

Holding or Folding?

Foreclosed Property Durations and Sales during the Mortgage Crisis

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The problem of vacant and abandoned residential properties is not a new one. In the early 1970s, many U.S. cities were affected by surges in vacancies fueled by property-flipping schemes related to problems with the FHA 235 loan program.¹ Beginning in the latter decades of the twentieth century, industrial restructuring and the development of long-term population loss in many parts of the industrial Midwest and Northeast also created problems of vacancy and abandonment. The national foreclosure crisis beginning in 2007, however, has resulted in unprecedented surges in numbers of vacant homes across many metropolitan areas—including regions that had not experienced large-scale vacancy problems before.

By 2007–2008, the evidence that vacant, foreclosed homes—especially when geographically concentrated—had negative impacts on neighboring property values and social conditions was considerable.² In July 2008, the Housing and Economic Recovery Act (HERA) established what was to become the Neighborhood Stabilization Program (now often referred to as NSP 1). HERA allocated more than \$3.9 billion in NSP funds to be awarded on a formula basis by the U.S. Department of Housing and Urban Development. The purpose of NSP was to allow local governments and their partners to purchase vacant, foreclosed homes and either rehabilitate them for housing or, to a limited extent, redevelop the properties for other uses. HUD was given just 60 days to design and implement the allocation scheme and eligible use rules for NSP, and so NSP funds were allocated beginning in October 2008. By early 2009, most NSP 1 recipients had fully approved

plans for how they were going to deploy funds and had the legal documents in place to begin acquiring properties. NSP 1 provided localities with a window of only 18 months to obligate NSP funds.

NSP was, in the scheme of federal programming, adopted and implemented very quickly—with less than nine months from adoption (late July 2008) to money beginning to hit the streets as early as the spring of 2009. However, the tumult in the nation's financial and housing markets during this period was so great that the nature of the vacant property problem was changing quite rapidly and, by spring of 2009, was significantly different than that of 2007 or the first half of 2008, at least as suggested by the evidence below. The narrow, targeted crafting of NSP, while perhaps justified by other reasons, was not well suited to address the fast-changing nature of the vacant property problem posed by the foreclosure crisis, especially in that it focused on one tactic—the acquisition of properties held by lenders as real-estate-owned (REO) property, or homes where the lender has taken title after a foreclosure sale.

This paper examines property transaction data for Fulton County, Georgia, to identify changes in the duration of properties held in REO status by lenders as well as the nature of the REO sales, including the levels of concentration of sellers (lenders) and buyers, the nature of buyers, and the relative values of properties being sold. It builds on some of the work of Coulton, Schramm, and Hirsh (2009) and Smith and Duda (2009) in Cleveland and Chicago, respectively.³

Anecdotal reports suggest that many if not most REO properties are bought by investors, and that this share has grown during the crisis.

The findings here suggest that, during the time that the NSP 1 program was being initially implemented and rolled out in late 2008 and early 2009, the vacant property problem in Atlanta shifted from one of REO properties to one of primarily investor-owned properties. Banks began to sell off lower-value REO rapidly to a diverse set of buyers. Lenders continued to hold on to higher-value properties for similar amounts of time, however. As properties moved rapidly to nonbank ownership, NSP recipients had less ability to gain control of them.

Fulton County is the central county of the Atlanta metropolitan statistical area and the largest county in Georgia. Its population is approximately one million, and it includes the bulk of the city of Atlanta within its borders. The city of Atlanta accounts for more than 40 percent of the county's population. The county includes a number of quite affluent suburbs to the north as well as moderate-income suburbs surrounding the Atlanta Hartsfield–Jackson airport and large, low-density areas to the south.

Data and Methods

Data on all recorded residential property transfers from January 2005 through April 30, 2009, were obtained from the Fulton County Tax Assessor's Office. From these data, all transfers on one-to-four-unit residential properties, condominiums and townhouses were identified and retained. Data were cleaned for duplicate

records. The buyers and sellers of these properties were then classified as either lenders (including financial institutions, Fannie Mae, Freddie Mac, HUD, the VA, etc.) or nonlenders (individuals or corporate entities of various kinds).⁴ After identifying the buyer and seller for each transfer, sales were categorized as: 1) nonlender-to-nonlender sales transactions; 2) lender-to-nonlender transactions (which would be considered sales of REO properties, or REO sales); 3) nonlender-to-lender transfers (which are properties entering REO status, usually through foreclosure sale or through a deed in lieu of foreclosure); and 4) lender-to-lender transfers, which occur for various reasons and are usually non-cash conveyances.⁵

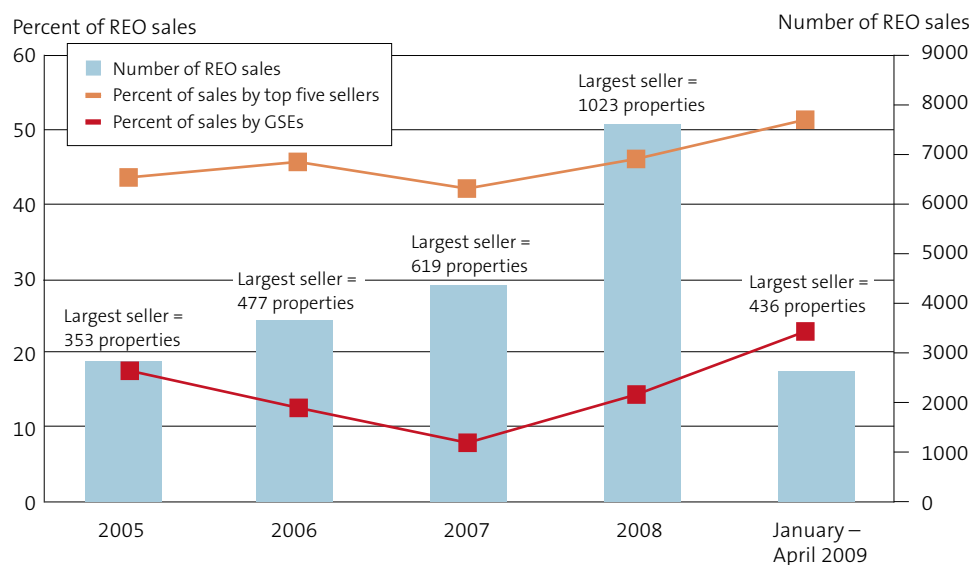
For REO sales (category 2 above), buyers were classified as “likely investors” via two approaches.⁶ First, the buyer's name was examined for various corporate identifiers (e.g., LLC, corp., etc.). Then, buyers purchasing more than two properties in the county in any one calendar year were identified. If a buyer fell into either of these two groups, it was classified as a “likely investor.” Given that some investors may not have purchased more than two properties in any one year and/or have a corporate name, this method almost certainly under-counts investor-buyers versus owner-occupiers. But it is expected that any such undercount would be relatively consistent over time and space and a good indicator of differences and changes

Table 1
Sales on Properties that Entered REO Status at Least Once from January 2005 to April 2009

	2005	2006	2007	2008	Jan–April 2009	Total
Number entering REO	3,206	4,795	7,159	7,672	1,815	24,647
Percent change from prior year		49.6%	49.3%	7.2%		
Number of REO sales	2,886	3,719	4,444	7,751	2,674	21,474
Percent change from prior year		28.9%	19.5%	74.4%		
Nonlender-to-nonlender sales	11,582	9,748	5,594	4,111	1,052	32,087
Total	17,674	18,262	17,197	19,534	5,541	78,208

Source: Fulton County Tax Assessor

Figure 1
Market Concentration and GSE Share Among REO Sellers



Source: Fulton County Tax Assessor

in investor buying. REO sellers (lenders) and buyers were also ranked by REO purchases in each year to examine the concentration of sellers and buyers.⁷

The working dataset for this paper included all transfers on properties that entered REO status at least once from January 2005 through April 2009, excluding inter-lender transfers. The date of REO entry was identified for each REO sale. Thus, the duration of the REO period was determined for each REO sale.⁸ The price of each REO sale was also identified. Table 1 shows that, of the more than 78,000 sales in the dataset, REO sales accounted for more than 21,000. These are the sales that are of interest in this study.

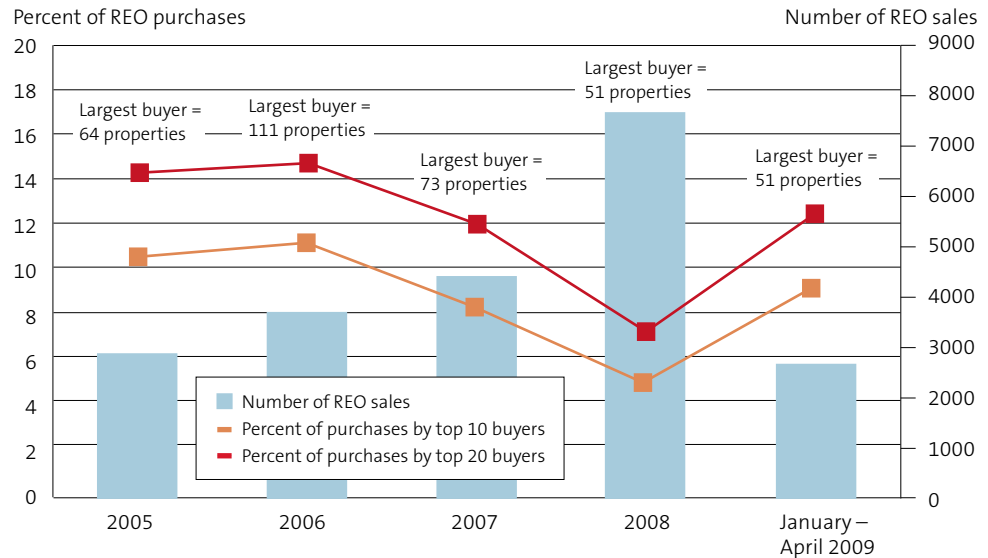
Table 1 also shows that the number of times properties entered REO increased rapidly in 2006 and 2007, but that the rate of growth dropped to only 7 percent from 2007 to 2008.⁹ The drop-off in 2008 was, most likely, partly the result of foreclosure moratoria introduced by many servicers in the fall of 2008.

The number of REO sales in Fulton County increased significantly as well over the 2005 to 2007 period, but at an appreciably slower pace than that of properties entering REO. This roughly matches national trends in which lenders' REO inventories were rising to high levels through much of 2007 and well into 2008.¹⁰ In 2008, the rate of REO sales in Fulton County picked up quite dramatically, with an increase of almost 75 percent, and lenders began selling many properties that they had been holding onto and selling even newer REO more quickly. This will be demonstrated in more detail below.

The Nature and Concentration of REO Sellers and Buyers

Figure 1 provides information on the nature of the sellers of the REO properties, that is, the lenders or mortgagees. While REO properties are often sold by loan servicers, the mortgagee is typically a trustee of a mortgage pool for which the servicer is acting as an agent. For government-sponsored enterprise (GSE) and FHA loans, following the typical foreclosure and initial transfer from the servicer to the GSE or HUD, the transferee owns the REO and is the seller. Figure 1 indicates the volume

Figure 2
Market Concentration of REO Buyers



Source: Fulton County Tax Assessor

of REO sales against two measures describing the composition of REO sellers. First, it gives a concentration ratio—the share of REO properties sold by the largest five sellers of REO properties for each calendar year. It also gives the proportion of REO properties sold by the GSEs, Fannie Mae, and Freddie Mac.

The top-five-seller concentration ratio increased somewhat, but not dramatically, over the period, ranging from just over 40 percent of sales to just over 50 percent. The increase in this share beginning in 2008 is due to the greater presence of the GSEs among the top sellers. GSE share had dropped from 2005 to 2007 as the initial subprime crisis grew, because non-GSE subprime loans dominated REOs. Most of these loans were held in securitized trusts. This meant that the GSE share of REO sales dropped to less than 10 percent in 2007. But with the foreclosure problem spreading to Alt-A and prime-market segments, the GSE share of REO sales grew in 2008 and early 2009, exceeding 20 percent by early 2009. Figure 1 also indicates the volume of REO sales in the county by the largest seller in each year. As will be shown below, the REO seller

market is much more concentrated than the REO buyer market.

Figure 2 provides information on REO buyers similar to the information on sellers provided in figure 1. However, it shows the percent of all REO properties bought by the top 10 and top 20 buyers in each year. It also indicates the number of properties purchased by the largest buyer in each year. Similar to patterns found in Cuyahoga County, Ohio,¹¹ the buyer market is highly atomistic, or disparate, with numerous small buyers and relatively few large buyers. Most properties are purchased by entities—usually individuals—purchasing one or a few properties in the county over the course of a year. The top 10 buyers comprised less than 12 percent of purchases every year, a share that fell to less than 5 percent in 2008 as REO sales surged. Even among the top 20 buyers, their share of all sales never exceeds 15 percent of purchases. Most of these larger buyers are corporate entities, usually structured as limited liability corporations (LLCs). Eighty to 95 percent of the top 20 buyers in each year were identifiable as corporate buyers.

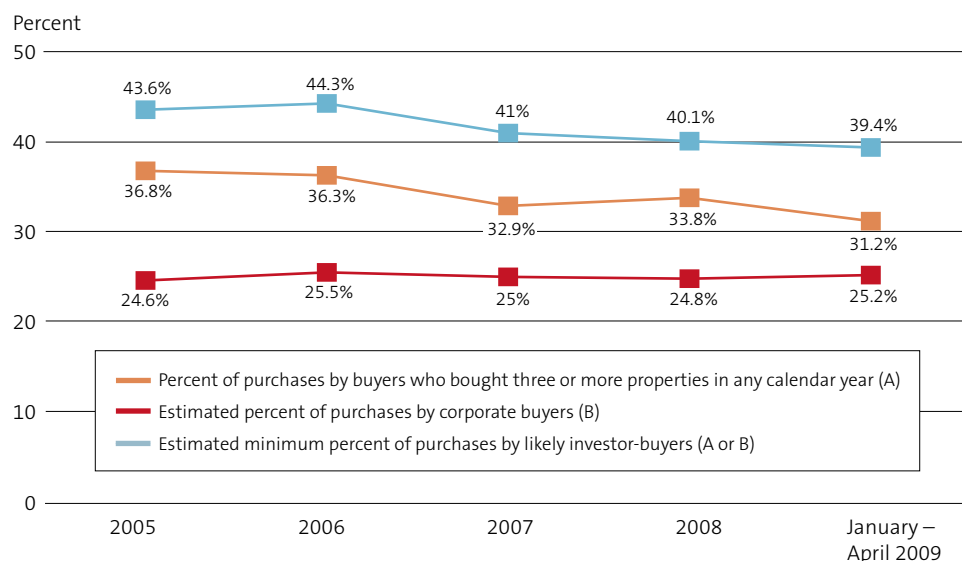
One question that arises is the extent to which REOs have been bought by owner-occupants versus investors. Anecdotal reports suggest that many, if not most, REO properties are bought by investors, and that this share has grown during the crisis.¹² In Atlanta, there has long been a very active investor market for single-family homes, and a large share of rental housing in the city occurs via detached single-family properties.

Figure 3 breaks out the REO sales between “likely investors” and other buyers. The raw data obtained from the Fulton County tax assessor do not provide a reliable indicator of owner occupancy. Therefore, investor versus owner-occupant status must be estimated. The approach used here is a conservative one and almost certainly underestimates the share of investor purchases. First, all corporate buyers are assumed to be investors. REO properties are identified as having corporate buyers if the buyers’ names include “LLC,” “corp.,” “group,” and similar terms. Figure 3 shows that the share of purchases by corporate entities held quite steady at about 25 percent each year. A second category of likely investor-buyers were those who bought three or more properties in

any calendar year. This share declined significantly, from more than 36 percent in 2005 and 2006 to 31 percent in the first four months of 2009. The top curve in figure 3 measures the share of properties that fall into either of the first two groups, which are not mutually exclusive. Many corporate buyers purchased three or more properties in a year and so fall into both of the categories.

The approach used here is a conservative one. Some small investors may never purchase more than one or two properties in any year, for example, and so would not be classified here as likely investors unless they used a corporate name in their transactions. Nonetheless, the degree to which this measure underestimates investor activity is not expected to vary across time or geography, making this a useful indicator. Because the percent of purchases by buyers who bought three or more properties declined, the overall likely investor share declined, although not drastically, over time. It could be that this downward trend is, in fact, due to a rise in the number of investors purchasing one or two properties per year.

Figure 3
Percent of REOs Purchased by Likely Investors



Source: Fulton County Tax Assessor

Figure 4
Shares of REO Sales by Price Range



* January–April 2009
Source: Fulton County Tax Assessor

Figure 3 shows that, overall, the share of REO sales that went to likely investors did not change very much over the study period. However, this share varies a great deal across different housing-value ranges, and that within some ranges this share changed quite substantially over time.

REO Sale Prices and Investor Shares by Price Range

The single most dramatic change in the REO sales market during the mortgage crisis was the rapid increase in REO properties selling at very low prices. Similar to findings from the Cleveland area, figure 4 shows that the share of REO properties in Fulton County that sold for under \$30,000 shot up from negligible levels in 2005 through 2007 to more than 30 percent in 2008 and 45 percent in the first four months of 2009. This is consistent with reports of low-value properties languishing in REO for extended periods during the early part of the foreclosure crisis in Atlanta, followed by lenders beginning to dump properties—the practice of rapidly selling these mostly low-value properties—as the foreclosure crisis spread nationally and the national and global financial crises took hold in the fall of 2008.

Figure 5 provides additional data on REO sales by showing their raw magnitudes by year across various value levels, but then also breaks out those properties that were purchased by “likely investors,” as defined in the previous section. Two things are important to note here. First, as might be expected, low- and moderate-value REO properties were sold to likely investors at much higher rates than were middle- and high-value REO over the study period. For example, likely investors never accounted for more than 23 percent of high-value (more than \$250,000) REO sales, and this share declined in 2008 and 2009. Similarly, for middle-value (\$100,000–249,999) properties, the share of likely investors never accounted for more than 32 percent of sales, and declined to less than 10 percent in 2008 and 2009.

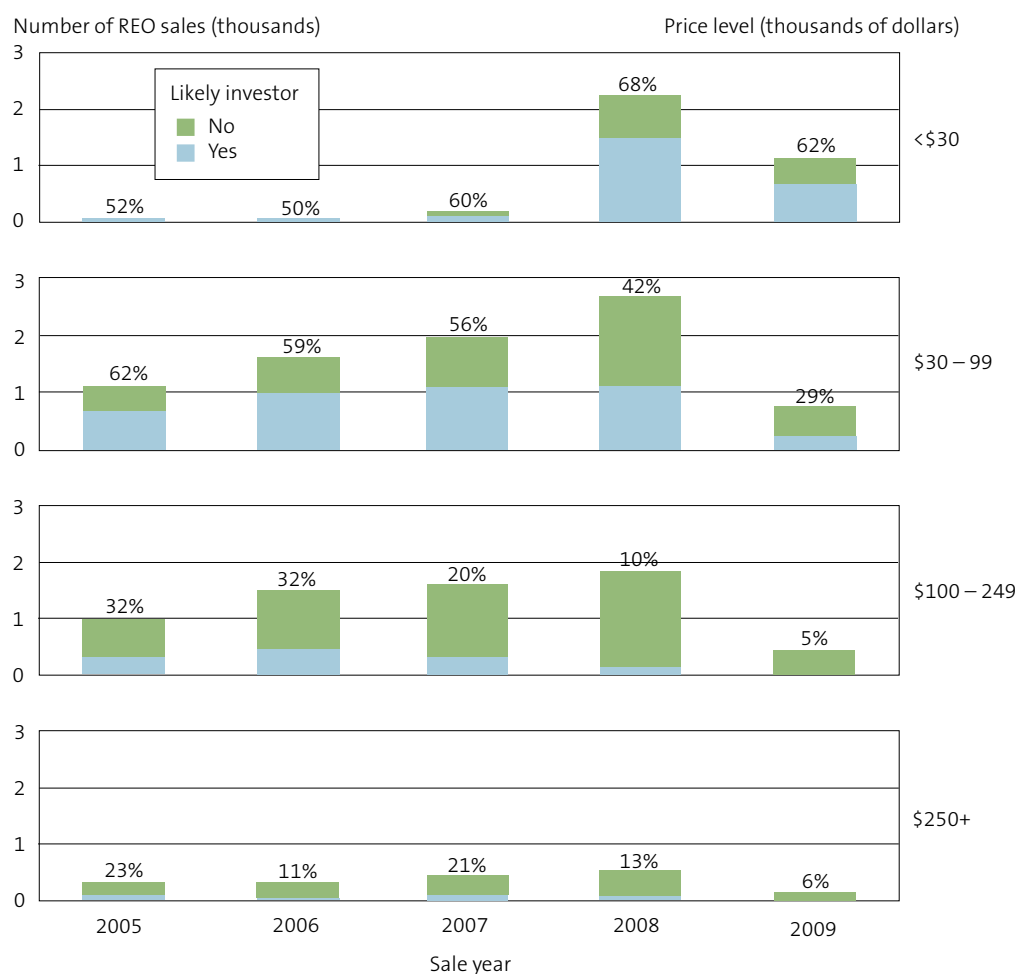
Second, the surge in low-value REO sales was driven by sales to likely investors, who accounted for 68 percent of low-value REO sales in 2008. Prior to 2008, most REO sales to likely investors were in the \$30–99,999 range, but the under-\$30,000 category grew in 2008 and 2009. Two phenomena likely underlie these shifts. First, investors moved away from

moderate- and higher-value properties and toward low-value ones. While an explanation is beyond the scope of this research, it may be that the ease of acquiring such low-value properties via cash transactions and the much tighter mortgage market for investor-owned property played a role. Moreover, property investors' relative difficulty in purchasing multiple properties at higher prices given the more restrained lending environment likely played a role in these trends.¹³ The second phenomenon underlying these shifts is the significant drop in value of many moderate-value properties, moving them into the low-value category and increasing the REO activity in that price range.

REO Duration

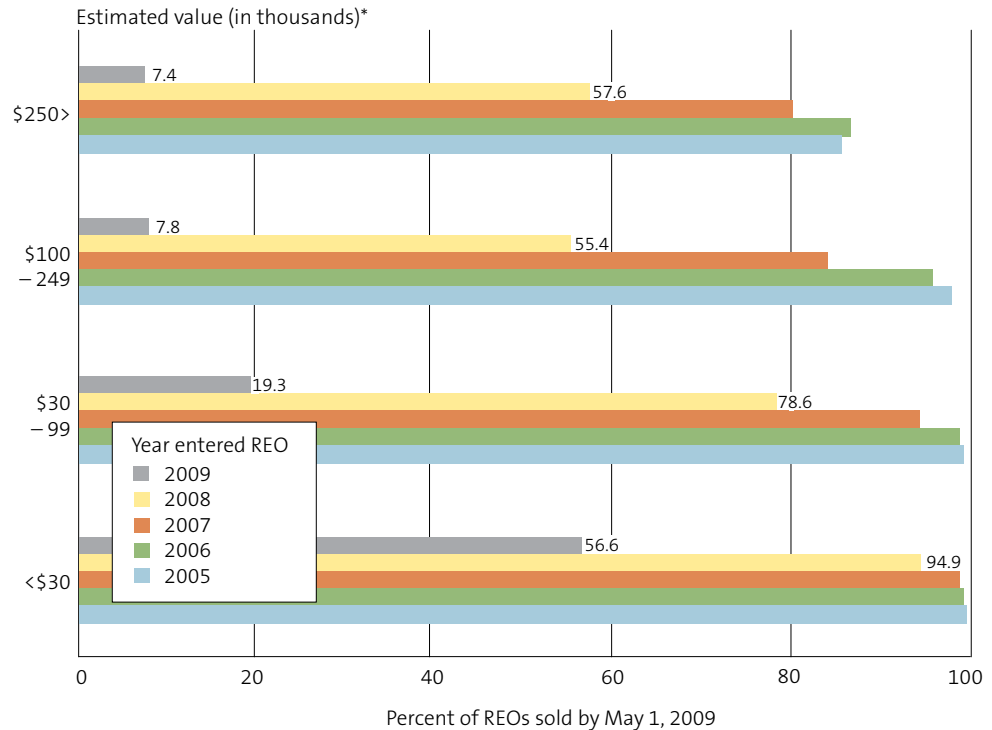
One significant feature of a local REO market that directly affects redevelopment efforts like NSP is the length of time properties remain in REO. There was some concern around the time of HERA's adoption that properties would languish in bank ownership, which some felt the private market had little interest in purchasing. Moreover, there were indications that some lenders were reluctant to sell properties at depressed prices and might hold on to many REO properties in the hope that values would recover to pre-crisis levels or somewhere close to them. On the other hand, given some

Figure 5
REO Sales by Value and by Likely Investor Status
(Percentages are the shares of REO buyers who are likely investors)



Source: Fulton County Tax Assessor

Figure 6
Percent of All REOs Sold by May 1, 2009
 By Year of REO Entry and Value



*Price of REO sale or, if remaining in REO at May 1, 2009, foreclosure sale price.
 Source: Fulton County Tax Assessor

of the challenges and requirements involved in implementing the NSP program at the local level, longer REO times might provide more opportunities for local governments to acquire properties. If properties are sold quickly and at very low prices, competition from investors and other buyers is likely to be more intense.

Figure 6 shows the percent of REOs, by year of entry and price level, that were sold by the end of the study period. As would be expected, for properties entering in 2005 through 2007, these shares tend to be quite high, although a significant share of high-value properties entering REO during these years remained in REO at the end of the study period. For example, almost 14 percent of properties with estimated values of at least \$250,000 that entered REO in 2005 were still in REO up to four years later. On the other hand, essentially all properties entering REO in 2005 and 2006 with values under \$100,000 were sold by May 1, 2009.

Figure 6 also shows that low-value properties have sold more quickly than higher-value properties in recent years (2008, 2009). For REOs priced below \$30,000 (either the sale price or the foreclosure sale price if still in REO), almost 95 percent of the REOs entering in 2008 were sold by May 1, 2009. (Later analysis will show, however, that in the earlier years of this study, most low-value properties did languish in REO for long periods of time.)

Figure 7 examines the median REO durations for just those REO sales where the estimated value was below \$30,000. This analysis includes properties in REO at May 1, 2009 (these are called “censored observations” since we don’t know the end of the REO period), but in this price range, there are relatively few of those.¹⁴ This fact mitigates the censoring bias when looking at median durations in this low-value range of REO sales.

Also shown in figure 7 are the volumes of low-value (less than \$30,000) REO entrants. In 2005 and 2006, there were very few of these. This is both because there were fewer REO entrants at any value level and because sale prices for REOs were higher for the earlier years. Low-value REO entrants surged in 2007 with the subprime crisis and continued in 2008. However, the duration of low-value properties plummeted over time as lenders began selling low-value REO more rapidly in 2008. In fact, the median time in REO for these properties dropped by more than half from those entering in 2007 to those entering in 2008.

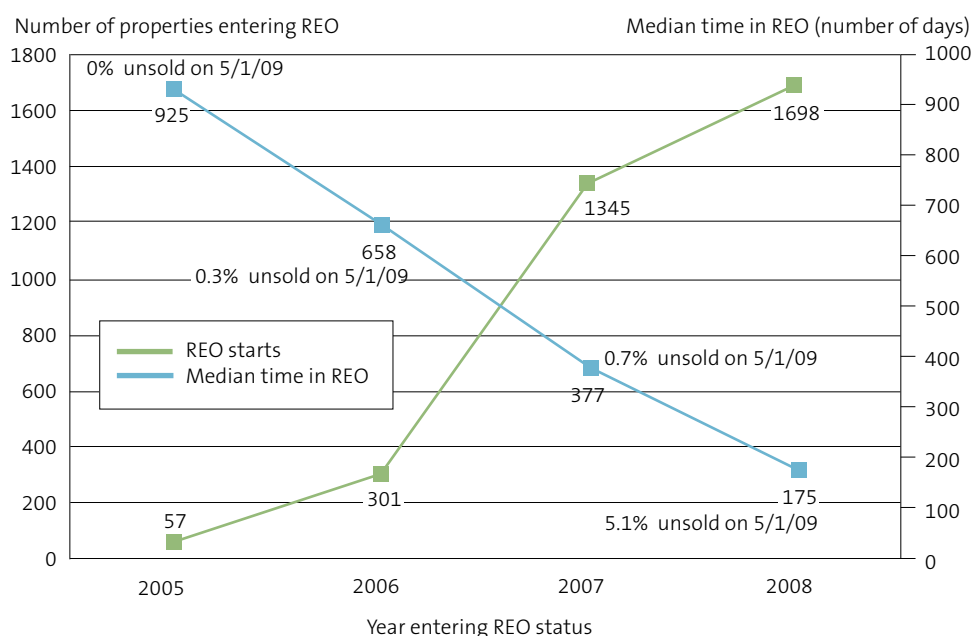
One method for examining durations until events of interest is survival analysis. Because it may be conceptually easier to view REO duration by examining the percent of REOs selling within various durations rather than examining the percent not selling (which would be equivalent to survival), “one-minus-survival” curves are plotted for REO entrance-to-sale durations across different entrance years for four value categories. These curves allow one to compare

the REO durations across different years of entry. We can also examine whether REOs at different price points behaved differently over time. Moreover, Kaplan–Meier survival analysis allows us to include censored observations (properties remaining in REO as of May 1, 2009), thus increasing the reliability of estimated durations for REOs beginning in 2008 and 2009.

Figure 8 is the set of one-minus-survival curves for REOs with values under \$30,000. It shows large differences in the speed to sale of low-value properties over the study period. The curves move clearly to the left as the year of entrance progresses. Thus, low-value properties entering REO in 2008 or 2009 took far less time to sell than those entering in 2005 or 2006.

Figures 9, 10, and 11 provide the Kaplan–Meier results for homes in other value ranges. They show far smaller differences in REO durations across the year of entry. Moreover, they suggest two other important patterns. First,

Figure 7
Median Time on Market for Low-Value Properties Entering REO
 <\$30,000

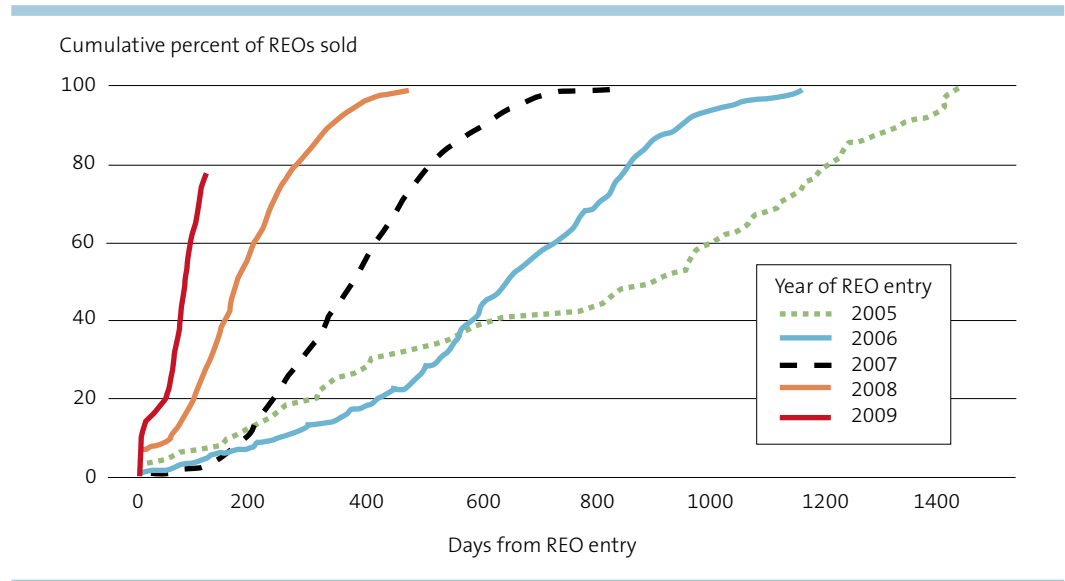


Source: Fulton County Tax Assessor

for high-value properties (\$250,000 or above; figure 11), the curves tend to reach their limits at less than 90 percent, consistent with the findings in Figure 6. Thus, some modest but nontrivial portion of high-value REO properties fails to sell for very long periods of time.

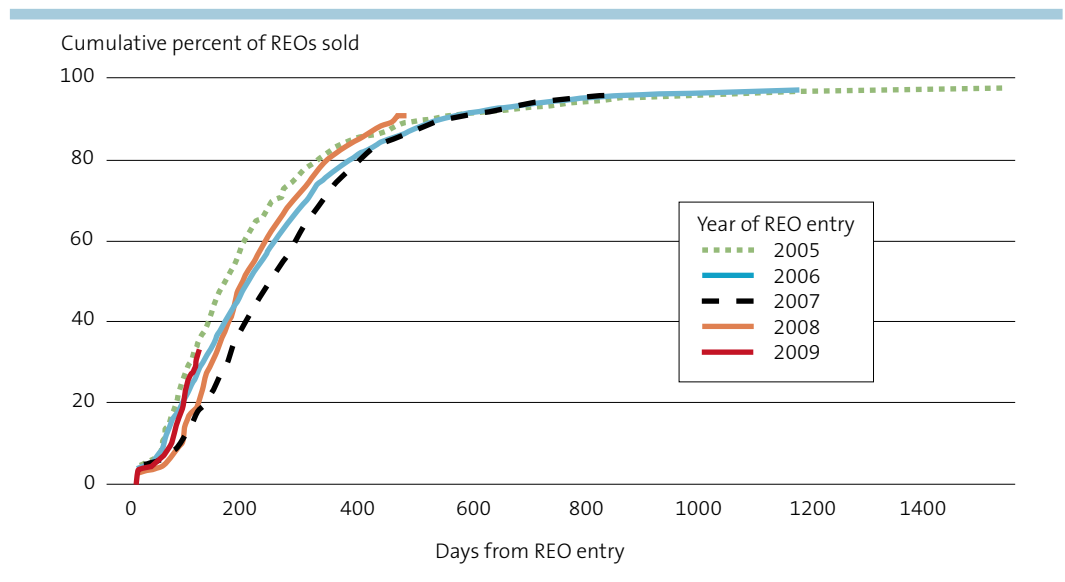
Second, this phenomenon appears to have begun affecting REOs in the moderate price range (\$100,000–249,999) in 2008 and 2009. Thus, lenders may be increasingly likely to hold onto higher-value and, more recently, even moderate-value REOs for longer periods of time.

Figure 8
Time to REO Sale by Year of REO Entry
<\$30,000



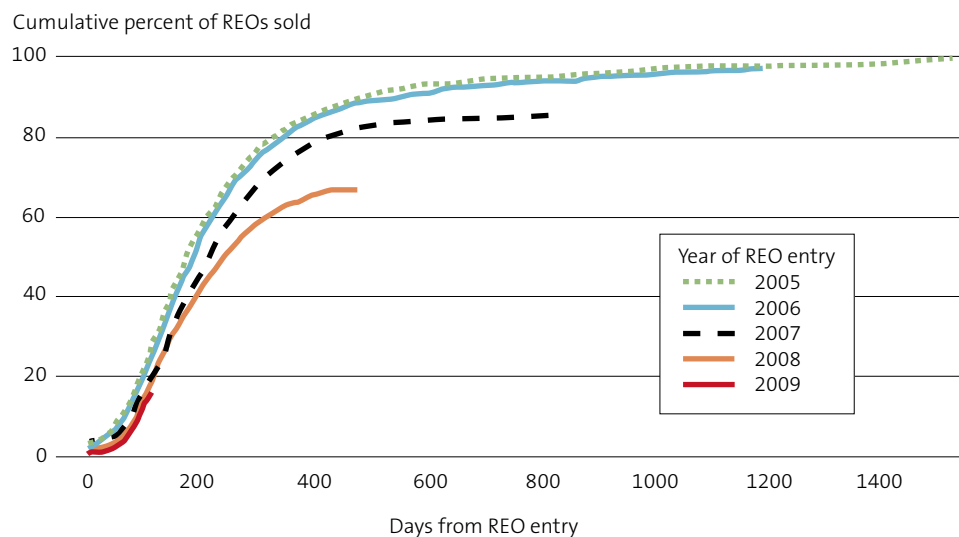
Source: Fulton County Tax Assessor

Figure 9
Time to REO Sale by Year of REO Entry
\$30,000–99,999



Source: Fulton County Tax Assessor

Figure 10
Time to REO Sale by Year of REO Entry
 \$100,000–249,999



Source: Fulton County Tax Assessor

time. This may reflect lenders' willingness to bet that the prices of higher-value homes may recover. Mortgagees may conclude that the possibility of such price recovery is worth the carrying costs entailed in holding the properties for longer periods. Carrying costs may also be higher for low-value properties that are located in places where they are more likely to be subject to vandalism and/or the stripping of fixtures, copper, or other materials. Because the NSP program prescribed most funds to be used for acquiring foreclosed properties, in places where REOs were dumped by lenders to investors, NSP recipients were left with fewer properties that they could acquire in neighborhoods heavily impacted by vacancies.

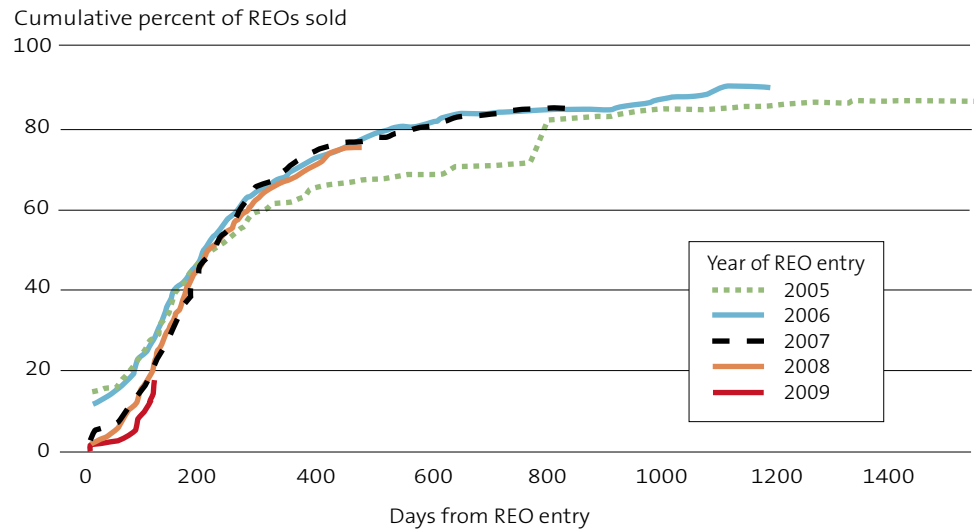
Summarizing the Key Empirical Findings

This analysis shows that some aspects of the REO market shifted quite significantly during the U.S. mortgage crisis, at least in the central county of the Atlanta metropolitan area. Some patterns were quite consistent over time, including the fact that the seller side of the market was much more heavily concentrated than the buyer side. Another consistent pattern

over time was the atomistic, or separate and highly disparate, nature of the buyers, with the largest buyers comprising only a very small portion of the market. The overall share of buyers who were likely investors also did not change very much from 2005 to 2009, although there was some decline in the share of properties bought by investors purchasing at least three properties in a calendar year. And finally, while the levels changed over time, the share of buyers who were likely investors was consistently higher at lower property-value levels.

The striking changes in the durations of low-value REOs support anecdotal reports of lenders beginning to sell such REOs rapidly and in higher quantities in the latter part of 2008 and into 2009. The volume of low-value properties entering REO in Fulton County rose drastically in 2007 and 2008; likewise, the sales of these properties rose rapidly in 2008 and early 2009. The speed at which low-value REOs increased so much that 95 percent of those entering in 2008 were sold by May 1, 2009. Similarly, more than half of REOs entering between January and May of 2009 were sold by May 1.

Figure 11
Time to REO Sale by Year of REO Entry
\$250,000+



Source: Fulton County Tax Assessor

Interestingly, lenders did not respond this way for the higher-value REOs they held. Durations for moderate-value REOs (\$30,000–99,999) were much more consistent overall, and the modest changes fluctuated back and forth during the study period. In the case of high-value properties (more than \$250,000), lenders tend to hold onto a small but nontrivial portion—more than 10 percent—of properties for a very long time. This behavior was generally consistent over the study period. For middle-value properties (\$100,000–249,999), the REO durations also changed over time, but in the opposite direction, as was the case for low-value properties. Durations increased in later years, so that only about 65 percent of REOs started in 2008 were expected to be sold within 500 days, compared to approximately 90 percent for REOs started in 2005 in this value range.

While the more rapid selling of low-value REOs may at first seem to signal a successful absorption of such properties into productive reuse, the on-the-ground impacts of such activity are less than entirely clear. For example, researchers found that many low-value properties in the Cleveland area went from REO sale to another transaction in fairly short order.¹⁵

This flipping of properties suggests speculative buyers that may have little intention of rehabilitating properties that tend to be physically distressed and in need of rehabilitation or even demolition. More work is needed to determine whether similar flipping behavior is occurring in Fulton County.

Implications for Neighborhood Stabilization Policy and Practice

The findings above have implications both for the near-term implementation of neighborhood stabilization efforts and for future policy design. First, the rapid turnover of lower-value REO properties—often to investor-owners—raises several concerns. While responsible investor activity in the market is necessary to reutilize REO properties and can provide increased supplies of affordable, decent-quality rental housing, such an outcome may not be the predominant one in all communities. Some investor properties remain unoccupied and boarded up or dilapidated, perhaps driven by investors' betting on near-term increases in values and hoping to merely resell the property in fairly short order. Other investors may seek to rent out properties without rehabilitating homes that are likely in very

poor condition; these properties may continue to have significant negative spillover impacts on neighborhoods.

Given the dominance of what appear to be “mom and pop” investors who purchase no more than a handful of properties each year, and given the very low values of many REO sales, the capacity and inclination of these investor-owners to rehabilitate and maintain properties adequately are of some concern. Many of these low-value transactions are likely to be all-cash purchases. In addition, credit availability for repairs and improvements is likely to continue to be scarce.

Such a scenario suggests the likelihood of two other problems either growing more acute or, in some places, emerging. First, housing code enforcement resources may be severely stressed by growing numbers of deteriorating properties. Second, small, cash-strapped investors may also have difficulty paying property taxes, suggesting the potential for increased tax delinquency problems. Many local governments will need stronger and more effective policy tools and programs to enforce property tax collection and to reclaim tax-delinquent properties for revitalization. State lawmakers should provide local governments with the fundamental tax foreclosure and reactivation powers to design and implement such programs.

In terms of policy and program design in the neighborhood stabilization arena, our findings here suggest that highly restricted funding schemes, such as the federal NSP programs, may be far too inflexible to provide for effective local responses to property vacancy and abandonment. By the time NSP 1 program funding was made available to localities, the vacant REO problem—at least in many low-income, impacted neighborhoods—may have become the more serious problem of many vacant, investor-owned homes and dilapidated, shoddy rental housing.

With continued waves of foreclosures and new REO properties mounting, community development groups must have flexible pools of

funds to respond opportunistically and strategically by buying properties either from banks directly or possibly from investors or homeowners (via short sales, for example). Using public funds to purchase homes from investors may be cause for some concern over whether such efforts would provide for middle-men speculators to extract subsidy from the process. This is a legitimate concern and any such buying must be done carefully. However, in practice, allowing for modest gains to investors may be the necessary cost of achieving scale in property recovery and redevelopment.

Dan Immergluck is an associate professor in the School of City and Regional Planning at the Georgia Institute of Technology, where he teaches courses in real estate, housing policy, and research methods. He has authored more than two dozen articles in scholarly journals, numerous applied research and policy reports, and three books. His most recent book, *Foreclosed: High-Risk Lending, Deregulation and the Undermining of the American Mortgage Market*, was published in June 2009.

Endnotes

¹ See Calvin Bradford, “Financing Homeownership: The Federal Role in Neighborhood Decline,” *Urban Affairs Review* 14: 313–335 (1979); and Rachel Bratt, “Homeownership Risk and Responsibility before and after the U.S. Mortgage Crisis,” in Richard Ronald and Marja Elsinga, eds., *Beyond Home Ownership* (London: Routledge, forthcoming).

² See Dan Immergluck and Geoff Smith, “The External Costs of Foreclosure: The Impact of Single-Family Mortgage Foreclosures on Property Values,” *Housing Policy Debate*, 17(1): 57–80 (2006); Dan Immergluck and Geoff Smith, “The Impact of Single-family Mortgage Foreclosures on Crime,” *Housing Studies* 21(6): 851–866 (2006); and Jenny Schuetz, Vicki Been, and Ingrid Gould Ellen, “Neighborhood Effects of Concentrated Mortgage Foreclosures,” *Journal of Housing Economics* 17(4): 306–319 (2008).

³ See Claudia Coulton, Michael Schramm, and April Hirsh, “Beyond REO: Property Transfers at Extremely Distressed Prices in Cuyahoga County, 2005–2008,” Center on Urban Poverty and Community Development (Cleveland, Oh.: Case Western University, 2008) at http://blog.case.edu/msass/2008/12/09/20081209_beyond_reo_final.pdf; and Geoff Smith and Sarah Duda, *Roadblock to Recovery: Examining the Disparate Impact of Vacant, Lender-owned Properties in Chicago* (Chicago, Ill.: Woodstock Institute, 2009), at <http://www.woodstockinst.org/publications/download/roadblock-to-recovery%3a-examining-the-disparate-impact-of-vacant-lender-owned-properties-in-chicago/>.

The single most dramatic change in the REO sales market during the mortgage crisis was the rapid increase in REO properties selling at very low prices.

- ⁴ This process involved an automated search of the seller and buyer fields for various words or abbreviations that denote a financial institution or mortgagee. The search strings were developed after careful examination of the data. After this classification, random samples of the data were checked for the accuracy of the classification and the classification was iterated to account for financial institution names not captured by the original attempt.
- ⁵ Inter-lender transfers are common in Fannie Mae and Freddie Mac foreclosures, where the servicer typically takes recorded title to properties when foreclosure is complete, then quickly conveys title to Fannie Mae or Freddie Mac. Typically, this also occurs for FHA loans, where conveyance is to HUD.
- ⁶ The term “investors” here means buyers who are likely purchasing the property for investment-income purposes—either to rent out or for expected capital gains, or both. Investors can be corporate entities (including LLCs, corporations, etc.), individuals, or couples.
- ⁷ This required identifying seller and buyer names that were probably different variations of the same entity. For example, Bank of New York, NA, was considered equivalent to Bank of New York. This was done only for seller names and corporate buyers; individual names were assumed to be unique. While this certainly was not always the case in reality, it is very difficult to identify variations in individual buyers’ names consistently. More importantly, corporate buyers dominated the ranks of the top 20 buyers in all years (accounting for 16–19 of the top 20), so this assumption should not be material in calculating concentration.
- ⁸ Sales for properties already in REO status as of January 1, 2005, are not included in any analyses here. Also, inter-lender transfers are ignored in calculating REO durations, which are measured as the number of days from the foreclosure sale (nonlender-to-lender) to the REO sale (lender-to-nonlender).
- ⁹ Properties flowed into REO status more quickly in Atlanta than in some other markets for two reasons. First, mortgage defaults and foreclosures began growing earlier in Atlanta than in Florida, California, or many other “bubble market” regions because property value growth had mitigated foreclosures in those places until late 2006. Second, the quick foreclosure process in Georgia means that properties can flow into foreclosure very rapidly once the process begins, often in less than two months. In most places, the period from foreclosure notice to sale is much longer.
- ¹⁰ Dan Immergluck, *The Accumulation of Foreclosed Properties: Trajectories of Metropolitan REO Inventories during the 2007–2008 Mortgage Crisis*. Federal Reserve Bank of Atlanta, Community Affairs Discussion Paper, No. 02-08 (2008).
- ¹¹ Coulton, Schramm, and Hirsh, cited above.
- ¹² Coulton, Schramm, and Hirsh, cited above.
- ¹³ Moreover, homebuyer tax credits and low interest rates may have helped increase the owner-occupied shares of purchases in these price ranges.
- ¹⁴ In cases where properties remained in REO at the end of the study period, the value of the property is estimated by the previous transaction value, which is the foreclosure sale price. The only alternative is to use tax-appraised values; however, given rapid depreciation, especially at the lower value ranges, tax values would be expected to be much higher than actual market values and so are not considered reliable.
- ¹⁵ Coulton, Schramm, and Hirsh, cited above.