

Mortgage Market Comment

MBS Strategy

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GSEs – Still the best answer for US housing finance – Model update and transition issues

We provide an update to the back-to-basics model we originally described in our 6 October 2009 publication [GSEs – Still the best answer for housing finance](#). Here we answer questions that have come up since and incorporate the progression of the GSE credit book and balance sheet since our original publication.

Key takeaways:

- A well capitalized (85bp base plus 85bp countercyclical capital) GSE with GSE-paid government catastrophic reinsurance is the most practical and sustainable housing finance model, in our view. Many market participants and academics express the need for an explicit reinsurance for MBS, but differ on implementation.
- This model offers an average 4.25bp (roughly \$2.1B) annual return to the government. A part of this could potentially be contributed towards affordable housing. Sustained strong credit performance offers additional return potential for the government and/or private investors.
- We believe that the government's involvement in providing catastrophic reinsurance is not a subsidy. It simply ensures fair market pricing and continued availability of housing credit under adverse market conditions.
- The back-to-basics model conservatively prices government reinsurance based on losses that are four times the government's projected liabilities. These maximum liabilities are benchmarked to projected cumulative losses on well-underwritten loans during the current housing crisis.
- The back-to-basics model's stable 10% ROE assumption should attract dividend-oriented equity investors, in our view. The first-loss plus counter-cyclical capital structure should ensure a going concern even under catastrophic housing scenarios.
- All-in guarantee fee under the back-to-basics model is 49bp compared to 25bp currently. Borrower's effective mortgage rate would increase by 15bp-20bp from current levels after accounting for the potential spread tightening benefit of 5bp-10bp. A 15% ROE target increases mortgage rates by an incremental 4.25bp.
- We believe that a private-only solution for US housing would be extremely challenging as it would remove roughly \$3T-\$4T of funding currently provided by credit risk averse investors. At an estimated 20%-30% of bank balance sheets, it is difficult to envision banks providing enough capital to plug this gap even over the long term.
- The back-to-basics model reflects our mantra of "keep what works and fix what's broken". Tight underwriting and wide availability of fixed-rate mortgages are at its core. A wholesale importation of a foreign housing model is not the answer, in our view. Most foreign systems serve housing markets that are a fraction of the US, depend overwhelmingly on bank balance sheets, and floating-rate only mortgages. Systems like Canada's weathered the crisis mainly due to solid underwriting.
- We remain constructive on the need and utility of a moderately sized (roughly 10% of the market) retained portfolio. It remains a non-consensus view. Graduated capital standards should be implemented to limit leverage.

Back-to-basics model update

We update the back-to-basics model for US housing finance that we originally described in October 2009.¹ We recommended rebuilding the existing GSEs to operate a well-capitalized, privately held mortgage guarantee business with a “full faith and credit” government reinsurance wrap on the MBS. In this paper, we provide an updated version of the model. The key revisions include the following:

1. Base ROE lowered to 10% from 15% based on the low risk profile of the business;
2. Discount rate for pricing government reinsurance wrap lowered to 3% from 5% based on an outlook for low interest rates;
3. Describe buildup of counter-cyclical capital and apportion the returns on counter-cyclical capital to the government and/or affordable housing goals.

The reduction in target ROE lowers the g-fee pricing by 8.5bp corresponding to our base scenario of 1.7% in required capital apportioned equally between base and counter-cyclical capital (Exhibit 1).

Exhibit 1: Pricing of GSE wrap under various ROE scenarios

(bp)

Capital Ratio	Gross ROE		
	10%	15%	20%
0.85%	29	33	37
1.70%	37	46	54
2.50%	45	58	70
4.00%	60	80	100

Note: Pricing includes 3bp cost for administrative expenses.

Source: Credit Suisse (US Mortgage Strategy)

The lowering of the discount rate affects the fair value pricing of the government reinsurance wrap by increasing it by 2bp to 12bp corresponding to a 20-year horizon for the occurrence of extreme credit events (Exhibit 2). The cost of the government reinsurance wrap increases by 1bp to 3bp under longer horizons.

Finally, we require a 10% return on the maximum amount of counter-cyclical capital from the onset. This results in an 8.5bp return per annum, which is used to build the counter-cyclical capital reserve to a maximum amount of 85bp in 10 years.

Beyond this, the 8.5bp income is apportioned to the government and offers a partial payback of taxpayer investment into the GSEs. This amount could also potentially be used to fund affordable housing goals.

In an extreme credit event that wipes out the entire base capital, the counter-cyclical capital is released to recapitalize the enterprise and continue normal operations. The 8.5bp income stream is diverted away from the government for the next 10-years to rebuild the counter-cyclical reserve. Exhibits 3 and 4 provide a schematic explanation of our capitalization framework and a timeline for counter-cyclical capital buildup and income stream to the government, respectively.

Exhibit 2: Pricing of the government reinsurance under various scenarios

(bp)

Assumptions:

Worst Case Loss =	4%
First Loss Piece =	0.85%
Disc Rate =	3%

Years to Next Credit Event

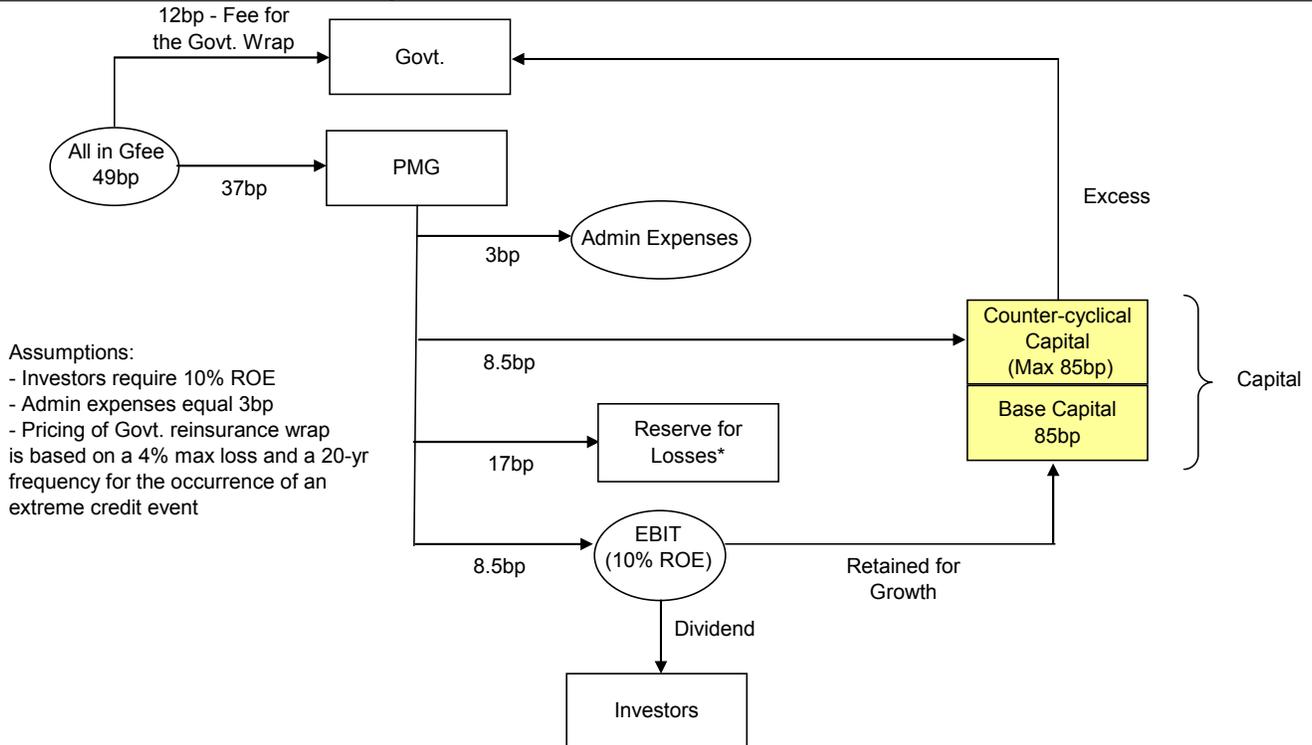
20	50	75
12	3	1

Source: Credit Suisse (US Mortgage Strategy)

¹ [Mortgage Market Comment: GSEs – Still the best answer for housing finance](#) – 06 October 2009

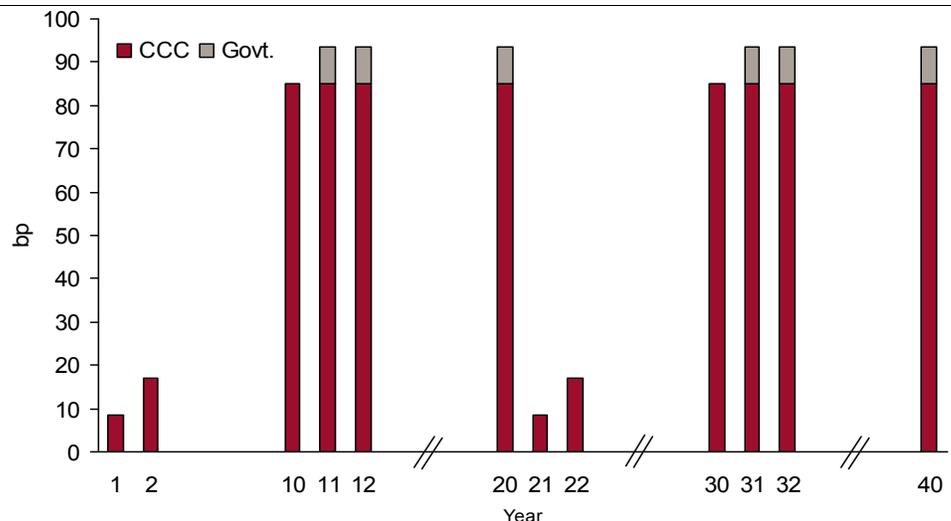
Our previous model differed from the above approach in that it assumed a rising g-fee structure as the counter-cyclical capital is built up to its maximum level. In addition, the return on this capital accrued to the private investors as it was funded through their own retained earnings. In the revised model, counter-cyclical capital is buildup through a higher g-fee from the start. This keeps the g-fee flat and also eliminates the need to compensate private investors for a complete erosion of their base capital in an extreme credit event. The latter reduces the g-fee by 3bp corresponding to a 20-year horizon for extreme credit events.

Exhibit 3: Guarantee fee and capitalization framework



*Any excess reserves over and above a certain threshold (e.g., 3 Sigma historical loss level) could be released to the government./investors
 Source: Credit Suisse (US Mortgage Strategy)

Exhibit 4: Timeline for counter-cyclical capital buildup/cash-flow stream to government



Source: Credit Suisse (US Mortgage Strategy)

Corresponding to our base ROE requirement of 10% and an extreme loss horizon of 20-50 years, the all-in guarantee cost to borrowers ranges from 40bp-49bp (Exhibit 5). This all-in cost would increase by 4.25bp under a 15% ROE target. The latter may be necessary to attract sufficient private capital.

The actual increase in the mortgage rate could be 5bp-10bp lower due to potentially tighter spreads on MBS given the “full faith and credit” government wrap.

Exhibit 5: All-in g-fee under different ROE and timing of extreme loss scenarios

(bp)

Yrs to Next Credit Event	Gross ROE		
	10%	15%	20%
20	49	57	66
50	40	48	57
75	38	47	55

Source: Credit Suisse (US Mortgage Strategy)

Return potential for government and investors

In addition to the intermittent 8.5bp income stream discussed above, potential buildup of loss reserves from the 17bp annual reserve contribution could represent another source of income for the government.

Our 17bp annual loss reserve pricing assumption is based on the average losses incurred on the jumbo fixed-rate sector during the 1990s (Exhibit 6). This compares with average annualized losses (in basis points) in the high single digits on GSE credit books during the same period.

If credit losses turn out to be lower than the budgeted amount of 17bp, the provision for losses could be lowered after building excess reserves up to a certain threshold. However, the bar for lowering the provision for losses should be high.

For example, once the loss reserve reaches three standard deviations of the benchmark loss data, the provision for losses could be lowered to bring it in line with the actual loss experience.

As an example, a three standard deviation reserve level based on historical data in Exhibit 6 would be 92bp (17bp + 3x24bp). If actual GSE losses average 10bp vs. a budgeted reserve of 17bp, the excess 7bp would take about 13 years to build a 92bp buffer. After that, the provision for loss reserves could be lowered from 17bp to 10bp. The savings of 7bp would represent additional income for the government.

We anticipate that this income stream would be shared between the government and private investors to help further align incentives. The prospect of sharing in returns from good credit performance should be an incentive for private investors to adhere to underwriting best practices. This additional potential return should also help in attracting private capital.

Exhibit 6: Historical loss data on the jumbo fixed-rate sector

(bp)

Vintage	Cum. Loss
1991	78
1992	37
1993	14
1994	13
1995	11
1996	6
1997	3
1998	2
1999	4
2000	5
Average	17
Stdev	24

Source: Credit Suisse (US Mortgage Strategy)

GSE loss and draws estimates

We project cumulative losses of \$321B and \$448B for the combined GSE single-family credit book corresponding to our base and stress scenarios, respectively. These loss estimates exclude any potential losses on loans originated in 2009 and 2010, which should be relatively small, in our view. The key differences between our base and stress scenarios come from different assumptions for HPA, modification and re-default rates, and loss severities (Exhibit 7).

Home Prices: Our base-case scenario assumes a 10% decline in home prices from current levels over the next year followed by a sideways housing market in the second year and a 3% annualized increase thereafter. In our stress scenario, we assume a 20% decline in home prices over the next two years followed by a similar trajectory as the base case. Our base case and stress HPA scenarios are fairly comparable to the Moody's "Current Baseline" and "Deeper Second Recession" house price paths, respectively, used by the FHFA.

Current 90+ Pipeline and Future Delinquencies: We estimate future delinquencies on GSE-backed loans using our model projections for future delinquencies on 2005 to 2007 non-Agency prime and alt-A cohorts. Our model cumulative default projections from current, 30-, and 60-day delinquent loans amount to 110% and 125% of the outstanding 90+ day balance on average in the base and stress case, respectively.

We project future GSE delinquencies of \$408B and \$464B in the base and stress scenarios, respectively. We compute these by scaling up the current GSE 90+ delinquent pipeline, after adding back \$80B in modifications on GSE loans during 2010. This adjustment is done to compensate for limited mods in non-Agency prime and alt-A sectors relative to GSE loans thus far.

We note that our loss estimates have relatively low sensitivity to the current versus future delinquency scale factor used above. Each 10 point change in the scale factor results in a 4 point change in projected GSE losses (Exhibit 8).

Defaults and Loss Severity: In the base case, we estimate that 76% of delinquent loans eventually default with a 45% loss severity. This results from 60% delinquent loans defaulting without qualifying for a mod and 40% of the remainder re-defaulting after getting modified initially. Loans that are modified and stay current are assumed to incur a 10% loss. The stress scenario is based on a default rate and loss severity of 88% and 55%, respectively.

Put back: We estimate that GSEs will be able to successfully put back 5% of their cumulative delinquent loans to lenders (10% put back claim and 50% success ratio). This represents about \$40B in accepted GSE put back claims and reduces projected GSE losses by \$15B-\$20B. Our put back assumption is the same for both the base and stress scenarios.

Future Draws: We project future draws of \$122B to \$249B for GSEs starting Q3:10 through 2013 corresponding to our base and stress scenarios, respectively. These are on top of the existing drawn amount of \$148B and do not include any dividend payments to the Treasury going forward. Dividends to the Treasury at a 10% rate would add another \$70B-\$90B to the above amounts.

These projections are based on our projected cumulative losses in the two scenarios minus credit charge offs to date (\$50B), loss reserves as of Q2:10 (\$96B), and potential GSE income over this period (\$54B). Our estimate of the future GSE income is based on a 20bp guarantee fee (25bp gross guarantee fee net of 5bp administrative expenses) on a roughly \$5T credit book and a 50bp spread on approximately \$1T average earning assets in the GSE retained portfolios over the next three and a half years.

Exhibit 7: Credit Suisse cumulative loss estimates for the combined GSE single-family credit book

Assumptions	Base Scenario	Stress Scenario
HPA (Yr 1, Yr 2, ...)	-10,0,3,3,3,3	-15,-5,0,3,3,3
90+ Pipeline (Aug 10)	\$371B	\$371B
Future Delinquencies*	\$408B	\$464B
Modification Rate	40%	30%
Redefault Rate	40%	60%
Total Defaults	76%	88%
Loss Severity		
Defaults	45%	55%
Mods	10%	15%
Put backs	5%	5%
Total Expected Loss**	321	448
Potential Future Draws	122	249

* Based on the ratio of our model projected cum defaults (from current, 30 days, and 60 days only) to outstanding 90+ day balance for 2005 to 2007 prime and alt-A cohorts.

** Include cumulative charge-offs of \$50B since the beginning of 2008 through Q2:10.

Source: Credit Suisse (US Mortgage Strategy)

Exhibit 8: GSE losses corresponding to different future delinquency levels

	Ratio of future defaults to current 90+ pipeline					
	120%	110% (Base)	100%	90%	80%	70%
Expected Losses*	334	321	308	295	282	269
% of Base	104%	100%	96%	92%	88%	84%

*All other assumptions from the base scenario are unchanged

Source: Credit Suisse (US Mortgage Strategy)

Comparison to FHFA projections²

We have adjusted FHFA's loss projections slightly to make them comparable to ours. The FHFA loss projections include provision for losses and credit expenses over the 2009-2013 window. To make this comparable to our projections, we have added to it \$42B of GSE loss reserves from 2008. We note that FHFA's adjusted loss projections are consistent with ours (about 5%-10% lower). However, in terms of future draws, we estimate that GSEs would need to draw about \$100B-\$125B more than FHFA's projections. This difference mainly reflects our lower GSE revenue projections compared to FHFA. FHFA's estimates potentially include higher spread income and incremental recovery of past credit-impairments on the GSEs' non-Agency MBS holdings.

² [FHFA Releases Projections Showing Range of Potential Draws for Fannie Mae and Freddie Mac](#)

Exhibit 9: Comparison between Credit Suisse and FHFA's loss and future draws projections

Total Losses	Base			Stress		
	FN	FH	Total	FN	FH	Total
CS	210	111	321	293	156	448
FHFA (Adj)*	205	98	303	281	121	402
Future Draws**	FN	FH	Total	FN	FH	Total
CS	88	33	122	172	77	249
FHFA	32	-13	19	113	11	124

*Include 2008 loss reserves of \$26B and \$16B for FN and FH, respectively

**Future draws exclude dividend payments to the Treasury

Source: Credit Suisse (US Mortgage Strategy), FHFA

Expected losses on well underwritten GSE loans

A key question regarding the pricing of a government reinsurance wrap is whether it can be fairly priced. We have assumed a maximum loss amount of 4% for this purpose under an extreme credit scenario, which leaves the government with an obligation of 3.15% after extinguishing the privately funded first loss piece of 85bp.

Our analysis shows that such a government reinsurance wrap is priced conservatively. In the current housing crisis, well underwritten GSE loans are projected to result in cumulative losses of 1.7% of original face. Under the back-to-basics model, the government would face an 85bp liability in such a scenario, behind the 85bp first-loss absorbed by the GSEs. Thus, the government insurance is priced to a 3.15% liability, which is 3.7X a realistic potential liability of 85bp.

We drill down into the contributors of GSE credit losses in the current cycle to evaluate the robustness of our actuarial assumption for government insurance pricing. For this purpose, we compare the historical credit performance of well underwritten GSE loans with leveraged GSE loans (loans include alt-A and sub-prime loans, loans with FICO <660, loans with original LTV >90, IO, and negative amortization loans). As shown in Exhibit 10, contribution of well underwritten loans to credit losses has ranged from 20% to 30% on a historical basis. Similarly, Exhibit 11 shows that well underwritten loans (referred to as non-leveraged loans) account for 22% to 31% of serious delinquencies on GSE credit books. This implies that the future contribution of well underwritten loans to overall GSE credit losses is likely to remain consistent with historical trends.

Based the above analysis, we attribute 25% of our base case cumulative loss estimate of \$321B for the combined GSE single-family credit book to their well underwritten loans. This represents 1.7% of the original face of these loans (Exhibit 12). In the stress scenario, we estimate that cumulative loss on the well underwritten part of the combined GSE credit book would be 2.3%.

Exhibit 10: Contribution of leveraged loans* to credit losses on the Fannie Mae single-family credit book

(Data is not available for Freddie Mac)

Period	% of Overall Credit Losses
2007	72.3
2008	81.3
2009	75.0
H1:10	70.5

* Leveraged loans include alt-A and sub-prime loans, loans with FICO <660, loans with original LTV >90, IO, and negative amortization loans

Source: Credit Suisse (US Mortgage Strategy), Fannie Mae

Exhibit 11: Non-leveraged loans account for only 20% to 30% of serious delinquencies on GSE credit books

(As of Q2:10; Exclude 2009 and 2010 Origination)

(\$B)	Fannie Mae	Freddie Mac
Overall Credit Book	1,970	1,296
90+ Day Del (%)	7.0	5.7
Leveraged Loans*	740	432
90+ Day Del (%)	12.9	13.2
Non-leveraged Loans	1,230	864
90+ Day Del (%)	3.5	1.9

Non-leveraged loan share of 90+ Day Del (%)	31	22
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* Leveraged loans include alt-A and sub-prime loans, loans with FICO <660, loans with original LTV >90, IO, and negative amortization loans

Source: Credit Suisse (US Mortgage Strategy), Fannie Mae, Freddie Mac

Exhibit 12: Expected losses on the GSE non-leveraged single-family credit book in the current credit crisis

(\$B)

	Base Scenario	Stress Scenario
Total losses on the GSE single-family credit book	321	448
Losses attributable to non-leveraged book	80	112
Size of non-leveraged book (Current Face)	2,095	2,095
Factor	0.43	0.43
Percentage loss (Original Face)	1.7%	2.3%

Source: Credit Suisse (US Mortgage Strategy)

TBA market and transition – Key objectives and views

Preserve TBA Market?: This is critical in our view. The consensus view is to preserve a single TBA market. Multiple issuers can deliver securities into this as long as cash flows, securitization rules, and seller/servicer guidelines are uniform.

The creation of a single TBA market would also necessitate making FH/FN MBS fungible at some point. This will necessitate extending the cash flow delay on FH MBS to match FN MBS. Existing FH MBS holders are likely to benefit as improved liquidity of their holdings offset any decline in value from an extension in the delay period. Such a change should be executed in one shot, to include all outstanding securities to avoid tiering within FH MBS.

Should existing MBS be deliverable?: There is ongoing debate on whether current MBS should receive an explicit guarantee. We believe that it is critical that currently outstanding MBS are explicitly guaranteed, to maintain liquidity. Two key challenges are as follows:

- How to handle guarantee obligations on risky loans underlying existing MBS?
- How to pay for the g-fee gap between existing and new MBS?

Splitting MBS into 'good'/'bad' bank based on qualification under new underwriting is the first step, in our view. Then the 'good bank' can be spun off. The 'bad bank' would be owned by the government and work through problem loans. This would be a virtual split as it needs to happen at a loan level. The g-fee on risky loans accrues to the government. Loans are removed from the pools upon pay-off or default.

To avoid an upfront payment to the private buyer to cover expected losses, the new standards/higher g-fee should be established first, in our view. Existing MBS could then paydown and organically recycle through over several years into the new MBS.

An immediate sale of the good bank would require the government to make roughly a \$76B incremental payment (\$99B including reserve amount) to private buyers. This is needed to plug a shortfall between the g-fee income on existing MBS and a relatively high level of expected losses even on good assets. Investors are likely to charge a risk premium for taking on this liability (Exhibit 13).

Exhibit 13: Selling off the good bank immediately may be cost prohibitive

Item	Amount (\$B)	Comment
2008 and prior vintages UPB	3,300	
Good bank MBS holdings	2,094	A
Projected total cum loss	321	B
Amount already charged off	50	C
Projected future loss	271	D = B - C
Good bank share of future losses (25%)	67.8	E = 25%*D
Investor risk premium (25%)	84.7	F = 1.25*E
Reserves apportioned to good book (25% of \$91B)	22.8	G
Guarantee fee shortfall on 2009-10 vintages	14.0	H = 1400*0.25%*4
Net new funds to buyer	75.9	I = F + H - G
Total cost of transferring good bank including reserve	98.7	J = I + G

Source: Credit Suisse (US Mortgage Strategy)

How to attract private capital?: A stable 10% ROE plus potential longer-term upside linked to credit performance should attract utility and insurance investors. This return profile compares favorably to a typical mid-teens return on private mortgage insurers after accounting for leverage and collateral differences (Exhibit 14).

Exhibit 14: Back-to-basics vs. existing private insurance models

Back-to-basics	Private mortgage insurance (PMI)
<p><i>Collateral</i></p> <p>Loans with at least 20% equity cushion</p>	<p>PMI portfolios generally have exposure to high LTV loans with less equity cushion and higher propensity to default</p>
<p><i>Leverage</i></p> <p>Risk in force equals investor base capital</p> <p>Counter cyclical capital ensures going concern even after a catastrophic loss</p>	<p>Risk in force equals roughly 17x capital</p> <p>No backstop in case of catastrophic loss. New funds would have to be raised</p>

Source: Credit Suisse (US Mortgage Strategy)

Some in the market remain doubtful about these returns being sufficient for equity investors. This could be addressed by delaying the transition to private hands by a few years during which the new business model builds a track record. This approach is also consistent with our preference of recycling existing MBS into the new regime through paydowns.

A lender co-op model has been proposed rather than a stockholder corporation. We favor the latter. Two main challenges for a co-op model are large lender dominance and a potential race to underwriting to minimal acceptable standards. Additionally, enforcing standards on a potentially large number co-op members would increase regulatory burden, in our view.

How many mortgage guarantors are needed?: We believe that two guarantors are needed and adequate, although the door could be left open for more. In our view, having more entities does not reduce systemic or too big to fail risk, since they are all exposed to the macro housing risk that is not diversifiable. Attempting geographic- or product-based segmentation among guarantors risks reducing homogeneity and impairing liquidity. Furthermore, having a large number of guarantors risks a decline in underwriting standards over time through excessive competition. Regulatory oversight would also be more complicated in the case of multiple entities. We favor two rather than a single entity to minimize operational risk.

Should Fannie/Freddie be retained?: We believe that these entities should be preserved for their significant infrastructure, talent, and continuity in the markets.

How to recoup tax-payer investment?: A majority of draws from Treasury cannot be recovered because they only get GSE net worth to zero. Some recovery is possible if the spin-off receives a price above book value and/or credit losses are less than reserves. Some fee on MBS may also be considered. However, this will ultimately be passed onto borrowers through higher mortgage rates. The back-to-basics model offers a modest long term payback in the form of a cash flow stream for government after counter cyclical capital is built up.

How to pay for affordable housing goals?: Affordable housing should be mainly run under the FHA, in our view. A fixed annual contribution by GSEs is feasible under the back-to-basics model. There appears to be emerging consensus to separate affordable housing (except for multi-family) out of GSEs/successors. Some support for an incremental fee is building. Note that this would directly increase the borrower's mortgage rate by a corresponding amount.

Exhibit 15: Macro Q&A

Question / Issue	Answer (Our views)
Is government involvement in the US mortgage market necessary?	Yes. Government involvement is needed to ensure that premium for housing tail risk (catastrophic insurance) is fairly priced for middle America (conventional conforming mortgages). Without a government-backed catastrophic insurance, a large risk premium (perhaps about 50bp) might be required for such a tail event. Even with that higher risk premium, the amount of funding available could shrink as much as \$3T-\$4T from current levels since many current investors (banks, central banks) cannot assume credit risk. Whatever level of credit is eventually available would be subject to disruptions during difficult market conditions. Separately, the cost of affordable housing needs to be recognized and budgeted for upfront. This segment will explicitly need government support to the extent policy goals mandate.
What comparative advantage in housing have we enjoyed vs. other countries because of our government's support for housing?	The government's involvement has contributed to a high level of homeownership in the US, comparable to countries like Canada, which have a much smaller housing market. Without such support, it is conceivable that US homeownership may be around 50% (1890 to 1930s homeownership levels were in the 40%-45% range. After FNMA was established in 1938 homeownership steadily increased to 62% by 1960). Subsequently, a homogeneous MBS market via the GSE model allowed for TBA trading to develop in the US. This increased funding/liquidity by opening market to broad participation by foreign investors (holders of roughly 15%-20% of MBS).
Does a government housing "subsidy" mean the government will never get paid back? Or can the government break even? How?	The government does not need to provide a subsidy for the conventional market under the back-to-basics model. In the past, it was a subsidy due to the implicit guarantee. By charging a fair (or somewhat conservative) price for the reinsurance, the government is at least breaking even if not actually making money. The government is essentially writing a put, but at nearly 4 times the strike of the loss experience during the current housing crisis.
Government housing systems in the US have resulted in massive taxpayer losses. How will you avoid government tinkering if it has any control?	Require a super majority congressional approval to significantly change standards or insurance premiums. That should make government intervention extremely difficult.
Should government policy support fixed-rate mortgages? Or should the market be forced into ARMs?	Fixed-rate mortgages should be widely available, in our view. They benefit borrowers by eliminating rate shocks and have strong investor demand. Their credit performance during this crisis has been superior to ARMs by a wide margin. Forcing borrowers into ARMs simply transfers interest risk from investors to borrowers.
Higher g-fees are a tax on the homeowner. So they should be rolled back.	Homeowners benefit from a well functioning and sustainable housing finance system. The higher g-fee is necessary to achieve this goal. Home price busts are far more expensive than this incremental (~25bp) cost in the form of a higher g-fee.
Any subsidy creates distortion. Therefore GSEs should be wound down.	The government is not providing a subsidy under the back-to-basics model. Reinsurance provided by government is fairly priced. It was a subsidy in the pre-crisis implicit guarantee model.
How does this fit in with Dodd-Frank? Address risk retention.	Limiting guarantees to "qualified mortgages" should avoid the need for risk retention along the Agency MBS chain. GSEs retain 100% of credit risk on MBS, so Dodd-Frank risk retention rules should not affect their downstream business (MBS). Guaranteeing only "qualified mortgages" should exempt upstream risk retention by lenders.
Can banks takeover from the GSEs and fund mortgages directly via loans or private label securities on their books?	Not feasible, in our view. Banks currently own roughly \$1T in Agency MBS. Their balance sheet would have to expand by \$4T to take on the remaining outstanding balance. The large-scale shift from Agency MBS into loans or private label MBS would be nearly impossible given Basel III liquidity requirements, onerous capital standards for securitized credit exposure, and FASB's fair value project. Furthermore, this represents an extreme concentration of housing risk at banks and would break the business models for institutions such as money managers and insurance companies, which would lose an asset class.

Source: Credit Suisse (US Mortgage Strategy)

Exhibit 16: Underwriting Q&A

Question / Issue	Answer (Our views)
Would the GSEs have needed a bailout if they did not get involved in Alt A?	Even without Alt-A, GSEs would have needed government capital injection. Two main reasons: their capitalization level was low and the housing distress scenario was extreme. This type of scenario would have needed government intervention even with higher capital standards required under the back-to-basics model. But, government support would have been paid for by insurance premiums, so it would not be a bailout.
At what period of history did the GSEs stray too far from their original mission?	In mid 90s they did some affordable lending, but scale was small. By late 90s, the volume increased. However, GSE losses were still in single-digits basis points. The real expansion of the box happened during 2003-2007. In 2008, GSEs continued to take on significant exposure b/c their tightening of standards was not enough. 2009 and later vintages appear solidly underwritten.
Is the tail risk too fat for the government to provide catastrophic reinsurance?	The government can conservatively price for catastrophic risk at a manageable reinsurance premium. During the current housing crisis, well underwritten GSE mortgages resulted in a cum loss of roughly 1.7% of original face. Had the GSEs been well capitalized at 85bp and held on to good underwriting, the government backstop would pay out approximately 85bp in this crisis. Pricing the reinsurance wrap to a 315bp payout as we suggest gives the government roughly four times cushion. Important to note that only government can price reinsurance at this level.
Can a private insurer provide this reinsurance?	The scale of exposure makes it extremely difficult for a private entity to provide this catastrophic reinsurance. First, a private insurer would embed an additional (large) risk premium for tail risk beyond "fair" actuarial pricing. Next, there is a question mark if a private reinsurance provider would be able to meet its obligations in an extreme scenario because of its interconnections to the financial system. Third, in a crisis, the market may not wait to find out if the private entity can deliver, thus potentially exacerbating the problem by rushing to the exits. Finally, a private only solution will sever demand from a large group of investors which do not take credit risk.

Source: Credit Suisse (US Mortgage Strategy)

Exhibit 17: Capital considerations Q&A

Question / Issue	Answer (Our views)
Private equity capital will not be satisfied with a 10% ROE	Stable low-risk 10% (pre-tax) return should appeal to dividend-oriented investors. Existence of counter-cyclical capital should ensure that the entity will remain solvent even in a catastrophic loss scenario. Potential for reserve releases after sufficient loss buffers are built-up represents another incentive to investors. The mortgage rate would increase an incremental 4.25bp if the ROE target is raised to 15%.
Where will be countercyclical capital be held?	This capital should be held in a separate account, overseen by a fiduciary, and released upon request by the regulator if the first-loss capital is completely eroded.
Risk - Address scenario where there are back to back losses wiping out 85bp twice within 10 years.	This remains a risk scenario. However, it is an extreme outcome, equivalent to catastrophic housing declines comparable to the current housing bust occurring twice in 10 years. Such an outcome would require conservatorship/additional capital raise.
Why Basel III/Bank capital standards should not apply to the g-fee business?	Several differences between bank and GSE business models argue against applying Basel III to the GSE successors. First, the g-fee business of GSEs would be a more tightly regulated entity than banks. GSEs would be limited to narrow line of business and underwriting standards compared to a broader suite of business at banks. Next, the latter could assume interest rate risks in contrast to the back-to-basics GSE model. GSE returns would be regulated in contrast to greater flexibility for banks.

Source: Credit Suisse (US Mortgage Strategy)

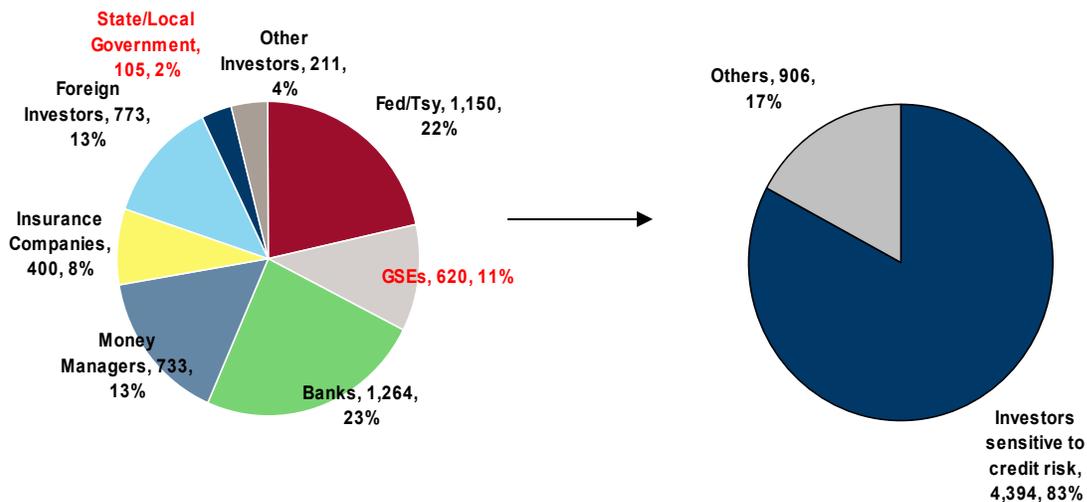
Exhibit 18: Alternative models Q&A

Question / Issue	Answer (Our views)
Can GSEs fund affordable housing? How much?	The back-to-basics model offers an average 4.25bp (roughly \$2.1B) annual return to the government. A part of this could be used to fund affordable housing. However, GSEs should not be permitted (or mandated) to take on credit risk to meet such goals.
Why can private capital not fill in if GSEs are wound down?	Roughly \$3T-\$4T of funding could exit the US housing market if Agency MBS is substituted with a product carrying credit risk. This funding is currently provided by investors who are unable to take on (or increase) credit exposure due to institutional, legal, or regulatory reasons. These include all central banks and other government institutions and commercial banks to a degree.
Why cannot covered bonds take over?	Covered bonds are an additional funding mechanism that should be available to the US housing finance system. However, it is unlikely to fully substitute for the large-scale funding available in the Agency MBS market. Reasons include the long time need to establish scale, the need for issuing banks to manage interest rate and credit risk on the cover pool, potential Basel III challenges and the potential for freezing in a crisis. Notably, the need to manage rate and credit risk would require GSE-like functions at each issuing bank.
Why not import the Danish, Canadian, or other European systems? What makes them work?	Importation is not a panacea, solid underwriting is key. The GSE model is scalable. Important to keep what works and fix what is broken. The Canadian system weathered the crisis mainly because of solid underwriting. The Danish system offers borrowers additional options, but credit performance still depends on solid underwriting. Also, these systems support much smaller housing markets than the US. The Canadian and many European systems rely heavily on bank balance sheets and floating rate mortgages.
Why not a co-op rather than stockholder corporation?	A co-op model could result in a lowest common denominator underwriting. Regulatory enforcement of underwriting standards would be more challenging due to a larger number of entities. Additionally, a co-op could lead to concentration of power among the top few lenders.
The government cannot correctly price the tail risk.	The actuarial pricing under the back-to-basics model results in a conservative and sustainable pricing of government's reinsurance.
Could conservatorship have been avoided if GSEs did not have retained portfolios?	FHFA's data shows that GSE portfolios contributed to only 9% of losses between the end of 2007 through Q2:10. Even those losses were due to excessive credit risk assumed by the GSEs in the form of subprime securities/Alt-A loans. Limiting GSE portfolios to product underwritten by them eliminates this problem. In the back-to-basics model, graduated capital standards would be used to control leverage and portfolio growth.

Source: Credit Suisse (US Mortgage Strategy)

Exhibit 19: US housing could lose roughly \$3-4T in funding if Agency MBS is replaced with a credit product

Assumptions: 100% of official institutions (the Federal Reserve, the US Treasury, GSEs, foreign central banks, state/local government) and 75% of banks, money managers, and non central bank foreign investor holdings are sensitive to credit risk. Figures are year-end 2010 estimates.



Source: Credit Suisse (US Mortgage Strategy), Inside MBS/ABS, Fannie Mae, Freddie Mac, Federal Reserve, US Treasury

The retained portfolio – Still needed by the MBS market, but capital needs may pose a challenge

We remain constructive on the value of a moderately sized GSE retained portfolio (1/10th the size of the market) that is limited to purchasing mortgages that meet their underwriting criteria. Many market participants have expressed a need for a GSE retained portfolio for operational reasons (multi-family, small lender loan purchases, processing delinquencies, etc.). However, the idea of GSE portfolio(s) serving a market backstop role remains contentious.

We stick with the case we made in our October 2009 publication for a portfolio function within the GSEs with a counter-cyclical backstop role. This is based on our view that the mortgage market needs a backstop to avoid potential interruption to mortgage funding for homeowners during periodic market dislocations. We favor the historical GSE model to monetize spread dislocations over the “emergency role” played by the Fed in 2009-10 (Exhibit 20). We note that business models of other investors, such as banks, foreign investors, money managers, are incompatible with a counter-cyclical role. We also recognize that some form of government credit line would be needed during crises to provide this backstop. Such a line would be collateralized by the MBS they fund.

Exhibit 20: Comparison between the GSE and the Fed MBS market backstop models

GSE	Fed
Monetizes spread dislocations routinely and steps up more aggressively in the case of extreme dislocations	Only becomes active in emergency situations
Less disruptive to the market due to two-way interaction with the market - buy cheap/sell rich	A buy-only model that can be disruptive to the market by driving spreads artificially tight and crowding out private investors
Driven by tangible economic criteria	Goal-driven activity to reach certain target rates
Impact mainly limited to the MBS market	Portfolio balance theory directed at encouraging broad-based risk appetite across the market
Duration/curve/volatility risk is minimized through hedging and is primarily borne by investors	Potential for high opportunity costs for taxpayers due to unhedged exposure
Largely duration neutral	Removes duration from the market
Dependence on external funding and capital	Self sustaining

Source: Credit Suisse (US Mortgage Strategy)

Graduated capital standards should be used to avoid excessive size or leverage within the GSE portfolios. One possible model is to have a 3.0% and 4.5% capital standard for the first \$500B and next \$300B portfolio size, respectively. If these are split between two GSEs, these portfolio sizes should be halved.

Under this model, GSEs could run their base portfolio of up to \$500B by earning a 30bp Agency OAS under a 10% ROE target. Capital standards for the next \$300B portfolio growth would require a higher OAS of 45bp. This will ensure that GSEs only expand their portfolios when market dislocations are extreme.

We note that a 3.0% capital standard is consistent with market expectations of potential leverage limits under Basel 3. We focus on the Basel 3 leverage ratio rather than Tier 1 standard because a GSE portfolio would operate under a more restricted box compared to banks. The former would be mainly limited to government guaranteed mortgages (potentially resulting in a zero risk weight), and minimal interest rate/curve/volatility risk. This could potentially even support a somewhat higher leverage ratio for a GSE portfolio compared to banks.

Exhibit 21: Required Agency OAS levels corresponding to ROE/capital targets

Capital/ROE	10%	15%	20%	Portfolio size (\$B)	Average capital	OAS (bp)
2.5%	25	38	50	500	3.00%	30
3.0%	30	45	60	800	3.56%	36
3.5%	35	53	70			
4.5%	45	68	90			

Assumption: Capital standards: 3.0% for the first \$500B, 4.5% for the next \$300B.

Source: Credit Suisse (US Mortgage Strategy)

There are three key questions for the retained portfolio business as follows:

The first question is whether equity capital can be attracted to this business at a 10% ROE. We believe that this is plausible due to the zero credit risk assets that the portfolio would hold. Spread widening is the primary risk it would assume. However, the bar rises sharply, to 45bp OAS, for the base portfolio under a 15% ROE scenario.

The second challenge is raising capital for portfolio expansion in a crisis scenario. If GSEs maintain a capital buffer for contingency purposes, idle cash will reduce realized returns under tighter spread environments. There is a risk that the portfolio pursues sub-optimal trades to earn any positive return. One potential solution for GSEs is to issue contingent capital instruments that can be called when expansion is desired. A second is to have a capital agreement with the government with a 10+% dividend. GSEs would tap this only when OAS levels are well above 30bp. A third alternative is for GSEs to act as agents for the government on a fee-for-service basis, with returns accruing to the taxpayer.

The third question is whether GSEs would be able to fund their portfolio without an explicit government guarantee on their debt. Any proposal for an explicit government guarantee on GSE debt has a low probability of success, in our view. Without a government guarantee, we believe that GSEs should still be able to raise debt at sub-LIBOR levels because this debt will be used to purchase "full faith and credit" assets. The debt can be made more attractive to investors by collateralizing it with the MBS portfolio. This would be akin to the GSEs issuing covered bonds to fund their retained portfolio. During market dislocations, some form of government credit line would be needed to fund portfolio expansion. Such a line would be collateralized by the MBS they fund. Access to such a line justifies graduated capital standards, which are more stringent compared to the bank leverage ratio cap under Basel 3.

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