Joint Center for Housing Studies

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Home Improvement Spending on Distressed Properties: 2011 Estimates

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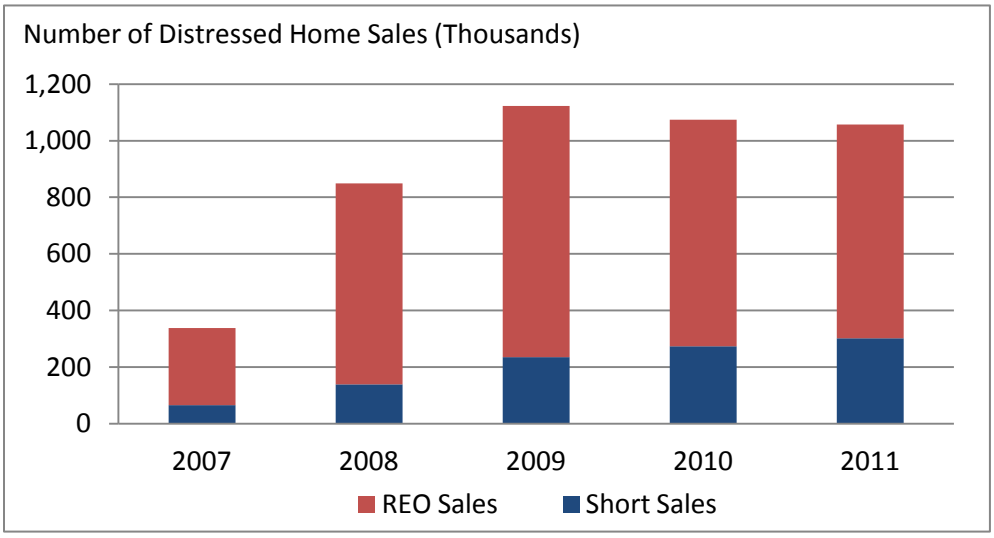
Introduction

In recent years, the number of distressed residential properties in the U.S. has increased. According to estimates from CoreLogic, distressed home sales, including both foreclosed homes and short sales, surpassed one million in 2011, comprising 27 percent of all home sales. While a slight decline from the 2009 peak, this recent level still marks a significant increase from 2007, when distressed sales totaled 338,000, then 6 percent of total home sales **(Figure 1)**. Growth in the numbers of distressed homes affects the home improvement and repair industry as the homes may require increased levels of maintenance and improvement spending to counter underinvestment by the financially-stressed prior owners. But while the level of investment in these homes is potentially significant, no systematic information is available to gauge the size of this market.

Figure 1: Distressed Home Sales Have Increased Since 2007



Notes: Estimates exclude multifamily properties.
Source: CoreLogic, MarketPulse reports, 2011-2012.

To fill this void, this research note draws upon a range of private and public data sources to estimate the scale of spending on distressed properties that were sold in 2011. The Joint Center estimates that banks, institutions, homeowners, and investors collectively spent approximately $9.8 billion on repairs and improvements to distressed homes sold in 2011. Relative to the size of the overall market for homeowner improvements and repairs, this

suggests that distressed property spending made up about 4 percent of all expenditures in 2011.[1] This share is an increase from 2007 when distressed property spending made up an estimated 1 percent of the market. Indeed, based on the change in the number of distressed sales alone, the 2011 spending level on repairs and improvements may represent a level that is nearly three times as large, or an increase of approximately $6.7 billion, relative to 2007.[2]

We estimate that around four-fifths of the $9.8 billion total spending in 2011, or approximately $8.1 billion, comprised expenditures by households and investors for the purpose of improving distressed homes purchased following a foreclosure or short sale. The estimate assumes that on average, homeowners spent $11,100 per property for repairs and improvements to approximately 380,000 distressed homes purchased in 2011, while absentee owners/investors spent even more, around $15,600 per property on around 250,000 properties purchased in the same year.[3] Another segment of this market is comprised of expenditures by banks and other institutions to repair and improve foreclosed homes in real estate owned (REO) inventory prior to sale to homeowners or investors. Though not all homes are rehabilitated prior to sale, the Joint Center estimates that banks and institutions spent approximately $1.7 billion, or $6,500 per property on average, to repair and improve around 260,000 homes prior to sale in 2011. These homes with repairs made up an estimated 35 percent of all REO homes sold to homeowners and investors in 2011.

The Road to Distress

The recent flood of distressed properties traces back to a mix of factors including house price declines, losses of employment, increases in debt, and other declines in household wealth. All of these problems became widespread during the recent economic crisis, pushing millions of households into financial trouble. According to data from the American Community

[1] According to preliminary Joint Center tabulations of the 2011 American Housing Survey (AHS), homeowners spent approximately $225 billion on home improvements and repairs in 2011, down from $276 billion at the peak of the market in 2007. These figures include spending on routine repairs and maintenance, such as painting, plumbing, roofing, and other minor repairs as well as on major home improvements and replacements.
[2] This comparison assumes average spending per distressed property sold was similar in 2007 and 2011.
[3] Investors are defined here as rental property owners, second home or vacation home buyers, and other housing investors who purchase homes but do not plan to occupy the unit as a primary residence.

Surveys, on average during 2008-10, nearly 7.6 million homeowners with mortgages were paying over half of their income for housing. This represents an increase of nearly 2.6 million households compared with pre-crisis levels in 2001. Additional estimates from CoreLogic indicate that the number of residential mortgages with negative equity has hovered between 11 and 12 million since 2009.[4] When households come under such financial stress, or have negative home equity, they are more likely to become delinquent on their home mortgage payments, as well as postpone home repairs and improvements. Households that are underwater on their mortgages may even abandon their homes and strategically default, despite being able to continue making monthly payments.

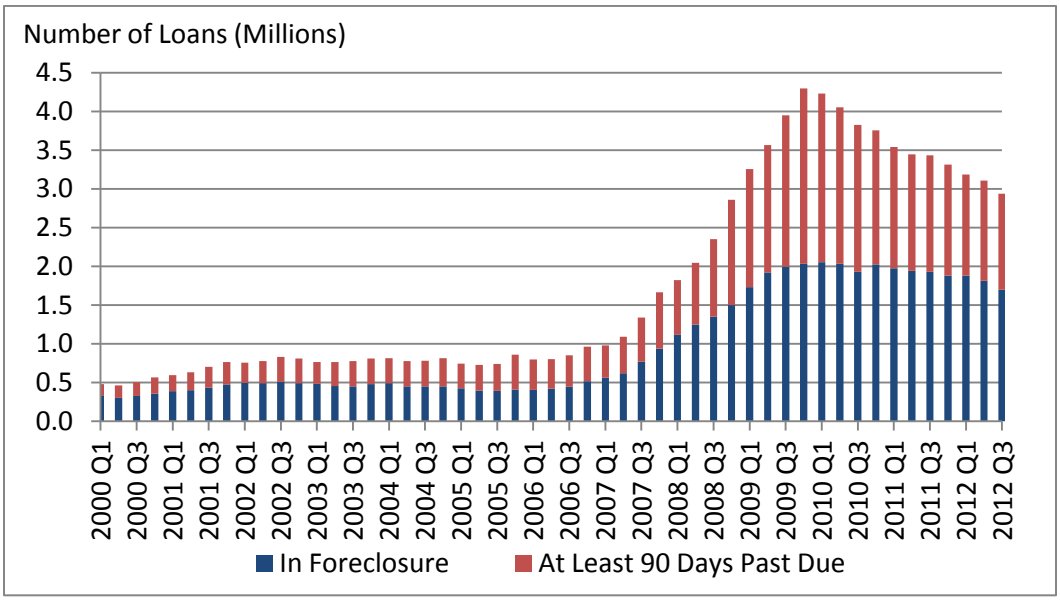
When a homeowner stops paying the mortgage, the lender typically sends a series of notices leading up to a notice of default at the 90 days past due stage. In non-judicial U.S. states, if this default is not corrected within a pre-determined period of time, the lender posts a notice of sale leading to a public foreclosure auction. At auction, the foreclosing party typically establishes a minimum bid equal to the amount of the debt owed, plus interest, any late fees, and administrative costs of the foreclosure. Prospective buyers typically discount their bids heavily because properties are sold in "as is" condition, and many are damaged but cannot be inspected internally prior to the sale. Unless someone bids above the minimum amount, the lender usually retains the home as part of its REO inventory. In other states that require legal foreclosure proceedings, or judicial states, lenders also need to file and win a foreclosure lawsuit prior to proceeding with an auction.[5] Throughout these stages of the foreclosure process, occupants typically have little incentive or resources to perform repairs and improvements. Some homeowners even abandon their homes and move on before the foreclosure is completed as they give up hope of retaining ownership. The number of homes in

[4] The number of homeowners with negative equity may in fact be higher. According to information from Zillow, as many as 14 million or 28.2 percent of all U.S. homeowners were underwater as of Q3 2012. Zillow's negative equity calculations are based on a sample of current outstanding mortgage balance data from TransUnion, as well as Zillow's own home value estimates. Corelogic's negative equity share calculations are based on data from public records on outstanding mortgage debt combined with estimates from its own automated valuation model (AVM) for residential properties.

[5] For more detail on the foreclosure process, see "An Overview of the Home Foreclosure Process," Federal Housing Finance Agency, Office of Inspector General. http://www.fhfaoig.gov/Content/Files/SAR%20Home%20Foreclosure%20Process.pdf.

foreclosure or 90 days past due remains highly elevated compared to pre-crisis levels. As of the third quarter of 2012, around 1.7 million home mortgages were in the process of foreclosure, and an additional 1.2 million were 90 days past due **(Figure 2)**.

Figure 2: While the Number of Distressed Loans is Falling, the Foreclosure Backlog Remains Highly Elevated



Note: MBA estimates that the survey covers 85-88 percent of loans outstanding.
Source: JCHS tabulations of Mortgage Bankers Association, National Delinquency Surveys.

Compounding this problem is the fact that in recent years, the average time homes spend in the foreclosure process has been increasing. According to Lender Processing Services, as of January of 2010 only 12 percent of home loans in foreclosure were two or more years past due. Twelve months later, this share increased to 28 percent, and by January of 2012 this share increased to over 40 percent.[6] The more time the foreclosure process takes, the greater is the likelihood that improvement and repairs will be needed. The length of time to complete a foreclosure has grown particularly long in judicial states, averaging 692 days as of August 2011, compared to 567 days overall in the U.S.[7] In 2011 alone 914,000 foreclosures were completed,

[6] LPS Mortgage Monitor, February 2012 Mortgage Performance Observations. Lender Processing Services. http://www.lpsvcs.com/LPSCorporateInformation/CommunicationCenter/DataReports/MortgageMonitor/LPS Mortgage Monitor January 2012 - Final.pdf, p. 19.

[7] Cordell, Larry and Vidya Shenoy, "The Cost of Delay." The Federal Reserve Bank of Philadelphia. http://www.philadelphiafed.org/bank-resources/publications/presentations/the-cost-of-delay.pdf. Last Updated February 16, 2012.

but this isn't the whole story as some sell or work out another solution as a way to avoid foreclosure.

In some cases, reinstatement occurs as borrowers and guarantors work out a loan modification. Mortgagors also sometimes work out an arrangement with the lender to sell the property to a third party as a short sale to pay off the mortgage balance at a deficiency. Homeowners who successfully work out a short sale agreement typically continue to live in these homes rent free, usually for several months, until the sale closes. While these occupants usually are motivated to protect the value of the home prior to the short sale closing, typically they would not face significant incentives to perform major improvements prior to sale. In certain cases repairs probably are made; however, given the lack of data on repair spending prior to short sale, this portion of the market was omitted from the market size estimate to yield a conservative overall estimate. According to estimates from CoreLogic, the number of short sales has been increasing in recent years, rising from 274,000 in 2010 to 302,000 in 2011.

When a foreclosure is completed, in judicial states a redemption period exists during which the homeowner can still reclaim title to the home by paying the full amount of the unpaid debt and costs of foreclosure. During these periods, which range from several days to as long as two years, servicers usually cannot enter the property to maintain it without first obtaining a court order.[8] In non-judicial states, or after redemption periods have expired, the next step after foreclosure is for the lender to secure, register, inspect, upkeep, insure, and pay property taxes on the home, and market it for sale. Securing and providing upkeep to REO properties protects against further deterioration and is key to neighborhood stabilization. It includes such activities as trash removal and cleaning, yard maintenance, paying for any utilities needed, and boarding or securing windows and doors. Currently the GSEs (Fannie Mae and Freddie Mac), FHA, and other major institutions have strict guidelines servicers must follow to preserve and dispose of REO properties. Many local ordinances also require vacant REO

[8] GAO, "Vacant Properties: Growing Number Increases Communities' Costs and Challenges," GAO-12-34, November 2011, p. 35.

properties to be properly maintained.[9] Yet REO property management is often complicated due to wide variation in local ordinances, some of which even prevent lenders from evicting tenants who inhabit foreclosed homes (Demuth, 40). Federal law also grants most tenants the right to remain in a foreclosed property through their lease, or at least 90 days if they are tenants at will. According to a GAO study, roughly 40 to 50 percent of properties are still occupied after foreclosure is completed.

In some cases, servicers have been known to neglect or even abandon properties for which they deem the proceeds of a sale would not exceed the costs of the foreclosure process. Such properties typically are located in low-value, distressed urban neighborhoods, and in most cases involve third party investors.[10] Still, in most cases properties eventually are marketed for sale. At this point, banks and other institutional holders of foreclosed properties may opt to perform more significant repairs and improvements to prepare these homes for sale. When deciding whether to do significant work on a home, servicers routinely perform careful analysis of local market conditions. Some variables affecting repair decisions may include the vacancy rate and home prices in the surrounding area, the percent of buyers in recent/nearby transactions who pay cash, as well as differences in sale amounts and durations to sale between repaired versus non-repaired homes.[11] In general, the longer a property remains vacant, the greater the servicer's carrying costs, and the greater the chance of further deterioration. When a carrier deems that the property can be sold faster and at a higher price with repairs, some repairs and improvements may be done. Though a significant amount is spent on these properties, perhaps around 65 percent of REO properties are sold with no or minimal work done, increasing the need for repairs and improvements after sale.

[9] See for example, "Fannie Mae Single Family 2012 Servicing Guide," Section 108. https://www.fanniemae.com/content/guide/svc031412.pdf.

[10] See GAO, "Vacant Properties: Growing Number Increases Communities' Costs and Challenges," GAO-12-34, November 2011, p. 32-36. As the report explains, most of these cases also involved private-label mortgage backed securities.

[11] For more information on REO management and disposition strategy, see Walsh, Jr., William A., Ian R. D. Labitue, and C. Scott Tuthill, "How Financial Institutions Can Effectively Manage an Dispose of REO Assets," Client Alert, Hunton & Williams, 2011.

Method and Assumptions for Market Size Estimate Calculations

The basic method for estimating the size of the market for improvements and repairs to distressed homes was to multiply average spending per distressed property in 2011 by the total number of distressed properties likely to have been repaired in the same year. These calculations were adjusted for different repair incidences and average spending levels in various segments of the market. That is, they take into account information about different spending behaviors both by banks and institutions to prepare homes for REO sale, as well as by homeowners and investors to repair and improve homes purchased after short sale, homeowner default, or foreclosure. When combining these estimates, foreclosed homes were assumed to have the potential of being repaired both by banks and institutions prior to sale as well as by purchasers after sale. In the case of short sales, however, repairs and improvements were assumed to take place only after the sale. This approach yields several estimates—both pre-sale and post-sale—that were combined to obtain the total market size estimate for 2011.

Data used in these estimates is from a variety of public and private sources. Average spending per property came from Fannie Mae and Freddie Mac as well as from the Joint Center's National Green Remodeling Survey of general remodeling contractors. The total number of distressed properties sold is from CoreLogic, and estimates of the shares of distressed properties likely to have been repaired were based on data from the American Housing Survey as well as from Fannie Mae and Freddie Mac. All of these components of the estimate are combined in **Figure 3**. The remainder of this section outlines these market size calculations in detail. Additional details about each of the data sources used are also available in the **Appendix: Data Sources** section of this note.

Figure 3: Estimated Home Improvement Spending to Distressed Properties in 2011

Column:	A	B	C [=A x B]	D	E [=C x D]
	Total # Distressed Properties Sold[12]	Share of Distressed Properties Improved[13]	Total # of distressed properties sold and improved	Average expenditure per unit[14]	Est. Total Market Spending
Pre-sale activity	755,000	35 Percent	260,000	$6,500	$1.7 billion
Post-sale activity	1.057 million				
…by homeowners	630,000	60 percent	380,000	$11,100	$4.2 billion
…by investors	420,000	60 percent	250,000	$15,600	$3.9 billion
Total					$9.8 billion

Step 1: Total number of distressed properties sold in 2011

While it is difficult to measure the number of distressed properties repaired in any given year, the number of distressed homes sold (i.e., REO and short sales) in 2011 perhaps yields the best available basis from which to estimate the number of homes likely to be repaired during the same year. One of the most reliable sources for REO and short sale data in the U.S. is CoreLogic. According to estimates from CoreLogic, the number of REO sales in 2011 was around 755,000, and the number of short sales was approximately 302,000. These distressed sales figures include single family homes, townhouses, condos, and duplexes, and exclude larger multifamily structures. Combining these figures together results in an estimate of approximately 1.057 million distressed homes purchased by homeowners and investors in 2011 (755,000 + 302,000) (Column A in **Figure 3**). Information from Hanley Wood's Housing Intelligence Pro database further indicates that around 40 percent of REO home sales went to investors in 2011, while 60 percent were purchased by owner-occupants. Assuming this to be the breakdown of all distressed sales to owner-occupants and investors yields estimates of

[12] Sources: CoreLogic, The Marketpulse report, Vol. 1 Issue 12, Dec. 2012; Hanley Wood, Housing Intelligence Pro database.
[13] Sources: Fannie Mae 2011 Annual Report; Freddie Mac proprietary REO repair database for 2011; 2011 American Housing Survey.
[14] Sources: Fannie Mae 2011 Annual Report; Freddie Mac proprietary REO repair database for 2011; JCHS National Green Remodeling Surveys, 2011.

630,000 distressed homes purchased by homeowners (1.057 million x 60 percent), and 420,000 purchased by investors in 2011 (1.057 million x 40 percent).

Step 2: Number of distressed properties repaired in 2011

Based on these estimates of the numbers of distressed homes sold, the next step was to estimate the numbers of these distressed homes likely to have been repaired in 2011. This calculation was performed separately on the pre-sale and post-sale sides of the distressed property market. In each case, the total number of homes sold was multiplied by the share of homes typically repaired before or after sale. On the pre-sale side of the market, calculations from publicly available information from Fannie Mae as well as proprietary data from Freddie Mac indicate that these government-sponsored enterprises (GSEs) repaired 35 percent of their 2011 REO dispositions on average prior to being sold. Together Fannie Mae and Freddie Mac accounted for nearly half of all REO sales in 2011. Since no information was readily available on the share of other REO sales repaired, the 35 percent share was applied as an estimate of the average proportion of all REO properties repaired before sale. This yields 260,000 properties estimated to have been repaired prior to REO sale (755,000 homes x 35 percent). The impact of this and other assumptions will be examined in the **Discussion of Estimate** section of this paper.

Both the homes sold out of REO and short sales directly by distressed owners were potentially the subject of further investment after purchase by homeowners or investors. The 2011 American Housing Survey is used to estimate the share of recently purchased homes that underwent some degree of improvement. Among homeowners who indicated that they moved into their current residence since the last survey (in 2009 or later), about 60 percent reported doing at least one home remodeling, major improvement or replacement project during the first two years after purchase. This figure is for all movers regardless of whether or not the home was purchased as an REO or short sale. For those household moving into distressed properties, this share is likely a conservative estimate. The accuracy of this figure also will be discussed further in the **Discussion of Estimate** section of this paper. As shown in **Figure 3**, multiplying the total number of distressed homes purchased by homeowners (Column A) by the

conservative estimate of the share likely making these investments (Column B) yields 380,000 properties having improvements done after REO or short sale by owner-occupants (Column C).

Since the AHS only gathers information on home improvement spending by owner occupants, reliable data on the incidence of such work among investor purchasers was not available. Given the differing aims of investors and homeowners, investors most likely exhibit different spending patterns from homeowners. Several possible differences as well as their potential impact on the final market estimates are compared in the **Discussion of Estimate** section of this research note. However, after weighing these factors, it seemed most reasonable to assume that investor buyers improved their properties at the same rate as owner occupants, or 60 percent. Applying the same basic method to investor purchases suggests that 250,000 distressed homes were repaired by investors in 2011 (420,000 x 60 percent) **(Figure 3)**.

Step 3: Average spending per property

Column D in **Figure 3** shows estimates for average spending per distressed property, both for banks and institutions to prepare REO properties for sale, as well as by homeowners and investors to improve distressed homes after purchase in 2011. These estimates are primarily from the Joint Center's National Green Remodeling Surveys conducted in the first half of 2012. This survey is based on a national panel of remodeling contractors and is administered by The Farnsworth Group. In an initial survey, contractors who indicated that they worked on distressed homes were asked how much on average different types of clients spent per distressed property on repairs and improvements. According to the survey results, on average homeowner/investor purchasers spent $11,100 per property to improve homes purchased from REO or after a short sale.[15] A subsequent version of the same survey indicated that

[15] This figure matches closely with similar estimates from the American Housing Survey (AHS). According to Joint Center tabulations of the 2011 AHS, homeowners who moved into their homes recently (since the last survey, or within approximately the last two years) spent $11,600 on average on professional repairs and improvements over the past two years. This AHS estimate is for all homes, however, including those that were not distressed. Although the Green Survey question encompassed both homeowner and investor improvement activity, the resulting estimate is taken as the best available estimate of homeowner spending on distressed properties. A subsequent Green Survey question was developed later to estimate average spending by investors.

investors and other absentee owners who will not be occupying the unit were estimated to spend even more, $15,600 on average per distressed property after sale in 2011.

As part of the first survey, contractors also were asked how much on average banks and institutions spent on repairs and improvements to prepare REO homes for sale. Banks and institutions were estimated to have spent $9,100 per property on average to prepare homes for sale. Additional estimates of average spending on REO properties prior to sale were obtained from Fannie Mae's publicly available reports, as well as from a proprietary REO repair database from Freddie Mac. In combination, Fannie Mae and Freddie Mac spent $6,500 on average per REO property sold in 2011. For the purpose of these market size calculations, this average spending figure from the GSEs was used instead of the comparable Green Survey estimate (of $9,100). The main reason for this decision is the fact that the GSE figure documents actual average spending from major holders of REO properties, rather than being based on survey data from general remodeling contractors. The GSE figure also probably better reflects the bulk discounted pricing that large banks and other institutional holders of REO properties can obtain due to the large scale of their repair and improvement activities. Potential factors influencing the accuracy of these estimates are covered in the **Discussion of Estimate** section of this paper.

Step 4: Estimate Total Spending

Finally, to estimate the size of the market, estimates of the number of properties repaired by sellers and purchasers of distressed homes in 2011 were multiplied by each respective estimate of average spending during the same period. As evident from **Figure 3**, this yielded three initial spending estimates. Prior to REO sale, banks and institutions were estimated to have spent $1.7 billion dollars ($6,500 x 260,000) on repairs and improvements to prepare foreclosed homes for sale in 2011. After REO or short sale, homeowners spent an estimated $4.2 billion ($11,100 x 380,000). Investors spent an estimated $3.9 billion ($15,600 x 250,000) to improve homes after purchase. Adding together these last two estimates yields estimated spending by homeowners and investors of $8.1 billion ($4.2 billion + $3.9 billion) for repairs and improvements after distressed sale. Adding this to the pre-sale estimate, finally,

yields an estimate of the size of the entire market for spending on distressed properties in 2011 of $9.8 billion ($1.7 billion + $8.1 billion).

Discussion of Estimate

Many factors could pull this estimate up or down, and in many cases different variables pull the estimates in different directions, with no one direction clearly outweighing the other. After considering several of these factors, we believe the actual number is close to or perhaps slightly higher than the $9.8 billion estimate. This section discusses these possible sources of error as well as their potential impact (positive or negative) on these spending estimates.

Factors that might impact the accuracy of the spending estimate

One potential source of error regards the average spending figure of $6,500 per property from Fannie Mae and Freddie Mac. This figure may be inaccurate as a representation of spending by all holders of REO property. Indeed, other smaller holders of REO properties likely do not have the same access to economies of scale as the GSEs. This might drive their average expenditures per property higher. Applying the alternative $9,100 estimate of pre-sale spending in 2011 from the Joint Center's National Green Remodeling Survey, for example, would yield a higher estimate of $2.4 billion in pre-sale spending, raising the aggregate market estimate to $10.5 billion. Since many private holders of REO properties have fewer capital resources to draw on for repairs, however, their average spending per property might be less. It's difficult to say which of these factors would have a greater effect on the estimate. Currently no data is available to gauge how much these other private institutions spend on average per property, so $6,500 is taken as the best available estimate of average spending per property.

The share of distressed properties estimated to have been improved after sale by homeowners and investors also may be inaccurate. The 60 percent share of homeowners tabulated from the 2011 AHS applies to major home improvement and replacement activity in homes purchased since 2009. This figure is fairly stable from survey to survey; however, it is measured over two years, so it may be slightly high as a measure of the share of activity in 2011 alone. On the other hand, this figure is for all homes, and not only for distressed homes. In the

case of distressed homes, more repairs likely need to be done, so the actual share of newly-purchased distressed homes improved in 2011 may be higher than that measured from the AHS.[16] Given that these two factors are pulling the estimate in different directions, it's difficult to know whether the actual share of homeowners doing repairs to distressed properties would be higher or lower. We chose 60 percent as the best available estimate, even though it is potentially conservative.

In addition, of the estimated 1.057 million foreclosed and short sale homes purchased in 2011, a significant share of these properties was purchased by investors. Investors often want to achieve positive cash flow as soon as possible through rents, so it seems likely that investors might do repairs and improvements at a higher rate than owner-occupants (60 percent, based on AHS data). On the other hand, if investors buy homes "as is" to sell them rapidly, or "flip" them at a profit, they may not face incentives to perform needed repairs during this process. Comments from our reviewers suggested that on balance investors may be repairing a higher share of their distressed property purchases than owner-occupants, which would push our estimates upward. Given that no data was readily available on the share of distressed homes repaired by investors after purchase, however, an alternative estimate to the baseline figure for homeowners was not attempted.

Another potential problem with the market size estimate is that the 35 percent share of REO properties estimated to have been improved by banks/institutions prior to sale in 2011 may be inaccurate. Indeed, collectively Fannie Mae and Freddie Mac sold 350,000 REO properties in 2011, comprising nearly half of all REO sales that year. The remainder of REO sales by FHA (about 15 percent of sales) as well as for private label (PLS) and FDIC insured institutions (about 38 percent) may have seen a different share of homes repaired. It is possible, for

[16] Indeed, results from the Home Improvement Research Institute's (HIRI) 2012 Recent Homebuyer's Survey indicate that the share of recent existing home purchasers who had improvements, repairs, or other maintenance work done on their properties was 9 percent higher for purchasers of distressed existing homes (at 81 percent) versus all purchasers of existing homes including distressed homes (at 75 percent). Unlike the AHS figure which tracks major improvements and replacements, the HIRI data also includes reports of minor maintenance projects; however, assuming that this ratio of distressed/all existing home work calculated from HIRI could apply to improvement work in general, then the share of homeowners who did improvements after purchase might be closer to 66 percent (60 percent x 1.09).

example, that FHA might repair a greater share since its portfolio represents a lower segment of the market which might need more maintenance work. On the other hand, private institutions might repair a smaller share of homes since they don't have a capital base to draw on. It is difficult to say whether the actual share of REO homes repaired and improved before sale in 2011 may have been greater or less. Given the lack of data on other institutions' repair spending, 35 percent is taken to be the best available estimate.

One final factor considered was the split of professional versus do-it-yourself projects. For these market size calculations, the data on average distressed spending per property by homeowners and investors came from a survey of general remodeling contractors. This data does not take into account spending on do-it-yourself (DIY) projects by homeowners and investors. At least for homeowners, average spending on DIY projects typically tends to be much less than that spent on professional projects. Tabulations of the 2011 AHS, for example, indicate that recent movers who did professional remodeling projects spent an average of $11,600 on those projects over a two-year period. In contrast, recent movers who performed DIY projects (either alone or in addition to professional projects) spent $4,000 on average on those projects. In fact, more than half of recent homebuyers who completed repairs in 2011 did some work on a DIY basis. In many cases, this work was done in addition to professional work, but in others it was done without any supplemental work by hired professionals.

In those cases of households who did DIY projects only (about 23 percent of recent movers who did projects), average spending for these households would be much less than the $11,100 figure calculated from the survey of professional remodeling contractors. This suggests an overestimation of spending for these DIY households. On the other hand, an even greater share of recent mover households (28 percent) did both professional and DIY projects. Again, the $11,100 average spending figure from the survey of contractors for homeowners does not account for any extra DIY spending on top of the amount cited by the general remodeling contractors. This omission would tend to push the overall spending estimates down. On balance, it's difficult to say which of these factors influences the spending estimates more strongly. The overall impact of the professional versus DIY split seems to be negligible.

Summary Findings

In each of these cases, different factors seem to be pulling the spending estimates both upward and downward, and no one direction clearly outweighs the others. Applying all of these considerations suggests that actual spending is probably relatively close to the $9.8 billion dollar estimate. If banks and institutions spend more on average than the assumed amount, however, the spending estimate would be closer to $10.5 billion. According to this range of estimates, spending on distressed properties likely made up between 4 and 5 percent of all improvement, maintenance, and repair spending by homeowners in 2011. These figures are approximate estimates, open to revision and improvement especially as more is understood about investor repair activity. At a minimum, they give a rough indication of the overall size of the market for distressed property spending, as well as the approximate shares of spending by homeowners and investors (four fifths) compared to banks and institutions (one fifth).

Conclusion

In recent years, a sizable inventory of distressed properties in the U.S. housing market has begun to drive up spending on home improvements and repairs to distressed properties. In 2011, the market for home improvement and repair spending to distressed properties may have been around $9.8 billion dollars. Around four-fifths of this estimate, or approximately $8.1 billion, was spent in roughly equal proportion by households and investors to improve distressed homes purchased after short sale, homeowner default, or bank foreclosure. One-fifth of the estimate, or approximately $1.7 billion, was spent by banks and institutions to prepare REO homes for sale. If average improvement spending per distressed property remained relatively constant, then growth in distressed sales alone since 2007 would have accounted for a nearly threefold increase of spending on distressed properties or a total increase of $6.7 billion. The share of home improvements and repairs attributed to distressed properties likewise may have grown from one to four percent during this period. Looking to subsequent years, according to a 2012 Federal Reserve White Paper, the flow of new distressed homes into the market will remain high in 2012 and 2013. If this prediction bears out, then the

level of repair and improvement spending to distressed properties in the next two years should remain roughly similar to levels reached in 2011.

Appendix: Data Sources

This appendix section discusses the data sources used in these market size calculations in more detail. Several data sources were used, including distressed sale counts from CoreLogic, survey results on distressed properties from the Joint Center's National Green Remodeling Survey, and disposition and repair data from Fannie Mae's publicly available reports as well as proprietary REO repair data from Freddie Mac. Other sources include the 2011 American Housing Survey, as well as information regarding the share of REO sales to absentee owners from Hanley Wood's Housing Intelligence Pro database.

CoreLogic

Estimates of the number of distressed homes sold in 2011 are from CoreLogic. CoreLogic's home sales data is taken from their monthly MarketPulse report, and is broken down in to new, existing, REO, and short sales. CoreLogic's sales data is based on public property transaction records from over 2,200 U.S. counties, and covers about 85 percent of all sales transactions on single family homes and condos. According to CoreLogic, in the case of REO and short sales, very little activity happens in the non-covered areas, most of which are rural. For this reason, CoreLogic's distressed sales estimates can be considered to be relatively accurate, and are not adjusted for coverage.

JCHS National Green Remodeling Survey

In February of 2012, the Joint Center included questions on distressed properties in its National Green Remodeling Survey. This survey is administered by The Farnsworth Group twice a year, and relies on a national panel of remodeling contractors. Out of the 448 remodelers and general contractors surveyed in February of 2012, 70 percent responded, and 67 percent provided information on distressed property work. First, each of these respondents was asked whether, over the past year, their firm had done work for banks or other institutions to prepare any foreclosed homes for sale, or for households/investors who purchased homes sold after

short sale, homeowner default, or bank foreclosure ("distressed properties"). About 36 percent of those who gave information indicated that they had done such work. Of these doers, nearly half worked exclusively for homeowners/investors on homes purchased after short-sale or foreclosure. One third worked on both the pre-sale and the post-sale sides, and less than one fifth worked exclusively for banks or other institutions to prepare foreclosed homes for sale.

Firms that worked on distressed properties also were asked to report the average amount spent per property by banks and institutions on repair and improvement projects to prepare foreclosed homes for sale, as well as by households/investors/buyers on repair and improvement projects to improve homes purchased after short sale, homeowner default, or bank foreclosure. To indicate their responses, each firm picked from a set of expenditure ranges ("Under $3,000," "$3,000-$4,999," "$5,000-$9,999," "$10,000-$14,999," or "$15,000 or more"). From these range responses, the average amount spent per property both pre- and post-sale was estimated based on the weighted averages of the midpoints of these ranges. When calculating the weighted contribution of the top spending range, the value used was $20,000, likely yielding a somewhat conservative estimate.

On average over the past year, remodeling contractors who worked for banks/institutions/sellers on repair and improvement projects to prepare foreclosed homes for sale indicated that these clients spent $9,100 per property (based on 56 responses). On the post-sale side of the market, remodeling contractors who worked for households/investors/purchasers on repair and improvement projects to improve homes purchased after short sale, homeowner default, or bank foreclosure saw these clients spend $11,100 on average (based on 88 responses).

In the August 2012 version of this survey, a similar question was asked regarding work on distressed properties for absentee owners who will not be occupying the home. This question was intended to estimate spending by investors, including by rental property owners. It also included spending by second home or vacation home buyers. For this version of the survey, the range of spending value responses was adjusted to capture responses on the higher end of the distribution, up to $50,000 or more. The estimate of absentee-owner spending,

$15,617, therefore should not be considered to be a conservative estimate (based on a total of 94 responses).

Fannie Mae and Freddie Mac

To further explore the REO side of this market, data on distressed property expenditures was gathered from Fannie Mae's publicly available reports. Fannie Mae's 2011 Annual Report reported disposition of 243,700 properties in 2011 (p. 18). Also in 2011, they "completed repairs to approximately 89,800 properties sold from [their] single-family REO inventory, at an average cost of approximately $6,200 per property" (p. 16). While the total number of dispositions is not exactly equal to the number of REO sales, these two figures enabled a rough estimation of the share of Fannie Mae's total REO properties sold with repairs in 2011. The method for this estimation simply was to divide total sales with repairs (89,900) by total dispositions (243,700) in the same year, resulting in an estimated repair rate of approximately 37 percent. Similar data was obtained from Freddie Mac, indicating that they repaired 32 percent of all sales in 2011, with average spending per repaired property of $7,300. Combining data from both institutions yielded a combined repair rate for both Fannie Mae and Freddie Mac ("the GSEs") of 35 percent, and a combined average repair amount of $6,500 per property for 2011.

American Housing Survey

Tabulations of the 2011 American Housing Survey (AHS) were used to estimate the share of homeowners who completed repairs after a recent move, as explained in *Step 2* of the **Method and Assumptions** section if this research note.[17] The AHS also was used to estimate the overall size of the entire market for improvement, repair and maintenance spending by homeowners (around $225 billion in 2011). The AHS does not track spending by investors who do not occupy the property. It also does not identify whether the homes are distressed or non-distressed, so AHS estimates of average home spending data for recent movers were not used.

[17] The Joint Center adjusted the weights to have the distribution of households by tenure, race/ethnicity, and age match the distribution in the 2011 American Community Survey (ACS). Estimates presented here are based on these adjusted AHS survey weights.

To give a baseline for comparison, however, average spending among recent movers who did professional remodeling projects was $11,600 over a two year period. While the AHS figure covers a longer period as well as includes spending on non-distressed properties, it is reasonably close to the $11,100 in professional spending on distressed properties estimate for 2011 from the JCHS National Green Remodeling Survey.

Hanley Wood's Housing Intelligence Pro Database

Finally, data from Hanley Wood's Housing Intelligence Pro database was used to estimate the share of single-family REO sales to absentee owners in 2011 to be around 40 percent. If absentee ownership is taken as a proxy for investor status, then investor purchases may have comprised 40 percent of all REO sales. This figure is consistent with information from Fannie Mae's 2012 Mission Report, which indicates that about 60 percent of their properties sold in 2011 went to individuals, non-profits, or other public entities.

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