

August 18, 2005  
CDO/ABS Warehouse Business  
Product Control and Market Risk Meeting

Citigroup: Patrick Shannon, Murray Barnes, Richard Coppola and others  
FRB: Om Arya, Roseanne Farley, Laura Braverman

#### **Positions**

The business purchases loans and securities on behalf of fund managers and warehouses the assets until securitization. Citigroup marks the warehoused assets to market although assets will be sold to the trust at cost, so the bank would not actually realize any MTM losses or gains<sup>1</sup>. On average, assets remain in the warehouse for just 3-6 months. Citigroup acquires assets upon the direction of the collateral manager and noted that it has "soft" commitments for investors in the securitization.

If a warehoused asset becomes ineligible for securitization (e.g., from downgrade), Citi would sell the asset at market and transfer the loss to the trust at the time the CDO is brought to market. The fund manager typically owns the equity of the deal and would assume the loss on the asset.

Citigroup might retain some of the securitizations, but typically the amounts are small and the business unit's intention is to sell out of positions. As of 6/30/05, the bank had a \$200 mm position in paper rated lower than BB. MIS reports show this as "Ex-Warehouse" positions that include secondary and unsold primary issues.

The bank has not experienced a failed securitization. If a Fund Manager unexpectedly backed out of a trade, the bank would do the deal itself.

#### **Price Verification**

The bank has not verified approximately 50% of the securitization and whole loan prices (as of 12/31/04 \$1.9 billion market value was unverified as part of the total position market value of \$4.0 billion); however, the mitigating factor is that month-end prices come from the fund managers (not Citigroup traders) who have no incentive to inflate values. The Global Credit Center, a high level approval body, must approve fund managers.

For prices that are verified (using vendors such as EJV, IDC, Bloomberg and loan prices, same as ABS in the mortgage desk), the bank applies a \$250,000 or 2% threshold to the variance. Above the variance level, trader and vendor marks will be investigated and resolved or escalated. In almost all cases, discrepancies are resolved. Very few trader marks hit the variance threshold.

Citigroup has no problem valuing hedges to the warehouse. Hedges are against interest rate movement and generally include short Treasury positions or interest rate swaps. There is no credit spread or default hedging for warehouse assets.

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<sup>1</sup> Citigroup has not executed forward sales agreements with fund managers, so the bank acknowledges some risk of low, albeit low. If there were forward sales agreements, the bank would not mark-to-market warehoused assets.

*While the Product Controllers said that they make valuation adjustments based on aging criteria, but in our entry letter request, the bank stated that there were no reserves on the positions. The bank provided us with this information subsequent to the meeting. Aging adjustments were approximately \$1.2 million, compared to an aged position market value of \$2.1 billion.*

### **Risk Measurement**

Because of the short-term holding period of the assets and relatively low market volatility, Market Risk does not measure VaR for the warehoused assets. Market Risk assigned market value and credit spread .01 limits for the ex-warehouse positions (primary and secondary) based on external credit rating buckets. In case of a split rating, the risk would be assigned to the lower bucket. Market Risk also measures sensitivity to mortgage spreads and prepayments, but does not regularly report or monitor these metrics. It is, however, considering the development of limits or triggers on attributes such as prepayment risk, vega and mortgage spreads.

Market Risk applies stress to the current positions for two different purposes. The first monthly process is used to estimate the "Potential Variance" of the unverified inventory under "stress conditions". [Please refer to handout and minutes from 8/16 kickoff meeting.] The second is part of their corporate-wide quarterly stress tests where scenarios are applied to the current positions. For warehoused assets, MRC applies a stress at 50% of the level applied to the mortgage flow desk because the Fund Manager, not Citigroup, is expected to shoulder any losses from collateral. For retained positions, MRC applies a full stress.

The front office uses the same system (Applix) as the mortgage desk to support the underlying security and prices. The front office system feeds the GMR (centralized risk system) the relevant risk system. The GMR takes the core values of the positions and does not include any valuation adjustments.

We enquired about other ABS positions in the bank. Other than the Mortgage Flow Desk (with ABS market value of \$348 mm) and the CDO Warehouse (market value \$4 billion), the bank has \$48 mm in ABS securities positions within the Credit Derivatives world. The price verification process for this position is the same as applied to those in the mortgage book. [Please see mortgage minutes from Aug. 17<sup>th</sup> meeting.]