ASSET LIABILITY MANAGEMENT TOOLS AND STRATEGIES

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Asset Liability Management Tools and Strategies

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Federal Farm Credit Banks Funding Corporation

Bank / Association Relationship

Separation of Banking Risks

- Bank: Interest Rate Risk, Liquidity Risk
- Associations: Credit Risk

Bank / Association Relationship

- Direct Loan Pricing

Marginal Cost of Funds + Interest Rate Risk Compensators + Bank Spread = Direct Loan Rate

- Retail Loan Pricing

Direct Loan Rate + Credit Risk Differential + Association Spread = Borrower's Loan Rate

Philosophy on Managing Interest Rate Risk

- System institutions are independently managed and their approaches to IRR management vary
- Overall, very conservative
- Cooperative structure / GSE charter

  Corporate structure does not provide many incentives for risk taking.

A/L Management Tools

- A/L Management Policy
- Loan Product Development
- Funding Strategy Development
- Simulation Models
- Database Systems
- Hedging

Asset / Liability Management Tools & Strategies

- Farm Credit
- Sources of Interest Rate Risk
- A/L Tools and Hedge Strategies

Bill Whitehead
Federal Farm Credit Banks Funding Corporation
NC-207 Annual Meeting, September 9, 1996

Farm Credit System

- An agricultural finance cooperative
- Government Sponsored Enterprise (GSE)
- Six Farm Credit Banks, one Bank for Cooperatives, one Agricultural Credit Bank (CoBank), 228 Associations

Funding Corporation

- Fiscal Agent

  Design, Issue, Market, Process
- Disclosure

  Financial Performance & Debt Security-Specific
- System Resource

Sources of Interest Rate Risk

- Market Risk
- Structural Risk: asset structure $\neq$ debt structure
- Commitments and loan "pipeline"
- Exposure on anticipated debt issuance
- Basis risk
- Pricing Risk

Derivative Strategies

Asset / Investment Strategies

- Prepayment Risk
- Adjustable Rate Mortgages
  - ARM FRNs and "Synthetic" ARM FRNs
  - Uncapping ARMs: Stripping off Periodic and Lifetime Caps
  - Hedging ARM resets
- "Retail" Cap Risk
- Commitment and "Pipeline" Risk

Derivative Strategies *continued*

Debt (Liability) Stategies

- Develop Customized Debt Securities
- Investor Accommodation: "Reverse Inquiry"
- Anticipated Debt Issuance hedges
- Call Option Value Preservation Hedge (COVPH)

Asset / Investment Strategies

Prepayment Risk: short call option

- Fund fixed rate, prepayable loans with callable bonds
  - Issuer "buys" an embedded long call option from investors
- Buy interest rate floors, intermediate term indexes
  - 5- & 10-year CMT and Swap indexes, 3-year term,
    reset quarterly, strike rates 100 to 200 bps out-of-the-money
  - monitor cost of floor options (high, steep yield curve)

Asset / Investment Strategies *continued*

Adjustable Rate Mortgages

- ARM Floating-rate Notes (FRNs)
- "Synthetic" ARM FRNs
- Uncapping ARMs: Stripping off Periodic and Lifetime Caps
- Hedging ARM resets
  - "Look Back" hedge for funding rollover
  - single-period CMT-indexed put options

Uncapping ARMs

Stripping off Periodic and Lifetime Caps

- Caps on CMT-indexed ARMs can be removed to create attractive, uncapped CMT-indexed FRNs.
- Several counterparties are offering swaps that remove either periodic caps or both periodic and lifetime caps for up to 10-years.
- Principal cash flows for the swap are designed to match principal flows on the ARMs, either explicitly (indexed to a pool balance) or approximately (scheduled amortization plus a static prepayment assumption, i.e. 6% CPR).

Uncapping ARMs *continued*

Stripping Off Periodic and Lifetime Caps

Asset:

Maturity/Structure:	Agricultural ARM loans or Residential ARM MBS 30-year final maturity
Index:	1-year CMT, Fed H15, reset annually
Embedded Caps:	2% periodic, 6% lifetime cap (over initial coupon rate)

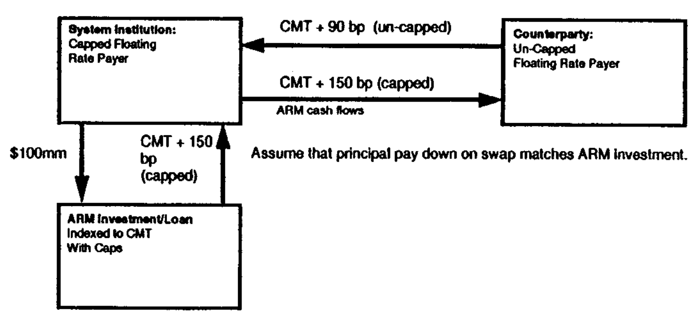
Swap Terms:

Description:	System institution swaps to pay "capped" ARM cash flows vs. receiving "uncapped" 1-year CMT + spread.
Capped "ARM':	Pay a "capped" cash flow representing the interest and principal received on the underlying ARM loans or ARM MBS. For example, 1-year CMT + 150 bp.
Uncapped "ARM":	The swap counterparty pays "uncapped" floating 1-year CMT plus a spread, approximately 90 bp.

5

Uncapping ARMs *continued*

Stripping Off Periodic and Lifetime Caps



Asset / Investment Strategies *continued*

"Retail" Cap Risk

- System institutions often sell risk management tools to their customers

  Adding standalone cap protection to a variable rate loan

  Upfront fee

  Increasing use in wholesale lending relationship

Asset / Investment Strategies *continued*

Commitment Risk

- System banks are using option pricing models to establish loan commitment fees
- Better tracking and tighter controls on commitments

"Pipeline" Risk

- Stratification
- Hedging

Option-based Commitment Fee

10-year Fixed-Rate Mortgage

Table 1: Option-Based Commitment Fee Analysis
Fee per $100,000 Loan Principal
Fixed-Rate, Optional Take Down, American Exercise

Commitment Period	Volatility Assumption		
	13.0%	18.6%	24.0%
30-days	$522	$732	$923
60	710	1,010	1,290
90	960	1,318	1,664
180	1,330	1,826	2,306

Debt (Liability) Strategies

Customized Debt Securities

- Create and issue new debt securities with built-in options that offset option characteristics of loan products

  Prime FRNs

  ARM FRNs

  "Synthetic" ARM FRNs

Debt Strategy: ARM Floaters

1-year Constant Maturity Treasury-Indexed Floating-Rate Note with 2% Periodic Cap and Floor

"ARM" Floater Structure:

Structural Characteristics	Specific Terms
Par Amount	$100 million, or more
Maturity	3-years, principal at maturity
Index	1-year CMT as reported in the Federal Reserve H15 + Fixed Spread
Reset Frequency	Annually
Coupon Frequency	Semi-annual interest payments, 30/360 day count
Periodic Cap & Floor	2% periodic adjustment limit

ARM Floaters continued

Matches three structural characteristics of ARM Mortgages:

- 1-year Constant Maturity Treasury index
- 2% Periodic Cap and Floor - ***primary advantage***
- Fixed repricing margin (for 3 years only)

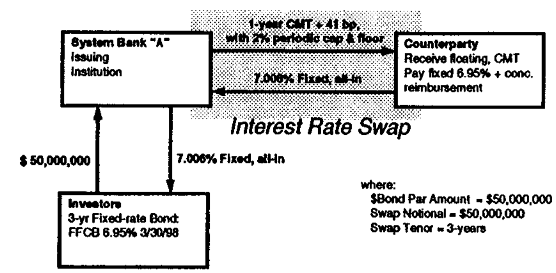
ARM Floater does not offset these characteristics:

- Much shorter maturity, not available as a 30-year instrument
- Lifetime cap risk
- Scheduled amortization
- Prepayment risk
- Look back on resets

"Synthetic" ARM FRN

Issue Fixed, Swap to Floating ("ARM")

3-year "Synthetic" ARM Floating-Rate Note



analysis date: March 1995

Debt (Liability) Strategies continued

Investor Accommodation / Reverse Inquiry

- Investors often approach GSEs to purchase debt securities tailored to their needs.
- "Cheap" (inexpensive) funding.
- Structures requested by investors do not always "fit".

  Structured Notes: Inverse FRNs, Indexed Amortizing Notes, etc.
  Callable Bonds: short call protection periods

- Swap these debt issues into a structure that can be useful.

  Objective: 3-month LIBOR - 25 bps

Debt (Liability) Strategies continued

Anticipated debt issuance hedges

- Symmetrical (forwards) and asymmetrical (options) hedges
- Duration-matched
- FRAs, Futures, Forward swaps, OTC Treasury

Debt (Liability) Strategies *continued*

Call Option Value Preservation Hedge

- Objective is to "lock-in" or protect value of embedded call options that have moved into-the-money
- Outright (unswapped), unmatched callable debt issuance

    Symmetrical hedges: futures and forward swaps

    Asymmetrical (options-based) hedges: pay fixed swaptions

Evaluating Risk Mgmt Performance

System Institutions

- Specific Hedge Transactions
- Investment Portfolio Targets
- Bank Level: Treasury Income
- A/L Policy Targets: NII, $\$MV_{eq}$

Funding Corp

- Volume of Debt Issued
- Sale Management (Responsiveness, Spread to Treasury)