

## **Impact**

*A regulatory impact analysis must accompany every economically significant federal rule or regulation. The Office of Policy Development and Research performs this analysis for all U.S. Department of Housing and Urban Development rules. An impact analysis is a forecast of the annual benefits and costs accruing to all parties, including the taxpayers, from a given regulation. Modeling these benefits and costs involves use of past research findings, application of economic principles, empirical investigation, and professional judgment.*

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# **Refinancing Hospital Loans**

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*The views expressed in this article are those of the author and do not represent the official positions or policies of the Office of Policy Development and Research or the U.S. Department of Housing and Urban Development.*

## **Summary of Impact Analysis**

When the credit crisis developed, the Federal Housing Administration (FHA) allowed non-FHA-insured hospitals to refinance capital debt. FHA permitted the refinancing of non-FHA-insured loans under notices issued on July 1, 2009, and February 22, 2010. This final rule revised the regulations governing FHA's Section 242 Hospital Mortgage Insurance Program to codify the refinancing of non-FHA-insured loans.

In offering this new insurance product, the U.S. Department of Housing and Urban Development (HUD) took an approach intended to attract hospital applicants with a higher degree of financial strength than many Section 242 applicants have had historically. The minimum operating margin and debt-service coverage ratio were set at the median values prevailing in the Section 242-insured portfolio (excluding hospitals on credit watch). The rule will not address the financing needs of all healthcare facilities: its goal is to assist those hospitals saddled with unexpectedly high interest rates and those in which refinancing is urgently needed for the hospital to continue operations and adequately serve its community.

HUD expects the rule to result in a \$1.26 million transfer per year per healthcare facility. Among 10 facilities, the aggregate annual impact is \$12.59 million. A multiyear scenario, in which the number of participants increases to 17, yields an aggregate annualized transfer to hospitals of \$17.63 million by the third year of the program. HUD estimates that this program will raise net receipts of the federal government by \$79 million (from \$79 million to \$158 million). Costs of

the rule include upfront application costs, which may be as high as \$870,000 per applicant but are likely to be much lower, given that non-FHA-insured lenders impose transaction costs as well. HUD does not have enough information to quantify or evaluate the opportunity costs or distortionary effects of the program. A benefit of reducing the probability of default includes reducing the expected social welfare loss from hospital foreclosures.

## Motivation for the Rule

The rule was promulgated to provide relief for those hospitals that are paying high penalty rates on auction-rate debt and variable-rate bonds and that are unable to obtain affordable refinancing from the private market, thereby placing in jeopardy the continued existence of the hospital and its ability to adequately serve the surrounding community. Auction-rate debt was a standard means for financing loans used by quasi-utilities, such as hospitals. The interest rates on auction securities are reset by auction periodically.<sup>1</sup> The auction-rate securities are an alternative to more familiar types of bonds, such as fixed-rate bonds or variable-rate bonds, for which the rate is based on an index such as LIBOR (the London Interbank Offered Rate). Hospitals issued auction-rate securities because, before 2008, they provided low-cost financing. Investors purchased auction-rate securities because, before 2009, they were perceived as offering an advantageous balance between risk and expected return.

An auction for adjustable-rate securities fails when the offer of securities for sale exceeds the orders to purchase securities (demand exceeds supply).<sup>2</sup> Before 2008, broker-dealers had managed to prevent most auction failures by putting in bids when demand for auction-rate securities threatened to be insufficient. In 2008, however, broker-dealers retreated and the auction-rate securities market was paralyzed.<sup>3</sup> When an auction fails, the investor's account is frozen until the next auction and the borrower is required to pay an interest penalty, which can be significant. The penalty is designed to compensate investors who bear the opportunity costs of illiquidity during volatile times. Until the recent financial crisis, liquidity in the auction-rate securities market had been adequate for hospitals. In February 2008, the auction-rate securities market froze and many borrowers were subject to increases in interest payments during an economic period in which any increase in cost imposed a substantial burden on the borrower. In worst case scenarios, some borrowers experienced interest payment increases as great as 10 percentage points.<sup>4</sup>

Other debt-service costs exist, in addition to the interest-rate penalties. Variable-rate debt is typically collateralized by letters of credit issued by banks to the borrowers. During a financial crisis, a reduction in the liquidity and creditworthiness of banks adversely affects their ability to extend or reissue letters of credit. The consequences of nonrenewal of letters of credit can be the acceleration of outstanding debt balance.

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<sup>1</sup> Auctions occur at intervals of 7, 14, 28, or 35 days.

<sup>2</sup> Lee (2008) provides an excellent description of auction-rate securities and setting interest rates via the Dutch auction.

<sup>3</sup> The failure rate rose from 2.0 to 87.0 percent during February 2008.

<sup>4</sup> The U.S. Securities and Exchange Commission issued a legal brief in 2011 supporting claims that investment banks failed to adequately warn investors of the risks of auction-rate securities (Preston and Gallu, 2011).

If a hospital finds itself in a disadvantageous position because of failed auctions, then refinancing is critical to its ability to repay its loan. Allowing for refinancing also leads to benefits by reducing the probability of default and reduces the expected social cost of a hospital foreclosure.

## Transfers Resulting From the Rule

The hospitals that are able to refinance into a lower cost loan because of FHA insurance are the primary beneficiaries of this rule. The objective of the healthcare facility to minimize financing costs among a variety of alternatives can be expressed as—

$$\min_i [m^{\text{ARS}}, (m^{\text{FHA}} + T^{\text{FHA}}), (m^{\text{M}} + T^{\text{M}})], \quad (1)$$

where  $m$  is the annual mortgage payment,  $T$  is the annualized closing cost,  $\text{ARS}$  indicates the auction-rate security financing cost or status quo,  $\text{FHA}$  indicates the mortgage payment and closing costs of an FHA-insured loan, and  $\text{M}$  indicates the lowest cost market alternative to the FHA loan. If the FHA-insured loan is the least cost loan and the status quo ( $\text{ARS}$ ) is the second best option,<sup>5</sup> then the annual savings would be expressed as—

$$m^{\text{ARS}} - (m^{\text{FHA}} + T^{\text{FHA}}). \quad (2)$$

If the FHA-insured loan is the least cost loan and the alternative market refinancing ( $\text{M}$ ) is the second best option,<sup>6</sup> then the gain from refinancing is—

$$(m^{\text{M}} + T^{\text{M}}) - (m^{\text{FHA}} + T^{\text{FHA}}). \quad (3)$$

Before the liquidity crisis, the former scenario (2) was the norm for healthcare facilities. Since 2008, however, the latter scenario (3) has been more common. For healthcare facilities operated by local governments, the reduction of interest payments constitutes a transfer to the taxpayers.

The segment of the market served by FHA is composed of facilities with credit ratings of BBB (lower medium grade) or less or are not rated. By raising the hospital's credit rating to AA (high grade), the FHA insurance enables considerable debt-service savings for the hospital. FHA is able to facilitate a transfer of  $(m^{\text{M}} + T^{\text{M}}) - (m^{\text{FHA}} + T^{\text{FHA}})$  to hospitals through prudent risk pooling by FHA.

The estimate of the benefit of the FHA refinancing rule needs to account for the benefit to hospitals relative to other refinancing opportunities. In the former scenario, in which auction-rate security financing is the least expensive alternative to an FHA loan, the net annual gain of FHA refinancing for the hospitals is equal to the sum of the average market rate plus interest-rate penalties less the sum of the FHA annual fixed rate plus its insurance premium and other closing costs. For example, if the average annual rate that hospitals pay on auction-rate debt is 15.0 percentage points and the FHA-insured loan offers refinancing at 4.5 percentage points, then the benefit of the refinancing, accounting for the 0.5-percent premium, would be 15.0 percentage points annually for participants. If private alternatives exist, however, such as the restructuring of debt that would reduce capital

<sup>5</sup>  $m^{\text{M}} + T^{\text{M}} > m^{\text{ARS}} > m^{\text{FHA}} + T^{\text{FHA}}$ .

<sup>6</sup>  $m^{\text{ARS}} > m^{\text{M}} + T^{\text{M}} > m^{\text{FHA}} + T^{\text{FHA}}$ .

costs to an interest rate of 7.0 percent (Franklin, 2009), then the net benefit of the rule relative to other opportunities would be 2.0 percentage points (7.0 percent–4.5 percent–0.5 percent),<sup>7</sup> where 0.5 percent represents the annual FHA premium.

HUD’s estimate of saving throughout the analysis is based on the difference between FHA-insured refinancing and an alternative. Further, HUD assumes that the FHA closing cost is equivalent to the non-FHA alternative. Commercial mortgage rates vary by loan type and size but, in general, rates range from 4.0 to 6.0 percent (CFA, Inc., 2012). Healthcare facility loans vary from 5.5 to 7.5 percent (CLD, 2012). Despite the eligibility criteria, HUD expects weaker hospitals to apply for loans so that the competing rates may be as high as 8.5 percent. This pattern is supported by data on the interest rates obtained through FHA insurance compared with the higher interest rate that would have applied to a loan to the same borrower without FHA insurance. For each loan insured, FHA obtains from the mortgage lender an estimate of the rate the hospital would pay without FHA. The results are summarized in exhibit 1 for the last 25 hospital loans that were insured.<sup>8</sup>

**Exhibit 1**

**Comparison of Interest Rates**

	<b>Interest Rate Obtained Without FHA Insurance (%)</b>	<b>Interest Rate Obtained With FHA Insurance (%)</b>	<b>Difference (%)</b>
Highest	12.00	6.78	5.22
Median	8.47	5.65	2.82
Lowest	6.95	3.88	3.07

*FHA = Federal Housing Administration.*

HUD uses a wide range of estimates of the change in interest rate from a reduction of 1.0 percentage point (6.5 to 5.5 percent) to a reduction of 3.0 percentage points (8.5 to 5.5 percent). HUD’s base case is a reduction of 2.0 percentage points (from 7.5 to 5.5 percent). For all these cases, HUD assumes that the FHA loan is characterized by an additional annual financing cost of 0.5 percent of the loan balance.

Using an average loan size of \$108 million amortized over 25 years, the reduction in the annual mortgage payment will range from \$0.80 million (a 1.0-percentage-point decline in the interest rate, from 6.5 to 5.5 percent) to \$2.50 million (a 3.0-percentage-point decline, from 8.5 to 5.5 percent). HUD’s base case is a 2.0-percentage-point decline, from 7.5 to 5.5 percent, which yields a \$1.64 million annual reduction in mortgage payment, from \$9.69 million to \$8.05 million.

HUD assumes that all other financing costs of the two loans are identical except for the periodic FHA insurance premium (other transaction costs associated with an FHA loan are addressed in a subsequent section). The average annual financing cost (mortgage plus premium) over the life of an FHA loan is \$8.37 million. The interest rate, which yields a present value equal to the original balance of \$108 million, given the stream of payments over 25 years, is approximately 6.0 percent

<sup>7</sup> Note that these figures are not official estimates and are meant only for illustrative purposes. The exact difference in the cost of capital will be slightly different (and is calculated subsequently).

<sup>8</sup> One outlier, a hospital with unique circumstances, was excluded.

(5.97 percent). In other words, the annual percentage rate (APR) of the FHA loan, which is the true cost of capital, is 6.0 percent. The annualized payment on an FHA loan would increase from \$8.05 million to \$8.43 million. The annualized net savings of an FHA loan is correspondingly lower, ranging from \$0.42 million for a 6.5-percent non-FHA alternative loan to \$2.12 million for an 8.5-percent non-FHA alternative loan. The net annual gain to the borrower in HUD's base case of a 7.5-percent non-FHA alternative loan is \$1.26 million (\$9.69 million - \$8.43 million).

The program is not designed for the entire industry of 5,000 hospitals. The pool of applicants is limited by eligibility restrictions. At the time the proposed rule (75 FR 4964) was published on January 29, 2010, and the first draft of the regulatory analysis was written in June 2009, industry experts estimated that FHA would receive from 25 to 40 applications during the first year that Section 242 refinancing was offered. In fact, FHA received only 15 preliminary stage applications, and most of those were eliminated based on a failure of the hospital to meet the threshold requirements in Section 242.

HUD noted in the analysis of the proposed rule that low participation was a distinct possibility, despite the financial incentives offered by the rule. A major unknown was an eligible hospital's desire to refinance through FHA. The primary incentive of a hospital to participate is to escape the adjustable rates or penalties in the auction-rate securities market. If the auction-rate securities market is healthy, however, then the FHA is not likely to have as many, if any, customers for its Section 242 program. The auction-rate securities market has not rebounded, however, because of a continuing lack of liquidity.

The single application that was approved illustrates the potential benefit of Section 242/223(l) refinancing. Parkview Community Hospital in Riverside, California, a state-designated safety net hospital, plays a vital role in its community by providing for 19.6 percent of the inpatient market share. Parkview was paying a 20.0-percent interest rate on its capital debt. Its high debt-service payments put a financial strain on the hospital and cast doubt on its future viability. After refinancing with a loan of \$29 million at a rate of 5.0 percent, however, the hospital is able to save a substantial amount in financing costs over the 25-year life of the loan and to better serve the medical needs of the Riverside community.

A potential explanation for the low level of participation is that hospitals have found alternative means for refinancing other than Section 242. The private market is likely to search for solutions to resolve some of these crises. For example, when the interest rate on Trinity Health's \$600 million of auction-rate securities rose from 3.0 to 12.0 percent, the company restructured the securities with Merrill Lynch & Co., Inc., to bring down the rate to an average of 2.25 percent (Greene, 2008). Trinity Health had the advantage of a AA long-term rating. Other healthcare facilities, however, may not have the same opportunities.

Based on input from lenders and on FHA's review of market conditions, FHA expects to insure approximately 8 loans during the first year the final rule is in effect.<sup>9</sup> HUD uses 10 loans as its baseline estimate and does not expect the number to surpass 15 new entrants in any single year.

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<sup>9</sup> The expected number of participants is less in the final rule than in the proposed rule.

The 2.0-percentage-point interest rate decline (a 1.5-percentage-point decline in APR) scenario ranges from net savings of \$1.26 million with 1 participant to \$18.88 million with 15 participants (exhibit 2). Given the past experience of overestimating the number of participants in refinancing programs, it is likely that the number will be closer to 5 participants, in which case, the net savings will range from \$2.12 million to \$10.62 million, depending on the alternative cost of capital.

**Exhibit 2**

**Aggregate Annual Net Savings (in million \$) by Hospitals From Refinancing (from a \$108 million, 25-year loan)**

Number of Participants	Interest Rate on Alternative Non-FHA Loan			
	6.5%	7.0%	7.5%	8.0%
1	0.42	0.84	1.26	2.12
5	2.12	4.19	6.29	10.62
10	4.24	8.38	12.59	21.23
15	6.36	12.57	18.88	31.85

FHA = Federal Housing Administration.

**Dynamic Considerations**

Healthcare facilities will apply to and participate in the program only as long as doing so provides benefits. Consider the scenario of a pool of 100 potential applicants and the base case of a 1.5-percentage-point net benefit of the FHA as a refinancing alternative. If 10 participants enroll in the first year, potentially 90 new entrants could enroll in the second year. It is reasonable to assume that successive years will bring new entrants but that the number of new entrants will decrease over time. If markets recover slightly (auction-rate market interest rates decline to 7.0 percent), then perhaps only 5 hospitals out of those remaining 90 would find it beneficial to pay an insurance premium to participate in Section 242. Under such an assumption, the total number of participants would increase to 15 (10 + 5) in the second year. The effects of a recovery, even if mild, would also be to reduce the potential net saving per loan. Fluctuations in the credit market would alter the benefit of the FHA loan over time. For example, suppose that participation is characterized by the pattern displayed in exhibit 3.

The aggregate annual transfers would reach \$17.63 million by the third year. As soon as the alternative interest rate is close to 6.0 percent, the FHA loan would no longer be advantageous.

**Exhibit 3**

**Aggregate Annual Net Savings Over Time (assuming declining new participants)**

Year	Auction-Rate Market Interest Rate (%)	New Participants	Total Participants	Net Annual Saving to New Participant (million \$)	Average Net Annual Saving per Participant (million \$)	Total Annual Saving (million \$)
1	7.5	10	10	1.26	1.26	12.59
2	7.0	5	15	0.84	1.12	16.78
3	6.5	2	17	0.42	1.04	17.63
4	6.0	0	17	0.00	1.04	17.63

## Budget

HUD estimated that this program would add \$1 billion to the fiscal year 2013 estimate, nearly doubling insurance endorsements. Net receipts are projected to increase by \$79 million (from \$79 million to \$158 million). The marginal credit subsidy rate of these loans would be -7.93 percent (indicating a negative credit subsidy). The \$79 million increase represents the net present value of the cash flow from the negative credit subsidy if 9.25 loans are expected at \$108 million apiece ( $-0.079 \times 9.25 \times \$108$  million). The negative subsidy is equal to the present value of the expected cost of the claim less the expected present value of premium insurance (upfront and periodic). In this case, revenue is expected to exceed costs so that the subsidy is negative.

A government agency's increase in net revenue is usually treated as a transfer; the increase in FHA revenue occurs as the result of offering a product that raises expected net revenue. In the short run, the gain in revenue will enable the FHA to rebuild its mandated reserve. In the long run, a gain to the FHA is an eventual transfer to other parties, either enabling FHA to insure more loans at the same cost or return excess revenues to the U.S. Treasury.

## Benefits of the Rule

Aside from the economic impacts such as transfers to healthcare facilities, other benefits have been alluded to, such as the benefit to the community of the provision of healthcare services.

## Preventing Hospital Closures

If the closure of a hospital were to occur, the negative economic impacts would be drastic. In addition to providing needed healthcare services, hospitals are among the largest employers in their communities. In the absence of this program, some hospitals saddled with high debt-service payments could default on their debt and experience foreclosure. In such an event, the hospital could be forced to close (unless the holders of the debt had a buyer willing and able to continue hospital operations at the facility, or the city had the means to refinance the hospital).<sup>10</sup> With this program in place, however, some otherwise financially viable hospitals could refinance their high debt-service payments down to a level that would enable them to avoid default and continue to serve their communities.

The benefit, per hospital, is equal to the change in the expected damage from foreclosure, where the change in the expected value is the result of the decline in the probability of foreclosure. Avoided costs would include all transaction costs, time costs, and costs to current patients that must relocate or travel farther for services. FHA's research shows that, of the 19 healthcare facilities in financial difficulties since 1990, only 4 have resulted in a claim. Thus, it would be safe to assume that, of the 8 to 10 hospitals that are expected to apply to the program, a similar proportion (1 to 2) would have gone into claim. It is difficult to quantify the deadweight costs resulting from the foreclosure of a hospital. Similar estimates for residential real estate, which is very different, find the benefit of avoiding a foreclosure to be approximately one-fifth of the value of the loan (McFarlane, 2012).

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<sup>10</sup> As more local governments face budget pressures, rescue by a local government is less likely.

Nonetheless, healthcare facilities are often considered important anchor institutions that produce positive economic externalities for the surrounding community. Thus, if the refinancing program prevents only one of the expected foreclosures, the benefits could be substantial (for example, 20 percent of \$108 million is \$22 million).

## **Capital Markets**

The public injection of liquidity by FHA may contribute in a small way to stimulating the auction-rate securities markets. Classifying this effect is not straightforward, however, because it consists of a variety of effects: redistribution and efficiency gains. A redistribution, or transfer, from lenders to borrowers will occur with the decrease in the real interest rate. Stabilization of the economy is associated with efficiency gains such as the avoidance of the costs of foreclosure and the costs of long-run economic inactivity. The government, by assisting the refinancing of hospital loans, reduces both default and liquidity risk in the U.S. economy.

The public supply of liquidity, when prudently managed, has the potential of raising economic welfare in a number of situations. Most relevant to the collapsed auction-rate securities market is the argument that the provision of public liquidity can “buy the time needed to proceed to an orderly reallocation of liquidity” (Tirole, 2008: 62). Tirole explained that this reallocation is necessary because the asymmetry of information concerning assets increases during recessions. The injection of liquidity will keep markets afloat, preserving asset values. Using this particular policy, FHA reduced the competitors for auction-rate securities financing.

## **Costs of the Rule: Paperwork and Transaction**

Other costs, besides the mortgage insurance premium, are associated with an FHA-insured loan. To apply for insurance of a mortgage, the applicant must include a number of supporting documents: a description of the project; the business plan of the hospital, and how the project will further that plan; a study of market need and financial feasibility; and architectural plans and specifications in sufficient detail to enable a reasonable estimate of cost. The preparation of an application is beyond what is demanded of non-FHA alternatives and so can be regarded as an incremental cost. Highly paid professionals, such as accountants, bankers, and attorneys, are required to invest a substantial amount of effort. In addition, government bureaucrats must carefully review the applications.

Preapplication meetings at HUD typically involve 5 to 10 people representing the lender and the hospital. Preparing the preliminary review submission and preparing for the preapplication meeting require the lender and the hospital's consultants to travel to and from the hospital. Application development involves considerable time from consultants, who are sometimes in the field for 2 to 3 weeks, plus return trips to present reports. The total cost to the applicant is estimated to be \$879,000.

In an FHA-insured refinancing transaction, some transaction costs are not present in a private-market (uninsured) refinancing. More intense upfront examination of the deal is one of those costs. To what extent the estimated \$879,000 in upfront costs represents an incremental cost over a

noninsured loan is not known with precision, however. Supposing that all these upfront costs are incremental, the increase in the annual capital cost amounts to only a few basis points (an increase from 5.97 to 6.05 percent). The incremental cost is likely to be lower, given that a non-FHA insured lender will also require a significant level of information before lending \$108 million.

## Summary of Regulatory Impact

HUD expects the rule to result in a transfer of \$1.26 million per year per hospital. Among 10 hospitals, the aggregate annual impact is \$12.59 million. A multiyear scenario, in which the number of participants increases to 17, yields an aggregate annualized net saving to hospitals of \$17.63 million by the third year of the program. HUD estimates that this program will raise the net receipts of the federal government by \$79 million (from \$79 million to \$158 million).

Costs of the rule include upfront application costs, which may be as high as \$870,000 per applicant but are likely to be much lower, given that non-FHA-insured lenders impose transaction costs as well. These transaction costs add little to the cost of capital, however, and are more than offset by the lower interest rate obtained through the FHA insurance. HUD does not have enough information to quantify or evaluate the opportunity costs or distortionary effects of the program.

A benefit of reducing the probability of default includes reducing the expected social welfare loss from hospital foreclosures.

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