Michigan Credit Union League & Affiliates

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Interest Rate Risk and Auto Loans

June 6, 2014 | 1:45 p.m. – 2:45 p.m.

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Auto Lending—Interest Rate Risk (IRR), Proposed Capital Requirements, & Collateral Values

A. Why Analyze the IRR of Auto Loan Portfolios?

1. **We know very little about their IRR attributes**
2. **Virtually no work done in this area—industry-wide data is not available**
3. **There are more positive IRR and liquidity characteristics than widely recognized**
4. **What is the impact of making long-term auto loans?**
5. **What are we looking for?**
   - **a. prepayment data**
   - **b. indirect loan yields**
   - **c. liquidity characteristics**
   - **d. average life**
   - **e. interest rate risk (IRR)**
   - **f. Prepayment sensitivity to interest rates**
6. **Reference: "Interest Rate Risk & Auto Loan Portfolios," a paper available at www.brickinc.com**

B. Analyzing Interest Rate Risk

1. **Asset-Backed Securities (ABS) vs Fully Seasoned Portfolios—Analyzing the data**
2. **An institutional portfolio is very different—"seasoned" vs "fully seasoned"**
3. **A Case Study of actual loan portfolios of**

   a. **5,773 New Auto Loans totaling $89M**
      26,530 Used Auto Loans totaling $260M

   b. **Monthly data goes back 9.5 years (114 observations)**

4. **Breaking down the data for the new car portfolio**

End Balance Jun 13 ($ in 000s)	**$89,056**
Less: Beginning Balance	**$86,083**
= Monthly Change	**$2,973**
Less: New Loans	**$6,800**
= Total Principal Payoffs	**($3,827)**

5. **Using the average original term of 62 months and the portfolio yield 3.58%, the CONTRACTUAL portion of the monthly payoff was estimated to be $2,669 so we have the following**

$3,828	**Total Prin. Payoffs**
$2,669	**Contractual Prin. Payoffs**
$1,158	**Est. Prepayment Portion**

6. **This prepayment was 1.35% of the beginning loan balance or about 16.1% annualized for this month. The process was repeated monthly over the entire period.**
7. **Average annualized prepayment speed over the entire period was**

12.5%	**new autos**
15.5%	**used autos**

8. **Weighted Average Life (WAL) of Fully Seasoned Auto Loan Portfolios (in months) at various prepayment speeds:**

	0% CPR	5% CPR	15% CPR	25% CPR
New Autos	21.7	20.3	18.0	16.1
Used Autos	19.3	18.2	16.4	14.8

*The weighted average life (WAL) is the weighted average time to receipt of the principal cash flows. Generally, this term also refers to the time it takes to get back one-half of the principal.

9. **Note That the WAL is insensitive to significant errors in prepayment speeds**

10. **A laddered investment portfolio with an average maturity of 18 months is so short it is not only low-risk, it is risk-reducing. So is the typical CU auto loan portfolio!**

11. **Strong & stable cash flows are available for *both* liquidity and repricing**

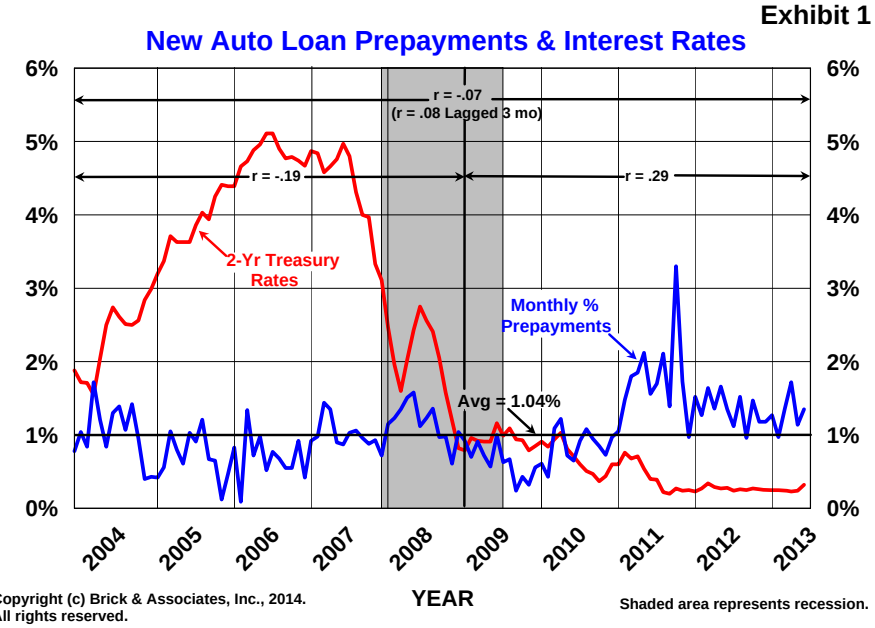
C. Impact of Interest Rates on Auto Prepayments

1. **How did this issue arise?**

2. **Review prepayments in the mortgage loan market—Data is available in MBS market for use in ALM modeling**

3. ***Exhibit 1, NEW AUTO LOAN PREPAYMENTS & INTEREST RATES***

Exhibit 1



Shaded area represents recession.

3. **Summary of correlation results**

	Entire Period		Partitioned	
	No Lag	**Lagged 3 Mos**	**Pre-QE**	**QE Period**
New Autos	-.07	.08	-.19	.29*
Used Autos	.08	.10	.10	.03

*Significant at 95% level (+/-.27).

D. What is unique about auto loan portfolios relative to mortgage loan portfolios?

1. **Autos are depreciating assets unlike (most) homes**
2. **They usually can't be refinanced at a lower rate due to age & condition**
3. **Very short average lives so monthly cash flows are mostly contractual principal**
4. **Initial LTV ratios are often quite high so the "upside down" effect limits the ability to refinance**
5. **Cash flows are very stable unlike those of mortgage loans**
6. **Rising interest rates may curtail new car sales and thus trade-ins but rising rates may be due to stronger economy and induce more car sales and trade-ins and thus prepayments**

7. **Summary comments on Interest Rate Risk (IRR) & Liquidity Effects**

E. Proposed Risk-weighted Capital Requirements on Auto Loans— A comment

1. **"Consumer loans" include auto loans, credit cards, other lines of credit**
2. **Proposed risk weights on consumer loans = 75%; does this make sense?**
3. **Look at loss experience of credit cards vs auto loans, IRR and liquidity risk mitigation of auto portfolios**
4. **The breakdown should be secured vs unsecured with lower risk weight for secured**

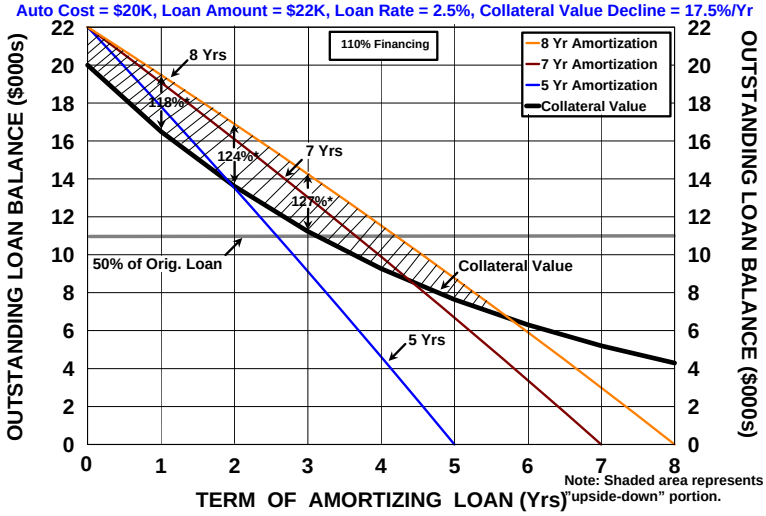
F. Collateral Values & Amortization Term of Loan

1. **The Problem—Offering an extended term coupled with LTVs > 100 increases collateral and "upside down" risk**
2. **8-to-10-year car loans—does this make sense?**
3. **Perverse incentive to perform**
4. **What about interest rate risk?**
5. ***Exhibit 2, OUTSTANDING LOAN BALANCE vs COLLATERAL VALUE***

Exhibit 2

OUTSTANDING LOAN BALANCE vs. COLLATERAL VALUE

Auto Cost = $20K, Loan Amount = $22K, Loan Rate = 2.5%, Collateral Value Decline = 17.5%/Yr



Note: Shaded area represents "upside-down" portion.

*These percentages are the LTVs on an 8-yr loan at the end of years 1-3.