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Appraisal inflation: Evidence from the 2009 GSE HVCC intervention

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ABSTRACT

Appraisal inflation is a prominent aspect of lax underwriting practice. The GSE May 2009 Home Valuation Code of Conduct (HVCC) aims to prohibit lenders from influencing appraisers. Refinance loans, without a transaction price, are potentially more susceptible to appraisal inflation than purchase loans. We use GSE refinance loans as our treatment group and non-GSE refinance loans as the control group, and find that GSE refinance loans originated after May 2009 have lower default rates than non-GSE refinance loans. We further measure the appraisal inflation (bias) as the difference between the appraisal value in a 2009 refinance transaction and the actual transaction price in an earlier purchase transaction for the same property adjusted for local housing value changes. We find that the reduction in appraisal bias was larger for GSE refinance loans than for non-GSE refinance loans. This paper quantifies the "contribution" of appraisal inflation in poor loan underwriting standards and highlights the importance of unbiased and independent appraisal.

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1. Introduction

Appraisal is an important part of the loan origination process. On the one hand, the loan-to-value ratio (LTV) affects the borrower's incentive to default (Foote et al., 2008; Elul et al., 2010). On the other hand, in the event of a default, the lender expects to sell the collateral to recover the unpaid loan balance. As a result, the LTV is an important factor in loan underwriting. It is thus important to have an accurate and unbiased appraisal. The appraisal, which is used for underwriting decisions, is usually obtained by evaluating the home's features and comparing the collateral to recent sales of neighborhood homes with similar features.

The quality of the appraisal is influenced by the incentives that appraisers receive. Appraisers get their business from loan officers and brokers. A loan officer or a broker, who is often paid partially or wholly on commission based on volume of loan originations, might press the appraiser for a desired property value or a targeted loan amount. Having a higher appraised value than the true property value could potentially lead to a greater loan amount given the LTV, or a lower LTV given the loan amount, which results in a greater likelihood of loan approval or permitting riskier loan terms. Fearing loss of business, appraisers may yield to the pressure and influence from loan officers or brokers to inflate appraisal value.

Prior literature documenting appraisal inflation in refinance loans is limited because of data constraints. Unlike purchase loans, for which an actual transaction price can be compared to the appraisal value, refinance loans do not have actual transaction price data (Cho and Megbolugbe, 1996; Nakamura, 2010). A couple of researchers tried to address this challenge. Agarwal et al. (forthcoming) focus on properties that had a subsequent purchase following a

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refinance or purchase. Assuming that the subsequent price, after being adjusted for house price change, reflected the true house value, they are able to assess the potential appraisal inflation in refinance and evaluate its impact on loan performance and pricing. They find that the average valuation bias for residential refinance transactions is above 5% and mortgages with inflated valuations default more often. LaCour-Little and Malpezzi (2003) use a hedonic price model to estimate the "true" value of a property, which they compare to the appraised value. They find that the decreasing appraisal quality, namely over-appraisal, is associated with increased mortgage default.[1]

Our paper takes an alternative approach to overcome the data challenge. We exploit an event, the 2009 GSE Housing Valuation Code of Conduct (HVCC),[2] which imposed appraiser independence. Starting in May 2009 for GSE-purchased loans,[3] Fannie Mae and Freddie Mac prohibited lenders from pressing or influencing appraisers to provide a desired valuation, as detailed in the HVCC.[4] The GSE HVCC of 2009 is a major change in appraisal practice. The banning of broker-ordered appraisal is significant since, in years leading up to the 2007 subprime crisis, broker-sourced loans comprised nearly two-thirds of the market. Also, loan officers can order the appraisal only if they are not influenced by the lender. The pay or selection of appraisers shall not be based on the appraised value and lenders are prohibited from communicating to appraisers a desired value or loan amount. We predict that if the HVCC leads to a more independent valuation, the appraisal will be more accurate and thus the appraisal inflation will be smaller. With more accurate appraisal values, the originated loans after the intervention will be of higher quality. For purchase loans, since the value used to calculate LTV is the smaller of the appraised value and the transaction price, the potential for appraisal inflation is limited. We therefore expect to observe the HVCC effect mainly with refinance loans rather than with purchase loans.[5]

We test our hypotheses using the difference-in-differences (DID) method. We exploit the fact that the HVCC intervention only applies to loans intended for sale to GSEs, and does not apply to non-GSE loans.[6] And we compare the loan performance before and after the HVCC effective date. We apply the DID to refinance loans, and as a comparison, we conduct the same analysis on purchase loans. A critical assumption underlying the validity of DID analysis is that the control and treatment groups do not experience different trends prior to the treatment. For GSE and non-GSE loans, while the levels of default rates differ prior to the treatment, the trends do not, assuring the validity of DID analysis. We also estimate the triple-difference (DDD) estimator, i.e., the difference between the DID estimate for refinance loans and that for purchase loans. In addition, we address the possible different pre-intervention trends for the control and treatment group in two ways. First, we add an interaction of the treatment group and a trend variable to the baseline specification. Second, we use a placebo event and show that there are no pre-intervention different trends for the control and the treatment groups.

To further understand how the HVCC affects loan underwriting and to reinforce our conclusion, we complement our DID analysis with a direct measure of appraisal bias. By directly linking GSE refinance loans originated in 2009 with previous purchase transactions for the same property identified, and adjusting for local house price changes over time, we measure appraisal bias as the degree of appraisal value inflation in refinance.

Potentially reduced appraisal bias would also show up in LTV for originated loans. Supposing a lender uses a threshold in LTV when underwriting a loan, a more accurate appraisal would lead to more rejections of loans since the more accurate appraisal value will lead to a higher LTV, increasing the proportion of loans that exceed the threshold. For loans whose (accurate) LTV is under the threshold and therefore eligible for underwriting, the reduced appraisal value will lead to a higher LTV (while still being below the threshold).[7] We therefore expect that the originated loans under the treatment period have a higher LTV.

We conduct the above analyses by merging Home Mortgage Disclosure Act (HMDA) data with an OCC proprietary database, Mortgage Metrics (MM), to conduct loan-level analyses of loan performance. We find that GSE refinance loans showed a significant decrease in default rate relative to non-GSE refinance loans after the HVCC implementation. The 24-month default rate reduction for GSE refinance loans was about 0.734–2.440 percentage points greater than that of non-GSE refinance loans, ceteris paribus. With the mean value of the default measure being 1.01% for GSE and 6.02% for non-GSE refinance loans, the magnitude of the estimated coefficient is economically large.

We match 2009 refinance loans with the previous purchase transactions involving the same house and end up with a sample of 106,077 observations. We find that the appraisal bias of GSE refinance loans decreased by 0.644–1.243 percentage points relative to non-GSE refinance loans after the HVCC, a 6–12% reduction from the mean (10.38%). Reduced appraisal inflation would also show up as higher LTV, which would make denial of loan

[1] However, LaCour-Little and Malpezzi (2003) did not assess the over-appraisal by loan purpose (i.e., purchase vs. refinance).

[2] http://www.freddiemac.com/singlefamily/pdf/122308_valuation-codeofconduct.pdf.

[3] Government-sponsored enterprises (GSE) include Federal National Mortgage Association (Fannie Mae) and Federal Home Loan Mortgage Corporation (Freddie Mac).

[4] http://www.hvccappraisalordering.com/AboutTheHVCC.

[5] Cho and Megbolugbe (1996) found that among 600,000 purchase loans purchased by Fannie Mae in 1993, about 30% have zero appraisal bias, 5% have appraisal deflation (an appraisal value lower than the transaction price), 60% have less than 10% appraisal inflation (an appraisal value higher than the transaction price), and only 5% have appraisal inflation above 10%.

[6] We compare loans sold to and securitized by GSEs (termed GSE loans) with loans insured or guaranteed under programs sponsored by Federal Housing Administration (FHA), US Department of Veterans Affairs (VA) and the US Department of Agriculture (USDA), and securitized via Ginnie Mae (collectively termed non-GSE loans in this article). Close to 80% of the non-GSE loans are FHA loans. Loans kept on banks' own sheets (portfolio loans) are very limited in 2009; therefore, they are excluded in the analyses of this paper. We measure loans intended for sale to GSEs using GSE loans since originators usually have master agreements or pool purchase contracts with GSEs and almost all originations are sold to GSEs.

[7] Given a lower appraisal value, borrowers might also reduce their requested loan amount to keep the LTV below the threshold and help their loan applications get approved. However, this is only feasible if borrowers can come up with a larger down payment.