September 30, 2015

United States

The Mortgage Analyst

Credit Strategy Research

What's special about dollar roll specialness?

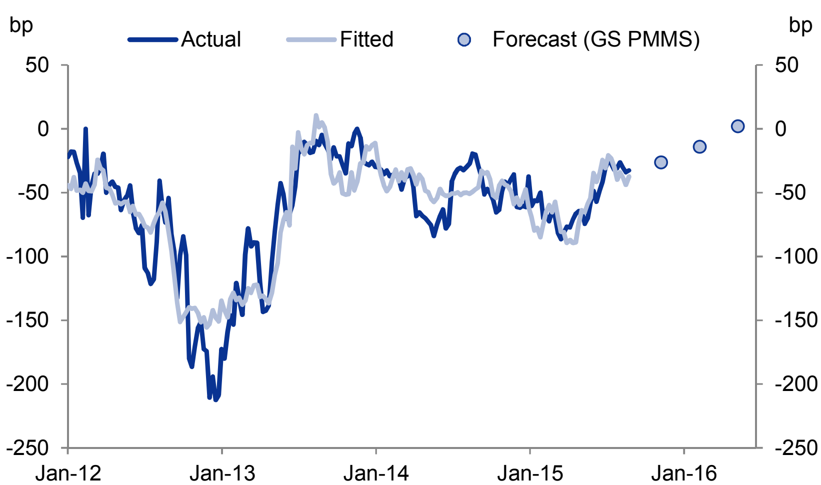
Dollar rolls became less special recently

Mortgage dollar rolls have been trading special over the past few years, meaning that the implied financing costs of TBA through dollar rolls have been much lower than general repo rates. However, over the past six months, dollar rolls have trended less special.

We expect specialness to continue to decline on higher rates

We link dollar roll specialness to mortgage rates, MBS issuance, and Fed purchases. Under our baseline scenario, 10-year Treasury yields rise to 2.5% by year-end 2015 and to 3.0% by year-end 2016, driving 30-year mortgage rates to 4.2% and 4.8% at the end of 2015 and 2016, respectively. Higher mortgage rates suggest that the trend of lower dollar roll specialness is likely to extend over the coming quarters, supporting our view of favoring specified pools over TBAs.

We expect dollar rolls to become less special in coming quarters



Source: Goldman Sachs Global Investment Research.

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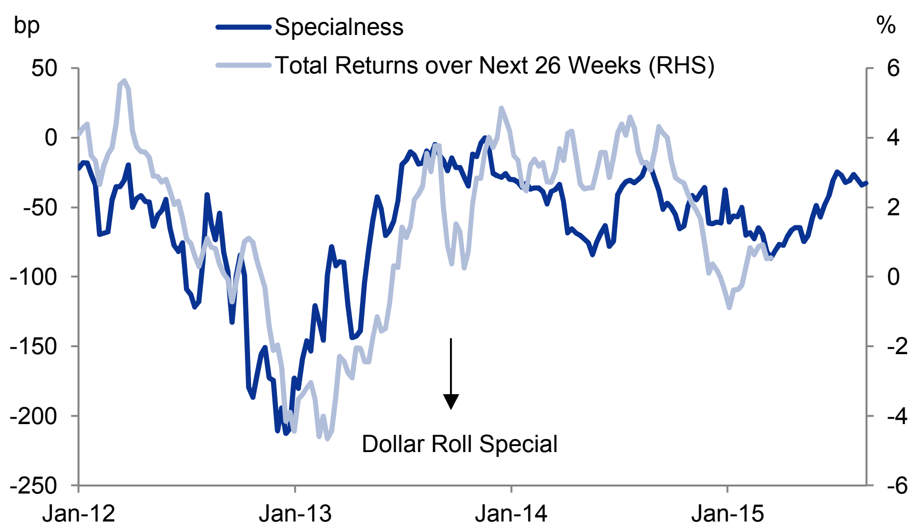
What's special about dollar roll specialness?

The to-be-announced (TBA) market—where heterogeneous mortgages can be packaged and traded on a few parameters such as agency, coupon, and original mortgage term—makes agency MBS one of the most liquid fixed-income markets worldwide. MBS investors can finance their positions through repo transactions or dollar roll transactions. When the dollar roll is special, meaning its implied financing rate is lower than repo, MBS investors face different incentives when allocating assets. For example, dollar roll specialness implies low financing costs for buying mortgages, and therefore supports rich valuation in the TBA market. In addition, investors typically hedge their holdings of specified pools with TBA pass-throughs. Dollar roll specialness raises their hedging costs and makes specified pools less attractive to own. As shown in Exhibit 1, dollar roll specialness also correlates with the subsequent performance of agency MBS (measured by the Yield Book total return index). In this *Mortgage Analyst*, we examine the supply of and demand for mortgage dollar rolls and discuss our outlook for dollar roll specialness.

Exhibit 1: Dollar roll specialness correlates with subsequent performance of agency MBS
Specialness of FNM30 3.5 dollar roll and total returns of FNM30 3.5 over the next 26 weeks



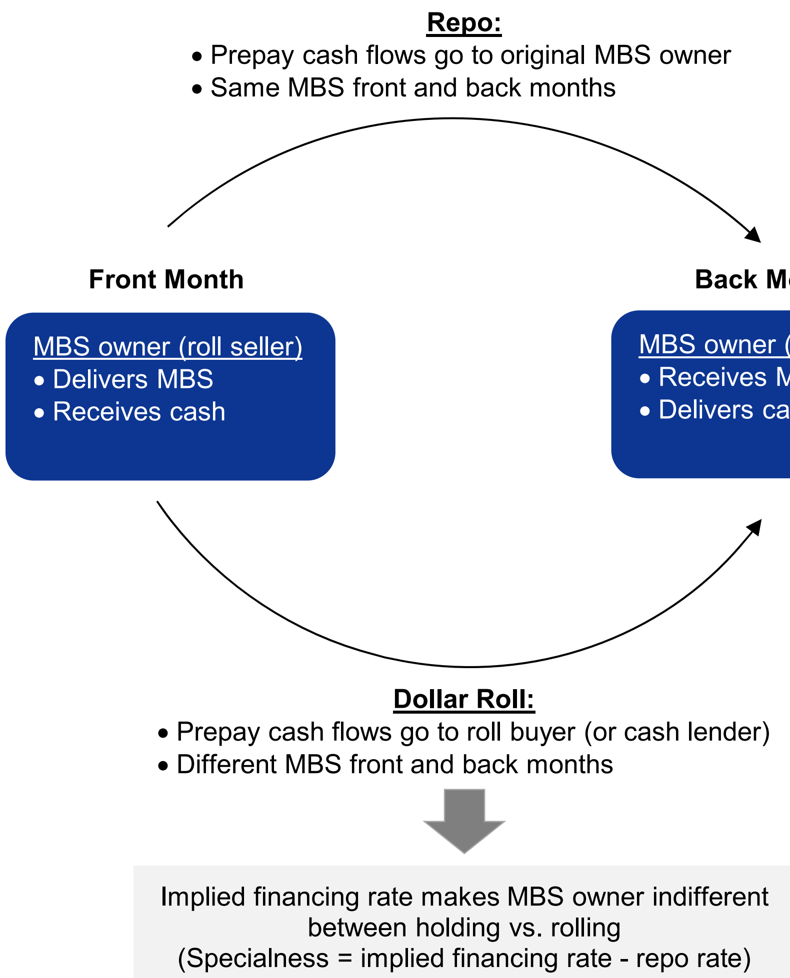
Source: Yield Book, Goldman Sachs Global Investment Research.

A primer on mortgage dollar rolls

Before diving into our statistical model, we provide a brief overview of how dollar rolls work. In essence, a dollar roll transaction is a combination of two TBA contracts: The first contract involves the roll seller selling MBS in month t (the front month) in exchange for cash. The second contract involves the roll seller buying back a substantially similar MBS at pre-determined prices in month $t+1$ (the back month).

As Exhibit 2 shows, dollar roll transactions differ from repo transactions in two ways: First, in a repo transaction, proceeds from mortgage prepayments belong to the original MBS owner (or cash borrower), whereas these proceeds go to the cash lender in a dollar roll transaction. Second, in a repo transaction, the cash borrower buys back the exact same CUSIP in the back month, whereas the cash lender only has to deliver a TBA pool of the same characteristics (e.g., FNM30 3.5) in a dollar roll transaction.

Exhibit 2: How a dollar roll transaction works



Source: Goldman Sachs Global Investment Research.

In equilibrium, the front month and back month prices are set such that MBS owners are indifferent between holding the mortgages for one month vs. rolling them from month *t* to month *t+1*. These two prices, combined with expectations about scheduled and unscheduled payments of the MBS, yield an implied financing rate for the MBS owner. If this implied financing rate is below the prevailing market interest rate, such as the MBS repo rate, the dollar roll is traded special. Mathematically, dollar roll specialness equals the difference between the implied financing rate and the repo rate. The lower this number is, the more special the dollar roll is.

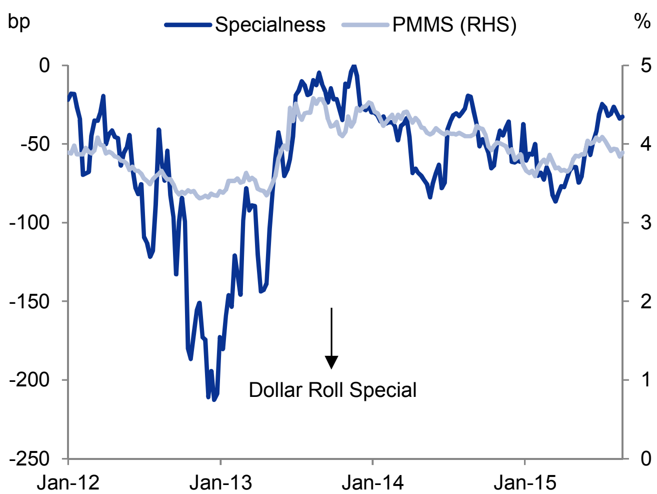
Determinants of dollar roll specialness

In the rest of our analysis, we focus on FNM30 3.5. There was significant issuance of FNM30 3.5 throughout our sample period of 2012-2015. FNM30 3.5 is also the most liquid TBA pass-throughs currently, accounting for nearly 60% of all conventional 30-year TBA trading volume. Compared to other securities, movements in FNM30 3.5 dollar roll specialness are driven more by the macro factors that we discuss below than by idiosyncratic market technicals.

Following Song and Zhu (2015), we look at two drivers of roll specialness: prepayment risk and supply effect.[1] Because any unscheduled prepayments go to the roll buyer, the original MBS owner (or roller seller) may demand a higher price in the front month and/or a lower price in the back month as compensation for prepayment uncertainties. Also, because the roll buyer only has to deliver a "substantially similar" MBS in the back month, the roll seller may require more compensation when there is significant variation in TBA quality. Both considerations imply that dollar rolls should trade more special when mortgage rates are low and households are in-the-money for refinancing (Exhibit 3).

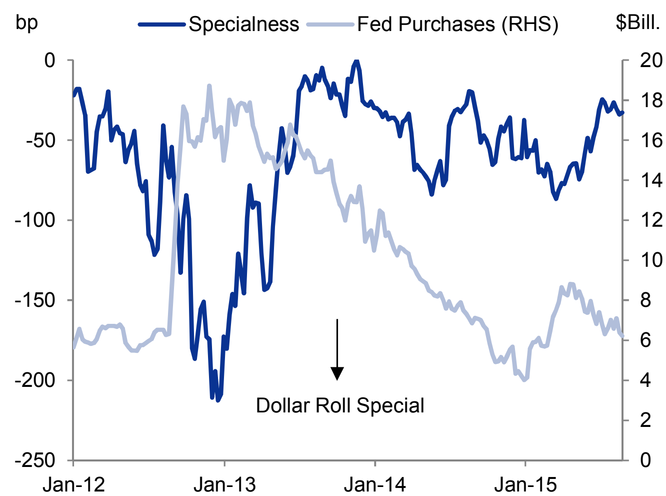
Besides prepayment risk, the supply of MBS in the market also affects TBA prices and dollar roll specialness. Recall that specialness is calculated based on the difference between front month and back month TBA prices. When there is a lack of supply, the front month price rises, benefiting the roll seller and causing dollar rolls to trade special. In September 2012, the Fed began QE3 purchases. Large purchases by the Fed reduced the supply of agency MBS available to private investors and led to specialness in dollar rolls (Exhibit 4).

Exhibit 3: Roll is more special when mortgage rates fall…
FNM30 3.5 roll specialness and PMMS



Source: Freddie Mac, Goldman Sachs Global Investment Research.

Exhibit 4: …and when Fed purchases increase
FNM30 3.5 roll specialness and weekly Fed purchases



Source: FRBNY, Goldman Sachs Global Investment Research.

Because prepayment risk and MBS supply are not independent (e.g., Fed purchases result in lower mortgage rates and higher prepayment risk), we resort to multivariate regressions to estimate the separate effects of mortgage rates and MBS supply. For the supply effect, we include both issuance and Fed purchase measures. In addition, we allow for both "stock" and "flow" effects in the model. For example, gross issuance of FNM30 3.5 captures the flow effect of total supply, while the amount of FNM30 3.5 outstanding captures the stock effect of total supply. Similarly, weekly Fed purchases capture the flow effect of mortgage QE, while the Fed holdings of FNM30 3.5 as a percentage of total FNM30 3.5 outstanding captures the stock effect of mortgage QE. In this way, our estimates can tell us about the mechanism through which Fed purchases affect dollar roll specialness.

Exhibit 5 shows the estimation results. First, the estimated coefficients have the expected signs and are statistically significant. For example, higher mortgage rates push households out-of-the-money for refinancing and reduce prepay uncertainties. As a result, dollar rolls

[1] Song, Zhaogang and Zhu, Haoxiang, Mortgage Dollar Roll (April 5, 2015). Available at SSRN: http://ssrn.com/abstract=2401319

are less special when mortgage rates are high. Elevated issuance levels and large MBS outstanding imply ample supply and reduce specialness. On the other hand, large Fed purchases and significant Fed holdings cut the supply available to private investors, contributing to dollar roll specialness.

Second, based on t-statistics, mortgage rates appear to be the most important determinant of dollar roll specialness. Moreover, both “stock” and “flow” effects of mortgage supply are important in the dollar roll market. This finding suggests that the mortgage market may weaken when the Fed stops MBS reinvestments even if the size of the Fed balance sheet remains little changed. Collectively, mortgage rates and our supply measures account for 77% of the variation observed in the specialness of FNM30 3.5 dollar rolls over the sample period.

Exhibit 5: Both prepayment risk and MBS supply affect dollar roll specialness
Estimated coefficients and t-statistics of our model of FNM30 3.5 specialness

Dep Var = FNM30 3.5 Specialness	Prediction	Estimates
Prepayment Risk		
PMMS	Higher PMMS -> Lower Prepayment Risk -> Less Specialness -> +ve Coefficient	110.0
		20.8
Supply Effect		
Total Supply		
Issuance (Flow Measure)	More Supply -> Less Specialness -> +ve Coefficient	1.2
		3.8
Balance (Stock Measure)		0.1
		3.2
QE		
Fed Purchase (Flow Measure)	More QE -> Less Supply Available to Private Investors -> More Specialness -> -ve Coefficient	-5.4
		5.1
Fed Holding (Stock Measure)		-2.3
		3.2
Number of Observations		190
R Squared		0.77

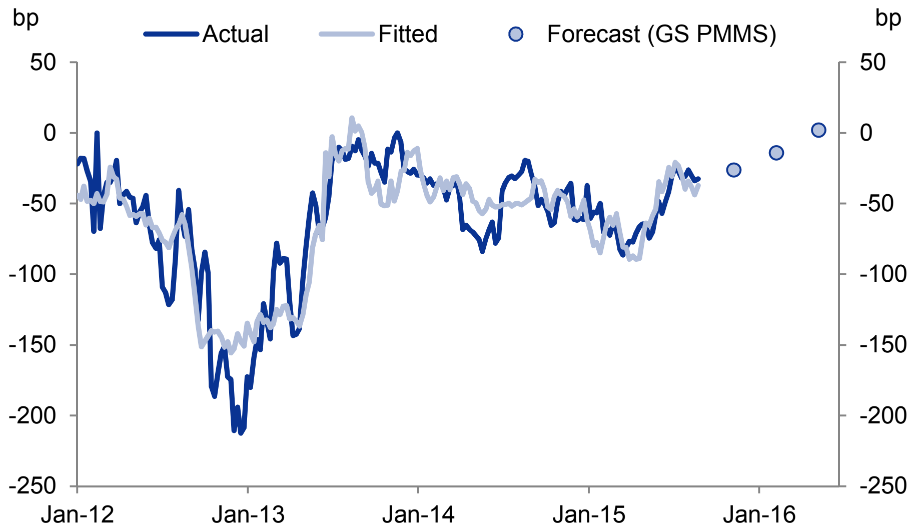
Note: Weekly data from January 2012 through August 2015. t-statistics in italics.

Source: Goldman Sachs Global Investment Research.

Higher rates point to less specialness

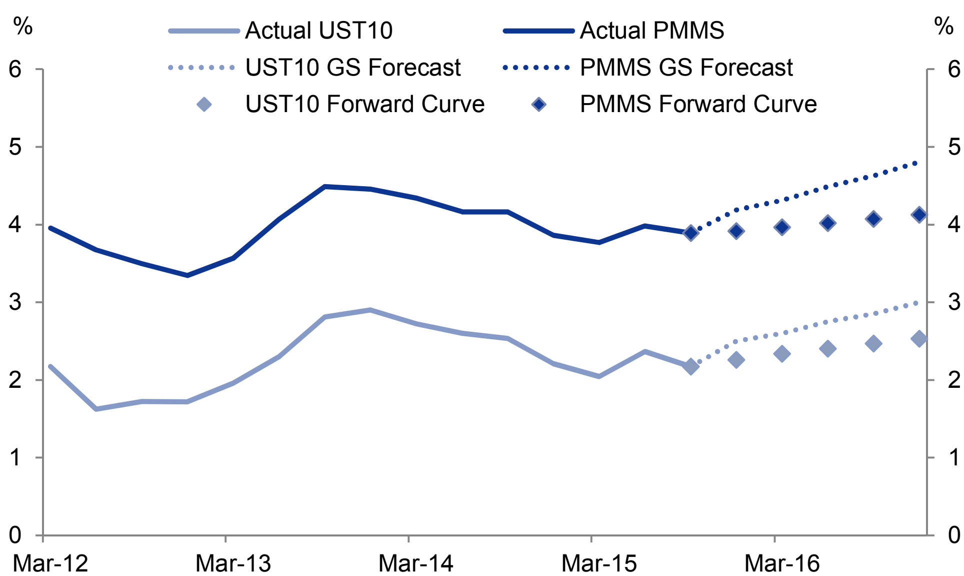
The framework described above can help us forecast dollar roll specialness based on our forward view on mortgage rates, issuance, and Fed purchases. Our rates strategy team currently expects the 10-year Treasury yields to reach 2.5% by the end of 2015 and 3.0% by the end of 2016. Building on this forecast, we project the 30-year fixed mortgage rate to rise to 4.2% and 4.8% by the end of this year and next year, respectively. Rising mortgage rates lead to less prepayment uncertainty and less dollar roll specialness. Under this scenario, we expect the issuance of FNM30 3.5 to fall, which offsets the mortgage rate effect to some degree and makes dollar rolls more special. On net, the mortgage rate effect outweighs the supply effect, and rolling MBS from one month to the next should become less attractive over time. By mid-2016, we expect the dollar roll specialness of FNM30 3.5 to come off 40bp from today’s levels (Exhibit 6).

Exhibit 6: We expect dollar rolls to become less special in coming quarters
Actual, fitted, and projected dollar roll specialness for FNM30 3.5



Source: Goldman Sachs Global Investment Research.

Exhibit 7: Our forecast is critically dependent on the path of interest rates
Actual, GS forecast, and forward curve implied 10-year Treasury and 30-year mortgage rates



Source: FRB, Freddie Mac, Goldman Sachs Global Investment Research.

What is the key risk to our projection? The projection is critically dependent on the interest rate path. As discussed earlier, mortgage rates are the most important determinant of dollar roll specialness in our regression model. At present, the forward curve implies a much slower pace of increases in the 10-year Treasury yields than our rates strategy team forecasts (Exhibit 7). If the forward curve is realized, mortgage rates will not increase much from today's levels, suggesting a much smaller decline in dollar roll specialness.

The implication of our baseline forecast is twofold: First, dollar rolls becoming significantly less special implies higher financing costs for investing in agency MBS. This is another reason why we are not constructive on agency MBS despite a dovish Fed. While our calculation suggests that the Fed is likely to still hold $1 trillion of agency MBS by the end of 2020, we expect agency MBS to underperform relative to historical averages. Second, because specified pools are often hedged with TBAs, dollar rolls becoming less special implies lower hedging costs for owning specified pools. In addition to elevated local volatilities, this is another reason why we like specified pools even though we project interest rates to rise faster than the forward curve suggests.

Hui Shan and Marty Young

Disclosure Appendix

Reg AC

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