

## Unwanted Advances: Valuing Subprime Mortgages after the Crisis

**T**HE MARKET FOR U.S. residential mortgage-backed securities (RMBS) has taken a turn for the worse in recent months, with prices continuing to fall, particularly in the subprime segment. After subprime securities sank by 20–25% during May–June of this year, the financial press and other market watchers were quick to associate these price declines with the Federal Reserve Bank of New York’s March decision to auction assets from its Maiden Lane II LLC facility, which was formed to hold more than \$20 billion in RMBS once owned by American International Group, Inc. To complete the circle, the New York Fed cited adverse market conditions when announcing at the end of June that it would postpone those subprime asset sales.

Although the supply pressures stemming from the prospect of Maiden Lane II auctions, as well as potential sales by European banks and other holders of legacy positions, have clearly caused prices to fall, we believe other less widely recognized factors also may be creating pricing havoc in the often erratic and opaque market for mortgage cash flows. This brief *Market Insights* seeks to bring some clarity to this corner of the capital markets by focusing on two overlooked dynamics: loan servicer behavior and the negative duration of subprime floaters.

## Security Valuation: The Old Tools Are No Longer Sufficient

The 2007–08 financial crisis significantly altered several aspects of borrower and loan servicer behavior. In the past, analysts would typically focus on the following variables when valuing credit-sensitive RMBS:

- borrower prepayment activity (*i.e.*, the likelihood that a borrower will refinance or move);
- borrower default probability; and
- loss severity in the event of a default.

An investor could make assumptions about these various factors and then run them through bond cash-flow analysis software to derive a value for a given security.

Since the financial crisis, however, other variables that have historically received less attention are increasingly playing an important role in security analysis. These factors include:

- liquidation timelines;
- post-modification loan behavior; and
- loan servicer behavior.

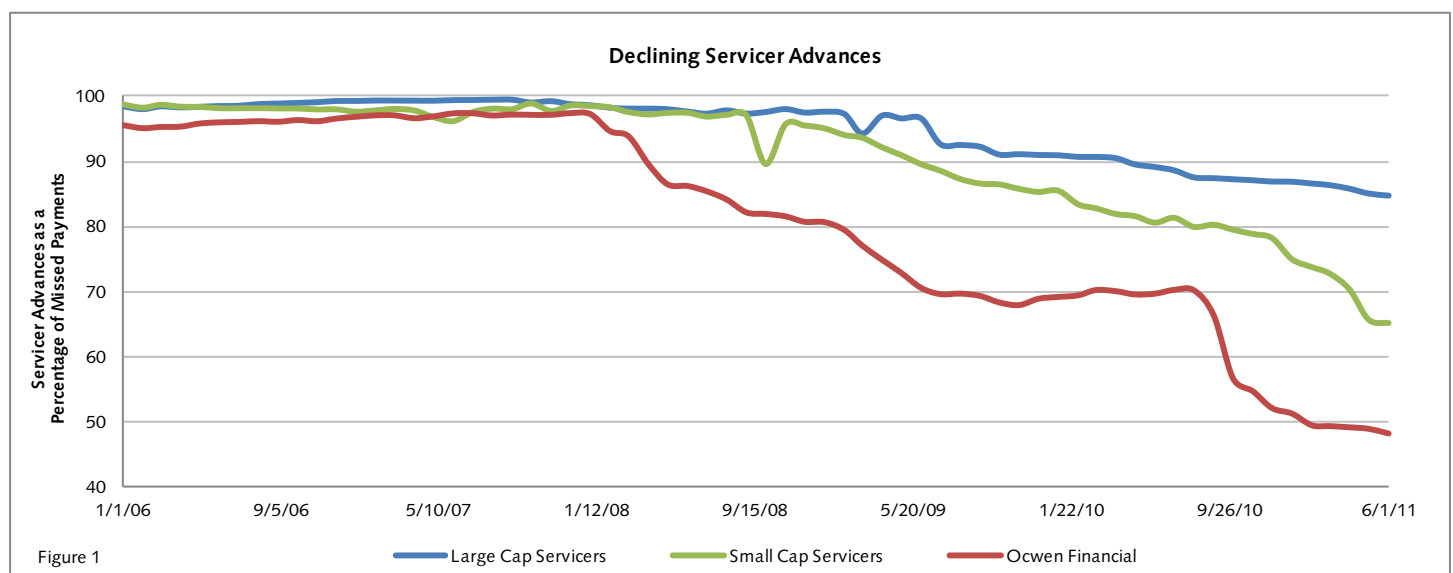
In the case of certain RMBS, these new variables have become more relevant in bond analysis than traditional factors such as prepayments or defaults. The nuanced

nature of the new variables means that they may cause the prices of certain securities to rise and others to fall even when held in the same trust.<sup>1</sup>

## Servicers Matter

By way of example, let's focus on loan servicers. In the normal course of business, servicers collect loan payments on behalf of the noteholder, make generally modest total advance payments to trusts if borrowers miss a scheduled payment, collect and pay taxes and insurance premiums, and maintain records, among other functions. However, during periods of financial stress, particularly when centered on credit markets, servicers can take on a much larger and more important role. Because servicers are contractually obligated to make advances on unpaid principal and interest payments, the sheer number of post-crisis delinquencies may mean that servicers pay considerable sums of money to trusts funding the assets. In this way, servicers end up effectively “banking” trusts by making advances on delinquent payments and recovering the funds as loans liquidate.

In the aftermath of the recent credit crisis, delinquency rates have increased and liquidation timelines have been extended. Under these conditions, the servicers' advance-payment function has morphed from a relatively minor administrative role to a substantial asset on their balance sheet with an increasingly long tenor. Servicers have thus



<sup>1</sup> Securitized residential mortgage loans are typically pooled and transferred to a special purpose vehicle formed as a trust for purposes of creating bankruptcy remoteness, among other considerations.

reassessed their contractual duties and obligations regarding advances and taken a more aggressive stance when interpreting legal agreements because funding the assets has become financially burdensome, particularly for non-bank servicers.

Figure 1 (above) shows servicer advancing behavior, highlighting that of a single servicer, Ocwen Financial Corporation.<sup>2</sup> Ocwen Financial is a pure-play loan servicer that is widely followed in the industry by virtue of being publicly traded. The “large cap” servicer universe shown in Figure 1 principally includes firms owned by the largest chartered banks which are able to fund servicing advances using relatively low-cost liabilities such as deposits or other short-term borrowings. The “small cap” servicer universe mainly comprises firms that are or were owned by investment banks or are privately held, resulting in a higher cost of capital.

The trend lines show that servicers have been advancing less money (as a percentage of missed payments) to RMBS trusts, and the amount advanced has been decreasing at an accelerating rate. Bond investors who traditionally would not have analyzed this effect must now make assumptions about the future behavior of various servicers when attempting to forecast RMBS prices. In addition to the accelerating decline in servicer advances, the market has seen several large servicing transfers as servicing companies either sell some of their servicing rights to other firms or exit the home loan servicing business altogether.

The steep decline in Ocwen advances that occurred at the beginning of 2011 was caused primarily by a large transfer of assets from HomeEq Servicing, a unit of Barclays PLC, to Ocwen. After reviewing HomeEq’s servicing practices, Ocwen determined that a portion of that firm’s advances should not have been made, and they thus reclaimed assets from the trusts. Because the amount of reclaimed advances was greater than the current cash generated by loans in the trusts, no payments were remitted to the trusts. This resulted in the complete cessation of cash flows to certain trusts. Investors who did not understand the short-term catalyst or long-term implications of this behavior may have chosen to dump affected bonds. This created a buying opportunity for those with a more complete understanding of the often volatile cash-flow movements in these trusts.

<sup>2</sup> The data presented in Figure 1 are based on computations made internally by the D. E. Shaw group and may differ from other sources.

For certain assets, the assumptions made about servicer advancing behavior can materially affect bond pricing. Consider the pricing on the ABX.HE A 06-1, an RMBS index tranche that is actively traded and closely watched by the industry.<sup>3</sup> We simulated the impact of servicer advance rates on that tranche of securities by using the current average advance rate for the tranche as a base rate that is held constant over time and comparing price changes for the current servicer advance rates shown in Figure 1 (holding those constant as well). Table 1 outlines the results of the data run.

**Table 1: Price Sensitivity of ABX.HE A 06-1 Index Tranche to Servicer Advances**

| Servicer Category   | Current Servicer Advance Rate | Price Change Relative to Base Advance Rate for ABX.HE A 06-1 |
|---------------------|-------------------------------|--|
| Large Cap Servicers | 84.8%                         | 4.6%   |
| Small Cap Servicers | 65.1%                         | -6.3%  |
| Ocwen Financial     | 48.4%                         | -14.3%   |

The data clearly show the considerable impact that servicer advance rates can have on the pricing of subprime RMBS.

Servicer-specific developments continued to dominate the headlines in July with Bank of America, N.A.’s \$8.5 billion proposed settlement with investors regarding mortgages originated by Countrywide Financial Corporation. As part of the settlement, BofA has agreed to comply with industry timelines in processing delinquent borrowers. As the servicer of approximately 28% of the loans in private-label securitizations, BofA services approximately 36% of the delinquent loans in the private-label universe (see Figure 2 below). The higher percentage of delinquent loans in BofA’s servicing portfolio is partly a function of its inaction on processing delinquent loans relative to other servicers.

Figure 3 (below) shows the annualized transition rate at which loans that had been delinquent for at least 90 days entered foreclosure or liquidation. The data show that servicers in aggregate have slowed down the process by which loans are moved along in the resolution process, but that collateral serviced by Bank of America has transitioned at a meaningfully slower rate than the rest of the market.

<sup>3</sup> The ABX.HE is a synthetic index that references a basket of 20 subprime RMBS, and the A 06-1 tranche represents home equity loans originally given an A credit rating that were underwritten in the second half of 2005.

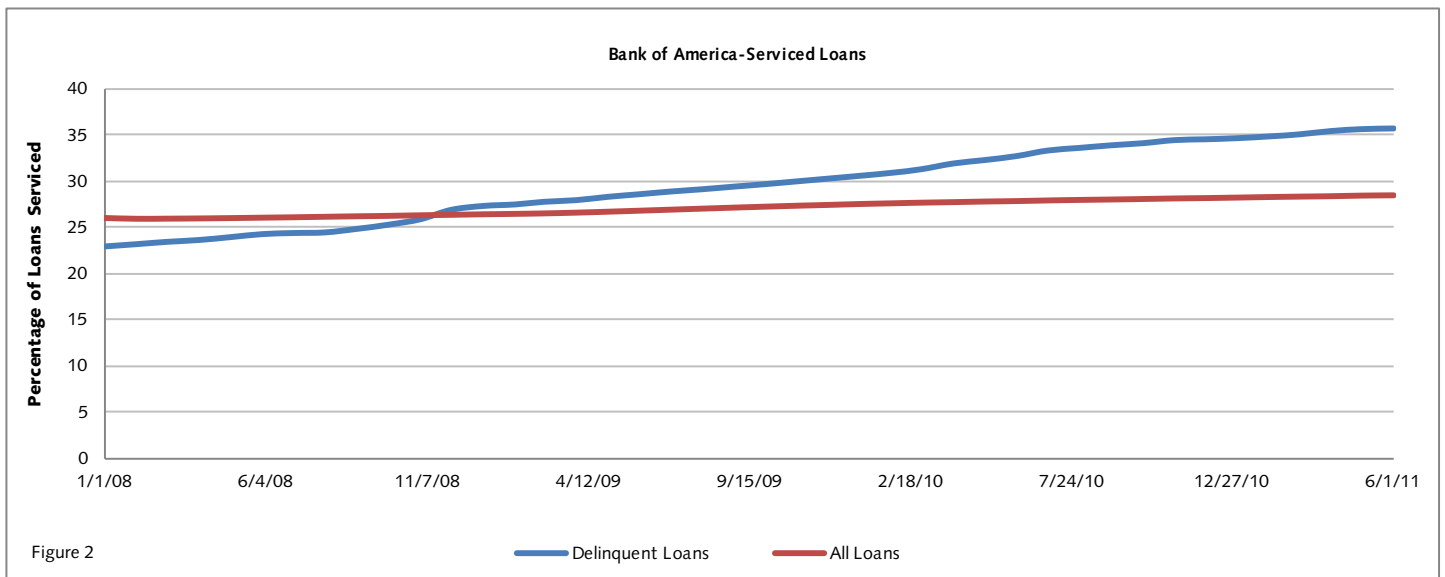


Figure 2

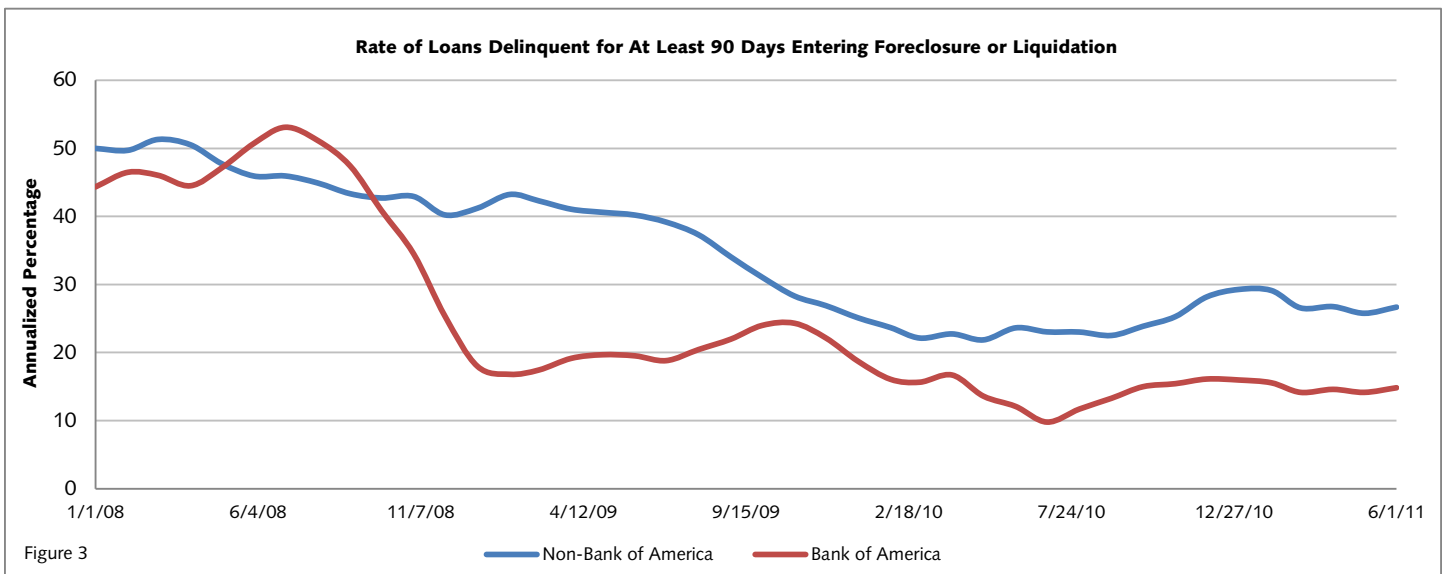


Figure 3

These dynamics create new challenges for investors. In addition to the complexities created by having to measure and forecast industry liquidation timelines and servicer-specific timelines, investors in BofA-serviced assets must now forecast the most likely resolution and timing of the proposed settlement with RMBS investors. In particular, investors who purchase RMBS serviced by BofA that have relatively high delinquency rates are implicitly taking a view that behaviors which impede the liquidation process will continue or that other factors will cause those behaviors to stop and move BofA closer to the rest of the market. However, unlike prepayment or default risk or loss severity, it's much more difficult to model idiosyncratic

variables such as servicing behaviors and their effects on security prices. Because some investors have devoted little or no attention to the nuanced behaviors of servicers, they may have been quick to sell assets or increase their risk-premium assumptions when faced with uncertain outcomes and a lack of transparency as to the forces that caused cash flows to change.

Such investor missteps may stem from two features of the RMBS market. First, the industry has not standardized the reporting and tracking of advances. Even investors who understand the relevance of servicer advances on bond performance need to build their own analytic tools to track and forecast this behavior. In addition, understanding

outlier behavior, such as that exhibited by Ocwen, often involves detailed discussions with, and potential site visits to, servicer firms. The average RMBS investor may not be accustomed to doing this kind of “shoe-leather” research, having become overly reliant on commoditized data.

Second, liquidation timelines can play a significant part in determining performance on individual RMBS. Investors need to estimate whether recovery timelines will continue to extend and how specific servicer behaviors may vary from averages and thus influence those timelines. Market events such as the Bank of America settlement make this even harder by raising new questions about investor cash flows, further complicating the job of a bond analyst.

## Subprime Floaters: The Impact of Negative Duration

Let’s now shift from market fundamentals to the characteristics of subprime bonds. Most subprime bonds are distressed securities that have floating-rate coupons and a six- to nine-year modified duration. As such, they commonly exhibit negative interest-rate duration. This means that the bond yield-to-price relationship is reversed: the security’s price increases as interest rates rise, and decreases as rates fall. As a result, a great deal of the expected cash flows from these bonds depends on the interest rate prevailing over the life of the deal.

Market convention prices these subprime bonds as the present value of expected cash flows based on current interest-rate forwards. Consequently, as interest-rate forwards rally (*i.e.*, decrease), expected cash flows from these RMBS decline, with the inverse being true if forward rates go up. (This negative-duration characteristic would not apply if investors priced subprime RMBS using a spread over a risk-free rate, as is typically the case with non-distressed securities.) Consider the example presented in Table 2 in which the market prices subprime RMBS bonds at a constant 8% yield.

**Table 2: Price Sensitivity of Subprime RMBS to Changes in Interest-Rate Forwards**

| Present Value of Subprime RMBS Assuming 8% Yield Based On: | Price of Bond | Change in Price |
|--|---------------|-----------------|
| Current Interest-Rate Forwards                             | \$33.10       | N/A             |
| +100 bps Move in Interest-Rate Forwards (Parallel Shift)   | \$38.00       | 14.7%           |
| -100 bps Move in Interest-Rate Forwards (Parallel Shift)   | \$27.90       | -15.8%          |

This example illustrates that the combination of a static discount factor and dynamic moves in interest-rate forwards means that the prices of subprime bonds can be directly influenced by changes in interest rates, although most investors would not hedge this exposure. Market participants who do not take negative duration into account for localized movements in interest rates when pricing subprime bonds may be embedding implicit distortions in their forecasts and effectively misvaluing those securities.

## Conclusion

The RMBS market is more nuanced and complicated than may appear at first blush, and analyst research and forecasting tools in many instances have failed to adapt. The prices of mortgage-backed securities have been affected not only by a combination of fairly obvious technical supply pressures, but also by the vagaries and complexities of fundamental forces such as mortgage servicer behavior and their resultant impact on cash flow timing and security characteristics such as negative duration. Investors may leave money on the table or subject themselves to unnecessary risk by overlooking them.

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