United States

# The Mortgage Analyst

Credit Strategy Research

## Searching for value in specified pools

### Tight spreads in TBA market lead investors to consider spec pools

Spreads on TBA mortgages remain tight compared to historically normal levels, and the cheapest-to-deliver option means that TBA investors may get delivered fast prepaying pools. These considerations lead investors to consider specified pools as a means of improving risk-adjusted returns.

### Specified pools had lower call risk in the 2015Q1 rally…

Recent vintage TBA prepays increased during the 2015Q1 rate rally, but speeds increased much less for many specified pool cohorts. In March 2015, 4% 2013 vintage generic prepaid at 38 CPR, but high LTV prepaid just 5 CPR, low loan balance prepaid at 9 CPR, and low FICO prepaid at 25 CPR.

### … but some factors provide more persistent protection than others

Low FICO offers call protection early in the pool life, but speeds on low and high FICO pools tend to converge over time as the credit on lower FICO borrowers heal, and as the fastest borrowers in high FICO pools prepay and leave behind a slower, burnt-out population. By contrast, low loan balance appears to offer call protection for several years after origination.

### Most specified pool stories look close to fully valued…

While low loan balance offers substantial call protection over the life of the pool, and even some extension protection, the payups on many loan balance cohorts look close to fully valued: the OAS improvement vs. TBA is small relative to TBA roll advantages.

### … but some lower payup stories provide an OAS lift

By contrast, specified pools with smaller prepay advantage but smaller payup may offer benefits in option adjusted returns. Though we expect rates to continue to rise going forward, we also expect local increases in rates volatility, which justifies a search for efficient call protection.

**Marty Young**
(917) 343-3214 marty.young@gs.com
Goldman, Sachs & Co.

**Hui Shan**
(212) 902-4447 hui.shan@gs.com
Goldman, Sachs & Co.

**Charles P. Himmelberg**
(917) 343-3218 charles.himmelberg@gs.com
Goldman, Sachs & Co.

**Chris Henson**
(801) 741-5755 chris.henson@gs.com
Goldman, Sachs & Co.

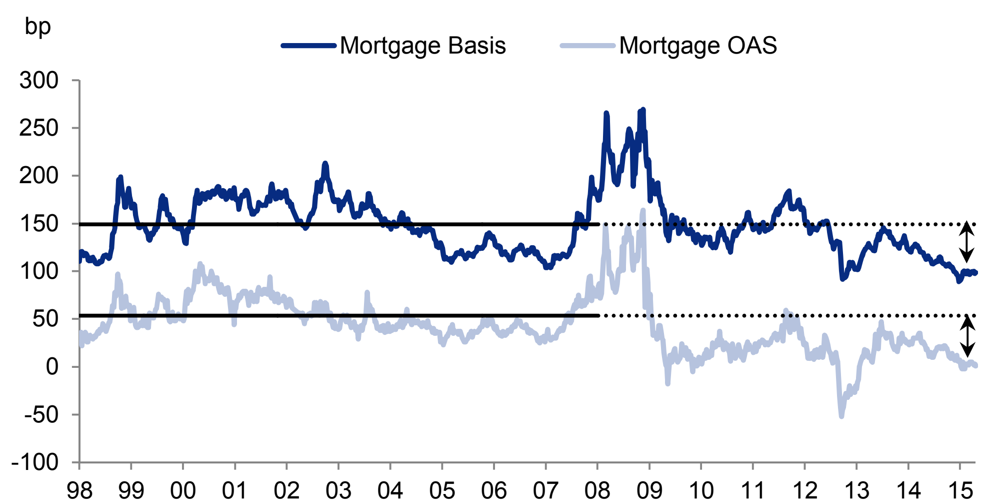
**Spencer Rogers**
(801) 884-1104 spencer.rogers@gs.com
Goldman, Sachs & Co.

# Tight spreads on TBAs leads to consideration of specified pools

## TBA current coupon spreads are historically low…

The spread between current coupon mortgage rates and Treasury rates is near an all time low. Exhibit 1 shows that both the nominal mortgage basis (mortgage rate minus blended 5/10-year Treasury rate) and the option adjusted spread (OAS) are 50 bp below their respective 1998-2007 averages. The tight spreads on TBAs has led investors to consider diving into specified pools, to try to enhance returns. The recent selloff in rates reduces immediate call risk, but TBA spreads remain tight after the rate rise, so investors will continue to search for value in the specified pools market.

**Exhibit 1: Mortgage nominal and option adjusted spreads are 50 bp below pre-crisis average levels**
Mortgage option adjusted spread and mortgage basis (mortgage rate – blended 5/10-year Treasury rate)



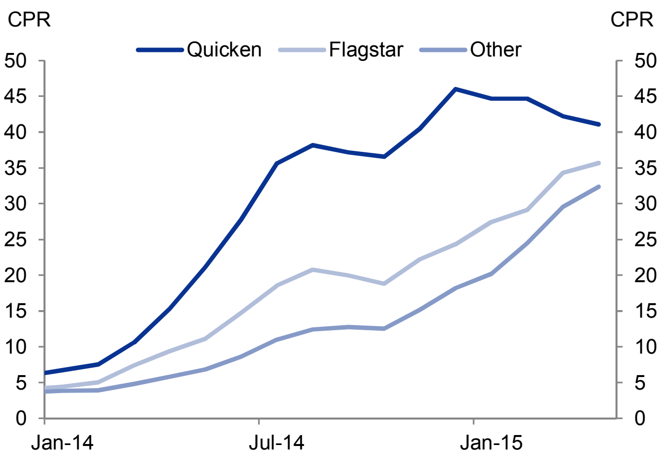

*Source: BAML, Haver and Goldman Sachs Global Investment Research*

## …and the TBA market is subject to CTD prepayment risk

One of the risks that TBA investors need to be compensated for is the cheapest-to-deliver (CTD) option, which allows bond sellers to deliver a range of collateral from a broad set of eligible pools. Under this framework, the TBA pool ultimately delivered may have worse than average prepayment characteristics. Recent prepayments have been heterogeneous across pools, so the CTD option may result in a TBA investor receiving a security that prepays much faster than average.

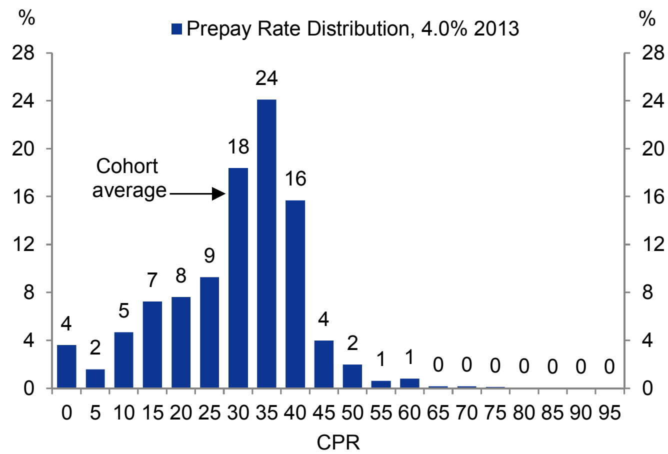
Exhibit 2 for example, shows prepay differences by issuer for the 4% coupon 2013 vintage conventional 30-year MBS: throughout 2014, Quicken pools prepaid 19 CPR faster than the cohort. Exhibit 3 shows a histogram of pool prepayments from the same cohort during 2015Q1: the average prepay rate was 30 CPR, but a substantial fraction of pools paid above 40 and even 45 CPR over the quarter. The Federal Reserve MBS portfolio takes out some, but not all, of the fastest prepaying collateral. Uncertainty about the quality of TBA pool that could be delivered is a further reason for investors to look to the specified pools market, where prepayment risk is less uncertain.

**Exhibit 2: Prepay rates have varied across servicers**
Prepay rates by issuer, 4% coupon 2013 vintage FN30, 3mma




*Source: eMBS and Goldman Sachs Global Investment Research*

**Exhibit 3: Prepay rate distribution across pools is wide**
Frequency distribution of 2015Q1 pool prepayment rates, 4% coupon 2013 vintage FN30, by balance




*Source: eMBS and Goldman Sachs Global Investment Research*



# Specified pool stories continue to offer substantial call protection

## Low FICO offers short term prepayment protection

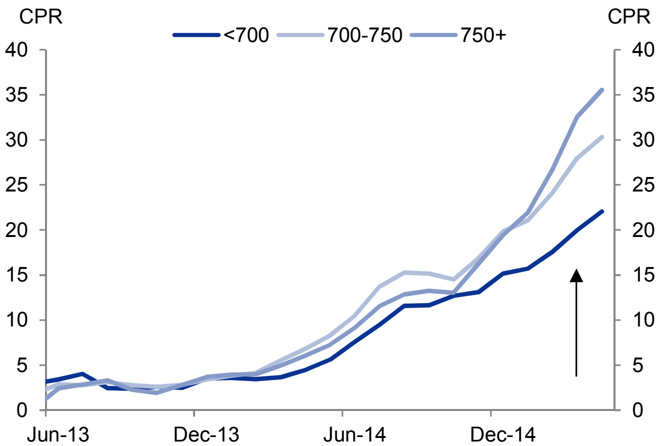
Low FICO pools prepay slower than the cohort, possibly reflecting lower rates and fees charged to high FICO borrowers, and possibly also driven by greater financial sophistication among borrowers with higher credit scores. Exhibit 4 shows prepayments for the 4% coupon 2013 vintage: pools with average FICO scores below 700 prepaid over 15 CPR slower than pools with average FICO above 750.

While the convexity benefit of low FICO appears to be impressive, it may not last for the full 30-years of pool life. For example, Exhibit 5 shows the experience of the 4% coupon 2012 vintage: low FICO prepaid slower in the 2012Q4 refi wave, but was less protective in the 2015Q1 wave of prepayments.

There are a few reasons why prepays on the high and low FICO cohorts may converge over time. One reason is that the credit quality of borrowers can evolve after loan origination. Borrowers with 850 FICO at origination may experience adverse credit events, pulling down their credit scores, while the credit on 680 FICO borrowers may improve over time as they make timely mortgage payments. TBA pools will also tend to prepay more like low FICO pools over time because the fastest borrowers in TBAs prepay early, leaving behind a slower, “burned out” pool behind.

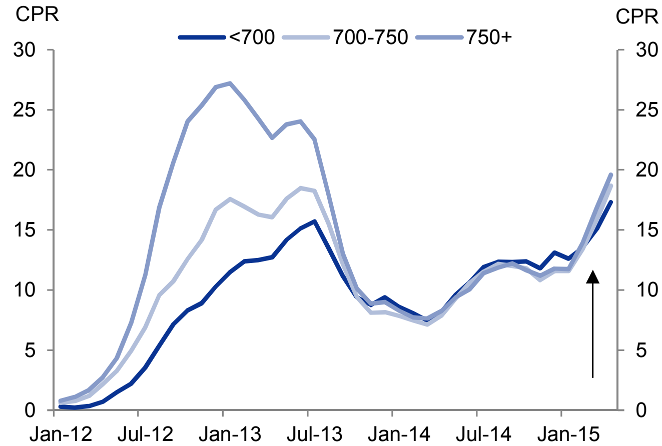
Even though low FICO may only be protective for the first one or two refi waves experienced by a cohort, the payups for this protection are relatively small, and thus low FICO appears to offer value vs. TBAs on an option-adjusted basis.

**Exhibit 4: Recent vintage low FICO pools are prepaying slower than the cohort…**
Prepay rate by average original FICO score, 4.0% coupon 2013 vintage FN30, 3mma




*Source: eMBS and Goldman Sachs Global Investment Research*

**Exhibit 5: …but the convexity advantage of low FICO pools may not persist for 30 years**
Prepay rate by average original FICO score, 4.0% coupon 2012 vintage FN30, 3mma




*Source: eMBS and Goldman Sachs Global Investment Research*



## Low loan balance offers call protection and extension protection

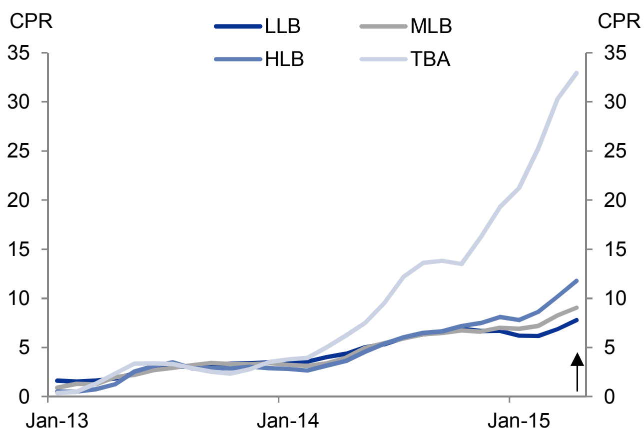
Low loan balance is the pre-eminent specified pool story, a story which has been validated across many interest rate cycles. Exhibit 6 compares the prepay rates for different loan balance categories for the 4% 2013 vintage cohort, highlighting the significant impact of loan balance on prepayment. In March 2015, generic TBA pools prepaid at 38 CPR, vs. 9 CPR for LLB (low loan balance) and 11 CPR for MLB (medium loan balance) pools.

The effect of loan balance appears to be fairly persistent: Exhibit 7 shows the prepay experience of the 4% coupon 2012 vintage cohort, and the LLB pools prepaid slower than TBA both in the 2012Q4 refi wave and also in the 2015Q1 refi wave. A low balance pool will have a smaller economic incentive to refinance than a TBA pool over the entire loan life.

In addition to providing protection against refi risk, low loan balance offers a small amount of protection against extension risk. The 3% 2012 vintage cohort was out-of-the-money for refinance during 2014H1: the TBA pools prepaid at 4 CPR, while the LLB pools prepaid at 5 CPR. The higher out-of-the-money speeds for loan balance pools may be due to a combination of greater housing mobility, higher propensity to execute cash-out refinance transactions, and higher delinquency rates among low loan balance borrowers.

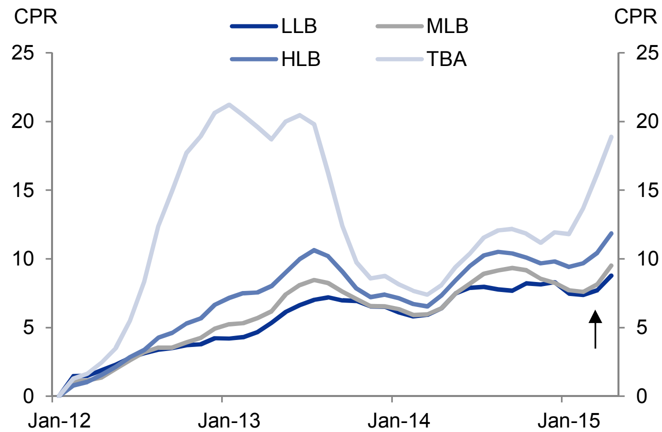
While loan balance paper provides substantial and durable call protection and some amount of extension protection, this protection does not come cheap. The payup for LLB ranges from 20 ticks for low coupon pools to over 3 points (96 ticks) for higher coupons. The convexity advantages of loan balance collateral appear to be close to fully priced at this point. That is, the OAS for LLB pools, after accounting for the call protection and extension benefits, is close to the OAS for TBAs.

**Exhibit 6: Recent vintage low loan balance pools are prepaying slower than the cohort…**
Prepay rate by loan size, 4.0% coupon 2013 vintage FN30, 3mma




*Source: eMBS and Goldman Sachs Global Investment Research*

**Exhibit 7: …and the advantage appears to be durable**
Prepay rate by. loan size, 4.0% coupon 2012 vintage FN30, 3mma




*Source: eMBS and Goldman Sachs Global Investment Research*



## Geography, LTV stories offer call protection

Other factors that influence prepayment rates include geography and LTV. For example, prepays on 100%, New York pools have been slower than the cohort, comparable with MLB but with a much lower payup (Exhibit 8). The slower New York prepays are partly attributable to a mortgage recording tax applicable to all borrowers in the state combined with additional tax applying to New York City borrowers.

Like low loan balance, the NY attribute is durable: 30-years into the future, the NY pool will still be 100% NY. Thus, if tax laws remain roughly constant, NY pools can be expected to prepay more slowly than the cohort into the future.

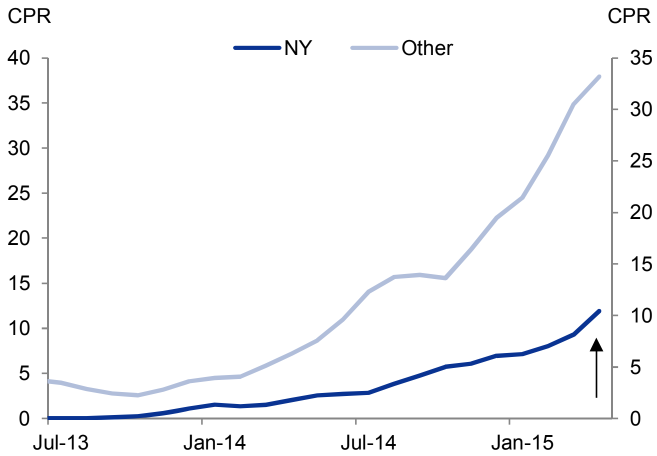
However, unlike low loan balance, 100% NY pools have *higher* extension risk than non-NY collateral. New York homeowners have lower housing mobility rates than the national average, as evidenced from Census data dating back several decades. Exhibit 9 shows that in 2014H1, the out-of-the-money 3% 2012 cohort New York pools prepaid at just 2 CPR, well below cohort average. 100% New York collateral appears to be an attractive opportunity within specified pool space, but it would be safest to consider at higher coupons where extension risk is less of a consideration.

Exhibit 10 shows that LTV also continues to be a significant source of call protection. While generic (CL) pools prepaid at 38 CPR in March, the 125+ CR pools prepaid at just 5 CPR. Lower LTV stories than CQ and CR were also protective: 90-95 LTV MHA (Making Home Affordable) pools prepaid at just 10 CPR in March.

The durability of the call protection deriving from high LTV will be determined largely by house price growth rates. Exhibit 11 shows that for the 2012 vintage, CQ pools were slower than the cohort in the 2012Q4 refi wave, and also in the 2015Q1 refi wave, but to a lesser extent in the latter case. This particular vintage benefited from substantial house price appreciation: current LTVs decreased from 110 in 2012 to 88 in 2015.

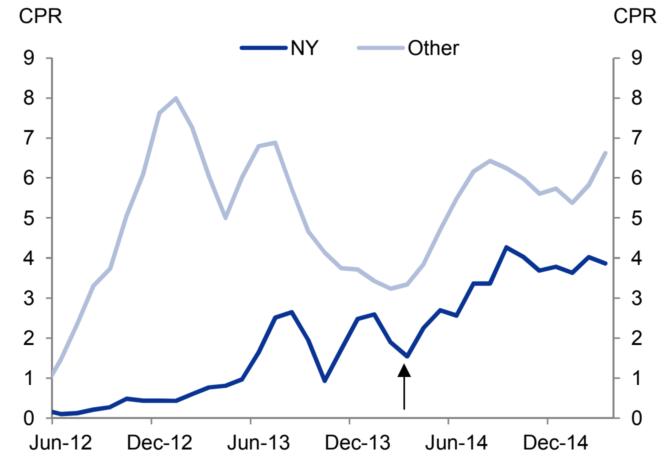
We expect house price growth will be more moderate going forward (“2015 is unlikely to be a breakout year for housing”, *Housing Monitor*, April 6, 2015), and thus anticipate that high LTV (CQ, CR and MHA) will be a fairly durable source of call protection for recently originated pools.

**Exhibit 8: 100% New York pools prepay slower than the cohort…**
Prepay rate by state, 4.0% coupon 2013 vintage FN30, 3mma



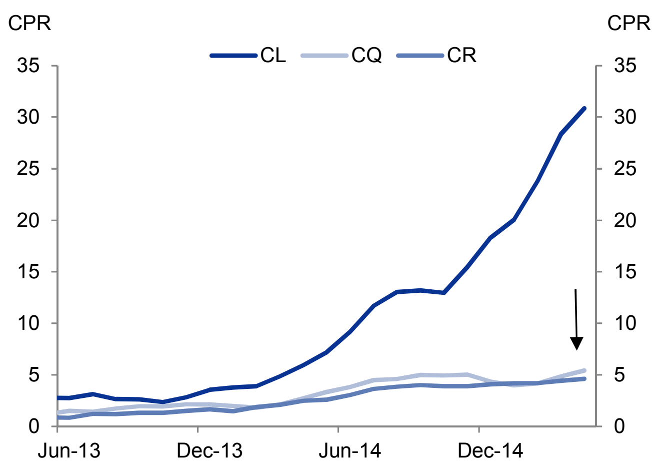

*Source: eMBS and Goldman Sachs Global Investment Research*

**Exhibit 9: …but 100% New York pools also have greater extension risk**
Prepay rate by state, 3.0% coupon 2012 vintage FN30, 3mma



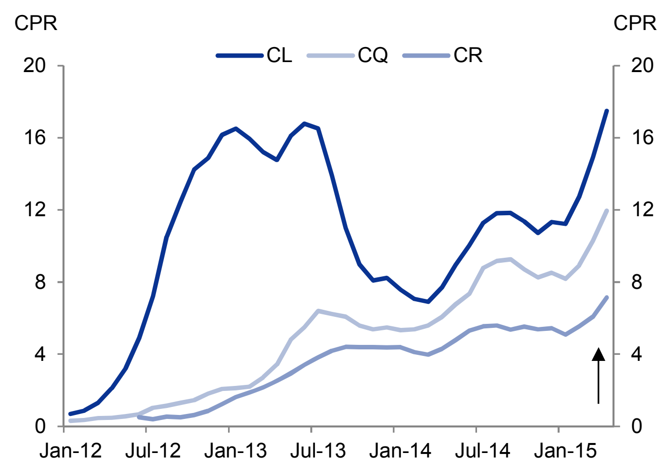

*Source: eMBS and Goldman Sachs Global Investment Research*

**Exhibit 10: High LTV (CQ/CR) pools prepay slower than the CL cohort…**
Prepay rate by LTV, 4.0% coupon 2013 vintage FN30, 3mma




*Source: eMBS and Goldman Sachs Global Investment Research*

**Exhibit 11: …but the durability of the effect will depend on future house price growth**
Prepay rate by LTV, 4.0% coupon 2012 vintage FN30, 3mma




*Source: eMBS and Goldman Sachs Global Investment Research*

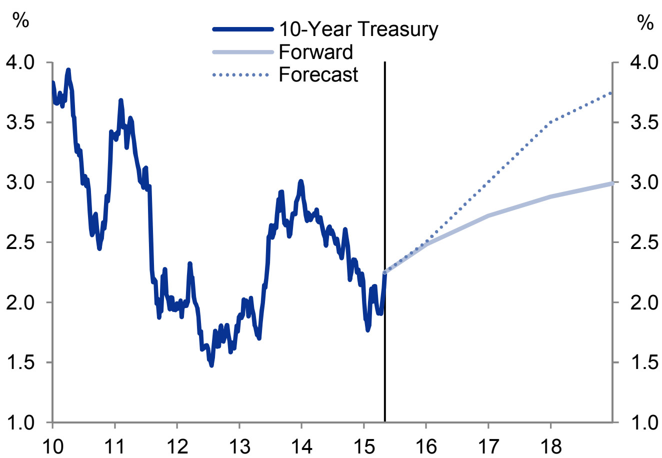
# Summary: value in lower payup specified pool stories

Despite the firm sell-off in bonds over the past month, our forecasts for long term rates remain above the forwards over a 2+ year horizon (Exhibit 12). Because of our bearish outlook on rates, we are oriented away from some of the largest payup stories. These large payups already look close to fully valued, and the increase in rates will further erode the value of call protection.

At the same time, though, the rise in rates volatility has made convexity a larger concern. Exhibit 13 compares recent payup values vs. recent realized prepayments. The lower payup stories (MHA, low FICO, 100% New York) appear to offer protection against a near term rate re-rally scenario at a reasonable price.

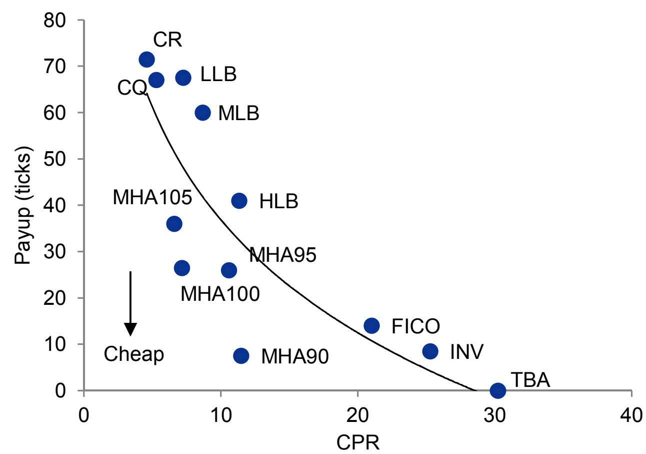
**Marty Young**

**Exhibit 12: We still expect rates to rise faster and higher than the forward curve**
Forward curve vs. forecast, 10-year Treasury rate




*Source: Goldman Sachs Global Investment Research*

**Exhibit 13: Specified pool payups are aligned with realized prepay speeds, but MHA payups look cheap**
2015Q1 prepayment, FN30 4% 2013 vintage vs. FN30 4% specified pool payup




*Source: eMBS, Markit and Goldman Sachs Global Investment Research*

# Disclosure Appendix

## Reg AC

We, Marty Young, Hui Shan, Charles P. Himmelberg, Chris Henson and Spencer Rogers, hereby certify that all of the views expressed in this report accurately reflect our personal views about the subject company or companies and its or their securities. We also certify that no part of our compensation was, is or will be, directly or indirectly, related to the specific recommendations or views expressed in this report.

Unless otherwise stated, the individuals listed on the cover page of this report are analysts in Goldman Sachs' Global Investment Research division.

## Disclosures

### Regulatory disclosures

### Disclosures required by United States laws and regulations

See company-specific regulatory disclosures above for any of the following disclosures required as to companies referred to in this report: manager or co-manager in a pending transaction; 1% or other ownership; compensation for certain services; types of client relationships; managed/co-managed public offerings in prior periods; directorships; for equity securities, market making and/or specialist role. Goldman Sachs usually makes a market in fixed income securities of issuers discussed in this report and usually deals as a principal in these securities.

The following are additional required disclosures: **Ownership and material conflicts of interest:** Goldman Sachs policy prohibits its analysts, professionals reporting to analysts and members of their households from owning securities of any company in the analyst's area of coverage. **Analyst compensation:** Analysts are paid in part based on the profitability of Goldman Sachs, which includes investment banking revenues. **Analyst as officer or director:** Goldman Sachs policy prohibits its analysts, persons reporting to analysts or members of their households from serving as an officer, director, advisory board member or employee of any company in the analyst's area of coverage. **Non-U.S. Analysts:** Non-U.S. analysts may not be associated persons of Goldman, Sachs & Co. and therefore may not be subject to NASD Rule 2711/NYSE Rules 472 restrictions on communications with subject company, public appearances and trading securities held by the analysts.

### Additional disclosures required under the laws and regulations of jurisdictions other than the United States

The following disclosures are those required by the jurisdiction indicated, except to the extent already made above pursuant to United States laws and regulations. **Australia:** Goldman Sachs Australia Pty Ltd and its affiliates are not authorised deposit-taking institutions (as that term is defined in the Banking Act 1959 (Cth)) in Australia and do not provide banking services, nor carry on a banking business, in Australia. This research, and any access to it, is intended only for "wholesale clients" within the meaning of the Australian Corporations Act, unless otherwise agreed by Goldman Sachs. In producing research reports, members of the Global Investment Research Division of Goldman Sachs Australia may attend site visits and other meetings hosted by the issuers the subject of its research reports. In some instances the costs of such site visits or meetings may be met in part or in whole by the issuers concerned if Goldman Sachs Australia considers it is appropriate and reasonable in the specific circumstances relating to the site visit or meeting. **Brazil:** Disclosure information in relation to CVM Instruction 483 is available at http://www.gs.com/worldwide/brazil/area/gir/index.html. Where applicable, the Brazil-registered analyst primarily responsible for the content of this research report, as defined in Article 16 of CVM Instruction 483, is the first author named at the beginning of this report, unless indicated otherwise at the end of the text. **Canada:** Goldman Sachs Canada Inc. is an affiliate of The Goldman Sachs Group Inc. and therefore is included in the company specific disclosures relating to Goldman Sachs (as defined above). Goldman Sachs Canada Inc. has approved of, and agreed to take responsibility for, this research report in Canada if and to the extent that Goldman Sachs Canada Inc. disseminates this research report to its clients. **Hong Kong:** Further information on the securities of covered companies referred to in this research may be obtained on request from Goldman Sachs (Asia) L.L.C. **India:** Further information on the subject company or companies referred to in this research may be obtained from Goldman Sachs (India) Securities Private Limited. **Japan:** See below. **Korea:** Further information on the subject company or companies referred to in this research may be obtained from Goldman Sachs (Asia) L.L.C., Seoul Branch. **New Zealand:** Goldman Sachs New Zealand Limited and its affiliates are neither "registered banks" nor "deposit takers" (as defined in the Reserve Bank of New Zealand Act 1989) in New Zealand. This research, and any access to it, is intended for "wholesale clients" (as defined in the Financial Advisers Act 2008) unless otherwise agreed by Goldman Sachs. **Russia:** Research reports distributed in the Russian Federation are not advertising as defined in the Russian legislation, but are information and analysis not having product promotion as their main purpose and do not provide appraisal within the meaning of the Russian legislation on appraisal activity. **Singapore:** Further information on the covered companies referred to in this research may be obtained from Goldman Sachs (Singapore) Pte. (Company Number: 198602165W). **Taiwan:** This material is for reference only and must not be reprinted without permission. Investors should carefully consider their own investment risk. Investment results are the responsibility of the individual investor. **United Kingdom:** Persons who would be categorized as retail clients in the United Kingdom, as such term is defined in the rules of the Financial Conduct Authority, should read this research in conjunction with prior Goldman Sachs research on the covered companies referred to herein and should refer to the risk warnings that have been sent to them by Goldman Sachs International. A copy of these risks warnings, and a glossary of certain financial terms used in this report, are available from Goldman Sachs International on request.

**European Union:** Disclosure information in relation to Article 4 (1) (d) and Article 6 (2) of the European Commission Directive 2003/126/EC is available at http://www.gs.com/disclosures/europeanpolicy.html which states the European Policy for Managing Conflicts of Interest in Connection with Investment Research.

**Japan:** Goldman Sachs Japan Co., Ltd. is a Financial Instrument Dealer registered with the Kanto Financial Bureau under registration number Kinsho 69, and a member of Japan Securities Dealers Association, Financial Futures Association of Japan and Type II Financial Instruments Firms Association. Sales and purchase of equities are subject to commission pre-determined with clients plus consumption tax. See company-specific disclosures as to any applicable disclosures required by Japanese stock exchanges, the Japanese Securities Dealers Association or the Japanese Securities Finance Company.

### Ratings, coverage groups and views and related definitions

Credit Research assigns ratings to designated on-the-run ("OTR") debt securities of issuing companies. **Definitions of Ratings: OP = Outperform.** We expect the total return to outperform the median total return for the analyst's coverage group over the next 6 months. **IL = In-Line.** We expect the total return to perform in line with the median total return for the analyst's coverage group over the next 6 months. **U = Underperform.** We expect the total return to underperform the median total return for the analyst's coverage group over the next 6 months.

**NR = Not Rated.** The investment rating, if any, has been removed pursuant to Goldman Sachs policy when to Goldman Sachs is acting in an advisory capacity in a merger or strategic transaction involving this company and in certain other circumstances. **NC = Not Covered.** Goldman

Sachs does not cover this company. **RS = Rating Suspended.** Goldman Sachs Research has suspended the investment rating for this credit, because there is not a sufficient fundamental basis for determining, or there are legal, regulatory or policy constraints around publishing, an investment rating. The previous investment rating is no longer in effect for this credit and should not be relied upon. **CS = Coverage Suspended.** Goldman Sachs has suspended coverage of this company. **NA = Not Available or Not Applicable.** The information is not available for display or is not applicable.

**Coverage views:** The coverage view represents each analyst's or analyst team's investment outlook on his/her/their coverage group(s). The coverage view will consist of one of the following designations: **Attractive (A).** The investment outlook over the following 6 months is favorable relative to the coverage group's historical fundamentals and/or valuation. **Neutral (N).** The investment outlook over the following 6 months is neutral relative to the coverage group's historical fundamentals and/or valuation. **Cautious (C).** The investment outlook over the following 6 months is unfavorable relative to the coverage group's historical fundamentals and/or valuation.

## Global product; distributing entities

The Global Investment Research Division of Goldman Sachs produces and distributes research products for clients of Goldman Sachs on a global basis. Analysts based in Goldman Sachs offices around the world produce equity research on industries and companies, and research on macroeconomics, currencies, commodities and portfolio strategy. This research is disseminated in Australia by Goldman Sachs Australia Pty Ltd (ABN 21 006 797 897); in Brazil by Goldman Sachs do Brasil Corretora de Títulos e Valores Mobiliários S.A.; in Canada by either Goldman Sachs Canada Inc. or Goldman, Sachs & Co.; in Hong Kong by Goldman Sachs (Asia) L.L.C.; in India by Goldman Sachs (India) Securities Private Ltd.; in Japan by Goldman Sachs Japan Co., Ltd.; in the Republic of Korea by Goldman Sachs (Asia) L.L.C., Seoul Branch; in New Zealand by Goldman Sachs New Zealand Limited; in Russia by OOO Goldman Sachs; in Singapore by Goldman Sachs (Singapore) Pte. (Company Number: 198602165W); and in the United States of America by Goldman, Sachs & Co. Goldman Sachs International has approved this research in connection with its distribution in the United Kingdom and European Union.

**European Union:** Goldman Sachs International authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority, has approved this research in connection with its distribution in the European Union and United Kingdom; Goldman Sachs AG and Goldman Sachs International Zweigniederlassung Frankfurt, regulated by the Bundesanstalt für Finanzdienstleistungsaufsicht, may also distribute research in Germany.

## General disclosures

This research is for our clients only. Other than disclosures relating to Goldman Sachs, this research is based on current public information that we consider reliable, but we do not represent it is accurate or complete, and it should not be relied on as such. We seek to update our research as appropriate, but various regulations may prevent us from doing so. Other than certain industry reports published on a periodic basis, the large majority of reports are published at irregular intervals as appropriate in the analyst's judgment.

Goldman Sachs conducts a global full-service, integrated investment banking, investment management, and brokerage business. We have investment banking and other business relationships with a substantial percentage of the companies covered by our Global Investment Research Division. Goldman, Sachs & Co., the United States broker dealer, is a member of SIPC (http://www.sipc.org).

Our salespeople, traders, and other professionals may provide oral or written market commentary or trading strategies to our clients and our proprietary trading desks that reflect opinions that are contrary to the opinions expressed in this research. Our asset management area, our proprietary trading desks and investing businesses may make investment decisions that are inconsistent with the recommendations or views expressed in this research.

We and our affiliates, officers, directors, and employees, excluding equity and credit analysts, will from time to time have long or short positions in, act as principal in, and buy or sell, the securities or derivatives, if any, referred to in this research.

The views attributed to third party presenters at Goldman Sachs arranged conferences, including individuals from other parts of Goldman Sachs, do not necessarily reflect those of Global Investment Research and are not an official view of Goldman Sachs.

Any third party referenced herein, including any salespeople, traders and other professionals or members of their household, may have positions in the products mentioned that are inconsistent with the views expressed by analysts named in this report.

Any trading recommendation in this research relating to a security or multiple securities within an industry or sector is reflective of the investment theme being discussed and is not a recommendation of any such security in isolation.

This research is not an offer to sell or the solicitation of an offer to buy any security in any jurisdiction where such an offer or solicitation would be illegal. It does not constitute a personal recommendation or take into account the particular investment objectives, financial situations, or needs of individual clients. Clients should consider whether any advice or recommendation in this research is suitable for their particular circumstances and, if appropriate, seek professional advice, including tax advice. The price and value of investments referred to in this research and the income from them may fluctuate. Past performance is not a guide to future performance, future returns are not guaranteed, and a loss of original capital may occur. Fluctuations in exchange rates could have adverse effects on the value or price of, or income derived from, certain investments.

Certain transactions, including those involving futures, options, and other derivatives, give rise to substantial risk and are not suitable for all investors. Investors should review current options disclosure documents which are available from Goldman Sachs sales representatives or at http://www.theocc.com/about/publications/character-risks.jsp. Transaction costs may be significant in option strategies calling for multiple purchase and sales of options such as spreads. Supporting documentation will be supplied upon request.

All research reports are disseminated and available to all clients simultaneously through electronic publication to our internal client websites. Not all research content is redistributed to our clients or available to third-party aggregators, nor is Goldman Sachs responsible for the redistribution of our research by third party aggregators. For research, models or other data available on a particular security, please contact your sales representative or go to http://360.gs.com.

Disclosure information is also available at http://www.gs.com/research/hedge.html or from Research Compliance, 200 West Street, New York, NY 10282.