



Enhancing the Business Value of Loan Pricing Systems

Overcoming the Roadblocks

Special Edition - For FinTech, Marketplace Lenders and
Other Innovative Lending Platforms

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EXECUTIVE SUMMARY

Pricing systems of all shapes and sizes have been utilized with various degrees of success within the financial services industry for many decades, and are becoming even more prevalent as the lending industry continues to evolve.

Today, FinTech companies, marketplace lenders, traditional banking institutions and many other types of innovative new lending platforms are using loan pricing systems to sharpen their focus on balancing shareholder returns with customer pricing sensitivities and market demands.

The lending landscape is changing, but the need to achieve an adequate rate of return while delivering fair and accurate pricing, remains a constant. Maintaining this delicate balance through the implementation of pricing system software is a significant challenge, yet provide major opportunities.

Individual lenders who are accustomed to full autonomy in managing their relationships sometimes resist adopting a new pricing system. Calibrating the pricing system so that it delivers accurate, market based pricing while appropriately representing the true level of shareholder returns, requires deep knowledge of lending profitability. Ever-changing interest rate environments create the need for pricing systems to be nimble in responding to changing cost factors, especially funding costs. Pricing adjustments for credit and extension risk means that the pricing system must capture and simultaneously adjust for each of these elements.

This whitepaper tackles some of the implementation roadblocks executives from all corners of the lending industry face as they seek to secure the value of loan pricing systems for their enterprises.





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INTRODUCTION

Lender resistance often creates enough inertia to make loan pricing system implementations fall short of expectations. Lending executives need to establish a strong commitment to the use of a pricing system and a comprehensive understanding of the profit metrics and configuration of the system.

There are many roadblocks that might derail any implementation. This whitepaper explores a few of the concepts used in pricing system design and addresses issues helpful to consider to successfully implement a pricing system and gain the most significant benefits possible.



Roadblock #1 –Accurate Profitability Metrics and ROE Targets

PROBLEM

One of the biggest roadblocks hindering loan pricing system implementation is lender resistance. Lenders will argue that a pricing system takes away their independence, burdens them with unnecessary bureaucracy, and hinders their ability to add new loan volume. They will ask tough questions regarding system profit metrics and Return on Equity (ROE) targets. Usually the basis for their resistance is past experience with systems that didn't work well because they were poorly calibrated and inaccurate.

“A loan pricing system will price us out of the market and will prevent us from growing our loan portfolios.”

SOLUTION

Loan pricing systems should be configured with **organization specific** profit metrics and ROE targets. Profit metrics and targets should flow from a detailed development process including the following steps and procedures:

- 1. PERFORM PRODUCT PROFITABILITY ANALYSIS ON EXISTING LOANS AND FUNDING SOURCES.**
- 2. DETERMINE EXISTING PRODUCTS CURRENT ACTUAL ROE.**
- 3. SEGMENT LOAN PORTFOLIO INTO VARIOUS TRANCHES BASED ON LOAN SIZE.**
- 4. SET SPECIFIC ROE TARGETS FOR EACH PRODUCT TYPE AND SIZE TRANCHE – WITH EACH CLOSELY ASSOCIATED TO THE PRODUCTS CURRENT ACTUAL ROE.**

Product Profitability Analysis

Most of the data needed to perform a product profitability analysis can be found in the core data system. Balances, interest income on loans, interest expense of funding sources, and fee income can all be gathered at the account level directly from the core data system. Other key data such as credit for funding of funding sources, cost of funding loans, provision expense allocation, cost allocation, and capital allocation, need to be applied to the account data using a similar methodology as is used in the pricing system.



The credit for funding on funding sources and cost of funding on loans is assigned based on the desired funds transfer pricing (FTP) methodology. This process factors in the duration of the account and the origination date or last rate change date.

Provision expense is allocated to loans after considering the risk grade of the account and the general reserve allocation for the accounts product type usually found in the Allowance for Loan and Lease Losses (ALLL).

The cost allocation process starts with a determination of which non-interest expenses should be assigned to loans, and to other funding sources. Expenses are also designated as either fixed or variable in nature. These general expense buckets are broken down further by assigning them to individual product types. At the end of the process, each account of a specific product type receives an origination, servicing and fixed overhead cost assignment. The cost allocation process should use a fully-allocated approach where the sum of all allocated costs reconciles with the general ledger.

Capital is allocated to products based on the perceived risk. A good approach is to initially use the risk-weightings of the asset accounts to assign capital with the remainder allocated to funding sources. Again, this process should fully reconcile to the general ledger.

Determining Current Product ROE

After completing these various allocations, a full income statement can be produced for each loan and funding sources according to the following tables.

Loan Income Statement	Source		Funding Income Statement	Source
Interest Income (+)	Core System		Credit for Funding (+)	Calculated
Cost of Funding (-)	Calculated		Interest Expense (-)	Core System
Net Interest Margin			Net Interest Margin	
Fee Income (+)	Core System		Fee Income (+)	Core System
Provision Expense (-)	Calculated			
Expense Allocation (-)	Calculated		Expense Allocation (-)	Calculated
Taxes (-)	If applicable		Taxes (-)	If applicable
Net Income			Net Income	
Allocated Capital	Calculated			
ROE	Net Income / Allocated Capital			
ROA	Net Income / Average Balance			



Segment Loan Portfolio into Size Tranches and Adjust ROE Targets

After completing the detailed product profitability analysis and determining the current ROE levels, the results should be further broken down to determine the existing ROE levels of various loan size tranches. This allows ROE targets to be accurately set within the pricing system. The following is an example target ROE matrix.

Product	Loans < \$200k		>\$200k and < \$750k		>\$750k	
	Current ROE	Target ROE	Current ROE	Target ROE	Current ROE	Target ROE
Commercial Real Estate	6.0%	7.5%	9.0%	10.5%	12.0%	13.5%
Commercial Construction	5.0%	7.5%	8.0%	10.0%	11.0%	12.5%
Other Commercial	2.0%	5.0%	6.0%	7.5%	7.5%	10.0%

Roadblock #2 – Loan Size Impacts on Return Expectations

PROBLEM

A significant complaint we hear from lenders regarding in-house and third party pricing systems is that they don't work well on small loans. Lenders can become frustrated because no matter what interest rate they put into their system, the loan fails to hit the lender's ROE target levels. Let's explore how loan profitability is calculated within a pricing system and how a properly calibrated system allows lenders to be competitive regardless of loan size.

SOLUTION

First, look at how pricing systems calculate the profitability of loans. Below is a typical income statement.

Loan Income Statement	Calculation
Interest Income (+)	Average Balance * Loan Rate
Cost of Funding (-)	Average Balance * Cost of Funding Rate (FTP Rate)
Net Interest Margin	Interest Income minus Cost of Funding
Fee Income (+)	Loan fees (% of loan amount or \$ charge)
Provision Expense (-)	Average Balance * Provision % (adjusted for credit risk)
Expense Allocation (-)	Origination, Servicing, Overhead allocated as \$/acct or % of loan amount
Taxes (-)	% of Pre-tax Profit, if applicable
Net Income	Net Interest Margin plus Fees minus Expenses and Taxes





An analysis of this income statement illustrates that the majority of line items have the same profitability impact for all loan sizes. In other words, these line items scale with loan size. This includes interest income, interest expense, fee income (in most cases), provision expense, and taxes. The only line item that has a different profitability impact for different loan sizes is the expense allocation. In most cases, it is the cost allocation process that is causing these variances when analyzing small loans.

Expense Allocation

The best pricing system implementations generally include a detailed expense allocation study. In these studies, 100% of the lender's non-interest expenses are distributed among its product lines. A percentage of each expense is allocated to loan, funding source products, and further divided into origination, variable servicing, and fixed overhead categories.

After all expenses are allocated, an average cost per account can be calculated based on the number of accounts serviced within each product line. The following table shows an example of the average costs per account.

Product	Origination Expense	Annual Servicing	Annual Overhead
Commercial Real Estate	\$750	\$650	\$1,500
Commercial Construction	\$1,000	\$700	\$1,500
Other Commercial	\$400	\$450	\$1,500
Mortgage Loans	\$250	\$150	\$750
Consumer Loans	\$50	\$50	\$150
Funding Source 1	\$100	\$50	\$200
Funding Source 2	\$50	\$25	\$100

After the expense allocation study is complete, the results can be loaded into your pricing system for use on each new or existing loan analysis going forward. By allocating expense on a "dollar per account" basis, you will see an inversely proportional relationship between loan size and the profitability impact of allocated operating expenses. The smaller the loan, the larger the profitability impact of expenses. The larger the loan, the smaller the impact of expenses.

Considerations should be given to determine if equal costs should be assigned to loans of varying sizes. If there are procedures in place to streamline the origination of smaller loans, then it makes sense to reduce the cost per account for smaller loans. On the flip side, if there is a size threshold for loans to go through the full approval process, including full credit underwriting and loan committee review, it is then reasonable to increase the cost per account in your pricing system for larger loans.



There are alternatives to the cost per account allocation method. Some organizations decide to allocate either a portion or all of their expenses as a percentage of loan amount. By making this change, the expense allocation profit metrics will be more fairly distributed among loans of all sizes. The question you need to ask is whether a \$1mm loan should get 10 times the cost as a \$100k loan. In a similar manner, some organizations opt to ignore cost allocations in their pricing system entirely. By doing this, the organization has decided to manage the profitability of their loans at the net interest margin level with adjustments for fees and credit quality. Each of these methods generally require that lenders adjust their ROE targets higher to compensate for not fully allocating expenses.

Roadblock #3 –Pricing Systems Contradict Previous Business Practices

PROBLEM

Many lenders believe that using a loan pricing system contradicts their past practices of “character-based” lending, and / or personalized service. They view their role as lenders as making lending decisions based on a close personal understanding of the borrower, and think that a loan pricing system conflicts with these past practices. Their past practices may not be adequately based on a detailed and objective analysis and a reasonable requirement for a minimum level of return. They associate the stronger analytical approach supported by loan pricing systems as a mainstay of large, bureaucratic organizations and not innovative entrepreneurial lenders.

“Loan pricing systems aren’t for new entrepreneurial lenders; they are the exclusive purview of large regional or nationwide banks.”

SOLUTION

Up and coming new innovative lending companies can implement a loan pricing system to **manage risks, achieve an acceptable level of return, and assure fairness and consistency in loan pricing without harming the close personal relationships they have fostered with borrowers over time .**

There does not need to be a strict requirement for a single minimum target rate of return. As a matter of fact, a different levels of return should apply to different borrowers, based on differences in credit scores, loan terms, and the other aspects of their relationships with you as their primary lender of choice.



Use of a loan pricing system may actually improve the lenders understanding and awareness of a borrower's business practices, borrowing patterns and future financial needs. The system can also serve to **strengthen the relationship that currently exists**, by explaining the balancing process that the lender manages in striving to simultaneously **meet the needs of both borrower and shareholders**, in a fair and consistent manner.

Establishing loan pricing policies that are appropriate to your lending philosophy, and developing flexible return guidelines for a variety of lending situations are just two key implementation areas to consider. Implementing a loan pricing system in this manner will **increase your net interest margin, and add to overall profitability while still maintaining your customer responsive, innovative lending culture.**

Roadblock #4 – Matching Funding Costs with Loan Terms

PROBLEM

The single largest impact on profitability calculations in your loan pricing system is the Funds Transfer Pricing (FTP) process. Many lenders and credit analysts generally are unfamiliar with the importance of FTP concepts and methodologies and how it figures into the lending process. Members of the finance team are often tasked with maintaining in-house FTP systems for their organizations, sometimes at the exclusion of lenders and credit personnel. This can lead to confusion and cause lender resistance because the FTP rates are not perceived to reflect the actual funding costs on the loan.

"The Fund Transfer Pricing process needs to be understood and supported by Lenders."

SOLUTION

At the most basic level, FTP determines the Net Interest Margin of each individual account being analyzed for profitability. This includes the assignment of a Cost of Funding (COF) rate to asset products, and a Credit for Funding (CFF) rate for all funding sources. Because these rates, and the resulting interest income and interest expense assigned to individual products, do not appear in an





organization’s income statement, a valid FTP allocation system needs to be defined so the total cost of funding applied to assets equals the total credit for funding applied to funding sources.

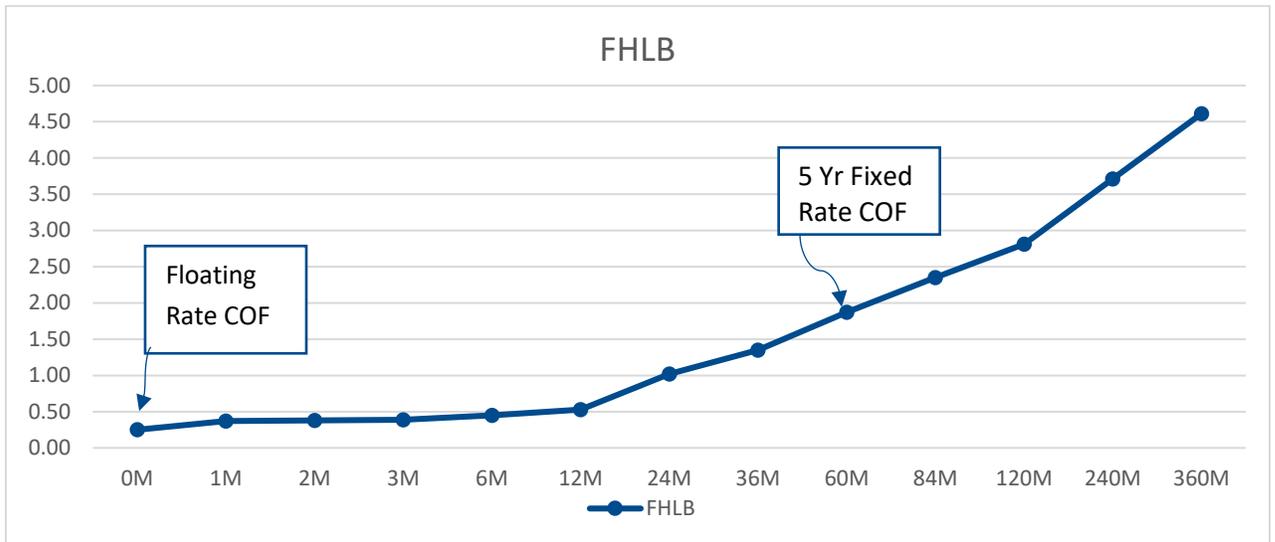
	Interest Income	Interest Expense	Margin
Loan Products	4.25%	2.00%	2.25%
Funding Products	2.00%	0.40%	1.60%
Yield/Cost Spread	4.25%	0.40%	3.85%
	Results as reported in lender’s financial statements		
	Weighted average FTP rates		
	Margin contribution		

It is only through a methodology such as this that an accurate profitability contribution can be calculated for each individual loan. Within your pricing system, once the profitability of each account is determined, relationship profitability can be easily calculated by aggregating totals of individual accounts in the relationship.

The most important FTP concept to understand is that not all loans are assigned the same FTP rate. The FTP rate is based on both the duration of the loan and the rate environment at the time the loan is originated or has a rate reset. Usually a lender will want to use a single FTP curve to apply to their entire array of loan and funding products. Most often these are market-based curves such as the U.S. Treasury, FHLB Borrowing, or LIBOR/Swap curves. Other lenders might decide to use a cost of funding curve that better matches their actual sources of funding, whether that includes equity capital, private equity, venture capital or other sources of financing or funding.

Cost of Funding Loans

The FTP rate assigned to loans is called the cost of funding (COF) rate and is based on the term of the loan. Floating rate loans that have an overnight rate change frequency have a COF assigned from the shortest end of the FTP curve; while longer term fixed rate loans are assigned a COF from a point farther out on the FTP curve.



	0M	1M	2M	3M	6M	12M	24M	36M	60M	84M	120M	240M	360M
FHLB	0.25	0.37	0.38	0.39	0.45	0.53	1.02	1.35	1.87	2.35	2.81	3.71	4.61

Therefore, the loan rate required on longer term loans is generally higher than shorter term loans in order to achieve the same margin and ultimately the same profitability and ROE. Of course, this does not include risk rating and other factors that ultimately impact the profitability of the loan.

Cost of Funding Methodologies

Due to the amortizing nature of loans, most loan pricing systems allow the COF calculation to be adjusted based on different methodologies.

Coterminous Maturity Matched – The COF rate is assigned based on the fixed rate term of the loan with no adjustment for principal pay downs. A five-year fixed rate loan receives a five-year COF rate derived from the FTP curve.

Duration Cash Flow Method – The duration of the loan is first calculated based on the fixed term and the amortization period. The COF rate is then assigned from the point on the FTP curve that matches this duration. A five-year fixed rate loan with customary P&I payments amortizing over 15 years has a duration of approximately 4.6 years.



Coterminous Cash Flow Method – Each principal payment is assigned a COF rate based on the month that payment is made. The first month’s payment receives a one-month COF rate, the second month’s payment receives a two-month COF rate, and so on. A weighted average of the principal amounts and COF rate is then calculated. The results of this method are similar to the duration cash flow method.

Credit for Funding on Funding Sources

The FTP rate assigned to funding sources is called the credit for funding (CFF) rate and, similar to the FTP process for loans, is based on the life or term of each unique funding source.

There are many profit metrics that impact the profitability and ROE calculations in loan pricing systems. Factors such as account size, product costs, provision expense allocations, and capital allocations are just a few of the variables. The Funds Transfer Pricing methodology generally has the largest impact on profitability as compared to any of the other profit metrics, individually, so should be given due consideration in planning the loan pricing system’s metrics. Having a comprehensive understanding of this key driver of profitability is essential in the successful implementation of a loan pricing system.

CONCLUSION

With information provided in this whitepaper coupled with your professional experience, you should now be armed with the tools to break through many of the loan pricing system roadblocks. Proper configuration of both the system profit metrics and ROE targets are essential to a successful implementation. By having a firm grasp on the factors that drive the profitability results within your system, your lending team will become stronger advocates and more effective practitioners of your organization’s loan pricing tools and strategies.



ADDITIONAL RESOURCES

Visit www.loanpricingpro.com for additional resources, including:

- Articles
- Case Studies
- News and Events
- Recorded Webinars

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