

An Overview of Core Deposits

Nonmaturity deposits, referred to herein as *core deposits*, comprise about 35% of commercial bank liabilities. This class of financial security totals over \$2 trillion in the US as of December 1998. Nonetheless, the analysis and treatment of this category of financial instruments has not been standardized to the degree that many classes of financial products have been. This is primarily due to the lack of a liquid secondary marketplace, which typically drives the development of advanced, standardized analytics. Although an active auction market is continuing to evolve in core deposits, it may still be a narrow, fragmented and illiquid market vis-a-vis its asset counterparts. In this regard, the analysis of core deposits more closely parallels the analysis of non-conforming loan servicing than it does the analysis of GNMA MBS. Thus, the focus of core deposit analysis has generally been institution-specific, as well as less rigorous than corresponding asset analysis.

The primary objectives of institution-level core deposit analysis often include:

1. Projecting deposit flows
2. Estimating rate sensitivities
3. Valuing core deposits.

The focus of these objectives is somewhat analogous with the evolution of bank asset/liability management:

4. From Gap analysis
5. To deterministically-generated net interest income simulations
6. To stochastically-generated probabilistic earnings and value at risk measures

Bank Approaches to Core Deposit Flows. The remainder of this initial article centers on the first topic, "Projecting Deposit Flows." Our assertion that this approach is typically bank-specific suggests our methodology: a survey of community banks and thrifts to discern unique, quantitatively derived approaches. The institutions surveyed were primarily

from the Mid-Atlantic region. It is worth noting that the majority of the banks responding used subjective assumptions and/or based them on the FDICIA 305 proposal (see below), and thus were not included in this analysis.

Those included in Table 1 used a variety of quantitative methodologies. These institutions could generally be described as larger community banks, with a median and mode asset size of about \$2 billion. Note that, while much of this information is publicly available, certain information is considered proprietary and/or confidential, thus the banks are identified as Bank A, Bank B, etc. in general, along with others in the field, we have found that institutions who have undertaken a quantitative *core deposit* study tend to use longer average life assumptions than those who use a subjective approach or one based on the FDICIA 305 proposal.

The results are summarized below in two formats:
7. A liquidity Gap table using the *buckets* from the FDICIA 305 proposal. The actual data inputs used greater precision than is presented herein.

8. An average life measure is also presented for ease of comparison.

TABLE 1. BANK SURVEY GROUP

		Liquidity Gap Analysis % per year(s)					Average Life (years)
Methodology	Account	0-1	1-3	3-5	5-10	>10	
Bank A	DDA	0%	0%	0%	100%	0%	7.4
	NOW	5%	70%	25%	0%	0%	2.4
	Savings	10%	75%	15%	0%	0%	2.1
	Money Market	10%	75%	15%	0%	0%	2.1
Bank B	DDA	Bank B treats DDA balances as non-rate sensitive					
	NOW	47%	19%	20%	15%	0%	1.4
	Savings	40%	20%	20%	20%	0%	2.0
	Money Market	40%	40%	20%	0%	0%	1.4
Bank C	DDA	12%	20%	15%	25%	28%	5.4
	NOW	20%	29%	18%	22%	11%	3.2
	Savings	20%	29%	18%	22%	11%	3.2
	Money Market	20%	29%	18%	22%	11%	3.2
Bank D	DDA	10%	17%	14%	24%	35%	6.5
	NOW	10%	17%	14%	24%	35%	6.5
	Savings	5%	9%	8%	18%	60%	12.5
	Money Market	5%	9%	8%	18%	60%	12.5
Bank E	DDA	0%	0%	0%	100%	0%	1.3
	NOW	38%	62%	0%	0%	0%	1.3
	Savings	38%	62%	0%	0%	0%	1.3
	Money Market	38%	62%	0%	0%	0%	1.3
Bank F	DDA	23%	24%	24%	29%	0%	3.2
	NOW	8%	22%	22%	48%	0%	4.7
	Savings	0%	7%	9%	23%	62%	12.5
	Money Market	4%	18%	18%	49%	11%	5.9
Bank G	DDA	10%	17%	14%	24%	35%	1.3
	NOW	10%	17%	14%	24%	35%	1.3
	Savings	10%	17%	14%	24%	35%	0.6
	Money Market	25%	33%	18%	18%	6%	0.4
Bank H	DDA	10%	17%	14%	24%	35%	6.5
	NOW	10%	17%	14%	24%	35%	6.5
	Savings	5%	9%	8%	18%	60%	12.5
	Money Market	20%	28%	18%	22%	11%	3.2
Average A-H	DDA	9%	14%	12%	47%	19%	5.3
	NOW	18%	32%	16%	20%	14%	4.1
	Savings	16%	29%	12%	16%	28%	6.6
	Money Market	20%	37%	15%	16%	12%	4.0

TABLE 2. REGULATORY APPROACHES

		Liquidity Gap Analysis % per year(s)					Average Life (years)
Methodology	Account	0-1	1-3	3-5	5-10	>10	
OTS Decay Model	DDA	18%	27%	18%	23%	14%	3.5
	NOW	31%	36%	17%	13%	2%	1.9
	Savings	14%	23%	17%	25%	22%	4.5
	Money Market	32%	37%	17%	12%	2%	1.8
FDICIA 305	DDA*	25%	45%	20%	10%	0%	2.0
	NOW	0%	60%	20%	20%	0%	2.6
	Savings	0%	60%	20%	20%	0%	2.6
	Money Market	50%	50%	0%	0%	0%	1.0

* Blend of 50% retail & 50% Commercial

TABLE 3. JMS APPROACHES

Liquidity Gap Analysis % per year(s)

Methodology	Account	0-1	1-3	3-5	5-10	>10	Average Life (years)
Static:	DDA	10%	20%	20%	50%	0%	5.0
"Going Concern"	NOW	10%	20%	20%	51%	0%	5.0
Example	Savings	9%	19%	20%	52%	0%	5.2
	Money Market	19%	39%	42%	0%	0%	2.5
Dynamic:	DDA	40%	38%	22%	0%	0%	1.3
"Liquidation"	NOW	40%	39%	21%	0%	0%	1.3
Example	Savings	66%	30%	4%	0%	0%	0.6
	Money Market	75%	25%	0%	0%	0%	0.4

Regulatory Approaches to Core Deposit Flows.

The approaches taken by bank and thrift regulators are usually intrinsically interesting to most bankers. The initial FDICIA 305 proposal is still used as an initial filter or assessment by bank regulators and is presented above in Table 2 as a basis of comparison. Most bank regulators have been receptive to various methodologies, as long as they are empirically determined, theoretically sound, and realistic.

In addition, the Office of Thrift Supervision and its predecessor agencies have been estimating core deposit flows for well over a decade. Their methodology is also contrasted to that of the various banks (see Table 2).

Static vs. Dynamic Approaches to Core Deposit Flows.

Most banks price their nonmaturity deposits to retain and potentially grow their core funding book in most foreseeable rate environments. This sound banking practice is consistent with the *going concern* approach to financial valuation. It is also an essential assumption underlying the construction of both *base case* and *scenario dependent* deposit flow projections. This assumption is tentatively valid given historical documentation of rate and volume fluctuations and a demonstrated commitment to retention of core funding balances. The generic, static *going concern* approach presented in Table 3 is based on the methodologies employed by the institutions sampled

in Table 1, but adjusted for the terminal lives suggested by the FDICIA 305 proposal.

Congruent with the *going concern* supposition, many banks use static deposit flow projections in all forecasted rate environments. This is in contrast to the use of apposite scenario dependent dynamic cash flow estimates for residential mortgages and other financial products. Another method that may be both theoretically and practically justifiable for estimating core deposit flows has been termed the *dual matrix* approach. Just as securitized (or portfolio) residential mortgages are projected to prepay based on their refinance advantage versus market rates, core deposit flows are projected to vary based on their variance from money market rates such as 3-month Treasury bills or LIBOR. A positive core deposit rate differential, from both an historical and competitive perspective, between core deposit rates and 3-month bill rates is estimated to result in annual growth. A negative differential, from the same perspectives, is projected to result in accelerated decay, or runoff. An extreme example of this is illustrated in Table 3 in the dynamic, *liquidation* approach.

Real world examples of this *liquidation* dynamic exist when banks are repricing rates lower due to quarterly earnings pressures, exiting a market, faced with an aggressive new competitor, and/or holding rates constant in a rapidly increasing interest rate environment. A traditional example of this

disintermediation due to increased interest rate volatility existed in 1981 when demand balances at commercial banks fell by 11% from the prior year. In 1992, time deposits held at commercial banks dropped by 16% from the prior year due to a variety of macroeconomic and institution-specific factors.

Summary, Part 1. The analysis for the estimation of core deposit flows has not been standardized to the degree of actively traded financial products. The FDICIA 305 proposal assumed a static estimation procedure. The OTS Net Portfolio Model varies the estimated retention rate, albeit slightly, consistent with a dual matrix approach. While a simple, static approach is valid in certain circumstances, the use of a more rigorous, even dynamic approach may confer a competitive advantage in product pricing, balance sheet restructuring, and branch acquisitions.

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