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Bank Asset/Liability Management

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FAS 141 Core Deposit Intangible Valuations—the Right Core Deposit Behavior and Value Inputs are Key

Accurate behavior assessment and value calculations for core deposits have always been important, for income and equity-at-risk interest rate risk (IRR) analyses or for precisely measuring business plan performance across multiple interest rate scenarios. But recent requirements set forth by the Financial Accounting Standards Board (FASB) for the treatment of goodwill in branch and whole bank transactions have created an important further need for highly accurate measures of core deposit behavior and value. In determining goodwill, each transaction must calculate the CDI (core deposit intangible—the present value of the core deposit cost advantage compared to alternative funding of similar term) associated with all acquired indeterminate maturity deposits and establish the economic life of those deposits. The CDI value is then amortized into expense over a period no longer than economic life.

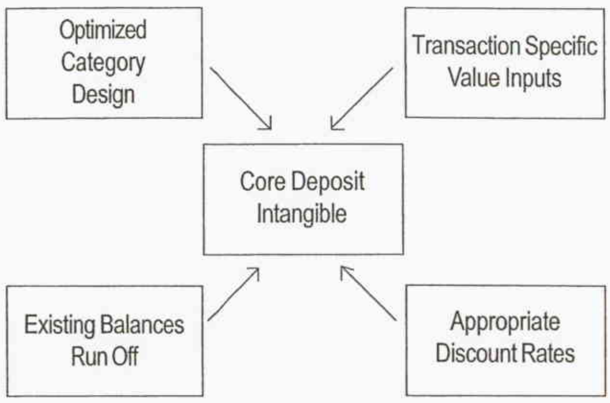
Thus tangible net income effects are now associated with core deposit behavior and value estimates. Further, significant business exposure is created because CDI information is embedded in accounting statements and regulatory reporting plus, for many banks, Securities and Exchange Commission (SEC) filings. A wrong CDI value, based on inadequate behavior inputs or valuation procedures, is now not just an academic IRR issue. Performance and key compliance areas depend on it.

This article briefly reviews the mandates created by FAS 141, presents a conceptual overview of CDI calculation, and demonstrates the importance of transaction specific value inputs. CDI value experience from recent branch and whole bank transactions is examined to indicate recent trends in value and specific sensitivities of value to inputs. Finally, a list of quality checks by which to judge CDI valuations ends the article.

Also in This Issue:

FAS 141: ALM Practitioner-Related Elements. From the perspective of asset/liability management (ALM) practitioners, the major change wrought by FAS 141 is that transaction-related goodwill must now be specifically established, set up as a long-term balance sheet component, and tested annually for impairment (see also FAS 142). To arrive at goodwill, the economic value of the acquired assets and liabilities vis-à-vis book values must be calculated and appropriate accounting treatments established. In the special case of core deposits, their economic life must also be estimated, CDI calculated, and a CDI amortization schedule established (a period no longer than economic

EXHIBIT 1. SCHEMATIC OF CDI VALUE DETERMINANTS



life). In effect, FAS 141 requires that all acquired assets and liabilities be marked to market as of the transaction date and any residual between purchase price and measurable value set up as goodwill.

While FAS 141 removes goodwill as a direct influence on net income, the purchase accounting related flows and the size and economic life of a transaction's CDI have direct implications for an acquirer's future profitability. All of the value related entries for a transaction thus need to be highly accurate. Purchase accounting related valuations for investments, loans, certificates of deposit, and wholesale funds in most cases easily meet this test, given their contractually defined cash flows. Estimating the CDI value in a transaction is more difficult, however, because of the indeterminate life of the deposits in question and the other value related inputs required. A special approach is thus required.

The Conceptual Determinants of Economic Life and CDI. CDI is conceptually analogous to the premium found on core deposit balances in equity-at-risk IRR analyses. It is not typically the same value, however, because equity-at-risk analyses view core deposits as part of an ongoing concern while CDI valuations must acknowledge the uncertainties associated with the change in ownership occurring at the transaction date. CDI values are thus normally less than ALM core deposit premiums.

CDI valuations also differ from ALM applications in the level of precision required. IRR core deposit inputs (e.g. betas, average lives) can be approximations in some instances, for example a small institution with a high capital ratio. CDI values, however, directly affect profitability and they can create considerable compliance exposures. For these reasons, generic is not good enough for calculated CDI economic life or value.

In CDI valuations, core deposit balances are valued in situ but as if they were trading in a national market. Calculation of CDI values is burdened with all of the information needs of ALM-type core deposit premium valuations plus added issues related to the change in ownership involved and special transaction characteristics that affect value.

Key CDI value elements are noted and discussed below. See Exhibit 1 for an overview.

❑ *Category Definitions*. Core deposit behaviors and their resulting CDI contributions vary by category. In designing a CDI valuation, the overall balance of core deposits must be assigned to categories based on specific value behaviors. ALM experience provides valuable insights here. For example, DDA funds are known to behave much differently than Savings, and low rate traditional MMDAs generally have little in common with high rate MMDAs. Close attention to category design allows value inputs to be fine-tuned to reflect specific behaviors, often reducing the resulting CDI.

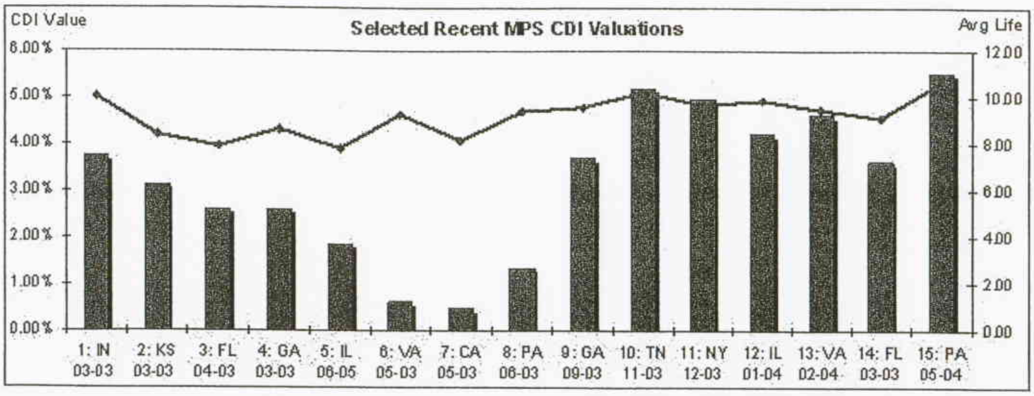
Note that a different present value methodology applies if indexed, or semi-indexed, categories are present (see *BALM* February 2003 and March 2003 articles, Core Deposit Valuation: A Practitioner's Guide). Adjust approaches as required to recognize this. Valuing high beta core deposit balances using a traditional present value methodology will, in most cases, significantly overstate CDI.

Finally, it should go without saying that deposit mix has a key impact on CDI values. If overall core deposit balances are dominated by DDA and NOW balances, CDI will be greater because these are normally high intangible value categories. A core deposit transaction composed of mainly high-rate paid MMDAs, however, will have a much lower CDI. The moral here: mix matters!

❑ *Run Off, Average Life, and Terminal Economic Life*. The term dimension of acquired core deposits is a key CDI value element. While statistical analyses of transaction-specific category level core deposit behavior history is not required, run off inputs by category must be custom to the transaction and have a strong empirical basis. Otherwise, run off data will not be representative of the acquired deposits and there will be no audit trail associated with this vital input.

Customized averages of the statistically estimated run off experience of institutions with close geographic location, asset size, and business model matches to the transaction being evaluated have proven acceptable in all cases where such data have been used. Not always acceptable are regulatory (e.g. OTS) or industry rules of thumb type term-related inputs. This is because there is typically no customization to transaction characteristics and defensible audit trails to real world experience is lacking. With profitability at stake and significant compliance exposures em-

EXHIBIT 2.



bedded in every CDI value, transaction specific, empirically justifiable run off inputs are the gold standard.

Run off by period defines average life. Assuming straight line (linear) amortization, the economic life of the deposits is twice the average life. The CDI value for a transaction can be amortized over that period.

❑ *Rate Paid, Non-Interest Expense, and Immediate Outflow Inputs.* Rates paid are those posted by the selling institution as of the transaction date. In addition to rate paid, the cost of acquired core deposits also includes a non-interest expense (NIE) component. This is the expense of attracting, servicing, and retaining core deposits, net of fee income. Different core deposit categories have varying levels of NIE, based on contract terms, transaction volumes, average balance size, and other factors. Specific NIE values must be closely matched to each category based on a full understanding of the cost and fee structure of the transaction. Immediate outflow inputs define the percent of balances expected to leave the acquired branch or institution when the change of ownership occurs or closely thereafter. Inputs vary by category and are normally unique to each transaction.

❑ *Discount Rates.* As in any present value application, the discount rates applied to core deposit cash flows make a great deal of difference. CDI values will naturally tend to be lower when interest rates, and derived discount rates, are low and vice versa. However, the interaction between interest rate levels and rates paid needs to be acknowledged.

Choice of a specific discount rate term structure needs to answer the question What is the cost of the most appropriate hypothetical alternative funding? The term advances curve for the appropriate Federal Home Loan Bank (FHLB) is the most common answer. The LIBOR swap curve plus a spread is also commonly applied, and other alternatives are possible. Because of the potential compliance exposure of CDI values, any discount rate choice must be strongly justifiable.

❑ *Special Transaction Characteristics.* Each branch or whole bank acquisition has characteristics that make it special. These vary from whether existing board members from an acquired bank join the new board (if not, expect higher immediate outflows of board member-linked deposits) to making sure that an end of the month transaction date or surge balances (money parking until financial market conditions change) are properly accounted for. Identifying public funds and balances in internal accounts are also part of CDI valuation due diligence.

Clearly, there are many moving pieces in a CDI valuation and its associated economic life estimate. Producing the necessary high precision value requires a base of empirically justifiable run off data and close attention to transaction specific details. There is no such thing as an easy to produce, generic CDI!

Recent Field Experience: Economic Life and CDI Values. CDI valuations are required in every branch and whole bank transaction to set up the goodwill account. A body of empirical experience is thus emerging with respect to CDI values, economic lives, and their transaction specific determinants. Exhibit 2 presents a selection of this experience, based on MPS client CDI reports. Corresponding CD and loan purchase accounting-related value data are not presented, for the sake of brevity.

Tracking the CDI valuations through time, the sensitivity of CDI values to discount rate levels is clear. Higher interest rates early in the review period translated into higher CDI values, for any given economic life. Mid-period CDI values dropped to unusually low levels, only to regain

EXHIBIT 3. REPRESENTATIVE TRANSACTION: CDI SENSITIVITY ANALYSIS

Actual/Hypothetical Case	Percent CDI	Dollar Change	Notes
Original CDI Value	2.93%	n/a	As reported to client in MPS CDI Report
With 25 bp Higher NIE	1.90%	-190,970	All category NIE inputs increased by 25 bp
With 25 bp Lower NIE	3.97%	192,080	All category NIE inputs decreased by 25 bp
With 2 X Immediate Outflow	2.59%	-63,287	All immediate outflow inputs doubled in size
With 1/2 Immediate Outflow	3.10%	31,088	All immediate outflow inputs reduced by half
With National Average Lives	3.42%	90,304	Source is national MPS client experience base
W/o Separating Comm Categories	3.03%	18,135	Categories combined and inputs averaged
W/o Separating Tiered MMDA	2.48%	14,843	Tiers combined and inputs averaged

Notes: Original CDI value is $524,564. CDI is amortized over 9.27 year straight-line schedule.

magnitude when interest rates increased late in the period reviewed.

Each of the transactions in Exhibit 2 has its own story to tell. Unusually strong mixes of core deposits (e.g., as characterized sample transactions 1, 10, and 15) return higher than typical CDI values. Core deposits in more volatile markets, such as metropolitan Florida and Illinois (e.g., transaction 3, 5, and 14), have shorter average lives and lower CDIs. Where low value high rate MMDAs dominate, as in transaction 7, the CDI value is close to zero.The many moving pieces that determine CDI values play out in definitive ways, following finance theory, but in very transaction specific ways.

Exhibit 3 presents the implications of varying selected CDI value inputs, thus illustrating how important it is to get transaction specific CDI value inputs right. Changes in average life (in this case transaction specific versus national values) and NIE inputs (sensitivity tested at +/-25 basis points) impart the most value sensitivity. But all inputs make a difference, for example as shown in the immediate outflow input test. Finally, note the results of not carefully defining the category set. There is some art to category definitions, which is where broad experience with ALM and CDI valuations is valuable. But CDI values can often be lowered with good category design, with no compliance exposures, so such efforts are well worth it.

EXHIBIT 4. A SAMPLE CHECKLIST OF QUALITY ASSURANCE AREAS: CDI VALUE CALCULATIONS

- Category design comprehensively optimized for the transaction
- Existing balances run off specifically customized to the transaction
- Existing balances run off data based on quantitative analyses of deposit behavior
- Appropriate (alternate cost of funds based) discount rates defined
- Correct valuation methodology for high beta categories applied
- Value inputs specifically customized to the transaction
  - Rates paid by category
  - Non-interest expense by category
  - Immediate run off by category
- All special value characteristics of the transaction accounted for
- Final report comprehensive and fully documents the CDI valuations

Quality Checks: Economic Life and CDI Value Estimates. The many moving pieces of CDI valuations present institutions in need of such with a quandary: What to ensure is provided in CDI values obtained? Exhibit 4 provides a brief check list. The pre-eminent requirement is that run off data be customized for the transaction and based on recent empirical analyses of institution specific core deposit behaviors. This ensures that the run off data are representative of the transaction and that a clear audit trail to the data exists. Following that is the need for finely tuned category design, transaction specific value inputs, correct discount rates, and a full appreciation for special transaction characteristics. Finally, the final report presenting the CDI values must comprehensively document all inputs to the valuation process.

Only if all of those qualities are addressed can a high precision CDI valuation (and associated CD and loan purchase accounting related values, if applicable) be assumed. The task is doable, but success is definitely in the details!

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