

The recent financial crisis has sparked a new level of collaboration between Treasury and customer-oriented business lines, centered on in-depth analysis of account behavior.

Linking Customer Behavior with Bank Financial Management

BY STEVE TURNER

Traditionally within the Treasury group, efforts to anticipate customer behavior center on generalized estimates of interest rate sensitivity. But the focus is rapidly expanding following the dislocations of the recent financial market crisis.

Beset from all directions with funding uncertainties, banks found that they needed far more detailed information about the various categories of depositors and borrowers and how they likely would behave in various stress scenarios. This sparked a new level of collaboration between Treasury and customer-oriented business lines.

The concerted effort has thrown open a vault of detailed customer behavioral information – and also opened a new frontier of bank financial management. Fairly rapidly, progressive banks have discovered a suite of applications, including:

- ❖ An enhanced ability to identify customer segments for

tailored treatments and pricing, based on clear definitions between core and marginal customers;

- ❖ Improved hedging results, as permitted by more finely-grained funds transfer pricing and more robust asset/liability equations of anticipated customer behavior in a variety of scenarios; and

- ❖ An expanded range of longer-term investment possibilities based on a more thorough identification of assured long-lived deposits – both in stable and stressed environments – that can be used to support equally long-term investments.

These advances capitalize on the careful study of customer account behavior. Instead of relying on general mathematical estimates based on the portfolio average for all customers, progressive bankers specifically evaluate how accounts behave over time. They then develop perspectives on potential future behavior, along with anticipated consistency over time and in varying environments. Ultimately the bank is able to identify differentiated behavioral segments and take appropriate actions with each one.

Looking through the new lens of “behavioral life,” customer-facing business lines and Treasury can identify a fuller range of account drivers affecting balance augmentation, diminishment, and attrition. This provides a

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methodical basis for identifying and treating major customer segments within the overall portfolio.

As a result, customer-facing groups have much better segment-level insights on customer behavior, and Treasury has a better understanding of how these customers will affect overall balance sheet structure. Along with refining bank financial management, asset/liability measurement, and regulatory compliance, such insights can be used in targeted marketing, product design and pricing.

A MATTER OF NECESSITY

As is almost always the case, necessity forced many institutions to invest in tools and approaches that otherwise would not have been considered valuable. The recent financial crisis was a catalyst for these investments, given its profound impact on bank balance sheets and funding.

At the height of the crisis, it became imperative for bank management to understand the nature and stability of the bank's funding sources across the full spectrum. As well, management needed a way to anticipate the likely behavior of borrowers, particularly those with lines of credit that could be drawn upon at any time.

Rate sensitivity analysis was inadequate to this task, given that bankers needed to understand how a variety of factors might affect funds suppliers and users. An expanded analysis had many aspects:

- ❖ First, how would depositors and other funds suppliers react if the bank's financial condition visibly deteriorated? Which customers would pull their funds, and which would stay? How would these behaviors change if there was a continued slide?

- ❖ At the same time, customers were being battered by the economy. How will the institution be affected as throngs of customers lost jobs, saw their housing values drop precipitously, and searched for stable places for their savings and retirement funds?

- ❖ Finally, along with bank-specific and economic factors, banks saw interest rates sink to troughs unprecedented in our lifetimes. Absent any semblance of steady-state market conditions, the bank needed insights beyond traditional rate sensitivity analysis.

Analyses based on aggregated portfolio information could not cope with the size and speed of these cross-currents. Decision-makers were stymied by limited information that was confusing, relatively useless, and certainly not actionable.

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This crisis provided ample justification to build new bridges between customer groups and Treasury, given the shared urgent need for deep, detailed and reliable information. Needing a way to discern between core customers and marginal customers, banks turned to detailed analysis of customer account behavior. Now, progressive banks are routinely using this knowledge of differentiated behavior. Applications include improving liquidity management and hedging in Treasury, as well as tailored pricing and customer targeting in the customer-facing business lines.

CUSTOMER DIFFERENCES

When customer behaviors are disaggregated, it becomes clear that there are distinct differences between customer segments, both within and across product lines. It also becomes evident that these pattern differences can be systematically identified and then used to predict likely customer behaviors in a variety of scenarios going forward.

Moreover, segment behavioral differences go beyond traditional top-down views that “consumer deposits are stable” and “business deposits are unstable.” Yes there is a large pool of highly stable and predictable consumer deposits, but even these deposits evidence decay and variability over time, and it is worthwhile to study these patterns.

The following two graphs show distinctively different customer behaviors in two products. Each graph shows the history of 60 separate customer cohorts over time. That is, we tracked all of the customers who acquired each product 60 months ago, and then determined how many customers remained after each month of decay. We did the same for customers who entered the product 59 months ago, and so on. The graphs then answer the

question: “How many customers will retain this product after “x” number of months, and what level of confidence can be placed in this prediction?”

In Figure 1, based on a disguised case study, the decay profile graph shows a 20% customer attrition rate after 12 months, with 80% of the customers remaining. It also shows little difference in pattern among the 60 cohorts. Clearly, this product has predictable and long-lived customer behaviors, and customers in this product are highly valuable.

By contrast, the account decay patterns for customers in Figure 2 are quite different, with highly unpredictable behaviors that generally seem to decay much faster than the customers in Figure 1. On the margin, this is not a highly desirable group of customers. Their behavior is unpredictable, thus complicating investment and hedging decisions on the balances represented by this group.

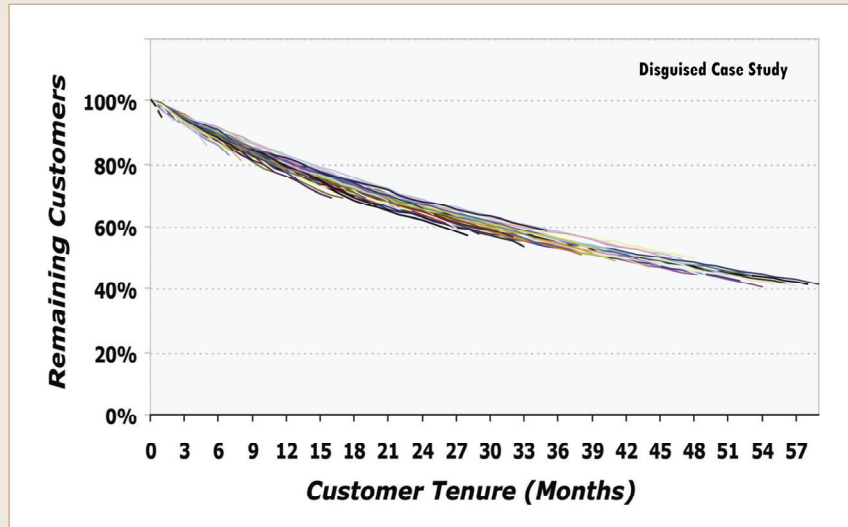
This level of detail had been untapped and unused for financial management at most institutions. Even with the traditional question of customer interest rate sensitivity, the Treasury and Finance groups usually only go so far as to work up probabilistic estimates of the extent to which average balances will fluctuate in response to changes in market rates. Combined with other metrics, such as average account turnover, these insights are then used to make important decisions about portfolios ranging from

hundreds of millions to billions of dollars. This traditional approach is inadequate for the complicated tasks of asset-liability management; hedging interest rate risk; and preserving liquidity in a variety of scenarios.

Figure 1: Customer Account Profile - Predictable Behaviors

With some customer groups and product sets, accounts behave quite consistently.

Account Attrition Analysis Based on 60 Successive Monthly Origination Cohorts

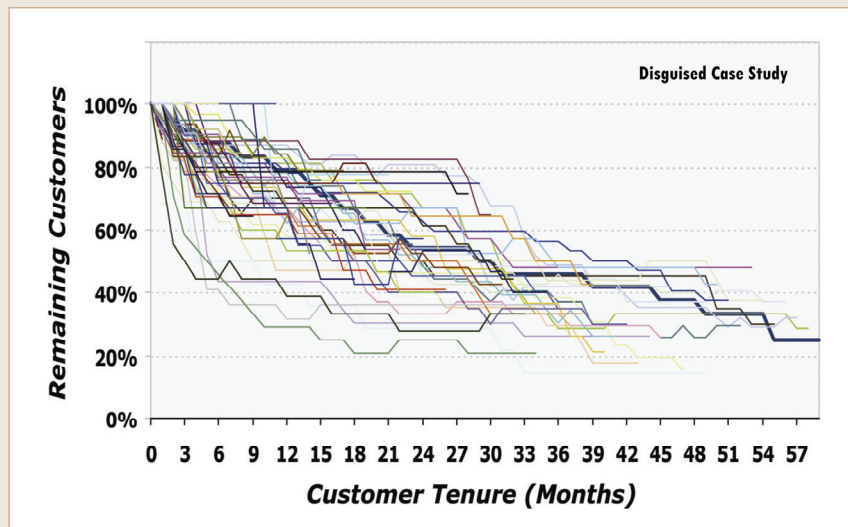


Source: Novantas LLC

Figure 2: Customer Account Profile - Volatile Behaviors

With some customer groups and product sets, accounts behave quite inconsistently.

Account Attrition Analysis Based on 60 Successive Monthly Origination Cohorts



Source: Novantas LLC

Post-crisis, it is clear that the underlying measurement accuracy of customer product portfolios within banks had not kept up with advances in the tools available to measure these portfolios. In addition, the customer context has been too narrow. The various bank regulatory agencies have taken notice of this as well. Examiners have become increasingly aggressive in questioning management assumptions and accompanying contingency plans.

A further drawback of aggregated product-level rate sensitivity analysis is that it does not provide a basis for proactive customer outreach. It does not help in identifying sweet spots in profitable and loyal balance formation, for example, either by customer segment, regional market or type of product. That deprives the bank of a basis to evaluate the larger universe of behavioral drivers that affect prime customer groups.

For a large group of customers, for example, fluctuations in local housing prices and employment are the dominant influences in short-term balance formation, both with deposits and short-term credit. Along with quantifying the extent and overall impact of such influences, the progressive institution will want to pinpoint the most- and least-susceptible sectors of various regions and customer portfolios.

ENHANCED METHODOLOGY

Account behavior stands largely neglected as a source of customer insight in many areas of banking, despite the rich information it offers. In many instances, management simply does not perceive a tangible benefit that sufficiently exceeds the effort and expense of mining the data. Also, there is a lot of uncertainty about analytical technique – every major bank has stories about chasing down trails that ultimately led nowhere.

Behavioral account analysis, however, stands on a solid foundation that has been built in areas outside of traditional banking. For decades in the credit card industry, for example, management has

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closely tracked each successive wave of new card originations, monitoring factors such as balance formation and repayment patterns over the life of each account. Along with emerging trends, card issuers study the dispersion of results within each “vintage,” using the findings to optimize current relationships and refine new waves of offers.

In banking, the analysis of the behavioral life of accounts begins with the monthly tracking of each new wave of accounts for a particular product. Each new “cohort” is tracked over the complete life of the accounts that it contains. Then, as a monthly time series is built, it is time for pattern recognition, including trends and the dispersion of results.

Our research indicates that the findings are not only strongly predictive, but also quite valuable in engaging with different customer segments. This analysis provides a key indicator for issues requiring deeper investigation. What are the salient characteristics of the high-tenure group? What market factors most strongly correlate with changes in their account behavior?

Knowledge from such segment-based cohort investigations then becomes a basis for a variety of decisions and activities beyond basic internal financial management.

❖ *Hedging* – What are the strongest non-rate drivers of balance diminishment and attrition, and what are the implications for preserving liquidity and margins in a variety of market scenarios? What proactive steps would be appropriate in interacting with customers in unstable segments?

❖ *Pricing* – Based on direct and systematic observation of account behavior over time, which customer groups are comparatively less sensitive to price? Which customer groups are the most sensitive? How should that information be factored into new offers?

❖ *Targeted marketing* – What are the priority customer segments for various types of offers, and what product positioning will best resonate?

❖ *Product design* – What product features do the best job of encouraging customer tenure and profitable account behavior, and which might actually be counterproductive?

SETTING THE AGENDA

While management quite properly wants to know the priority applications coming out of account behavioral analysis, the immediate answer may well differ among institutions, and in any case probably will not come clear prior to a preliminary analysis.

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Although the techniques used in behavioral life analysis have been around for some time, the ways that these analyses are being applied – and the insights they generate – are new. Many institutions actually have little idea of the patterns that they likely will encounter. There will be a learning curve, and for some, maybe even a shock curve.

Generally, however, there are three immediate benefits that bank financial managers and business lines should be working to capture through account behavioral analysis in 2011 and 2012:

- The first priority is to improve the internal calibration of deposits and loans. This includes a better understanding of customer account behavioral life and interest sensitivity, and the dispersion of behaviors in various scenarios.

- Second, business lines will be using these approaches to produce much more finely-grained measurements than those customarily used by Treasury in the funds transfer pricing system. Where Treasury will typically receive anywhere from six to 12 segments for setting funds transfer pricing rates, the business lines may have 60 or 70 separate marketing segments to work with. This granular information is being used by the business lines to identify and pursue high-value customer segments; adjust pricing strategies; and to guide and evaluate the performance of relationship managers.

- Third, Treasury is building better hedge structures – and doing so with greater confidence, knowing the realistic boundaries within which loan and deposit behaviors will likely fluctuate. Product behaviors are being incorporated into asset/liability models, creating a clear picture of the hedging risks built up in the portfolio.



We are at the onset of what probably will be an extended era when customer-facing businesses and Treasury groups will realize increasing benefits from sharing and using information that is core to how the other group thinks.

Progressive Treasury groups will build increasingly accurate asset/liability measurement models using deep customer insights. Meanwhile, customer-facing business lines will combine new understandings of customer behavior with improved valuation techniques from Treasury. Results will be used both to build and market products with focused identification of target customers. Together, Treasury and the business lines will incorporate customer account behavioral insights into increasingly robust funds transfer pricing systems, based on improved measurements of interest sensitivity and liquidity behavior.

Bankers who have employed these approaches have consistently been overwhelmed by the amount of information that has been forthcoming. Many are building second-generation infrastructures to better utilize this information in financial and business line management. The bankers that have made this transition are quickly progressing to greater levels of insight and effective action that will give them a significant advantage over competitors who are not developing these tools.

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