

# Bianco Research L.L.C.

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## Commentary

Market Opinions and Topics of Interest

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September 18, 2002

### Is the Convexity Trade “Getting Away” From Fannie? Are They The Next LTCM?

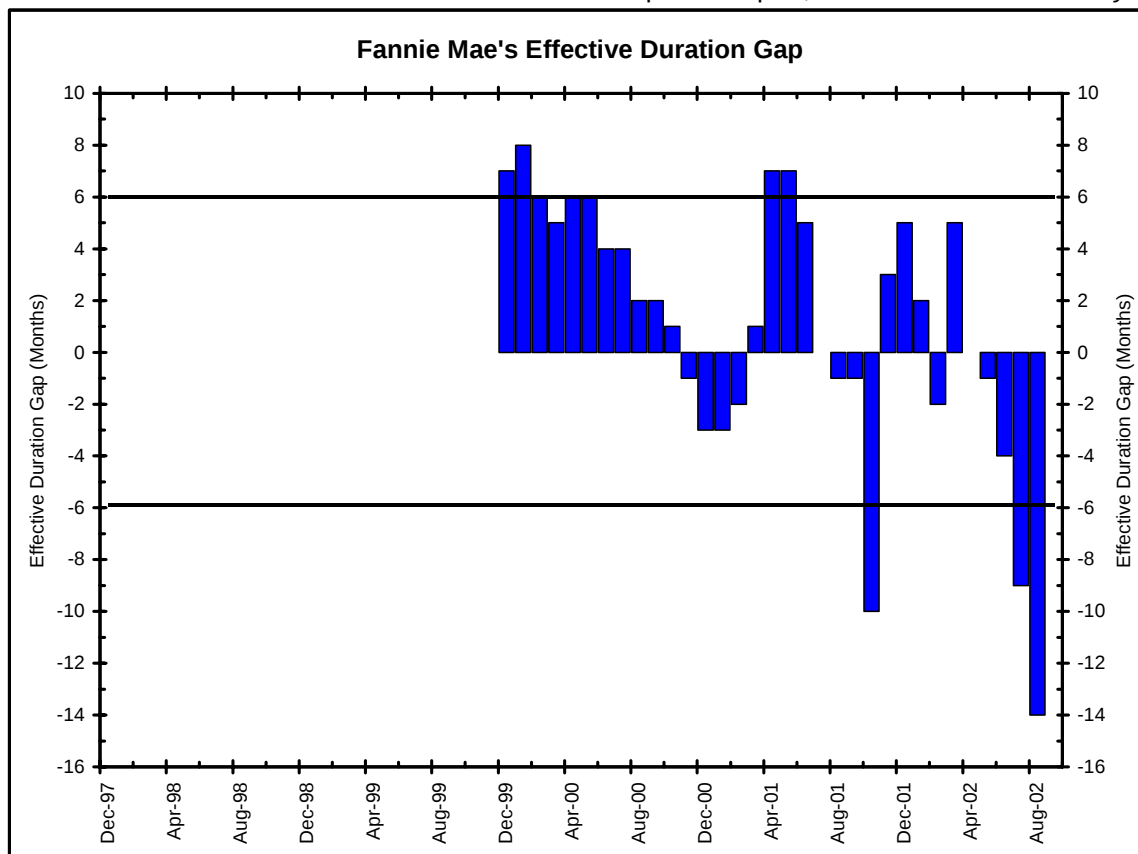
On Monday, Fannie Mae reported its *Monthly Financial Summary* for August. Normally this kind of minutiae is not of concern for most non-mortgage bond players. However, this data brings up some larger questions for all bond market players. First we need a quick review of the more important statistics.

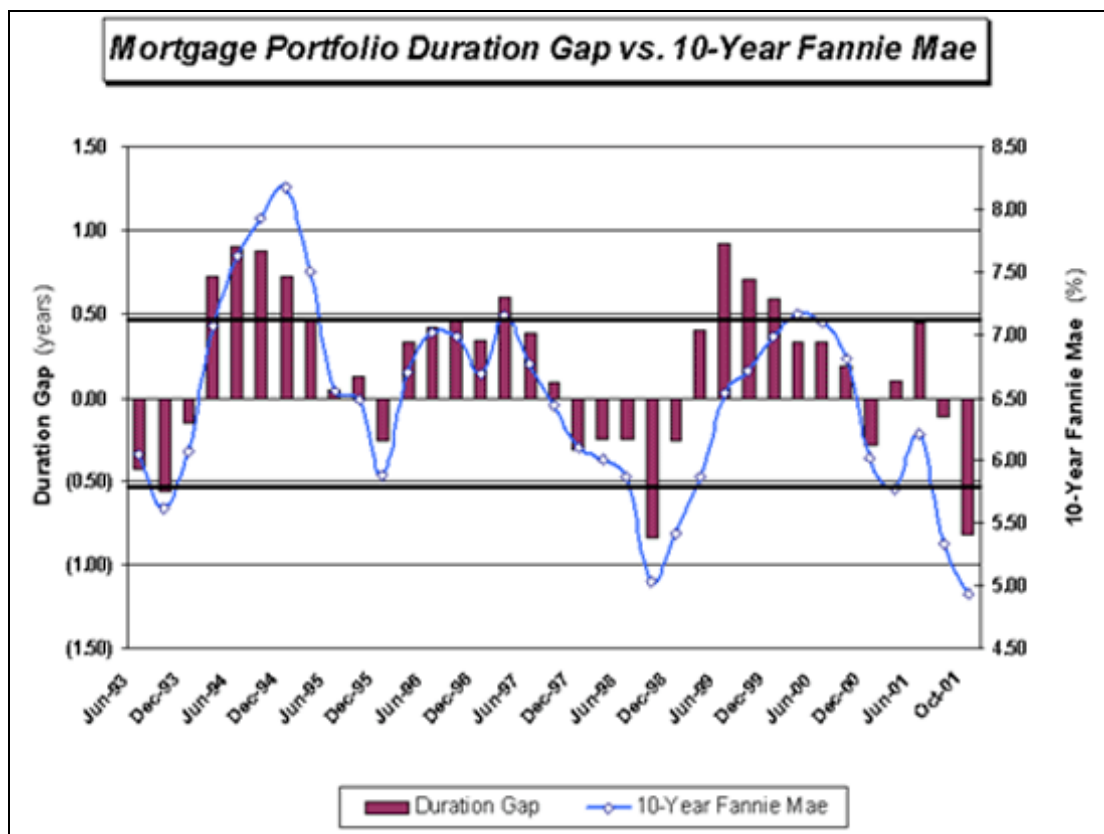
#### The Duration Gap - A Record *Minus* 14 Months

As the chart below shows, Fannie Mae's duration gap was **minus** 14 months. This is the most “out of balance” Fannie has been since they started

reporting monthly performance in early 2000. This duration gap divergence is also larger than any reported divergences in the 10-years of quarterly reporting back to 1993. Also shown on the chart is Fannie Mae's self-imposed threshold of plus/minus 6 months for the second consecutive month.

What this means is that Fannie Mae's assets (i.e., their mortgage portfolio) had a duration that was 14 months shorter than their liabilities (i.e., the Agency securities they have issued). For more detail on the relevance of this statistic, see our September 2002 Special Report, *A Primer on the Convexity Trade*.





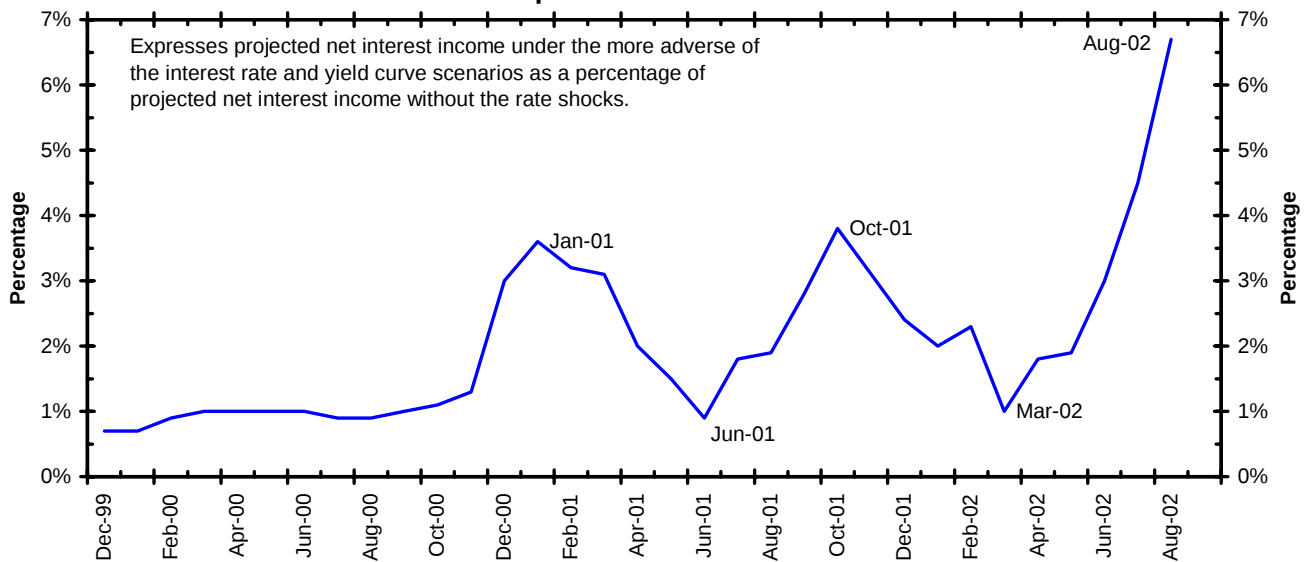
### The Large Duration Gap Means More Interest Rate and Yield Curve Risk For Fannie

When Fannie has a duration gap of zero, it means its assets (mortgage portfolio) and liabilities (agency securities it has issued) have the same duration. This means they have minimal risk to the movements of interest rates or shifts in the yield curve. When a large duration gap opens up, Fannie Mae's net interest income (which accounts for about two-thirds of their overall income) becomes vulnerable to interest rates and the yield curve. Fannie Mae publishes statistics that measure this vulnerability.

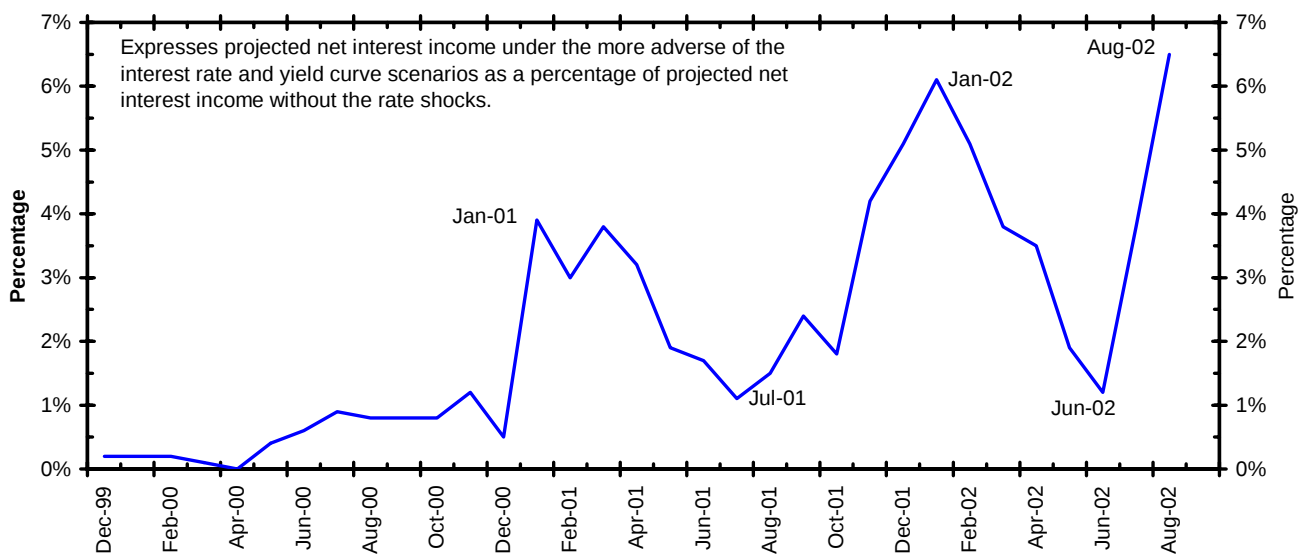
The first chart on the net page shows the "slope shock" statistic. This is a Fannie Mae generated statistic that measures how much of their net interest income is at risk should the movement of the yield curve "shock" by 25 basis points. Currently, 6.7% of Fannie Mae's net interest income over the next year is at risk – a record.

Similarly, the second chart on the next page shows the Fannie Mae generated "rate shock" statistic. This shows how much of Fannie Mae's net interest income is at risk should a change in interest rates "shock" by 50 basis points. Currently, 6.50% of Fannie Mae's net interest income over the next year is at risk – also a record.

### Fannie Mae Portfolio Net Interest Income at Risk 1-Year "Slope Shock" of 25 Basis Points



### Fannie Mae Portfolio Net Interest Income at Risk 1-Year "Rate Shock" of 50 Basis Point

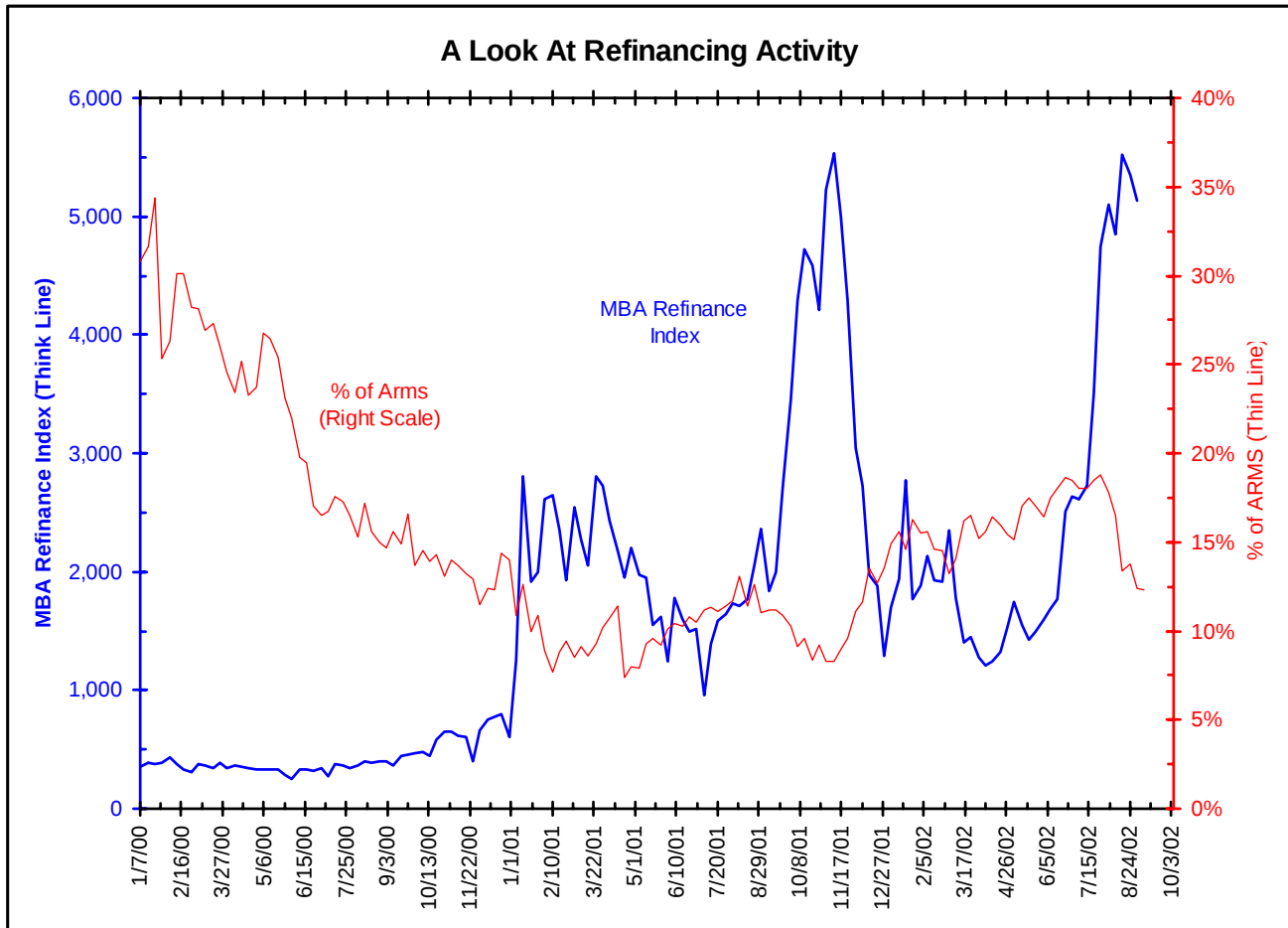


### Why is Fannie Mae Out of Balance?

What happened to Fannie Mae to cause them to become this “out of balance?” The company blames this duration shortfall on heavy refinancing and falling interest rates. While these are legitimate reasons, August was not that unusual a month – July was. On August 5, the 10-year’s yield was 4.21%. On August 28, the 10-year’s yield was again

4.21%. So, for most of the month, interest rates were stable.

Refinancing was high in August. However, it was stable and near the peaks seen last October. This type of refinancing activity should **not** have come as a great shock given the historically low level of interest rates. Fannie Mae’s large duration gap suggests they were indeed surprised.



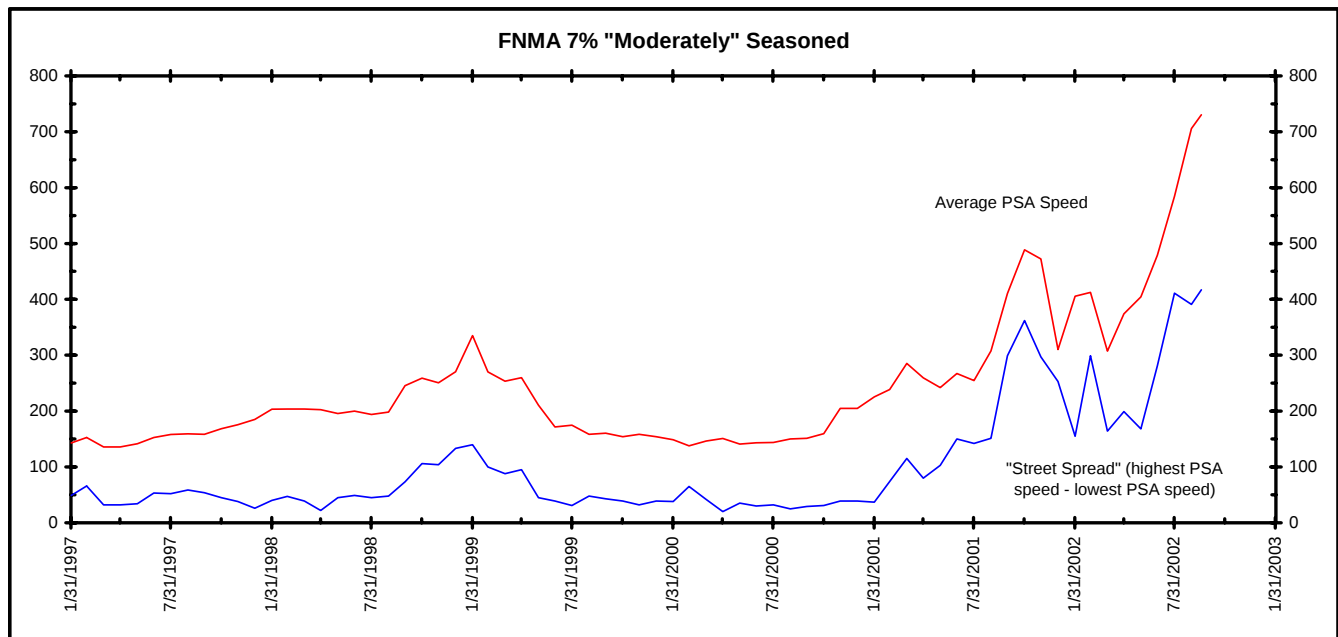
### Are The Models Breaking Down?

Mortgage players spend a tremendous amount of time “modeling” the behavior of homeowners refinancing activity. It is critical to their business activity. They try to anticipate how homeowners will react to changes in interest rates. Most of the time their models are correct. However, when a “three-standard deviation event” occurs, these models often fail.

Currently, we are having a “three-standard deviation event” – 40-year lows in interest rates. We believe this event is reeking havoc on the models that mortgage player’s use in estimating prepayment activity. This is why Fannie Mae was “surprised” by the activity in August and its duration gap was so wide.

The chart on the next page underscores the confusion these historically low interest rates are causing. It shows “the street’s” estimates for refinancing activity, or PSA (prepayment standard assumptions), speeds for a “moderately seasoned” Fannie Mae 7% mortgage (“moderately seasoned” means mortgages that have an average life of 25.25 years).

Notice that when interest rates started reaching historic lows, prepayment speeds (refinancing activity) began to increase geometrically. This is no surprise. However, as these historic lows were being reached, notice that “the street” estimates of PSA speeds began to wildly diverge. This chart shows the confusion about the pace of refinancing activity. If the “experts” cannot agree on the pace of refinancing activity, it makes it especially difficult to manage the duration gap of a mortgage portfolio.

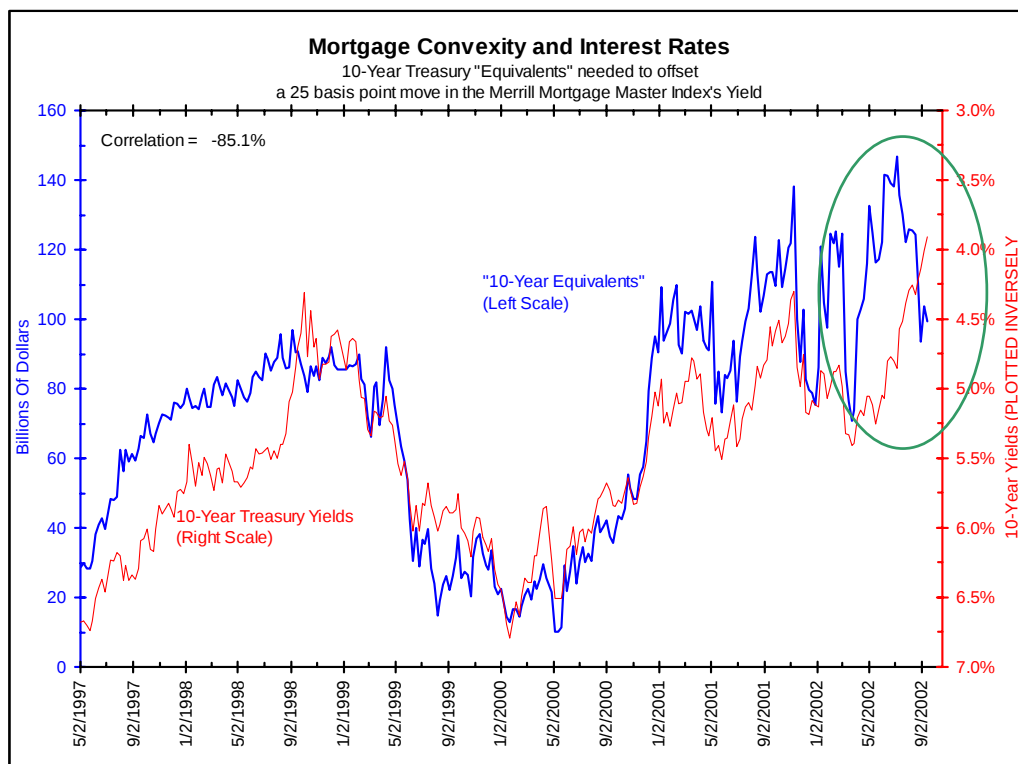


### Measuring Lost/Gained Duration Is Not Working As One Would Expect

Another way to measure the size of the convexity trade is to measure changes in duration and how they impact the bond market. In other words, how active are the convexity traders?

To illustrate this concept, we created the chart below. It shows the equivalent amount of 10-year Treasury Notes needed to offset a 25 basis point move in the yield of the Merrill Mortgage Master Index. This chart is re-calculated weekly.

In the history of this chart, the 10-year equivalents and interest rates have been closely correlated. However, these two series have recently started to diverge (see the green oval). Most people do not believe this is suppose to happen – they believe that the further interest rates fall, the greater the need to replace duration (more 10-year equivalents). However, this chart is further evidence that the historical relationships are breaking down as interest rates move to record lows.



### Is Fannie Mae The Next LTCM?

First an explanation of this potentially inflammatory phrase:

LTCM was **not** a fraud, like Enron. Nobody went to jail over this debacle, nor should anybody have served time.

LTCM was a bunch of "smart investors" that **thought** they understood the markets, over-leveraged themselves, and when they realized they did not understand the markets, they blew up. What makes LTCM unique is that they were so big that their failure affected all markets everywhere.

Likewise, we do not believe that Fannie Mae is fraudulent, immoral or even fattening. Rather, our concern is that their sheer size can impact everybody should "they get it wrong." As we detailed above, the evidence is starting to mount that the historically low level of interest rates is making their models and assumptions go awry.

Our fear is that Fannie Mae is now coming under severe pressure that will lead to distortions in the marketplace. Their regulator, OFHEO (Office of Federal Housing Enterprise Oversight), is already asking for weekly disclosure of their duration gap. This suggests that there is great concern and Fannie is being pressured to "fix this problem."

By some estimates/street rumors, Fannie Mae may need to buy as much as \$100 billion of 10-year equivalents to get their duration gap back to minus 6 months. Whether this number is true or not, the amount of buying they need to do is huge given they have a \$740 billion mortgage portfolio and another \$600+ billion of notional derivatives.

We believe this may be happening already. On August 30, the yield of the 10-year Treasury was 4.14%. It is currently 3.81%. The economic and

fundamental news over the last few weeks has not been bad enough to "justify" such as move. However, the market trades like it has a huge buyer. Is it Fannie Mae trying to get back into balance?

### Conclusion

Fannie Mae's predicament is more than an issue for mortgage players. Their sheer size affects all fixed-income players.

**Our biggest fear is that they are creating a "bubble" in the bond market.** If their prepayment models are not working due to the historically low level of interest rates and they are frantically buying long-dated assets to replace lost duration, they could be pushing interest rates much lower than they should be. Since virtually no economist understands Fannie's effects on interest rates, many are reading this rate plunge as a fundamental move ("deflation", "reverse wealth effect," "double-dip recession"). Even the Federal Reserve is talking about easing largely due to falling interest rates.

These distortions will cause rates to fall more than they should and eventually will cause them to rise more than would otherwise. Remember the last big convexity-trading period was last fall. When it ended, 10-year yields spiked over 100 basis points in less than five weeks.

History shows us that mortgage players repeatedly have problems when interest rates plunge (Merrill Lynch in 1986/1987, Grantite partners in 1994, Wellington Capital in 1998). Currently, the largest fixed-income portfolio, the largest derivatives player and the most important player in the housing market are all the same. If they are having problems, the rest of us will know it soon.

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