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## CHAPTER SEVEN

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### MORTGAGE PRICING: STRATEGY AND EXECUTION

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Being a successful mortgage lender requires a mastery of setting prices and rates for product offerings. The stakes are fantastic and competition is fierce, pitting lenders' pricing experts or secondary-marketing executives against each other for coveted market share. Mortgage-origination companies implement pricing strategies to guide them and their customers through volatile markets.

The heart of the challenge facing a lender is managing the difference between the price *investors* will pay to buy a specific mortgage and what the *borrower* will commit to pay for that mortgage. The market where the lender sells the mortgage to the investor is referred to as the *secondary market*. The market where the borrower agrees to obtain a loan from a lender for specific terms for a specific price is called the *primary market*. The mortgage lender must manage change in expectations of the secondary and primary markets and yet deliver the loans to the investors and fund the loan for the borrower.

#### FACTORS INFLUENCING MORTGAGE PRICES

Generally, the most direct causes in the change of mortgage prices are:

- Mortgage data (e.g., prepayment speeds and delinquency)
- Regulatory announcements
- U.S. fiscal and monetary policy changes
- Domestic economic events, particularly related to U.S. housing

Additional factors are:

- Corporate performance
- Financial industry conditions, including accounting changes
- Global economic events
- Various acts of war or terrorism
- Destructive natural disasters
- Changes in related market prices, such as:
  - Commodities
  - Currencies

- Foreign equities
- Agricultural products

And, of course, there is always the unexpected and notorious “Black Swan”—a random event or occurrence that deviates beyond what is normally expected and is extremely difficult to predict.

Clearly, a number of elements influence daily shifts in the secondary-market mortgage yields that affect how a mortgage lender quotes borrowers in the primary market. It is not change itself that is the big risk, but it is the speed and direction of the change that can wreak havoc on pricing strategies and margins.

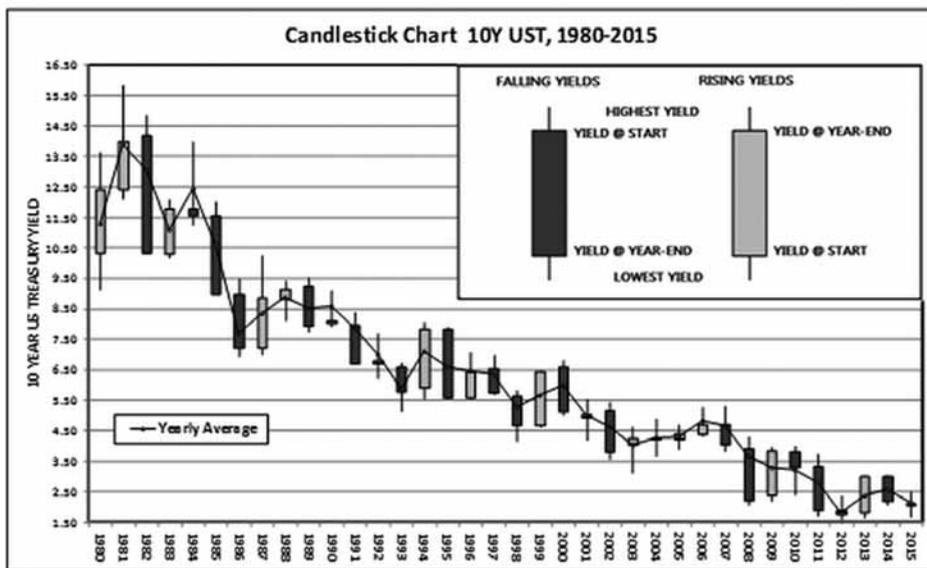
Before we turn to the mechanics of pricing mortgages to prospective borrowers, let's explore the general market context.

All market prices, at least those in relatively free markets, have future expectations built in. Adjustments to expectations from new data cause price changes. Changes in expectations compared to the face value of the information may confuse many outside observers of movements in credit markets.

The prices of stocks, bonds, securities, and most other assets (or even liabilities, but that is beyond the scope of this chapter) are based on the sum of future expectations. Those expectations change continuously, but have a tendency to change the most when a new piece of information significantly affects expectations. For example, if the market expects home prices to be up 2% quarter-over-quarter, and instead the report comes out to be up 5%, then implied (expected) prepayment speeds in mortgage-backed security prices could shift the most for pools that had the highest combined loan-to-value (CLTV) ratios. The implied change to prepayment speeds affects the embedded options in the mortgage.

Every day the market has an implied bias about future expectations. Market participants may agree or disagree with the implied bias, or naively accept the market's bias. Look at three key biases:

1. *Rate Bias* is an individual or implied market expectation about the direction of the yields of specific credit instruments.
2. *Volatility Bias* is an individual or implied market expectation about the magnitude of the expected changes in interest rates or prices over various time horizons.



Source: LoanLogics ©2015.

## U.S. TREASURIES

3. *Yield-Spread Bias* is an individual or implied market expectation about the change in the relationship among various mortgage yields or related credit instruments, like US Treasuries or Swaps. Yield is the combination of the stated interest rate (coupon) and the price of the mortgage. The yield-spread bias also relates to the hedge tools that mortgage originators use to manage the pricing risk between the primary and secondary market (for more on hedging, see the first several chapters of this volume).

## PRICING AND PROFIT MARGINS: THE REFI BOOM OF 2012

When changes occur in the secondary market that influence prices or product specifications, like underwriting criteria, then lenders adjust their offering to the primary market accordingly. Lenders issue a new rate sheet using technology to distribute it to branches, customers, and others. In addition, new quotes are influenced by the lender's current hedging activity. Pricing implementation is not done in a vacuum. Let's look back at the events that led to the large profit margins in mortgage banking as reported by the MBA in 2012. Consider this excerpt from Bloomberg Business by Heather Perlberg, December 21, 2012.

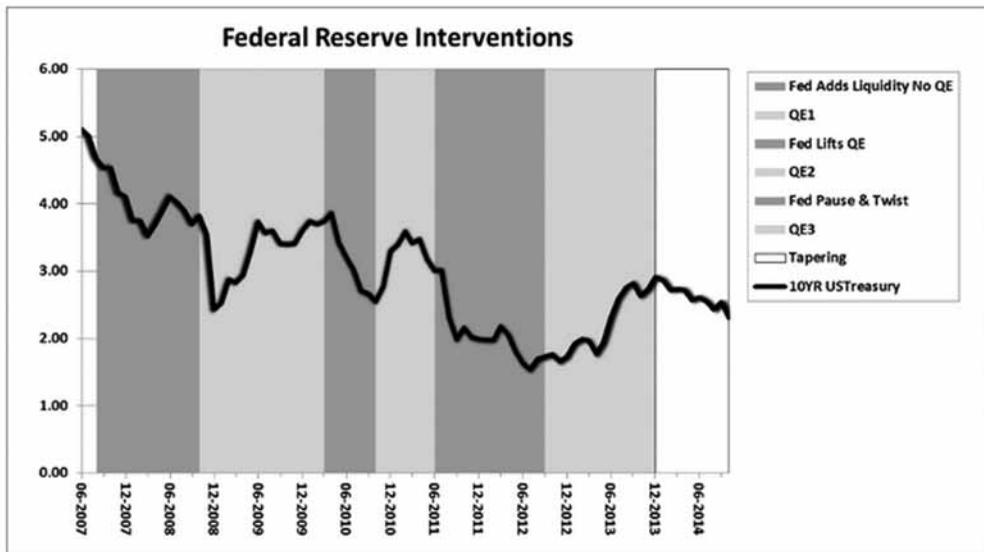
“Lending will total \$1.75 trillion this year (2012), the Mortgage Bankers Association estimated last month, the highest since 2009, when originations were \$2 trillion. The group projects refinancing will account for 71 percent of the volume, up from 46 percent in 2008.

The average rate for a 30-year fixed mortgage was 3.37 percent in the week ended yesterday, up from 3.32 percent, McLean, Virginia-based Freddie Mac said in a statement. The average 15-year rate slipped to 2.65 percent from 2.66

percent.

Still, borrowing costs could be about 0.5 percentage point lower, if the gap between the two matched its size in the five years through 2007. The spread between so-called primary and secondary rates is now more than 1 percentage point, after spiking to more than 1.8 percent when the Fed announced its \$40 billion of monthly government-backed mortgage bond purchases that began in September.”

### 10yr US Treasury Yield Changes versus Fed Policy Changes



The mortgage industry experienced dramatic shrinkage in capacity during the period leading to mid-2011. The levels of new MBS issuance reported by Freddie Mac fell to 1.2 trillion in 2008, compared to over 2 trillion in 2006. Many lenders, particularly banks, reduced their origination of mortgages due to the significant volume of new regulations, changes in capital rules, and legal settlements.

Companies remaining active in mortgage originations saw their margins expand as the capacity contracted, particularly in 2009, with new MBS issuance leaping to 1.8 trillion. The general level of housing values, which remained at low levels following the collapse in 2007, kept refinance and new originations muted. The contraction resumed in 2010 through mid-2011. Many forecasters expected housing price growth to remain anemic, mortgage volumes to decline and interest rates to rise. This was the economic environment in the summer of 2011.

The end of the second round of quantitative easing (QE2) by the US Federal Reserve sparked a dramatic decline in market interest rates (see chart above) and brought a rush to refinance at record low interest rates. The massive influx of borrower inquiries and refinance applications exceeded many originators' abilities to process, underwrite,

and close loans in a timely manner. As a result, lenders began to quote higher rates, which had the effect of widening margins, as a means to control or slow the flow of new applications, enabling them to better serve the needs of borrowers who had already applied to refinance their mortgage loans.

So how could lenders generate record margins in the midst of record low mortgage rates? How did well-capitalized, sophisticated lenders lead the market to “not” cut prices merely because the market was at lower interest-rate levels? How did they do it with no market collusion or conspiracy? Here is what they did and what makes up a solid strategic and tactical pricing policy:

- They considered their competitive position relative to their peers based on product, market, and economic scenarios.
- They enabled point-of-sale pricing
- They anticipated borrower response to changes in interest rates.
- They examined borrower elasticity (the change in application behavior due to changes in rates), which is often measured as a change in market share.

A sophisticated approach to pricing incorporates these factors and generates the most revenue possible, without paying a single basis point more than is required to acquire additional market share.

## **MODELS FOR CREATION OF PRICING STRATEGY**

Most lenders rely on secondary-market pricing models to create their primary-market pricing policy. They design the models to reflect their risk appetite, product mix, market strategy, and several other factors. The following is a discussion of five such models.

First, **Mark-to-Market** is used for setting published pricing. It serves as a model for a mortgage pricing spread, helps determine when to apply that spread, and depends on market movement. When the instrument pegged to pricing, for instance, the 1-year Libor index, has moved a sufficient amount, the lender marks or re-prices the loan by adding the spread to the new instrument price. Frequently, the spread will move as well as the instrument. Mark-to-Market models are often extremely sophisticated. Firms that assist lenders in the task of hedging can assist in setting a mark-to-market model. Mark-to-market pricing models are the prevailing methodology for any mortgage banker that wishes to build their own pricing model.

Second, **Real Time, or Live Flow Pricing**, is an instantaneous pricing methodology based on the current position of the market. The elements for determining pricing are similar to the Mark-to-Market method, but instead of periodically re-pricing, the price reflects market prices at the moment the commitment is executed. This is typically reserved for negotiated mandatory execution (discussed below). The investor will provide a real-time price and give the seller a short time period in which to accept.

Third, many small correspondents prefer to sell the majority of their loans to one

investor. Under **Single Investor Pricing**, the correspondent chooses an investor and adopts their pricing model and underwriting guidelines. The seller's ability to sell to another investor is complicated, because the second investor's underwriting and pricing policies are probably not the same as the first investor's criteria. This model places value on simplicity over all other factors, since the correspondent is only responsible for determining its spread (profit margin).

Fourth, the **Multi-Investor Pricing** model enables the lender to implement the underwriting and pricing policies of several investors at one time, with two general strategies in mind. The lender wants flexibility to sell certain loan-types to particular investors. Alternatively, the lender wants to select the best execution among investors. This pricing model tends to support optimum pricing for the borrower. It served as a catalyst for the product and pricing engines (PPEs) that are prevalent in the mortgage industry today, and that many lenders use to automate the search for products and pricing.

PPEs allow the lender to configure pricing policies and establish components of a sophisticated pricing policy, such as setting different margins for various origination groups in an automated fashion. It can allow certain loan types to be locked with certain investors and can enable lenders to add pricing and eligibility overlays for various investor policies. Most PPEs enable a model to determine best execution, allow lenders to maintain a robust portfolio of investors, and provide loan officers with a clear understanding of the pricing determination for loans.

In a Multi-Investor Execution strategy, a lender can choose to create its own pricing and underwriting policies, enabling the origination of loans that can be sold to one or more investors. Having multiple investors promotes liquidity for a variety of loan types and attributes, reducing delivery risk. The goal of the lender is to deliver a loan to an end investor, ideally, to make its targeted margin. What is not wanted is an unsellable or impaired loan, which would undermine its capital.

Attributes that are illiquid narrow the number of potential investors and significantly increase delivery risk. Moreover, because the loan is not being priced and underwritten according to the investor's policies directly, the risk of making an error becomes significantly higher. A study done by the FHA on a sample of its loans from 2011 found that close to 40% of the loans had material defects that should have caused the loans not to be insured by the FHA, which would have made the loans unsalable.

The Multi-Investor Execution strategy creates a simpler process for the sales force, underwriters, and the entire operations staff through a single standard across products. The secondary-marketing department designs investor-selection and execution strategies to optimize price through policy or skilled loan trading. Lenders that retain servicing also evaluate the economic value of the servicing.

Secondary marketing departments seek opportunities to increase profitability through

comparative price optimization. This requires the lender to build, buy, or outsource pricing models, whether based on one investor or several. An important element for such models is a Mark-to-Market capability, which compares the price of locked loans with the actual or anticipated price investors will pay, or probably will pay. It is designed to empower executive management oversight and give continuous transparency into profitability and the effectiveness of setting prices and margins.

Last, **Portfolio Pricing** is a much simpler model that lenders use to fund loans using depository assets. Portfolio pricing models are determined by the required returns of the portfolio, and are based on the bank's obligation to pay interest to deposit customers as well as support the bank's profit model (factoring in expected credit losses). The bank determines the simplicity or sophistication of the model, which sometimes excludes risk-based adjustments.

## EXECUTION STRATEGIES

The pricing model a secondary marketer chooses to adopt is tied heavily to the preferred execution strategy, or what the lender chooses to do with the loans once they are closed. Many execution strategies involve selling some of the loans into the secondary market, but not all.

Common strategies include the following:

- **Best-Efforts** loan sales relieve the selling agent of the responsibility of delivering the loan if it does not close. A best-effort sale allows the seller to take out an advanced lock with the investor, sometimes very early in the loan origination process, with less risk and fewer repercussions if the loan is not closed and cannot be delivered. The investor determines pricing upfront, based on loan attributes at the time of the investor lock and the pricing that has been published, including all risk-based adjustments. The seller need only add in their margins and any risk-based overlays they feel are prudent. Best-Efforts execution strategy pairs well with a single-investor pricing model. While this pairing is not required, the investor is known upfront.

The investor will typically not charge a lock cancellation fee (or perhaps only charge a nominal fee) if the loan is not delivered. The investor will typically hedge the lock for the best-efforts sale, and thus assumes more of the risk than the selling lender, which receives a lower price as a result.

There are often good reasons to select the best-efforts approach to selling a loan. For instance, lenders may choose to deliver best efforts if they are new, or do not wish to tie up capital with hedging expenses. Also, more seasoned lenders choose best efforts for certain riskier loans, or low-volume specialty products.

- **Mandatory Execution** requires the seller to deliver the loan promised in the

commitment, subject to penalties for non-delivery. Lenders tend to execute mandatory commitments close to the actual loan-sale event. Such an approach can minimize the risk of non-delivery and maximize price. To minimize the risk of interest rates moving, lenders hedge the loan by matching it with an investor commitment. In return for assuming the risks of the delivery requirement and for dealing with the risk of market volatility during the lock, the seller is usually given a better price for the loan as compared to best efforts. In addition, mandatory commitments are not loan specific, so the seller may swap out one loan for another, equivalent loan if the original is unable to be delivered. The following are several types of mandatory execution:

- *Negotiated pricing* is determined based on loan attributes, with the seller submitting the loan for pricing and the investor returning a price. The seller may then accept, ask for an exception, or sell the loan elsewhere. This can be done one loan at a time, called a single-loan mandatory, or in bulk. When done in bulk, the seller submits a bid-tape, or list of the loans to be priced. The seller receives a price for each loan they wish to sell and can accept the price, or not, on a loan-by-loan basis. Once the prices are accepted, all loans agreed to be sold are committed and the seller is required to deliver them.

The seller typically does not know negotiated mandatory prices in advance, so it is up to the seller to reflect the market-driven pricing factors appropriately. The investor typically prices negotiated mandatory commitments using real-time, live-flow pricing. Because the pricing is not known up front, it is not uncommon for the seller to use the published best-efforts pricing as a guide to determining expected mandatory pricing.

- *Direct trade or forward commitment* is when the seller commits to sell the investor a preset dollar value of loans. They can include an *assignment of trade*, under which the investor assigns the pool of loans to a trade on behalf of the seller. With direct trades, the base price of the trade is known in advance, along with the investor's loan-level adjustments that are published with the best-efforts rates. The seller fills the trade with loans whose sum equals the value of the trade, provided the loans meet the basic requirements of the trade.

Mandatory execution is extremely flexible, and pairs well with almost any pricing policy. To use mandatory execution, regardless of the type, for single-investor pricing models is overkill, except single-loan negotiated execution. It is common for new lenders to begin using other types of mandatory execution with single-investor or simple multi-investor models to gain institutional knowledge, so that the lenders can grow into strategies that are more sophisticated.

**Securitization** occurs when a loan originator or a correspondent decides to create a mortgage-backed security (MBS). In creating an MBS, the lender gathers a pool of similar loans that meet the requirements of a "To Be Announced" (TBA) MBS security. A TBA trade is a forward commitment to deliver assets into a security at a specified

future date. The market sets the price of the TBA based on the delivery time-frame, the security type, and the coupon. A coupon is a benchmark rate used to price the TBA, such as 3.5%.

Loans with a variety of rates are delivered into a security with a fixed coupon, with an adjustment determined for the difference between the loan rate and the TBA coupon. Lenders wishing to sell loans as an MBS in the market must have a sound pricing policy based on the MBS market and risk-based adjusters that are in-line with investors' expectations. The security price must be favorable enough to attract investors while reflecting prices attractive to enough borrowers to obtain budgeted volumes.

Lenders who securitize loans typically use some kind of mark-to-market pricing model because there is no specific investor involved in the transaction; however, a lender using a single- or multi-investor pricing strategy may choose to securitize some portion of their loans without altering its pricing model. This assumes the investors' pricing models are correct and in line with the MBS market. The downside to this strategy is that investors also manage their own spreads in the pricing they publish, which may lead to less than optimal published pricing for the lender.

Once the lender has determined its pricing and execution models and set them up, the lender's secondary-marketing department is ready to begin the process of originating and selling loans.

## MANAGEMENT OF CREDIT RISK

The day-to-day activities of sound mortgage banking also require the management of risk. Many lenders manage credit risk through pricing strategies that account for some loan types or loan attributes that may be too risky for the lender. These risks may be determined by a variety of tools, including underwriting strategies, investor policies, advanced analytics, and agency pricing and policies. Lenders have preferred tools that are determined by their execution strategies, though investors often make risk determinations for them. Lenders who securitize loans or portfolio loans are responsible for determining the risk of the loans they originate.

Regardless of the methodology used to determine the risk of certain loans or loan attributes, the results can be used to determine pricing in two ways.

First, **Risk-Based Pricing** is determined based on identifying risky loan attributes. The goal is to reduce the price of riskier loans to reduce the volume of loans and to increase yield, which is ultimately assumed by an MBS investor or a portfolio investor, which assumes most of the risk of the borrower defaulting. This is because once the borrower defaults, the return on the investment drops to zero. The investors can attempt to recoup some losses through insurance contract terms, loan repurchases, and indemnification of losses.

Using risk-based pricing, the originating lender, or any correspondent party involved in

the purchase or sale of the loan, may also add its own risk-based adjusters and keep the additional profit margin as compensation for a risky-loan attribute.

Second, **eligibility rules** are designed to screen out loans that lenders consider too risky. In fact, a lender may make a determination that some loan attributes are too risky at any price. In addition, some investors or correspondents may choose to add an eligibility rule that prohibits certain loan attributes.

## **PRICING POLICIES AND SALES**

Across the industry, pricing policies are used as a way to control the sales force through the compensation levels paid to salespeople. This compensation is paid out of the margin built into the loan for retail originators and is added as a separate component, after final pricing, for mortgage brokers. Originator compensation is closely regulated and must be predetermined and fixed, except if a broker negotiates special compensation with the borrower. However, the amount of compensation may be periodically reset, within a range, by the lender.

Several factors may be involved in setting the originator's compensation: quality of loans originated, volume of business brought to the lender, number of exceptions required, and errors made. The terms of individual loans cannot be considered in the compensation plan, according to federal regulations.

## **PRICING WARS: STORIES FROM THE BATTLEFIELD**

Pricing strategy is one thing in theory; but a famous boxer once said, "Everyone's got a game plan, until he gets punched in the face." So let's consider some real-world tales from two very different environments, before and after the Crisis of 2008.

Everyone knows that margins are wider in retail and tighter in wholesale, right?

In the late 1980's, and throughout the 1990's, mortgage banking became more and more complex as price discovery and transparency began to take on a new form. With more and more data services pushing more and more data out to end users, exit prices became a little more transparent. Secondary-marketing managers were forced to simply find new ways to keep the sales force pushing forward. The emergence of wholesale lending channels put significant pressure on gain-on-sale margins as returns were pressured further and further and competition increased exponentially. The wholesale model was appealing in its scalability, flexibility, and lower capital intensity, but it had narrower margins compared to retail.

During this time there were several west coast firms that were operating with margins that could only be described as razor thin. The ATM TBA (at-the-market to-be-announced mortgage-backed security, the current coupon where the active primary

market is being placed) was priced at 102-00, plus servicing valued at 1.25, and warehouse carry/float valued at 25bps, for a total economic value of 103.5. Yet these wholesale lenders were showing brokers a rate-sheet price of 103.50 and sometimes even 103.75! Most perplexing. That would mean initial rate-lock margins were zero or -25bps.

How could this be? Did they lose a little on each loan and make it up on volume? Buy a bigger truck, aka, hire more account executives? Chalk it up to “Crazy Competition” and the bigger-truck theory of business: when you are losing money, get more sales and a bigger truck. As if you can price to a loss, and taking more loans at a loss makes you money! The price war increased further as higher and higher premiums were being paid to brokers and more and more early-payoff premium recaptures kept coming in the mail! A self-fulfilling prophecy!

With warehouse lines of credit ballooning and no more capacity in sight, carry could not be stretched to earn any incremental return. Further, this was a time when MBS rolls (the drop) were 12 to 15 32nds! At the end of the day, you had to turn to your operations staff/IT staff and ask them to increase efficiency, or cut staff...or both! Book-basis cost to produce had to be lower; certainly the account executives, loan officers, and sales managers weren't going to take less. Imagine top sales people could produce loans at a loss. Lastly, search for ways to increase productivity to cut cost. Could we originate a single generic loan, like a red shoe, size 8, with white stripes? But sales wanted all sorts of unique products and programs, so that wouldn't work! Alas, where was that bigger truck?

Now let's fast-forward to the post-meltdown environment. The entire non-Agency legacy RMBS are running off like snow caps in July. 0% funding rates abound. Capital is so prevalent that it is running out of banks' doors. When you need to feed the machine, you need to feed it in volume! Student loans? Nope. Auto loans? Nope. ABS? Nope. Sub-prime? Sub-what? Alt-A? Huh? Prime Jumbo? Eureka! Rich people need cheap loans, too. However, the private-label market is broken. Regulation is rampant and the cost to produce a loan just tripled in the past few years. It now costs \$10k to \$15k to produce a loan, fund a loan, and pay commissions. What if we load up large money-center bank balance sheets with ultra-prime jumbo 30-year fixed-rate mortgages! Eureka! What could go wrong? But wait; let's price it 100-200bps in price through Agency TBA equivalent. That way only perhaps half a dozen super large banks can even do the business!

## **SUMMARY**

Pricing loans requires a sophisticated understanding of the mortgage marketplace and the factors that cause changes in mortgage yields, spread relationships, and volatility. Lenders depend upon experienced secondary-marketing people, solid processes, and reliable technology to deploy a successful pricing strategy. At the heart of setting prices and rates for mortgage product offerings in the midst of intense competition is

managing the change in expectations of the secondary and primary markets. Sometimes, irrational pricing driven by unusual market conditions can make competitive pricing exceedingly hard to justify, and this is where historical perspective and discipline are critical. There are times when the only rational thing to do is lose market share. But lenders can generate competitive returns on capital if they meet the delivery demands of the investors and fund the loan for the borrower with consistent and appropriate mortgage product pricing.

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