

INTRODUCTION

The secondary mortgage market is the largest and fastest growing segment of the U.S. capital markets. Its growth was greatly accelerated in the 1980s because of the need for thrifts and other depository institutions to reduce their level of interest-rate risk (IRR) by selling much of their long-term fixed-rate mortgage production. As a result, most residential mortgages are tailored so that they are capable of being traded in the secondary market.

A distinction should be made between the retail or primary and the secondary mortgage market. The retail market encompasses mortgages originated directly between lenders and borrowers and is discussed in detail in Section 574, Production. The secondary mortgage market encompasses the sale or purchase of mortgages after they have been closed. In all of its many forms, the secondary mortgage market provides mortgage lenders with an outlet for their mortgages and provides investors a means of investing in mortgages without the necessity of originating or servicing mortgages themselves.

Today, mortgages are usually sold by mortgage banking originators and portfolio lenders such as thrifts. These sales occur either in the normal course of business or only as the need arises. Mortgages and more commonly mortgage-backed securities (MBSs) (see Section 542, Mortgage-Backed Securities) are bought by pension funds, insurance companies, and other institutional investors to satisfy their investment needs.

After a mortgage is closed and the final documents are received, a mortgage leaves the pipeline and enters what mortgage bankers call the warehouse, where it is either held for sale and marketed to investors, or shipped to a prearranged buyer. For many thrifts the mortgage bypasses the warehouse and directly enters the thrift's investment portfolio. When mortgages in the warehouse are sold, their documents, including the endorsed note, are usually shipped to the investor or a third-party document custodian. Copies of all docu-

ments, however, should remain in the file that is retained by the seller/servicer. The servicing on mortgages can then be sold for a quick profit or retained to build up a servicing portfolio.

While mortgages are being held in the warehouse, but before a contract has been signed agreeing to their sale price and terms, the thrift bears an enormous risk of the mortgages going down in value as a result of changes in overall interest rates or merely changes in the secondary mortgage market. How a thrift mortgage banking operation handles and hopefully minimizes this IRR risk is a primary concern of examiners.

Mortgage Sales

Mortgages are often sold directly to other thrifts, institutional investors, and to FNMA and FHLMC. GNMA does not buy mortgages as such, but guarantees MBS in exchange for the title to FHA, FmHA, and VA mortgages that are pooled by its issuer/servicers. Direct sales to other thrifts and institutional investors are the simplest and most traditional form of secondary marketing for thrifts. This is usually done on a servicing retained basis where the thrift continues to service the mortgages for the buyer. The servicing thrift often retains a small participation ownership in the mortgages being serviced.

Sales Using FNMA, FHLMC, or GNMA

On sales to FNMA or FHLMC there is usually no negotiation of sales terms, servicing fees, or requirements. Most direct sales are done through their standard programs at posted yields. The purchase and subsequent servicing of the mortgages sold to FNMA and FHLMC under these programs is dictated by their seller/servicer contracts (which are not negotiable), the type of sales program, and their selling and servicing guides. FNMA and FHLMC, however, do negotiate prices and terms for large purchases, called negotiated transactions. GNMA sale and servicing

requirements are stated in their MBS Issuer Guides.

Other than direct sale, the main method for selling mortgages is by swapping them for the MBSs of FNMA and GNMA or the PCs of FHLMC. To execute a swap with FNMA and FHLMC, sellers pool a group of similar mortgages that meet the specific program requirements. Then they ship the required documents that transfer title to those mortgages in exchange for the MBS or PC that the organization then issues to the seller or for cash. If the seller chooses to receive the securities instead of cash, the seller is then free to sell them in the mortgage securities market, hold them for later resale, or hold them as investments. Mortgage securities can be sold through the use of mortgage brokers, to FNMA or FHLMC, or directly to investors. (See Section 542, Mortgage-Backed Securities.)

Investors in MBSs or PCs receive monthly payments of principle and interest either directly from the servicer or, more typically, through the issuing organization or a central bank. MBSs timely repayment is guaranteed by the issuing organizations, FNMA, FHLMC, or GNMA. It is the timely repayment guarantee of these AAA rated organizations that allows their MBSs to be sold at a significant price advantage over the same mortgages sold directly to investors. This is in spite of the cost of the guarantee fee that must be paid monthly by the servicer of the MBSs or PCs. Some thrifts put all of their mortgages into FNMA, FHLMC, or GNMA MBSs or PCs even if they intend to hold them in their portfolio because the MBS form is more valuable and allows quicker sales than nonsecuritized mortgages should the thrift ever need to sell those mortgages.

In order to do business with any of these three organizations the first step is to become approved seller/servicers by meeting their financial strength and other requirements and by signing their seller/servicer contracts. These contracts require the seller/servicer to follow their Guides as they now exist or as they may be amended in the future.

Although there is still no central marketplace for trading mortgages, quotations from dealers and

brokers for mortgage securities are generally close. This is because the market for mortgage securities is deep and liquid. As a direct outcome of the involvement of Wall Street in the secondary mortgage market, pricing in both the primary and secondary mortgage markets has become closely tied to the mortgage securities market. Brokers not only sell the original securities to investors, but also sell securities between investors and other clients.

Mortgage sales in the secondary market are usually accomplished through the sale and purchase of commitments, which are agreements to purchase mortgages on specific terms. Commitments can be for mandatory or optional delivery of the mortgages. Mandatory delivery commitments may be immediate (delivery within 30 days) or forward (delivery within some specified future time). Optional or standby delivery commitments are generally of the forward type and normally extend four months or more.

FNMA and FHLMC purchase mortgages through the commitment system both for their own portfolios and for resale. They pool mortgages that they own to sell them as mortgage securities, and they swap their mortgage securities with lenders in exchange for mortgages under many different programs.

In addition to the cost of the commitment, the seller is often charged one or more points and other fees at the time the mortgages are delivered, depending on the terms of the commitment. The interest rate of the mortgage, plus or minus the yield value of any points (or discount), less the servicing and guarantee fees, is usually equal to the investor's net yield. The exact meaning of these terms can vary and, therefore, should be carefully explained in each commitment.

A major contributor to increased mortgage liquidity and secondary market volume has been the use of standardized mortgage documentation. Thus, the use of the FNMA/FHLMC standard note, mortgage or deed of trust, application, verifications, and appraisal forms has become almost mandatory for mortgage sellers. Unless there are commitments that specify otherwise, mortgage bankers use the FNMA/FHLMC standard documentation for all originations because the use of other documentation significantly lowers the

other documentation significantly lowers the market value of the mortgages. These documents are available for most mortgage types and for every state and territory of the United States.

Some investors who are large purchasers of ARM products require the use of their mortgages and notes. This is particularly true for large ARM forward commitments. Even when other mortgages and notes are used, it is customary to use the remaining FNMA/FHLMC standard forms for the application, verifications, and appraisal.

Mortgage Sale Categories. There are an infinite variety of mortgage sale terms, however, these are the general categories:

- Whole mortgage sales are the sale of the entire mortgage at an agreed upon price. In whole mortgage sales the seller usually endorses the note, without recourse or guarantee, and delivers it to the buyer with an assignment. The assignment is then usually recorded at the buyer's request. The buyer normally receives all of the original mortgage documents such as the application, credit report, verifications, and appraisal.
- Servicing-released sales sell the servicing rights in addition to the mortgages and they are usually only for whole loan sales. For the seller they increase the sales price of the mortgages, but do not add to the servicing portfolio. When mortgages are sold with servicing released, the transaction is often priced separately, with servicing treated as a separate asset and priced according to its anticipated value.
- Participation sales are the sale of a percentage interest in the mortgages and is the sales method often preferred between thrifts. Typically, the buyer purchases 85% to 95% of the mortgage balance and the seller retains the remainder. Buyers prefer this method because the retainage of 5% to 15% by the seller/servicer tends to encourage good servicing. Mortgage bankers, however, rarely use this method because they do not have the capital or the deposits that permit this type of investment. Participation sales are usually executed by a sales agreement rather than by delivery of notes and assignments, and the seller usually continues as owner of record.

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- Recourse sales or repurchase agreements transfer 100% ownership of the mortgage, but the seller agrees to either repurchase mortgages that go into default or absorb any foreclosure losses. Since the buyer is protected from loss, such sales bring higher prices for the seller, however, the seller has not transferred the risks. From the buyers standpoint the loss protection is only as good as the seller's performance.

These types of sales are not true sales in that the risks and rewards of ownership have not gone from the seller to the buyer. Because the seller still retains the risks of loss on this type of sale, OTS requires risk-based capital on the entire amount of the mortgages, just as if the thrift still owned them.

- Partial recourse sales are different from full recourse sales in that the seller retains only a portion of the risks.
- Guaranteed yield sales guarantee the buyer a certain yield from the mortgages outstanding in any month, regardless of the actual performance of the mortgages. Instead of receiving the actual amount of mortgage principal and interest collections each month, the buyer receives interest sufficient to produce the guaranteed yield even if that much interest was not collected. If guaranteed yield sales specify a yield to the investor in excess of the net yield of the mortgages sold, the seller suffers a loss on the sale. The operating effect of the transaction is that a loss is incurred each month for the life of the mortgages by the seller/servicer as the required interest is remitted to the investor. For accounting purposes, however, the seller must estimate the present value of the future loss and reduce the sales price of the mortgages sold by that total at the time of sale. (See Section 573, Accounting.)

Effect of Points or Discount on Yield. Mortgage investors usually specify their required yield in their commitments. Together with the interest rate

of the mortgage and the assumed prepayment rate, this required yield determines the price paid (premium or discount of the mortgage amount) by the buyer at delivery. Generally, the higher the yield required the less price or percentage the mortgage is worth (i.e., a price of 95 is equal to 95% of the mortgage principal balance or a discount of 5%).

The yield difference represented by one point or percentage in price is not a constant, but varies accordingly to the interest rate of the mortgage and the prepayment assumption. If the mortgages pay off earlier than assumed, the investor's actual yield will be higher for discounted mortgages and lower for mortgages purchased at a premium. If actual payoffs are slower, the opposite is true.

Pipeline and Warehouse Risk Management

Examiners will find that much of their time spent in examining a thrift's mortgage banking activities will be in the area of pipeline and warehouse risk management. It is critically important that a thrift's IRR is controlled, especially if the thrift's average pipeline volume is significant relative to its capital.

The term pipeline is typically used to describe mortgages that are in the process of being originated, while warehouse refers to the inventory of mortgages that have been closed and are awaiting sale in the secondary market. Making a distinction between the pipeline and the warehouse is important because the risks of mortgages that are already closed differ from those that have not, and might not, close. (For accounting purposes warehouse mortgages should be designated by the thrift as held for sale. See Section 573, Accounting.)

Assessing Types of Risk

Thrifts can only identify and quantify the nature of their risks if they have up to date and accurate data on the mortgages in their pipeline. The three major types of risk involved are price risk, product risk, and fallout risk.

Price Risk. The risk that a rise in market interest rates will decrease the value of a mortgage before it can be sold. This type of risk often occurs when

a thrift commits to a borrower to lock in an interest rate during the origination process and market interest rates go up before the mortgage can be closed and sold. Price risk equally arises when mortgages are placed in the warehouse without locking in an interest rate for their eventual sale in the secondary market.

Reverse Price Risk. The risk that occurs when a commitment to sell a mortgage to an investor at a set yield is made prior to closing the mortgage. While both types of price risk result from mismatched commitment timing, reverse price risk exposes a thrift to the risk of falling, rather than rising, interest rates. This is because if interest rates fall borrowers will demand the new lower rates or they will take their mortgage applications elsewhere to get the lower rates. In this case, the thrift must deliver the lower interest-rate mortgages at a discount to provide the investor with the required yield.

Product Risk. Product risk reflects the uncertainty of whether the market value of a particular type of mortgage will decrease before it can be sold. This is because the value of a given type of mortgage can change even when market interest rates remain constant. It often occurs when an originator has an unusual type of mortgage in its pipeline or warehouse, for which it has not obtained a sales commitment or otherwise effectively hedged its value. Product risk can be considered a special form of price risk, because presumably a lender can always find an investor for a nonstandard mortgage, but only at the increased yields produced by lower prices.

The proliferation of new mortgage products in recent years has resulted in some mortgage products moving quickly in and out of favor with borrowers and investors, usually depending on the interest rate environment. As a result, market yields for particular products can vary greatly from the general level of rates.

Fallout Risk. The risk that mortgages in the pipeline will not close. Fallout can result in diminished profits or losses if the originator overhedges its pipeline. Mortgages in the pipeline do not close for a large variety of reasons, but borrower failure to close is particularly common when interest rates fall and opportunities arise for

borrowers to obtain better interest rates. Fallout risk is probably the most difficult type of risk for thrifts to gauge and hedge.

Hedging Pipeline and Warehouse Risk

The task of hedging the mortgage pipeline requires the continuous collection and consideration of information about the mortgages in the pipeline and warehouse. This includes types of mortgages and properties, profiles of borrowers, loan-to-value ratios (LTVs), the potential for borrower fallout, the status of closings, and forecasts regarding interest rates.

Any active mortgage banking operation of significant size should have a formal decision making process for hedging the pipeline and warehouse that is cohesively linked with the risk management for the whole thrift. This process should consist of: (1) a procedure for identifying and segmenting risks in the warehouse and pipeline; (2) a specified risk exposure limit that is linked to the risk-management operations of the whole thrift (usually via the assets and liabilities committee (ALCO)); and (3) a written secondary marketing policy approved by the board of directors.

Risk Identification and Segmentation. In general, a thrift should segment the risk in its mortgage pipeline and warehouse according to the certainty of mortgage closures. The risks of mortgages in the warehouse not closing are known since these mortgages have already closed; therefore, the risks of the mortgages in the warehouse should be hedged with firm sale commitments such as forwards or futures. The extent of the risk exposure to be hedged is dependent upon the thrift's chosen exposure or coverage ratio which should be specified in writing in the secondary marketing policies approved by the board.

The risk in the pipeline is determined by identifying the expected closure rates on the mortgages and segmenting the pipeline according to the likelihood of closure. The closure rate is the inverse of the fallout rate, which is the rate at which mortgages are expected to drop out of the pipeline for all reasons. Thrifts should have a logical and consistent process in place to estimate fallout (or

closure) rates on either an individual mortgage or percentage of pipeline basis. The procedure for predicting fallout (usually based on historical experience) should be specified as a policy matter in the secondary marketing policy.

The mortgages in a pipeline should be segmented into at least three different categories of fallout (or closure) expectancy:

- High fallout likely means that a portion of the pipeline will not close regardless of the directional movement in interest rates or other factors. Included in this category are people who will not qualify for their mortgages, rate shoppers, and others who do not follow through with the origination process. Fallout rates in this category usually vary between 10% and 30%. This portion of the pipeline normally will not have any hedge protection.
- Unknown fallout rate means a portion of the pipeline will be uncertain as to fallout (or closure). Typically, this group of mortgages can be further segmented by those expected to fall out for reasons that are primarily related to movements in interest rates, and those whose fallout is related to other factors. The mortgages in the former category should be hedged with options, since the likelihood of closure is directly linked to the borrower's option on interest rates. Usually, at least half of the mortgages whose closure likelihood is tied to reasons other than movements in interest rates should also be hedged with options or firm commitments.
- Closure reasonably certain means that mortgages in the pipeline are reasonably certain to close should be further segmented into categories related to the likelihood of closure, on either an individual mortgage or a percentage of pipeline basis. Those mortgages that are identified as having a high closure expectancy should be hedged with firm commitments (forwards or futures), as with warehouse mortgages. Any portion of these mortgages that is uncertain as to closure should be lumped with the second category above and hedged with options.

A thrift with active mortgage banking operations should have: (1) a process to identify these segments of risk exposure in the pipeline; (2) a procedure for identifying expected pipeline fallout rates; and (3) management expertise to design, execute, and maintain an appropriate secondary marketing hedge program. All of these items should be explicitly addressed in a written and board approved secondary marketing policy.

Exposure Rate

The exposure rate is the extent to which the mortgage product exceeds the total hedge protection. It is the net amount of aggregate risk to which the thrift is exposed from its mortgage origination operations. The exposure rate is the inverse of the coverage rate, which is the portion of the portfolio that has been covered by hedge protection at any point in time.

A thrift engaged in mortgage banking activities should have a detailed exposure report that identifies the risks in the pipeline, broken down by firm and optional risks. The hedge protection used to cover the firm and optional risks should also be specified. The summary section of this report should present the operation's overall exposure (or coverage) rate. Incomplete, untimely, or otherwise inadequate exposure reports should be considered a major problem.

Thrifts vary in the extent to which the pipeline and warehouse risks are hedged. Since the warehouse and pipeline are subject to mark-to-market accounting, there are income volatility considerations in a mortgage banking operation that do not exist in a traditional thrift under historical cost accounting. As a result, it is usually preferable for thrifts to have too much coverage (low exposure) rather than too little for the warehouse and pipeline risks. A high coverage (low exposure) rate is typically 85-100% (0-15%) of the total pipeline less fallout.

Limits or targets for the overall exposure (or coverage) rate, or a process or formula for determining them, should be specified in the board-approved policy. This is crucial for thrifts with mortgage banking operations since these limits are a direct reflection of the board's desire to accept this type of risk. It is also a critical element

of control with respect to secondary marketing operations.

The exposure (or coverage) rate should also be monitored by and linked to the thrift's overall IRR management operations. Secondary marketing functions that operate in a vacuum or independent from the other risk-management elements of the thrift are a serious problem.

In practice, the exposure rate is varied according to management's view regarding expected changes in interest rates. If interest rates are expected to decline (mortgage prices expected to rise), management may choose to increase the exposure rate (reduce the coverage rate), and vice versa if a rate rise is expected. If management anticipates that the yield curve will remain positive, it also may choose to reduce the coverage rate in hopes that the positive carry from the portfolio between origination and sale will overcome any loss on the sale.

Secondary-Marketing Policy

Thrifts with mortgage banking operations should have a board approved secondary marketing policy that provides the structure for the function's decision making process. Thrifts that do not have a secondary marketing policy, or thrifts whose policy is weak or ineffective should be considered as having a major weakness. Nonexistent or substantially inadequate policies are usually indicative of a fundamental lack of understanding of the risks involved in mortgage banking, which is usually an unsafe and unsound condition.

The secondary marketing policy should establish the parameters within which IRRs will be managed in the mortgage banking operation. It should state the objectives for the secondary marketing department, establish adequate internal controls, and describe the process by which risk will be controlled, as well as the types of financial instruments to be used in risk management. It is very important that the policy also link the secondary marketing/risk management process with the overall risk management for the thrift.

Hedges*Hedge Policies*

The use of hedges should be carefully governed by board approved written policies that cover the objectives, functions, instruments to be used, authorizations, monitoring, and the internal controls needed to properly use them.

Objective. The objective section of the hedging policy should state that the goal is to control or limit the IRR caused by mortgage banking activities. Specific objectives stating the exposure limit(s) desired by the ALCO or the board of directors should also be addressed in this section.

Functions. The risk management functions of the hedging area should be stated in this section of the policy. These should include:

- Segment or stratify portfolio by product type, risk (i.e., probability of fallout), aging (stage in the pipeline), and other thrift criteria;
- Prepare a risk-exposure report (as frequently as possible);
- Design and implement hedges with approved instruments to offset the hedgable risks in the warehouse and pipeline;
- Prepare summary and status reports for the ALCO, management, and board (in addition to the risk-exposure report);
- Participate in the ALCO decision-making process and provide data to the ALCO function (the secondary marketing manager should be a member of the ALCO);
- Track fallout, the factors causing mortgages to fall out, and continually improve the ability to estimate fallout; and
- Monitor the financial condition of counterparties to hedges and originators from whom mortgages are purchased.

Internal Controls. Because of the highly specialized nature of the hedging function, and the substantial transaction volumes usually involved,

internal controls should be adequate, and weaknesses should be considered serious. The written policies should specify guidelines, limits, and approvals for activities that present significant potential risk. These should include:

- List of board-approved brokers, dealers, investors, originators, and others;
- Approvals for employees who are authorized to transact business with brokers, dealers, investors, mortgage originators, and other external market participants (letters should be sent to these organizations stating that only these employees can conduct business on behalf of the mortgage banking operation);
- Transaction limits for each authorized employee (dollar amounts per transaction, per day, per dealer, per instrument, or other criteria);
- List of approved instruments to be used in hedging operations, descriptions of how those instruments are to be used, and the risks that they will offset;
- Specifications for internal management reports to monitor hedge positions, new commitments, origination activity, quality control, etc.; and
- Procedures to control the concentration of risks with any one counterparty.

Description of Hedge Risks. The credit risks associated with: counterparties to hedge transactions and closure, settlement, or delivery related risks, should also be described in the policy, as well as the procedures to be used to offset these risks.

Hedge Instruments. There are various instruments that are used to hedge IRR in the secondary marketing area. The instruments used by a thrift should be approved by the board in the written policy, and the mortgage banking operation should have the requisite internal expertise to manage them. In addition to explicit board approval, the policy should describe the authorized instruments in detail, and the particular risk forms to which each instrument will be applied.

The two most often used hedges are forward sales agreements and options on interest-rate-futures contracts. These and other hedging instruments are described in Section 543, Derivative Instruments, and hedging secondary marketing operations is discussed in Section 541, Hedging.

Hedging Activity and Effectiveness

The activity in hedge instruments should be examined very closely in conjunction with commitment and origination activity. There are many hedging instruments or combinations of instruments that may not result in material risk reduction, or that may even exacerbate risk. The exposure report may, however, classify these as providing full hedge protection. Therefore, static management reports, which simply list the current notional amount of hedge protection relative to the warehouse and pipeline exposure, may not be representative of the underlying net exposure. The best framework for viewing secondary marketing related risks (and the impact of hedges in reducing risks) is to use a model and report format that performs a sensitivity analysis including all related positions (warehouse loans, commitments, and hedges).

The OTS NPV model (discussed below) is one such format for a report. The bottom line of the report represents the net warehouse and pipeline exposure after subtracting the impact of the hedges. Hedges can then be constructed and analyzed to offset the remaining exposure to the extent desired (within the bounds of the exposure limit). The OTS NPV model is also discussed further in Section 520, Interest Rate Risk Management.

The performance or effectiveness of the hedging operation can usually be gauged by analyzing the profitability of the secondary marketing department over time, by reviewing retrospective analyses of hedge correlation, and by reviewing management decisions and responses to market conditions over the examination period. Extreme income volatility in this function usually means that IRRs are not being properly hedged. The minutes of ALCO meetings and studies of transaction activity over time usually yield useful information about management's intent with re-

gard to risk management, as well as the effectiveness of related decisions.

Forward Sales Agreement. The most common type of forward sale commitment is for cash and mandatory delivery. Under such commitments, usually with FNMA and FHLMC, the mortgage banking operation is obligated to sell mortgages to them at the posted yield, but there is usually no fee for the commitment. To meet the terms of the commitment the originator must deliver, at the required yields and before the expiration of the commitment period, eligible mortgages that meet all of the underwriting and legal criteria. Also, the mortgages must have aggregate unpaid principal balances that equal at least some specified percentage (usually 95%) of the commitment amount.

Forward sales of mortgages in the pipeline permit lenders to eliminate both the price and product risk by establishing simultaneously the terms of origination and sale. If both closing and delivering mortgages were a certainty, forward sales would represent a perfect arbitrage; that is, they would provide complete interest-rate protection and introduce no additional risks. Unfortunately, there is always the possibility of fallout during the origination process, especially if interest rates decrease substantially. In the event that a seller is unable to close and deliver mortgages at required yields, it may be liable for the pair-off costs of repurchasing mandatory delivery commitments.

Options on Interest-Rate Futures. Some thrifts are concerned that the pair-off costs arising from the failure to deliver mortgages into a forward sales agreement can be substantial. One method of reducing such risks is to purchase over-the-counter (OTC) mortgage options. For example, an originator may purchase an option to sell a FHLMC PC with a certain coupon at a specified price by a certain date. Here, the originator is long a put option, which is the most common option used to hedge a mortgage pipeline.

OTC mortgage options are traded in the dealer market. They are less liquid and have higher premiums than exchange traded options on U.S. Treasury futures. Mortgage options, however, have significantly less risk than options on Treas-

ury futures and they can be customized with respect to strike price and maturity.

Put options may be used in a hybrid strategy with forward contracts to hedge borrower fallout. For example, in a \$10 million pipeline, if 20% of the pipeline is expected not to close, then the originator could purchase OTC options to sell \$2 million in mortgages. The choice of strike price on these options is dictated by the degree of protection desired by the originator. For instance, an at-the-money option will provide greater protection than an out-of-the-money option. However, an at-the-money option would be obtained at a higher option premium. The trade off between the degree of protection and the price paid for the option, which is determined by its strike price, is similar to an automobile insurance deductible.

Pipeline and Warehouse Risk Exposure

Management Reports. To operate the mortgage banking operation safely, management must have current information detailing the mortgages in the pipeline and warehouse and projecting how those positions are likely to change in the short term. If there is a substantial volume of mortgages in the production process relative to capital, a stress test estimating the effect of worst case interest-rate shocks to the pipeline and warehouse should be calculated and compared to the maximum limits established by the board.

Net Portfolio Value (NPV) Model. The NPV model is used to assess the level of IRR for thrifts required to submit Schedule CMR of the Thrift Financial Report each quarter. When compared to the MVPE model used by the OTS in 1989-92, perhaps the most significant improvement is the model's ability to estimate IRR arising from off-balance-sheet contracts, including mortgages flowing through the pipeline and various hedging instruments. The improvement is from the higher level of specificity possible, in coding off-balance-sheet contracts on Schedule CMR, which also allows thrifts to include an estimate of its base case fallout rate. Unlike the MVPE model, which used a static assumption for fallout, the NPV model will estimate changes in fallout rates for alternate rate scenarios.

IRR Exposure Report. This report is produced quarterly by the OTS for each reporting thrift, and includes a CMR printout that details the volume of each type of contract, along with price/rate and maturity information. This information can be compared by examiners to quarter-end pipeline and warehouse reports that the thrift should have as support for their CMR reports. The IRR Exposure Report also has present value estimates for each off-balance-sheet category in the base case and alternate rate scenarios. With respect to the estimates relating to the mortgage pipeline and warehouse, the model acts as if there have been rate shocks overnight with nobody around to mind the store. The present values, if the input is reliable, should be viewed as worse case estimates to serve as an indicator of the relative risk position.

Conclusion

The primary purpose of secondary marketing is either to maximize profits on servicing released sales, or to sell mortgages with servicing retained on the best terms available, while avoiding as much IRR as possible. Avoiding IRR involves the use of all types of commitments and hedges in addition to fast turnover. Minimizing IRR is usually the main concern of secondary marketing operations and examiners.

REFERENCES

FHLMC Contract and Sellers' and Servicers' Guides

FNMA Contract and Sellers', MBS, and Multi-family Guides

GNMA Issuer Guides