



FMS NY/NJ Conference

Introduction to Interest Rate
Hedging Tools and Examples
of Their Application in
Today's Rate Environment

January 15, 2014



Introduction to Interest Rate Derivatives

Macro Level Hedging

Loan Level Hedging

Accounting Treatment

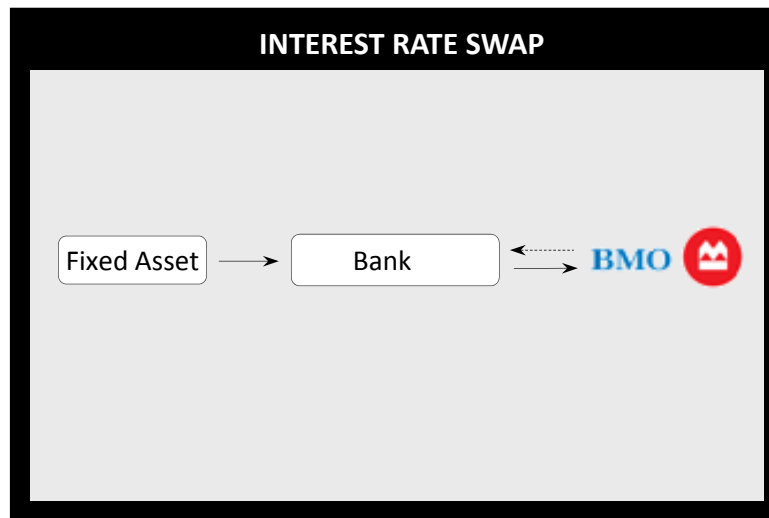
Regulatory Requirements

Counterparty Selection and Documentation Process

Terminology

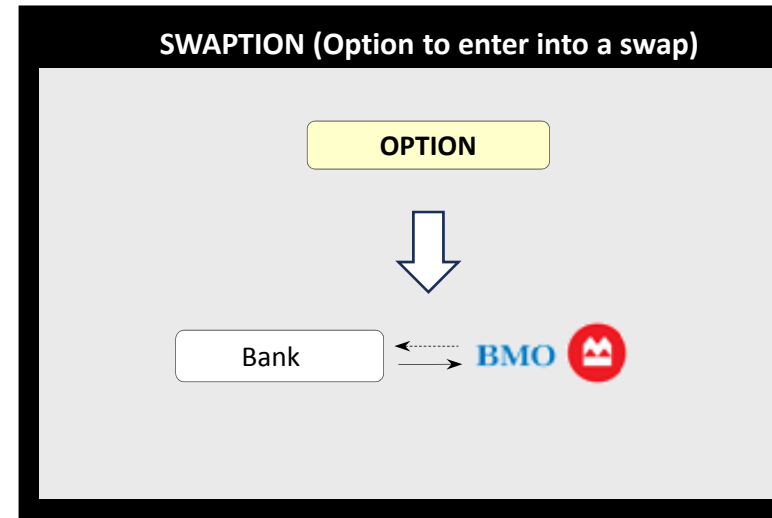
- WHAT IS A DERIVATIVE?: A FINANCIAL INSTRUMENT WHOSE VALUE IS BASED ON THE PERFORMANCE OF AN UNDERLYING ASSET, INTEREST RATE, ETC.
- Most common interest rate derivatives (the building blocks)
 - Swap
 - Cap
 - Floor
 - Swap-option (“swaption”)
- Exchange Traded (standardized) vs. Over-The-Counter “OTC” (customized)
- Underlying Indices on which the derivative is priced and valued
 - Interest rates (e.g. LIBOR)
 - Commodities
 - Equity
- Other derivatives
 - Credit Derivatives (e.g. credit default swaps)
 - Foreign Exchange Forwards

The four major building blocks of hedges: SWAP / SWAPTION / CAP / FLOOR



- **SWAP:**

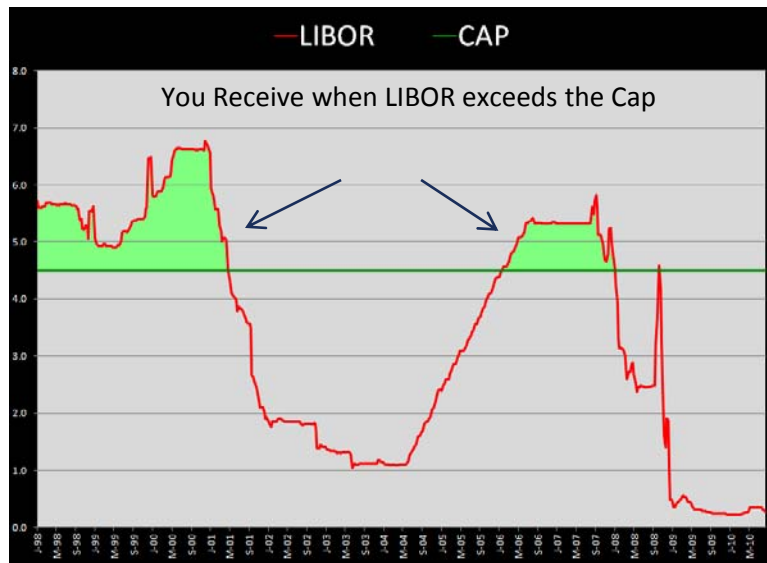
- Contract that converts a fixed rate into floating, or a floating rate into fixed
- Both counterparties agree to exchange interest payments (one pays a fixed rate, the other a variable rate)
- Initial swap rate influenced by shape and steepness of LIBOR forward curve



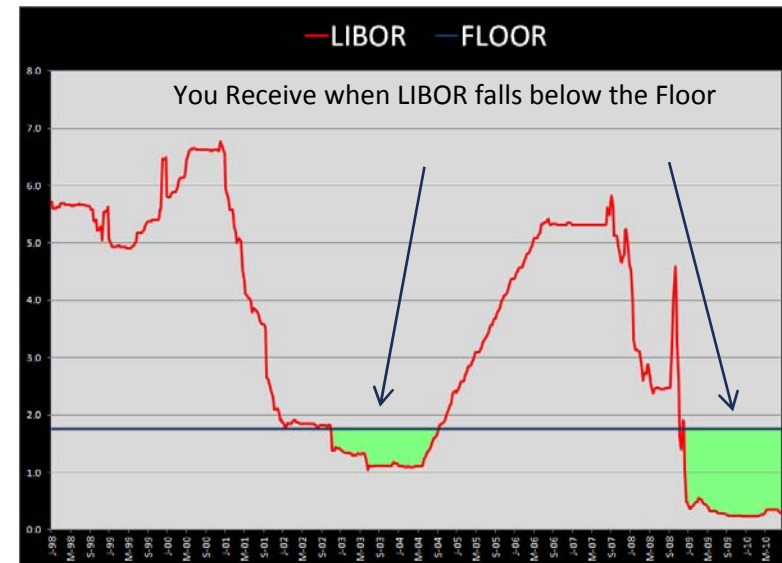
- **SWAPTION:**

- Pay an upfront premium today
- A Swaption is the right, but not the obligation, to enter into an interest rate swap
- A Payer's Swaption, represents the right to pay fixed (RTP) in the underlying swap.
- A Receiver's Swaption represents the right to receive (RTR) fixed in the underlying swap.

SWAP / SWAPTION / CAP / FLOOR - Described

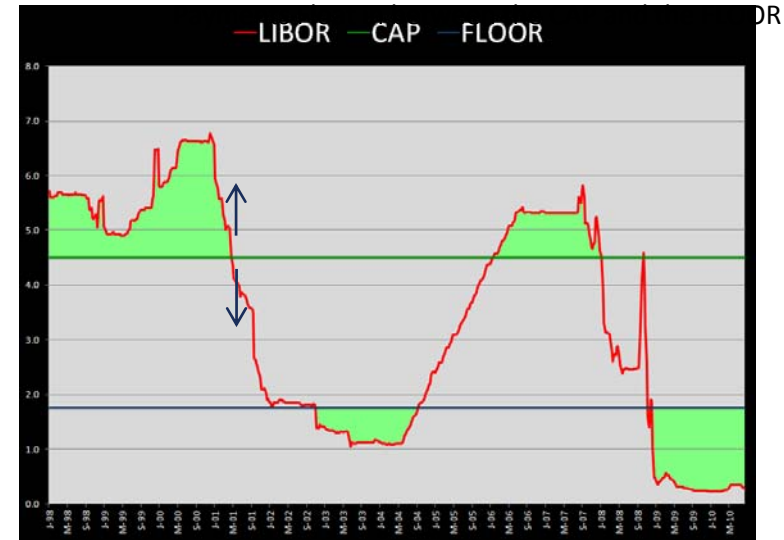
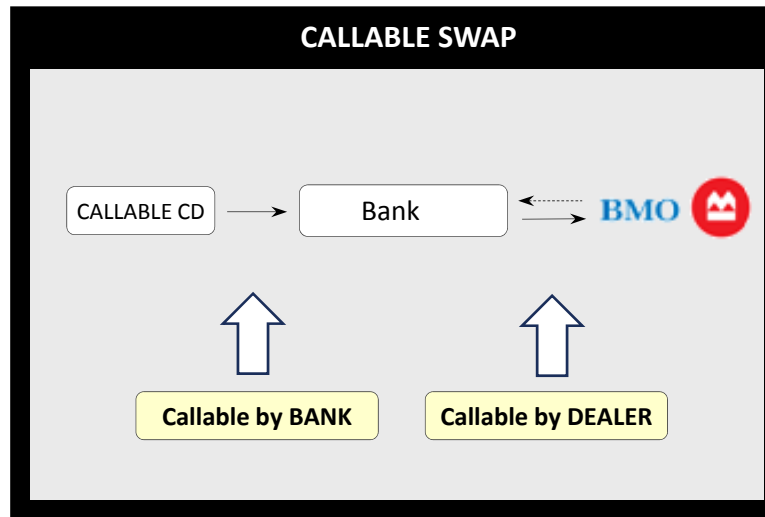


- **CAP:**
 - Pay an upfront premium today
 - Cap pays out if rates rise above strike rate (premium can also be amortized)
 - For each observation, if $\text{LIBOR} > \text{strike rate}$, CAP pays the difference between LIBOR and the strike rate
 - Cost of protection becomes more expensive for lower strike rates and/or longer maturities



- **FLOOR:**
 - Pay an upfront premium today
 - Floor pays out if rates fall below strike rate (premium can also be amortized)
 - For each observation, if $\text{LIBOR} < \text{strike rate}$, Floor pays the difference between LIBOR and the strike rate
 - Cost of protection becomes more expensive for higher strike rates and/or longer maturities

The building blocks can be combined to create other structures



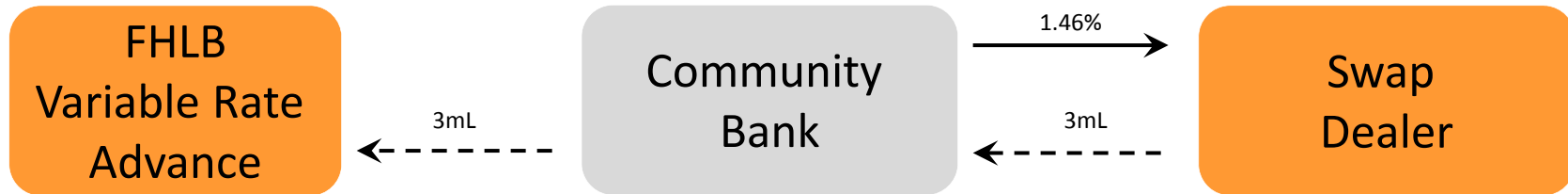
- **CALLABLE SWAP:**

- Swap + Swaption
- Allows one counterparty to the right to terminate the contract at a predetermined anniversary sometime before maturity with no termination cost
- Example Uses: Hedging Callable CDs

- **COLLAR:**

- Purchased Cap + Sold Floor
- A collar agreement is a contract where one party agrees to reimburse the other party for any increases in LIBOR over a pre-determined “cap strike rate” in return for payments for any decreases in LIBOR below a pre-determined “floor strike rate”
- Example Uses: Hedging variable rate liabilities

The INTEREST RATE SWAP



- An interest rate swap is an agreement (contract) to exchange, or “swap” interest payments over a specific period of time
- In a swap, the principal amount is never exchanged and therefore is referred to as a “notional” amount. Only interest flows are exchanged.
- A swap is a separate contract from any loan agreement
- The swap can be used to convert FIXED to FLOATING or vice versa

Swap payments (fixed vs. floating legs) are netted

Interest Rate Swap Net Settlement Combined with Loan Invoice

<i>LIBOR</i>	<i>Loan Invoice LIBOR + 0.00%</i>	+	<i>Swap Invoice</i>	=	<i>All In FIXED Rate</i>
3.74000%	3.74000%	+	-2.36000%	=	1.38%
0.24000%	0.24000%	+	1.14000%	=	1.38%
0.00000%	0.00000%	+	1.38000%	=	1.38%

<i>LIBOR</i>	<i>Loan Invoice LIBOR + 0.00%</i>	+	<i>Swap Invoice</i>	=	<i>All In FIXED Interest Payment*</i>
LIBOR up 3.50%	\$16,102.78	+	-\$10,161.11	=	\$5,941.67
Current LIBOR	\$1,033.33	+	\$4,908.33	=	\$5,941.67
LIBOR down to ZERO	\$0.00	+	\$5,941.67	=	\$5,941.67

* does not include any principal payments

- When the swap notional schedule and the loan principal schedule are the same, the interest payments net out to an all in fixed rate of 1.38%
- Both the loan invoice and the swap invoice will continue to float, but will do so inversely to one another
 - The swap invoice behaves like “ballast” on a ship
 - If LIBOR exceeds the Swap Fixed Rate, you will be credited the difference

Early termination profile of an interest rate swap

- The termination value of an interest rate swap is calculated by comparing the fixed rate on the swap to the rate that would be received by entering into an identical swap at the rates in effect at the time of termination (the Swap Replacement Rate).
- The difference between these two rates (in %) is then multiplied by the notional amount of the swap in each remaining period and discounted back to the present day. Any swap settlements and/or accrued interest not yet paid is added back to arrive at the cost of termination.



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Macro Hedging: Introduction

- **Macro Hedging**
 - The hedging of a *portfolio* of assets and liabilities
- **Purpose**
 - Helps community banks manage asset/liability sensitivity
 - Specifically manages risk associated with mismatches between assets and liabilities on the balance sheet via interest rate derivative products (swaps, options, etc.)

Interest Rate Hedging (Derivatives)

A / L Policy



Identify RISK



ALM Toolbox



Derivative Tools



Determine Compliance

- Use them to **REDUCE UNCERTAINTY**

- Smooth earnings from quarter to quarter, and year to year
- Manage GAP
- Manage Liability Pricing
- Manage Asset Pricing
- Avoid unexpected yield curve shocks – What happens to margins when rates spike
- Lock in an interest rate margin
- Easily track profitability & earnings

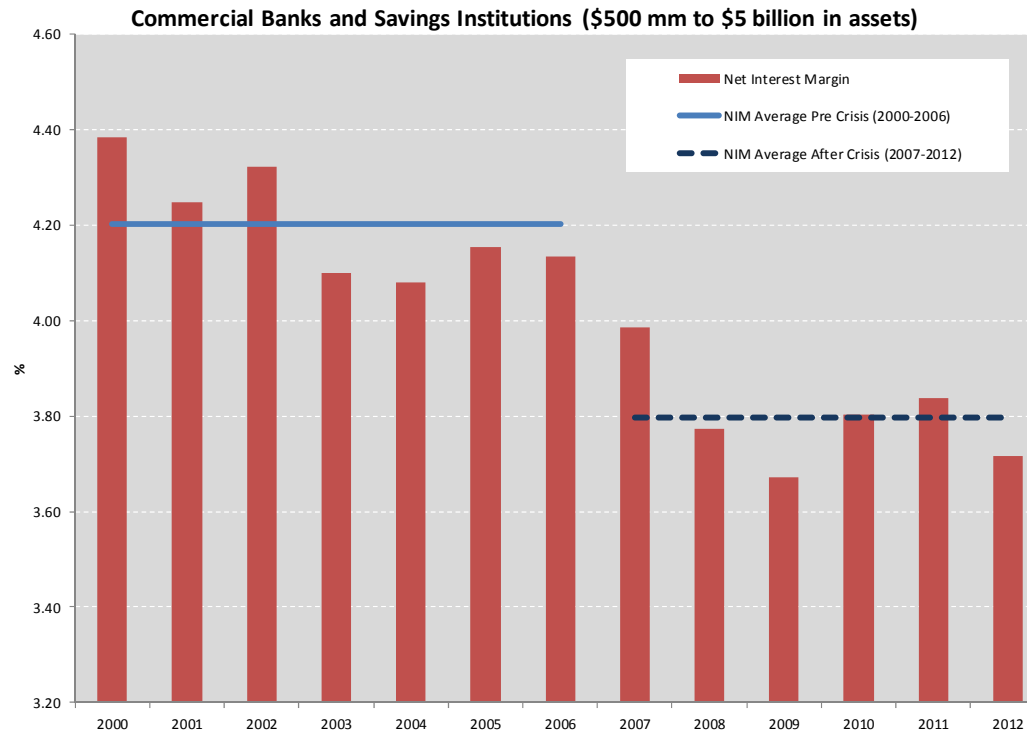
- Advantages

- Flexibility: products can be tailored to meet any loan or debt structure. They can be attached to different loans or debt during its term as your company's capital needs dictate.
- They can be prepaid at any time based on their economic value.
- Liquidity: easily restructured to match your company's changing capital needs.

NIMs are under pressure; most community banks have not returned to pre-crisis levels

Current Situation

- **NIM COMPRESSION:** Falling asset yields from flat yield curve and low COF
- **INTEREST RATE RISK:** Commercial borrowers are demanding **LONGER TERM FIXED RATES**. Frequently the fixed term necessary to win the loan creates unacceptable interest rate risk to the bank.



Macro Balance Sheet Common Structures

- **Forward Starting Swaps**

- With current yields low, lock in fixed rate today at low levels for swap effective at a future date
- Mitigates the immediate negative carry of a spot starting swap

- **Caps**

- Retain benefit if floating rates stay low, but protected if LIBOR rises
- One-time upfront premium
 - Premiums can be expensive depending on cap strike and tenor

Macro Hedging Example: Asset Sensitive Bank

- **TIMEFRAME: April 2006**
 - Flat / slightly inverted yield curve
- **RISK:** California based commercial lender with large portfolio of PRIME based commercial loans fears NIM compression if rates (PRIME) falls. Wishes to hedge approximately 40% of commercial loan portfolio (\$75MM) against possible decline in PRIME index
- **SOLUTIONS CONSIDERED:**
 1. Fix rate with interest rate swap at 8.03%
 2. Buy interest rate floor at 7% (Up front cost of \$500,000)
- **WHAT HAPPENED:** Bank chose to swap \$75MM PRIME based loans to fixed at 8.03% rate for 5 years
 - Then current PRIME was 8.25% (portfolio give up of 22 bps)
 - Trade executed by Treasurer after blessing from ALCO
- **THEN WHAT HAPPENED?** When PRIME did not immediately fall, bank focused on 22 bps portfolio income they gave up, eventually choosing to terminate swap in August 2006
 - Subsequently PRIME fell to 3.25%
 - If the swap trade stayed on = \$3.59MM annualized
 - If they did the 7% floor = \$2.8MM annualized

Macro Hedging Example: Structured Funding combining FHLB variable rate funds and forward starting interest rate swap

- **TIMEFRAME:** September 2013
- **RISK:** Texas bank wishes to hedge against liability sensitivity. Bank wishes to protect against future rate rise while at the same time taking advantage of current low rates.
- **RATE VIEW:** No Fed Tightening for next 18 months, expected to rise sometime after
- **SOLUTIONS OFFERED:**
 - Fund FHLB variable rate advance – will be renewed annually and will be outstanding for next 6.5 years
 - Execute 5 year interest rate swap today with future start date of March 2015
- **BENEFITS:** Bank incorporates its rate view; strategy ensures funding costs take advantage of current low rates and achieves interest rate certainty for the future



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Loan Level Hedging: Introduction

- **Loan-level Hedging**
 - Implemented to manage long-term interest rate risk created by commercial loans via interest rate swaps
 - Allows community banks to receive floating rate on commercial assets by offering swaps
- **Purpose**
 - The use of derivative instruments improves borrower credit quality by reducing borrower sensitivity to rising rates

Commercial Loan Hedging: Community Banks have turned to swaps

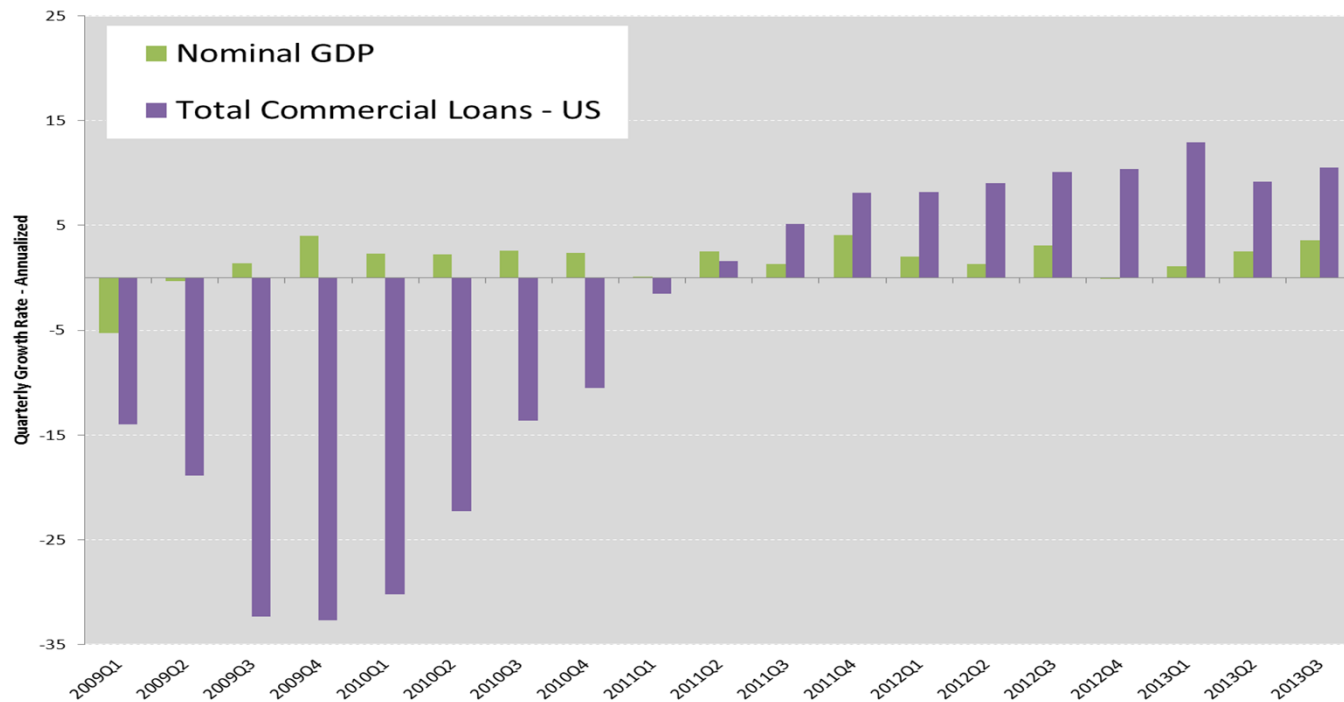
Why?

- **Diversify revenue stream.** Commercial banks can generate sustainable revenue based off normal loan origination
- **Compete and differentiate:** Offer solutions consistent to what money center banks offer and differentiate from the community bank that does not offer swaps
- **Protect NIM:** borrower demand for longer term fixed rate borrowing vs. in-house fixed rate limit
- **Protect earning assets** from larger competitors who will offer swaps and other hedging solutions to your existing commercial borrowers

Lending is Expanding while GDP Remains Muted

Current Situation

- **IRREGULAR LOAN GROWTH** has led to **INCREASED COMPETITION** for available borrowers with good credit – in some markets loan growth is only the result of stealing rival’s loans
- **SWAPS ARE COMMONPLACE IN MIDDLE MARKET LENDING.** Increasingly, community banks not only compete with dealer counterparties but now also compete with rival community banks who provide hedging alternatives as well



Two Common Private Label delivery “models”. Community Bank chooses structure based on borrower and bank appetite

1) Matched Book

- Bank offers a floating rate loan, then a swap. Hedge is *separate contract* from customer’s loan, but is secured by ISDA between bank and borrower (cross defaulted and cross collateralized).
- Bank offsets borrower swap with dealer, and maintains a “matched book” (every borrower swap has a mirror dealer swap)
- Most commonly seen delivery

Floating Rate Loan



Interest Rate Swap w Borrower



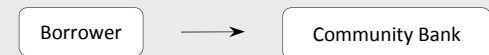
Interest Rate Swap w Dealer



2) “CaRLA” Loan

- “Customized Rate Loan Agreement”: Bank offers fixed rate loan then swaps the loan to floating
- Swap is between bank and dealer - unseen by the borrower
- Loan contains pre-payment language stipulating borrower assumes economic impact of swap in the event of early termination

Fixed Rate Loan with pre-payment language that includes the termination value of the swap



Interest Rate Swap w Dealer



Commercial Bank wishes to compete with super-regional banks

- **SITUATION:** Commercial clients desire long term fixed rate term financing. Historically, bank's only fixed rate alternative is traditional fixed rate loan. Competition includes institutions who offer term fixed rate borrowing with interest rate swaps
- **RISK:** Margin compression from long term fixed loan vs. volatile and more expensive COF
 - Bank needs to remain competitive and generate loans, but would prefer to pare back fixed rate term commitments
- **SOLUTION:** Offer your commercial clients a FLOATING rate loan AND a derivative solution. Offset the derivative with a mirror transaction and maintain a "matched book"
 - Private Label solution - same as those of a larger commercial bank with derivative capabilities (e.g. JPM, BOA)
 - Simple accounting
 - Generates fee income
 - Leaves bank with desired floating rate exposure for a better A/L match
- **A RECENT TRANSACTION (September 2013 – Mid Atlantic Bank)**
 - **LOAN Terms:** \$2.5mm 10 year final / 20 year amortization 1mL + 2.25%
 - **SWAP Terms: matching the loan**
 - **SWAP RATE:** 2.85%
 - **Borrower's all in rate = 5.10%** (2.85% swap rate + 2.25% credit spread)
 - **SWAP REVENUE (fee income for the community bank):** additional markup of 25 bps or \$49,000



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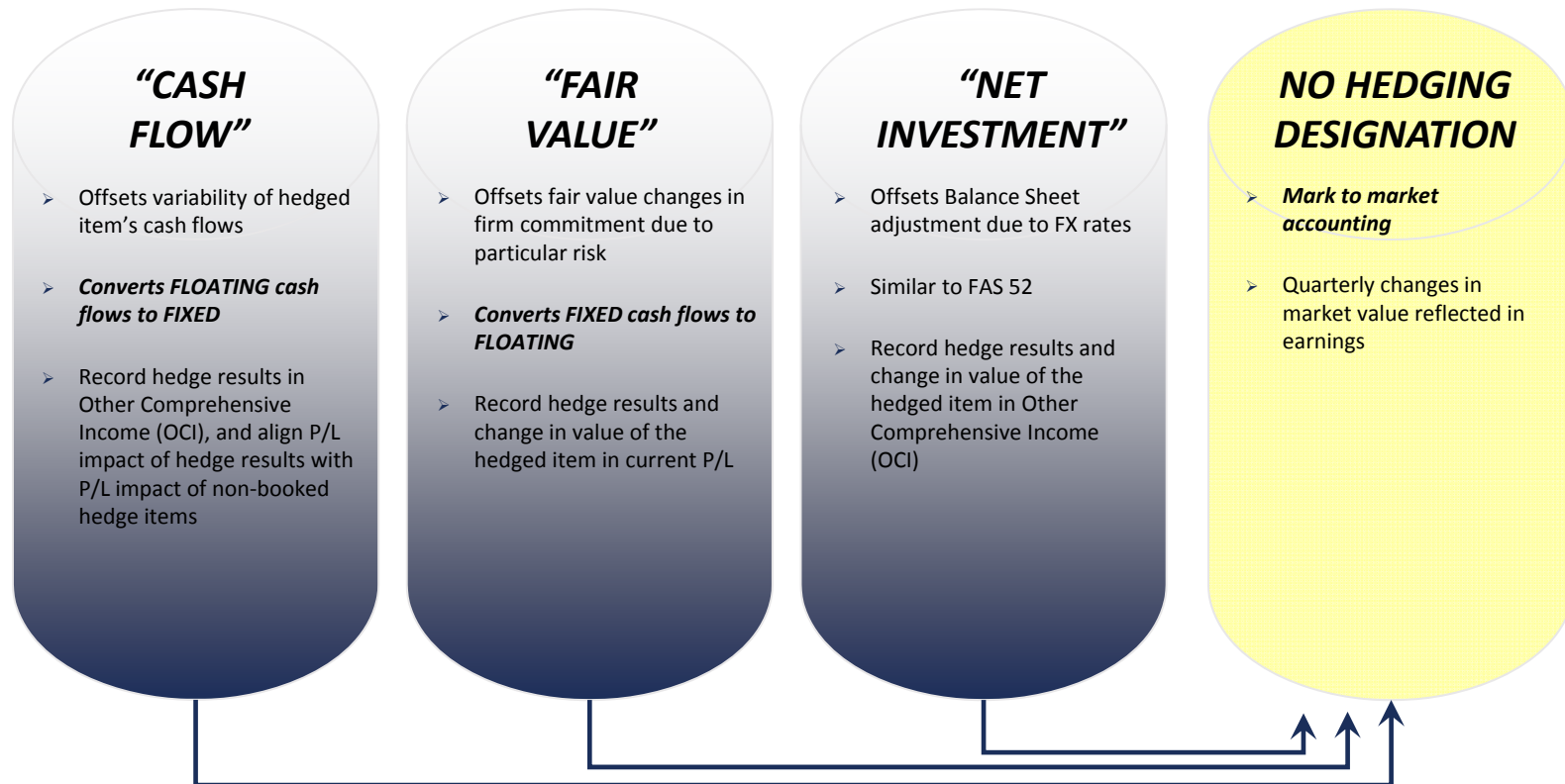
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Understand the accounting implications before your transact - FAS 133 (ASC 815)





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Dodd Frank Act: Key Provisions & Documentation Requirements

ECP

- Verification of counterparty as “Eligible Contract Participant” (ECP)

LEI/CICI

- Obtain Legal Identifier Code (LEI/CICI) - <https://www.ciciutility.org>

DFA Protocol I

- CFTC Business Conduct rules; apply to all clients that engage in swaps, as well as FX forwards and FX swaps, with a swap dealer, regardless of whether a master agreement in place.
- Gives BMO the ability to “market” to clients (which includes providing recommendations or quotes on specific rate structures) by establishing:
 - “Safe Harbor” provisions
 - Identification of “US Person” status
 - Acceptance of “oral disclosures”. Election to waive requirements for delivery of pre-trade mid-market marks in permitted situations

DFA Protocol II

- Provides an exemption (the “End-User Exception”) from the CFTC’s clearing mandates for swaps where one of the parties is not a financial entity, enters into swaps to hedge or mitigate commercial risk.
 - Available to banks under \$10bb in assets
- Notifies the CFTC how it generally intends to meet its financial obligations under such non-cleared swaps.
- Mandatory clearing of certain interest rate swaps and credit swaps for counterparties who do not meet the end-user exemption

Eligible Contract Participant (“ECP”)

- Corporations, partnerships, proprietorships, organizations, trusts, or other entities
 - Total Assets > \$10mm **OR**
 - Net Worth > \$1mm **AND** hedging risk arising from asset owned or liability incurred
- Individuals
 - Amounts invested on a discretionary basis
 - >\$10mm **OR**
 - >\$5mm if hedging risk arising from asset owned or liability incurred
- **“SPECIAL ENTITIES”**: Defined as:
 - Federal agency
 - State / State Agency / City / County / Municipality / political subdivision of state / etc.
 - Private or public employee benefit plan
 - Endowment
- Greater scrutiny on special entities may prohibit community banks wishing to keep non dealer status from offering swaps. [Limits the amount of swaps allowed in a 12 month period to \\$25mm.](#)

Marketing Under DFA & The Safe Harbor Letter Process

- Dodd Frank Business Conduct Standards impact how swap dealers like BMO interact with prospects and existing clients in regards to marketing
- Marketing includes the presentation and/or discussion of more in-depth information
 - Materials can not be tailored to the client's *specific* situation until the client and/or prospect has completed the on-boarding process or has executed a Safe Harbor Letter
- The Safe Harbor Letter is intended to meet the safe-harbors under CFTC Regulations and acts as an alternative to the DFA on-boarding process
 - Based on an industry form developed by ISDA
 - Designed for use by a Non-special entity
- Safe Harbor Letter Process
 - Counterparty will be asked to review, revise as appropriate, and then return the proposed final form of Safe Harbor Letter
 - Completion of Safe Harbor Letter will be negotiated and an executed copy will be sent to the Counterparty
 - Once the Safe Harbor Letter has been fully executed, BMO will be able to market to but not trade with the Counterparty



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What to look for in a swap dealer counterparty

	WHAT IS IT?	WHY IS IT IMPORTANT?
Registered Swap Dealer	Under Dodd Frank, swap dealers are required to register with the CFTC *	PRICE CLARITY - Required to quote MID and BID/OFFER on any derivative price
Market Maker	Counterparty that makes a market in derivative instruments by using exchange traded instruments (treasuries, futures, etc.) to create offset positions. Also referred to as "running risk"	LOWER TRANSACTION COSTS & IMPROVED LIQUIDITY - Using a market maker prevents you from crossing two bid offer spreads. Also, market makers can provide improved liquidity during thin markets
Counterparty Credit Quality	Look for a publicly rated counterparty (S&P / Moodys) - stay with higher rated (at least A) counterparties	Obvious
Credit Terms	Look for BILATERAL ZERO Mark to Market THRESHOLDS with BILATERAL COLLATERAL POSTING . Pay attention to any termination triggers and term.	Zero Bilateral Thresholds - provides maximum protection against dealer counterparty failure
Dodd Frank Reporting of your derivative trades	All derivative trades must be reported to a swap data repository	It is the law

* <http://www.cftc.gov/LawRegulation/DoddFrankAct/registerswapdealer>

Steps to setting up a swap partnership

	WHAT IS IT?	WHY IS IT IMPORTANT?
ISDA Master and Schedule	Market Standard documentation between derivative counterparties. Governs all future transactions between counterparties	Secures both counterparties (community bank and dealer) to effect trades
Credit Support Annex (CSA)	Generally between institutions, CSA is included to outline additional credit terms	Outlines additional termination events and collateral requirements
Legal Entity Identifier (LEI)^A	Under Dodd Frank, ALL counterparties to a derivative are required to have a unique identifier. Cost = \$200	It is the law
Dodd Frank Protocol I^B	Adherence required for community bank in order to receive quotes, guidance, recommendations. Cost = \$500	Provides safe harbor to swap dealers in order to provide you with pricing, recommendations, advice, marketing
Dodd Frank Protocol II^B	Adherence required if community bank wishes to qualify for clearing exemption. Cost = \$500	Provides community banks less than \$10B in assets from needing to clear their swaps

* <http://www.cftc.gov/LawRegulation/DoddFrankAct/registerswapdealer>



QUESTIONS?

Thank you!

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