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Understanding OTTI

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CALLAHAN'S CREDIT UNION REPORT

At the Leading Edge of Credit Unions

By Chip Filson

Understanding Corporate OTTI Estimates . . . and How They Affect Credit Unions

OTTI estimates on the same securities vary as economic conditions change. Likely at the four to six corporates most affected, the OTTI write-downs have already been expensed. This is good reason to allow corporates to continue issuing strong dividends to members and to take extreme regulatory action only if conditions bring further shocks.

By now, we have all heard about OTTI. It is the primary factor in the negative financial performance of six corporate credit unions. These estimates of probable losses on investments affect every corporate credit union due to required write-downs of membership capital accounts in US Central. As a result of the write-downs, each natural person credit union's membership capital in its own retail corporate(s) became vulnerable to loss due to the US Central capital write-down.

These estimated losses, resulting in capital impairments in several corporates, are the basis for NCUA's premium assessments. The latest assessment for \$1 billion (13.4 basis points of insured shares) relies upon NCUA's projection of insured losses of \$6 to \$7 billion over the life of the OTTI securities.

Until the financial crisis of the 2008 and 2009, OTTI investment losses in credit unions were infrequent and usually not threatening the solvency of any organization. However, the structured mortgage-backed investment sophistry, especially in non-agency privately issued mortgage-backed bonds, fed by the housing bubble, has resulted in these unprecedented loss projections.

Since 2007 the Corporate network has recorded over \$11 billion in OTTI losses led by WesCorp's \$6.9 billion and US Central's \$3.5 billion projections.

No single estimate is conclusive, let alone final. The final results can only be known with certainty over the life of the bonds.

Two critical issues have been raised by credit unions from these events:

1. Are more substantial OTTI losses likely to occur? That is, what is the additional exposure a credit union may have to its (remaining) membership capital?
2. How do we resolve those few situations where losses will cause the corporate to be without capital and/or sufficient earnings capability to continue operations?

Any plan to resolve these issues requires an understanding of how OTTI is estimated.

What Is OTTI?

OTTI is a fancy way of saying an investment is permanently impaired, that is, worth less than what was paid for it. Over its economic life, the investment will likely not return its full current book value of the principal and/or the amount of interest that was originally expected at purchase.

This judgment relies heavily on analyt-

ical modeling for the entire economic life of a security. These model forecasts, generally run quarterly, are the primary basis for estimates of a credit impairment.

Several factors can cause an investment to be impaired. In the case of mortgage backed securities (MBS), the key factor is the projected cash flow from the underlying mortgages and the value of the collateral that supports them. A sec-

ond is the relative position, or tranche, of a bond in the security’s repayment hierarchy. In other words, on what floor of a building do you reside before the flood rises to impair your floor – lower is worse and higher is better.

Estimating the cash flows is a complicated exercise involving the cost of carrying delinquent loans, the volume and timing of liquidations, the expected loss on liquidation, the likelihood of PMI claim payments, and non-interest liquidation costs.

A third factor can be a loss of credit enhancements such as third party guarantees of a security’s payments. Another credit risk is corporate failure, such as Lehman Brothers, in which final payouts to bondholders from the bankruptcy proceedings may take years to complete.

One example to explain OTTI: assume you buy a revenue bond from a municipality where the repayment comes from tax revenues to be collected in the future. During the life of the bond there is an unexpected event, possibly a major plant closing, creating a significant reduction in the tax base. As a result, projected revenues no longer are sufficient to make the contractual payments of principal and interest on the bond. Clearly the present value of the future revenue stream available to bondholders has been impaired. The value of the bond is now considered to be “permanently” (other than temporary) reduced due to the estimated shortfall in future principal payments. This decline would be considered OTTI.

Estimating OTTI Losses

OTTI estimates, especially in mortgage-backed securities, involve both art and science. The models estimate the future cash flows from the mortgage pools collateralizing the bonds. While

OTTI Expenses Recorded by the Corporate Network and Cash Losses to Date

	Assets as of March 2010	Date (5/31/10) OTTI (Millions)	Cash Losses Implied / Incurred (Millions)
U.S. CENTRAL	\$32,381,754,582	\$3,500	\$269
WESCORP	\$21,820,631,650	\$6,900	\$478
MEMBERS UNITED CORPORATE	\$9,352,214,426	\$600	\$95
SOUTHWEST CORPORATE	\$8,766,723,770	\$455	\$38
MID-ATLANTIC CORPORATE	\$4,091,595,023	0	0
CORPORATE ONE	\$3,734,209,541	\$52	\$6.8
GenCorp	\$3,216,202,526	\$6.8	\$6
SOUTHEAST CORPORATE	\$3,215,198,374	\$41	\$9.9
CORPORATE AMERICA	\$2,814,071,463	\$11.6	\$1
SUNCORP	\$2,649,562,130	\$44.8	\$2.9
GEORGIA CENTRAL	\$2,593,004,948	0	0
FIRST CAROLINA CORPORATE	\$2,133,725,963	\$9.7	\$1.4
CORPORATE CENTRAL	\$1,889,238,087	0	0
VOLUNTEER CORPORATE	\$1,655,871,781	\$1.6	0
VACORP	\$1,454,156,494	0	0
CONSTITUTION CORPORATE	\$1,233,607,795	\$160.8	\$2.5
TRICORP	\$1,081,590,383	0	0
FIRST CORPORATE	\$1,065,604,926	\$1.6	0
MISSOURI CORPORATE	\$774,488,111	0	0
EasCorp	\$695,737,025	0	0
KENTUCKY CORPORATE	\$463,984,897	0	0
KANSAS CORPORATE	\$385,915,761	0	0
TREASURE STATE CORPORATE	\$379,013,846	0	0
WEST VIRGINIA CORPORATE	\$261,086,240	0	0
MIDWEST CORPORATE	\$245,696,190	0	0
LOUISIANA CORPORATE	\$165,619,874	0	0
IOWA LEAGUE CORPORATE CENTRAL	\$97,245,466	0	0
TOTAL (IN MILLIONS)		\$11,784.9	\$904.2



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there is a formal legal payment structure, judgment is crucial in using estimates. Different models will give different results. Model assumptions will change frequently. Payment flows will be affected by economic events and their resulting impact on:

- delinquency and foreclosure rates on the underlying mortgage collateral
- projected loss severity on liquidating foreclosed properties using current and projected housing values
- voluntary prepayment rates in which payments are accelerated or extended, which cause changes in the mortgages' average life. For example, a refinancing would cause the original obligation to be paid ahead of schedule.

A key factor in establishing the present value of projected future losses is the selection of the appropriate interest rate to discount payment shortfalls. A higher rate (6-8%) lessens the immediate expense write-down; a lower discount rate (3-4%) increases the immediate loss expense because the current cash flows cannot be reinvested at a higher rate to offset some of the anticipated future losses.

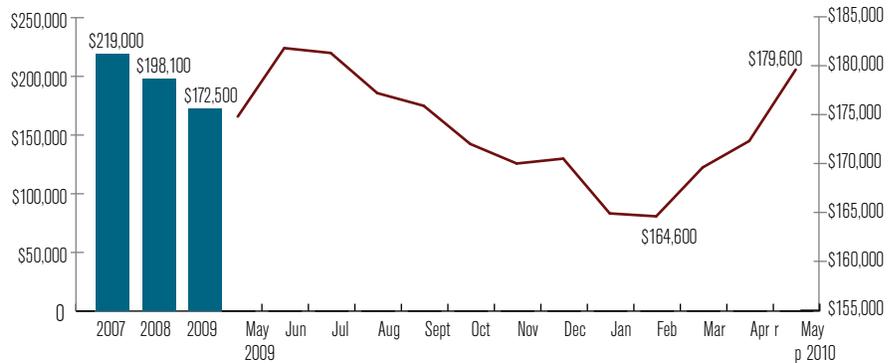
A model's underlying assumptions and the actual performance of the mortgages in the MBS pool change, sometimes month to month. External conditions such as the level of interest rates, specific area housing market trends and overall economic momentum measured by GDP growth and job creation, will cause the models to project different results for the same securities over time.

An important output from each model run is a forecast of cash flows over the full economic life of the bond. Many bonds can extend 5-10 years or more into the future, making accurate projections even more problematical.

Any adjustments in the factors listed above can lead to significant changes in the current OTTI loss estimate.

One example of how the underlying assumptions can change quickly is shown in the median housing price graph (above right). This variable is important in estimates of collateral value should a

Median Price for Existing Homes, Not Seasonally Adjusted



Source: National Association for Realtors

foreclosure occur. In the past 12 months the lowest median price was in February 2010, but as of April 2010, the median price had recovered and exceeded the 2007 average value.

The graph below shows nine different estimates of OTTI cash flow losses.

Write downs indicate projected cash deficits as well as "implied" principal losses even if cash payments are still being received.

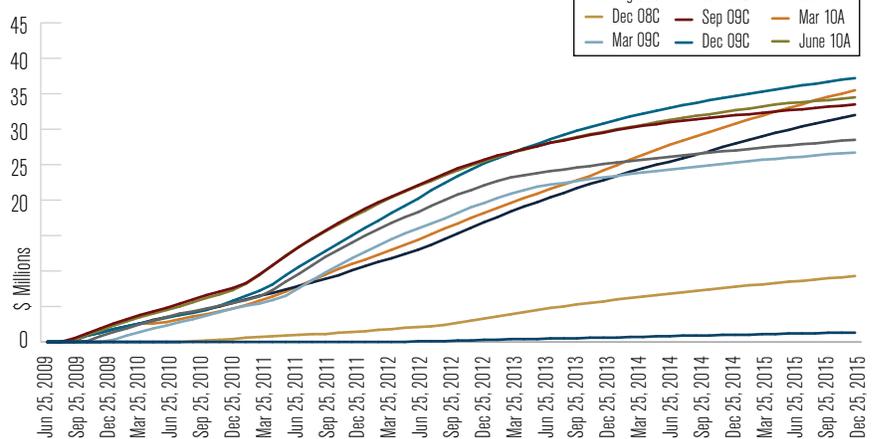
These nine were run quarterly between

What Can Be Learned From These Different Model Outcomes?

The majority of the estimated (OTTI) losses are several years into the future and some more than five years into the future. There have been no cash defaults on payments since the first projection in August, 2008. The corporate credit union estimates that the first default will occur later this year. Other observations:

Case Study:

Projected Cumulative Implied and Actual Cash Writedowns



Source: A Corporates' OTTI Forecasts on a Securities Portfolio of \$300million

August 2008 to June 2010, on a corporate's security portfolio of approximately \$300 million. The securities in the portfolio did not change during this time.

The chart extends only five years into the future, December 2015, so the total cumulative undiscounted cash flows are not shown. However over the past year this has settled into a fairly narrow range of \$48-\$50 million.

1. If the modeling is accurate, the majority of losses should occur in years 2011-2013. These events will then provide the real results. The correctness of the modeling for the bulk of the portfolio will be known within the next 12-24 months.
2. Although the chart's December 2015 endpoint does not show the full OTTI values, it does demonstrate the wide variation of estimates made at different

times, in different economic circumstances. For example, if one compares the March 2010 loss estimates with March 2009, there is a \$9 million increase or 33%.

- No single estimate is conclusive, let alone final. The final results can only be known with certainty over the life of the bonds.

Accounting For OTTI Estimated Losses

Even if the modeling estimates fluctuate regularly, the accounting entries do not. When a security is projected to have a

credit loss (principal payment default) the current value of that loss must be recorded in the current income statement—even if the default isn't until years in the future. Once the loss is recorded it cannot be written back up immediately even if future estimates show that a lower loss is now likely.

The only accounting flexibility is that if the actual loss is estimated to be much less than the current write-down, that difference can be recorded over the remaining life of the bond. Although the full loss was posted to the income statement immediately, the recovery in value

cannot be recorded that way. That recovery can only be immediately posted if the bond is sold and the new value (or lower loss) actually realized.

Because of the dramatic impact of OTTI estimates on current financial statements, most bond holders use several models with different scenarios to make the best “judgment” about the proper level of OTTI loss expense to be recorded. Once the loss is recorded, even if significantly changed in future model runs, the securities cannot be written back to this higher, later value. ♦

PART: II

The Difference Between an Accounting Loss and an Actual Cash Loss

As shown on the table on page 2, the corporate network has taken over \$11 billion in direct accounting losses through the income statement and accompanying retained earnings and capital accounts. However only a fraction of these defaults have occurred to date. As shown in the table less than \$905 million or 7.6% of actual implied cash defaults have occurred of the \$11.8 billion projected losses.

This continued cash flow is important because it allows the corporates to use these funds to pay competitive rates on the share deposits which fund these investments. For example, although WesCorp shows almost \$5 billion negative net worth (-23%) it continues to pay

very competitive rates on all of its shares. Only 5% of WesCorp's bonds with OTTI, or \$478 million out of an estimated \$ 6.9 billion loss, have defaulted.

The continued “normal” operation from these continuing cash flows provides a corporate and its members the opportunity to build retained earnings and to make a much more informed judgment about the future status of an individual corporate.

If the modeling estimates are approximately correct, then it is highly probable that the vast majority of OTTI write-downs have been expensed. Most of the write-downs were taken at the depth of the recession when forecasts of losses, collateral values, and other variables were at

their most dire. Most OTTI portfolios today show some recovery in these initial, yet final from an accounting standpoint, loss estimates. Moreover, several corporates that have taken material write-downs to their retained earnings now believe their current earnings can likely offset the possibility of any more future losses.

OTTI and the Legacy Asset Issue

Because the OTTI write-downs were so sudden and severe during the height of the recession, many credit unions are rightly concerned about the potential of more losses on these same portfolios. All of the data and continuing valuations suggest that the write-downs have fairly accurately “sized” the problem.

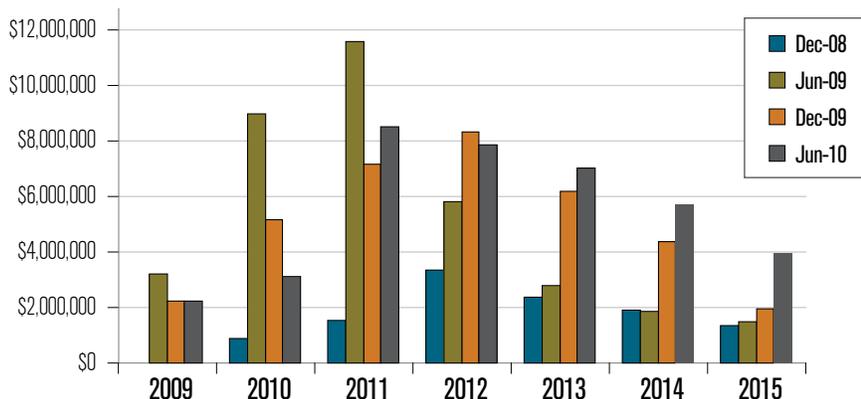
Because cash flows continue on over 90% of these so-called legacy assets, they are critical to the current and future earnings of the corporates that hold them. While the future bond losses have been recognized already, the income from these same assets can only be recorded over their remaining average lives.

In today's interest rate environment these variable rate, earning assets are extremely valuable to each corporate. Money market rates are at all time lows. The Federal Reserve recently paid only 28 basis points on a 90-day CD.

If the corporates were to sell these assets and receive cash, even at a value

Projected Credit Losses

Over These Four Semi-Annual Model Runs the Cash Losses are Projected Further into the Future



Source: A Corporates' OTTI Forecasts on a Securities Portfolio of \$300million

equal to these securities' current book value, this exchange would plunge those corporates, where these securities are a significant part of the balance sheet, into an immediate operating loss. The only option for these few corporates would be to dramatically lower rates on certificates and overnight shares. This could lead to substantial outflows, a dispersion of liquidity outside the credit union system, and a much reduced corporate capability to fund their \$29 billion in member lines of credit (as of March 30) due to significantly smaller balance sheets.

Why We Should Care About This

Without question, real cash losses will occur in corporate credit unions with OTTI investments even if years in the future. But in all probability the overwhelming majority of these losses have already been fully recognized. The securities are funded by credit unions today, and because of their earnings value, every corporate with OTTI investments is showing an operating profit in 2010. Depending on the timing of defaults, these positive earnings could continue for years into the future, benefiting both the members and the corporates' balance sheets.

Transferring these securities to another entity, funded by public bond issues, would not only result in significant transaction costs but also much higher funding than is now being paid by corporates to members. The credit unions placing funds in corporates would lose the spread income now being distributed in dividends or to increase retained earnings. New investors would now have the benefit of these returns. Any transfer could also result in unrealized losses on available for sale securities now becoming realized, which would increase the total cost of managing the resolution of these investments.

The critical issue is how to manage the few individual corporate situations when the actual cash defaults become so severe that they cannot pay competitive dividends on savings, their funding becomes at risk, and operating losses start to ensue.

Between four and six corporates will be in this situation sometime in the next

How One Credit Union CEO Educates Members on OTTI Calculations

"I ask that each person take out a pen, as you will not be able to change your answer. Write down the exact amount of all the losses that their own mortgage portfolios will generate over their life for the next 15-20 years. As the group looks back, I again reinforce the need to calculate this number exactly. I then tell them that whatever number they come up with, that they cannot easily or quickly correct it if the outcomes begin to change positively in the next several months."

"I discuss how the OTTI calculation is the same exercise by comparing how they might go about estimating their own number using default rates, loss projections, pay downs, etc. Then I go into the exact way that OTTI is calculated on an MBS and compare the many variables used to explain how "subjective" this measure is in actuality. This simple comparison goes a long way to take some of the mystery out of the calculation while at the same time reinforcing the difficulties of the calculation in a practical way."

Estimates of OTTI from Western Corporate Federal Credit Union's Notes to the 2008 Consolidated Financial Statements

"The NCUA Board, in its role as Conservator, has overall management authority over WesCorp's business." (page 12)

"The preparation of consolidated financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make certain estimates and assumptions. These affect the reported amounts of assets, liabilities, shares, and the amount of any contingent assets or liabilities disclosed in the consolidated financial statements and the reported amounts of income and expenses during the reporting period. Specifically, management has recorded significant adjustments related to fair values and in the assessment of other-than-temporary impairment of investments based on modeling assumptions from third-party providers. Estimates of future impairments are highly dependent upon assumptions used in the models, and actual losses incurred could be materially higher or lower than those projected." (page 26)

Source: Notes to Consolidated Financial Statements (pages 29-38) show the full OTTI estimate.

two to three years, assuming the cash flow models are indeed accurate. The remaining corporates either have no OTTI exposure or an amount immaterial to their overall balance sheet.

The solution is straightforward. As each of the four or possibly six corporates reaches the point in the next 24-36 months, if at all, when realized losses prevent their profitable operation, then the NCUA steps in, assumes control of the legacy assets remaining and offers the members cash for their shares which can then be moved elsewhere. Or, the members can be given six months to recapitalize the corporate – which would have no remaining capital – if they wanted their local corporate to continue.

This approach would match actual losses with resolution, allow corporates and their members to make an informed

decision about future capitalization, and most importantly, minimize the overall loss to the credit union system via NCUSIF premiums.

What To Do Now: Stay Engaged

Credit unions can take relief in being pretty certain we have booked the expenses of the corporate legacy assets. The balance sheets are clear, honest, and stable. Our job now is to watch the cash flows as they develop in the coming months and quarters and as they sustain the assets as projected. The corporate crisis was sudden and painful. But it is now largely behind us. We need to shift to a new perspective, not one of fear but of building on "conditions on the ground." We can do that; we can move forward with confidence and build up an even stronger credit union system. We must stay engaged. ♦

The Use and Misuse of Mortgage Credit Models for OTTI Analysis

Two factors are key to credible OTTI analysis:

An evaluation of the weakest loans in the mortgage pool and a reasonable housing price forecast. With these the job can be done with a justifiable degree of assurance.

Over the past three years Andrew Davidson & Co., Inc. (AD&Co) has been extensively involved in OTTI analysis and the estimation of credit losses. During this period, what constitutes impairment and what actions need to be taken have undergone a substantial evolution. Whereas mortgage credit models existed before the crisis, the models were based on data for which there was little or no precedent to the current situation. As the housing crisis unfolded and even the most senior non-agency RMBS became potentially subject to OTTI, the mortgage credit models were “tuned,” updated, and re-estimated to reflect this new “information.” AD&Co’s proprietary loan level mortgage credit model, LoanDynamics™, has been systemat-

ically revised over time.

We believe a loan level model is critical to OTTI analysis. For example, in the 2005–08 period, underwriters formed collateral pools that were “credit barbelled.” This means that there was a wide distribution of collateral in the mortgage pools and that “tail risk” has to be identified. For example, if a pool had two loans with a weighted average FICO of 700, the credit risk will be vastly different between loans with 690/710 FICOs versus 650/750 FICOs. Credit risk is not symmetric. Therefore, financial models that use weighted averages or a few cohorts to specify collateral pool characteristics will potentially grossly underestimate the credit risk of the underlying mortgages.

Two Calculations

Accordingly, the next task is to estimate the credit loss that is likely to result from the impairment consistent with the FASB regulations issued in April 2009. To illustrate this process, we have analyzed two securities: a super senior bond and a senior support bond. Both were originally rated AAA. In Table 1 we show the 60+ Delinquency Pipeline at the loan group and deal level, and compare this to the amount of credit enhancement (Current Support). As you can see the 60+ pipelines are approximately equal to the current support.

Table 1. Description of Sample Securities

Collateral Type	Bond Type	Ticker	Cusip	Group-Level 60+	Deal-Level 60+	Current Support (%)
ALT_A FRM	Super-Senior	WMALT 2005-8 2CB1	93934FCN0	11.4	14.8	12.8
PRIME FRM	Senior Support	CWHL 2005-5 A5	12669GQU8	6.2	7.2	5.3

To determine OTTI and the estimated credit loss required by FASB, AD&Co has developed a methodology called the Credit Snapshot. The specific tasks are:

- Develop a “Base Case” scenario for housing prices and interest rates
- Derive the undiscounted projected Principal Write-downs of the bond using the Base Case assumptions
- Calculate the Present Value of the Base Case bond cash-flows, using book yield or the bond coupon as the discount rate
- Credit Loss is the difference between the book price of the bond (or par) minus the PV of the Base Case cash-flows

The results for our two sample bonds are provided in Table 2. For purposes of this analysis we assumed a book price of par and discounted cash-flows using the bonds' respective coupons.

Table 2. Base Case Analytical Results

Ticker	Book Price	Coupon	Present Value of Cashflows	Credit Loss	Cumulative Principal Writedown (%)	Cumulative Interest Shortfall (%)
WMALT 2005-8 2CB1	100.00	5.50%	96.05	3.95	5.73	0.00
CWHL 2005-5 A5	100.00	5.50%	94.44	5.56	10.55	0.00

Now that we have experienced the worst of the housing crisis, we can reasonably argue that our models are sufficiently flexible to accommodate virtually any housing cycle. Then where is the problem with respect to the use of models to estimate credit loss? The problem has to do with the bane of all forecasting—"garbage in, garbage out." In other words, even if your model is perfect (and all models have some error by definition), inaccurate or implausible forecast assumptions can result in unrealistic or biased projections.

Remember that FASB regulations require the development of a "Base Case" scenario, and that the key driver for the determination of mortgage credit risk is housing prices. In 2008-09, there was a housing price derivatives market that provided some guidance as to housing price expectations for 3-5 years. This was a "market" forecast, analogous to the forward curve for interest rates. That market is no longer actively traded, and AD&Co among others has developed proprietary home price forecasting models. Whether you rely on internal or external sources, the key is to have a "reasonable" Base Case projection. There is no shortage of forecasts, but the key is the next 2-3 years.

Sensitivity of OTTI Credit Loss to the HPI Curve

In Table 3 we show the sensitivity of OTTI Credit Loss to shifts in the House Price Index HPI curve. Note that the +/- scenarios are relative to our Base Case projections. For example, +5% means that our 2-year housing prices curve is 5% better than the Base Case. "0" (in red) is the Base Case scenario. As

Table 3. OTTI Credit Loss Sensitivity

Ticker	HPI Scenario				
	+12	+6	0	-6	-11
WMALT 2005-8 2CB1	0.47	1.83	3.95	6.80	10.31
CWHL 2005-5 A5	-	-	5.56	29.90	45.31

you can see, the super senior bond is relatively stable in our scenarios. However, the support senior bond has cash-flows that are very sensitive to the housing price forecasts.

Critical: Two Elements Together

In summary, there are two critical elements in OTTI analysis. First, the credit model must evaluate "tail risk," the weakest loans in the mortgage pool, preferably at the loan level. Second, one must have a reasonable housing price forecast. Whereas the forward interest rate curve provides an accepted convention for future interest rates, no such method exists for home prices. What is most relevant is the reasonableness of the forecast. How was it generated? What factors are driving it? This forecast must pass the scrutiny of auditors and regulators. In combination with a reliable mortgage credit model, OTTI analysis becomes a very straightforward task, and the sensitivity of a portfolio to changing assumptions can be readily estimated. ♦

About Andrew Davidson & Co., Inc.

Andrew Davidson & Co., Inc. turns mortgage data into investment insight. The firm is a leading provider of models of borrower behavior and risk analytics for fixed income investors of mortgage (MBS) and asset-backed securities (ABS) and an expert advisor in the areas of risk management, and the valuation of complex MBS and mortgage derivatives. Andrew Davidson & Co., Inc. offers prepayment models for MBS and ABS, a LoanDynamics™ Model for credit sensitive mortgage securities, and option-adjusted valuation and risk management tools for MBS, ABS, and CMOs. With a unique blend of investment expertise and cutting-edge quantitative methods, the company produces highly advanced models and the most innovative solutions to mortgage investment challenges.

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