FYI: An Update on Emerging Issues in Banking

Assessing the Banking Industry's Exposure to an Implicit Government Guarantee of GSEs

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Introduction

Recent concerns about management, transparency, and the risk profile at Fannie Mae and Freddie Mac (Government Sponsored Enterprises, or GSEs) have fueled discussion about the implicit and explicit benefits that these GSEs enjoy and the unintended consequences of GSE status.[1] Fannie Mae and Freddie Mac have been extended certain explicit benefits that help them promote national housing objectives. These benefits do not extend to a guarantee of GSE issues. The offering documents for each security that Fannie Mae and Freddie Mac issue clearly state their securities do not constitute debt of the United States and are not guaranteed by the federal government. However, low yield spreads between GSE direct obligations and Treasury securities indicate that market participants perceive what is commonly referred to as an implicit guarantee. The perception of an *implicit guarantee* relates to the assumption that the federal government would stand behind the GSEs in a time of crisis.[2]

Administration and congressional proposals currently under consideration to deal with the perception of higher risk profiles at GSEs have focused solely on measures to tighten oversight and enhance the supervisory and enforcement tools available to a GSE regulator.[3] Others, however, have recommended removing various aspects of federal sponsorship that the market reads as implicitly guaranteeing GSE debt, beginning with authority of the Secretary of Treasury to buy up to $2.25 billion of Fannie Mae and Freddie Mac obligations.[4] Some have gone so far as to suggest removal of government sponsorship or full privatization of the GSEs. The result of these actions could be to erode or eliminate any implicit guarantee.[5]

Large concentrations at FDIC-insured institutions in investments that are directly issued or guaranteed by the GSEs have led some observers to view the banking industry as particularly vulnerable to erosion in the benefits of GSE status.[6] Insured institutions hold almost $300 billion, or roughly 17 percent, of the $1.8 trillion Fannie Mae and Freddie Mac direct obligations outstanding and nearly $770 billion, or about 40 percent, of the $1.9 trillion Fannie Mae and Freddie Mac mortgage pools outstanding.[7]

This issue of *FYI* assesses two particular aspects of the potential vulnerability of FDIC-insured institutions relative to the benefits that the GSEs enjoy. First, we use existing research about the funding advantage of GSEs to estimate how the value of GSE-related securities held by FDIC-insured institutions might be affected if the market perception of an implicit government guarantee of GSEs were instantaneously eliminated. Second, we discuss the explicit treatment that GSE-related securities have in risk-based capital (RBC) regulations and construct scenarios that gauge the sensitivity of industry RBC ratios to changes in the risk weights associated with GSE-related securities.[8] Finally, we suggest other potential sources of risk to the banking industry and longer-term implications of changes to GSE status.

Under restrictive assumptions, we find that the industry is well positioned to absorb a widening of yield spreads on GSE-related securities and the elimination of explicit treatment of GSE-related securities in RBC regulations. Results are dependent on the assumptions made and could change materially if other contingencies were incorporated. Chief among these contingencies would be a change in the legal lending limit exemptions that generally apply to GSE-related security holdings of insured institutions. Changes to legal lending limit exemptions or other events would prompt insured institutions to immediately restructure securities portfolios. Such restructuring could contribute to and expose insured institutions to harmful market conditions that could result in losses on GSE-related securities not contemplated in this analysis.

Industry Exposure

Investments in GSE-related securities amount to significant concentrations for the banking industry as a whole and for some institutions in particular.[9] GSE-related securities represent both direct obligations and mortgage-backed securities (MBS) that are issued and guaranteed by the GSEs. The carrying value of GSE-related securities held by commercial banks and savings associations represents over $1 trillion and amount to about 62 percent of total security holdings as of September 30, 2003.[10] For both commercial banks and savings associations, GSE-related securities amount to significant investments relative to assets and capital (see Table 1).[11]

Table 1

Holdings of GSE-Related Securities By FDIC-Insured Institutions Exceed 150 Percent of Tier 1 Capital and 11 Percent of Assets

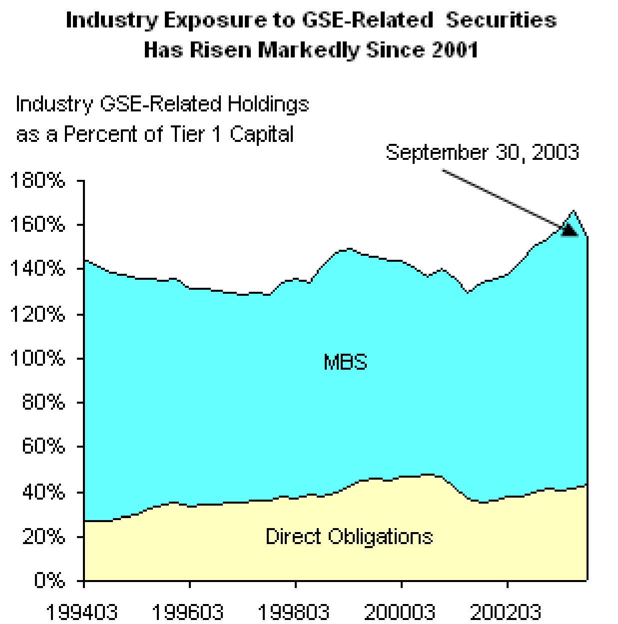
	Securities ($ Millions)	Holdings/Tier 1 Capital	Holdings/Total Assets
Direct Obligations	**296,437**	**43.3%**	**3.3%**
Savings Associations	22,111	26.8%	2.0%
Commercial Banks	274,325	45.5%	3.5%
MBS	**763,412**	**111.4%**	**8.5%**
Savings Associations	126,956	153.8%	11.5%
Commercial Banks	636,456	105.6%	8.1%
Total	**1,059,848**	**154.6%**	**11.8%**

Note: Tier 1 Capital generally represents the sum of common stockholder's equity and noncumulative perpetual preferred stock less intangible assets. Tier 1 Capital is unaffected by appreciation (depreciation) on held-to-maturity and available-for-sale debt securities.

Source: Call Reports and Thrift Financial Reports.

The ratio of industry holdings of GSE-related securities to Tier 1 Capital has risen to almost 155 percent, up 19 percentage points from two years earlier (see Chart 1).

Chart 1



Source: Call Reports and Thrift Financial Reports

About 3 percent of FDIC-insured institutions have very high concentrations of GSE-related securities that amount to more than 500 percent of their Tier 1 Capital. The combined assets of these institutions represent about 4 percent of total industry assets.

Eliminating any Implicit Guarantee Would Reduce Securities Values and Risk-Based Capital Ratios for FDIC-Insured Institutions

Without an implicit guarantee, the required rate of return for GSE-related securities would increase. Spreads over Treasury securities on GSE direct obligations would widen to resemble spreads on corporate debt of similar credit risk, and the value of current portfolio holdings would fall. Also, the value of MBS issued by GSEs would decline because the GSE guarantee of timely repayment of principle and interest would be viewed as less valuable.

In addition to these market reactions, our analysis considers the status of GSE-related securities in existing risk-based capital (RBC) regulations. If actions were taken to remove the vestiges of implied government support, the status of GSE-related securities in RBC regulations could change and these securities could be treated as riskier.

Eliminating any implicit guarantee, therefore, could affect the liquidity of some insured institutions by reducing securities values and pressure capital adequacy through higher RBC charges for GSE-related securities.

Estimating the Decline in the Value of GSE-Related Securities

The scenario analysis presented below estimates the decline in securities values that would result if investors were to disregard any implicit guarantee. GSE credit ratings would likely be lowered from the top ratings grades currently issued by major rating agencies. Based on existing studies, we assume that the ratings agencies would lower GSE credit ratings within a range of AA to A.[12] Under this scenario, the GSEs have credit ratings on par with non-sponsored companies with similar financial structure and credit risk.

Lower credit ratings would result in wider spreads between GSE direct obligations and Treasury securities. Estimates vary as to how much spreads would widen. Studies assert that spreads would widen anywhere from 22 to 60 basis points. We present the full range of spread estimates to provide information about the robustness of our results, but we highlight 40 basis points as representative of the range.[13]

The spread between MBS and Treasury securities is assumed to widen somewhat less than for GSE direct obligations. Existing surveys suggest that the spread could widen anywhere from 2 to 40 basis points. As with direct obligations, we present the entire range of estimates but focus on 30 basis points as representative of the range for MBS.[14]

The "representative" estimate and range on widening of spreads are derived from a sample of the existing literature on the topic. An expanded review of the existing literature could suggest different "representative" estimates and a wider range of estimates.

As shown in Table 2, as spreads widen on GSE-related securities, the decline in fair value of GSE security holdings of FDIC-insured institutions grows. Losses in market value are shown for all securities designations, since losses on all designations can detract from an institution's liquidity. Losses are shown separately for all available for sale (AFS), held to maturity (HTM), and trading account holdings.

Table 2

Estimated Loss in Value on Industry Holdings of GSE-Related Securities Due To Widening Spreads ($ Millions)

Direct Agency Obligations			**Total**	**AFS**	**HTM**	**TRADING**	
Value of Direct Obligations =			296,437	247,877	39,560	9,231	
		spread widening (bps)	**Losses ($ Million)**				**Percentage Loss**
	Narrow	22	(2,928)	(2,446)	(390)	(91)	-0.99%
		30	(3,993)	(3,336)	(532)	(124)	-1.35%
Representative		40	(5,323)	(4,448)	(710)	(166)	-1.79%
		50	(6,654)	(5,560)	(887)	(207)	-2.24%
	Wide	60	(7,985)	(6,672)	(1,065)	(248)	-2.69%
Agency MBS			**Total**	**AFS**	**HTM**	**TRADING**	
Value of Agency MBS =			763,412	719,460	41,116	3,053	
		spread widening (bps)	**Losses ($ Million)**				**Percentage Loss**
	Narrow	2	(454)	(428)	(24)	(2)	-0.06%
		20	(4,537)	(4,275)	(244)	(18)	-0.59%
Representative		30	(6,806)	(6,413)	(366)	(27)	-0.89%
		35*	(7,941)	(7,481)	(428)	(32)	-1.04%
	Wide	40*	(9,075)	(8,550)	(489)	(36)	-1.19%
Total			**Total**	**AFS**	**HTM**	**TRADING**	

Value of Total Securities =			1,059,848	967,337	80,676	12,284	
		spread widening (Direct/MBS)	**Losses ($ Million)**				**Percentage Loss**
	Narrow	22/2	(3,382)	(2,874)	(415)	(93)	-0.32%
		30/20	(8,530)	(7,611)	(777)	(142)	-0.80%
Representative		40/30	(12,130)	(10,860)	(1,076)	(193)	-1.14%
		50/35*	(14,595)	(13,041)	(1,315)	(239)	-1.38%
	Wide	60/40*	(17,060)	(15,222)	(1,553)	(285)	-1.61%

Note: Losses are estimated by multiplying the estimated modified duration of agency direct obligation and mortgage-backed securities markets by the respective assumed basis point change in spreads that may result by removing any implicit guarantee. The direct obligation market is proxied by the Merrill Lynch U.S. Agency Index G0P0 and the mortgage-backed securities market by the Merrill Lynch Mortgage Backed Securities Index M0A0. The durations of the direct obligation and MBS markets are assumed to accurately represent the durations of FDIC-insured institutions' holdings of direct obligations and MBS. The modified duration of G0P0 equals 4.486 and M0A0 2.971 years, respectively. All values are as of September 30, 2003.
*Table 2 contains corrected (as of April 14, 2004) estimates for the change in the value of Agency MBS given a spread widening of 35 and 40 basis points. Percentage losses are lower than presented in the earlier version of this issue of FYI.

Source: Duration information is from Bloomberg. Industry data are from Call Reports and Thrift Financial Reports.

Earnings and regulatory capital would be affected only by losses on securities held for trading.[15] (Losses on AFS and HTM account holdings would reduce earnings if the impairment to the securities were characterized as "other-than-temporary," which, for purposes of this analysis, they are not.) [16]

Based on the "representative" expectation for spread-widening of 40 basis points, the value of industry holdings of GSE direct obligations would fall by $5.3 billion, or 1.8 percent (see Table 2). Similarly, if the yield spread on MBS widened by 30 basis points, the value of industry holdings would fall by $6.8 billion, or 0.9 percent. In dollar terms, losses on MBS holdings exceed those on direct obligations due to the larger portfolio holdings of MBS versus direct obligations. **Together, the total market value of existing banking sector GSE-related security holdings would fall by an estimated $12 billion, or 1.1 percent.**

Wider yield spreads within the range suggested by some studies suggest somewhat greater loss of value. For example, given a 60 basis point widening of the spread on direct obligations and a 40 basis point spread on MBS, the potential market value loss deepens to $17 billion, or 1.6 percent of industry holdings.

Higher estimates of modified duration also suggest somewhat greater market value declines. Appendix 2 details the sensitivity of our estimates to changes in duration by applying an historical average duration and the peak duration estimate since early 1991, when the modified duration of the proxy index became available. Assuming the peak duration estimate and "representative" spread widening, the potential market loss on all securities would grow to about $18 billion, or 1.7 percent of industry holdings. In the extreme, if the modified duration of insured institution holdings were twice the values assumed for September 30, 2003, the resulting loss of market value on all holdings of GSE-related securities would rise to $24 billion, or 2.2 percent (twice the total market value loss shown in Table 2).[17]

Risk-Based Capital Ratios Would Decline, but the Industry Is Well Positioned

Without an implicit government guarantee, Tier 1 RBC and Total RBC ratios, two measures of capital to risk-weighted assets (RWA), would fall (see Tables 3 and 4).[18] The decline is due mostly to the increase in risk assigned to GSE-related securities.[19]

In computing RWA, GSE direct obligations currently receive a 20 percent risk weighting. If GSEs were indistinguishable from other private corporations and were no longer considered "U.S. Government-sponsored agencies" for RBC purposes, the risk weight on their direct obligations would increase to 100 percent. As a result of the higher risk weight, RWA would increase and RBC ratios would decline.

The effect related to MBS, however, is less clear. Asset-backed securities that are at least AA rated receive a risk weight of 20 percent. Currently, GSE MBS receive a 20-percent risk weight. A decline in the credit rating of GSE MBS from AAA to AA would not result in a new risk weight for the securities. However, if the rating of existing MBS fell to A, then these securities would be risk-weighted at 50 percent.

Table 3

Industry Tier 1 Risk Based Capital Ratios Decline Marginally Without an Implicit Guarantee on GSE-Related Securities

Tier 1 Risk Based Capital Ratio* = Tier 1 Capital/Risk Weighted Assets				GSE Direct Obligations		GSE Mortgage Backed Securities	
Status of Implicit Guarantee	**All Insured**	**Commercial Banks**	**Savings Associations**	**Rating**	**Risk Weighted Assets Category**	**Ratings**	**Risk Weighted Assets Category**
With Guarantee/Current Risk Treatment	10.66%	10.44%	12.63%	AAA	20%	AAA	20%
Without Guarantee/Expected Risk Treatment	10.28%	10.05%	12.29%	AAA/AA/A	100%	AA	20%
Without Guarantee/Pessimistic Risk Treatment	9.94%	9.75%	11.63%	AAA/AA/A	100%	A	50%

*The Tier 1 RBC ratio equals Tier 1 Capital (roughly common stockholder's equity plus noncumulative perpetual preferred stock less intangible assets) divided by risk weighted assets (the sum of an institution's assets and the credit equivalent amount of its off-balance sheet exposures, weighted by their respective risk levels).

Source: Call Reports and Thrift Financial Reports, as of September 30, 2003.

Following elimination of the implicit guarantee, we expect the ratings on GSE MBS to be AA or higher. Why? Credit ratings on GSE MBS would likely be higher than ratings on direct obligations. MBS have credit support that is available prior to drawing on the GSE guarantee in the form of expected cash flows of principal and interest on mortgages. Direct obligations lack such expected cash flows from mortgages. Consequently, with everything else constant, eliminating any implicit guarantee likely would affect the perceived credit risk and credit ratings of MBS less than direct obligations. It was earlier assumed that the rating agencies would assign credit ratings to the GSEs (and their direct obligations) within a range of AA to A. Hence, the likely ratings on GSE MBS without an implicit guarantee would be at the high end, or AA or higher.

If ratings on MBS fell to an "expected" AA, we estimate that the industry Tier 1 RBC ratio would decline

38 basis points to 10.28 percent (See Table 3). Under a more pessimistic scenario, if agency MBS ratings were lowered to single A, the industry Tier 1 RBC is estimated to drop by 72 basis points to 9.94 percent.

If agency MBS ratings fell to an "expected" AA, Total RBC would drop 47 basis points to 12.75 percent (see Table 4). Under a more pessimistic scenario, if agency MBS ratings were lowered to single A, Total RBC would decline by an estimated 87 basis points to 12.35 percent.

Table 4

Industry Total Risk Based Capital Ratios Fall Marginally Without an Implicit Guarantee on GSE-Related Securities

Total Risk Based Capital Ratio* = Total Capital/Risk Weighted Assets				GSE Direct Obligations		GSE Mortgage Backed Securities	
Status of Implicit Guarantee	**All Insured**	**Commercial Banks**	**Savings Associations**	**Rating**	**Risk Weighted Assets Category**	**Ratings**	**Risk Weighted Assets Category**
With Guarantee/Current Risk Treatment	13.22%	13.11%	14.18%	AAA	20%	AAA	20%
Without Guarantee/Expected Risk Treatment	12.75%	12.65%	13.80%	AAA/AA/A	100%	AA	20%
Without Guarantee/Pessimistic Risk Treatment	12.35%	12.27%	13.07%	AAA/AA/A	100%	A	50%

*The Total RBC ratio equals Total Capital (roughly Tier 1 plus the allowance for loan losses) divided by risk weighted assets.

Source: Call Reports and Thrift Financial Reports, as of September 30, 2003.

Tier 1 Leverage ratios (Tier 1 Capital divided by average assets) would be relatively unchanged. Only losses on trading securities, which are nominal, would affect Tier 1 Leverage Capital.

Most Institutions with High Concentrations of GSE-Related Securities Have High Capital

The effect on the capital of individual institutions with significant concentrations in GSE-related securities could be more severe than for the banking industry on average. With the loss of an implicit guarantee and a downgrade bounded at an AA credit rating on MBS, 29 percent of FDIC-insured institutions are projected to sustain at least a 200 basis point decline in Tier 1 RBC ratios as of September 30, 2003. Almost all (98 percent) of these institutions have total assets less than $1 billion.

Despite the large decline, two-thirds of these institutions would maintain a Tier 1 RBC ratio in excess of 13 percent, well above regulatory minimum requirements of 6 percent corresponding to the Prompt Corrective Action (PCA) designation for "well capitalized" institutions.[20] As a result of the loss of the guarantee, only five insured institutions would be projected to fall below the Tier 1 RBC ratio threshold for "well capitalized" of 6 percent.

As of September 30, 2003, 600 institutions would experience a decline in their Total RBC ratio to below the 10 percent threshold for "well capitalized." Only fifteen insured institutions, however, would experience a decline in their Total RBC ratio below 8 percent, the threshold to be "adequately capitalized."

Under a more pessimistic scenario, where credit ratings on MBS decline to an A, the effect is somewhat more severe. With the loss of an implicit guarantee and a decline to an A credit rating on MBS, 37 percent of all insured institutions are projected to sustain at least a 200 basis point decline in Tier 1 RBC ratios. About 97 percent of these institutions have total assets less than $1 billion. However, 63 percent of these institutions would maintain a Tier 1 RBC ratio in excess of 13 percent, well above the regulatory minimum requirement to be "well capitalized." Only seven insured institutions would be projected to fall below the Tier 1 RBC ratio "well capitalized" threshold of 6 percent. The average asset size of these seven institutions is $216 million with the largest such institution having about $650 million in total assets.

As many as 711 institutions would experience a decline in their Total RBC ratio to below the 10 percent threshold (to be "well capitalized"). Only fifteen insured institutions, however, would experience a decline in their Total RBC ratio to below 8 percent, the threshold to be "adequately capitalized." The average asset size of these fifteen institutions is $252 million with the largest such institution having about $750 million in total assets. None would fall to a PCA designation of "critically undercapitalized" as a result of this shock.

Risk Issues Beyond the Initial Impact

This study does not address other potential sources of risk that could have secondary effects on the banking industry following a loss of an implicit guarantee. Examiner guidance suggests that concentrations of 25 percent or more of Tier 1 Capital to an individual obligor (such as Fannie Mae or Freddie Mac) should be considered carefully in evaluating the adequacy of risk diversification within an institution's asset structure.[21] GSE-related security holdings generally are exempt from legal lending limits. If not for this exemption, a national bank would not be able to hold more than 10 percent of its capital and surplus in corporate bonds of either Fannie Mae or Freddie Mac.[22] State-chartered banks are subject to similar requirements. Applying concentration and legal lending limits to GSE-related securities might force insured institutions to sell GSE holdings down to acceptable levels.[23] Such market dynamics could result in spread volatility not contemplated in the current research and amplify the market value declines estimated in this issue of *FYI*.

Demand for GSE-related securities could be affected significantly if higher capital requirements influence portfolio managers to reallocate investment portfolios away from GSE direct obligations and MBS or if there was a liquidity crisis cycle of too great a magnitude for market liquidity to bear.

The political process surrounding potential changes to the status of Freddie Mac and Fannie Mae could take significant time and generate considerable interest. The issue could create its own volatility and possible market over-reaction. During this "political" period, spreads on banks' GSE portfolios could exceed the spread expectations detailed in this issue of *FYI*.

FDIC-insured institutions could be affected by the privatization path chosen for the GSEs. A change in the current status of two dominant players in the MBS market could significantly change market (supply and demand) dynamics. Also, given the large GSE-related security holdings of the banking industry, issues related to redistribution of risk and return between debt and equity holders could be of concern to banks and savings associations.

Competitive issues could increase in importance as large banks begin to adopt Basel II approaches. It is widely anticipated that lenders who adopt the advanced approach will enjoy relatively lower capital requirements for certain assets that they hold, particularly residential mortgages. According to market observers, the most significant benefit will accrue to lenders with good quality loan portfolios who adopt the advanced approach. The decision to hold or to sell residential mortgages relates to the potential return on capital offered by either choice. Assuming that some of the benefits of GSEs' lower borrowing costs currently are passed through to banks by lowering the transaction costs of selling mortgages, removing any implicit guarantee could decrease the profitability of originating mortgages for sale. As it becomes more costly to sell mortgages, the focus for mortgage lenders will increasingly shift to the potential return on capital from retaining mortgages on their balance sheets. All else being equal, the potential return on capital for holding residential mortgages will likely be higher for banks that adopt the advanced internal ratings-based approach under Basel II.

Eliminating any implicit guarantee could have implications for mortgage rates and housing markets. The Congressional Budget Office estimates that higher GSE funding costs (resulting from a change in GSE status) could increase mortgage borrowing costs by 25 basis points.[24] Evidence exists, however, that interest rates play little direct role in changing homeownership rates. Further evidence suggests that interest rates affect housing starts in the short run, although over a longer horizon this effect appears to fade.[25]

Eliminating any implicit guarantee could have secondary effects on insured institutions' performance and operations. To the extent that banks benefited from GSE cost efficiency related to the implicit guarantee, earnings related to mortgage businesses might be reduced. The conforming mortgage market could more closely resemble mortgage banking involving jumbo, "alt A," and other nonconforming lending where margins are higher, but efficiencies, perhaps, are more difficult to achieve.

Scenario Results Are Based on Specific Assumptions

The above scenario analysis relies on key assumptions that, if altered, could change the results and the estimated impact on insured institutions:

- The "representative" estimate and range on widening of spreads are derived from a sample of the existing literature on the topic. An expanded review of the existing literature could suggest different "representative" estimates and a wider range of estimates.
- The market value loss is estimated by multiplying the estimated modified duration of the GSE direct obligations market and the MBS market by the respective assumed basis point changes in spreads that would result by removing any implicit guarantee. This approach is only an approximation of the expected loss.
- The direct obligations market is proxied by the Merrill Lynch U.S. Agency Index G0P0 and the MBS market by the Merrill Lynch Mortgage Backed Securities Index M0A0.[26] There are potential shortcomings to using this proxy for these markets. For example, the M0A0 Index excludes structured mortgage products such as collateralized mortgage obligations (CMO), which are an important part of the MBS market.
- Insured institutions are assumed to "hold the market portfolio" as represented by the G0P0 and M0A0 indices. The modified durations of the MBS and direct obligations markets are assumed to accurately represent the mix and maturity structure of GSE-related securities of FDIC-insured institutions. The composition of GSE-related holdings of individual institutions may vary from that of the market. Depending on the amount mix and liquidity structure of GSE holdings, the widening of spreads could affect the GSE-related holdings of individual institutions more or less than our estimates.
- Our analysis assumes homogeneity in the priority structure of direct obligations[27] and in the underlying credit quality of the assets backing MBS.[28] Differences in seniority of direct obligations and variation in the credit quality of the underlying mortgages for the MBS could cause spreads to respond differently than the generalized assumptions.
- Declines in security values are not treated as "other-than-temporarily" impaired, which means that only losses on securities held for trading are passed through the income statement. Also, given the low interest rates prevailing at September 30, 2003, we assume that most securities have fair values that at least equal amortized cost.
- Secondary effects (for example, from the application of concentration and legal lending limits to GSE-related securities and from a restructuring of the MBS market, both potential sources of further risk) are assumed fixed.

Conclusion

Without an implicit guarantee, many developments could unfold. Under specific assumptions described above, scenario analysis suggests that the initial impact of eliminating any implicit guarantee of GSEs would not significantly weaken the banking industry for two primary reasons. First, the estimated shock to securities values and risk-weighted assets (used to calculate risk-based capital ratios) is less severe than might be expected despite the extent of the exposure. Second, the industry is well situated given current regulatory capital levels to sustain the estimated shock.

As of September 30, 2003, the initial effect of eliminating the implicit guarantee would reduce the value of banking industry GSE-related securities by $12 billion, or 1.1 percent. This initial loss of market value of securities would not severely harm overall liquidity of the banking industry. Individual institutions could be affected more depending on the amount, maturity structure, and mix of their GSE-related holdings.

Without an implicit guarantee, the industry Total Risk-Based Capital ratio would fall by 47 basis points, or 3.6 percent. The Tier 1 RBC and Tier 1 Leverage ratios would decline the same or less. Most FDIC-insured institutions have capital ratios significantly above the requirements to be "well capitalized." Therefore, the initial impact of eliminating any implicit GSE guarantee on the regulatory capital levels of most FDIC-insured institutions would be manageable.

Appendix 1

Data presented in Table 1 and referred to in the text largely represent bank and thrift holdings of Fannie Mae and Freddie Mac (direct obligation and MBS) securities. The exceptions are characterized here below:

Direct obligations for commercial banks designated as HTM or AFS also may include relatively small investments in debt (other than mortgage-backed securities) issued by other government-sponsored agencies such as the Farm Credit System, the Federal Home Loan Bank (FHLB) System, and the Student Loan Marketing Association. In addition, trading securities may also include obligations of government agencies such as Small Business Administration Guaranteed Loan Pool Certificates, U.S. Marine Administration Obligations, and Export-Import Bank participation certificates.

Direct obligations for savings associations are estimated from information about commercial bank mortgage lending specialists' pattern of holding direct obligations as a share of their total U.S. Government and agency security holdings. Securities held for trading by savings associations are calculated similarly.

Mortgage-backed securities (CMOs, real estate mortgage investment conduits (REMIC), and stripped MBS) issued or guaranteed by the GSEs also include securities issued or guaranteed by the Government National Mortgage Association (GNMA) for commercial banks and savings associations.

Mortgage-backed securities (CMOs, REMICs, and stripped MBS) collateralized by MBS issued or guaranteed by the GSEs also include securities collateralized by MBS issued or guaranteed by GNMA for commercial banks and savings associations. Mortgage pass-through securities for savings associations include GNMA pools.

Appendix 2

Presented in Tables 5 and 6 below are the estimated losses on the fair value of security holdings of the banking industry under different duration assumptions than were used in Table 2. In Table 5, the duration used to construct the results represents the historical average from February 1991 through November 2003. The anticipated percentage loss on the portfolio (based on "representative" expectations of spread movements) equals 1.4 percent. Given spread widening of 60 basis points on direct obligations and 40 basis points on MBS, the loss deepens to 2.3 percent.

Table 5

Estimated Loss in Value on Industry Holdings of GSE-Related Securities Due to Widening Spreads; Duration Represents Historical Average
($ Millions)

Direct Agency Obligations			**Total**	**AFS**	**HTM**	**TRADING**	
Value of Direct Obligations =			296,437	247,877	39,560	9,231	
		spread widening (bps)	**Losses ($ Million)**				**Percentage Loss**
	Narrow	22	(3,257)	(2,722)	(434)	(101)	-1.10%
		30	(4,442)	(3,711)	(592)	(138)	-1.50%
Representative		40	(5,923)	(4,949)	(790)	(184)	-2.00%
		50	(7,403)	(6,186)	(987)	(230)	-2.50%
	Wide	60	(8,884)	(7,423)	(1,185)	(276)	-2.99%

Agency MBS			**Total**	**AFS**	**HTM**	**TRADING**	
Value of Agency MBS =			763,412	719,460	41,116	3,053	
		spread widening (bps)	**Losses ($ Million)**				**Percentage Loss**
	Narrow	2	(601)	(567)	(32)	(2)	-0.08%
		20	(6,013)	(5,665)	(324)	(24)	-0.79%
Representative		30	(9,019)	(8,498)	(486)	(36)	-1.18%
		35*	(10,522)	(9,914)	(567)	(42)	-1.38%
	Wide	40*	(12,026)	(11,330)	(647)	(48)	-1.57%

Total			**Total**	**AFS**	**HTM**	**TRADING**	
Value of Total Securities =			1,059,848	967,337	80,676	12,284	
		spread widening (Direct/MBS)	**Losses ($ Million)**				**Percentage Loss**
	Narrow	22/2	(3,859)	(3,288)	(467)	(104)	-0.36%
		30/20	(10,455)	(9,376)	(916)	(162)	-0.99%
Representative		40/30	(14,942)	(13,446)	(1,275)	(220)	-1.41%
		50/35*	(17,926)	(16,100)	(1,554)	(272)	-1.69%
	Wide	60/40*	(20,910)	(18,753)	(1,832)	(325)	-1.97%

*Table 5 contains corrected (as of April 14, 2004) estimates for the change in the value of Agency MBS given a spread widening of 35 and 40 basis points. Percentage losses are lower than presented in the earlier version of this issue of FYI.

Source: Call Report and Thrift Financial Report data. Duration information on G0P0 and M0A0 Indices from Bloomberg. The historical averages of 4.991 years on G0P0 and 3.937 years on M0A0 represent the mean of the modified duration of the Index from February 8, 1991 to November 6, 2003.

In Table 6, the duration used to construct the results represents the historical maximum from February 1991 (the earliest date of the index) through November 2003. With an anticipated spread movement based on the "representative" view, the percentage loss on the portfolio equals 1.7 percent. Given spread widening to 60 basis points on direct obligations and 40 basis points on MBS, the loss deepens to only 2.8 percent.

Table 6

Estimated Loss in Value on Industry Holdings of GSE-Related Securities Due To Widening Spreads; Duration Represents Historical Maximum
($ Millions)

Direct Agency Obligations			**Total**	**AFS**	**HTM**	**TRADING**	
Value of Direct Obligations =			296,437	247,877	39,560	9,231	
		spread widening (bps)	**Losses ($ Million)**				**Percentage Loss**
	Narrow	22	(3,851)	(3,217)	(513)	(120)	-1.30%
		30	(5,251)	(4,387)	(700)	(163)	-1.77%
Representative		40	(7,001)	(5,850)	(934)	(218)	-2.36%
		50	(8,752)	(7,312)	(1,167)	(272)	-2.95%
	Wide	60	(10,502)	(8,775)	(1,400)	(327)	-3.54%
Agency MBS			**Total**	**AFS**	**HTM**	**TRADING**	
Value of Agency MBS =			763,412	719,460	41,116	3,053	
		spread widening (bps)	**Losses ($ Million)**				**Percentage Loss**
	Narrow	2	(746)	(703)	(40)	(3)	-0.10%
		20	(7,458)	(7,026)	(402)	(30)	-0.98%
Representative		30	(11,186)	(10,539)	(602)	(45)	-1.46%
		35*	(13,051)	(12,296)	(703)	(52)	-1.71%
	Wide	40*	(14,915)	(14,052)	(803)	(60)	-1.95%
Total			**Total**	**AFS**	**HTM**	**TRADING**	
Value of Total Securities =			1,059,848	967,337	80,676	12,284	
		spread widening (Direct/MBS)	**Losses ($ Million)**				**Percentage Loss**
	Narrow	22/2	(4,597)	(3,920)	(554)	(123)	-0.43%
		30/20	(12,709)	(11,414)	(1,102)	(193)	-1.20%
Representative		40/30	(18,188)	(16,389)	(1,536)	(263)	-1.72%
		50/35*	(21,802)	(19,608)	(1,870)	(324)	-2.06%
	Wide	60/40*	(25,417)	(22,827)	(2,203)	(386)	-2.40%

*Table 6 contains corrected (as of April 14, 2004) estimates for the change in the value of Agency MBS given a spread widening of 35 and 40 basis points. Percentage losses are lower than presented in the earlier version of this issue of FYI.

Source: Call Report and Thrift Financial Report data. Duration information on G0P0 and M0A0 Indices from Bloomberg. The historical maxima of 5.900 years on G0P0 and 4.883 years on M0A0 represent the maximum modified duration from February 8, 1991 to November 6, 2003.

Appendix 3

The Merrill Lynch U.S. Agency Index G0P0 tracks the performance of U.S. dollar-denominated public debt of U.S. agencies issued in the U.S. domestic bond market that have at least a one-year remaining term-to-maturity, a fixed coupon schedule, and a minimum amount outstanding of $150 million.[29] The Index includes medium term notes, but excludes mortgage pass-through securities and agency label CMOs.

The Merrill Lynch Mortgage Backed Securities Index M0A0 tracks the performance of U.S. dollar-denominated 30-year, 15-year, and balloon pass-through mortgage-backed securities having at least $150 million outstanding per generic production year. A generic production year is defined as the aggregation of all mortgage pools having a common issuer (Ginnie Mae, Fannie Mae, etc.), type (30-year single family, 15-year single family, etc.), coupon, and production year (the year the underlying mortgages were issued). The Index excludes GNMA II, mobile home, graduated payment, and ¼ coupon mortgages. Structured mortgage products such as CMOs, interest-only securities (IO strips), and principal-only securities (PO strips) are also excluded.

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U.S. Department of the Treasury. Government Sponsorship of the Federal National Mortgage Association and the Federal Home Loan Mortgage Association. Washington, DC: U.S. Government Printing Office, 1996.

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[1] The Federal Home Loan Mortgage Corporation in the text is referred to as Freddie Mac. In this issue of *FYI*, GSEs only include Fannie Mae and Freddie Mac.

[2] Ratings agencies, such as *Moody's*, prefer use of the term "implicit support" rather than "implicit guarantee."

[3] See Nott, L., and Mark Jickling. "Improving the Effectiveness of GSE Oversight: Legislative Proposals." Congressional Research Service, The Library of Congress, October 8, 2003.

[4] Poole, William. "Housing in the Macroeconomy." Presentation at the Office of Federal Housing Enterprise Oversight Symposium. March 10, 2003. Unforeseen Shock to GSEs Could Bring Crisis To U.S. Financial Markets: Says St. Louis Fed's Poole

[5] See, for example: Stanton, Thomas H. "The Mechanics of Removing Government Sponsorship from Fannie Mae, Freddie Mac, and the Federal Home Loan Banks." Presentation at the AEI, February 4, 2004; and Wallison, Peter J. "Solution for Fannie, Freddie Is Simply to Cut the Cord." American Banker. October 24, 2003. For a privatization plan also see Ely, Bert. "Authorizing the Mortgage Holding Subsidiary Concept as a Complement to Privatizing the Housing GSEs." Presentation at the AEI, February 4, 2004. AEI - Events

[6] Editorial Staff of *The Wall Street Journal*. The Trouble With Freddie. Dow Jones & Company, June 13, 2003.

[7] Data regarding GSE direct obligations and mortgage pools outstanding are from Fannie Mae's September 2003 10-Q and Freddie Mac's Web site. The volume of Total Mortgage Participation Certificates is used to estimate the total amount of Freddie Mac mortgage-backed securities outstanding.

[8] Neither exercise attempts to independently assess the credit quality of the two GSEs.

[9] In this issue of *FYI*, Call Report filers are referred to as banks and Thrift Financial Report filers are referred to as savings associations. Also, by "banking industry" we refer to all FDIC-insured institutions (banks and savings associations).

[10] Data presented in Table 1 and referred to in the text largely represent bank and savings association holdings of Fannie Mae and Freddie Mac (direct obligation and MBS) securities but also include small amounts of direct obligations or MBSs of other government-sponsored agencies, such as the Federal Home Loan Bank (FHLB) System or Government National Mortgage Association (GNMA). See Appendix 1 for further details.

[11] In this issue of *FYI*, references to capital types, asset risk weights, RBC ratios, and prompt corrective action categories are according to part 325 of the FDIC Rules and Regulations. See FDIC: Law, Regulations, Related Acts - Rules and Regulations

[12] See the References section at the end of this issue of *FYI* for a list of sources used to evaluate credit ratings and expected widening of spreads.

[13] This value coincides with the estimate of Wayne Passmore from a preliminary draft of his paper, "The GSE Implicit Subsidy and Value of Government Ambiguity." Board of Governors of the Federal Reserve System, December 2003. See link: FRB: FEDS paper 2003-64

[14] This estimate matches that of the Congressional Budget Office in its paper "Federal Subsidies and the Housing Government Sponsored Enterprises." The Congress of the United States, May 2001.

[15] Unrealized losses on AFS holdings reduce total equity as it is defined by generally accepted accounting principles (GAAP). Unrealized losses on HTM holdings do not reduce earnings or GAAP capital.

[16] Losses are not "other-than-temporary," since it is still probable that the investor will be able to collect all amounts due according to the contractual terms of the security contract. (For further discussion, see SAS 92 Paragraphs 46-48.) Also, it is highly unusual, in practice, where debt securities are downgraded but remain investment quality, that institutions conclude that any resulting impairment was "other-than-temporary." In certain situations, however, on an institution-specific basis, an "other-than-temporary" impairment could exist. This situation would occur when an institution is holding a debt security with fair value less than amortized cost and the institution plans to sell the security. If the fair value of the security is not expected to increase above amortized cost by the timeframe in which sale is expected to take place, the institution would have to recognize an "other than temporary impairment" loss through a charge to earnings. The institution could not defer recognition of the loss until the period in which the sale takes place. Given the low interest rates prevailing at September 30, 2003, we assume that most securities have fair values that at least equal their amortized cost even following the widening of spreads.

[17] Multiplying modified duration by the change in yield approximates the loss. Here, the basis point change in yield is represented by a widening of spreads. Doubling the modified duration would double the loss.

[18] See part 325 of the FDIC Rules and Regulations for capital level and ratio definitions. See [FDIC: Law, Regulations, Related Acts - Rules and Regulations]

[19] Losses on trading securities would also cause the ratios' numerators and denominators to decline slightly. Declines in the market value of AFS and HTM securities would typically not affect RBC ratios, since the amortized cost of these securities are used to calculate regulatory capital ratios. Hence, overall RBC ratios would fall, not so much due to economic or market adjustments, but largely due to regulatory requirements, reflecting higher RWA in the denominators of these ratios.

[20] See FDIC Rules and Regulations Part 325 for discussion of capital measures and capital category definitions.

[21] FDIC Manual of Examination Policies; see http://www.fdic.gov/regulations/safety/manual/Section11-1.html#GeneralInstructions

[22] Comptroller of the Currency – Administrator of National Banks – Activities Permissible for National Banks (2002) and FDIC Rules and Regulations Part 32.

[23] "Grandfathering" of existing holdings could assist insured institutions in an orderly sale of the securities.

[24] Congressional Budget Office. "Federal Subsidies and the Housing Government Sponsored Enterprises." The Congress of the United States, May 2001.

[25] Painter, Gary & Christian L. Redfearn. "The Role of Interest Rates In Influencing Long-Run Homeownership Rates," *Journal of Real Estate Finance and Economics*, 25:2/3, 243-267, Kluwer Academic Publishers, 2002.

[26] See Appendix 3 for composition of indices.

[27] As of September 30, 2003, senior debt for Fannie Mae, for example, represented about 99 percent of direct obligations outstanding. Senior unsecured debt was rated AAA/Aaa by *S&Ps* and *Moody's* and short-term debt was rated A-1+/P-1.

[28] Fannie Mae's website, for example, states: "The ratings agencies have not rated any of the MBS issued by Fannie Mae, but securities issued by others and collateralized by Fannie Mae MBS are rated consistently as 'Triple-A' quality."

[29] Source: Galdi, Phil. Bond Index Rules & Definitions: U.S. High Grade Markets. Merrill Lynch & Co., Global Securities Research & Economics Group, Fixed Income Analytics, October 12, 2000.

About *FYI*

FYI is an electronic bulletin summarizing current information about the trends that are driving change in the banking industry, plus links to the wide array of other FDIC publications and data tools.

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Chart 1

Industry Exposure to GSE-Related Securities Has Risen Markedly Since 2001			
Date	**Industry GSE-Related Holdings as a Percent of Tier 1 Capital**	**MBS**	**Direct Obligations**
1994	146	120%	27%
1995	136	107%	30%
1996	132	99%	34%
1997	129	94%	35%
1998	136	99%	37%
1999	150	108%	43%
2000	145	99%	47%
2001	137	95%	42%
2002	139	102%	38%
2003	160	120%	40%
200309	154	111%	43%

Source: Call Reports and Thrift Financial Reports