returns that are associated directly with the purchase, holding, and sale of the property. In particular, we seek to identify (i) the discount that flippers get (relative to the average sales price in the market in the corresponding period at the time of purchase, (ii) the market return that they earn over the period that they hold the property and (iii) the premium that they get at the time of sale (again relative to the average sales price in the market at the time). By measuring these sources of flipper returns, we seek to categorize flippers on the basis of their motivation and strategy, i.e., whether they appear to be operating as middlemen or speculators.

An important complicating factor is that flippers may systematically make physical improvements to the properties that they purchase, improvements which are unobserved in our data set for the reasons mention in Section 3. A major concern is that a naive analysis of the sources of flipper returns from buying, holding, and selling a property might wind up counting money that flippers invested in improving a property as part of their return. If, for example, a flipper purchased a house for 150k, put 40k into it and re-sold it for 210k, we would want to measure this as a gain of 20k not 60k.

To address this problem, we develop a research design that aims to uncover the sources of flipper returns from buying, holding, and selling a property in the (potential) presence of unobserved investment. The method is based on a repeat sales index which we first review.

Case and Shiller (1987) introduced the repeat sales regression to generate a price index:

$$\log(p_{it}) = \alpha_1 y_{qt} + \alpha_2 id_i + \varepsilon_{it} \quad (1)$$

In equation 1,  $y_{qt}$  represents a quarter fixed effect and  $id_i$  is a house-level fixed effect on house  $i$ . Exponentiating the coefficients on the time fixed effects gives the price index for each quarter, which can be normalized to 1 in any quarter. This framework requires that quality is constant for each house across sales. Additionally, it assumes that the market evolves homogeneously across different regions of a metropolitan area.

We modify this framework by first introducing controls for whether the buyer or seller is a flipper. If the coefficient on the *Flipper Buyer* dummy is negative, it suggests that flippers buy houses below their expected value. A positive sign on the *Flipper Seller* coefficient would indicate that flippers sell houses for more than their expected value.

$$\log(p_{it}) = \alpha_1 y_{qt} + \alpha_2 id_i + \beta_{1k} b_{kit} + \beta_{2k} s_{kit} + \varepsilon_{it} \quad (2)$$

In equation (2),  $b_{kit}$  is a dummy for if the buyer is a flipper of type  $k$  and  $s_{kit}$  is a dummy equaling one if a flipper of type  $k$  is the seller. This estimated coefficients related to flipper activity will

provide estimates of the discount that flippers get when buying and the premium they command when selling, provided that house quality is constant over time. If, however, flippers purchase houses and then invest heavily to improve them before putting them back on the market, these parameter estimates will be biased. In particular, we would expect  $\beta_{1k}$  to be negative because the true house quality in this period would be less than the estimated quality. Similarly,  $\beta_{2k}$  would likely be positive because the true quality in this period would be greater than the quality estimated. The researcher may, therefore, infer that flippers are buying at a discount and selling at a premium when they are simply investing more than the average homeowner.

Because of this concern, we adapt this framework to control for the possibility of unobserved investment in the property by the flipper. To do so, we add an additional term to the regression:

$$\log(p_{it}) = \alpha_1 y_{qt} + \alpha_2 id_i + \beta_{1k} b_{kit} + \beta_{2k} s_{kit} + \beta_{3k} a_{kit} + \varepsilon_{it}. \quad (3)$$

Here we introduce  $a_{kit}$ , which is equal to one if, in any previous period, we see a flipper of type  $k$  purchase house  $i$ . This variable, therefore, controls for any improvements made by the flipper that extend beyond average homeowner investment since  $\beta_{3k}$  captures the change in house quality between when the flipper purchased and sold the home.

In any repeat sales framework, a property must sell at least twice in order for that house to be useful in identifying the underlying pattern of price appreciation in the market, i.e., be helpful in identifying any coefficients other than the corresponding house fixed effect. As in the standard repeat sales framework, all houses that sell at least twice will be useful in identifying the time series of market appreciation  $\alpha_1$  in equation 3. The identification of the coefficients corresponding to the sources of flipper returns and investment,  $\beta_{1k}$ - $\beta_{3k}$ , however, require homes to sell at least four times, with at least one non-flipper to non-flipper transaction before and after a flipper buys and sells the house.

Figure 4 provides a visual illustration of how this structure controls for unobserved investment. In particular, consider a house that sells at four transaction times: A, B, C and D. At A both transacting parties are non-flippers. At B the house is sold to a flipper by the non-flipper. At C the flipper sells the house to a non-flipper. At D it is sold to a non-flipper by the non-flipper. The observation before the flipper buys is used, in effect, to identify the original house quality and the observation after the flipper sells is used to identify the new house quality.

The left figure shows a flipper who buys below market price in period B and is able to sell above market price in C without making any improvements. In the right figure, the flipper makes improvements as can be seen by the fact that  $p_D$  continues to stay above its expected price, conditional on  $p_A$ . If we did not account for this improvement, it would appear that the flipper sold the house for above market value when in fact he sold it for exactly market value.

Several important features of this research design are worth noting. First, our estimates of the sources of flipper returns will be based on houses that have sold at least four times during the sample period and fit this ABCD structure. This means that, by construction, the period of time that the previous owner held a property before selling to a flipper is limited (as the sale at point

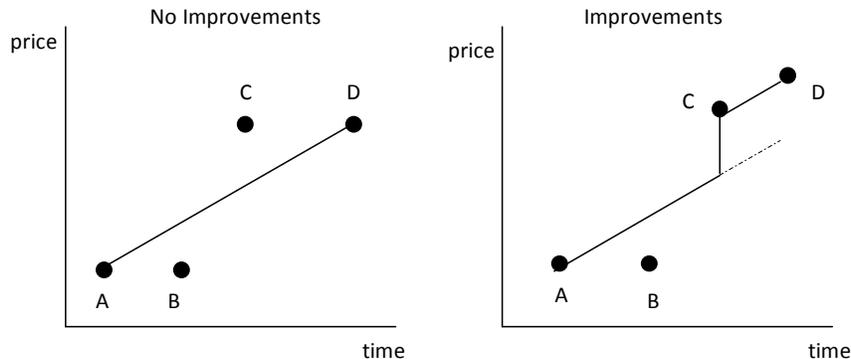


Figure 4: Left: A case where the flipper did not make improvements between periods B and C. Right: An instance where the flipper did make improvements between B and C.

A must be within the study period). This excludes a set of houses that may have been neglected over a long period of time by an owner (i.e., "fixer-uppers") from contributing to our estimates of the sources of flipper returns.<sup>11</sup> While flippers, especially those seeking to make significant physical improvements, may in fact target such homes for purchase, such homes will not generally be the ones that identify the sources of returns given our research design.<sup>12</sup>

A related concern is that flipper improvements may be underestimated if these improvements depreciate significantly under the care of the next home-owner. Of course, once again by construction, the length of time between when a flipper sells the house and when the house is re-sold by the subsequent buyer is limited by the fact that the sale at point D needs to take place within the study period. This provides a limited window for any physical improvement made by the flipper to have depreciated between points C and D. In robustness checks below, we also report results for a sub-sample that restricts the window of time between A and B and/or between C and D to less than three years.

In the analysis that follows, we report results for two slight adjustments to the specification shown in equation 3. First, we include a series of dummy variables for how many times we have seen a given property previously transacted in the study period. In general, sellers make some home improvements at the time of a sale so that a house will show well. Thus, we include these additional sales number dummy variables in order to make sure that we do not systematically overstate the performance of homes that meet the ABCD structure simply because they sell at least four times during the study period.

<sup>11</sup>In fact a comparison of the housing attributes of homes that meet the ABCD structure reveals considerably less heterogeneity in the houses that flippers purchase versus the average homes that sell in the market as a whole. The average year built of the homes purchased by Flipper 4's increases from 1949 to 1956, for example, when the sample is limited to just homes that meet the ABCD structure.

<sup>12</sup>For the analysis of the sources of flipper returns (but, importantly, not the counts presented throughout the paper), we drop any purchases from banks or firms that might be associated with a foreclosure. We do this because of concerns that these homes may have been systematically run-down by the previously owners or vandalized, leading to large real declines in house quality between sales at points A and B, even if the time period between points A and B is short.

Secondly, as we show below, flippers (especially experienced flippers) tend to purchase homes that are slightly older and smaller than the average homes that are sold in the market. Therefore, to ensure that we are comparing apples to apples, we report results for a second specification of equation 3 that interacts the three key flipper variables with de-meaned measures of housing attributes, reporting the flipper coefficients at the mean attributes of the homes sold in the study period. This ensures that all comparisons of sources of returns are done for the same type of property, even though flippers with different levels of experience purchase properties that are a little heterogeneous.

Finally, it is worth stressing that while only flipped houses that sell at least four times and meet the ABCD structure will be helpful in identifying the three key flipper coefficients in equation 3, all of the counts presented in the paper are based on the full set of homes purchased by flippers. This is important because the set of homes that fit the ABCD structure will systematically result in a flipper purchase and sale closer to the middle of the study period (so that at least one sale can occur before and after the flipper's holding period).

## 5 The Sources of Flipper Returns - Baseline Results

### 5.1 Flippers' returns

We now provide estimates of the sources flippers' returns using the research design above. Our baseline results are presented in Table 4. To be included in the time period, the flipper must purchase the house within the time period mentioned. We exclude the end of the sample from these regressions because we need to follow the property for at least two years from the purchase date to estimate its return. By limiting the sample from 1992 to 2005, we also can easily split it into cold (1992-1998) and hot (1999-2005) periods of equal length. As mentioned above, for each sample period, results are presented for a basic specification and for one that interacts the key flipper variables with de-meaned housing attributes to ensure that the estimates are reported for comparable houses.

Controlling for unobserved investment, the estimates reported in the first column of Table 4 imply that flippers purchase homes at a discount of about 5.8% over the full sample period. That is, they purchase the house for approximately 6% less than its expected market price. Flippers also earn a premium of 5.4% when they sell the property (after controlling for investment). When the mean-differenced value of house characteristics are interacted with the flipper dummies to account for potential differences in the types of homes purchased by flippers, the magnitude of these coefficients changes very little, as shown in column (2).

Specifications (3) and (4) restrict the sample period to the cold market period (1992-1998), which was characterized by lower transaction volume and declining or flat housing prices. In general, flippers purchase homes at a much steeper discount and sell at a greater premium during this period. This is consistent with the idea that flippers need to make their return by operating as middlemen during the cold market period, buying low and selling at a premium, relative to the

	(1)	(2)	(3)	(4)	(5)	(6)
Flipper Buyer	-0.058 (0.003)	-0.053 (0.003)	-0.129 (0.014)	-0.107 (0.013)	-0.035 (0.003)	-0.036 (0.003)
Flipper Seller	0.054 (0.003)	0.054 (0.003)	0.087 (0.006)	0.063 (0.007)	0.045 (0.003)	0.048 (0.003)
Flipper Investment	0.029 (0.004)	0.006 (0.004)	0.070 (0.014)	0.040 (0.013)	0.013 (0.004)	-0.008 (0.004)
First Sale	-0.132 (0.003)	-0.130 (0.003)	-0.141 (0.003)	-0.140 (0.003)	-0.144 (0.003)	-0.142 (0.003)
Second Sale	-0.075 (0.003)	-0.074 (0.003)	-0.081 (0.003)	-0.081 (0.003)	-0.082 (0.003)	-0.082 (0.003)
Third Sale	-0.042 (0.002)	-0.041 (0.002)	-0.047 (0.002)	-0.047 (0.002)	-0.047 (0.002)	-0.047 (0.002)
Fourth Sale	-0.020 (0.002)	-0.020 (0.002)	-0.023 (0.002)	-0.023 (0.002)	-0.023 (0.002)	-0.023 (0.002)
Interact House Characteristics?	No	Yes	No	Yes	No	Yes
Time Period	<b>All Years</b>	<b>All Years</b>	1992-1998	1992-1998	1999-2005	1999-2005
N	2,187,081	2,187,081	2,187,081	2,187,081	2,187,081	2,187,081
R <sup>2</sup>	0.947	0.948	0.947	0.947	0.947	0.947

Table 4: Standard errors in parentheses. Interacting house characteristics indicates that the mean house characteristics for the sample are subtracted from individual house characteristics and these values are interacted with the flipper dummies. The dummy for 5th sales or greater were omitted.

average sales price in the market at the time.

Specifications (5) and (6) restrict the sample to the hot market period (1999-2005) in which prices were increasing rapidly and sales volume was much greater. In hot market conditions, by contrast, flippers have the potential to make returns by purchasing houses at times and in locations where expected market appreciation is high. Thus, as the parameter estimates in Table 4 show, flippers on average do not get a particularly low price when buying or a particularly high price when selling during this period.

The coefficients on *Flipper Investment* reported in the first column suggest that flippers are not investing much more than three percent of a house's value. This number falls to less than one percent in column (2), which reports results at mean house characteristics. Taken together, the results presented in columns (1) and (2) that flippers make substantial investments for houses that are especially old (and presumably in poor condition). The coefficients related to the order of sale reported in the lower half of the table make clear, however, this result may mask result on flipper investment may understate, to some extent the improvements that flippers make. These coefficients show a clear monotonic pattern of improvements, with all houses that sell multiple times typically selling at an increasing premium relative to market prices on later sales. Houses that sell four or five times, which flipped homes are more likely to be, typically generate a premium of upwards of 10-15 percent higher than the expected market price. Thus, some of the investment that flippers

make in the properties that they buy and re-sell quickly is being captured by the inclusion of these control variables.<sup>13</sup>

We now investigate the differential sources of returns across flipper experience levels, using the same four categories defined above in Figure 3. Table 5 presents parameter estimates for a set of specifications that correspond directly to those reported in Table 4 but that allow each flipper coefficient to vary by flipper experience. The heterogeneity in the sources of returns by flippers with different levels of experiences is immediately obvious. Looking across flipper types, it is clear that while all flippers buy relatively cheaply, more experienced flippers buy at a deep discount relative to expected market prices. For the sample period as a whole, Flipper 4's get a discount at purchase of approximately 20 percent and this discount is well over 30 percent in the cold market period. Steep discounts at the time of purchase are consistent with these experienced flippers operating as middlemen, buying very low at the purchase and operating during any market conditions. Inexperienced flippers, on the other hand, generally do not buy at much of a discount, especially in hot market conditions. This, again, is consistent with the idea that they are generally seeking profit as speculators rather than middlemen. None of the flipper types is associated with more than 1-2 percentage points worth of physical improvements in properties with mean housing attributes, over and above what is captured by the fact that houses bought and sold by flippers sell more often than other properties/<sup>14</sup>

Using the results from the estimates of the specifications reported in Table 5, which also include return measures of the Los Angeles house price index, we can report the source of a flipper's return for each flipper type: breaking this into a the fraction that stems from buying cheaply, selling high, and simply earning the market return during the holding period. These results are in Table 6. We include estimates of flipper rates of return based on time held, market growth, and the residuals. Again, it is important to emphasize, that these estimates of sources do not account for flippers' transaction or holding costs, meaning actual profits are almost certainly much smaller. Nonetheless, the estimated average rates of returns earned by all types of flippers during our sample period suggest that they, in fact, can operate quite profitably in the market.

Table 6 highlights the distinction between flipper types and provides strong evidence that some flippers act as speculators while others operate as middlemen. First, there is a large disparity in time held. Flipper 4's quickly resell their houses while flipper 1's hold them almost twice as long. Second, flipper 1's do not buy at an especially low price and, as a result, their (nominal) rate of return is primarily driven by overall market growth: 64% of their return stems from market growth. Flipper 4's, on the other hand, earn most of their return by buying at prices below average market prices (purchasing cheaply generates 63% of their return) and quickly reselling so that only 18% of their return stems from overall market growth. Taken together, the evidence on purchase activity, holding times and sources of returns paints a very consistent picture: experienced flippers generally

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<sup>13</sup>In fact, the estimated coefficients corresponding to flipper investment in Table 4 are about 3 percentage points higher when the order of sale dummy variables are excluded from the analysis.

<sup>14</sup>The sale order dummy variables are included in the specifications reported in Table 5 but the parameter estimates (which are similar to those reported in Table 4 are not reported for exposition convenience.

	(1)	(2)	(3)	(4)	(5)	(6)
Flipper 1 Buyer	-0.035 (0.003)	-0.034 (0.003)	-0.062 (0.016)	-0.058 (0.015)	-0.020 (0.003)	-0.023 (0.003)
Flipper 2 Buyer	-0.075 (0.007)	-0.070 (0.007)	-0.175 (0.031)	-0.160 (0.031)	-0.050 (0.008)	-0.051 (0.008)
Flipper 3 Buyer	-0.123 (0.013)	-0.129 (0.012)	-0.188 (0.052)	-0.232 (0.060)	-0.090 (0.014)	-0.096 (0.014)
Flipper 4 Buyer	-0.210 (0.015)	-0.181 (0.018)	-0.330 (0.051)	-0.334 (0.071)	-0.153 (0.016)	-0.134 (0.019)
Flipper 1 Seller	0.049 (0.003)	0.051 (0.003)	0.061 (0.008)	0.053 (0.008)	0.045 (0.004)	0.047 (0.004)
Flipper 2 Seller	0.060 (0.007)	0.060 (0.008)	0.098 (0.016)	0.073 (0.021)	0.048 (0.008)	0.055 (0.008)
Flipper 3 Seller	0.072 (0.011)	0.050 (0.014)	0.137 (0.018)	0.098 (0.026)	0.046 (0.014)	0.034 (0.017)
Flipper 4 Seller	0.090 (0.010)	0.055 (0.014)	0.137 (0.013)	0.072 (0.026)	0.054 (0.013)	0.050 (0.016)
Flipper 1 Investment	0.019 (0.004)	0.002 (0.004)	0.083 (0.017)	0.046 (0.016)	0.005 (0.004)	-0.010 (0.004)
Flipper 2 Investment	0.042 (0.009)	0.012 (0.009)	0.049 (0.032)	0.027 (0.031)	0.028 (0.010)	-0.001 (0.009)
Flipper 3 Investment	0.047 (0.015)	0.016 (0.016)	0.080 (0.053)	0.041 (0.060)	0.037 (0.017)	0.003 (0.018)
Flipper 4 Investment	0.037 (0.016)	0.019 (0.019)	-0.022 (0.051)	-0.048 (0.070)	0.043 (0.018)	0.019 (0.021)
Interact House Characteristics?	No	Yes	No	Yes	No	Yes
Time Period	<b>All Years</b>	<b>All Years</b>	1992-1998	1992-1998	1999-2005	1999-2005
N	2,187,081	2,187,081	2,187,081	2,187,081	2,187,081	2,187,081
R <sup>2</sup>	0.948	0.948	0.947	0.947	0.947	0.947

Table 5: Standard errors in parentheses. Interacting house characteristics indicates that the mean house characteristics for the sample are subtracted from individual house characteristics and these values are interacted with the flipper dummies.

	Nominal Rate of Return	Buyer Discount	Seller Premium	Market Growth	Quarters Held	N
Flipper 1	0.234	-0.034	0.051	0.150	4.01	25,181
Flipper 2	0.294	-0.070	0.060	0.109	3.25	5,678
Flipper 3	0.374	-0.129	0.050	0.089	2.86	2,322
Flipper 4	0.531	-0.181	0.055	0.053	2.17	2,596

Table 6: The table shows the sources of returns by flipper type. The discounts, premiums, and market growth are calculated from specification (2) of Table 5 and quarters held is simply the mean number of quarters held. The nominal rate of return is generated by dividing the mean total return (premium - discount + market growth) by the mean years held.

act as middlemen and inexperienced flippers as speculators in the Los Angeles housing market over our study period.

## 6 Robustness

In this section, we examine the robustness of the results presented above to a number of the assumptions that underlie our analysis. In so doing, we also address a number of additional questions regarding the behavior of flippers and foreshadow the analysis of the next section, which explores how middlemen and speculators target particular locations for their purchases.

### 6.1 Do Flippers Sell Winners and Hold Losers?

In the results presented in Section 5, we examined the sources of returns for houses that were re-sold in less than two years. Of course, the timing of the decision to re-sell the property is an endogenous choice made by the investor likely influenced by the appreciation of the property and the cost of capital. By limiting the sample to only those homes that were re-sold in the first two years, we may be inadvertently focusing on a very select sample of homes that performed very well in terms of market appreciation. As a simple check on the sensitivity of our results to the definition of flipped homes as those sold within two years, we consider the effect of adjusting this time period. In Table 7, the first specification is the baseline, which uses the estimates from specification (2) in Table 4. Specifications (2)-(4) in Table 7 vary the amount of time required from eighteen months to four years.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Flipper 1 Buyer	-0.034 (0.003)	-0.046 (0.003)	-0.031 (0.003)	-0.030 (0.003)	-0.007 (0.004)	-0.020 (0.005)	0.003 (0.007)
Flipper 2 Buyer	-0.070 (0.007)	-0.080 (0.008)	-0.065 (0.007)	-0.060 (0.007)	-0.044 (0.012)	-0.045 (0.012)	-0.012 (0.015)
Flipper 3 Buyer	-0.129 (0.012)	-0.143 (0.013)	-0.117 (0.011)	-0.111 (0.011)	-0.087 (0.018)	-0.106 (0.026)	-0.061 (0.031)
Flipper 4 Buyer	-0.181 (0.018)	-0.199 (0.018)	-0.173 (0.017)	-0.163 (0.016)	-0.165 (0.029)	-0.177 (0.035)	-0.172 (0.053)
Flipper 1 Seller	0.051 (0.003)	0.054 (0.004)	0.049 (0.003)	0.048 (0.003)	0.051 (0.007)	0.052 (0.004)	0.054 (0.007)
Flipper 2 Seller	0.060 (0.008)	0.063 (0.008)	0.058 (0.007)	0.056 (0.007)	0.083 (0.016)	0.063 (0.010)	0.082 (0.019)
Flipper 3 Seller	0.050 (0.014)	0.057 (0.015)	0.049 (0.013)	0.048 (0.013)	0.046 (0.031)	0.058 (0.017)	0.067 (0.039)
Flipper 4 Seller	0.055 (0.014)	0.054 (0.014)	0.056 (0.013)	0.054 (0.013)	0.037 (0.028)	0.086 (0.019)	0.059 (0.034)
Flipper 1 Investment	0.002 (0.004)	0.000 (0.004)	0.003 (0.004)	0.003 (0.004)	-0.012 (0.007)	-0.002 (0.005)	-0.008 (0.008)
Flipper 2 Investment	0.012 (0.009)	0.014 (0.010)	0.010 (0.008)	0.012 (0.008)	-0.027 (0.015)	0.004 (0.011)	-0.005 (0.017)
Flipper 3 Investment	0.016 (0.016)	0.013 (0.017)	0.018 (0.015)	0.017 (0.014)	0.006 (0.030)	0.013 (0.024)	-0.005 (0.035)
Flipper 4 Investment	0.019 (0.019)	0.015 (0.020)	0.011 (0.018)	0.011 (0.018)	-0.005 (0.032)	0.001 (0.029)	-0.026 (0.041)
Robustness Check	Baseline	Flip in < 1.5 Years	Flip in < 3 Years	Flip in < 4 Years	A to B < 3 Years	C to D < 3 Years	Specifications (5) and (6)
N	2,187,081	2,187,081	2,187,081	2,187,081	2,187,081	2,187,081	2,187,081

Table 7: Standard errors in parentheses. Specification (1) is set to specification (2) from Table 4. Specification (2) is similar to the baseline but changes the required holding time from 2 years to 18 months. Specifications (3) and (4) increases the maximum holding time to 3 and 4 years, respectively. Specification (5) requires that the time between transactions A and B is less than 3 years. Specification (6) requires that the time between transactions C and D is less than 3 years. Specification (7) requires the conditions in both (6) and (5).

The results presented in columns (1)-(4) of Table 7 reveal that the conclusions drawn from the baseline results regarding the sources of returns - that more experienced flippers earn a large fraction of their return by buying at especially low prices, while less experienced flippers do not - are not at all sensitive to the choice of threshold holding time. When the threshold is set to four years instead of two, for example, the estimated discount relative to expected market price that Flipper 4's get at purchase is 16.4 percent versus 18.1 percent, while the estimate for Flipper 1's remains very low 3.0 percent versus 3.4 percent. [Note: Need to add rate of return table here to show that conclusions re: market appreciation for inexperienced flippers are also unaffected.]

## 6.2 Are Results Driven by Flippers Buying Fixer-Uppers?

As we discussed in detail above, a broad challenge in examining the sources of flipper returns is the possibility that flippers invest significant amounts of money to improve properties, investment that is unobserved to the researcher. If, for example, flippers purchase fixer-uppers at what might appear to be below market prices and then bring them back up to standard market conditions, we might improperly infer that they were making substantial returns by buying at low prices relative to market.

Several aspects of our baseline analysis have been designed to minimize the to minimize this concern. In particular, our focus on the ABCD structure for identifying the sources of flipper returns, not only provides a way to estimate the amount of unobserved investment that flippers put into properties (versus typical home-sellers) but also naturally limits the identification of returns to properties that were transacted within a reasonably small period both before and after the flipper bought and sold the property.

Specifications (5)-(6) in Table 7 take the logic of this one step further, limiting the time between sales at point A and B, and C and D, respectively, to less than three years. Specification (7) combines these restrictions. By limiting the times between A and B and C and D, specifications (5)-(7) not only address the potential concern that flippers may buy homes which have been run down by their previous owners, but also that flippers invest in houses, only to have their investment depreciate by period D.

The results presented in final three columns of Table 7 again strongly support the the conclusions drawn from the baseline results regarding the sources of returns for more and less experienced flippers, respectively. When the time between the transactions preceding and subsequent to the flippers holding of the property are both limited to three years, for example, the estimated discount relative to expected market price that Flipper 4's get at purchase is 17.2 percent versus 18.1 percent for the baseline case. In fact, the estimated discount at purchase for Flipper 1's falls all the way to zero, implying that these inexperienced flippers essentially purchase houses at expected market prices.

It is worth emphasizing that nothing in our analysis implies that flippers do not indeed often purchase fixer-uppers that could be physically improved in a profitable way. It is just that our research design ensures that such properties do not contribute to the identification of the sources

of flipper returns.

### 6.3 Selective Survival - The Dynamic Pattern of Returns

Another potential concern with our baseline results is that our examination of the heterogeneity in flipper returns is not based on a time-invariant attribute of flippers but instead on their experience. At the outset of this discussion, it is important to keep in mind that we are not interested in identifying the effects of flipper experience per se. Instead, as it turns out, cutting the data by experience revealed a striking difference in the typical patterns purchases, holding times, and sources of returns for experienced versus inexperienced flippers that maps almost perfectly into the roles of middlemen and speculators, respectively. This does not imply, however, that some of the inexperienced flippers are middlemen just launching their careers or that some of the inexperienced speculators might not eventually become more experienced if they survive in the profession.

One way to examine the dynamics of experience and flipper type is to examine the dynamic pattern of sources of returns for the more experienced flipper types. In particular, instead of just examining the sources of returns for all houses flipped by Flipper 4's, for example, we consider separately the sources of returns for the first three flipped houses that they flipped, the 4th-6th houses, 7th-10th houses, and all houses after their first ten, respectively. These results are presented in Table 8.

The results reveal a consistent pattern of sources of returns for the more experienced flippers observed in the data. On their first three houses flipped in the data Flipper 3's received a discount at purchase of 13.4 percent and premium at sale of 9.5 percent relative to expected market prices. For Flipper 4's these numbers were even higher, a 25 percent discount and 17 percent premium. The magnitude of these numbers reflects, of course, the fact that an experienced flipper's first three flipped homes were more likely to have occurred during the cold market period (1992-1998), during which flippers required larger margins on purchase and sales prices in a market with declining home prices. Taken as a whole, table 8 supports the notion that the more experienced flippers observed in our dataset have been acting in the economic role of middlemen throughout the sample period, while the ranks of inexperienced flippers is dominated by those pursuing a more speculative strategy in their limited careers in the market to date.

### 6.4 Neighborhood Targeting

For our baseline results, we estimated a single housing price index for the Los Angeles metropolitan market and used that to measure the rate of market appreciation during the holding times, as reported in Table 6. A concern with using a single aggregate price index for our analysis is that flippers might be able to identify and target submarkets or neighborhoods that appreciate faster than the metropolitan area as a whole. Not only might this lead to an understatement of market appreciation as a source of flipper returns, but it might lead to an overstatement of the premium that they receive at sale, essentially misinterpreting the reason that the flipper outperforms the

Flip Number	Nominal Rate of Return 1 to 3	Buyer Discount 4 to 6	Seller Premium 7 to 10	Market Growth 11 and Up	Quarters Held
Buyer Coefficients					
Flipper 1	-0.035 (0.003)				
Flipper 2	-0.080 (0.011)	-0.072 (0.009)			
Flipper 3	-0.134 (0.034)	-0.123 (0.018)	-0.113 (0.020)		
Flipper 4	-0.254 (0.074)	-0.208 (0.035)	-0.173 (0.034)	-0.216 (0.019)	
Seller Coefficients					
Flipper 1	0.049 (0.003)				
Flipper 2	0.046 (0.010)	0.073 (0.010)			
Flipper 3	0.095 (0.021)	0.063 (0.015)	0.072 (0.024)		
Flipper 4	0.173 (0.032)	0.102 (0.022)	0.086 (0.021)	0.069 (0.013)	
Investment Coefficients					
Flipper 1	0.019 (0.004)				
Flipper 2	0.056 (0.013)	0.027 (0.012)			
Flipper 3	0.064 (0.036)	0.042 (0.021)	0.039 (0.028)		
Flipper 4	-0.007 (0.073)	0.044 (0.036)	0.059 (0.035)	0.042 (0.021)	

Table 8: Standard errors in parentheses. The rows correspond to the flipper type (total number of flips) and the columns correspond to the flip number. For example, Flipper 1's only have coefficients for 1 to 3 because the maximum number of flips for this type is 3.

LA market as a whole – interpreting it as a premium at sale rather than faster than average neighborhood-level appreciation.

To address this concern, we divide the Los Angeles metropolitan area into forty submarkets based on California state assembly lower voting district. We use voting districts because they are both large enough to have a reasonable number of flipper observations in each district, and small enough to characterize a meaningful submarket. [Note: Need to add map here] It is then straightforward to estimate an extended version of eqnReg1a that allows the coefficients on the time dummies to vary by submarket - i.e., to estimate separate price indices for each submarket. The results of this analysis are presented in Table 9 which has the same format as Table 6.

Table 9: The table shows the sources of returns by flipper type. This table has the same format as Table 6 but is based on a specification that estimates a separate price index for of 40 submarkets of the LA metro area defined by state assembly lower voting districts.

The results presented in Table 9 strengthen our qualitative conclusions for both experienced and inexperienced flippers, as inexperienced flippers target submarkets experiencing faster than average appreciation and experience flippers actual target submarkets that are appreciating slower than average.

## 7 Submarket Level Results

In this section we provide corroborating evidence from the submarket-level that flippers operate as both speculators and middlemen. In addition, we present suggestive evidence that speculative flippers are associated with greater price instability at the submarket level.<sup>15</sup>

For exposition sake, for the rest of the paper we group flippers into two categories based on experience. Experienced flippers, or middlemen, are those who engage in 4 or more flips over our sample (in the language above, these are flippers 2-4's) and inexperienced flippers, or speculators, are those who flip two to three times during our sample (flipper 1's). While these definitions are somewhat arbitrary, and there is certainly not a perfect relationship between experience and whether flippers operate as middlemen or speculators, this appears to divide flippers into two categories of intermediaries that are following very distinct strategies for earning returns in the market. The results presented below are robust to altering the thresholds of this dichotomy.

### 7.1 Which Submarkets are Targeted?

For this section of the paper, we continue to use the forty submarkets based on California state assembly lower voting district introduced in the previous section. We relate flipper activity to submarket price appreciation, calculated using a repeat sales index for each neighborhood. In all

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<sup>15</sup>This finding echoes that of Greenwood and Nagel (2009) who present evidence that inexperienced, speculative mutual fund managers are associated with price instability in that market.

cases, appreciation is measured over a year. Table 10 associates flipping purchases with submarket-level price appreciation.<sup>16</sup> The regressions include submarket level and quarter fixed effects. The specifications differ in the lag between flipping activity and price changes. The first two columns show that the greater holdings by inexperienced, speculative flippers are associated with above average rates of price appreciation over the following two years, while the last three columns show that these short term gains are followed by below average returns (mean reversion) over the following three years.

	(1)	(2)	(3)	(4)	(5)
Flipper Houses Bought:					
Inexperienced	1.466 (0.180)	1.539 (0.250)	0.451 (0.246)	-0.803 (0.268)	-0.674 (0.307)
Experienced	-0.304 (0.166)	-0.335 (0.208)	-0.069 (0.184)	0.142 (0.197)	0.889 (0.312)
Lag Time (quarters)	4	4	4	4	4
Dependent Variable	(t+1)-t	(t+2)-(t+1)	(t+3)-(t+2)	(t+4)-(t+3)	(t+5)-(t+4)
N	2,840	2,680	2,520	2,360	2,200
R <sup>2</sup>	0.922	0.923	0.920	0.921	0.922

Table 10: Standard errors in parentheses are clustered by submarket. All specifications include submarket and quarter fixed effects.

	(1)	(2)	(3)	(4)	(5)
Lagged Appreciation	0.551 (0.063)	0.035 (0.055)	-0.294 (0.069)	-0.448 (0.076)	-0.369 (0.109)
Lag Time (quarters)	4	4	4	4	4
Dependent Variable	(t+1)-t	(t+2)-(t+1)	(t+3)-(t+2)	(t+4)-(t+3)	(t+5)-(t+4)
N	2,820	2,660	2,500	2,340	2,180
R <sup>2</sup>	0.891	0.907	0.907	0.905	0.906

Table 11: Standard errors in parentheses are clustered by submarket. All specifications include submarket and quarter fixed effects.

Experienced flippers (largely middlemen), on the other hand, operate in areas where prices are not rising as quickly as the rest of the metropolitan area. As discussed in Section 2, since middlemen earn their returns by finding “good” deals when purchasing and selling for high prices relative to the market rate, it is not surprising to find them operating in hot and cold submarket just as they operate in hot and cold portions of the housing cycle.

Given the strong association between speculative activity and the amplification of local housing booms and busts, it is useful to examine whether speculators are responding to recent submarket

<sup>16</sup>We obtain similar results if lagged flipper holdings are used instead. We present evidence of this below where holdings are constructed as follows:

$$h_{itn} = h_{it-1n} + b_{itn} - s_{itn} \quad (4)$$

where  $h_{itn}$  are the holdings of all flippers of type  $i$  in quarter  $t$  in submarket  $n$ ,  $b_{itn}$  are the purchases by flippers in submarket  $n$  in the quarter, and  $s_{itn}$  are the sales by flippers in same neighborhood and quarter.

	(1)	(2)	(3)	(4)	(5)
Lagged Appreciation	0.583 (0.068)	0.023 (0.063)	-0.335 (0.079)	-0.480 (0.084)	-0.327 (0.115)
Flipper Houses Bought:					
Inexperienced	1.466 (0.170)	1.513 (0.266)	0.449 (0.262)	-0.776 (0.222)	-0.727 (0.279)
Experienced	0.377 (0.183)	-0.308 (0.248)	-0.498 (0.208)	-0.391 (0.190)	0.585 (0.320)
Lag Time (quarters)	4	4	4	4	4
Dependent Variable	(t+1)-t	(t+2)-(t+1)	(t+3)-(t+2)	(t+4)-(t+3)	(t+5)-(t+4)
N	2,820	2,660	2,500	2,340	2,180
R <sup>2</sup>	0.892	0.910	0.907	0.905	0.909

Table 12: Standard errors in parentheses are clustered by submarket. All specifications include submarket and quarter fixed effects.

level price changes or might base their decisions on additional information. To explore this possibility, we begin by reconfirming, at the neighborhood level, the previous finding in the literature that lagged appreciation strongly predicts future price appreciation. We follow the technique suggested in Case and Shiller (1989) for dealing with measurement error in the price index by (i) splitting our sample in two, (ii) generating estimates of appreciation independently for each sample, and (iii) instrumenting for lagged appreciation in one sample with the estimate of lagged appreciation from the other sample.

The results presented in Table 11, which control for quarter dummies and submarket fixed effects, establish positive short-term persistence and long-term mean reversion in house price appreciation at the submarket level. In this way, a sharp uptick in lagged appreciation is a clear predictor of above-average short-term returns at the submarket level. To our knowledge, the fact that, even at the neighborhood-level, lagged appreciation strongly predicts future price appreciation is undocumented elsewhere in the literature.

Table 12, includes controls for both lagged appreciation and speculative activity. The results reveal that both factors continue to be strongly associated with increased price volatility at the submarket level. The positive correlation between these two measures, and the resulting diminished magnitudes of the coefficients on flipper activity in Table 12 versus Table 10 imply that speculators are engaging to some extent in positive feedback trading.

There are at least three explanations for a remaining positive relationship between speculative activity and submarket appreciation (positive in the short-run, negative in the intermediate run) after controlling for lagged appreciation. First, the relationship between flipper activity and lagged appreciation may be non-linear, with flipper activity triggered only after expected appreciation reaches a minimum threshold. Second, flippers might be responding to other information (unobserved in our dataset) that predicts above-average returns over short horizons and mean reversion in the slightly longer run. Third, flipper activity might have a causal effect on appreciation rates, contributing to the amplification of the local housing price boom-bust cycle over the next several

years. While distinguishing among these explanations is beyond the scope of this paper, our sub-market level analysis allows us to conclude that speculator activity is strongly associated with the amplification of house price volatility at the submarket level.

## 8 How Well-Informed Are Speculators?

The evidence presented so far establishes a set of market intermediaries that act as speculators who are (i) inexperienced, (ii) enter the market as prices begin to rise, (iii) specifically target locations that subsequently experience rapid short-term price appreciation and (iv) earn their returns only by holding houses when prices rise since they are unable to (a) buy at great discounts or (b) sell their assets at a premium. This behavior is consistent with modern finance theory which calls into question the central tenet of the efficient markets hypothesis (e.g. Friedman (1953) and Fama (1955)) that rational investors should always “attack a bubble.” These more recent papers suggest instead that rational speculators may instead want to jump on the bandwagon with the noise traders, ride the bubble on the way up and sell out as the market nears or reaches its peak (DeLong, Shleifer, Summers, and Waldmann (1990b)).

In Section 7, we established that the purchase behavior of speculators is strongly associated with neighborhood-level housing bubbles - i.e., neighborhoods that experience especially strong positive appreciation in the short term (1-2 years), but below average appreciation 3-5 years out.. What remained difficult to ascertain in that analysis was whether speculators actually have superior information, and are therefore timing both their purchases and sales optimally, or whether these inexperienced speculators are simply chasing trends themselves without any special access to superior information. If they are operating according to the latter capacity, they may, in fact, be causing these short-term speculative bubbles, rather than using superior information to take advantage of bubbles that they can foresee to some extent.

While some might take the inexperience of the speculators in the data as *prima facie* evidence that they are not especially well informed, we offer a more formal analysis of their behavior in this section.<sup>17</sup> In particular, we present evidence on the timing of purchases and sales by the speculators in our sample as the Los Angeles market neared, hit, and then went over its peak in 2006. For this analysis, we construct a sample of all homes purchased by individuals identified as flippers in our sample, regardless of whether they sold the homes within two years. We continue to divide flippers into speculators and middlemen based on experience, focusing here on the activities of speculators near the peak of the Los Angeles market.

Figure 5 plots the fraction of speculators’ purchases from two years prior to time  $t$  that they continue to hold at time  $t$ . For homes purchased in the early and middle periods of the housing boom between 1999-2006, speculators generally unloaded about 55% of their holdings within two

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<sup>17</sup>Other researchers (e.g. Greenwood and Nagel (2009)) have found that inexperienced traders engage in the type of trend chasing behavior exhibited here. There is also a multitude of evidence of this phenomenon from lab and retail investor survey settings. See, for example, Smith, Suchanek, and Williams (1988), Haruvy, Lahav, and Noussair (2007) or Vissing-Jorgensen (2003).

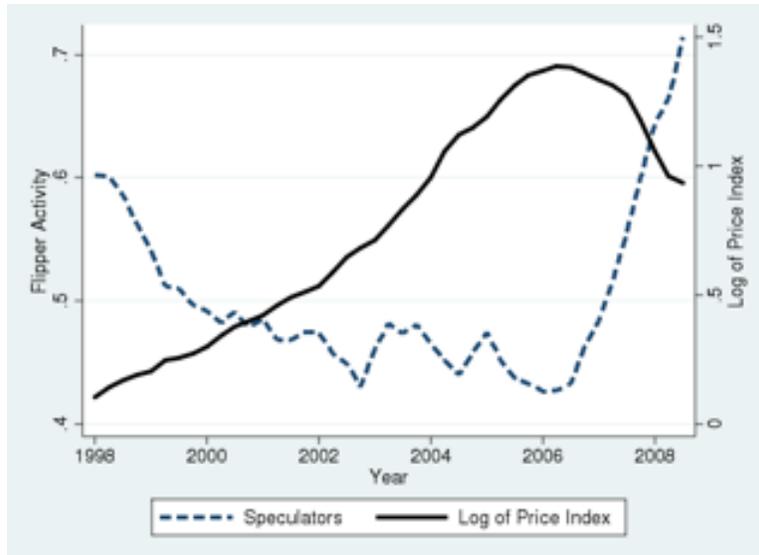


Figure 5: The dashed line maps the fraction of houses purchased two years earlier that are still held by speculators for each quarter. The solid line gives the price index as estimated in the data.

years, holding only 45% of their properties for more than two years. Looking two years after the market began to peak in 2005-2006, however, reveals that by late 2007, speculators were stuck holding a much higher fraction of the homes that they purchased as the market peaked. In fact, speculators were stuck holding over 60-70% of the homes purchased near the end of the boom period two years later. Given the rapid rates of price depreciation over this period, it is obvious that such speculators took substantial losses on these properties.<sup>18</sup>

Of course, if speculators had curtailed their activity in anticipation of the coming peak, getting stuck holding a relatively high fraction of their peak purchases two years later would not necessarily be that devastating – i.e., if the number of homes affected was small. As it turns out, as shown in Figure 6, speculators continued to purchase at a high rate all the way up to the peak in the market. During the housing boom, speculator activity had slowly increased from about 1.5% of all purchases in the late 1990s to consistently above 3% of purchases between 2004 and 2006. While speculator activity began to fall in 2006 it was not until the middle of 2007 that activity returned to the 1.5% level.

To illustrate the clear sense that the fevered speculative activity went on far too long, Figure 6, also plots a measure of predicted 2-year appreciation rates based on a model of predicted appreciation similar to those reported in Table 11, but estimated at the metropolitan level using FHFA price indices for over 400 metropolitan areas from 1975 to 2010. While predicted 2-year appreciation began to drop off quickly in early 2005, speculative purchases at rates above 3% continued until early 2006.

<sup>18</sup>Our findings that inexperienced speculators in this market hold properties too long as the market peaked in 2006 is really the mirror image of the findings reported in Brunnermeier and Nagel (2004), which demonstrated that more experienced traders, hedge fund managers, divested their holdings of assets with inflated prices just prior to prices falling in tech bubble.

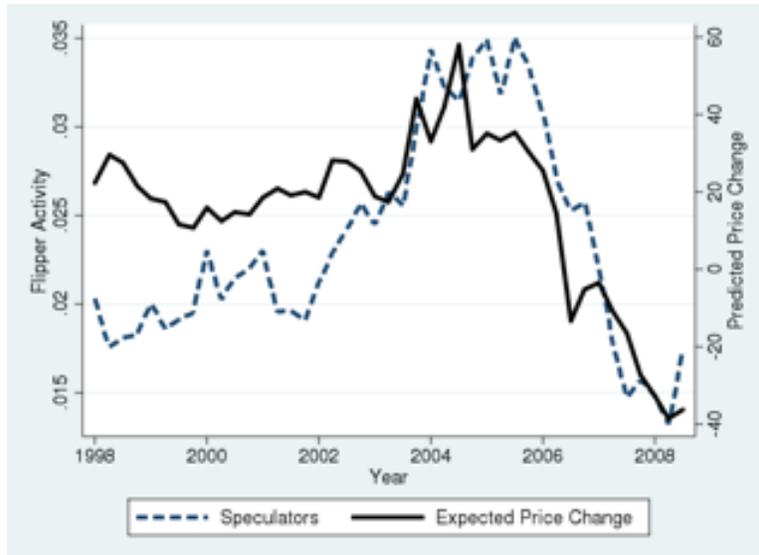


Figure 6: The dashed line maps the percent of purchases made by speculators over time. The solid line gives the two year expected house appreciation based on lagged appreciation using the Federal Housing Finance Agency’s price index for the Los Angeles-Long Beach-Glendale MSA.

Looking at speculative behavior in the third quarter of 2006 provides a clear indication of this point. By the third quarter of 2006, the predicted rate of return over the next two years (based on lagged appreciation) had fallen from a high of 58% to negative 13%. Yet speculators continued to account for 2.5% of the purchases in the market that quarter. Over the next two years, speculators were only able to unload 29% of these purchases and thus took substantial losses on properties that well-informed agents would never have purchased in the first place.

Taken together, the evidence presented here regarding the timing of speculative activity near, at, and following the peak, strongly suggests that a large share of the speculators operating in the Los Angeles market were not especially well-informed and, in fact, were likely simply chasing trends themselves, much like ordinary homeowners.

## 9 Conclusion

Making use of a large transactions database and a novel research design, this paper provides the first comprehensive study of intermediaries (middlemen and speculators) in the housing market: identifying (i) their activity, (ii) the sources of their returns, and (iii) the extent to which their activity is associated with local price dynamics. Our analysis for Los Angeles establishes that middlemen and speculators follow distinct strategies for when and where to buy and generate returns from almost completely distinct sources. Middlemen hold properties for very short periods of time and earn most of their return by buying houses relatively cheaply; they operate throughout booms and busts in the market and target all types of locations. By contrast, speculators earn almost their entire return through timing the market, operate only during boom times, and target submarkets with

the highest expected price appreciation. Entry by speculative flippers is strongly associated with the short-term amplification of local housing price bubbles. And, given their inexperience flipping homes and apparent difficulty anticipating and reacting to the peak of the most recent housing boom, it seems likely that many of the speculators identified in the data may not be particularly well informed about market conditions.

This paper makes several important contributions to the literatures on housing and financial markets. Most directly, it expands our understanding of the microstructure of the housing market: establishing a number of new empirical facts about the activity of middlemen and speculators in the market that generally conform to the roles prescribed in economic theory. More generally, our ability to identify speculators in the data and analyze their strategies and impact on the market is relatively rare in the wider empirical finance literature. While not completely conclusive, our findings suggest that (i) many of the speculators that entered the market during the recent housing boom may not be especially well informed about market fundamentals are (ii) speculators in this market have destabilizing effects on prices, leading to an amplification of local housing price cycles. While this increased volatility has important economic consequences, any policy remedies need also account for the welfare-enhancing role that flippers play by providing liquidity as middlemen and in improving the physical stock of housing in older neighborhoods.

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