

Prepare to Defend Your IRR Management Initiatives

CMO's Provide Opportunities Worth Researching

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For some of you it has to begin. For others it has to continue.

I'm talking about the active management of interest rate risk. You see, the increasing regulatory and accounting focus on monitoring the market value of financial institutions poses both a threat and an opportunity for initiatives in risk management

The threat: as regulators and boards of directors grapple with new market value-based measures of interest rate risk both groups are likely to recoil from the unfamiliarity of these aggressive new tools by making excessively risk-averse decisions.

The opportunity: these new market value-based measures, the market value of portfolio equity for OTS regulated institutions and the duration of equity for FDIC/FED regulated institutions, do permit the institution to create a budget for interest rate risk consistent with their individual capital positions.

Both Tom Farin and I will be talking often in our management report about ways in which you can take advantage of this opportunity. Prudent investment in mortgage-backed derivative securities is an option management needs to explore.

First Comes Attitudinal Changes

Now look, I'm not saying that most financial institutions which have a clearly retail orientation should abandon their primary emphasis on loan origination and deposit gathering. Nor am I saying, throw caution to the wind, ignore all regulatory concerns and relax the common sense that keeps you from acquiring assets that you don't understand how to manage.

I am saying that the time is right for management and, directors to educate themselves to the extent necessary to manage investment in mortgage-backed derivatives. Folks, the fact is that far too many institutions have gotten along for too long without adequately underwriting their securities portfolio. A suitably trained investment officer or a management person with upgraded investment management skills, computer modeling software and data retrieval networks are all necessary tools to adequately underwrite investment securities.

I was recently participating in a planning session at a \$200 million institution with about 35-40% of its assets in mortgage-backed securities. When the costs of these investment management tools started to add up, the directors balked, stressing the overriding need to control operating expenses. All right, I exclaimed. You're right about cutting those unnecessary expenses. So while we're cost-cutting let's knock-off those expensive credit reports we get on mortgagors. After

all, we lend on the value of the collateral, don't we? Predictably, the board was not amused, saying that they had a fiduciary responsibility to direct the management of credit risk at the institution, and besides the documentation requirements were not that flexible.

Of course, you're right. But, doesn't that responsibility to underwrite credit risk extend to the underwriting of the interest rate risk exhibited by your mortgage-backed securities? They offered defensively, "We buy to hold, not to trade." Whereupon, I reminded them that in a market value conscious regulatory environment, price risk was an inherent characteristic of mortgage-related assets, regardless of the institution's intent to hold or sell.

They still groaned about the cost. That's OK, go ahead and groan, because efforts to properly underwrite interest rate risk does represent work. You see, I groaned too, a lot. I had to change my perceptions about the need for institutions to get involved with investments with which they had no prior experience managing. I believed, "Stick to your knitting and stay out of trouble." Besides regulators don't want you banging on the bars of your cage, they prefer that you sit in the center of your cell, well away from the bars.

Keep in mind that substantial upgrading of the measurement and monitoring of the institution's interest rate risk position is going to be required anyway to satisfy the regulator's new-found focus on market value. So the institution may as well get some value out of the increased effort.

But I've become convinced that prudence doesn't preclude change. While I still subscribe to the precept that you don't invest in assets that you don't understand, I think management must make the effort to increase their understanding of the growing array of assets that partition the prepayment risk of mortgage collateral. OK, my sermon's over.

So, let's look at the market for mortgage derivative products from a different perspective, one that asks the question: Are the risks encountered in these assets worth the rewards and are these risks manageable with the tools available to most financial institutions.

CMOS Partition Mortgage Cash Flows

Similar to dairy cattle being herded into a milking barn, mortgages are being milked for their cash flows; cash flows which are then being homogenized, pasteurized and curdled to suit the tastes of an increasingly diverse array of investors. CMO's and REMIC's have supplied vehicles for over eight years of creative cash flow manipulations by investment bankers, who are continually seeking to widen and deepen the market for mortgages.

It has worked. Mortgage derivative securities had grown to constitute over 40% of the entire \$1.2 trillion mortgage securities market, by mid-1992. Mortgage derivative securities have become too large and important a component of the securities market to be ignored by financial institutions.

All of this manipulation of mortgage cash flows has been to purposefully redistribute the prepayment and interest rate risk inherent to these cash flows.

Look folks, investors have always appreciated the relatively low credit risk of residential mortgages. This was especially the case after the Federal secondary market agencies, FHLMC, FNMA and GNMA, achieved an acceptable level of standardization in the underwriting and documentation of mortgage collateral. Credit risk has not been the primary issue facing investors in mortgage-backed securities for a long time.

Interest rate risk is the issue! Many investors simply wanted to have more certain timing on the return of their investment. These investors did not want to be subjected to the prepayment uncertainty of a long-term investment and the subsequent volatility in the market value of that asset. Other investors had Long-term, predictable sources of liability funding that permitted them to accept the risk of deferred receipt of cash flows as long as they were compensated for this risk. So what does the market do? It gives them both what they want. How? Watch.

The barnyard scene illustrates how the multiclass structure of a basic; simultaneous pay CMO or REMIC converts a long-term mortgage product with irregular and widely dispersed cash flows into short, medium, and long-term collateralized bonds.

Forgive my analogy of the mortgage-cow, the lender-farmer, and the barnyard animal-investors. To make up for it I'll tell you what I'll do. I'll give an award to the reader who does the most creative job matching the barnyard animals with the various participants in the mortgage markets.

The holders of the various term bonds (referred to as CMO tranches) earn a yield priced at a risk spread over a comparable maturity treasury security, that is, a yield spread given the expected average life of the CMO tranche. This is the pig trough in the barnyard scene.

By the way, investors usually don't need to be concerned about any differences in the investment characteristics between a CMO and a REMIC since their defining quality relates to the tax status of the issuer of the bonds and has nothing to do with cash flows.

Basically the cash flows proceed as follows:

~ Interest payments are made simultaneously to all bond classes. The interest cash flows are the black lines in the barnyard scene. The interest earned by any so-called zero-class or accrual bond is paid in additional bonds to be cashed out after a certain time period. These zero-class bonds work kind of like a negatively amortizing mortgage.

The yield earned by these bondholders depends on the expected average life of the bonds. It is generally priced or spread to a treasury security whose maturity is approximately equal to the

expected average life of the bond. Consequently, the short-term tranches earn a lower rate than the long term tranche in the barnyard scene.

“ Principal repayments on the underlying mortgage collateral is used to retire the bond classes sequentially. All principal payments on the collateral are directed first to retiring the shortest-maturity A- class bonds.

After these bonds are completely retired, principal payments on the collateral are directed toward retirement of the B-class bonds. This process continues until all the bonds are retired. Principal cash flows are the white pipes in the barnyard scene.

While more complex CMO structures often don't adhere to sequential retirement of its tranches, manipulation and redirection of principal repayments on the underlying mortgage collateral remains the primary means by which the average lives of the tranches of a CMO are guaranteed.

“ Payments to owners of residual equity, residuals, are made periodically. After the required interest and principal payments have been made to the bond holders, residual owners receive any excess cash flow. This includes interest earned on the reinvestment of mortgage payment float, on the increased interest payments on outstanding principal due to slower than expected prepayment speed, and on the positive spread between the bond coupons and the coupons on the underlying mortgage collateral.

Prepayment Risk Not Eliminated, Just Re-distributed

The barnyard scene represents the structure of one of the earliest CMOs. It was intended to make an essential point:

Multiclass mortgage bond structures do not eliminate prepayment risk. They redistribute this risk. This is true regardless of the specific structure of the multiclass security. Therefore, some of the tranches of the CMO contain less prepayment risk and yield than the underlying mortgages and other tranches are structured to contain more prepayment risk and yield, than the underlying mortgages.

Nevertheless, these early, simply structured CMOs still contained too much prepayment risk for many investors. A story about one of my customers may serve as an excellent case in point.

I bought a customer a \$2 million piece of the short-term A-tranche of one of these early CMO structures. He was hungry for yield after starving on the anemic returns available in the treasury market. Sound familiar? The CMO tranche that he purchased carried a spread of 130 basis points over the comparable maturity treasury security. I think the expected life of the A-tranche was about 2.5 years. Interest rates had been falling so the bond was priced at a slight premium, oh,

maybe 101.5. Within six months he had received all of his \$2.0 million in principal back...at par! Gone was his premium and he was left with a negative return for the holding period. This was one unhappy investor.

What happened? Well, the mortgage collateral backing the bond was spread over a wide range of coupons. So while the WAC, weighted average coupon, appeared high enough to protect against rapid prepayment, when interest rates fell all of the high coupon mortgages paid off to beat the band and completely blew out the A-tranche...along with my investor.

Of course, since that early issue, CMO structures have become considerably more complicated. To protect investors from the prepayment uncertainty that befell my customer, the cash flow from one bond may be diverted under some pre-defined circumstances to support the cash flow of another bond. The bond that has its cash flows and thereby its investment performance protected is called either a PAC (planned amortization class) bond or a TAC (targeted amortization class) bond depending on whether its performance is protected over a range of expected prepayment speeds or targeted to one prepayment speed. Since less cash flow risk is expected to be experienced by this class of bond, a lower yield spread to the comparable maturity treasury will be earned.

The other bond, the bond that had its cash flow diverted to support the PAC- or TAC-class is called a companion or support bond. It, of course, may experience greater uncertainty in the receipt of cash flow and thereby receives a higher yield commensurate with its greater risk.

Often holders of these support bonds need further inducement to compensate for their cash flow uncertainty. They receive floating rates. Consequently, the floating rate CMO tranche is born.

And so it goes, the capital markets continually reconfiguring mortgage cash flows into new CMO structures. We've seen the development of bonds whose yield moves inversely with respect to interest rates (inverse-floaters), bonds whose yields move at a multiple of an interest rate index (super-floaters) and even bonds that can change their repayment priority (jump-Z bonds).

Mortgage Cash Flows Split to Create Different Products

Perhaps in a future article, we can explore the investment idiosyncrasies of these various mortgage derivatives. I will say that one of the best descriptions of the mortgage derivative market that I've seen was written by Andrew Carron, entitled Understanding CMOS, REMICS and, Other Mortgage Derivatives appeared in the June 1992 issue of the Journal of Fixed Income. My purpose has been to simply outline the process by which these derivatives are created so that investors can see that these investments aren't the spawn of a monster out of some Japanese horror flick. They're investments with carefully crafted risk and return

characteristics that can be managed if the investor is informed and the portfolio is capable of accepting the risk.

Watch-Out For FFIEC Guidelines

To manage this risk, investors must know several things about the multiclass mortgage securities they buy. These include the type, age, and range of coupons of the underlying mortgage collateral. Investors also must seek information on how the collateral can be expected to prepay in different interest rate environments. In addition, knowing the structure of the entire CMO may yield critical information about how any one individual tranche can be expected to perform.

In fact, the Federal Financial Institution Examinations Counsel (FFIEC) requires that institutions test the performance of their mortgage derivative securities over a +/- 300 basis point shift in interest rates.

FFIEC maintains that certain mortgage derivative securities may be characterized by greater than expected volatility in their expected average lives and, therefore, in their market value. Thus they have set up a classification to distinguish between derivative securities that are defined as %high-risk+ versus %non-high-risk+ securities. The %penalty+ for owning derivatives that are classified as %high-risk+ either upon acquisition or subsequently through movements of the yield curve is to have to apply %held-for-sale+ accounting for the asset.

Derivatives can be classified as %non-high-risk+ if:

~ Their expected average life does not exceed 10 years.

~ A parallel shift in the yield curve of plus 300 basis points doesn't cause the derivative's average life to extend by more than 4.0 years, while a parallel shift of minus 300 basis points doesn't cause average life to contract by more than 6.0 years.

~ The expected price of the derivative security doesn't change by more than 17% due to the + or - 300 basis point rate shock. (That is, their duration shouldn't exceed 5-6 years.)

~ Generally, a CMO floating-rate class (except for all %inverse floaters+) will not be subject to the average life or average life sensitivity tests, as long as it hasn't exceeded any interest rate caps to which it might be subject.

Investors must pay attention to the FFIEC guidelines if they are to avoid unexpected reclassification of assets as %held-for-sale+. The %lower of cost or market+ accounting treatment resulting from re-classification certainly isn't going to be helpful to an institution in a rising rate environment.

Actually, I wouldn't be surprised if FFIEC has to adapt its sensitivity test in a rising interest rate environment. After all, common sense tells me that a whole lot of derivatives are going to fail the test of a 300 basis point shifting yield curve when it's administered on top of a substantial rise in rates.

The arbitrary FFIEC test has already introduced a price-distortion between pass and non-pass derivatives. Don't be caught off-guard.

All of these cautions notwithstanding, there are plenty of derivative tranches that deliver yield advantages over treasury securities with price-risk characteristics clearly manageable by many financial institutions.

You need the yield, so let's do the homework.