




2023 | FROM DATA TO INSIGHTS

FROM DATA TO INSIGHTS:



WHY IDENTIFYING YOUR DEPOSITORS IS IMPORTANT

All securities are offered through CU Investment Solutions, LLC. The home office is located at 8500 W 110th St, Suite 650, Overland Park, KS 66210. CU Investment Solutions, LLC registered with the Securities and Exchange Commission (SEC) as a broker-dealer under the Securities Exchange Act of 1934. CU Investment Solutions, LLC is registered in the state of Kansas as an investment advisor. Member of FINRA and SIPC. All investments carry risk; please speak with your representative to gain a full understanding of said risks. Securities offered are not insured by the FDIC or NCUSIF and may lose value. All opinions, prices and yields are subject to change without notice.



In today's financial landscape, credit unions need to understand their depositors. Understanding the intricacies of depositor demographics and behavior is not just about collecting data. It's about gaining a deep understanding of their unique needs and preferences.

Eighteen Years, Really?


When someone walks in the door to open a credit union account, they generally don't know when they will close it, but that is exactly what a credit union should estimate to fund investments, loans and day to day operations. Incorrectly anticipating the term of these deposits can lead to unnecessary financial risk during times when risk is naturally high.

When a member takes out a loan, the credit union knows the approximate amount they'll earn and average time the loan will stay open. The asset side of the equation is easier to estimate, as the credit union has nearly full control of these variables. The funding side, however, is generally controlled by the depositor. Estimates for account closure rates and deposit terms are more elusive.

These estimates vary wildly. Table 1 below shows three different measures for the final maturity of non-term shares. The historical final maturity for this credit union's deposits is 217 months (18 years) on average, a number most institutions could only dream of.

Table 1

Share Type	Forward Maturity Estimate	Historical Final Maturity	Truncated Final Maturity
Checking	41	183	96
Savings	43	231	96
Money Market	35	227	96
IRA	46	222	96
Weighted Average	42	217	96



In 2023, consumers understand that switching institutions has never been easier, with dozens of online only banks, credit unions, and even tech companies, like Apple, tantalizing your members to switch.

Looking at only historical data in today's environment is like picking up a Blackberry and expecting it to have the same computing power as an iPhone 14 Pro Max. Using only the historical final term to estimate depositor lifecycle exposes the institution to sizable risk as these deposits start running off, potentially leaving the credit union scrambling for funding.


With switching financial institutions so easy, credit unions should look beyond the historic data to predict future depositor lifetimes. Given today's environment, 217 months – 18 years – is likely far too long an average final maturity. So, what metrics can be used to better estimate future averages?

Why Estimating Depositors Matters

If the credit union only models deposits using historical data, it's highly probable the over-estimated lives of the deposits would materially understate the amount of true interest rate risk exposure. Estimated lives that are longer than the actual lives of the shares could negatively impact credit union liquidity, earnings and capital.

The Net Economic Value (NEV) calculation accounts for the cash flows and lives of every item on your balance sheet. Examiners use NEV results to gain insight into how much long-term interest rate risk the credit union has on the books. Interest rate risk in general is all about balancing the interest earned with the amount of time it takes to earn.

A good rule of thumb for NEV is that in a rising rate environment, you want the weighted average life of assets to be as short as possible so that they reprice at higher rates sooner. And on the liability side – if rates continue to rise – you want the weighted average life to be as long as possible, meaning funds will stay at the credit union longer, generally at a lower rate. This increases the gross spread to the credit union. The opposite is true in a declining rate environment.



Appropriately modeling not only the asset side with its defined terms but also the liability side with its uncertain terms is paramount to generating an accurate level of interest rate risk.

The asset side of the balance sheet is divided into many subsegments, such as 30-year MBS, 20-year mortgages, new and used autos, etc. But the liability side is generally split into share drafts, savings, money market accounts, IRAs and term deposits, with most credit unions seeing the bulk of their funding in savings and share drafts accounts. This concentration on the liability side means that any small change made to the interest rate risk modeling of the share types will have a much larger impact than any one category on the asset side.

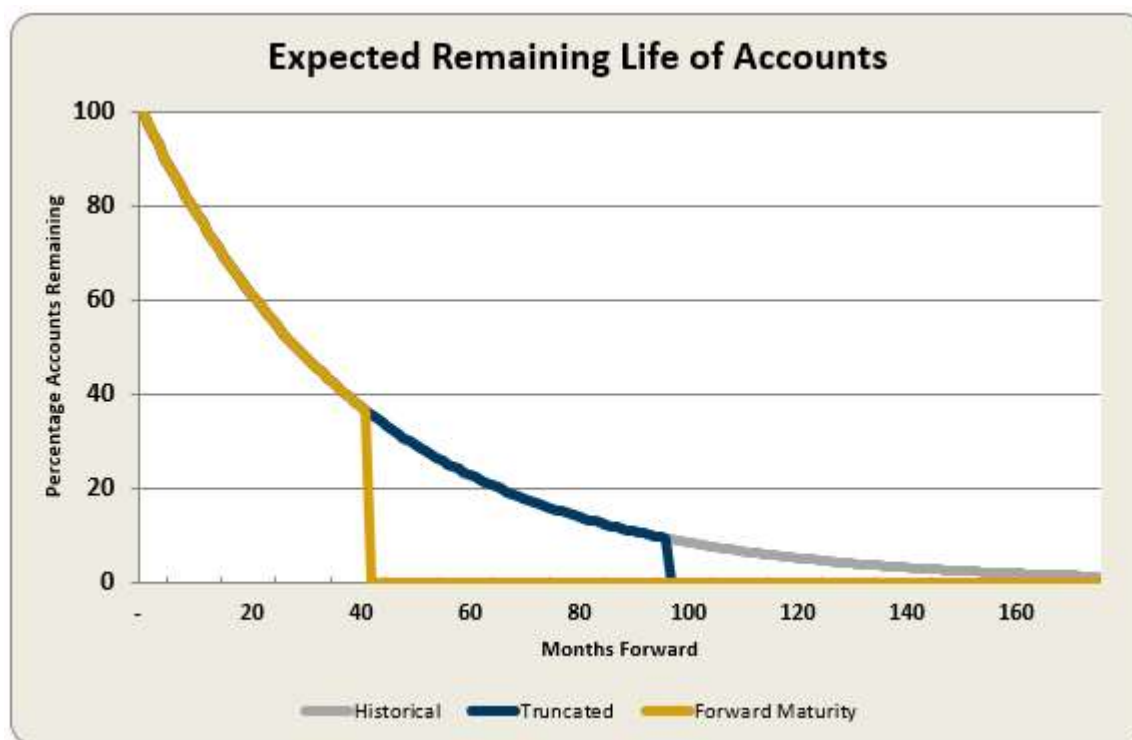
“The credit union must take into account not only the historical open and closure term of their non-maturity deposits, but also the decay rate of these deposits.”

The decay rate is the average closure rate of existing accounts per year. This means the credit union in Table 2 would see 25.55% of their non-maturity shares close over the course of a year, continuing until the account life reaches its maturity point.

Combining the maturity term with the decay rate to derive the weighted average life is like taking the term of a new auto loan and applying average prepayments to determine its weighted average life, just on the opposite side of the balance sheet.

Chart 1 demonstrates how accounts run off over time and, once they reach their final maturity, are then considered closed. Notice that each month the account stays open and active, the slower the decay rate is, meaning that an account open for 72 months is more likely to stay open than an account open for only seven months.

Chart 1



Combining the historical term with the historical decay rate, as seen in Table 2, shows the share lives to be only 3.41 years, very different from the 18 years shown by just averaging the open and closure dates.

Table 2

Share Type	Historical Final		Monthly Decay Rate	Annual Decay	WAL (years)
	Maturity				
Checking	183		2.42%	25.47%	3.41
Savings	231		2.54%	26.57%	3.27
Money Market	227		1.74%	18.98%	4.70
IRA	222		3.30%	33.16%	2.52
Weighted Average	217		2.43%	25.55%	3.41

Tables 3, 4 and 5 demonstrate how changing only the term of the non-maturity deposits changes the credit union's +300% NEV risk by as much as nine percentage points. That's enough to get anyone's, including an examiner's, attention.

Table 3

Share Type	Truncated Final Maturity	Monthly Decay Rate	Annual Decay	WAL (years)
Checking	183	2.42%	25.47%	3.41
Savings	231	2.54%	26.57%	3.27
Money Market	222	1.74%	18.98%	4.70
IRA	227	3.30%	33.16%	2.52
Weighted Average	217	2.43%	25.55%	3.41

Net Economic Value Analysis	Valuation Over Interest Rate Shocks (in basis points)						
	-300	-200	-100	Base Value	+100	+200	+300
Book Value of Equity				54,234			
NEV (Market Value of Equity)	72,238	72,111	68,599	62,999	55,235	47,496	39,659
\$ NEV Change	9,239	9,111	5,599	--	(7,764)	(15,503)	(23,340)
% NEV Change (\$ NEV Change/Base NEV)	14.7%	14.5%	8.9%	0.0%	-12.3%	-24.6%	-37.0%

Table 4

Share Type	Truncated Final Maturity	Monthly Decay Rate	Annual Decay	WAL (years)
Checking	41	2.42%	25.47%	2.18
Savings	43	2.54%	26.57%	2.22
Money Market	46	1.74%	18.98%	2.20
IRA	35	3.30%	33.16%	1.99
Weighted Average	42	2.43%	25.55%	2.21

Net Economic Value Analysis	Valuation Over Interest Rate Shocks (in basis points)						
	-300	-200	-100	Base Value	+100	+200	+300
Book Value of Equity				54,234			
NEV (Market Value of Equity)	71,378	66,374	59,726	52,304	43,734	35,737	27,989
\$ NEV Change	19,075	14,071	7,423	--	(8,570)	(16,567)	(24,314)
% NEV Change (\$ NEV Change/Base NEV)	36.5%	26.9%	14.2%	0.0%	-16.4%	-31.7%	-46.5%

Table 5

Share Type	Truncated Final Maturity	Monthly Decay Rate	Annual Decay	WAL (years)
Checking	96	2.42%	25.47%	3.12
Savings	96	2.54%	26.57%	3.01
Money Market	96	1.74%	18.98%	3.92
IRA	96	3.30%	33.16%	2.43
Weighted Average	96	2.43%	25.55%	3.11

Net Economic Value Analysis	Valuation Over Interest Rate Shocks (in basis points)						
	-300	-200	-100	Base Value	+100	+200	+300
Book Value of Equity				54,234			
NEV (Market Value of Equity)	71,846	70,516	66,377	60,653	53,230	45,715	38,095
\$ NEV Change	11,193	9,863	5,725	--	(7,423)	(14,938)	(22,558)
% NEV Change (\$ NEV Change/Base NEV)	18.5%	16.3%	9.4%	0.0%	-12.2%	-24.6%	-37.2%

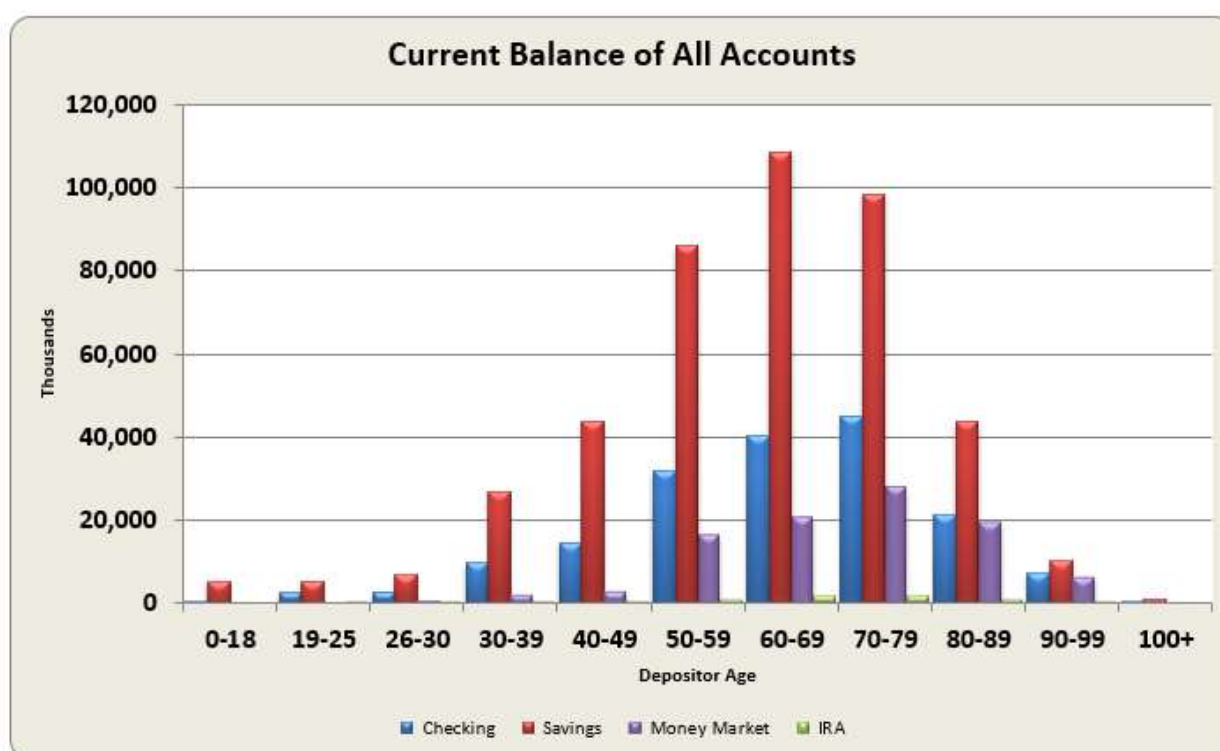
What does all this mean? The day a member opens an account, the credit union should anticipate having those funds available for only a limited time. Assuming the historical average term for a new account walking in off the street is understating the risk to the credit union.

How can one accurately model the length of these deposits?

Who Are Your Members?

Your credit union probably looks a lot like Chart 2 below, with the majority of balances held by members aged 50-79. There's good reason for this as [Business Insider reports](#), "Your net worth tends to peak around your mid to late 60s – or typical retirement age."

Chart 2

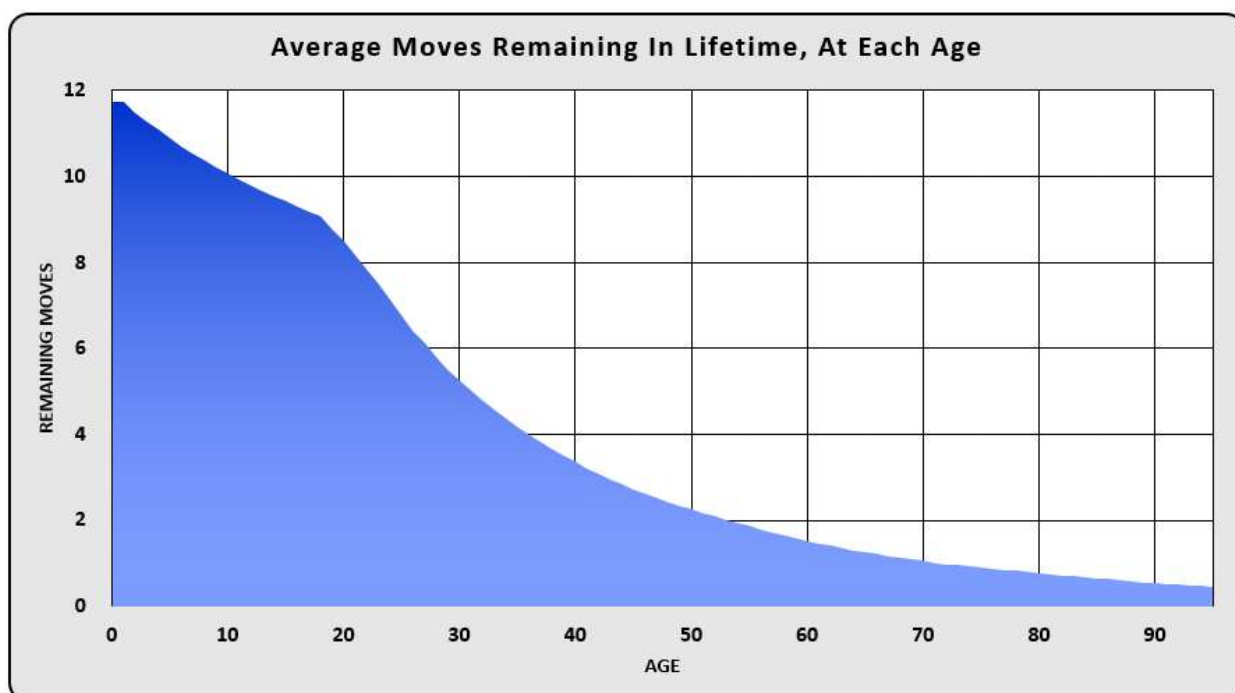


If this is the case, assigning deposits a remaining term of 217 months to someone in their mid to late 60s would be akin to granting a 20-year mortgage to that same individual. At this stage in their life, there are more factors at play than whether they can make their monthly payments.

While evaluating the data from hundreds of credit unions, Catalyst Strategic Solutions has discovered a pattern where younger members with lower balances tend to leave the credit union at a faster pace than older members with higher balances. This makes sense intuitively, as younger members are moving for work, college, marriage and all kinds of life

circumstances, whereas older members tend to be more established and [less likely to move](#).

Chart 3



Using this data, Catalyst employs a personalized weighting system, The Forward Maturity Estimate, based on the member demographics of the credit union. By analyzing the ages and account balances of depositors, Catalyst can pinpoint individuals who are more inclined to close their accounts, thereby customizing the average account duration to match the credit union's reality more closely. Additionally, it can identify members who are likely to remain with the credit union throughout their lifetime.

The Forward Maturity Estimate provides a more conservative picture for interest rate risk modeling, while accurately measuring the term based on more than just historical data from, say, 2005 and instead on who your members are today.

This typically shorter weighted average life estimate is beneficial as it allows the credit union to plan for funding shortfalls and showcases what the members are likely to do from

this date forward. Having this strategy and plan in place can increase the level of NEV risk shown, but it allows the credit union to be proactive, rather than complacent, about holding their deposits longer than what is truly happening.

Table 6

Share Type	Forward Maturity Estimate	Historical Final Maturity	Truncated Final Maturity
Checking	41	183	96
Savings	43	231	96
Money Market	35	227	96
IRA	46	222	96
Weighted Average	42	217	96

A Realistic Example of Insights Found

In the example credit union shown in Table 7, the +300% NEV change, the risk metric most closely followed by examiners, is -12.18%, with a net interest income (NII) of \$36.7 million after the successful implementation of a Non-Maturity Deposit Study. This is well within the NCUA's limits for considering a credit union to have low interest rate risk. And, to the astute executive, this means there's more room for expansion of the balance sheet and bottom line.

Table 7

NEV With Deposit Study							Projected NII			
	Balance	Base Price	Base Valuation	+300 NEV Change	% Change	Avg Life	Beta	Balance	Yield	Income/Expense
Cash	50,000,000	100.00%	50,000,000	50,000,000.00	0.00%	0.0		50,000,000	5%	2,500,000
Investments	200,000,000	96.00%	192,000,000	181,056,000.00	-5.70%	1.9		200,000,000	2.25%	4,500,000
Auto Loans	200,000,000	97.00%	194,000,000	180,905,000.00	-6.75%	2.3		200,000,000	6.25%	12,500,000
RE Loans	250,000,000	90.00%	225,000,000	191,250,000.00	-15.00%	5.0		250,000,000	6.50%	16,250,000
Commercial Loans	150,000,000	92.50%	138,750,000	128,343,750.00	-7.50%	2.5		150,000,000	6.50%	9,750,000
All Other Loans	120,000,000	96.25%	115,500,000	112,035,000.00	-3.00%	1.0		120,000,000	7.50%	9,000,000
Other Assets	30,000,000	100.00%	30,000,000	30,000,000.00	0.00%	0.0		30,000,000	0.00%	-
Total Assets	1,000,000,000		945,250,000	873,589,750						54,500,000
NMD*	650,000,000	92.50%	601,250,000	563,371,250.00	-6.30%	3.5	40%	650,000,000	0.75%	4,875,000
Term Deposits	250,000,000	98.00%	245,000,000	222,950,000.00	-9.00%	3.0		250,000,000	5.00%	12,500,000
Borrowings	10,000,000	99.00%	9,900,000	8,415,000.00	-15.00%	5.0		10,000,000	4.50%	450,000
Other Liabilities	5,000,000	100.00%	5,000,000	5,000,000.00	0.00%	0.0		5,000,000	0.00%	-
Equity	85,000,000	0.00%	-	-		0.0		85,000,000		17,825,000
Total Shares, Liab, & Equity	1,000,000,000		861,150,000	799,736,250						36,675,000
*Assumes 40% Beta										
				NEV	84,100,000	73,853,500				
				Change in NEV		-12.18%				

Armed with this level of NEV, a credit union can take on additional levels of loans and investments and expand their balance sheet by as much as 20% as shown in Table 8. This expands the amount of NII they can expect to generate, while still staying within the NCUA's low risk guidelines.

Table 8

New Targeted NEV							Projected NII				
	Balance	Base Price	Base Valuation	+300 NEV Change	% Change	Avg Life	Beta		Balance	Yield	Income/Expense
Cash	50,000,000	100.00%	50,000,000	50,000,000.00	0.00%	0.0		Cash	50,000,000	5%	2,500,000
Investments	200,000,000	96.00%	192,000,000	181,056,000.00	-5.70%	1.9		Investments	200,000,000	2.25%	4,500,000
Auto Loans	350,000,000	97.00%	339,500,000	314,037,500.00	-7.50%	2.5		Auto Loans	350,000,000	6.25%	21,875,000
RE Loans	300,000,000	90.00%	270,000,000	225,450,000.00	-16.50%	5.5		RE Loans	300,000,000	6.50%	19,500,000
Commercial Loans	150,000,000	92.50%	138,750,000	128,343,750.00	-7.50%	2.5		Commercial Loans	150,000,000	6.50%	9,750,000
All Other Loans	120,000,000	96.25%	115,500,000	112,035,000.00	-3.00%	1.0		All Other Loans	120,000,000	7.50%	9,000,000
Other Assets	30,000,000	100.00%	30,000,000	30,000,000.00	0.00%	0.0		Other Assets	30,000,000	0.00%	-
Total Assets	1,200,000,000		1,135,750,000	1,040,922,250				Interest Income			67,125,000
NMD*	800,000,000	92.50%	740,000,000	693,380,000.00	-6.30%	3.5	40%	NMD*	800,000,000	0.75%	6,000,000
Term Deposits	300,000,000	98.00%	294,000,000	267,540,000.00	-9.00%	3.0		Term Deposits	300,000,000	5.00%	15,000,000
Borrowings	10,000,000	99.00%	9,900,000	8,415,000.00	-15.00%	5.0		Borrowings	10,000,000	4.50%	450,000
Other Liabilities	5,000,000	100.00%	5,000,000	5,000,000.00	0.00%	0.0		Other Liabilities	5,000,000	0.00%	-
Equity	85,000,000	0.00%	-	-		0.0		Interest Expense	85,000,000		21,450,000
Total Shares, Liab, & Equity	1,200,000,000		1,048,900,000	974,335,000				Net Interest Income			45,675,000
*Assumes 40% Beta								Net Margin			3.81%
NEV			86,850,000			66,587,250					
Change in NEV						-23.33%					

Are You Looking for Solutions to Liquidity Challenges?

Your credit union's commitment to proactively managing non-maturity deposits via a non-maturity deposit analysis is a fiscally responsible decision for all stakeholders.

To learn more, Catalyst Strategic Solutions would be happy to discuss the pros and cons and discuss specific strategies with your credit union. We can help guide you to the most prudent decision.

For more information, contact us today:

[Request a consultation](#)

