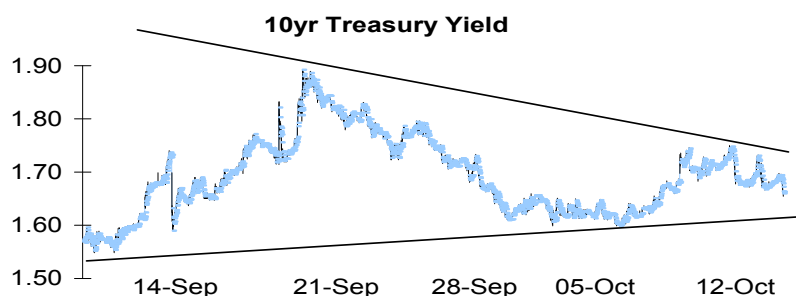


US Rates & MBS Weekly

30 Days in the Coil

- **Treasury Coil** — Since the initiation of QE 3, Treasury yields have been settling into a tighter and tighter range. We caution against complacency and would suggest that the Presidential Elections could be the event to break the range.
- **Lower / Flatter Inflation Curve** – The upcoming week is eventful for the inflation market. In addition to the CPI release on Tuesday, we have two supply events – the reopening of the 30y on Thursday and front end sales of TIPS by the Fed on Friday. We expect a flatter, lower breakeven curve.
- **Rate Survey** – Investors are net long duration, expect to maintain +/-25bp range for three months, and fairly complacent about how the fiscal cliff will be resolved at year-end. Investors are report that they are mostly neutral-weight MBS.
- **Gamma for the Election** – We recommend selling gamma with Election Day expiry and buying it with an expiry beyond the election anticipating meaningful election impact on US rates.
- **MBS Replication and Callable Agencies** – We discuss some of the likely by-products of QE 3 induced MBS tightening: an immediate demand for callable agencies and eventual demand to implement mortgage replication trades.
- **Agency MBS** – We recommend taking profits on the short GN I/II 4.5s swap trade recommendation. Although we are yet to see FHA-HARP pools in size till now, we think that FHA-HARP GN I 3.0s should trade at a payout of approximately 6-7 ticks whereas 3.5s should trade at a payout of 12-15 ticks.
- **Agency Callables** – We estimate that approximately \$91 Billion (or ~70%) of bonds eligible to be redeemed will be called should rates stay close to current levels. A 25bp rally (parallel shift) in rates would increase our redemption estimate to \$115 Billion (or almost 87%) of all eligible bonds.

Figure 1. Chart of the Week by Brett Rose: 10yr Treasury 's Post QE 3 Coil



Source: Citi Research, Bloomberg

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See Appendix A-1 for Analyst Certification, Important Disclosures and non-US research analyst disclosures.

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Rates Forecast

Figure 2. Rates Forecast as of October 11, 2012
S

	Model Value (%)	Market Value (%)	3m Forward (%)
Fed Funds Effective	0.00	0.16	0.00
2y Treasury	0.23	0.26	0.23
5y Treasury	1.09	0.66	1.19
5y Forward 5y Treasury	3.72	2.82	2.79
10y Treasury	2.40	1.67	1.99

Source: Citi Research; Model values are from our Fed Funds Path Model, described in the US Rates 2012 Outlook

US Rates & MBS Conference Call

Brett Rose
Neela Gollapudi
Jabaz Mathai
Andrew Hollenhorst
Arjune Bose

Ankur Mehta
Timothy Chung
Mayank Singhal

Robert Rowe
Martin Bernstein
Rohit Thapliyal
Shuo Li
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Our weekly conference call will be hosted on October 15, 2012 at 7:30AM NYT. Please find the dial-in information below. A PDF outlining the call will be sent via before the call.

Participant Audio Information:

Toll free:	1-877-238-4695
Toll:	1-719-785-5595
Passcode:	617839

Replay Audio Information:

Toll Free Domestic:	1-888-348-4629
Toll International:	1-719-884-8882
Replay Passcode:	617839
Replay Availability:	7 days from the call date, available 2 hours after the call

Summary of Views

Figure 3. Strategy Summary Table

US Rates	View	Recommended Positions
Duration	Long: We still like the carry of the front-end of the curve and expect Fed expectations to continue to benefit the 7yr – 10yr part of the curve.	Long 7yr Treasuries
Yield Curve	We like owning duration in the middle of the yield curve relative to the wings. This includes 2-5yr flatteners and 10-30yr steepeners.	None
Swap Spreads	10Y Swap Spreads are likely to tighten below 0bp.	None
Gamma	Neutral	None
Vega	We expect a decline in intermediate vega.	Sell 100mm 3y10y straddles and buy a gamma weighted amount of 6m10y straddles
Inflation	We expect inflation breakevens in the 10y sector to compress in the medium term.	Sell 5y5y inflation forwards
MBS	By our estimates, the gain-on-sale levels have increased to multi-year highs. As a result, lenders have a strong incentive to target borrowers more aggressively, which may lead to faster prepayments on these pools in the future.	Sell FN 3.5s, and begin dollar rolling Buy HLB FN 4.0s
Agency Debt	We continue to see tremendous relative value in agency callables in the wake of the outsized rally in mortgages post-QE3. We recommend investors increase their exposure to agency callables relative to mortgages	Bullets: 7yr agencies look attractive. Callables: We like Long tenors with 1-year lockouts

Source: Citi Research

US Rates & Curve: 30 Days in the Coil

Brett Rose

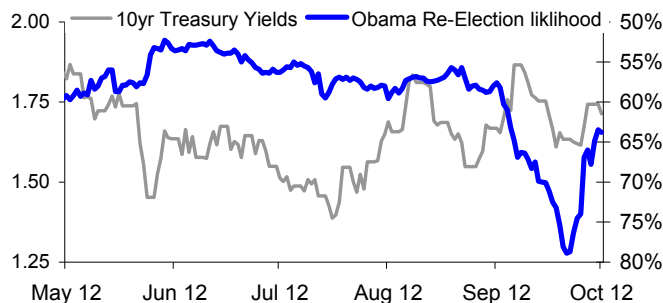
The initial month of QE 3 has resulted in few fireworks, with most asset prices currently very close to levels just prior to the September 13 announcement. 10yr Treasury yields are a few basis points lower as the initial week's view that 'all QE's raise Treasury yields' was short-lived. With little dramatic news from Europe and mixed economic data from the US, Treasury yields have been coiling into a fairly tight range (see Figure 1 on the front cover).

Presidential Election Could End Complacency

While it is always difficult to predict when event risk will impact markets, the US Presidential Elections in less than a month are an obvious candidate. As we highlighted in our article last week, there have traditionally been meaningful post-election moves in 10yr Treasuries based upon the outcome of Presidential Elections. While President Obama remains the favorite to retain his office, the recent volatility in polling numbers provides another method of looking at potential market impact.

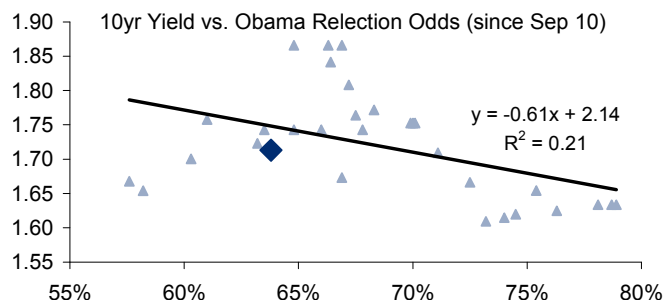
We use Intrade data as these numbers are meant to explicitly estimate the odds of a particular event – in this case the likelihood of Obama being re-elected. In Figure 4 we show the likelihood of his re-election versus 10yr Treasury yields. As these odds rose in late September, 10yr Treasury yields fell – the outcome we would expect in an Obama re-election event. As they have subsequently fallen, Treasury yields have moved higher – an event we would expect in a Romney upset outcome.

Figure 4. Obama's re-Election Likelihood Recent Roundtrip Seems Modestly Correlated With 10yr Treasury Yields



Source: Citi Research, Intrade and Bloomberg

Figure 5. A Simple Regression Suggests a 61bp Total Impact



Source: Citi Research, Intrade and Bloomberg

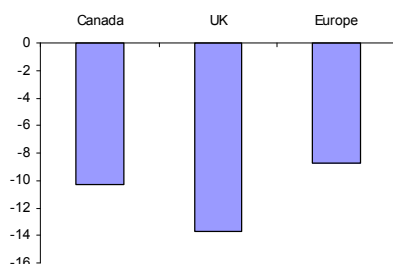
In Figure 5 we run a simple regression over the last month, which shows a moderately significant correlation – a 21% r-squared. This regression suggests that there should be a total of 61bp of impact moving from 100% (Obama wins) to 0% (Romney wins). Given that the current chances are just above 60%, this suggests that a Obama victory would result in an approximately 25bp drop in 10yr Treasury yields, while a Romney victory would result in an approximately 35bp rise in 10yr Treasury yields. While this may be too precise of an outcome to base on the modest regression shown in Figure 5, it is fairly consistent with what we had shown last week where Treasury yields rose an average of 20bp following the election of Republican Presidents and fell approximately 30bp following the election of a Democratic President. From a more fundamental angle, this outcome is also consistent with the path to a fiscal cliff resolution being more obvious under a Romney election scenario. We see a quick resolution to the fiscal cliff being a risk-on, Treasury yield higher event.

Jabaz Mathai

TIPS: Positioning for Supply

Breakevens narrowed this week amid indications that breakevens are topping out. We look for a lower, flatter breakeven curve. The upcoming week is eventful for the inflation market. In addition to the CPI release on Tuesday, we have two supply events – the reopening of the 30y on Thursday and front end sales of TIPS by the Fed on Friday.

Figure 6. Breakevens in the US underperformed their global counterparts this week. This trend is likely to continue



Source: Citi Research

Slowing momentum

Last week we highlighted how rich TIPS looked in relation to its global counterparts (see the TIPS section in [US Rates & MBS Weekly](#), page 7). We have already seen some normalization over the course of this week with TIPS underperforming the three major global inflation markets. 10y TIPS breakevens narrowed by 10bp vs. Canada, 14bp vs. UK and 9bps vs. Europe (using cash breakevens for Canada and inflation swaps for Europe and UK spreads). We believe that this cheapening of US TIPS vs. its global counterparts is likely to continue in the near term, as TIPS lose the widening momentum from the first week of the month. The rally in crude oil over the last three trading sessions is one reason why breakevens have not compressed even further. This rally in oil is largely attributable to the rise in tensions in Syria and Turkey. An escalation of conflict in the middle east that causes a supply shock leading to a temporary spike in crude prices is a risk to our bearish view on intermediate breakevens, as we mentioned in our trade note (see [US Rate Strategy Notes](#)).

30y supply next week: Re-opening should go fine

The current 30y issue – the 0.75% of 2/42 is scheduled to be re-opened on Thursday. This should put some pressure on the longer end of the breakeven curve as dealers set up for the auction. Given that this is the last 30y TIPS auction for 2012, the auction should go fine, especially if BEs cheapen to the 2.35% to 2.40% level. Note that in the last two auctions, namely the original issuance of the Feb 42s and the subsequent re-opening in June, the auction tailed by 8bp and 2bp respectively. So while the track record for the bond is far from stellar for the Feb 42s, a reasonable discount might be a good entry level on a real yield basis vs. the 10y sector.

Indeed, re-openings have tended to go better than original issue auctions as far as 30y TIPS are concerned. Note that the Feb 41s consistently came in through the market on all three occasions (the original issuance and the two re-openings) by 1.75bp, 4bp and 5b respectively. Third time is generally a charm for the long end.

Finally, note that with the 10s30s real yield curve at about 119bp, a reasonable case could be made for putting on a flattener. Any significant hiccups in the equity market or in spread sectors in fixed income in the near term will likely lead to an outperformance of the long end.

Figure 7. Re-openings of 30y TIPS tend to fare better than new issue auctions

DATE	COUPON	MATURITY	Tail / (Through)
6/21/2012	0.625	2/15/2042	2
2/16/2012	0.625	2/15/2042	8
10/20/2011	2.125	2/15/2041	-5
6/23/2011	2.125	2/15/2041	-4.1
2/17/2011	2.125	2/15/2041	-1.75

Source: Citi Research

Figure 8. The Fed sells front end TIPS on Friday, Oct 19. The 2015 sector is attractive on the real yield curve

Coupon	Maturity	SOMA par	Rich/Cheap (bp)
1.25	4/15/2014	18,220,100	0
1.625	1/15/2015	201,000,000	8.5
1.875	7/15/2015	358,000,000	12.7
2	1/15/2016	513,000,000	-1.4

Source: Citi Research

Front end TIPS sales by the Fed next week

There is no supply respite for TIPS next week. The Treasury does its final sales of short end TIPS on Friday the 19th, a day after the 30y TIPS auction. The Fed has six TIPS issues that mature between January 2013 and January 2016. Two of these issues – the 0.625% of April 2013 and the 0.5% of April 2015 are below the 1MM minimum threshold for seeking bids. Thus, the Fed is likely to sell four issues that total 1.09bn. As mentioned last week, we find front end TIPS to be attractive, both vs. the 10y sector, and also on an asset swap basis. The Jan 15s and the July 15s also look attractive to us on the real yield curve. The supply from the Fed next week provides an opportunity in our view to get long these issues

Interest Rate Derivatives: Election Thoughts

Neela Gollapudi

Trading the Election

The election is full of possibilities, and has the potential to break the current status-quo in the US Rates market. We look at the various scenarios:

1. President Obama wins the election, and Democrats win the Senate, but lose some seats. The President may/may not lose the popular vote.
2. The Presidential election is tied at 269-269. The Senate is very close to 50/50.
3. Romney wins the election, and the Republicans don't win the Senate, but make some gains.
4. Romney wins the election, and Republicans win the Senate.
5. Other possibilities.

In the first four scenarios, we assume that the Republicans keep the house. The four scenarios we listed above capture much of the probability of possible election outcomes. The first three scenarios capture above 50% of the probability in our subjective opinion. Just a point to note – the probability on the second scenario is not de minimus, even if only in the low single digits, would lead to very messy outcomes by January, and could have significant consequences in the market.

We see the first three scenarios as having over 50% of the probability (and no we are not saying that #4 is a low probability event), and as being modestly rate bullish to being significantly rate bullish. If we had a 269-269 split, for instance, the political atmosphere could become so toxic that 10y yields could move materially lower. President Obama winning the election but losing the popular vote could make the opposition more recalcitrant than what it has been in 2011, as they would question the mandate the incumbent received from the election. Finally, if Romney wins, but doesn't have a Republican Senate, he may meet the same treatment as President Obama did in 2011.

We see the fourth outcome as having a non-trivial probability, possibly causing rates to rise, but not rise materially until all pending fiscal and tax issues are resolved sometime in early 2013.

We see the bullish wing scenarios as more compelling than the bearish ones, but wouldn't necessarily bet against the bearish scenario post-election. We have also grown more comfortable with a) rates holding their range going into the election, and b) gamma implieds forming a bottom ahead of the election. Indeed, 1m10y has hardly budged over the past several weeks.

We recommend the following trade: Buy 100mm 3m10y a-25 Receivers and sell 100mm 11/6/2012 x 10y a-25 Receivers. The trade is long gamma and hurts if rates rally less than 30bp in three months – therefore obviously some rally scenarios have differing levels of mark-to-market pain at intermediate holding periods.

The trade horizon of three months places the expiry into mid-January, thereby capturing much of the political uncertainty that could arise in the event of an inconclusive election. We would hold the position to three months with a stop loss of premium paid. Trade details follow:

Figure 9. Trade Details

	Structure	Notional (\$mm)	Expiry	Tenor	Absolute Strike	Relative Strike	Premium	Delta	Vega	Gamma
Sell	Receiver	-100	6-Nov-12	10y	1.490	-25	(45,522)	(7,456)	(3,154)	(922)
Buy	Receiver	100	3m	10y	1.546	-25	470,542	25,044	14,164	986
Net							425,020	17,588	11,010	64

Source: Citi Research

Neela Gollapudi
Ankur Mehta
Mayank Singal
Rohit Thapliyal

The Mortgage Replication Trade

We have discussed last week why we think the mortgage replication will take time to play out. We offer additional perspective on this issue. First, we report historical carry numbers for mortgages and for swaption replication to assess what the relative differences in carry were when the mortgage replication trade occurred the last time in late 2009. Second we discuss Libor-OAS levels and historical precedence on how-high callables got as a proportion of GSE balance sheets to assess when the Mortgage-to-Callable migration will slow down, and consequently when the Mortgage-to-Swaption migration might pick up in larger size.

Historical carry in mortgages and swaptions

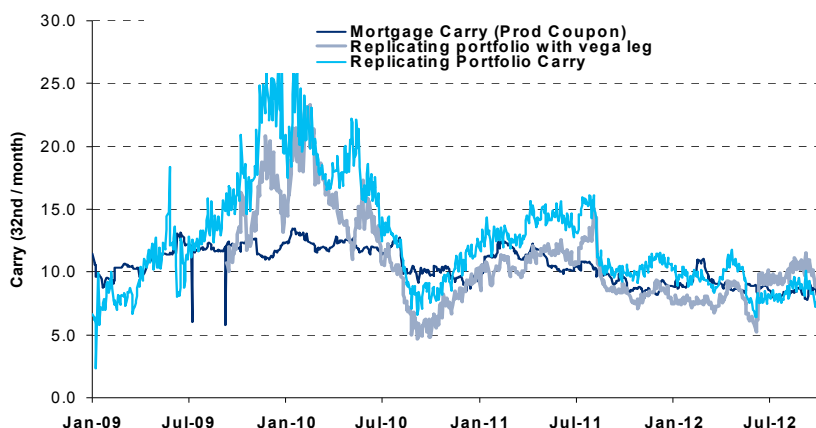
We estimate carry for the production coupon mortgage from the dollar roll market. Separately, we use desk hedge ratios to estimate roll down / carry for an equivalent Treasury replication of the duration in a mortgage.

We then use these durations to estimate the convexity of the production coupon mortgage. We assume that the convexity stays relatively constant at different rate levels and compute the convexity pnl on the mortgage for a 50bp rally or selloff in rates. This results in symmetric convexity pnls for a rally and selloff for a mortgage.

We replicate the convexity in a mortgage in two different ways – a) we sell 50bp high payers and 50bp low receivers in (different) amounts such that the convexity pnl on the swaption pair equals the convexity pnl on the mortgage. The swaption pair has different notionals on the two legs as the rally and selloff scenarios have different pnls for a symmetric strangle due to differences on how receiver skew and payer skew react to a rally and selloff. We do not match the vega in this instance.

Alternately, we cover about 60% of the vega in the production coupon mortgage (model estimated) using 3y10y swaption straddles, and perform a similar exercise matching the pnl in up and down 50bp rate scenarios using asymmetrically weighted 1y10y 100bp wide strangles. We report 1m carry (including duration carry for the production coupon mortgage and the two swaption replications.

Figure 10. Swaption replication was compelling in late 2009 when replication trade happened in 2009.



Source: Citi Research

As the chart would suggest, the replication trade in 2009 happened when a) the carry differential was much more compelling, and b) just as CC OAS started widening. The second point is somewhat debatable as to which is cause and which

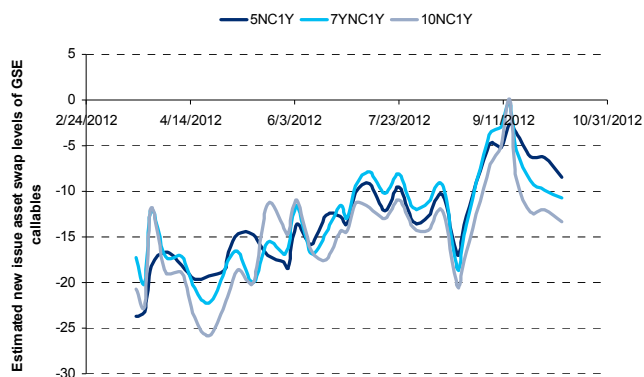
is effect. Clearly, the carry differential is far less compelling this time around than it was in 2009.

On the other hand, we would argue that the replication trade is a function of each investor ascertaining for himself whether the spread compression is done for now. With CC OAS spreads around negative 31bp (Thursday close), and having seen a negative 49bp level within the past week, violent spread moves dominate carry by a wide margin. Since OAS in bp can be roughly translated into price in ticks, an 18bp widening is worth roughly a similar amount in ticks in negative price performance. Therefore, unless the swaption replication is materially negative carry, the decision to replicate is likely more a function of views on the OAS, and views on whether the Fed will add to the mortgage QE come January.

Callables can accommodate further migration from mortgages

The other method of transmission of the richness of mortgages to the vol market is through the callable market. We see callable spreads as not excessively rich, and GSE use of callables as a proportion of their funding mix not to be at recent extremes. This suggests there is further room to go for the mortgage-to-callable migration. We expect the impact to be felt by the OTC vol market transparently, as we expect the GSEs to swap-out most of their issuance.

Figure 11. Estimated GSE new issue asset swap levels not at recent extremes – further room left for richening



Source: Citi Research

Figure 12. GSE use of callables as a part of their funding mix not at extremes



Source: Citi Research

October US Rate & MBS Survey

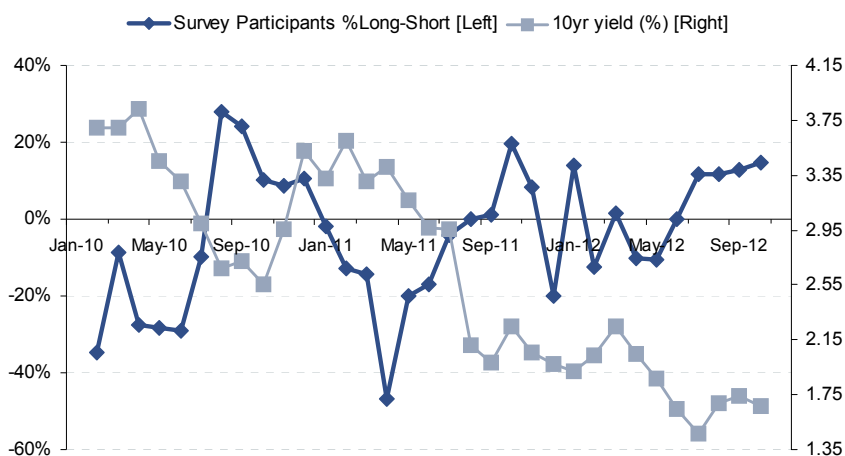
Neela Gollapudi
Ankur Mehta

This survey is distributed on Tuesday, October 9, and closed on Thursday, October 11. The following are the key takeaways:

- About 55% of survey respondents are neutral duration. About 30% of respondents are long duration; Longs outnumber shorts by about 15%. Average expectations for 10y Treasury yields three months from now are at 1.77% – 2almost unchanged from expectations in September and August.
- A slight plurality of market participants like investing in Equities over other risks.
- Over 45% of respondents (a plurality) expect the Fiscal cliff to be reliably avoided only if Romney is elected President and Republicans take the Senate. Another 25% expect the fiscal cliff to be avoided at the end of the year if President Obama wins and the Democrats take the Senate.
- About 37% of respondents expect all Bush tax cuts to be allowed to expire at the end of December before they are reconsidered next year.
- About 45% of respondents (a plurality) feel that if Sequestration related budget cuts are not addressed before end of 2012, there may be an impact ton the Rates market.
- Almost half the respondents expect an additional Treasury QE to be announced in January 2013, while another 25% expect an additional Mortgage QE instead.
- Over 55% of the respondents indicate they are neutral mortgages, and another 25% report they are overweight.
- About 87% of the respondents expect a mortgage replication trade, either in callables, or jointly with swaptions in the near future.
- Expectations of positive sentiments changes in Europe are at 40% and negative sentiment changes at about 30%.

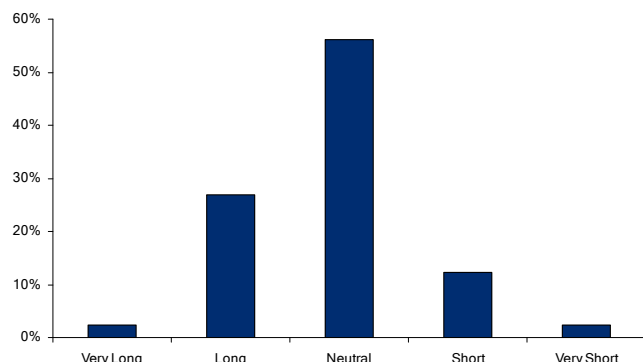
Below is a summary of the survey results.

Figure 13. Survey Results from September's Citigroup Interest Rate Survey



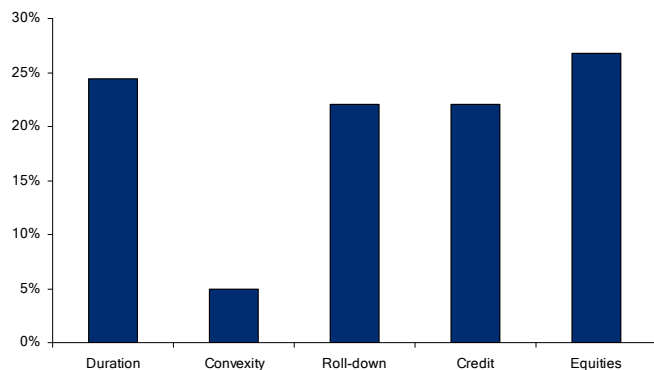
Source: Citi Investment Research and Analysis

Figure 14. My current duration position is



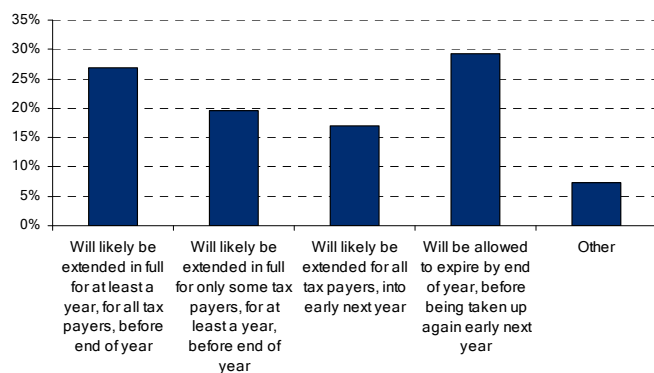
Source: Citi Investment Research and Analysis

Figure 16. Where do you see excess returns coming from over the next three months



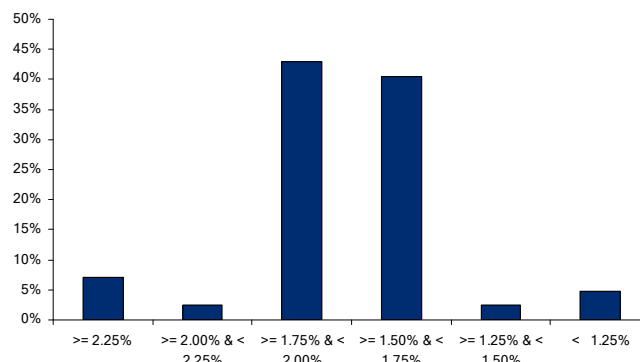
Source: Citi Investment Research and Analysis

Figure 18. The expiring Bush tax cuts



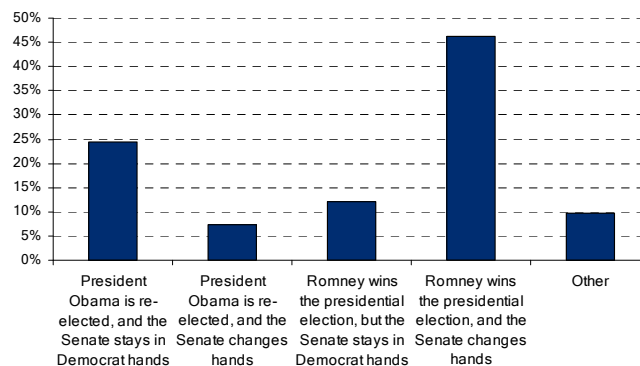
Source: Citi Investment Research and Analysis

Figure 15. In 3 months, 10y treasury yields are



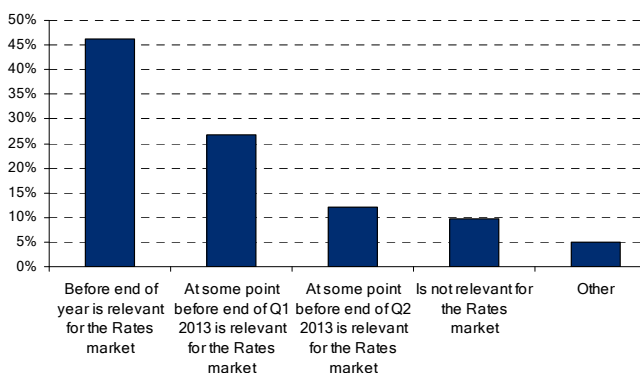
Source: Citi Investment Research and Analysis

Figure 17. The expiring Bush tax cuts will most likely be extended into early next year if



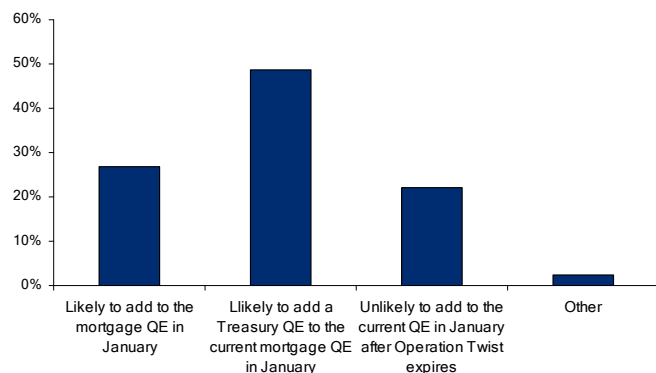
Source: Citi Investment Research and Analysis

Figure 19. Addressing sequestration related budget cuts



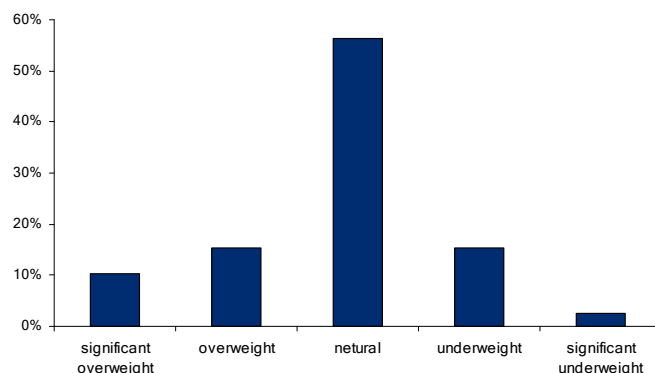
Source: Citi Investment Research and Analysis

Figure 20. The Fed is



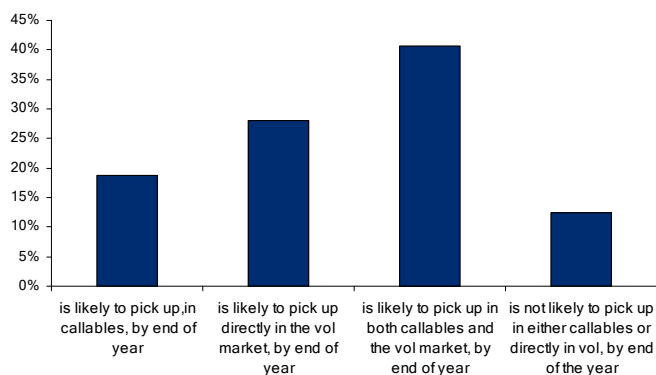
Source: Citi Investment Research and Analysis

Figure 21. My current positioning in the agency MBS market is



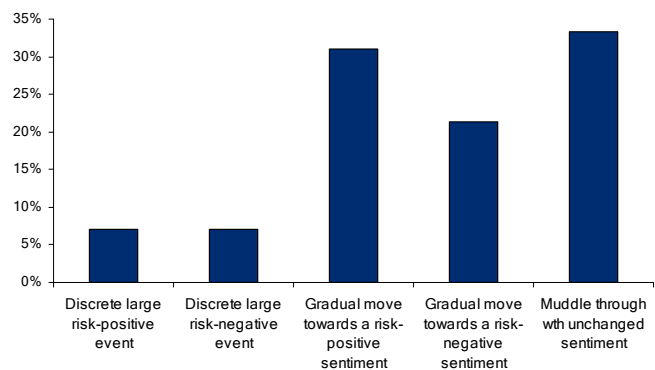
Source: Citi Investment Research and Analysis

Figure 22. A mortgage replication trade



Source: Citi Research

Figure 23. Over the next three months, Europe will see a



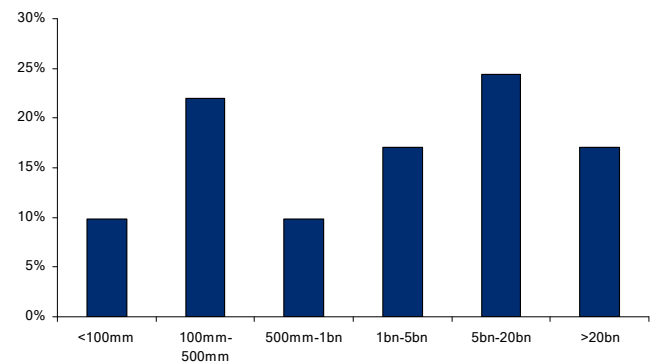
Source: Citi Research

Figure 24. Respondent Breakdown

Bank Portfolio	17%	Insurance Co	7%
Central Bank	2%	Money Manage	9%
Endowment/Trust	4%	Mortgage Inves	0%
GSE	0%	Pension Fund	2%
Hedge Fund	50%	Other	9%

Source: Citi Research

Figure 25. Assets Under Management



Agency MBS

Ankur Mehta
Timothy Chung
Mayank Singhal

Market Overview

30-year production coupon MBS underperformed their duration hedges by 3-6 ticks (Thursday-Thursday closes). Most of this underperformance was driven by the continued downward pressure on dollar rolls, which weakened by another 1/8th to 7/8th over the week. Fed purchased \$15.1bn last week with bulk of the purchases in 30-yr 3.0s. The MBA Refinancing index declined by 2% - in line with our expectations of a flat to down 10% reading – after spiking up to the highest levels since April 2009 last week.

Ginnie Mae released pool level upfront and annual MIP distribution for underlying FHA loans this week. We think that FHA-HARP GN I 3.0s should trade at a payup of approximately 6-7 ticks whereas 3.5s should trade at a payup of 12-15 ticks due to the call protection they provide (we discuss this in more detail in a later section).

More Changes to DU Refi Plus Underwriting

Late yesterday, Fannie Mae updated its selling guide and updated the eligibility requirement for mortgages with certain type of credit enhancement or mortgage insurance coverage for DU Refi Plus loans. Currently, loans with investor-paid mortgage insurance (primary or pool coverage) do not qualify for a DU Refi Plus refinancing. Starting October 13 2012, loans with investor-paid MI and LTV greater than 80% will be eligible for DU Refi plus provided the lender can convert the existing mortgage insurance to borrower-paid or lender-paid coverage. Fannie Mae does not disclose which pools have mortgage insurance making it difficult to narrow down the impact of this change. Although more loans will now be eligible for refinancings, we think that a combination of limited number of loans with investor-paid insurance coupled with the involved process to convert the insurance into a borrower paid or lender paid insurance should result in minimal impact on prepayments.

Trade: Take Profits on Short GN I/II 4.5s Swap¹

We had recommended shorting the GN I/II 4.5s swap on September 27th 2012 when it was being bid at -11 ticks for November settle². We had argued that the GN I deliverable in the coupon will consist of pools issued prior to June 2009 whereas GN II deliverable will consist of 2012 pools. Since the pre-June 2009 pools qualify for FHA-HARP, we expect these pools will continue to prepay faster than the recently issued GN II pools. Currently, the swap is being offered at -24 ticks for November settle and we now recommend taking the 13 ticks profit on this trade as we think the swap is now close to being fairly valued.

¹ We officially took off this trade recommendation in an Agency MBS Trade Recommendation published earlier today.

² Please see the agency MBS Trade Recommendation published on September 27th 2012 for details.

Ginnie Mae Releases MIP Data³

Ginnie Mae released pool level upfront and annual MIP distribution for underlying FHA loans this week. This information is very useful in assessing the call protection on new issue GNMA pools as some FHA borrowers are paying the higher 125bp annual MIP whereas other borrowers going through the FHA-HARP program are paying a 55bp annual MIP. Similar to the pools issued between June 2009 and October 2010 (where underlying FHA borrowers are paying 55bp), these FHA-HARP borrowers will need to pay the higher annual premium of 125bp if they decide to refinance. Amongst the new issue Ginnie Mae MBS, the borrowers paying annual MIP of 55bp can be split into the following three buckets:

- **FHA-HARP:** These are pre-June 2009 borrowers who went through the FHA-HARP program and will now have to pay the higher 125bp annual MIP if they decide to refinance again.
- **Modified loans endorsed prior to June 2009:** These loans were endorsed by FHA prior to June 2009 and were recently modified. The borrowers will continue to pay the 55bp of annual MIP that they were paying and can take advantage of the FHA-HARP refinance program once they have made 12 monthly payments (since the endorsement date is before June 2009). Since they qualify for FHA-HARP, their annual MIP will remain unchanged if they refinance and they will not have the 70bp disincentive thus resulting in faster speeds.
- **Modified loans endorsed between June 2009 and October 2010:** These borrowers have retained the 55bp annual premium after modification but do not qualify for the FHA-HARP program. Thus, they do have a 70bp disincentive to refinance.

Estimating the FHA-HARP Percentage in Pools

Figure 1 shows a summary of the MIP information for the G2 4% October Major. Since the purpose of looking at this information is to figure out the call protection in the pools, we focus on the distribution of loans with an annual MIP of 55bp. Even though Ginnie Mae is providing detailed information on the distribution of annual and upfront MIPs, they are not disclosing what percentage of borrowers paid an upfront MIP of 1bp. This information is crucial as it distinguishes the FHA-HARP loans from the modified loans which continue to pay a 55bp annual MIP⁴. Our conversations with Ginnie Mae have suggested that upfront MIPs for borrowers are being categorized as "Not Available". Thus, these FHA-HARP loans will show up as having a 55bp annual premium and upfront MIP that is not available. If we assume that loans where annual MIP is not available are also the loans where upfront premium is not available, we can take the difference between these two numbers to figure the percentage of FHA-HARP loans in a pool. For example, approximately 3% of the balance of loans in the G2 4.0 pool we considered in Figure 1 have an annual MIP that is not available whereas 15% have an upfront premium that is not available. Thus, we estimate that 12% (15% - 3%) of the pool consists of FHA-HARP pools. Note that 33% of this pool consists of FHA loss mitigation loans which may or may not provide call protection (depending on whether they were endorsed prior to or after June 2009). However, given that these loans are credit impaired and are likely to redefault at a much higher rate, we would discount the call protection offered by them.

³ This section is a reprint of the Agency MBS Comment published on October 11 2012.

⁴ Borrowers going through the FHA-HARP program are required to pay on 1bp of upfront insurance premium.

Figure 26. Summary of the MIP Information for G2 MA0319

	#Loans	\$ Balance	%Balance
Upfront MIP (FHA Loans Only)			
Insurance Premium Not Available	1,482	226,646,436	15
Insurance Premium Between 100-225bp	6,263	1,011,306,065	67
Annual MIP (FHA Loans Only)			
Annual Insurance Premium Not Available	281	46,285,254	3
Annual Insurance Premium Between 25-150bp	7,464	1,191,667,248	79
FHA Loss Mitigation Loans	3,285	498,684,785	33
Est. FHA-HARP Loans	1,201	180361182	12

(Upfront MIP Not Available - Annual MIP Not Available)

Source: Citi Research, Bloomberg

Fair Payup for FHA-HARP Pools

Figure 2 shows the equal OAS valuations for FHA-HARP GN I 3.0s and 3.5s. To get a sense of how much the market will discount equal OAS payups, we also run valuations for GN II 4.5 TBA and double MIP pools. Based on our prepay expectations, the equal OAS payup for double MIP pools is 1-11. These pools are currently trading at a payup of 18 ticks indicating that the market is paying 41% of the theoretical price for these bonds. As we highlighted before, similar to the double-MIP pools (with issue date between June-2009 and October 2010), these FHA-HARP loans offer call protection due to their lower annual MIPs. However, there are three factors that are likely to make the FHA-HARP pools worth more, all else being equal:

- The FHA-HARP pools consist of just FHA loans whereas the double MIP pools consist of a mix of FHA, VA and RHS loans.
- Unlike the double MIP borrowers, the FHA-HARP borrowers have paid just 1bp upfront premium and will not get any refund on the premium if they choose to refinance.
- The overall callability of newer issue lower coupons (3.0s and 3.5s) is higher than 4.5s as the VA percentage on newer bonds has been higher. For the same incentive, this would make call protection worth more in 3.0s and 3.5s than in 4.5s, all else being equal.

Although we are yet to see FHA-HARP pools in size till now (given the execution has not been optimal), we think that FHA-HARP GN I 3.0s should trade at a payup of approximately 6-7 ticks whereas 3.5s should trade at a payup of 12-15 ticks.

Figure 27. Equal OAS Valuation of FHA-HARP and Double MIP Pools

Type	Cpn	WALA	WAC	ALS (\$000)	Tsy OAS (bps)	1-yr CPR	LT CPR	Equal OAS Payup
GN I TBA	3.0	2	3.5	215	-20	6.3	10.8	
GN I FHA-HARP	3.0	0	3.5	200	-20	3.9	10	0-15+
GN I TBA	3.5	6	4	215	-17	14.8	17.1	
GN I FHA-HARP	3.5	0	4	210	-17	7.1	14.3	1-06+
GN II TBA	4.5	17	4.9	175	-4	29.3	27.8	
Double MIP	4.5	26	4.824	190	-4	24.3	24.1	1-11

Source: Citi Research, Yieldbook

Callable Redemption Projections till Year End 2012

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\$131 billion (~1,500 issues) of callable agencies have their next call date from now till the end of the year. Of the \$131 billion, we estimate that approximately 70% (\$91 billion) will be redeemed should rates stay at current levels. Fannie Mae represents approximately \$47 billion of eligible bonds followed by Federal Home Loan Bank with \$39 billion (Figure 2).

Figure 28. Estimated Callable Redemptions for (10/16/2012 - 12/31/2012)

Total Amount Callable (10/16/2012 - 12/31/2012)			Total Estimated Redemption (10/16/2012 - 12/31/2012)					
	Par Amount	% of Total	Rate Scenarios:	-25	0	25	50	75
Total	131,102		Total Redemption	114,344	90,738	66,217	50,087	36,311
			% of Amount Callable	87.2%	69.2%	50.5%	38.2%	27.7%
By Agency			By Agency					
FNMA	47,904	36.5%	FNMA	47,634	47,199	38,569	29,957	23,015
FHLMC	19,431	14.8%	FHLMC	18,331	18,331	17,081	12,846	9,586
FHLB	39,473	30.1%	FHLB	25,205	15,314	5,119	3,859	3,059
FFCB	24,056	18.3%	FFCB	22,936	9,656	5,314	3,365	625
FAMCA	239	0.2%	FAMCA	239	239	135	61	27
By Coupon			By Coupon					
Step Coupon	25,322	19.3%	Step Coupon	16,559	14,940	12,361	11,171	9,766
Fixed	104,628	79.8%	Fixed	97,785	75,798	53,856	38,916	26,545
Floating / Variable	1,152	0.9%	Floating / Variable	0	0	0	0	0
By Call Feature			By Call Feature					
American	38,019	29.0%	American	32,061	13,699	6,486	4,037	847
European	26,985	20.6%	European	25,985	25,985	23,235	19,590	14,360
Bermudan	66,098	50.4%	Bermudan	56,298	51,054	36,496	26,460	21,104
By Month			By Month					
10/16/2012~10/31/2012	40,562	30.9%	10/16/2012~10/31/2012	36,461	26,028	18,187	17,437	16,742
11/01/2012~11/30/2012	49,019	37.4%	11/01/2012~11/30/2012	41,350	33,363	26,936	20,771	14,111
12/01/2012~12/31/2012	41,522	31.7%	12/01/2012~12/31/2012	36,534	31,348	21,095	11,879	5,458

Source: Citi Research

Redemption Estimates - November

Figure 29. Estimated Callable Redemptions for November

Total Amount Callable (11/01/2012 - 11/30/2012)			Total Estimated Redemption (11/01/2012 - 11/30/2012)					
	Par Amount	% of Total	Rate Scenarios:	-25	0	25	50	75
Total	49,019		Total Redemption	41,350	33,363	26,936	20,771	14,111
			% of Amount Callable	84.4%	68.1%	54.9%	42.4%	28.8%
By Agency			By Agency					
FNMA	18,806	38.4%	FNMA	18,686	18,636	16,286	12,231	7,921
FHLMC	6,964	14.2%	FHLMC	5,914	5,914	5,914	5,464	5,014
FHLB	17,548	35.8%	FHLB	11,550	5,217	1,927	1,382	737
FFCB	5,592	11.4%	FFCB	5,091	3,487	2,707	1,634	413
FAMCA	110	0.2%	FAMCA	110	110	103	61	27
By Coupon			By Coupon					
Step Coupon	9,409	19.2%	Step Coupon	5,824	5,278	4,288	3,838	3,673
Fixed	38,565	78.7%	Fixed	35,526	28,085	22,648	16,933	10,438
Floating / Variable	1,045	2.1%	Floating / Variable	0	0	0	0	0
By Call Feature			By Call Feature					
American	10,633	21.7%	American	8,119	4,303	3,149	1,941	445
European	11,690	23.8%	European	10,690	10,690	10,515	9,935	6,010
Bermudan	26,695	54.5%	Bermudan	22,540	18,369	13,272	8,895	7,656

Source: Citi Research

Redemption Estimates - December

Figure 30. Estimated Callable Redemptions for December

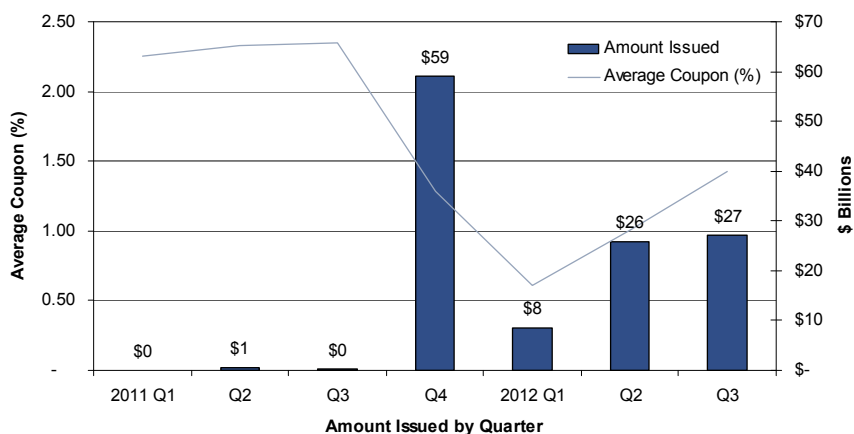
Total Amount Callable (12/01/2012 - 12/31/2012)			Total Estimated Redemption (12/01/2012 - 12/31/2012)					
	Par Amount	% of Total	Rate Scenarios:	-25	0	25	50	75
Total	41,522		Total Redemption	36,534	31,348	21,095	11,879	5,458
			% of Amount Callable	88.0%	75.5%	50.8%	28.6%	13.1%
By Agency			By Agency					
FNMA	16,293	39.2%	FNMA	16,193	15,808	9,928	5,646	3,139
FHLMC	9,162	22.1%	FHLMC	9,162	9,162	7,912	4,127	1,317
FHLB	9,502	22.9%	FHLB	4,822	3,322	1,220	805	790
FFCB	6,435	15.5%	FFCB	6,227	2,926	2,002	1,301	212
FAMCA	129	0.3%	FAMCA	129	129	32	0	0
By Coupon			By Coupon					
Step Coupon	9,347	22.5%	Step Coupon	6,509	5,676	4,221	3,691	2,576
Fixed	32,115	77.3%	Fixed	30,025	25,672	16,874	8,188	2,882
Floating / Variable	60	0.1%	Floating / Variable	0	0	0	0	0
By Call Feature			By Call Feature					
American	9,641	23.2%	American	7,861	3,508	2,352	1,391	252
European	7,805	18.8%	European	7,805	7,805	5,930	2,865	1,560
Bermudan	24,075	58.0%	Bermudan	20,867	20,034	12,812	7,623	3,646

Source: Citi Research

When Were They Issued?

Approximately \$60 billion (or 45%) of the bonds that are up for call in the fourth quarter were issued in Q4, 2011 with an average coupon of 1.28% (Figure 5). Together, callables issued in Q2 and Q3 of 2012 account for an additional 53 Bn of the eligible callables but with lower average coupons of 1% and 1.43%, respectively.

Figure 31. Callable Agencies Eligible for Redemption by Date of Issuance and Average Coupon



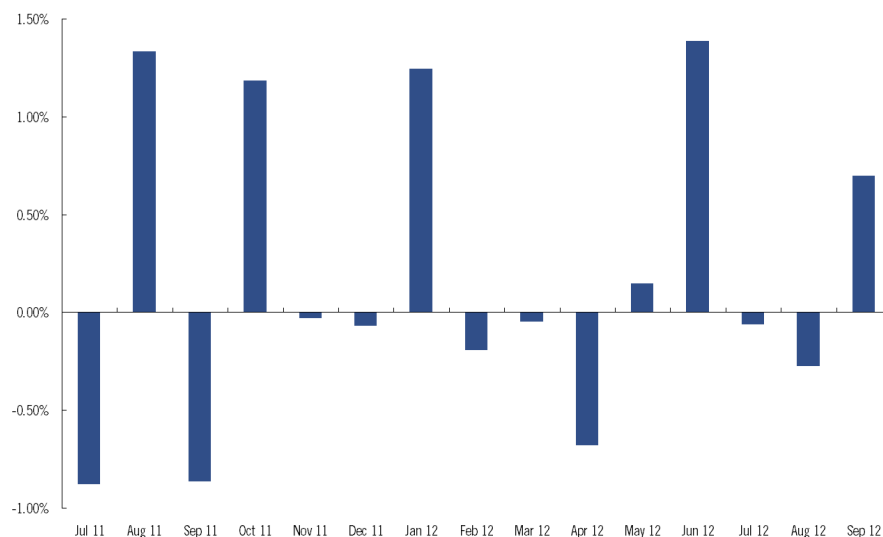
Source: Citi Research

Arjune Bose

US Rate Strategy Model Portfolio Update

The US Rate Strategy Model Portfolio is up 0.70% for the month of September. Figure 36 shows the monthly model portfolio returns over the past 16 months. Below we show all current outstanding trades. Note that we have removed all trades from 2010. To see the old trades, please refer to a previous publication.

Figure 32. Monthly Returns for the US Rate Strategy Model Portfolio, June 11- September 12



Source: Citi Research

Outstanding Trade Recommendations

All closed trades since the beginning of 2012 are listed in the Appendix.⁵

Sell 5y5y Forward Inflation Swaps (Opened October 3, 2012, horizon 3 months). We recommend selling 5y5y forward inflation swaps, given that the curve looks too high for us, even with QE 3 operations priced in.

Buy 6m10y Swaption Straddles and Sell 3y10y Swaption Straddles (Opened September 14, 2012, horizon 3 months). We recommend selling intermediate vega. This trade is down -\$39k.

Buy 7y Treasuries Outright (Opened September 13, 2012, horizon 3 months). We recommend going long duration, buying 7yr Treasuries. The Fed re-iterated its desire to provide accommodation for the foreseeable future and at the same time provided a modest amount of QE. This path of policy should favor the middle of the Treasury curve. This trade is up +\$1.43mm.

Buy 1y10y Swaption Straddles and Sell 6m10y Swaption Straddles (Opened May 11, 2012, horizon 1 year). We recommend buying forward vol for a post-election trade. This trade is down -\$278k.

Buy 2y10y Payer Ladders (Opened November 4, 2010, horizon 2 years). To express confidence in the Fed achieving its policy goals, we recommend buying 2y10y payer ladders to target a gradual sell-off in 10yr rates over a two-year horizon. The trade is down -\$60K.

⁵ For a detailed list of all closed trades from May 2006 to May 2007, please see "US Rate Strategy — Trade Closeout," *US Rate Strategy — Bond Market Roundup: Strategy*, Citi, May 11, 2007.

Figure 33. Summary of US Rate Strategy Model Portfolio Performance, August 30, 2012

US Rates Strategy Model Portfolio			
INFLATION	Sell 5y5y inflation swap Sel \$50MM 5y5y Inflation Forwards @ 3.05	Open	3.050%
		Current	2.990%
		P&L	356
		Target	805
		Stop	460
			Oct 3, 2012 3 Month(s)
VOL	Sell 100mm 3y10y and buy 6m10y straddles Sell \$100mm 3y10y Straddle Buy \$40mm 6m10y Straddle	Open	91.9 bps
		Current	88.67 bps
		P&L	43
		Target	700
		Stop	(350)
			Sep 14, 2012 3 Month(s)
RATES	Long 7y Treasuries Buy \$200MM 7y Treasuries	Open	1.150%
		Current	1.080%
		P&L	1,233
		Target	2,667
		Stop	(2,000)
			Sep 13, 2012 3 Month(s)
VOL	Buy forward vol for a post-election trade Sell \$100 MM 6m10y Swaption Straddle Buy \$100 MM 1y10y Swaption Straddle	Open	2.105 MM
		Current	-425K
		P&L	(425)
		Target	2,000
		Stop	(1,000)
			May 11, 2012 12 Month(s)
			We expect volatility in rates post election, similar to the move post debt-ceiling debate.
VOL	Buy 2y10y Payer Ladders Buy 2y10y Payer Swaption on \$100MM @ 4.296 (ATM+75bp) Sell 2y10y Payer Swaption on \$100MM @ 4.796 (ATM+125bp) Sell 2y10y Payer Swaption on \$100MM @ 5.546 (ATM+200bp)	Open	60
		Current	0
		P&L	(60)
		Target	3,000
		Stop	(1,500)
			Nov 4, 2010 24 Month(s)
			We target a gradual sell-off in 10y rates over a 2-year horizon.
		P&L (\$'000s)	Portfolio Return
Net P&L from Open Trades		1,147	0.38%
P&L from Closed Trades Year-to-Date		6,966	2.32%
Total P&L Year-to-Date		8,114	2.70%
Total P&L Since Portfolio Inception on May 11, 2007		124,890	41.63%

Source: Citi Research. (a) For a detailed list of all closed trades from May 2006 to May 2007, please see "US Rate Strategy — Trade Closeout," US Rate Strategy — Bond Market Roundup: Strategy, Citi, May 11, 2007. For a detailed list of all closed trades from May 2007 to May 2008, please see "US Rate Model Portfolio One-Year Anniversary Recap," US Rate Strategy — Bond Market Roundup: Strategy, Citi, May 30, 2008. Between May 2007 and May 2008, the group made a total of 87 trade recommendations, with 50 producing positive results, 36 negative, and one breaking even. This produced a 15.4% total return, with a 1.68 Sharpe ratio. Note: Return on risk is based on Citi's return-on-risk methodology and is calculated by taking the largest two-week change in the trade since January 1997. Return on portfolio based off \$300 million model portfolio sizing.

Appendix: Model Portfolio Closed Trades

Figure 34. US Rate Strategy Closed Trades in 2012

	Inception Date	Unwind Date	Initial	Unwind	P&L (\$000s)	Target P&L	Stop Loss	Risk Return	Portfolio Return
Buy Gold, Sell Fannie Back Month 5.0 Coupon Rolls	Nov 17, 2011	Jan 10, 2012	-0.26	-0.015	\$352	781	625	23%	0.12%
3yr - 7yr Treasury Flatteners	Jan 24, 2012	Jan 30, 2012	109.5 bp	94 bps	\$1,520	1,465	781	71%	0.51%
Long 10y Breakevens	Sep 22, 2011	Feb 3, 2012	1.85	2.25	\$2,770	2,680	1,340	103%	0.92%
Short GN/FN 4.5s	Feb 10, 2012	Feb 23, 2012	2-17+	2-14+	\$234	1,000	500	23%	0.08%
Sell ATM 1y5y vs 1y10y vega-weighted	Jan 27, 2012	Mar 12, 2012	2,050		(\$552)	1,080	540	-27%	-0.18%
Buy 3yr Treasuries	Feb 10, 2012	Mar 13, 2012	37.3 bps	48.6 bps	(\$700)	1,068	712	-36%	-0.23%
Buy Conventional 3.5s vs 4.5s	Mar 9, 2012	Mar 22, 2012	2-31 Tsy 2.03	3-28.2 Tsy 2.28	(\$350)	700	350	0%	-0.12%
Long Gamma for 3 days	Mar 27, 2012	Apr 2, 2012	2.08	2.077	(\$231)	1,000	500	0%	0.00%
10yr - 30yr Treasury Steepener	Jan 13, 2012	Apr 12, 2012	104bp	121bp	\$1,431	1,802	901	132%	0.48%
1by2by1 in Payers	Jan 20, 2012	Apr 19, 2012	3bp	0	(\$245)	2,205	2,205	-100%	-0.08%
Short Duration via Steepener	Mar 30, 2012	Apr 19, 2012	165.3 bp	156.6 bps	(\$880)	1,323	882	-31%	-0.29%
Buy FN 30yr 3.5s vs 10yr Swaps	Mar 30, 2012	May 31, 2012	102-30 / 2.23	105-00/6 / 1.7458	(\$546)	938	469	-116%	-0.18%
Buy Ginnie II MJ Roll, Sell Ginnie I MJ Roll in 4.5s	Apr 19, 2012	Jun 5, 2012	GN II 0-04.2 / GN I 0-04	GN II 0-03.2 / GN I -0-02.7	\$40	625	313	13%	0.01%
Long 30yr TIPS Breakevens	May 10, 2012	Jun 6, 2012	229 bps	228 bps	\$3,700	3,700	1,850	80%	1.23%
Conditional Bullish Swap Spread Wideners	Feb 3, 2012	Jun 18, 2012	0	\$15.63K	\$16	860	430	1%	0.01%
Sell near-strike receivers to buy inexpensive wing protection	Feb 10, 2012	Jun 18, 2012	0	575,000	\$650	1,000	500	58%	0.19%
2yr - 10yr Beta-Weighted Flatteners	May 10, 2012	Jun 21, 2012	162 bps	130 bps	\$1,200	1,400	700	86%	0.40%
Buy 6m10y Payers	Mar 30, 2012	Jun 28, 2012	94.5 vol	81.6 vol	(\$1,000)	2,000	1,000	-100%	-0.33%
Sell 2y5y10y Fly	Jun 22, 2012	Jul 2, 2012	-47 bps	-53.7 bps	(\$350)	470	260	-135%	-0.12%
1m 5y10y Payer Flatteners	Jun 22, 2012	Jul 24, 2012	77.9 bps	76.55 bps	\$128	200	100	128%	0.04%
Buy atm 3m10y Straddles, delta-hedged 5 bp	Jul 20, 2012	Aug 2, 2012	68 bp/annum	75 bp/annum	\$340	1,000	110	34%	0.11%
Add duration prior to central bank meetings	Aug 1, 2012	Aug 7, 2012	1.003%	0	(\$700)	1,005	670	-58%	-0.23%
Receive 3y3y swap ahead of central bank meetings	Aug 1, 2012	Aug 7, 2012	1.542%	0	(\$700)	645	430	-78%	-0.23%
Long 5y Breakevens	Aug 23, 2012	Sep 14, 2012	1.923%	2.3%	\$840	700	140	0%	0.00%
P/L from closed trades (YTD)					\$6,966				2.09%
P/L from all closed trades (since 05/11/07)					\$123,743				41.25%

Note: For trades before January 2012 please see *US Rates & Strategy Weekly*, January 6, 2012.

Source: Citi Research.

Appendix A-1

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The research analyst(s) primarily responsible for the preparation and content of this research report are named in bold text in the author block at the front of the product except for those sections where an analyst's name appears in bold alongside content which is attributable to that analyst. Each of these analyst(s) certify, with respect to the section(s) of the report for which they are responsible, that the views expressed therein accurately reflect their personal views about each issuer and security referenced and were prepared in an independent manner, including with respect to Citigroup Global Markets Inc and its affiliates. No part of the research analyst's compensation was, is, or will be, directly or indirectly, related to the specific recommendation(s) or view(s) expressed by that research analyst in this report.

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