Appendix: Methodology

Delinquency, REO, and foreclosure rates are calculated by dividing the number of loans in each category by the total number of active home loans in each county. Since CoreLogic®'s Market Trends data are computed monthly, we estimated quarterly figures by averaging the monthly data points for each of the quarter's three months.

Because CoreLogic® Market Trends data are proprietary, we cannot publish specific numbers or rates in this report. We follow the methodology used by the Minnesota Housing Finance Agency[1] and calculate similar index values for each of the variables. The index is calculated by dividing each county (zip code) rate by the state rate. For example, a county (zip code) with a foreclosure rate identical to the statewide rate would have a Foreclosure Index value of 100; counties (zip codes) with Foreclosure Index scores above 100 exceed the statewide average for foreclosure rates.[2] If Lewis County had a Delinquency Index Value of 143, for example, then its delinquency rate was 1.43 times the Tennessee average for the quarter. For purposes of showing outliers and comparisons between counties, the Index Values we calculate may be interpreted similarly to rate statistics. For instance, the top ten counties ranked in our Delinquency[3] Index are also the ten counties with the highest delinquency rates. We show the index values because we are unable to present the raw data from CoreLogic®.

Current Methodology

County-Level Delinquency Index Value =

$$\frac{\text{Total Delinquent Loans in County}}{\text{Total Home Loans in County}} \div \frac{\text{Total Delinquent Loans in Tennessee}}{\text{Total Home Loans in Tennessee}}$$

It should be noted that a county's quarterly Delinquency Index Value, for example, is an average of the 3 monthly totals that comprise the quarter. A county's (or zip code's) Index Value can decline in a given quarter, even if delinquency totals rose during the 3rd month of the quarter. Statements about a quarterly performance may not necessarily reflect month-over-month outcomes.

Prior to Quarter 4 2015, THDA's Foreclosure Trends reports had been calculating the Delinquency, REO, and Foreclosure Index using active housing unit totals, rather than active loan totals. Before 2015, we had gotten our data through RealtyTrac, which computed its rate statistics relative to housing unit totals instead. Computing our indices with housing unit statistics was initially done to maintain continuity with the archive of foreclosure reports. After re-evaluating our methodology, however, it was decided that using the loan count statistics was preferable, both practically and theoretically. Accounting for the relative size of each county's mortgage market, rather than its overall population, produces a substantially different picture of foreclosure trends across Tennessee—a picture that we believe to be more accurate.

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[1] See "Residential Foreclosures in Minnesota," by Minnesota Housing Finance Agency at http://www.mnhousing.gov/wcs/Satellite?c=Page&cid=1358904870907&pagename=External%2FPage%2FEXTStandardLayout

[2] The index values should be treated cautiously, especially on a zip code level, because some zip codes with a relatively small number of mortgages might have high rates, even if they have just a handful of delinquent, REO or foreclosure loans compared to other zip codes with more mortgages.

[3] Delinquency tabulations in this report include REOs and loans in the foreclosure process.

Previous Methodology

County-Level Delinquency Index Value =

$$\frac{\text{Total Delinquent Loans in County}}{\text{Total Housing Units in County}} \div \frac{\text{Total Delinquent Loans in Tennessee}}{\text{Total Housing Units in Tennessee}}$$

Using a different, larger denominator to calculate delinquency ultimately lowered the Index Values of many of Tennessee's smaller counties. This produced some changes in counties' rates relative to one another.

Loan Count	
Rank	County Name
1	Shelby
2	Davidson
3	Knox
4	Hamilton
5	Rutherford
6	Williamson
7	Montgomery
8	Sumner
9	Wilson
10	Blount
11	Maury
12	Sevier
13	Sullivan
14	Bradley
15	Washington
16	Madison
17	Robertson
18	Anderson
19	Putnam
20	Loudon

Housing Units	
Rank	County Name
1	Shelby
2	Davidson
3	Knox
4	Hamilton
5	Rutherford
6	Montgomery
7	Williamson
8	Sullivan
9	Sumner
10	Washington
11	Blount
12	Wilson
13	Sevier
14	Bradley
15	Madison
16	Maury
17	Anderson
18	Putnam
19	Greene
20	Cumberland

For example, Washington County given *x* number of delinquent loans in Quarter 4, and Sevier County with *x* delinquencies as well, the revised methodology has significant implications for each county's Index Value. Under the old housing unit methodology, Washington County would have a larger denominator, and therefore a lower delinquency rate and lower Index Value than Sevier County. When switched to this report's methodology, Sevier County has the higher loan count, and therefore a lower delinquency rate and Index Value with the same number of delinquencies. The following pages shows a calculation of the Delinquency, REO, and Foreclosure Indices using both the old method and the new method, and compares the results of each.

Updated Methodology: Indices using Loan Count, rather than Housing Units

Rank	County Name	REO Index
1	Van Buren	389
2	Sequatchie	365
3	McNairy	338
4	Fentress	307
5	Meigs	296
6	Hickman	290
7	Hardeman	273
8	Scott	273
9	Hawkins	256
10	Wayne	255

Rank	County Name	Delinquency Index
1	Hardeman	260
2	Haywood	239
3	Lauderdale	234
4	Shelby	169
5	McNairy	166
6	Henderson	162
7	Grundy	158
8	Tipton	151
9	Sequatchie	150
10	Gibson	147

Rank	County Name	Foreclosure Index
1	Hancock	340
2	Van Buren	229
3	Perry	216
4	Grundy	212
5	Hardeman	197
6	Lauderdale	185
7	Haywood	181
8	Henderson	168
9	Marshall	167
10	Shelby	164

Example: Q4 2015 Numbers

Using Q4 data, but calculated via Q1-Q3 Methodology [housing unit totals]

Rank	County Name	REO Index
1	Meigs	201
2	McNairy	201
3	Cheatham	199
4	Hickman	195
5	Sevier	185
6	Shelby	177
7	Hardeman	171
8	Roane	170
9	Fayette	161
10	Fentress	161

Rank	County Name	Delinquency Index
1	Shelby	199
2	Tipton	188
3	Hardeman	163
4	Fayette	150
5	Robertson	147
6	Haywood	139
7	Madison	130
8	Montgomery	129
9	Cheatham	124
10	Lauderdale	123

Rank	County Name	Foreclosure Index
1	Shelby	193
2	Robertson	176
3	Montgomery	173
4	Fayette	172
5	Tipton	160
6	Marshall	144
7	Hardeman	123
8	Cheatham	122
9	Marion	115
10	Gibson	114