



Fair Valuation of Residential Whole Loans

Jay Guo, Ph.D.
Interactive Data Corporation

May 2011

Residential whole loans are regaining attention as an asset class for lenders, after many years in which an ever-growing percentage of such loans were originated for sale to securitization pools.

The trend in recent years has been the near-complete disappearance of non-agency mortgage-backed securities issuance. But in the next two years, the sector could see a turn toward more whole loans remaining on lenders' balance sheets, with maximum sizes of residential loans eligible for agency/GSE guarantees poised to shrink by year-end 2011, and as the mortgage industry gears up for issuer risk retention and other proposed new regulations. This article summarizes the current context surrounding residential lending and securitization and describes a methodology for evaluating a residential loan based on observable inputs from the structured securities markets.

Non-Conforming Loans Have Become Hard to Securitize

U.S. commercial banks held \$1.48 trillion of residential whole loan assets as of March 23, 2011, according to recent [data](#) from the **Federal Reserve Board**. Although the total was little changed from a year earlier, banks' whole loan assets continue to exceed their holdings of MBS.

Since the onset of the financial crisis, non-agency/GSE MBS issuance has largely disappeared. Just \$5.4 billion of private residential MBS were issued in 2010 – down more than 99% compared with the peak of \$740.2 billion in 2005, according to [data](#) from the **Securities Industry and Financial Markets Association**. As a result, only conforming loans (eligible for purchase by GSEs, such as **Fannie Mae** and **Freddie Mac**) can be readily sold into the secondary market.

Pending legal and regulatory changes may further restrain residential securitization activity. A law that raised conforming loan ceilings for the wealthiest 8% of counties in the U.S. is set to expire at the end of September 2011. As a result, absent further Congressional action, an undetermined number of future mortgage loans in amounts between \$417,000 and \$729,500 that would qualify as conforming under current law will exceed the new, reduced ceilings, according to a [release](#) from the **Federal Housing Finance Agency**. Such loans made after September 30, 2011, will be non-conforming, and, therefore, likely to remain on banks' balance sheets instead of being securitized.

In addition, on March 29, a group of U.S. banking and securities regulators proposed a series of new “risk retention” [requirements](#) for asset-backed securitizations. The new proposal includes more detailed risk retention requirements than a similar measure advanced by the **Securities and Exchange Commission** in 2010. Under the new proposal, issuers or originators would have to retain at least 5% of the credit risk for new securitizations, unless the underlying loans meet the requirements for “qualified residential mortgages.” For non-agency/GSE loans, those

requirements would include a minimum 20% down payment and maximum 28% front-end debt to income ratio. Under the proposed rules, GSE guaranteed loans would also satisfy the risk retention requirements so long as Fannie Mae and Freddie Mac remain under government conservatorship or if they are succeeded by a limited-life regulated entity operating under the direction and control of the FHFA with capital support from the U.S. government. The regulators' plan "will further prolong the U.S. government's 95% market share of the credit risk of newly originated mortgages," according to a [statement](#) from the **American Securitization Forum**.

New risk weightings and capital charges due to be phased in under Basel III could also affect the relative attractiveness of whole loans versus securitized assets, although the specific provisions are not clear at this time.

Meanwhile, pending legal actions could force more issuers, including large commercial banks, to buy out troubled loans from securitized mortgage pools. Fannie Mae and Freddie Mac are [already doing so](#), which helps explain why Fannie Mae's loan portfolio grew about 52% during 2010, while its MBS holdings [declined](#).

Accounting for Whole Loans

When comparing whole loans with MBS, it is important to recognize that originators generally account for loans differently than they account for securities. While marketable securities are recorded at fair value under GAAP, whole loans most often are recorded at amortized cost (the remaining principle amount, undiscounted, with possible adjustments for fees collected, deferred labor costs and other items). However, evolving accounting standards and the growing complexity of financial markets are stimulating interest in the fair valuation of financial assets, including whole loans.

In May of 2010, the **Financial Accounting Standards Board** issued an [Exposure Draft](#) that proposed, among other things, to require most financial instruments, including whole loans, to be reported at fair (i.e., market-based) value. In December, FASB tentatively modified that proposal in the face of widespread opposition. The revised [proposal](#) would allow entities to use amortized cost to value certain financial assets "managed through a lending or customer financing activity that an entity holds for the collection of contractual cash flows." No matter how the standards-setters ultimately resolve this issue, GAAP accounting will require fair-value measurements for many loans – appearing on the balance sheet in some cases, and in the footnotes to the financial statements in others."

Accounting standards aside, many originators and third parties, such as credit rating firms and investors, find fair value information useful for risk management and other purposes.

Essential Steps in Valuing a Whole Loan

As with any financial asset, valuing a whole loan requires projecting its future cash flows and discounting them at a rate of return that closely reflects both the asset's risk profile and current market conditions at the time of valuation.

Schematically, the theoretical value of an asset that provides known monthly cash flows is represented in the following equation:

$$V = \sum$$

Where “i” is the time each payment is due (in number of months from today) and “r” is the monthly discount rate appropriate for valuing that particular asset (A general explanation of cash flow discounting can be found in **Frank Fabozzi**, *Fixed Income Mathematics, Analytical & Statistical Techniques*, 4th Edition, McGraw-Hill, 2005, Chapters 4 and 5.)

FASB Accounting Standards Codification Topic 820, “Fair Value Measurements and Disclosures,” requires that input data used to estimate the fair value of an asset or liability should be derived from quoted or observable market prices whenever possible. Although whole loans are sometimes bought and sold, the current market price, yield or spread (risk premium) of any particular whole loan currently cannot be directly observed from market data.

A critical aspect of estimating fair value for a whole loan is calibrating the discount rate to be used in valuing a loan’s cash flows under different sets of market conditions.

In general, discount rates (also known as required rates of return) contain a benchmark interest rate component and a risk premium or spread component. The benchmark rate is taken from a readily observed yield series, such as swaps/LIBOR, the U.S. Treasury market or agency debentures. The analyst must then decide how large a spread should be added to the benchmark interest rate curve to discount the asset’s risks, relative to those of similar assets. Estimating a market-based risk premium for an asset is one of the most challenging steps in the valuation process.

Loan Valuation Using Spread Regression Methodology

One possible methodology for evaluating first-lien residential whole loans is based on observable inputs from the structured securities markets. The methodology can be used regardless of whether or not the loan is currently performing or eligible for purchase by a GSE.

The methodology begins by modeling the amount and timing of all cash flows over the life of the loan. The cash flow model should incorporate forecasts for prepayments, default probabilities and recovery amounts in the event of default.

Critical to this methodology is determining the spread that (in conjunction with a benchmark yield curve) will be used to discount the loan’s cash flows. The final output is an indication of the loan’s fair value: a calculation of present value derived from observable inputs for related securities.

To derive a market-based spread for valuing a residential loan (whether conforming or non-conforming), you could perform the following steps:

- 1) Obtain market value estimates for a large number of residential mortgage pools. For a non-agency pool that traded recently, the market value is the observed value of the transaction. For a pool backing a securitization, the market value is the observed aggregate value of all tranches of

that deal, adjusted by the values of servicing and other fees (an addition) and reserve funds and other credit enhancements (a subtraction).

- 2) For every such pool, project pool cash flows using the prepay/default model and a cash flow model.
- 3) Using the numbers generated in the two preceding steps, calculate each pool's spread over a benchmark yield curve. This will be the spread that equates the pool's projected cash flows to its estimated market value.
- 4) Perform multivariate regression over all pools, using pool spreads as the explained variable and a set of widely available loan characteristics as explanatory variables. Such variables might include: industry designation (e.g. subprime, jumbo, alt-A), average FICO scores, delinquency levels, weighted average coupon and weighted average maturity.
- 5) Using the resulting regression coefficients, generate a market-based yield spread for any non-conforming loan as a linear function of its characteristics. Adding this yield spread to a benchmark yield curve produces an appropriate rate for discounting the loan's projected cash flows, resulting in a market-based valuation for the loan itself.

This procedure can be refined to incorporate cash-flow optionality, time-varying discount rates, and liquidity differences that may cause a whole loan to trade in the marketplace at a spread different than an identical loan within a securitized pool.

Jay Guo is the head of the fixed-income quantitative methodology, structured securities and the OTC derivatives groups at Interactive Data Corporation. Interactive Data is a provider of daily evaluations for more than 2.8 million fixed-income and international equity issues, including U.S. whole loans.

For additional information, please contact: info@interactivedata.com

Interactive DataSM and the Interactive Data logo are service marks of Interactive Data Corporation.

