

Mortgage Market Comment

MBS Strategy

GSEs – Still the best answer for housing finance

Contributors

Qumber Hassan
+1 212 538 4988
qumber.hassan@credit-suisse.com

Mahesh Swaminathan
+1 212 325 8789
mahesh.swaminathan@credit-suisse.com

- Government-supported entities account for roughly 90% of current mortgage originations. We anticipate that their share will remain elevated well into the future, although an eventual return of private label securitization and development of covered bonds may chip away at this share.
- We propose rebuilding the existing GSEs rather than reinventing the wheel. We believe that our proposal maximizes the use of existing technology, infrastructure, and intellectual capital; preserves the liquidity of the existing Agency MBS market; and avoids potential disruptions in the mortgage market.
- Our proposal comprises four key elements. (1) Through a “good bank,” the GSEs would operate a well-capitalized, privately held mortgage guarantee business with a “full faith and credit” government reinsurance wrap on the MBS. (2) They would run a scaled back portfolio business that would routinely monetize valuation distortions and would maintain its traditional role as THE counter-cyclical buyer of mortgages. (3) The “good bank” would retain healthy guarantee and portfolio assets. (4) Create a “bad bank” that would work through the existing credit and portfolio book of problem loans/securities.
- We recommend a guarantee business with equity capital increased from existing levels of 0.45% to 0.85%, with a reserve build to 1.70% over a 10- to 20-year period. The 0.85% equity capital would be a “first loss” piece, with the government wrap being tapped in the event of catastrophic losses. GSEs would pay a fair price for this government wrap. The guarantee business would underwrite new loans and take on the guarantee obligations of “good banks” carved out of existing GSE books.
- The GSEs would underwrite loans within a well-defined credit and operational box to be defined by the FHFA in conjunction with Congress. We anticipate that this box would conform to the traditional GSE products and largely cater to full documentation, relatively high credit, and modest leverage loans. Riskier affordable housing loans should be fully under the purview of FHA, with explicit government funding for policy mandates. To address concerns about mission creep, any changes to this well-defined underwriting box should require legislation.
- We estimate the fair value of guarantee fees under this framework is between 45bp and 55bp, assuming catastrophic credit events occur between 20 and 50 years. This compares to a base g-fee of around 15bp, which existed before the current housing crisis.

- This estimate is based on gross and net ROE of 15% and 10%, respectively. Actual cost to the borrower could be lowered by 5-10bp because of the spread tightening from the “full faith and credit” guarantee on FN/FH MBS. The government capital contribution could be used to further subsidize the guarantee fee.
- We project a total capital need of \$33bn-\$43bn for the guarantee business of the reconstituted GSEs. If the government were to seed half of this amount, the all-in g-fee would be in the 20bp-25bp range, thus increasing costs to the borrower by 5bp-10bp.
- Additionally, we estimate the net cost to the government of \$10bn-\$15bn on the good bank assets to plug the gap between existing and new g-fee schedules.
- The portfolio business would need equity capital of \$13bn-\$32bn, assuming \$800bn in assets and a “bank-like” capital standard of 1.6%-4.00%. The lower end is more reasonable, in our view, considering the GSEs’ monoline business of owning government-guaranteed assets.
- Any government capital contribution to the reconstituted GSEs could come from converting existing Treasury preferred stock to common equity.

Proposal for the Guarantee Business

We propose rebuilding the existing GSEs by explicitly redistributing mortgage credit risk such that a privately held “good bank” becomes the first loss holder, with the government assuming the residual risk in a catastrophic loss scenario.

We envision this government wrap being provided by GNMA in order to rationalize the wrap across the spectrum of government-guaranteed mortgage credit (conventional/FHA/VA/RHS).

Although superficially similar to a recent Mortgage Bankers Association proposal in terms of a two-tier credit wrap, our idea differs in key respects that stem from our preference for building on the existing GSEs rather than dismantling and redistributing the existing entities.

We outline our basic proposal for operating the GSE mortgage guarantee business going forward. We frame the discussion in terms of a generic Primary Mortgage Guarantor (PMG), allowing for potential expansion in the number for guarantee companies. However, TBA liquidity issues may limit the field to Fannie Mae and Freddie Mac. To lower barriers to entry for potential newcomers, all conventional Agency MBS could be made deliverable into FNMA or FHLMC TBA. While logistical challenges remain, we believe it should significantly increase secondary market liquidity.

Based on the structure of the first loss piece, we discuss two alternative approaches to redistribute mortgage credit risk between a PMG and the government and their implications for the market.

Our proposal for the future of the housing finance system and the GSEs is based on the following key objectives:

- preserve TBA market liquidity;
- minimize disruption to the market/maximize continuity;
- improve upon control/risk management;
- minimize operational involvement by government; and
- the ability to continue as an operating company even in the event of a catastrophic credit loss

The basic proposal

- **A two-fold security-level insurance wrap** – A PMG will provide a security-level mortgage guarantee to act as a first loss piece. The PMG guarantee is further augmented by another security-level insurance wrap by the government to maintain investor confidence and liquidity in the conventional MBS sector.¹ The PMG will absorb routine credit losses and will tap the government wrap only in the event of a catastrophic loss.
- **Preserve TBA liquidity** – FN/FH TBA liquidity is the result of multi-decade branding/continuity. This is our primary argument for rebuilding the GSEs rather than reinventing the wheel.
- **Preserve technology and know-how of the GSEs** – To avoid potential problems associated with transfer of knowledge and technology, we recommend preserving the existing infrastructure by recapitalizing GSEs. This should save mortgage market participants, including originators, servicers, investors, and dealers the operational costs and logistical challenges of developing/altering their infrastructure to cater to new mortgage guarantors.

¹ A security-level guarantee by a PMG, as opposed to a loan-level guarantee, is consistent with the current GSE model and would serve to avoid the need for government support in the case of a servicer default.

- **Initial capital of 85bp plus an equal amount of counter-cyclical capital** – We propose an initial capital requirement of 85bp for the GSEs. The capital would need to be built to twice the initial amount over a 10- to 20-year period to provide a cushion for a fresh start for the GSEs, in case of a catastrophic credit event.
- **Good bank/bad bank** – Split the legacy GSE-backed mortgages into good/bad assets according to well-defined criteria. The bad assets would be transferred to a separate entity, while the good assets would be kept on the books of the newly capitalized GSEs to avoid operational hassles and the creation of another entity. The government would have to make whole the difference between the existing guarantee fee on the legacy assets and the pricing under the new regime.
- **Seed capital from the government** – To overcome the potential difficulties in raising \$35bn-\$45bn in private capital for the GSEs, some seed capital from the government could be required. The GSEs should be able to buy back the government shares when convenient. The seed capital may take the form of a permanent subsidy to lower mortgage rates.
- **Self-sustaining government wrap** – The government wrap should be priced between 2bp and 10bp to make the government insurance program self-sustaining in the event of a credit meltdown (assuming an extreme credit event happens every 20-50 years).
- **Tight underwriting standards and strong regulatory oversight** – To limit the risk, GSEs' participation should be restricted to basic mortgage products with well-understood risk characteristics. In addition, the affordable housing mandate (with the exception of multi-family housing) should be removed from the GSEs' charter. Strong regulatory oversight is critical to ensure compliance and effective risk management.

Capital requirements

Historically, GSEs were required to maintain approximately 45bp in capital against their guarantee book. The current credit turmoil has rather brutally exposed the inadequacy of the historical capital requirements. Arguably, to a large extent, the GSE capital inadequacy results from their accumulation of excessive credit risk in recent years. However, even after accounting for the GSE excesses, a capital ratio of 45bp appears to be very low.

We recommend a capital requirement of 85bp for the future based on a 5x multiple of the average loss on the prime fixed-rate sector during the 1990s (Exhibit 1). The referenced period is a good benchmark, in our view, as it represents a sufficiently long window, includes performance data from the weak housing market of early 1990s, and excludes the effects of the weak underwriting and exuberant home price appreciation of the recent pre-crisis years.

Exhibit 1: Historical loss data on the jumbo fixed-rate sector

Vintage	Cum. Loss (bps)
1990	162
1991	78
1992	37
1993	14
1994	13
1995	11
1996	6
1997	3
1998	2
1999	4
2000	5
Average	17

Source: Credit Suisse (US Mortgage Strategy)

The premise behind selecting a multiple of average loss from the above period as the required capital is that the GSEs should be able to operate without having to tap the government guarantee under all scenarios, save the extremely distressed ones. At the same time, we desist from engineering a “nuclear shelter” because it would be cost prohibitive and unnecessary, in our view.

We also recommend that after splitting the legacy GSE-backed mortgages into good/bad assets, the good assets are kept on the books of the newly capitalized GSEs to avoid operational hassles and creation of another entity. The actual amount of capital required at the start for the GSEs will depend upon how their legacy credit book is split between good/bad assets. Based on different criteria ranging from the transfer of the current seriously delinquent pipeline only to the transfer of all leveraged loans on the GSE books to the bad bank, we estimate the amount of capital needed could range from \$28 billion to \$38 billion (Exhibit 2). In addition, we believe some \$5 billion will be needed to cater to net issuance for the next couple of years.

Exhibit 2: Capital required for the legacy GSE assets based on different Good Bank/Bad Bank Splits

(\$ billions)

Assest moved to Bad Bank	Bad Bank	Good Bank	Capital Required
Current 90+ Del loans only	163	4,458	38
All credit enhanced loans	854	3,767	32
All leveraged loans*	1,311	3,310	28

*Loans belonging to one of the following categories alt-A, OLVTV>90, FICO<660

Source: Credit Suisse (US Mortgage Strategy)

Pricing the GSE wrap

An important nuance of the proposed model, which has implications for future mortgage rates, is whether or not the first loss piece represents a fixed amount. We discuss pricing for the GSE wrap under two alternative approaches based on the structure of the first loss piece.

Model 1: The first loss piece represents a fixed amount – Depleted capital is not replenished.

Model 2: The first loss piece is not fixed – Capital is replenished to the initial level as it depletes to below a certain threshold.

In terms of their merits, Model 1 would have a lower impact on primary mortgage rates as compared to Model 2. However, the latter is more

consistent with a free market model and should make the need for potential government assistance even more remote. Furthermore, the requirement to replenish capital should also help to mitigate potential conflict of interest between the GSEs and the government following periods of heavy losses.

The top panel of Exhibit 3 shows a pricing table for the GSE wrap based on Model 1 under different capital requirements and required rates of return by the investors in the GSE guarantee business. The bottom panel of Exhibit 3 shows the corresponding table under Model 2. Corresponding to our recommended capital requirement of 85bp and a 15% gross ROE (gross revenue/equity), the GSE wrap costs 13bp and 30bp under Model 1 and Model 2, respectively. It is worth noting how steeply the cost of the GSE wrap goes up under more conservative capital requirements.

Exhibit 3: Different pricing scenarios for the GSE wrap

Gfee (bps)

Model 1: Depleted Capital is not Replenished

Capital Ratio	Gross ROE		
	10%	15%	20%
0.85%	8.5	12.8	17.0
1.50%	15.0	22.5	30.0
2.50%	25.0	37.5	50.0
4.00%	40.0	60.0	80.0

Model 2: Depleted Capital is Replenished

Capital Ratio	Gross ROE		
	10%	15%	20%
0.85%	25.5	29.8	34.0
1.50%	32.0	39.5	47.0
2.50%	42.0	54.5	67.0
4.00%	57.0	77.0	97.0

Source: Credit Suisse (US Mortgage Strategy)

Furthermore, GSE investors would also like to be compensated for the occurrence of an extreme credit event in which their entire capital base (first loss piece) is wiped out. Under a simplified scenario in which we assume that such an event happens with certainty every given number of years, its annualized costs based upon different capital levels and timings of loss are summarized in Exhibit 4. The cost of such an event, if it were to happen every 20 years, would vary from 3bp-12bp for different levels of capital. For longer horizons, the cost becomes negligible.

Exhibit 4: Cost of an extreme credit event

(bps)

Capital Ratio	Years to Next Credit Event		
	20	50	75
0.85%	3	0	0
1.50%	5	1	0
2.50%	8	1	0
4.00%	12	2	1

Source: Credit Suisse (US Mortgage Strategy)

Finally, the cost of the GSE wrap will increase overtime as counter-cyclical capital is built up. In the steady state, this will add another 10bp to the overall cost corresponding to a required level of 15% gross ROE.

Pricing the government wrap

The price of the government wrap depends upon several factors, including expected worst-case loss, size of the first loss piece, expected frequency of the extreme credit events, and the amount of the government subsidy. Exhibit 5 shows a pricing table for the government wrap under several scenarios in terms of the timing of disaster and the amount of the government subsidy. The calculations assume a worst-case loss of 4% and a fixed first loss piece of 85bp. The 4% worst-case loss assumption is consistent with our loss expectation for the GSEs' credit book in the current credit cycle.

Exhibit 5: Different pricing scenarios for the government wrap

Gfee (bps)

Government Subsidy	Years to Next Credit Event		
	20	50	75
75%	2	0	0
50%	5	1	0
25%	7	1	0
None	10	2	0

Assumptions:
 Worst Case Loss = 4%
 First Loss Piece = 0.85%
 Disc Rate = 5%

Source: Credit Suisse (US Mortgage Strategy)

Arguably, an extreme credit loss on the order of the current turmoil is a one in 50- to 100-year event. However, to be on the conservative side, we recommend using a 20- to 50-year horizon for pricing purposes. Correspondingly, we recommend that the government wrap should be priced between 2bp and 10bp to make the government insurance program self-sustaining in the event of a credit meltdown.

Impact on primary mortgage rate

Exhibit 6 shows the all-in cost to borrowers under the proposed GSE model based on our recommended 85bp initial capital requirement and under different ROE and timing of extreme loss scenarios. Corresponding to our base scenario requiring a gross ROE of 15%, replenishment of depleted capital and an extreme loss horizon of 20-50 years, the all-in guarantee cost to borrowers could range from 42bp-52bp. This increases to 45bp-55bp after adjusting for operational costs of roughly 3bp-4bp.²

We anticipate the mortgage rate could be lowered by around 5bp-10bp, based on tighter spreads on MBS given the “full faith and credit” government wrap. In principle, the spreads could be 30bp-40bp tighter than long-term averages if these MBS trade at a 0bp option-adjusted spread to Treasuries because of the explicit guarantee. However, we believe that model uncertainty will remain an issue for investors, limiting the extent of tightening.

We therefore estimate an all-in mortgage rate increase at 40bp-50bp. This represents an increase of 25bp-35bp over the 15bp pre-crisis cost of providing a mortgage guarantee to a good quality borrower.

Political considerations will likely make a permanent mortgage rate increase of this magnitude unpalatable. We suggest the government lower the impact to the borrower by providing a share of the capital at zero ROE. A 50% capital contribution would lower the borrower’s incremental mortgage rate increase to 13bp-18bp.

Exhibit 6: Impact on primary mortgage rates

(bps)

<i>Model 1: Depleted Capital is not Replenished</i>			
Yrs to Next Credit Event	Gross ROE		
	10%	15%	20%
20	25.6	34.8	43.1
50	15.4	24.7	32.9
75	14.0	23.3	31.5

<i>Model 2: Depleted Capital is Replenished</i>			
Yrs to Next Credit Event	Gross ROE		
	10%	15%	20%
20	42.6	51.8	60.1
50	32.4	41.7	49.9
75	31.0	40.3	48.5

Source: Credit Suisse (US Mortgage Strategy)

Exhibit 7: Comparison between the Credit Suisse and the previous GSE models

	Previous Model	CS Model
Govt. Guarantee on MBS	Implicit	Explicit
Leverage	222x	118x
ROE Potential	Higher	Lower
Product Offering	Wide product offering including non-conventional products like IOs, option ARMs, alt-A, etc.	Basic mortgage products only
Affordable Housing Mandate	Yes	No
Counter-cyclical Capital	No requirement	Required. Potentially dampens ROE but also reduces risk and enhances liquidity for MBS by improving the prospects for continuity.
Overall Risk	Higher	Lower

Source: Credit Suisse (US Mortgage Strategy)

² Operating expenses for the guarantee business averaged between 6bp-8bp between 1996 and 2002 for Freddie Mac and 5.5bp-6bp between 1999-2002 for Fannie Mae. Given the much larger current size of their credit books, we consider 3bp-4bp to be a reasonable estimate for their operating costs.

Exhibit 8: Comparison between the Credit Suisse and MBA models

	MBA Model	CS Model
Govt. Guarantee on MBS	Explicit	Explicit
Leverage	Not specified	118x
ROE Potential	Not specified	Approx. 10% Net (Leverage/ROE decision is a trade off)
Product Offering	Basic mortgage products only	Basic mortgage products only
Affordable Housing Mandate	No	No
Counter-cyclical Capital	Not specified	Required. Potentially dampens ROE but also reduces risk and enhances liquidity for MBS by improving the prospects for continuity.
Impact on TBA Market	TBA liquidity will be compromised. Two obvious challenges of a totally new program include no or minimal float at the out set and no WALA difference across the coupon stack. Alternatively, migrating existing pools into the new TBA market also poses significant logistical hurdles.	Preserves TBA liquidity by retaining the existing infrastructure.
Government Involvement	Requires a higher degree of operational involvement by the government.	Operational involvement by government is minimized by grandfathering most of the existing GSE guarantee obligations. Furthermore, government guarantee is tapped under extreme credit scenarios only
Market Disruption	Poses operational and logistical challenges related to the transfer of know-how and infrastructure of the GSEs to the new guarantors. Increases the cost for other market participants who would need to develop/alter their infrastructure.	Existing GSE infrastructure is preserved. No change for other market participants.
Impact on Mortgage Rates	Unknown	Well defined and modest

 Source: Credit Suisse (US Mortgage Strategy)

Proposal for the Portfolio Business

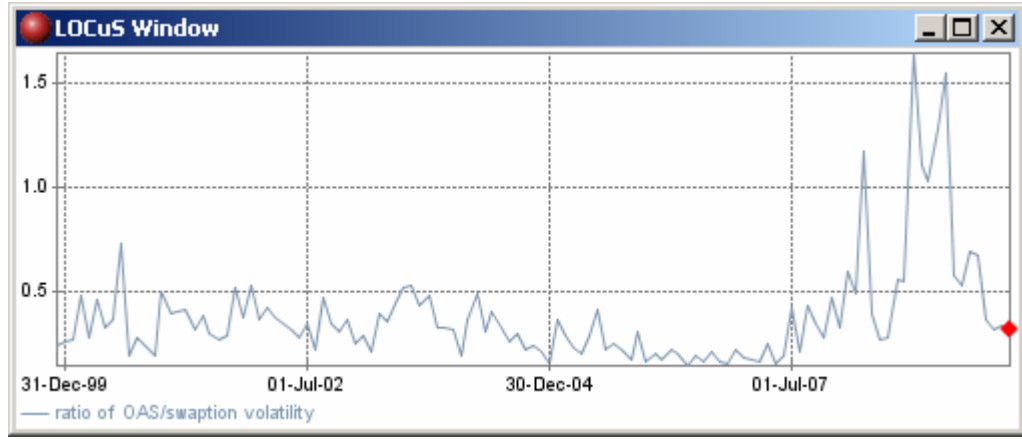
We make a case for a portfolio function within the GSEs. We highlight their historical effectiveness and a business model suited to a counter-cyclical backstop role. Opposition to GSE portfolios mainly hinges on arguments based on “unfair funding advantage” and “systemic risk.” We briefly address these criticisms of the GSEs.

Mortgage market backstop – Why the GSEs?

- The mortgage market needs a backstop to minimize potential disruption to the availability of mortgage financing stemming from dislocations in spreads.
- Historically, the GSEs have played this role (routine operations since the 1990s, stepped up in 1998, 2001, and 2003). More recently, Treasury and the Fed (2008 and 2009) have played this role.
- A market backstop entity should monetize spread dislocations on a routine basis and step up more aggressively in the case of extreme dislocations. Routine participation in the markets is preferable to an “emergency-only” entity because the latter model has the potential to create a “panic” response in the market.
- Although the Fed’s MBS purchase program has been very effective in lowering mortgage rates since November 2008, it is not a sustainable long-term model to support the MBS market. The GSEs’ model of monetizing option-adjusted spreads is less disruptive to the market, in our view, because it has less potential to drive spreads artificially tight and crowd out private investors.
- Other private investors have been unable to play a counter-balancing role in the market, as was demonstrated in 1998, 2003, and 2008. We argue that the natural business models of other investors in the market, such as banks, foreign investors, and money managers, are incompatible with a counter-cyclical role. Banks tend to be dollar-price sensitive, foreign investors are biased to yield, and money managers could avoid MBS because of better relative value in other spread assets.
- We believe that in extreme market dislocations, any entity without government backing would be unable to support the market because of funding, liquidity, and/or capital withdrawal from private firms. We propose that the GSEs have an open-ended credit line with the Fed, to be collateralized with the MBS purchased with this credit. Since this MBS would be government guaranteed, it does not add any additional risk to the Fed/government. Furthermore, this facility could be used to fund outstanding assets if GSEs were unable to roll-over their private debt.
- We anticipate that a “bad bank” entity would own the existing toxic assets from the current GSE balance sheet and modified loans from the delinquent credit book. This could account for roughly \$330bn-\$630bn of the existing GSE portfolios, which should leave \$900bn-\$1,200bn of assets/debt for the “good bank” that would be part of the rebuilt GSEs (Exhibit 10).

Exhibit 9: MBS spread volatility was lower during 1999-2006 when GSEs were active in the market

Ratio of current coupon OAS volatility to 1y10y swaption volatility shown



Source: Credit Suisse (US Mortgage Strategy)

Exhibit 10: Balance sheet estimates for the “bad” bank

Scenario	Only Current 90+ loans are transferred	All leveraged loans are transferred
<i>Share of Portfolio</i>		
Agency	40	319
Non-agency	127	127
Other	3	25
Total	170	471
<i>Buyouts</i>	160	160
Total	330	631

Assumptions:

- Percentage of delinquencies and leveraged loans are same across GSE credit books and portfolios.
- All alt-A/subprime holdings are transferred to bad bank.
- We estimate that the GSEs will buy out \$200 billion of modified loans over the next one and a half years. We assume that the majority of these loans that are not part of their current portfolios should be assigned to the “bad” bank.

Source: Credit Suisse (US Mortgage Strategy)

Sizing the GSE portfolios

- Determining the right portfolio size for the GSEs is an important challenge. A viable solution must be able to support the market and to fund itself while balancing public/political concerns. Too small a size would limit their efficacy in the market and would dampen the liquidity of their debt, while their current size is arguably too large.
- Although portfolio size has been a lightning rod issue regarding systemic risk, there has not been a major market disruption because of portfolio activities (aside from credit losses stemming from holdings of subprime/Alt-A securities, which will be prohibited going forward).

- We anticipate a range of \$500bn-\$800bn for the portfolio. This would be comparable to balances held by other major entities, such as banks, money managers, foreign investors, and Fed. This compares with the current portfolio size of \$1.55tn and an eventual target of \$500bn according to GSEs’ agreement with Treasury.
- GSEs fill a gap in the market by buying/selling volatility because of their portfolio hedging needs. We recognize that occasionally this has turned disruptive over the past 12-18 months. However, from a longer-term perspective, GSEs’ participation in the vol market has been a stabilizing force.
- The right portfolio size should allow GSEs to monetize spread dislocations on a routine basis and step up in case of extreme dislocations, preserving the liquidity of Agency debt and providing continued support to ancillary markets.

ROE/Funding/Leverage challenges ahead

- The “good” and “bad” bank each face their unique funding challenges. The “bad” bank’s funding challenge stems from potentially long average lives of modified loans that land on its balance sheet (the fraction that does not re-default). The “good” bank’s funding issues include size of the portfolio, the leverage allowed, and funding cost. We first discuss issues facing the “good” bank and touch briefly on the “bad” bank.
- The viability of the portfolio business as a private enterprise depends on required returns and the ability to fund the business. The ability to fund depends on investor appetite for GSE debt; returns depend on funding levels and leverage. Higher returns would necessarily imply the need for more leverage, which runs counter to arguments for reducing systemic risk.
- Funding levels will depend on whether there is a perceived government guarantee on the debt and liquidity given an expected decline in portfolio size/outstanding debt.
- We argue that even without an explicit government guarantee on Agency debt, it should trade very close to Treasuries since this debt is used to buy “full faith and credit” securities that will have 100% recovery in case of Agency default. However, the risk of potential losses arising from GSE hedging activities could widen spread levels for Agency debt.
- However, it is unclear if the weaker investor appetite for long-term Agency debt since 2008 is entirely about full faith and credit or if it is attributable to liquidity concerns because investors do not have a clear picture of the sector’s future.

- The portfolio business also needs to be viable from the perspective of equity investors. The ROE potential of the GSE portfolios will depend upon their leverage as well as OAS of MBS that they invest in relative to their cost of funds.

Exhibit 11: Agency OAS for MBS to achieve different levels of ROE (annualized)

(bp)

Capital Needed	Required Gross ROE		
	10%	15%	20%
1.6%	16	24	32
2.5%	25	38	50
4.0%	40	60	80

Source: Credit Suisse (US Mortgage Strategy)

- Capital requirements for the portfolio business can be assessed based on a “bank-like” capital standard of 1.6%-4.00%. However, we argue that the lower end of the above range is more reasonable for the portfolio business based on (1) the government wrap on underlying assets (currently GNMA-wrapped securities have a zero risk weighting) and 2) the availability of a open-ended credit line (collateralized by MBS) with the Fed, which lowers the rollover risk for GSEs relative to other leveraged entities.

- As discussed before, all else being equal, tighter MBS spreads going forward given the “full faith and credit” government wrap should dampen the earning potential of the GSE portfolio business. However, we anticipate MBS spreads will widen from current levels as the market normalizes after the Fed’s exit. We show required level of Agency OAS for MBS corresponding to different levels of gross ROE in Exhibit 11. Corresponding to a 15% gross ROE and 1.6% capital requirement, Agency OAS at which it would make sense for GSEs to buy is around 24bp.
- The “bad” bank faces its own set of funding challenges. By its very nature it will likely draw heavily on Treasury capital. Private funding appears difficult given an asset base entirely consisting of non-performing, re-performing, or weak loans/securities. The binary average life profile of modified loans (with an estimated 30%-40% re-defaulting within 12 months and the rest lasting over 10 years) further complicates the financing of these assets.

STRUCTURED PRODUCTS RESEARCH

Bunt Ghosh, Managing Director
Global Head of Fixed Income Research
+44 20 7888 3042

Gail Lee, Managing Director
Global Head of Structured Products Research
+1 212 325 1214

NORTH AMERICA

Eleven Madison Avenue, New York, NY 10010

Asset-Backed Securities (ABS)

Chandrajit Bhattacharya, Director

Senior Strategist, Group Head

+1 212 325 1546

chandrajit.bhattacharya@credit-suisse.com

Larry Yang, Vice President

+1 212 325 2952

larry.yang@credit-suisse.com

Thomas Suehr, Associate

+1 212 325 3663

thomas.suehr@credit-suisse.com

Collateralized Debt Obligations (CDO) / Collateralized Loan Obligations (CLO)

David Yan, Director

+1 212 325 5792

david.yan@credit-suisse.com

Commercial Mortgage Backed Securities (CMBS)

Gail Lee, Managing Director

Senior Strategist, Group Head

+1 212 325 1214

gail.lee@credit-suisse.com

Serif Ustun, Vice President

+1 212 538 4582

serif.ustun@credit-suisse.com

Erin Quinn, Associate

+1 212 325 2128

erin.quinn@credit-suisse.com

David Schell, Associate

+1 212 325 5965

david.schell@credit-suisse.com

Mortgage Backed Securities — Residential (MBS)

Mahesh Swaminathan, Director

Senior Strategist, Group Head

+1 212 325 8789

mahesh.swaminathan@credit-suisse.com

Qumber Hassan, Vice President

+1 212 538 4988

qumber.hassan@credit-suisse.com

Mukul Chhabra, Associate

+1 212 325 0709

mukul.chhabra@credit-suisse.com

JAPAN

Izumi Garden Tower, 1-6 Roppongi 1-Chome, Minato-ku, Tokyo 106-6024

Tomohiro Miyasaka, Director

Japan Head

+ 81 3 4550 7171

tomohiro.miyasaka@credit-suisse.com

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Sell	<1%	(of which 85% are banking clients)

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