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HUD versus Private Bank Foreclosures: A Spatial and Temporal Analysis*

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I. INTRODUCTION

The Federal Housing Administration (FHA), an agency within the Department of Housing and Urban Development (HUD), has insured mortgages on single family houses since 1934. The insurance provides complete coverage for all losses whenever a mortgagor defaults on the insured loan and the lender forecloses on the property. In many cases the FHA will instruct the lender to sell the foreclosed property and submit a claim for the amount of the loss. In other cases the FHA will pay the amount of the claim and take possession of the property. In this case HUD will market and sell the property through a sealed-bid auction process.

If the housing market is efficient and if HUD foreclosed properties are indistinguishable in all aspects from either foreclosed properties sold by private lenders or nonforeclosed private sales, then the sales price on the HUD properties should reflect only the characteristics of those properties. That is, there should be no difference in the market price between HUD foreclosed properties and other properties with identical characteristics. If the market is not efficient, or if HUD foreclosed properties have distinguishable characteristics compared to other properties in the mar-

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ket, then the prices of HUD properties may differ from others in the market.

In this paper we explore the extent to which HUD foreclsoed properties in one local market sell at a price lower than comparable properties in that market. We employ a data base that includes HUD foreclosed properties (HUD), private lender foreclosed properties (BANK), nonforeclosed sales of properties in close proximity to HUD foreclosed properties (HUDNAB), nonforeclosed sales of properties in close proximity to bank foreclosed properties (BANKNAB), and a random sample of sales in the local market (MARKET). By including properties in very close proximity to foreclosed properties we control for neighborhood effects—foreclosures may adversely effect property values in the neighborhood, or neighborhood characteristics may reduce the price of HUD foreclosed properties. By including bank foreclosures we control for the effects of foreclosures per se.

Shilling *et al.* (1990) claimed that foreclosed property sold for 24% less than nonforeclosed property, based on a sample of 62 residential condominium sales. Forgey *et al.* (1994) claimed to replicate these results with a sample of properties sold through the multiple listing service in Arlington, Texas. Both papers claimed that property advertised as a "foreclosure sale" tended to remain on the market for a shorter period than nonforeclosed property, resulting in a lower selling price. However, neither paper investigated whether foreclosed properties were on the market for a suboptimal time. If foreclosed properties are sold too quickly to maximize price, property values should increase with duration of time on the market.[1]

Section II presents alternative models which might account for a HUD discount. Section III describes the data, presents the empirical results, and is followed by a concluding section.

II. THEORETICAL CONSIDERATIONS

Unless foreclosed properties contain price reducing characteristics, one would expect the HUD sold properties should sell at prices equivalent to those of non-HUD sold properties with the same characteristics. Reasons why foreclosed properties might sell for less than (some) nonforeclosed properties include the following. First, as suggested by Shilling *et al.* and Forgey *et al.*, HUD may economize on its marketing and sales

[1] That is, if $P < P_{max}$ because $t < t^*$, then $\partial P/\partial t > 0$, when P is price, P_{max} is the maximum price a property can achieve, t is the time on the market, and t^* is the optimal time on the market.

efforts. If this reduced effort produces a thin market for their properties, a discount may result. If this is the case, we would expect to find that sales prices for HUD properties are positively related to the duration of time on the market. Second, HUD properties are typically vacant, with some utilities turned off, at the time of sale. Uncertainty about the condition of the utility systems may discourage prospective buyers and lead to a discount. This implies that foreclosed properties sold by HUD would sell at a lower price than foreclosed properties sold by other financial institutions. Furthermore, abandoned properties are a blight on the neighborhood and would also depress neighboring property prices during their periods of vacancy. If this "scarring" argument is true, we would find a significant reduction in the prices of neighborhood properties sold while the HUD foreclosed properties were on the market. We would not expect to find a scarring effect either before the HUD foreclosed on the property or after the HUD property was sold. Third, HUD properties are sold "as is" with no warranty for defects. With no prospect of recourse, buyers are likely to discount HUD properties over other properties sold by private lenders or by private citizens. Fourth, HUD properties may suffer from adverse selection. Homeowners may default on a loan either because there is negative equity (due, perhaps, to a hidden defect) or because of financial problems.[2] Without knowing the cause of the default, buyers tend to infer the existence of a hidden defect and reduce the price they are willing to pay. If this hypothesis is true, we would also expect to find a discount in the price of bank foreclosure sales. Fifth, the fact that properties were foreclosed by HUD means that the properties were FHA financed. If FHA-financed properties are of lower quality than conventionally financed properties,[3] HUD foreclosures may merely proxy FHA financing, which may cluster in lower quality neighborhoods. If this is the case, houses within close proximity of HUD foreclosures should also sell at a discount relative to conventionally financed properties.

Of these five suggestions the last four are plausible explanations of any observed discount on HUD properties. In the first case one would expect that savvy market investors would take advantage of HUD's inefficiency and thereby bid the price up to the level of equivalent nonHUD properties (net of transaction costs). If HUD properties sell at a discount, then we expect that the discount reflects the uncertainty about the condition of the utility systems or the presence of unknown defects inferred from the

[2] A wealth-maximizing homeowner with positive equity should sell the property rather than allow foreclosure and lose that equity. However, personal problems or suboptimal behavior may cause individuals to deviate from wealth-maximizing behavior.

[3] For instance, Forgey *et al.* (1994) found that FHA-financed homes sold for $6,706.91 less than conventionally financed homes, in their linear equation, or 6.25% less than conventionally financed homes, in their log-linear equation.

default of the former owner. If both conventional and FHA foreclosures significantly reduce property values, then adverse selection is a plausible explanation. If the HUD indicator is significant, but neither the neighborhood nor the conventional foreclosure indicator variables are significant, then the "thin market" hypothesis of HUD inefficiency is implied. This hypothesis would be strengthened if one found a positive relation between sales prices and the duration of HUD properties on the market. If both HUD and neighborhood indicators are signficant, then either the neighborhood blight hypothesis or the neighborhood characteristic hypothesis is appropriate. We can distinguish between these two hypotheses by considering the timing of neighborhood property sales. Presumably a nonforeclosed neighborhood property is scarred by the presence of a HUD-foreclosed property if and only if both properties are on the market at the same time. Neighborhood properties sold before HUD acquired the foreclosed property, or sold after the HUD property was sold, would not be scarred. Hence, a negative relation between the price of the neighborhood property and the duration of the HUD property on the market supports the scarring hypothesis. A zero or positive relation between the selling price of the neighborhood property and the duration of the HUD property on the market contradicts the scarring hypothesis. In such a case, causation would run from neighborhood characteristics to the reduced value of the HUD property.[4]

III. DATA AND EMPIRICAL TEST

We test the market efficiency of HUD-owned properties through the use of hedonic equations on a large sample of single family residences in Las Vegas, Nevada. The total sample of 2111 transactions[5] includes, 422 HUD properties, 1007 properties on the same street and within one to three houses of the HUD properties, 19 properties foreclosed and sold by two private lenders (banks), 69 properties in the neighborhood of bank foreclosures, and 594 nonforeclosure sales in the general market. We include transactions on properties in very close proximity to the HUD sales and bank foreclosures to control for neighborhood effects and adverse selection.

Assuming that the HUD discount is proportional to property value, the log of the real price is the appropriate dependent variable[6] and a single-log equation form is suitable.

[4] These adverse neighborhood characteristics could cause negative equity, leading to foreclosure.

[5] Eighteen observations were excluded because their selling price reflected only the price of the land.

[6] See Halvorsen and Palmquist (1980).

$$LP_{it} = \alpha_0 + \alpha_1 H + \alpha_2 HN + \alpha_3 B + \alpha_4 BN + \beta S + \gamma Q + \delta L + + \varepsilon, \quad (1)$$

where

LP_{it} = natural log of sale price of house in constant dollars (1982–1984 = 100)
H = indicator for HUD sold properties
HN = indicator for property sales in the neighborhood of HUD properties
B = indicator for bank foreclosure sales
BN = indicator for neighbor of bank foreclosure
S = measure of size of property
Q = vector of quality characteristics
L = vector of location characteristics
ε = an error term.

In Eq. (1), coefficient α_1 measures the percent HUD discount[7], α_2 measures the neighborhood effect of HUD foreclosures, α_3 measures the discount for bank foreclosures, and α_4 measures the neighborhood effect for bank foreclosures. If both α_1 and α_3 are significantly negative, we infer that foreclosures, per se, are responsible for price discounts, implying an adverse selection or thin market effect. If α_1 and α_2 are both significantly negative, then HUD foreclosures have an adverse impact on neighborhood properties, or HUD properties share (hidden) characteristics with neighborhood properties. A similar neighborhood effect for bank foreclosures would be implied if α_3 and α_4 are significant.

If both α_1 and α_2 are significant, then it is unclear whether HUD foreclosures per se or common characteristics of HUD properties and HUD neighborhood properties are responsible for the lower selling price of HUD properties. In Eq. (2) we substitute a different indicator variable for HUD neighbors, $HN_2 = H + HN$. That is, HN_2 is coded as 1 for both HUD properties and HUD neighbors, since, obviously, HUD properties are in their own neighborhood. Similarly, $BN_2 = B + BN$. The revised equation is

$$LP_{it} = \alpha_0 + \alpha_1' H + \alpha_2' HN_2 + \alpha_3' B + \alpha_4' BN_2 + \beta S + \gamma Q + \delta L + \varepsilon. \quad (2)$$

[7] Halvorsen and Palmquist show that, the percent change in selling price due to HUD foreclosure is $100\{e^{\alpha_1} - 1\}$.

In Eq. (2), coefficient α_1' measures the HUD foreclosure effect, independent of any neighborhood effect.[8] If α_2' is significantly negative while α_1' is insignificant, we infer that HUD foreclosure discounts are merely location effects. Similarly, α_4' measures neighborhood effects for bank foreclosures, while α_3' reflects only bank foreclosure effects.

If neighborhood properties sold while the foreclosed property was "on the market" sell at a discount relative to neighborhood properties sold when the HUD property was not on the market, then evidence exists for a scarring effect of HUD properties. In order to test this hypothesis, we modify Eq. (2) to add an additional variable, *HT*, which measures the length of time the HUD property was on the market when the property in question was sold. *HT* is positive for HUD properties themselves and for neighborhood properties sold while the HUD property is on the market. *HT* is equal to zero for bank foreclosures, the neighbors of bank foreclosures, the market sample, and HUD neighbors sold before the HUD foreclosure or after the HUD property was sold.

$$LP_{it} = \alpha_0 + \alpha_1' H + \alpha_2' HN_2 + \alpha_3' B + \alpha_4' BN + \alpha_5 HT + \beta S + \gamma Q + \delta L + \varepsilon. \tag{3}$$

The coefficient α_5 in Eq. (3) measures the effect of the number of days between the date HUD properties were acquired and the date the property was sold. If $\alpha_5 < 0$, then the scarring hypothesis is supported; if $\alpha_2 \geq 0$, then HUD properties do not detract from the salability of (other) neighborhood properties.

Variable *HT* actually allows us to test two hypotheses. If $\alpha_5 > 0$ for HUD properties themselves, then the thin market hypothesis is supported. If $\alpha_5 < 0$ for neighborhood properties, then the neighborhood scarring effect is supported. A strong rejection of both of these hypotheses is implied if $\alpha_5 < 0$ for HUD properties (HUD properties are typically sold after the date when their sale price would be maximized), while $\alpha_5 > 0$ for neighborhood properties implies that having HUD properties on the market enhances the sales price for neighborhood properties. For this reason we suppress the indicator variables *B*, *BN*, *H*, and HN_2 and fit Eq. (4) separately for HUD and HUD neighbor properties.

$$LP_{it} = \alpha_0 + \alpha_5 HT + \beta S + \gamma Q + \delta L + \varepsilon. \tag{4}$$

[8] To remove neighborhood effects from the foreclosure indicators, we are intentionally introducing multicollinearity between foreclosed properties and their neighbors.

IV. EMPIRICAL RESULTS

Table I lists the descriptive statistics and compares property characteristics that were selected to be included in the hedonic equation for the entire data set. Table II breaks down the statistics for the five subsamples; HUD foreclosures (HUD), neighbors of HUD foreclosures (HUDNAB), bank foreclosures (BANK), neighbors of bank foreclosures (BANKNAB), and a random sample of properties not located within a block of foreclosures (MARKET). The F statistic for each variable in Table II tests the null hypothesis that the mean for that variable is constant across the five groups. We note that bank foreclosures and bank

TABLE I
Descriptive Statistics

	Mean	Median	Maximum	Minimum	Std. dev	Observations
PRICE	$89,970	$82,000	$750,000	$10,074	$46,213	2111
RPRICE	$66,909	$60,822	$552,690	$7,175	$34,366	2111
LPRICE	11.30	11.31	13.53	9.22	0.47	2111
FIREPLACE	49.93%	0	1	0	50.01%	2111
GARAGE	91.99%	1	3	0	70.73%	2111
CARPORT	15.49%	0	1	0	36.19%	2111
DGARARGE	1.94%	0	1	0	13.80%	2111
POOL	12.32%	0	1	0	32.87%	2111
CPAT	43.49%	0	1	0	49.59%	2111
AGE	15.52	12	58	0	11.98	2111
MONTH	22.60	22.9	47.23	0.033	13.56	2111
SQFTB	1589.12	1381	8235	603	670.99	2111
SQFTL	7441.44	6448	95832	609	6179.16	2111
BANK	0.85%	0	1	0	9.20%	2111
HUD	19.99%	0	1	0	40.00%	2111
BANKNAB	1.80%	0	1	0	13.30%	2111
HUDNAB	47.70%	0	1	0	49.96%	2111
BANKNAB2	2.65%	0	1	0	16.07%	2111
HUDNAB2	67.79%	1	1	0	46.74%	2111
HUDTIME	206.59	3	1656	0	331.72	2111

Note. PRICE, selling price of house in current dollars; RPRICE, selling price of house in constant dollars (1982–1984 = 100); LRPRICE, natural logarithm of selling price in constant dollars; FIREPLACE, indicator for one or more fireplaces; GARAGE, indicator for garage; CARPORT, indicator for carport; DGARAGE, indicator for detached garage; POOL, indicator for pool; CPAT, indicator for covered patio; AGE, age of house in years; AGESQ, square of age of house; MONTH, number of months after January 1, 1990; SQFTB, square footage of building; SQFTL, square footage of lot; BANK, indicator for bank foreclosures; BANKNAB, indicator for neighbor of bank foreclosure; HUD, indicator for HUD foreclosure; HUDNAB, indicator for neighbor of bank foreclosure; BANKNAB2, = BANK + BANKNAB; HUDNAB2, = HUD + HUDNAB; HUDTIME, number of days HUD property was on the market when house in question was sold; Zip codes, set of 31 dummy variables for different zip codes in Las Vegas Valley; House quality, set of dummy variables for six levels of housing quality (default = highest quality); House condition, set of dummy variables for condition of house (default = best condition).

TABLE II
Key Variables by Market Group, Breakdown of Housing Indicators by Foreclosure Group

	HUD	HUDNAB	BANK	BANKNAB	MARKET	F
RPRICE	$56,108	$57,887	$103,125	$90,283	$86,301	102.86
SQFTB	1502.44	1460.06	2189.11	1982.47	1811.58	33.49
RPSQFT	$39.27	$41.55	$47.60	$46.49	$48.55	33.74
FIREPLACE	39.34%	41.01%	89.47%	86.84%	68.21%	45.88
GARAGE	88.15%	92.35%	89.47%	97.37%	93.93%	0.42
CARP	21.09%	19.27%	5.26%	7.89%	6.39%	16.54
DGAR	1.42%	1.99%	0.00%	2.63%	2.24%	0.35
POOL	10.66%	8.64%	42.11%	26.32%	17.57%	13.44
CPAT	33.86%	41.41%	57.89%	71.05%	47.76%	5.41
AGE	18.51	17.16	14.16	15.05	10.93	36.66
MONTH	18.25	22.43	26.28	23.94	23.43	1.13
SQFTL	6919.90	6710.84	15,553.95	13,715.24	8336.30	25.72
Number	422	1007	19	69	594	

neighbors tend to sell for more than the average house on the market, while HUD foreclosures and HUD neighbors tend to sell for less. However, when adjusted for size, bank foreclosures and bank neighbors tend to sell for virtually the same price per square foot, while HUD foreclosures and HUD neighbors tend to sell for substantially less per square foot.

Table III shows the results of testing equations (1), (2), and (3). Including 31 zip codes, five housing quality dummies, and five housing condition dummies, this resulted in 56 independent variables. Other variables include the four indicator variables (HUD, HUDNAB, BANK, and BANKNAB), seventeen indicators of quality characteristics (fireplace, garage, carport, detached garage, pool, covered patio, a set of five indicators for quality, and a set of five indicators for building condition), the age of the structure, the month sold (months after January 1, 1990), the size of the building (SQFTB), and the size of the lot (SQFTL). For brevity, the zip code, housing quality, and housing condition variables were each

TABLE III
Regression Results for Equations (1)–(3) (Dependent Variable: Log of Real Sales Price)

	(1)		(2)		(3)	
Variable:	Coefficient	*T* statistic	Coefficient	*T* statistic	Coefficient	*T* statistic
Log intercept	10.3612	24.07*	10.3617	24.07*	10.3726	24.10*
FIREPLACE	0.0603	3.62**	0.0602	3.62**	0.0596	3.58**
GARAGE	0.1480	7.23*	0.1479	7.23*	0.1476	7.22*
CARP	−0.2917	−8.14*	−0.2915	−8.14*	−0.2908	−8.12
DGAR	−0.3404	−4.99*	−0.3402	−4.99*	−0.3403	−4.99*
POOL	0.1231	5.82*	0.1230	5.82*	0.1237	5.85*
CPAT	0.0326	2.33	0.0326	2.33**	0.0336	2.40**
AGE	−0.0139	−4.42*	−0.0139	−4.42*	−0.0144	−4.54*
AGESQ	2.48E-04	4.09*	2.48E-04	4.09*	2.54E-04	4.18*
MONTH	−2.80E-03	−5.89*	−2.80E-03	−5.90*	−2.75E-03	−5.79*
SQFTB	3.24E-04	23.53*	3.23E-04	23.52*	3.22E-04	23.32*
SQFTL	2.84E-06	2.30*	2.84E-06	2.29*	2.86E-06	2.31*
BANK	0.0763	1.05	0.1195	1.43	0.1197	1.43
HUD	−0.0303	−1.46	0.0082	0.48	0.0143	0.82
BANKNAB	−0.0431	−0.81				
HUDNAB	−0.0382	−2.24**				
BANKNAB2			−0.0438	−0.83	−0.0421	−0.79
HUDNAB2			−0.0395	−2.31**	−0.0509	−2.73*
HUDTIME					3.44E-05	1.55
House quality	*F* =	1.65	*F* =	1.64	*F* =	2.13
House condition	*F* =	2.54**	*F* =	2.54**	*F* =	2.54**
Zip codes	*F* =	7.56**	*F* =	7.24**	*F* =	7.57*
R^2		0.6226		0.6227		0.6231
Adjusted R^2		0.6124		0.6124		0.6127
F statistic		60.52		60.53		59.56
Durbin–Watson		2.03		2.03		2.03
Observations		2111		2111		2111

* Significant at .01 level, two-tailed test.
** Significant at .05 level, two-tailed test.

reported collectively, with an F statistic measuring the significance of the group.

Houses with fireplaces, garages, pools, and covered patios consistently sell for significantly more than houses without those amenities. Property values are lower for houses with detached garages and carports. Property values decrease with age but increase with the square of age, implying that housing prices decrease up to 28 years, then begin to increase.

The housing quality indicators are never significant, while housing condition indicators were consistently significant at the .05 level. The set of 34 zip code indicators—our proxy for location—was consistently significant at the .01 level. We reject the null hypothesis that property values are independent of zip code designations. We find that having a garage, a pool, and a covered patio consistently enhance property values. This is consistent with the climate of the Las Vegas valley. Having a carport detracts from property value, while a detached garage has no impact on price.

In none of the three equations in Table III are the coefficients on the indicators of foreclosed properties statistically significant. Neither the BANK foreclosure indicator, nor the BANK neighbor indicator is significant in any case. In the first equation, the HUD neighbor variable (coded as 1 for HUD neighbors and 0 for HUD properties) is statistically significant at the .05 level. In the second equation, wherein the second HUD neighbor indicator is used (coded as 1 for both HUD properties and HUD neighbors), the coefficient on HUDNAB2 is negative and statistically significant. In the third equation we introduce the variable HUDTIME, which is the amount of time of HUD property is on the market.[9] The coefficient on HUDTIME is positive but statistically insignificant. If HUD properties are a blight which reduces the selling prices of neighborhood properties, this coefficient should have been negative. For this reason, the results in Table III support the hypothesis that shared characteristics between HUD properties and their neighbors reduce property values.

Table IV reports separate regressions on HUD properties and HUD neighborhood properties. Essentially the influences on the real price of these subsamples are similar to those reported in Table IV. One exception is that the set of quality indicators is statistically significant at the .05 level for HUD properties. We find that the coefficient on HUDTIME is negative, but not statistically significant. This result is inconsistent with the hypothesis that HUD properties are exposed to the market for too brief a time.

For the sample of 1007 HUD properties, having a covered patio has no significant impact on the house's value. The samples price of neighbors of

[9] This variable is coded as 0 for BANK properties, BANK neighbor properties, and market properties.

TABLE IV
Regression Results for Equation (4), HUD Properties and HUD Neighborhood Properties Only (Dependent Variables: Log of Real Sales Price)

	HUD properties		HUD neighborhood properties	
Variable	Coefficient	*T* statistic	Coefficient	*T* statistic
Log intercept	10.2948	82.38*	10.5273	99.57*
FIREPLACE	0.0163	0.54	0.0787	3.24*
GARAGE	0.1917	5.44	0.1356	4.53*
CARPORT	−0.3172	−5.25*	−0.2463	−4.79*
DGARAGE	−0.5235	−4.00*	−0.3085	−3.02*
POOL	0.1243	3.09*	0.1450	4.02*
CPAT	0.0628	2.43**	0.0227	1.08
AGE	−1.27E-02	−2.07**	−0.0157	−3.45*
AGESQ	2.11E-04	1.72	2.10E-04	2.36*
MONTH	−1.94E-03	−2.18**	−3.09E-03	−4.29**
SQFTB	3.54E-04	12.49*	2.86E-04	12.54*
SQFTL	2.95E-06	0.83	1.05E-05	4.28*
HUDTIME	−1.10E-04	−1.48	5.27E-05	2.13**
House quality	*F* =	3.05**	*F* =	2.39
House condition	*F* =	1.37	*F* =	2.66**
Zip codes	*F* =	16.39*	*F* =	19.45*
R^2		0.5875		0.4934
Adjusted R^2		0.5637		0.4816
F statistic		24.65		41.63
Durbin–Watson		2.05		2.04
Observations		422		1007

* Significant at .01 level, two-tailed test.
** Significant at .05 level, two-tailed test.

HUD properties are not significantly related to the condition indicators, although location (zip codes), and house quality are significant. The coefficient on HUDTIME is positive and statistically significant; each additional day the HUD property is on the market, the price of neighboring properties also on the market increases by 0.005%. This result strongly contradicts the hypothesis that neighborhood properties are blighted by the presence of a HUD property on the market.[10]

[10] To test the sensitivity of our results to outliers, observations with standardized residuals greater than 2 (10) or less than −2 (82) were dropped and the regressions were refit. As expected, this procedure increased the R^2 of each regression, but the important results remained unchanged. Specifically, the coefficient on the HUD indicator was significant in Eq. (1), but became insignificant in Eqs. (2) and (3) after removing the neighborhood effect from the HUD indicator. The coefficient on HUDTIME was significantly negative in Eq. (4), contradicting the short-market exposure hypothesis for HUD properties. The coefficient on HUDTIME remained significantly positive in Eq. (5), contradicting the scarring hypothesis for HUD neighbors.

V. CONCLUSION

Our regression results show that HUD properties and their neighbors sell for significantly less than properties located near bank foreclosures, or properties at least a block away from HUD foreclosures. When we remove the neighborhood effect from the HUD indicator, the HUD indicator is never significant. Lower selling prices for HUD properties and their neighbors appears to reflect shared neighborhood characteristics between HUD foreclosures and contiguous properties. We reject the arguments that HUD properties sell below market because they are on the market for too brief a time. We also reject the argument that HUD properties are a blight on the neighborhood, since the presence of a HUD property on the market marginally increases the selling prices of neighborhood properties. HUD properties are not discounted because of lack of warrantees for defects or because of uncertainty about the condition of utilities. Our study is unique in that we have controlled for both the location and the timing of HUD foreclosure sales. Of all the possible explanations for a HUD discount, the only one we can support is that HUD foreclosed properties share adverse characteristics with other properties in the neighborhood. These adverse characteristics reduce the sales price of both HUD properties and their neighbors.

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