



BILLING CODE: 8070-01-P

FEDERAL HOUSING FINANCE AGENCY

[No. 2015-N-03]

Notice of Establishment of Housing Price Index

AGENCY: Federal Housing Finance Agency.

ACTION: Notice and Request for Input.

SUMMARY: The Federal Housing Finance Agency (FHFA) is establishing and shall maintain a method for assessing the national average single-family house price for use in adjusting the conforming loan limits of Fannie Mae and Freddie Mac (the “Enterprises”). For these purposes, FHFA has considered a number of different measures, including the House Price Index maintained by the Office of Federal Housing Enterprise Oversight (OFHEO) of the Department of Housing and Urban Development before the effective date of the Federal Housing Finance Regulatory Reform Act of 2008.¹ FHFA also considered house price indexes of the Bureau of the Census of the Department of Commerce as well as other privately-produced indexes.²

FHFA intends to use the FHFA “expanded-data” house price index (HPI)—an index it publishes on a quarterly basis—to adjust the conforming loan limit. This Notice solicits

¹ Division A of the Housing and Economic Recovery Act of 2008, Pub. L. No 110-289, 122 Stat. 2654, 2659 (2008). Note that OFHEO was one of the predecessor agencies to FHFA.

² The S&P/Case-Shiller and CoreLogic house prices indexes, for instance, were considered.

public input. Once public input is reviewed, another Notice will be published describing FHFA's final determination.

DATES: FHFA will accept input on the Notice on or before [INSERT DATE [60] DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]. For additional information, see **SUPPLEMENTARY INFORMATION**.

ADDRESSES: You may submit your input on the Notice, identified by "Notice No. 2015-N-03," by any of the following methods:

- Agency Website: <https://www.fhfa.gov/AboutUs/Contact/Pages/Request-for-Information-Form.aspx>.
- Hand Delivery/Courier to: Alfred M. Pollard, General Counsel, Attention: Input/Notice No. 2015-N-03, Federal Housing Finance Agency, Constitution Center, 400 Seventh Street, SW., Eighth Floor, Washington, DC 20024. Deliver the package to the Seventh Street Entrance Guard Desk, First Floor, on business days between 9 a.m. and 3 p.m.
- U.S. Mail Service, United Parcel Service, Federal Express, or other commercial delivery service to: Alfred M. Pollard, General Counsel, Attention: Input/Notice No. 2015-N-03, Federal Housing Finance Agency, Constitution Center, 400 Seventh Street, SW., Eighth Floor, Washington, DC 20024.

FOR FURTHER INFORMATION CONTACT: Andrew Leventis, Principal Economist, 202-649-3199, Andrew.Leventis@fhfa.gov, or Jamie Schwing, Associate General Counsel, 202-649-3085, Jamie.Schwing@fhfa.gov, (not toll-free numbers), Federal Housing Finance Agency, 400 Seventh Street, SW., Washington, DC 20024.

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I. Input

FHFA invites input on all aspects of the Notice and will take all relevant input into consideration. A final Notice will be published after FHFA considers public feedback.

Copies of all submissions received will be posted without change, including any personal information you provide such as your name, address, email address and phone number, on the FHFA internet website, <http://www.fhfa.gov>. In addition, copies of all submissions received will be available for examination by the public on business days between the hours of 10 a.m. and 3 p.m. at the Federal Housing Finance Agency,

Constitution Center, 400 Seventh Street SW., Washington, DC 20024. To make an appointment to inspect submissions, please call the Office of General Counsel at (202) 649-3804.

II. Statutory and Regulatory Background

The Housing and Economic Recovery Act of 2008 (HERA), Pub. L. No. 110-289, 122 Stat. 2654 (July 30, 2008), amended the Federal Housing Enterprises Financial Safety and Soundness Act of 1992 (12 U.S.C. 4501 et seq.) (Safety and Soundness Act) to establish FHFA as an independent agency of the Federal Government.³ Pursuant to section 1322 (12 U.S.C. 4542) of the Safety and Soundness Act, as amended by section 1124(d) of HERA, 122 Stat. 2693,⁴ FHFA is required to establish and maintain a House Price Index for use in adjusting the conforming loan limits of the Enterprises.⁵ A number existing metrics, including those identified in section 1322, could serve this purpose. Also, HERA sections 1124(a) and (b), 122 Stat. 2691-2692, amended sections 302(b)(2) of the Federal National Mortgage Association Charter Act (12 U.S.C. 1717(b)(2), and 305(a)(2) of the Federal Home Loan Mortgage Corporation Act (12 U.S.C. 1454(a)(2) (together, the Charter Acts),

³ Division A of HERA titled, the Federal Housing Finance Regulatory Reform Act of 2008, established FHFA to oversee the operations of the Federal National Mortgage Association, the Federal Home Loan Mortgage Corporation (collectively, Enterprises), and the Federal Home Loan Banks (Banks) (collectively, regulated entities). FHFA is to ensure that the regulated entities operate in a safe and sound manner including being capitalized adequately; that their operations foster liquid, efficient, competitive and resilient national housing finance markets; that they comply with the Safety and Soundness Act and their authorizing statutes, and with rules, regulations, guidelines and orders issued under those statutes; that they carry out their missions through activities authorized and consistent with the Safety and Soundness Act and their authorizing statutes; and that the activities and operations of the entities are consistent with the public interest. See 122 Stat. 2659, 2663-2664 (2008).

⁴ Original section 1322 was repealed by section 1121(2) of HERA, (122 Stat. 2689).

⁵ Section 1322 states in relevant part that “the Director shall take into consideration the monthly survey of all major lenders conducted by the Federal Housing Finance Agency to determine the national average 1-family house price, the House Price Index maintained by the Office of Federal Housing Enterprise Oversight of the Department of Housing and Urban Development before the effective date of the Federal Housing Finance Regulatory Reform Act of 2008, any appropriate house price indexes of the Bureau of the Census of the Department of Commerce, and any other indexes or measures that the Director considers appropriate.”

to specify that the baseline national loan limit should be changed annually by the percentage change in the established index.

III. House Price Index for Loan Limit Adjustments

A. Summary

Section 1322 of the Safety and Soundness Act requires that FHFA “establish and maintain a method of assessing the national average 1-family house price for use in adjusting the conforming loan limitations.” 12 U.S.C. 4542. The conforming loan limit is the maximum size of mortgage that the Enterprises are allowed to acquire in a given year. With some exceptions, the Safety and Soundness Act requires that FHFA annually adjust the maximum loan size by the percentage change in the index over the preceding year.

After reviewing the landscape of available measures and analyzing candidate new methodologies, FHFA has chosen its “expanded-data” HPI for tracking average home values and adjusting the conforming loan limit. The index, which is already produced by FHFA on a quarterly basis, uses data from a number of different sources and employs the well-established “repeat-transactions” methodology for measuring price changes. A number of privately-produced indexes in fact use the same fundamental methodology, but have not been selected. The expanded-data index is deemed to be relatively attractive because of the lengthy publication track record of the FHFA (and OFHEO) price indexes and the methodological control that production of the relied-upon index allows.

Public input is sought on the relative merits of the selected index. Feedback is also desired on technical implementation matters addressed in this Notice.

B. Background

1. Safety and Soundness Act Section 1322

Under section 1322 of the Safety and Soundness Act, the FHFA Director is required to “establish and maintain” a measure of average U.S. home prices. In doing so, the Safety and Soundness Act requires that FHFA “take into consideration” various measures of home prices when developing the index. The reference measures include the FHFA HPI,⁶ data from the Census Bureau, information from a contemplated FHFA survey of national lenders, and “any other indexes or measures that the Director considers appropriate.” 12 U.S.C 4542.

In the context of the Safety and Soundness Act, the purpose of the established index is to adjust the conforming loan limit. Specifically, it is used to adjust the baseline loan limit that applies in most of the country. This limit applies everywhere except for areas where median home values are high or are otherwise designated as “high-cost” areas. Loan limits in high-cost areas will be addressed later in this Notice.

Sections 302(b)(2) and 305(a)(2) of the Charter Acts specify that the baseline national loan limit should be changed annually by the percentage change in the established index. The change in the baseline limit is constrained when price declines occur, however. Specifically, the national loan limit is not permitted to decline when the national average price declines. Also, after a period of price declines, when the national average home value finally does increase, the loan limit cannot increase until prices regain all of their prior losses.

Prior to and immediately following the enactment of HERA, the national average home price declined significantly. FHFA’s house price indexes and all other reliable measures of home price movements evidenced substantial declines. FHFA’s expanded-data house price index, for instance, declined by more than twenty percent between the third

⁶ The Safety and Soundness Act describes the FHFA HPI as “the House Price Index maintained by the Office of Federal Housing Enterprise Oversight of the Department of Housing and Urban Development before the effective date of the Federal Housing Finance Regulatory Reform Act of 2008.”

quarter of 2007 and the third quarter of 2011. Given the Safety and Soundness Act's prohibition against declines in the baseline loan limit, declining U.S. home prices meant that the selection of a specific index for adjusting the loan limit under the Safety and Soundness Act was of little practical import; the baseline loan limit would be the same irrespective of the index used. With each year's publication of the conforming loan limits for the following year, FHFA noted this and kept the baseline loan limit the same (\$417,000 for one-unit properties in most of the country).⁷

Housing markets have improved substantially over the last few years and home values are getting closer to where they were just before HERA's enactment. Indeed, FHFA's expanded-data house price index is within a few percentage points of its level in 2007.⁸ Given the rising prices, it is now important that FHFA formally establish the specific methodology it will use for tracking prices and adjusting the baseline loan limit.

It should be noted that sections 302(b)(2) and 305(a)(2) of the Charter Acts specify that in locations where the 115 percent of the local median home value is above the baseline loan limit ("high-cost" areas) the local limit is set at 115 percent of the median value. In no case, however, can the local loan limit be more than 150 percent of the baseline limit. The baseline loan limit thus acts as both a "floor" on loan limits and as a determinant of a "ceiling" on loan limits. The methodology for adjusting the baseline loan limits thus plays an indirect role in setting limits in these areas.

⁷ The announcement for 2015, for example, can be found on FHFA's website at <http://www.fhfa.gov/Media/PublicAffairs/Pages/FHFA-Announces-2015-Conforming-Loan-Limits-Unchanged-in-Most-of-the-U-S.aspx>. See, in particular, the second page of the Addendum to the release: http://www.fhfa.gov/DataTools/Downloads/Documents/Conforming-Loan-Limits/CLLAddendum_CY2015.pdf.

⁸ As of the fourth quarter of 2014, the seasonally adjusted version of the index was about 7.3 percent below the 2007Q3 level.

The adjustment process for setting the baseline loan limit is also important to certain statutorily-defined areas. Legislation enacted prior to HERA set out Alaska, Hawaii, Guam, and the U.S. Virgin Islands as areas with higher loan limits.⁹ In these statutorily-defined areas, the local “floor” on loan limits is 150 percent of the baseline loan limit in the rest of the country. If area median home values are sufficiently high in these areas, the local limit can be even higher, as it can rise to a maximum of 150 percent of the ceiling in the rest of the country (which in turn is 150 of the baseline loan limit). Today, the highest possible loan limit for one-unit properties in the statutorily defined areas is \$938,250 (i.e., 225 percent of the baseline loan limit of \$417,000). The baseline loan limit establishes the floor and ceiling limits in these statutorily-defined areas and thus the index used for adjusting the baseline plays a role in determining limits in the statutorily-defined areas.

2. Evaluating Existing Measures of Price Changes

i. Available Measures

A significant number of home price measures are available and could be used for adjusting the baseline conforming loan limit. Available metrics include:

- Any of FHFA’s existing price indexes, including the purchase-only HPI, the all-transactions HPI, and the expanded-data HPI;
- The Census Bureau’s Constant Quality House Price Index;
- The CoreLogic HPI;
- The S&P/Case-Shiller Indexes; and
- The National Association of Realtors’ Average or Median Home Prices.

⁹ The higher limit in the U.S. Virgin Islands, for example, was established in PL102-550.

The first two of these are specifically identified in section 1322. The other listed measures are produced by private data suppliers. When deciding which metric to be used for measuring price changes, FHFA considered all of the measures above.

In 2010, FHFA published a Research Paper titled “An Approach for Calculating Reliable State and National House Price Statistics.” The paper, which is available for download on the FHFA website,¹⁰ described a methodology that might be used for measuring the national average home price. The methodology will generally produce estimates of average price changes that are similar to those estimated by FHFA’s expanded-data HPI, but involves the addition of supplemental data. This more-complicated methodology may be considered as an option in the future, but is not considered here.

ii. Evaluation Criteria

In evaluating various measures of home prices changes that might be used for section 1322, FHFA considered a number of factors. The most important factor was whether price changes reflected in the measure would correlate closely with changes in the U.S. average home price. The purpose of the index referenced in the Safety and Soundness Act is to adjust the conforming loan limit, and thus the reliable measurement of price changes is of the highest importance. As closely as possible, changes in the selected index should reflect changes in the average value of homes.

Section 1322 indicates that the measure should “assess” average U.S. home prices. Whether or not the measure needs to show the actual level of the average U.S. home prices is of little practical import for the Safety and Soundness Act’s purposes. The critical use of

¹⁰ The paper, authored by Andrew Leventis, is available at:
http://www.fhfa.gov/PolicyProgramsResearch/Research/PaperDocuments/20100930_RP_CalculatingStateNationalHousePriceStatistics_508.pdf

the metric is to measure the price change and for FHFA to adjust the loan limit accordingly.¹¹

The absence of any real need to measure the level of prices is notable because many existing house price measures do not actually report statistics on the absolute level of home prices; rather, they report indexes that can be used for measuring changes. No average or median house prices are currently published for the FHFA HPI, for instance. Similarly, other measures (e.g. the S&P/Case-Shiller index, the CoreLogic index) are not generally accompanied by level estimates. All of these measures, despite the absence of the estimated level of home prices, thus can act as reasonable candidates for the index to be used for loan limit adjustment.

Before the next evaluation criteria is discussed, it is important to briefly address the target of the index—the “average” price. Interestingly, the Safety and Soundness Act references the average price in the context of measuring changes in national home price and adjusting the baseline conforming loan limit, but references *median* home values in the setting of loan limits in high-cost areas.

Ultimately, the practical impact of the average-median distinction is modest: the long-term growth rates in average and median home prices are very similar and thus the choice of the target statistic (average vs. median) likely will have only a minimal impact on long-term loan limits. Even in the shorter term—during the recent housing bust—there was no dramatic difference in the measured declines for the median and mean U.S. prices.¹² The index FHFA intends to use for loan limit adjustment tracks the *geometric average* U.S.

¹¹ The Safety and Soundness Act implicitly recognizes that primacy of the change estimate by describing the measure as an index as opposed to merely the average value.

¹² According to estimates from the National Association of Realtors’ Existing Home Sales series, for instance, the decline between September of 2007 and September of 2011 was roughly 20.7 percent for average prices and 16.9 percent for median prices.

home price—a measure that tends to correlate closely with median and average home prices.¹³

Aside from the issue of the relevance of the statistic and the target (the average vs. median), the methodological transparency is also deemed to be a key attribute for evaluating various alternatives for the index. Details concerning how the statistics are constructed are important, as is information about methodological changes that might be made over time. In the landscape of available home prices, FHFA found vast differences in the amount of background information available.

Beyond relevance and transparency, FHFA also values reliability and control. The selected index should have a historical “track record” to minimize the risk that the relied-upon metric would be discontinued.

Agency production of the index also is important, not only because it would ensure continued publication of the important statistic, but also because production of the index enables the agency to make appropriate enhancements. The scope of available house price information has expanded sharply over the last several years and new developments may soon make more and better transactions information available. Agency production of the index will mean that new information can be added in a way that improves the precision of estimates, while not being disruptive to the setting of loan limits.

Finally, cost considerations were taken into account when evaluating candidate measures. While use of the expanded-data HPI and a number of externally-produced indexes would entail no incremental cost, one option would be for FHFA to develop and maintain a new index (for example, the one considered in the 2010 FHFA Research Paper). Efforts spent on maintaining a new measure, which would be yet another variant of FHFA’s

¹³ The geometric mean of N numbers is computed as the product of the numbers taken to the 1/N root.

already-expansive suite of available price indexes, would entail a substantial expenditure of resources. The benefits of any increased precision of the estimates would need to be weighed against these costs.

C. Basics of the Proposed Methodology

FHFA intends to use the “expanded-data” HPI for the purpose of tracking average U.S. home prices as contemplated in section 1322. While any of a number of existing measures might produce similar results, FHFA’s expanded-data HPI for the U.S. is found to be particularly attractive under the evaluation criteria discussed above.

The index, which has been published by FHFA since August of 2011, is constructed using the same “repeat-transactions” methodology as is used to construct the traditional FHFA HPI. The basic approach has been used by FHFA and OFHEO, one of FHFA’s predecessor agencies, since 1996 when the HPI was first publicly released. The details on how the index is constructed are found in a technical primer available on FHFA’s website.^{14,15}

The technical elements of the methodology are not detailed in this Notice, but the basic statistical model was first developed in the 1960s and was refined by Karl Case and Robert Shiller more than twenty years ago. The fundamental approach entails finding homes that have been sold two or more times in the past and calibrating a set of numbers—index values—to broadly reflect changes in value observed for such homes. Using millions of historical real estate transactions, the model begins by creating transaction “pairs,” where

¹⁴ See Charles Calhoun, “OFHEO House Price Indexes: HPI Technical Description,” available at http://www.fhfa.gov/PolicyProgramsResearch/Research/PaperDocuments/1996-03_HPI_TechDescription_N508.pdf. Hereafter, this paper is referred to as the HPI Technical Primer.

¹⁵ Other publicly-available measures, including notably the S&P/Case-Shiller and the CoreLogic suite of indexes, employ the same basic methodology, although some details concerning their construction are not publicly available. The methodologies used in forming those indexes and decisions related to the release of the measures are not within FHFA’s control.

each pair reflects the price growth (or decline) that occurred for a given property over a specific interval of time. For example, if a hypothetical home was sold two times in the past—once for \$100,000 in the first quarter of 2001 and again for \$225,000 in the fourth quarter of 2014—then a pair would be created showing appreciation of 125 percent between 2001Q1 and 2014Q4.¹⁶ Using this pair and millions of other pairs for other properties, the basic model entails estimating a regression model¹⁷ that “explains” observed price changes using only information about when the individual property transactions occurred. The statistical model attempts to explain price changes (as opposed to price levels), a feature that makes it less susceptible to certain biases when measuring overall price movements in the marketplace.¹⁸ The output of the model is a series of index values whose changes broadly mimic the price changes observed for the millions of properties in the dataset.

The FHFA expanded-data HPI uses the repeat-transaction model for estimating price changes in individual cities, all 50 states (and Washington, DC), and in the U.S. as a whole. Consistent with the way other FHFA indexes, for example the “purchase-only” and “all-transactions” indexes, are formed, the change in the expanded-data U.S. index is constructed to reflect the weighted average changes across the 50 states and Washington, DC. This ensures that changes in relative real estate volumes across states do not bias the measurement of the change in U.S. prices. If the expanded-data U.S. index was estimated by simply pooling transactions data from all states together and directly estimating it, the measured price change would be susceptible to biases when relative transaction volumes

¹⁶ A home with three historical sales will produce two pairs. The first pair will reflect the price change between the first and second transactions and the second pair will show the change in selling price between the second and third transactions.

¹⁷ A regression model is a well-established method for showing the statistical relationship between variables.

¹⁸ For instance, if a large number of expensive homes transact in any given quarter, then the average and median transaction values will rise for a given area, even if there is no underlying home price appreciation. The repeat-transactions index, by contrast, will generally not reflect spurious price “increases” in such situations.

shift across states. In an environment in which prices are rising and transaction activity increases dramatically in those states with the most extreme price increases, for instance, the weighting ensures that the volume shifts do not inflate the measured price measure for the U.S. as a whole.¹⁹

Although the expanded-data HPI employs the same basic methodology as is used for forming FHFA's two Enterprise-only datasets (the "all-transactions" and "purchase-only" indexes), it uses slightly different historical transactions data. Like FHFA's other measures, the expanded-data index incorporates sales price information for homes with Enterprise-purchased mortgages. Unlike FHFA's "all-transactions" index, however, appraisal values from refinance mortgages are not used in the data sample. Also, importantly, unlike both of the other two measures, the expanded-data indexes incorporate transaction prices for homes with FHA-endorsed loans and homes whose transactions have been recorded at various county recorder offices through the country. FHFA works with an outside data vendor—currently CoreLogic—to obtain the county records data from hundreds of counties throughout the country.

The addition of the two supplemental data sources (FHA and CoreLogic) to the Enterprise data provides for a better estimate of the overall change in the U.S. average home price than is available from the other indexes. To be sure, price changes reported in FHFA's other datasets will often closely resemble those reported by the expanded-data index. However, as has been discussed in prior OFHEO and FHFA publications, trends in home values sometimes have been demonstrably different for homeowners with different types of

¹⁹ During market downturns (when transaction volumes tend to shrink in areas with the most extreme price declines), the constant weighting approach prevents the index from reporting undersized price declines.

financing.²⁰ The expanded-data HPI is well-suited for capturing and incorporating those trends into its estimate of aggregate home price movements, unlike the other FHFA indexes.

Changes in the expanded-data HPI do not perfectly measure changes in the average or median U.S. home prices, to be sure. As discussed in the technical primer that details the FHFA methodology²¹ and in the academic literature on the subject of price indexes,²² FHFA's basic methodology tracks the geometric average home price. In most cases, however, the index will very closely correlate with any index that would specifically track the median (and often the average) price.

In the context of the estimation of house price indexes, a robust debate has occurred over the last several years regarding whether "distressed sales" should be included in the calibration data sample. Distressed sales, which include sales of bank Real Estate Owned (REO) properties as well as short sales,²³ tend to have lower prices than other transactions. These lower prices generally result from two factors: poor property condition and greater-than-average seller motivation.

Like other FHFA indexes and house price metrics produced by many others, FHFA's expanded-data HPI incorporates price data from distressed sales. As with all transactions, the distressed sales are included in the calibration of the expanded-data HPI as long as the

²⁰ See, for example, "Recent Trends in Home Prices: Differences across Mortgage and Borrower Characteristics," August 2008, available at http://www.fhfa.gov/PolicyProgramsResearch/Research/PaperDocuments/20080825_RP_RecentTrendsHomePrices_N508.pdf.

²¹ See the HPI Technical Primer available at http://www.fhfa.gov/PolicyProgramsResearch/Research/PaperDocuments/1996-03_HPI_TechDescription_N508.pdf.

²² For a lengthy discussion, see Shiller, Robert, "Arithmetic Repeat Sales Price Estimators" *Journal of Housing Economics* 1, pp. 110-125, 1991.

²³ Short sales are transaction for which: (a) the homeowner was in financial distress and (b) the transaction price was an amount lower than the loan balance. In such situations, to avoid the costs associated with foreclosure, lenders allow the distressed homeowner to sell the property for less than the loan amount.

buyer obtained an Enterprise or FHA loan or the property is in one of the counties for which FHFA has licensed county recorder information.

The primary justification for including such distress transactions is that they provide indications of value in situations where, without such data, price declines may be understated. It is well established that, during housing market downturns, sellers commonly pull their properties from the market, preferring to “wait out” declines rather than selling at a loss. In such environments, transaction volumes may shrink dramatically and the few observed transactions that do occur may show relatively limited price declines.²⁴

One final note about the expanded-data HPI is important: as new opportunities arise for the addition of transactions data to the modeling dataset, FHFA may take advantage of those to improve the index. Since the inaugural release of the expanded-data HPI in 2011, the term “expanded” has referred to the addition of FHA and county recorder data to the standard Enterprise dataset. There is no reason that additional data sources may not be included into the calibration dataset in the future. For instance, transaction prices embedded within property appraisal data²⁵ might supplement the existing data sources. As with all significant changes in FHFA indexes, FHFA would notify the public of any such data enhancements.

D. Other Measures of Home Prices

²⁴ Another reason for including the transactions is pragmatic: it is often difficult to identify distressed sales using available data. FHFA has done so in the past and it does produce a set of “distress-free” indexes for select cities. The distress-free indexes take advantage of a unique dataset that aids in the identification of distress only in select cities, however.

²⁵ To be clear—this would not entail the inclusion of appraisal values, but rather property sales prices (e.g., sales prices for “comparable” properties) found in electronic appraisal records.

While other existing (and potential) measures had some attractive qualities, given the criteria used, FHFA believes that the expanded-data HPI is the best option for the purpose of adjusting the loan limit.

The data sources that the Safety and Soundness Act explicitly requires the Director to consider are the FHFA's "monthly survey of all major lenders" and any "appropriate house price indexes" published by the Census Bureau. Viable options for measuring appropriate price changes are not available from either. In the case of the monthly survey, the requisite data fields are currently under development, and therefore FHFA has not yet conducted the survey. Statistics from the Census Bureau are comprehensive for tracking the prices of new homes that are sold, but generally do not show price changes for existing homes. Price trends for new homes can differ substantially from price trends for existing homes, and thus the new home focus of the Census Bureau data is deemed to be a significant drawback in this context.

In theory, one might track changes in the average or median U.S. home prices by looking at statistics published monthly by the National Association of Realtors (NAR). The NAR's estimates focus on prices for existing homes, as direct estimates of the average and median transactions prices are reported using data from a large number of local Multiple Listing Services. NAR's estimates are attractive in their simplicity (no statistical models are employed in their derivation) and in the fact that the statistics have been published consistently for decades. The major problem with their use, however, is that—like all summary statistics—they are susceptible to short-term biases caused by fluctuations in the types of properties that transact in any given quarter. If a substantial number of expensive homes transact in any given quarter, for instance, the reported average and median home

values will tend to rise even if no real market appreciation was present. If the “quality” of transacting homes is not held constant from quarter to quarter, the resulting statistic can produce volatile measures and may bias estimates of price changes (particularly in the short run). As has been discussed at length in academic and practitioner literature, other indexes—for example those that rely on the repeat-transaction methodology (e.g., the expanded-data HPI)—are less susceptible to these biases.²⁶

U.S. house price indexes published by S&P/Case-Shiller and CoreLogic use the repeat-transactions approach for measuring price changes and thus would not be susceptible to these biases. Use of either of these indexes—or other external measures of house price movements—in the context of setting loan limits would entail substantial operational risks, however. The external measures do not generally have track records that rival the lengthy publication history of the FHFA HPI. Reliance on an external measure would mean that FHFA would be dependent on its continued publication and on the methodological decisions made by the producer. If the producer opted to discontinue publication or to make undesirable methodological changes, significant complications would arise, and the publication of the conforming loan limits ultimately could be disrupted. Separately, ignoring the issue of continued publication risks, details concerning the methodology employed in the production of external indexes are not always publicly available and, therefore, have less transparency than FHFA’s indexes. The prospect that FHFA would rely on an index having little public descriptive material for the important function of setting loan limits is not appealing to the agency.

E. Implementation Issues—Details

²⁶ The repeat-transactions statistical model is sometimes described as producing a “constant-quality” index.

While it will be enlightening to compare price trends for the expanded-data HPI to trends for other measures, it is useful to first address details concerning implementation timing. In particular, this section describes the “when” and “how” of loan limit changes under the use of the expanded-data HPI.

The Safety and Soundness Act requires that loan limits be “adjusted” each year and that the newly adjusted limits apply beginning in January. Since the passage of HERA—and in years prior (when OFHEO was setting the loan limit)—annual adjustments have been announced in the latter part of November. Under the terms of the Charter Acts, adjustments are to reflect the percentage price change in the index over the “most recent” 12-month or 4-quarter period.²⁷ Given the large price changes that occurred and the Safety and Soundness Act’s prohibition on declines in the baseline loan limit, it has not been necessary for FHFA to formally designate the reference period: i.e., whether price changes will be measured on a 4-quarter or 12-month basis and the specific comparison interval (e.g., July vs. July of the preceding year or Q3 vs. Q3).

Given the existing publication schedule for the expanded-data HPI, when setting loan limits on a go-forward basis, FHFA anticipates measuring price changes between the third quarter and the third quarter of the preceding year. As always, FHFA will produce its suite of house price indexes (including the expanded-data HPI) in November using data through the most recent quarter—the third quarter. Then, using the measured price increase in the expanded-data HPI between the third quarter of the prior year and the third quarter of the present year, FHFA will compute the new baseline loan limit. The new loan limit will

²⁷ See Charter Acts sections 302(b)(2) (12 U.S.C. 1717(b)(2) and 305(a)(2) (12 U.S.C. 1454(a)(2).

be announced toward the end of November at roughly the same time as the HPI report is published.²⁸

The proposed focus on third quarter prices means that, in the current situation in which average prices are below levels prevalent prior to the passage of HERA, the third quarter of 2007 represents the relevant reference period for determining when the baseline loan limits can rise again. The baseline conforming loan limit was first set in late 2008 and, as such, the first interval for assessing price changes was 2007Q3 to 2008Q3. Under the expanded-data index (and other measures), that 2007Q3-2008Q3 change was a price decline, thus triggering the prescriptive terms of the Safety and Soundness Act requiring that prices rise to the 2007Q3 level before the baseline loan limit can be increased. In successive years of setting loan limits, the expanded-data HPI found further declines—and then a partial recovery—in U.S. average home prices. As shown in the next section, the latest expanded-data index value for the U.S. (for 2014Q4) shows that prices are still 7.9 percent below the 2007Q3 level. When the conforming loan limit is set for 2016 later this year, the index will generally have to exceed the 2007Q3 level for there to be an increase in the baseline loan limit.

One final technical note must be made about historical values of the expanded-data HPI. Under the basic repeat-transactions indexing model used for producing the index (and other repeat-transactions measures), all historical values of the index are unconstrained, meaning that they are revised in each period.²⁹ Unlike other types of price indexes, where an index value for a given period may be initially revised once or twice and then will be fixed forever, the repeat-transactions house price index produces index values that are

²⁸ FHFA's third quarter HPI for 2015 is set to be released on November 25, 2015.

²⁹ Other publicly available measures deviate somewhat from the basic repeat-transactions model and sometimes constrain historical price levels.

constantly in flux. That is—values for all historical quarters, even distant quarters, are modified slightly each period to account for new historical data. To be sure, most values are revised only slightly (e.g., the index value for a quarter in the late 1990s might change from 175.02 to 175.04 between one quarter and the next). Changes are constantly made, however.

FHFA's measurement of price changes for the setting of loan limits will use the most recently released index values as of the third quarter and will ignore prior vintages. For example, in setting 2016 loan limits, FHFA will rely on the most recent time series of index values for comparing price levels. The 2015Q3-vintage estimates of the relevant historical values will be compared. To illustrate—although the most recent HPI publication showed that the expanded-data index estimate for 2007Q3 was 215.19,³⁰ when determining whether prices have risen for loan-limit setting purposes in November, FHFA will use the 2007Q3 value published in November. If the 2015Q3 index value exceeds the index value for 2007Q3 (as determined in the 2015Q3 index vintage), then the baseline loan limit will be increased.³¹

F. Empirical Estimates of Price Changes: Expanded-Data HPI vs. Other Measures

Using the expanded-data HPI and several other commonly-cited measures of home prices changes, Figure 1 and Table 1 compare price trends calculated by the expanded-data HPI and other estimates of price change. Figure 1 indicates that all of the indexes report a very similar evolution of prices since 2007. The metrics generally show significant price

³⁰ This value was the seasonally adjusted index estimate for the U.S. published on February 26, 2015. FHFA anticipates using seasonally adjusted index values in evaluating price changes. Because all annual price comparisons are made relative to the same (third) quarter in prior years, however, this choice has little practical effect.

³¹ Note that, as indicated earlier, the loan limit will only increase by the net percentage increase since 2007Q3. In general, in market environments where prior price declines do not need to be overcome, the increase percentage will be the proportionate increase between the third quarter of the prior year and the third quarter of the contemporary year.

declines between 2007 and sometime in 2011 and then a robust recovery. The measures show that the most recent price level is still somewhat below the 2007Q3 level.

Reconciling the small short-run differences in the price trends reflected in the various measures is complicated and even an in-depth analysis would likely conclude with much of the differences remaining unexplainable.³² In general, however, the variations are a function of differences in the underlying datasets, differences in the methodology employed, and variations in the weighting of sub-areas. Over the long-term, however, all of the indexes show similar patterns. Even the NAR median price, which is constructed using the most simplistic approach, trends similarly to the other measures. The NAR figure is notably volatile, likely a function of the fact that it is susceptible to certain short-term biases the repeat-transactions-based measures are immune to. Over the time frame shown and even over a more extended period, however, its evolution is similar to that of the others.³³

Table 1 provides estimates of the overall price deficit—the change in prices between 2007Q3 and the most recent data reading—for the various measures. As of the fourth quarter of 2014, the expanded-data HPI estimates that the average U.S. price was roughly 7.3 percent below its 2007Q3 level. This deficit is slightly below the midpoint of the two

³² In a series of OFHEO papers published in 2007 and 2008, Andrew Leventis attempted to reconcile differences between the OFHEO HPI and the S&P/Case-Shiller indexes. See, for instance, http://www.fhfa.gov/PolicyProgramsResearch/Research/PaperDocuments/20080115_RP_RevisitingDifferencesOFHEOSPCaseShillerHPI_N508.pdf. The analysis, which just focused on the indexes produced by the two providers, explained some but not all of the variations in measured price changes.

³³ Observers will notice that Figure 1 reports the S&P/Case-Shiller “20-City Composite” index as opposed to a pure national measure. Although the S&P/Case-Shiller suite of indexes includes a “U.S.” measure, that measure is published under a timeline that would make it inconvenient for use in adjusting conforming loan limits. In particular, the S&P/Case-Shiller U.S. index is published quarterly and the third quarter estimate would not be available to FHFA until late in November. The absence of (even preliminary) information about price changes before the end of November would mean that, were FHFA to rely on it, year-ahead loan limits could not be published until early December. The S&P/Case-Shiller 20-City composite index is published on a monthly basis, by contrast. If FHFA were to rely on that measure, it could use the August-to-August price change estimate, which would be available in late October (meaning that a late-November release of loan limits would be feasible).

extreme values in the table: the S&P/Case-Shiller 20-City Composite (down 12.0 percent) and the FHFA purchase-only HPI (down 1.2 percent).

IV. Conclusion

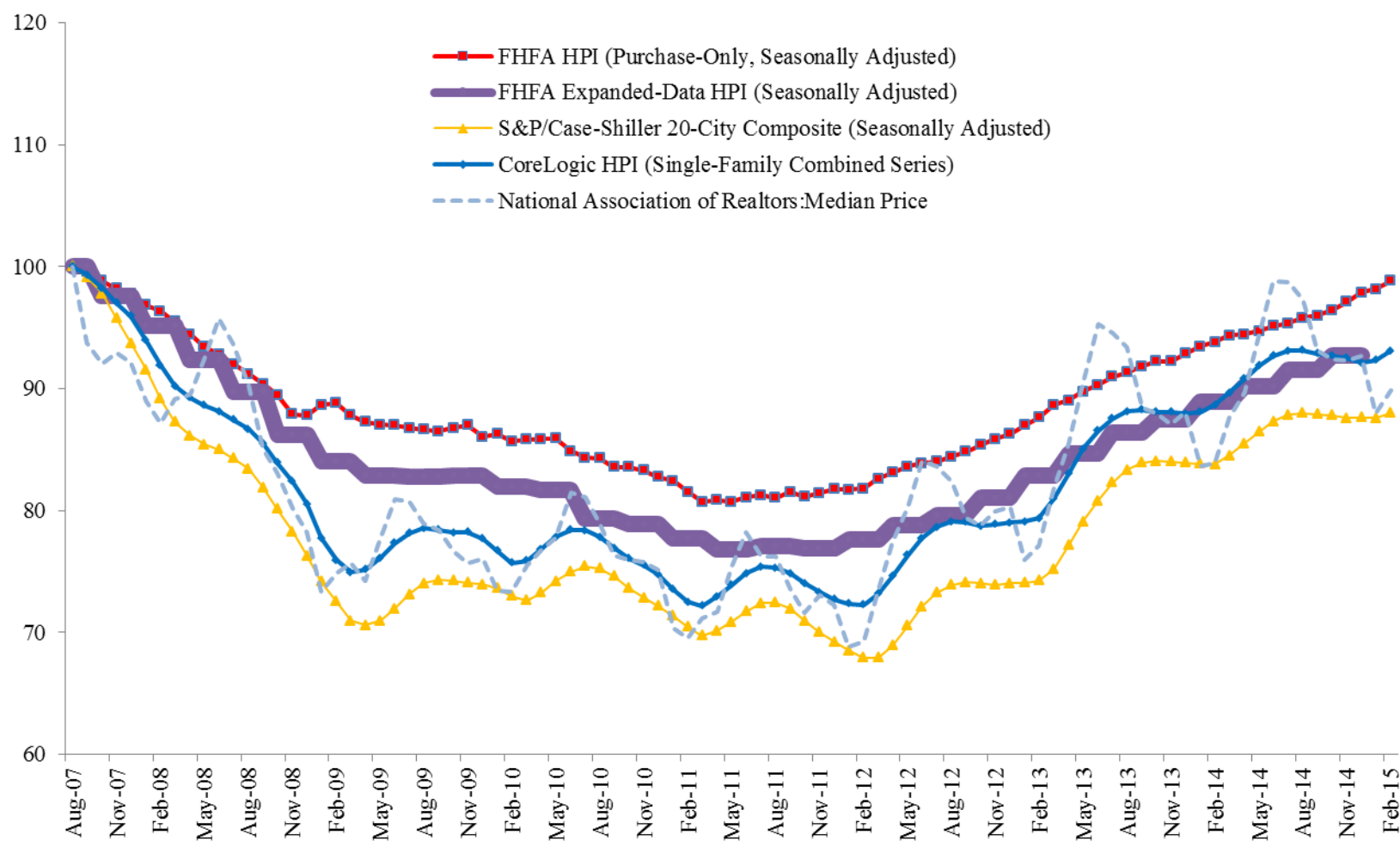
A very significant number of methodological and implementation options exist for satisfying section 1322. This Notice has described FHFA's use of the expanded-data index as the preferred option for annually setting loan limits under the procedure outlined (e.g., comparing third-quarter prices to third-quarter prices when evaluating the most recent year's price change). FHFA recognizes that other methodological and implementation decisions could be made. Given the material impact on the Enterprises and in light of the significant number of market participants affected by the level of the conforming loan limit, FHFA has released this Notice and Request for Input to ensure that public input is widely solicited.

FHFA encourages submitters to address any theoretical or practical issues deemed to be important in this context. Once all submissions are received, they will be reviewed by FHFA staff and a final Notice will be published in the Federal Register. The final Notice will communicate FHFA's ultimate determination and may address some of the submissions received in response to this Notice.

FHFA intends to publish a final determination in the Federal Register by the time the Enterprise 2016 conforming loan limits must be published (i.e., by late November 2015). As in the past, the conforming loan limit release will be published on FHFA's website.

Figure 1: Price Trends Reflected by Measures Published by FHFA, S&P/Case-Shiller, CoreLogic, and the National Association of Realtors

August/Q3 2007 to Latest Reading



Note: For purposes of comparison, all indexes have been re-based to equal 100 in August 2007 (or 2007Q3 for the Quarterly Indexes).

Table 1: Comparison of House Price Changes across Various Measures
U.S. Indexes (unless otherwise denoted)

	FHFA Expanded-Data HPI (Seasonally Adjusted) ¹	FHFA HPI (Purchase-Only, Seasonally Adjusted) ¹	CoreLogic HPI (Single-Family Combined) ²	S&P/Case-Shiller 20- City Composite (Seasonally Adjusted) ³	NAR Median ⁴
Change over Latest 12 Months (or Four Quarters)	6.0%	5.4%	5.9%	5.0%	7.8%
Aggregate Change (August/Q3 2007 - Latest Period)	-7.3%	-1.2%	-5.1%	-12.0%	-5.6%

Notes:

¹ - FHFA Indexes are available for download at www.fhfa.gov. The expanded-data series is a quarterly index, while the purchase-only series reported is a monthly series.

² - The "Single-Family Combined (SFC)" index, which incorporates data both from unattached and attached properties, is used here. Data are available for download at <http://www.corelogic.com/about-us/researchtrends/home-price-index-report.aspx#VQHqto7F98E>.

³ - The S&P/Case-Shiller data can be downloaded at <http://us.spindices.com/index-family/real-estate/sp-case-shiller>.

⁴ - The figure reported is from the National Association of Realtors (NAR's) Existing-Home Sales series--in particular, the median home value. NAR data can be found online at <http://www.realtor.org/topics/existing-home-sales>.

Dated: May 18, 2015

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Director, Federal Housing Finance Agency.

