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Credit Strategy Research

How much upside to purchase mortgage originations?

Purchase mortgage originations in focus

The recent rise in interest rates has naturally led to a decline in the refinance share of mortgage applications and originations. In June 2012, 75% of conventional mortgages had a 100bp or greater refinance incentive, vs. only 30% today. Maintaining significant mortgage origination volumes going forward will thus depend crucially on growth in the number and size of purchase originations.

Purchase originations are low and cash transactions are key

Purchase origination volumes totaled only $500 billion in 2012 vs. over $1,500 billion in 2005. The lower level of purchase volumes is obviously due to fewer home sale transactions and, to a lesser degree, lower house prices. But it is also significantly impacted by a growth in cash transactions (or, equivalently, a decline in home purchases which are financed with mortgages). We estimate that over 50% of 2012-13 housing purchases were financed with cash, compared with just 10% in 2005. The large share of cash transactions is being driven by the significant role that investors are playing in the current housing market, combined with the challenges all home-buyers face in qualifying for a mortgage given the tightened lending standards.

We expect purchase originations to exceed $1 trillion in 2016

We project an increase in purchase origination volumes from today's low levels: growth will come from an increase in home sale transaction counts, house price growth leading to larger loan sizes per home sale, and a slow return of the share of home sales financed by cash back to more historically normal levels. By 2016, we project purchase originations of $1.1 trillion, roughly equal to the level seen in 2002.

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How much upside to purchase mortgage originations?

Mortgage interest rates increased 100bp from May to July, leaving many borrowers who would have been able to refinance out-of-the-money for refinancing. In June 2012, 75% of conventional mortgages had a 100bp or greater refinance incentive, vs. only 30% today. Although July prepay prints came in faster than many expected, refinance speeds are almost certain to fall in the coming months. With refinancing volume declining, many investors ask to what extent purchase mortgage originations can make up the shortfall. In this *Mortgage Analyst*, we revisit our outlook for purchase mortgage originations.

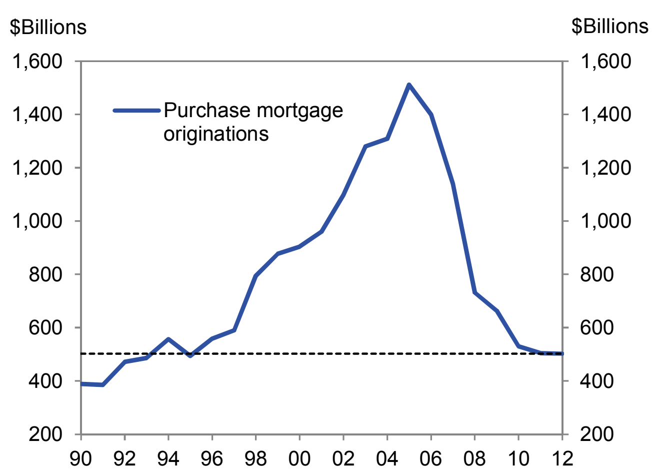
Purchase mortgage originations are currently very low

According to statistics published by the Mortgage Bankers Association (MBA), purchase mortgage originations totaled $503 billion in 2012. This level is comparable to the origination levels seen in the mid-1990s when the mortgage market was only one third of today's size (Exhibits 1 and 2).

There are good reasons to believe that normalized purchase originations should not go back to the peak year of 2005 when purchases originations totaled $1.5 trillion. For example, the homeownership rate was 69% in 2005, 5 percentage points above the long-run average of 64%. House prices were far above the fair value determined by fundamental factors such as income and population. Lending standards were exceedingly loose with many lenders extending mortgage credit on the expectation that house prices would continue to rise.

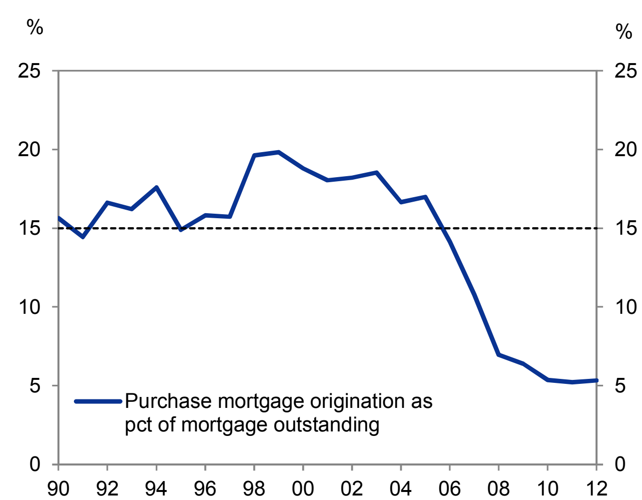
In all likelihood, underwriting standards should not deteriorate to the levels seen in 2005 any time soon and house prices should not return to the 2006 peak over the next few years. But what purchase origination levels should we expect in a normalized environment?

Exhibit 1: Purchase originations are low in levels…
Annual purchase mortgage originations from 1990 to 2012



Source: MBA.

Exhibit 2: … and as percent of mortgage outstanding
Annual purchase mortgage originations as percent of total mortgage outstanding from 1990 to 2012



Source: MBA, Federal Reserve, Goldman Sachs Global Investment Research.

The share of cash transactions is the key

To answer this question, it is instructive to think through the determinants of purchase mortgage originations. Mechanically, purchase origination volume can be decomposed into three pieces: (1) total number of home purchases, (2) the average dollar price of the home purchase, and (3) the dollars of mortgage originated per dollar of home purchase:

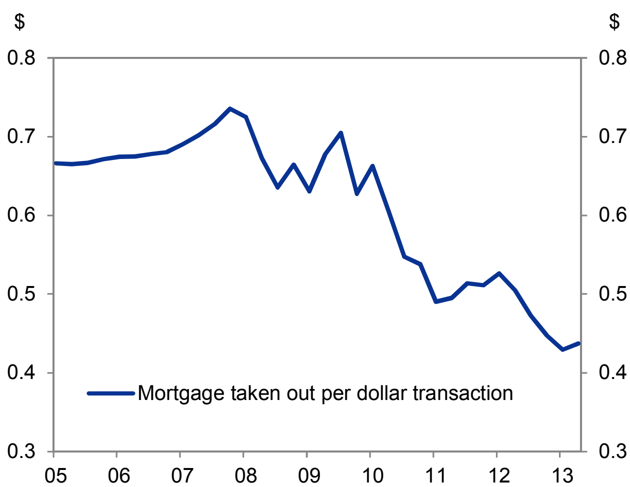
$$purchase\ originations =$$
$$(number\ of\ sales) * (average\ sales\ price) * (mortgage\ dollars\ per\ dollar\ of\ home\ purchase)$$

A forecast of mortgage purchase origination volume, then, can be derived from forecasts of these three factors.

Combining the MBA data on mortgage originations and the sales and price data provided by the Census Bureau and the National Association of Realtors (NAR), we can back out the last piece of the above equation—mortgages taken out per dollar of home purchase. Exhibit 3 shows this measure from 2005 to 2013. Before the crisis, for each dollar of home sales transaction, 67 cents were taken out to finance the transaction. Currently, only 44 cents are being borrowed to finance each dollar transaction. This decline in the amount of mortgage financing explains roughly 40% of the total decline in mortgage origination volume from 2005 to 2012.

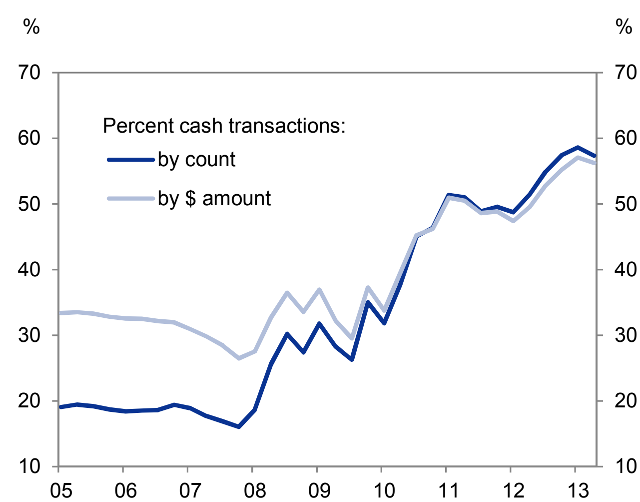
What explains the sharp decline in the fraction of home purchase transactions financed by mortgages? The key explanation lies in cash transactions: home sales that are financed with all cash and no mortgage. Although we do not have data to measure the number of cash transactions directly, we can estimate the percent of cash transactions indirectly by comparing the home sales data reported by the Census Bureau and NAR with the mortgage origination data reported by MBA and the Lender Processing Services (LPS). Because we have to combine several different data sources and make certain assumptions in calculating the cash transaction series, the *level* of our estimates may be inaccurate. But the *change* in the series over time should provide useful information about the underlying market trend that we care about.

Exhibit 3: Mortgage origination dollars per dollar of home purchase fell significantly over the past few years…
Purchase mortgage origination dollars per dollar of home purchase (4-quarter moving average)



Source: Goldman Sachs Global Investment Research.

Exhibit 4: …reflecting the sharply rising share of cash transactions
Estimated percent cash transactions by count and by dollar amount (4-quarter moving average)



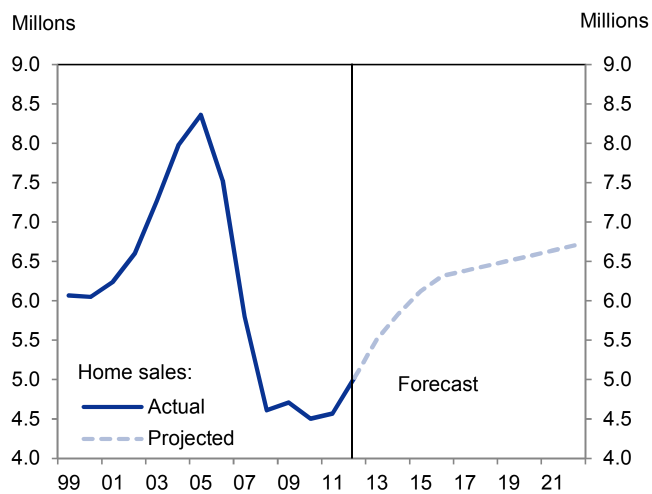
Source: Goldman Sachs Global Investment Research.

Exhibit 4 shows the estimated cash transactions as percent of total home sales both by transaction count and by transaction dollar amount. Relative to the pre-crisis years, percent cash transactions has risen by about 30 percentage points. This change is broadly in line with the increases suggested by DataQuick data. The 30 percentage point increase in percent cash transactions explains almost the entire decline in the "mortgage per dollar transaction" series (with the remainder explained by small changes in average LTV ratios per mortgage). We do not have data to assess who these all-cash homebuyers are, but presumably investors who have been purchasing distressed properties and turning them into rental units have played an important role.

Purchase originations expected to exceed $1 trillion in 2016

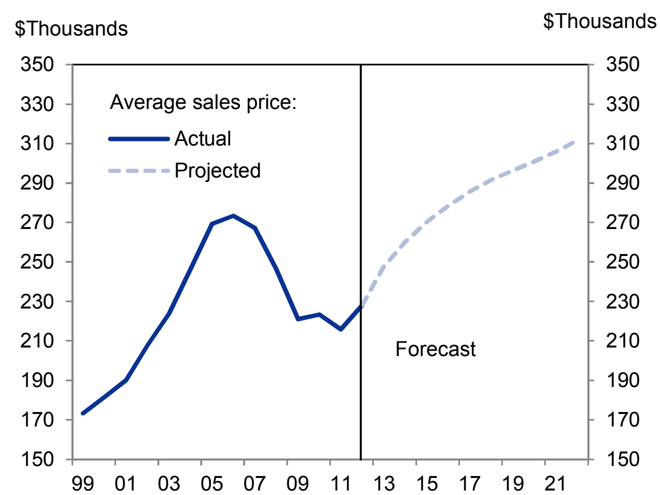
Forecasting purchase mortgage originations requires forward views on (1) the number of home sales, (2) the average price of home sales, and (3) the future path of the "mortgage per dollar transaction" series. For home sales, we apply our published forecasts for existing and new home sales for 2013-2016 (see appendix forecast table for detail). We assume 1% annual growth rate for 2017-2022 which is roughly the long-run population growth rate (Exhibit 5). For average price of home sales, we apply our national house price forecast over the next 10 years based on a bottom-up house price model[1] (Exhibit 6). Over the next 10 years, we expect total home sales and average home prices to each increase 30% cumulatively.

Exhibit 5: We expect home sales to continue to recover
Actual and projected total home sales (existing and new)



Source: Census Bureau, NAR, Goldman Sachs Global Investment Research.

Exhibit 6: We expect house prices to grow further
Actual and projected sales price (weighted average of existing and new)



Source: Census Bureau, NAR, Goldman Sachs Global Investment Research.

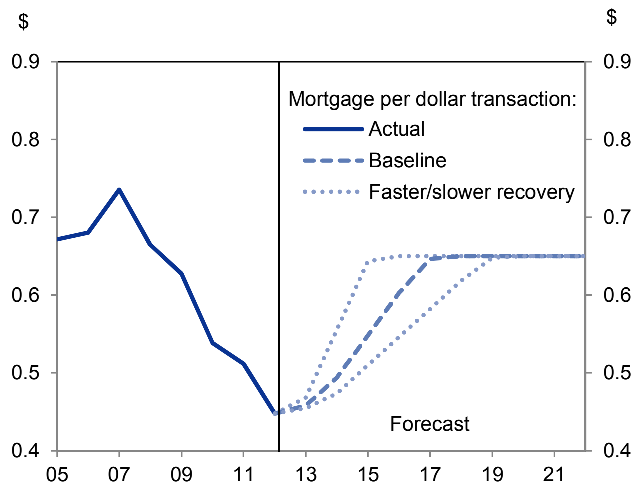
In our previous research on projecting purchase mortgage originations, we applied similar house price and home sales forecasts.[2] But we used the Federal Reserve Senior Loan Officer Opinion Survey (SLOOS) to construct a lending standard measure, a proxy for the mortgage per dollar transaction measure. We also made a conservative assumption that lending standards remain unchanged during the forecasting period. The percent of cash transactions is unusually high at present. In our view, investor activity should slowdown as house prices increase and rental yields compress, and banks should be more willing to extend mortgage credit as the housing market recovers and the regulatory landscape becomes less uncertain. Since it is difficult to precisely estimate the future evolution of all-cash home sales, we present three scenarios: our baseline scenario is for the amount of

[1] See "House prices to decelerate, but should resist slow growth scenario", *The Mortgage Analyst*, July 12, 2013.

[2] See "Mortgage Originations will Stay High in the Next 4-8 Quarters," *The Mortgage Analyst*, November 2, 2012.

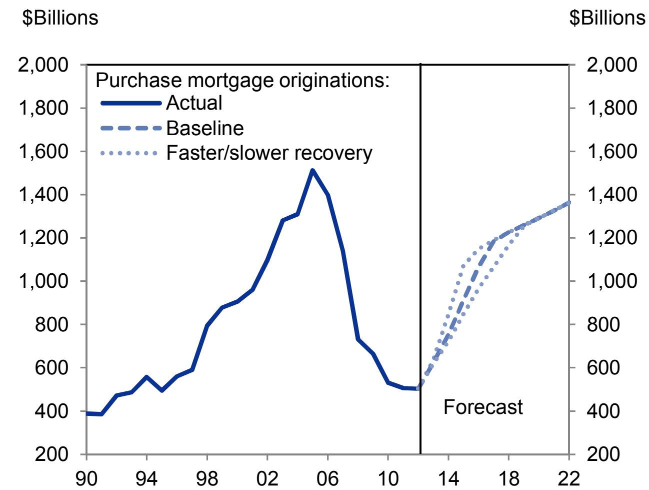
mortgage taken out to finance each dollar transaction to return to normal in four years. In a faster/slower recovery scenario, this measure returns to normal in two/six years instead (Exhibit 7).

Exhibit 7: We expect mortgage origination dollars per dollar of home purchase to return to pre-cycle levels
Mortgage origination dollars per dollar of home purchase returns to normal in 2 (faster recovery), 4 (baseline), or 6 (slower recovery) years



Source: Goldman Sachs Global Investment Research.

Exhibit 8: ...which drives purchase originations to exceed $1 trillion in 2016
Mortgage origination dollars per dollar of home purchase returns to normal in 2 (faster recovery), 4 (baseline), or 6 (slower recovery) years



Source: MBA and Goldman Sachs Global Investment Research.

Putting all the pieces together, we expect purchase mortgage originations to reach $750 billion in 2014 under our baseline scenario. If all-cash home sales normalize at a faster/slower pace, the projected originations in 2014 would be $850/$720 billion. In 2016, purchase originations should exceed $1 trillion under our baseline scenario. Because our assumption on mortgage financing per dollar transaction converges among the three scenarios, purchase mortgage originations reach $1.3 trillion in 2020 in all scenarios.

In summary, purchase mortgage originations are currently very low both in levels and as a fraction of total mortgage outstanding. Although the declines in home sales and house prices during the downturn contributed to the depressed purchase originations, the lower-than-normal level of mortgage financing per dollar transaction also played an important role. Indeed, purchase originations did not grow from 2011 to 2012 even though home sales and house prices each increased approximately 10%. In the coming years, we expect the percent of cash sales and the mortgage per dollar transaction level to return to normal, though with uncertainty about the recovery speed. As a result, we project purchase mortgage originations to double over the next four years, reaching $1.1 trillion in 2016, a level comparable to the purchase origination volume seen in 2002.

Hui Shan, Marty Young and Charlie Himmelberg

Appendix Table

The outlook for housing measures, mortgage rates, and mortgage originations

	2012				2013				2014				Annual Data				
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2012	2013	2014	2015	2016
Housing Measures																	
Housing Starts (SAAR, Thousands)	*714*	*741*	*781*	*896*	*957*	872	944	1,012	1,070	1,141	1,222	1,293	*783*	946	1,182	1,447	1,626
Single Family	*486*	*517*	*547*	*597*	*630*	593	647	699	744	799	862	918	*537*	642	831	1,046	1,208
Multi Family	*228*	*224*	*235*	*299*	*328*	279	297	313	326	342	360	374	*247*	304	351	400	418
Home Sales (SAAR, Thousands)																	
New Home Sales	*351*	*360*	*376*	*386*	*449*	470	451	489	522	560	603	644	*368*	465	582	736	854
Total Existing Home Sales	*4,497*	*4,510*	*4,740*	*4,897*	*4,943*	5,063	5,092	5,126	5,184	5,242	5,300	5,358	*4,661*	5,056	5,271	5,410	5,485
Case-Shiller National House Prices (YoY %Chg)	*-1.4*	*1.0*	*2.7*	*5.4*	*7.7*	7.3	7.4	7.0	5.5	5.2	4.9	4.6	*5.4*	7.0	4.6	3.5	2.8
Homeownership Rate (%)	*65.6*	*65.6*	*65.3*	*65.3*	*65.2*	65.1	64.9	64.8	64.7	64.7	64.6	64.5	*65.3*	64.8	64.5	64.7	64.8
Household Formation (Millions)													*1.0*	1.2	1.3	1.3	1.3
Interest Rates																	
10-Year Treasury (%)	*2.2*	*1.7*	*1.7*	*1.8*	*1.9*	2.5	2.7	2.8	2.9	3.0	3.2	3.3	*1.8*	2.8	3.3	3.5	4.0
PMMS 30-Year Fixed-Rate Mortgage (%)	*4.0*	*3.7*	*3.4*	*3.4*	*3.6*	4.5	4.5	4.5	4.5	4.7	4.8	4.9	*3.4*	4.5	4.9	5.3	5.9
Mortgage Originations																	
Total 1-4 Family ($Billions)	*373*	*395*	*471*	*511*	*482*	494	341	313	279	320	296	265	*1,750*	1,630	1,160	1,080	1,073
Purchase Originations	*119*	*132*	*129*	*123*	*125*	178	168	151	134	221	211	189	*503*	622	755	913	1,066
Refinance Originations	*254*	*263*	*342*	*388*	*357*	316	175	159	140	118	108	95	*1,247*	1,008	462	337	286
Refinance Share (%)	*68*	*67*	*73*	*76*	*74*	64	51	51	50	37	36	36	*71*	62	40	31	27

Note 1: Annual data for housing starts and home sales are annual averages. Annual data for Case-Shiller National House Prices and Homeownership Rate are year-end numbers. Annual data for mortgage originations are the sum of quarterly originations.
Note 2: The Case-Shiller National House Price index is a weighted average of metro-level HPIs for 366 metro cities where the weights are dollar values of single-family housing stock reported in the 2000 Census.
Note 3: Interest Rates refer to period end values.
Note 4: Sources of actual series are Census Bureau, NAR, Fiserv Case-Shiller, Federal Reserve, Freddie Mac and MBA.

Source: Goldman Sachs Global Investment Research.

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Reg AC

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