Client Training

Swaps and Derivatives

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Presented By

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Agenda

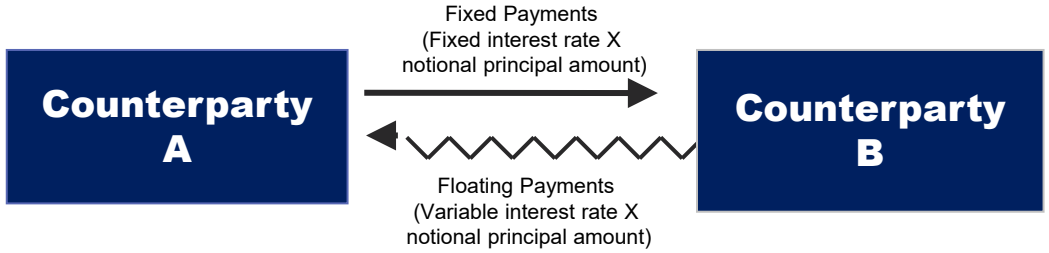
SWAPS AND DERIVATIVES

- Interest Rate Swaps Overview
- Swap Pricing and Valuation
- The Municipal Swap Market
- Commodity Hedging
- General Considerations for Swaps
- Dodd-Frank Act
- Summary
- Overview of PFMSA

Interest Rate Swaps Overview

Interest Rate Swaps in General

- An interest rate swap is a contract between two parties (“counterparties”) to exchange interest rate payments at specified dates in the future.
- The interest rate payments for a given counterparty equal the product of an interest rate (swap rate) and a principal amount.
- Usually, the swap rate for one counterparty is a fixed rate, while the swap rate for the other counterparty is a variable rate.
- The principal amount in a swap is “notional”, i.e. it is not actually exchanged but is only used to calculate interest payments
- Swaps historically traded “over the counter”, but the Dodd-Frank Act will move most swap trading to exchanges or central clearinghouses



Why Use Swaps?

- Exploit Attractive Synthetic Financing Opportunities
  Swaps and other derivatives can allow issuers to opportunistically create cheap synthetic variable-rate or fixed-rate debt
- Issuers can arbitrage the prices paid for certain financial instruments in different markets, e.g.
  - monetization of “in-the money” bond call options in swaptions market
- Synthetic variable-rate debt (fixed-rate bond + swap) can allow issuers to conserve valuable credit/liquidity facilities
- Risk Management
- By hedging, issuers improve asset/liability management and reduce cashflow variability

Who Uses Swaps?

- Financial Institutions, e.g. banks, mutual funds, hedge funds
- Corporations, e.g. General Electric, Coca-Cola
- Sovereign Governments, e.g. the Government of Canada, the Kingdom of Sweden (the U.S. Government doesn't use swaps)
- Municipalities, e.g. cities, states, airports
- Not-For-Profits, e.g. universities, hospitals, museums

Examples of Hedging Products Applications

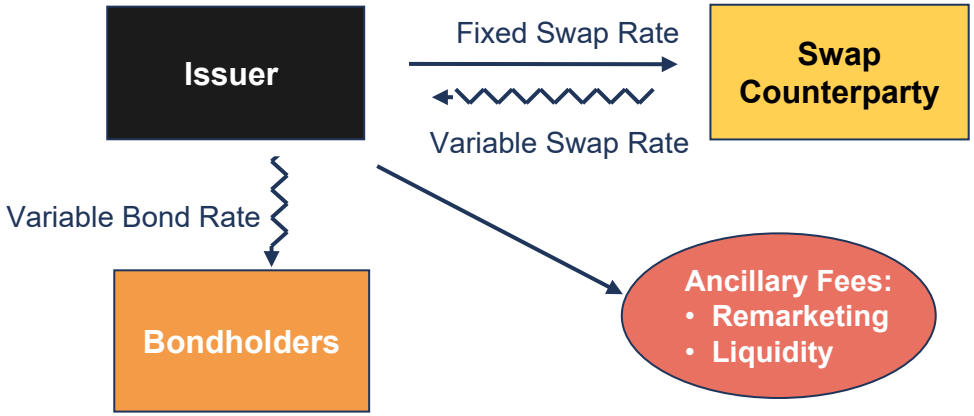
Hedge Product	Strategies	Underlying Obligation
Floating-to-fixed Swap	• Opportunistically create cheap synthetic fixed-rate debt • Hedge variable rate exposure • Enhance investment yield	• VRDB's • Commercial Paper • Bank Loan • Debt service fund
Fixed-to-floating Swap	• Opportunistically create cheap synthetic variable-rate debt • Manage liquidity and refinancing risk	• Fixed-rate Bonds
Forward Swap	• Synthetic advance refunding • Hedge future interest rate risk	• Fixed-rate Bonds not currently callable • Anticipated bond issuance
Callable Swap/Swaption	• Bond Call monetization	• Callable Fixed-rate Bonds

Key Terms of Interest Rate Swaps

- Notional principal amount
- Effective date
- Termination (Maturity) date
- Fixed-Rate Payer
- Floating-Rate Payer
- Floating index, e.g. LIBOR, SIFMA
- Index Reset Frequency, e.g. weekly, 1-month, 3-month
- Payment Dates, e.g. monthly, semi-annually (normally made in arrears)
- Day basis (e.g. 30/360, Actual/365)

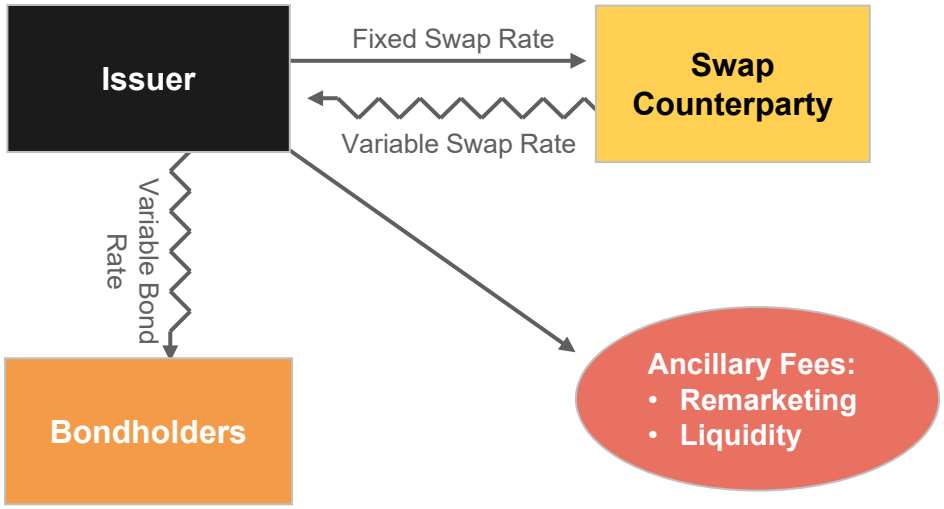
Swap Floating-Rate Indices

- Percentage of LIBOR
  - The variable swap rate received by an issuer equals a percentage of the London Inter-Bank Offered Rate (LIBOR). LIBOR is an average calculated by the British Bankers' Association that is derived from banks that submit daily borrowing quotes. The top and bottom quartile is eliminated and an average of the remaining quotations calculated to arrive at the rate fixing.
- SIFMA
  - A weekly high grade market index comprised of 7-day tax exempt variable rate demand notes produced by Municipal Market Data Group. Actual issues are selected from MMD's database of more than 10,000 active issues.
- Secured Overnight Financing Rate (SOFR)
  - SOFR is a secured, short-term (overnight) borrowing rate based on U.S. Treasury repurchase (repo) agreements and general collateral financing (GCF) data. It has been selected by the U.S. Alternative Reference Rates Committee (ARRC) as the replacement for LIBOR after 2021



Floating-To-Fixed Swap ("Synthetic Fixed")

- A floating-to-fixed interest rate swap allows an issuer to effectively convert all or a portion of its variable (floating) rate debt to a "synthetic" fixed rate
- The issuer becomes a "fixed rate payor", receiving a floating rate payment from a counterparty and paying a predetermined fixed rate
- To the extent the variable rate received by the issuer exactly offsets the variable rate paid by the issuer to bondholders, the issuer's debt cost equals the fixed swap rate plus any ancillary fees



30-Yr Synthetic Fixed Example	
Pay Fixed Swap Rate:	2.28%
Rec Floating Swap Rate:	(SIFMA)
Pay VRDB Rate:	SIFMA
Pay Credit Support:	0.50%
Net:	2.78%

Synthetic Fixed-Rate Debt vs. Direct Issue

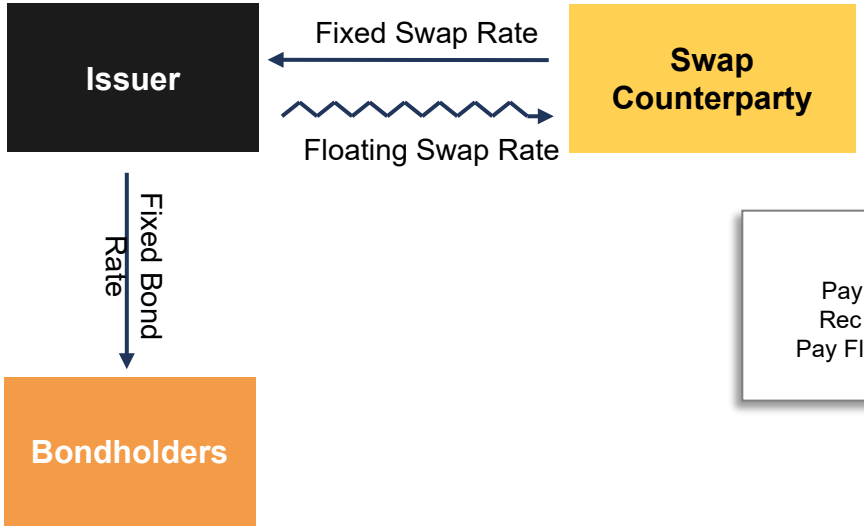
- Issuers should compare the all-in cost of traditional non-call fixed-rate debt to synthetic fixed-rate debt (including credit support)
- In certain cases it may be cheaper to create synthetic fixed-rate debt through VRDO's or indexed bank loan hedged with a floating-to-fixed swap

Term	Non-Call Bonds	SIFMA Swap	67%*LIBOR Swap*
3 Y	0.19%	0.87%	0.90%
5 Y	0.43%	1.21%	1.22%
10 Y	0.99%	1.78%	1.68%
20 Y	1.90%	2.16%	1.93%
30 Y	2.19%	2.28%	1.96%

Rates as of 4/30/2021; swap rates include 50 bps liquidity plus 8 bps dealer spread

Fixed-to-Floating Swap ("Synthetic Variable")

- A fixed-to-floating interest rate swap allows an issuer to effectively convert all or a portion of its fixed rate debt to a variable rate
- The issuer becomes a "floating rate payer", receiving a fixed rate payment from a counterparty and paying a floating rate set based on a pre-determined index
  - For new issues, the all-in cost of swapped ("synthetic variable") and traditional variable-rate debt should be compared to the cost of VRDO's and indexed bank loans



5-Yr Synthetic Variable Example

Pay Fixed Bond Rate:	0.43%
Rec Fixed Swap Rate:	(0.55%)
Pay Floating Swap Rate:	SIFMA
Net:	SIFMA - 0.12%

Synthetic Variable-Rate Debt vs. Direct Issue

- Issuers should compare the all-in cost of VRDB's (including credit support costs) or indexed bank loans to synthetic floaters
- In certain cases, synthetic variable-rate debt (fixed-rate bond issue + fixed-to-floating swap) may be a cheaper alternative to traditional variable-rate bonds or bank loans

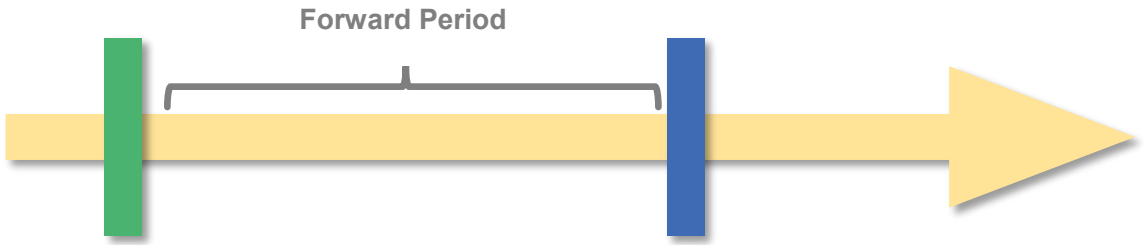
Term	Non-Call Bonds	SIFMA Swap	Margin to SIFMA Index
Weekly		0.06%	
3 Y	0.19%	0.21%	-0.02%
5 Y	0.43%	0.55%	-0.12%
10 Y	0.99%	1.12%	-0.13%
20 Y	1.90%	1.50%	0.40%
30 Y	2.19%	1.62%	0.57%

Swap rates include 8 bps dealer spread

Rates as of 4/30/2021

Cash-Settled Forward Swap (Synthetic Advance Refunding)

- A forward or delayed-starting interest rate swap (Synthetic Advance Refunding) allows an issuer to take advantage of current low interest rates and achieve debt service savings based on the current rates, while allowing for a future current refunding of outstanding bonds (when an advance refunding is not permitted)
- A forward swap is executed based on current rates and terms determined and agreed upon today that become effective on a pre-determined future date (e.g., in 6 months, in 1 year, etc.).
  - The fixed payer rate (to be paid by the issuer), variable swap index (to be paid by the counterparty) and fees are negotiated at the time that the forward swap is agreed to (Commitment Date).
- With a *cash-settled* forward swap, on the Effective Date (when net exchange of cashflows normally begins), the issuer terminates the swap and sells fixed-rate bonds.
  - The swap termination payment (paid or received by the issuer depending on rate movements) offsets higher or lower bond yields at issuance, providing an all-in cost similar to rate levels existing on the Commitment Date

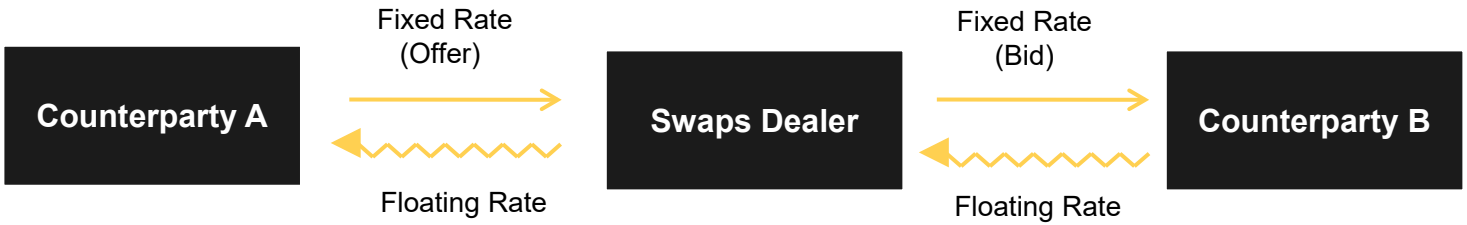


Swap Commitment Date:
- Execute Forward Swap Agreement setting terms of future swap – no payments exchanged

Swap Effective Date:
- Terminate swap and issue fixed-rate current refunding bonds

How Do Swap Dealers Make Money?

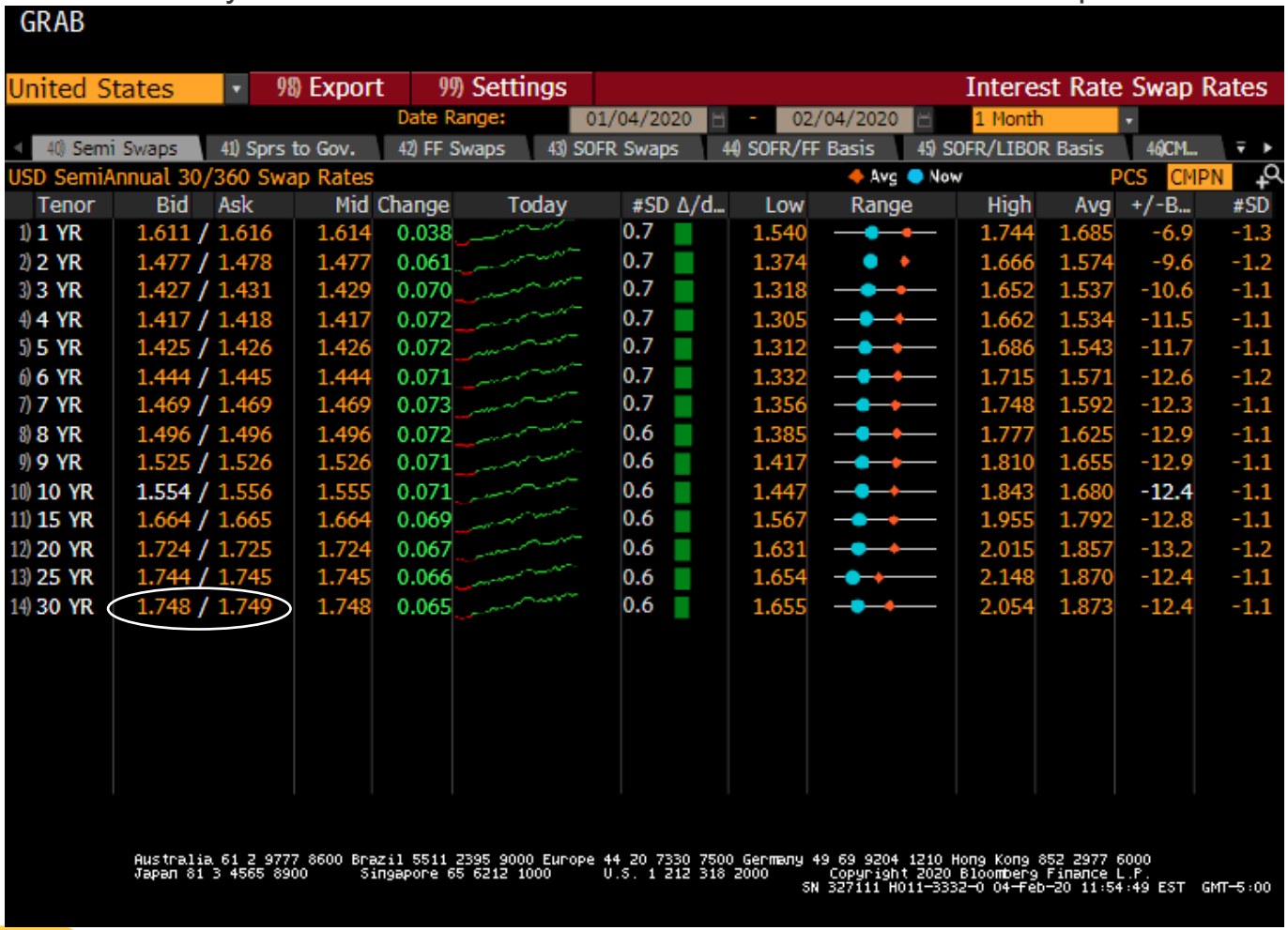
- Dealers earn the bid/offer spread in the swaps market



- The spread is larger for long-dated and complex products
- The spread compensates the dealer for market-making costs:
  - cost of hedging swaps portfolio, e.g. Treasurys bid/offer spread
  - residual risks, e.g. basis risk, tax risk, date mismatches
  - credit and regulatory capital reserves
  - equity cost of capital (shareholder profit)

How Do Swap Dealers Make Money? (con't)

- There is an actively traded inter-dealer broker market for interest rate swaps



Who Are the Active Municipal Swap Providers?

Major Municipal Swap Providers Long Term Debt/Counterparty ratings

Financial Institution	Rating	MOODY's	Watch	Outlook	S&P	Watch	Outlook	FITCH	Watch	Outlook
Bank of America NA	Aa2/A+/AA-	Aa2		Stable	A+		Stable	AA-		Stable
Bank of Montreal	Aa2/A+/AA-	Aa2		Stable	A+		Stable	AA-		Neg
Bank of New York Mellon/The	Aa2/AA-/AA	Aa2		Stable	AA-		Stable	AA		Stable
Barclays Bank PLC	A1/A/A+	A1		Stable	A		Stable	A+		Neg
Citibank NA	Aa3/A+/A+	Aa3		Stable	A+		Stable	A+		Neg
Deutsche Bank AG[1]	A3/BBB+/BBB	A3		Stable	BBB+		Pos	BBB		Pos
Fifth Third Bank	A3/A-/A-	A3		Stable	A-		Stable	A-		Neg
Goldman Sachs Bank	A1/A+/A+	A1		Stable	A+		Stable	A+		Stable
JPMorgan Chase Bank NA	Aa2/A+/AA	Aa2		Stable	A+		Stable	AA		Stable
Merrill Lynch & Co Inc	A2/A-/A+	A2		Stable	A-		Stable	A+		Stable
Morgan Stanley Capital Services LLC	Aa3/A+	Aa3		Stable	A+		Stable			
PNC Bank NA	A2/A/A+	A2		Neg	A		Stable	A+		Stable
Royal Bank of Canada	Aa2/AA-/AA	Aa2		Stable	AA-		Stable	AA		Neg
SMBC Capital Markets Inc	A1/A/WD	A1		Stable	A			WD		
The Toronto-Dominion Bank	Aa3/AA-/AA-	Aa3		Stable	AA-		Stable	AA-		Neg
UBS AG	Aa3/A+/AA-	Aa3		Stable	A+		Stable	AA-		Stable
US Bank NA	A1 */AA-/AA-	A1 *-	Neg		AA-		Stable	AA-		Neg
Wells Fargo Bank NA	Aa2/A+/AA-	Aa2		Neg	A+		Stable	AA-		Neg

as of 5/3/2021		**Watch**	possible change in short-term		**Watch**	short-term trend placing rating under surveillance		**Watch**	resolved within 12 months	
[1] Moody's Counterparty Rating for DB is A3		**Outlook**	likely direction over medium term		**Outlook**	potential direction over itermediate to longer term		**Outlook**	resolved beyond 1 to 2 years	

Interest Rate Swap Benefits

Floating-to-fixed Swap	Fixed-to-floating Swap

• Locks in fixed rate for term of financing
• Can be cheaper alternative to cash fixed-rate bond market
• Ability to terminate swap for gain if interest rates rise
	• Significant debt service savings, based on historical results
	• Can be cheaper alternative to VRDOs or other floating rate debt
	• Access to variable rates without:
	  • securing letter of credit
	  • paying remarketing/letter of credit fees
	  • restrictive letter-of-credit bank covenants
	  • risk of failed remarketing
	  • State/Sector-specific remarketing risk
	• Ability to terminate swap for gain if interest rates fall

Interest Rate Swap Risks

Floating-to-fixed SIFMA Swap	Fixed-to-floating SIFMA Swap
• Credit exposure to swap counterparty • Exposure to lower floating rates • Potential cost if swap is terminated early • Letter of Credit (LOC) renewal risk/increased credit support costs • Basis risk between VRDO cost and variable-rate swap index	• Credit exposure to swap counterparty • Exposure to higher floating rates • Potential cost if swap is terminated early • Potential swap loss if marginal tax rates cut (Tax Risk)

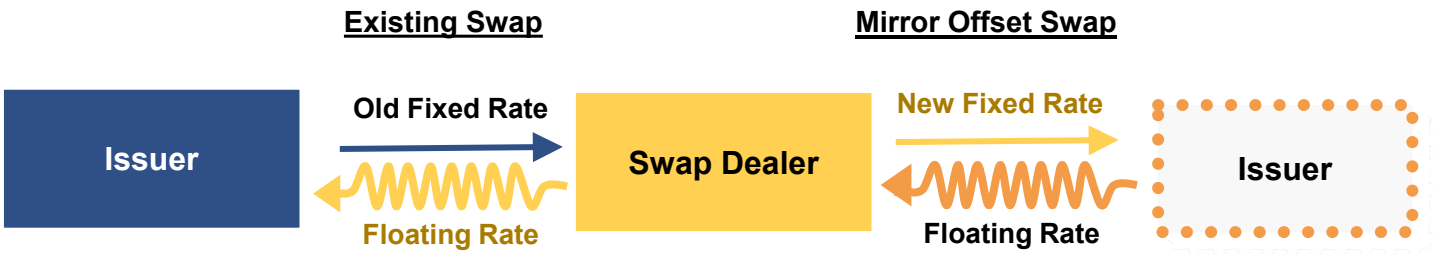
Swap Pricing and Valuation

Swap Pricing - Approach to Market Value

- Fixed swap rate is the breakeven rate that sets the present value of the fixed payments equal to the present value of the expected floating, e.g. LIBOR payments
  - Expected floating payments are calculated using implied forward rates which can be derived from market LIBOR swap rates and exchange traded Eurodollar futures
- Price or value of a swap = present value of fixed leg - present value of floating leg
- Price of an “at the market” swap = 0
- An “off market” swap has value to one party and requires an up-front cash payment to compensate for “off-market” rate
- Additional features, such as embedded caps, floors and swaptions, can be decomposed and independently valued.

Swap Termination Calculation Methodology

- For a plain-vanilla interest rate swap:
  - The existing swap is compared to a hypothetical at-market “mirror offset” swap with identical terms
  - Floating leg only re-valued to next reset date (value equals zero if calculated on a rate reset date)
  - Fixed leg value equals PV of difference between fixed payments on old and mirror swap
- All discounting is done at the dealer’s taxable cost of capital: (LIBOR) or Overnight Index Swap (OIS) discount rates



A Sample Swap Valuation

- The issuer would be required to pay $1,903,864 to terminate this swap

Scenario: 8 years ago an issuer entered into a 10-year Pay Fixed swap

Notional Amount: $100,000,000
Existing Fixed Rate Paid by Issuer: 5.00%
Current Market Fixed Rate for 2-year swap: 4.00%

Period	Fixed Payments @ 5.00%	Fixed Payments @ 4.00%	Difference	Present Value
1	2,500,000	2,000,000	-500,000	-490,196
2	2,500,000	2,000,000	-500,000	-480,584
3	2,500,000	2,000,000	-500,000	-471,161
4	2,500,000	2,000,000	-500,000	-461,923
			Swap value =	(1,903,864)

Swap Termination Matrix

- A swap termination matrix can be used for sensitivity analysis

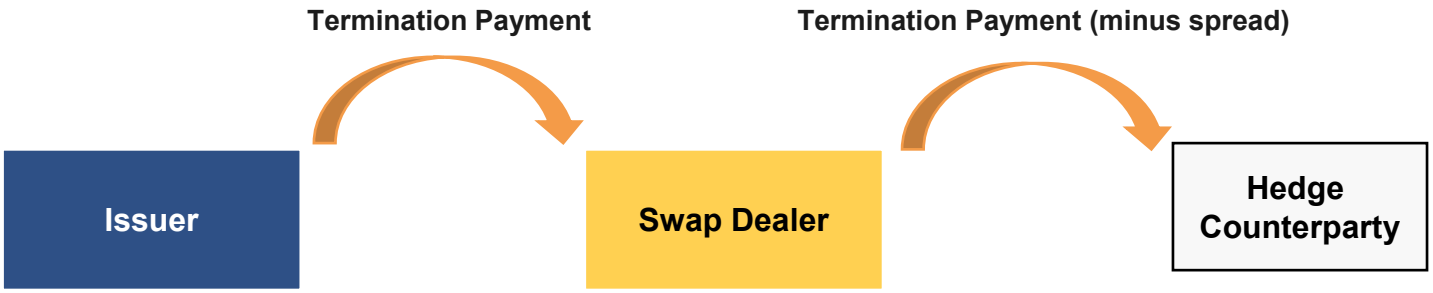
Swap Term (Years):	10.0
Notional Amount:	$100,000,000
Contract Swap Rate:	5.00%
Payment Frequency:	2
Issuer Pays:	Fixed

TERMINATION PAYMENT AMOUNT

Remaining Term of Swap (in Years)	Change in Swap Rate				
	-1.00%	-0.50%	0.00%	0.50%	1.00%
10	($8,175,717)	($3,990,928)	$0	$3,806,813	$7,438,737
9	($7,496,016)	($3,666,915)	$0	$3,512,192	$6,876,757
8	($6,788,855)	($3,328,158)	$0	$3,201,143	$6,280,551
7	($6,053,124)	($2,973,985)	$0	$2,872,752	$5,648,037
6	($5,287,671)	($2,603,695)	$0	$2,526,051	$4,977,002
5	($4,491,293)	($2,216,554)	$0	$2,160,019	$4,265,101
4	($3,662,741)	($1,811,796)	$0	$1,773,579	$3,509,846
3	($2,800,715)	($1,388,619)	$0	$1,365,592	$2,708,596
2	($1,903,864)	($946,185)	$0	$934,857	$1,858,549
1	($970,780)	($483,617)	$0	$480,106	$956,735

Termination Payment Received From Issuer Offsets Payment Owed to Hedge Counterparty

- The payment received by a dealer upon the termination of a swap does not represent a "windfall gain" to the dealer!
  - Any termination payment received (paid) by the dealer is offset by the amount paid to (received from) its hedge counterparty
- The dealer earns a small fee (bid/offer spread) on the termination
- If interest rates *rise* after an issuer enters into a pay-fixed swap, then it would *receive* a payment from the dealer upon termination



Considerations for Swap Terminations

- Termination of a swap may require the issuer to make a buyout payment to the swap provider
- Potential termination payments can be significant
- A “gain” or “loss” on a swap will normally be offset by a “gain” or “loss” on the underlying bonds being hedged

- **Termination provisions should be specified in the Schedule**
  - (ISDA Master is “silent” regarding Issuer optional termination)
  - “Market Quotation” and “Second Method” should be specified in Schedule to the Master Agreement

Commodity Hedging

Why Consider a Fuel Hedge?

- Protects against unforeseen price increases
- Allows better budgeting certainty
- Allows the reduction of a budgetary fuel reserve
- Hedge term often coincides with the fiscal year
- Both producers and consumers of energy products can benefit from hedging

Fuel Hedging

- The purchase or sale of a futures contract (or swap contract) as a temporary substitute for a cash market transaction to be made at a later date.
- Most typical tools:

Futures:

- Financial hedging tool traded on an exchange

Swap:

- Customized financial hedging tool traded as an over-the-counter derivative

Physical Contracts:

- Often called a fixed price contract

Options:

- Options may be purchased (or sold) as either over-the-counter or exchange traded instruments. One typical option is a cap (call option) on the price of a commodity.

Spot Prices, Futures Contracts and Swaps

- Futures Hedge - a series of successive contracts (calendar months) are bought or sold simultaneously
- Swap - floating index is normally a weighted average of monthly futures prices.

Gulf Coast ULSD
(Cents per gallon)

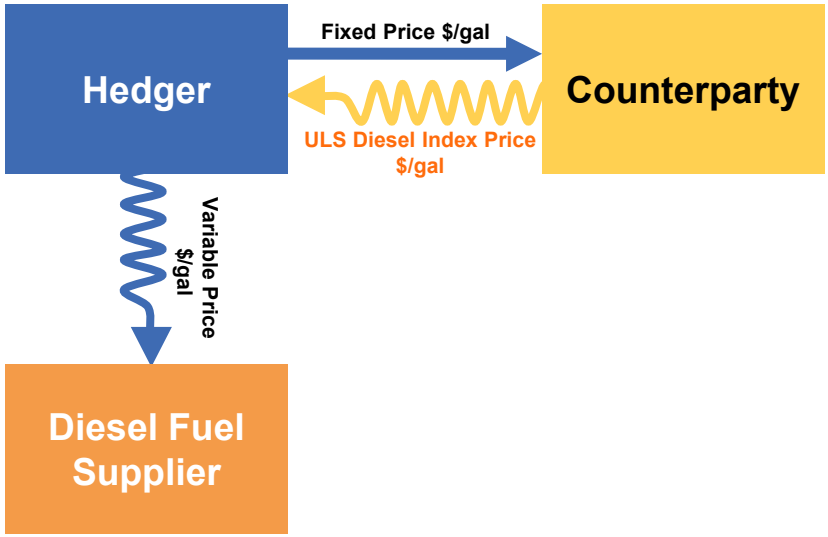
Month	Price	Month	Price
May21	1.8749	Nov21	1.8734
Jun21	1.8769	Dec21	1.8667
Jul21	1.8805	Jan22	1.8712
Aug21	1.8844	Feb22	1.8764
Sep21	1.8874	Mar22	1.8724
Oct21	1.8855	Apr22	1.8640

Pros and Cons of the Hedging Methods

	Pros	Cons
Forward Contracts (Fixed Price with Supplier)		
	•Easy to implement and understand •No basis risk	•Credit risk to supplier (flexibility) •More expensive than alternatives
Exchange Trades (Futures Contracts and Options)		
Futures	•No counterparty credit risk •Efficient pricing •Timing flexibility	•Futures Margins (liquidity) •Administrative Burden •Basis risk •Size inflexibility (trade by 1000 Barrels)
Options	•No counterparty credit risk •Efficient pricing •Timing flexibility •Known cost for bought options	•Futures Margins (liquidity) •Administrative Burden •Basis risk •Size inflexibility (trade by 1000 Barrels)
Over-the-Counter (Swaps and options like caps)		
Swaps	•Efficient pricing •No margins •Limited Administrative burden	•Basis risk •Counterparty Credit Risk •2-way price risk
Options	•Efficient pricing •Timing flexibility •Known cost for bought options	•Basis Risk •Counterparty credit risk

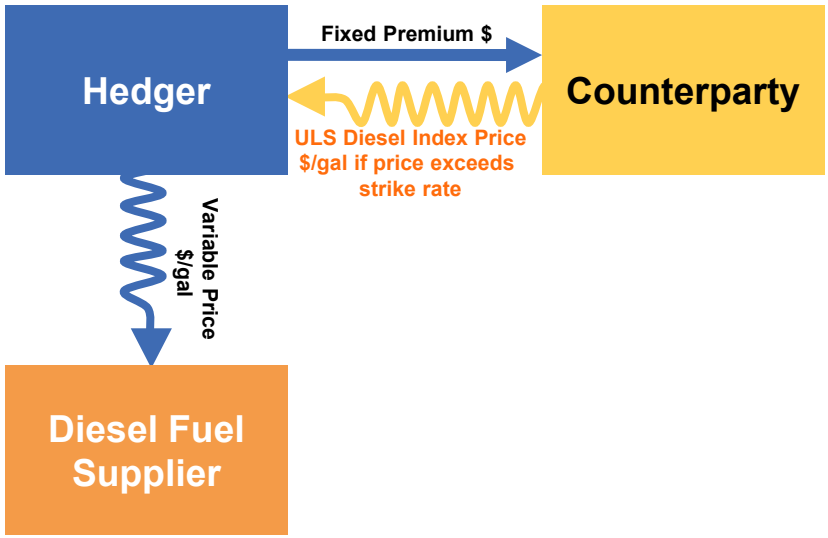
Mechanics of Fuel Price Swap

- Hedger is normally a “fixed rate (price) payer” on swap
- Floating index typically used in energy hedging is published price from an industry trade publication, e.g. Platt’s Oilgram, or the “near” (closest to expiration) futures contract
- Can specify physical or cash settlement on contract
  - Physical settlement exposes hedger to force majeure events



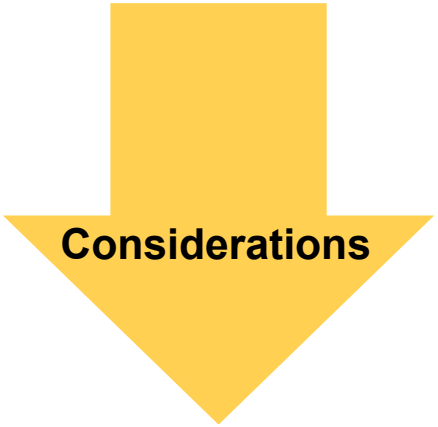
Mechanics of Fuel Price Cap

- Hedger pays premium up-front for the price protection
- Floating index typically used in energy hedging is published price from an industry trade publication, e.g. Platt's Oilgram, or the "near" (closest to expiration) futures contract
- Cap counterparty pays difference if index exceeds cap strike (rate)
  - For example, hedger buys a price cap at $2.50/gallon on ULSD
  - If ULSD is $2.00/gallon in a month, Hedger pays that rate for the fuel, no payments made on hedge
  - If ULSD is $3.00/gallon in a month, Hedger pays that for fuel, receives $0.50/gal. payment from Counterparty, reducing effective price to $2.50/gal.



Pros and Cons of a Hedging Program

- Budget Stability
- Ability to more accurately budget (less need to reserve against increases)
- Transparency of income vs. expense

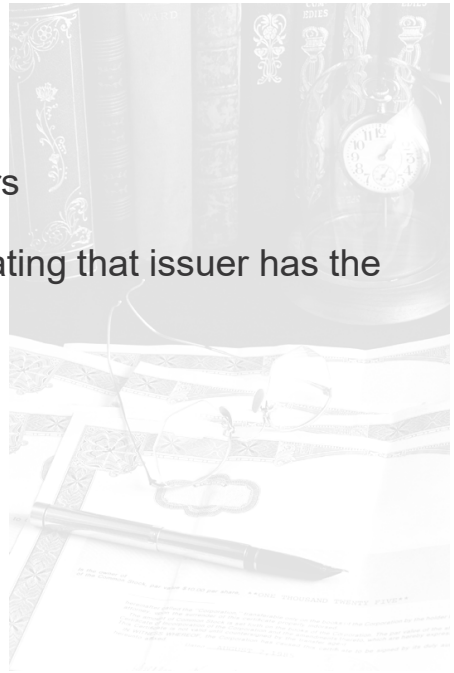


- Cost of implementing a hedge or hedging program
- Cost of forward contracts vs. spot
- "News management"
  - Speculation or hedging
  - Price movement (lower) during the hedge period

General Considerations for Swaps

Documentation

- Standardized documentation
- International Swaps and Derivatives Association
  - Master Agreement (the “pre-printed form”, i.e. boilerplate document)
  - Schedule to the Master Agreement (various “elections” to the Master Agreement can be made)
  - Confirmation (the “trade ticket”)
  - Credit Support Annex (governs posting of collateral)
- Documentation should be reviewed by legal counsel and/or advisors
- Swap providers often require legal opinion or other certifications stating that issuer has the legal authority to enter into a swap (“legal, valid and binding”)



Swap Procurement

- Tax law does not require competitive bidding
- Traditionally done on a negotiated basis
- Competitive bidding has become more common as municipal swaps have become more widely traded
- Factors that influence procurement method
  - Complexity of transaction
  - Credit quality of issuer
  - Size of transaction
- Not recommended that issuers be locked into a specified procurement method by policy requirements
- Role of brokers, advisors and investment bankers
  - Fee disclosure

Interest Rate Swap Costs

- The costs of executing an interest rate swap include:
- Swap provider bid/offer spread
  - Typically ranges from 4 - 8 bps per annum added to (subtracted from) swap fixed rate paid (received) for long-term negotiated swaps
  - Normally less for competitively bid “plain-vanilla” swaps
- Legal fees*
  - Normally one-time flat fee to draft/review swap Master Agreement
  - Usually low due to standardized (ISDA) documentation
- Swap Advisory Fees*
  - Normally one-time flat fee that can range from 0.5 – 3.0 bps per annum depending on transaction size and complexity
- Monitoring/Reporting Fees
  - Usually small ongoing annual fee for swap monitoring/valuation/reporting

*fees can be paid by Provider via an adjustment to the fixed swap coupon or directly by issuer

Tax Considerations for Swaps and Hedges

Qualified Hedges

- In general, payments made or received under a qualified hedging transaction are included for purposes of determining a bond's arbitrage yield.
- Qualified hedges must generally be entered into no later than 15 days after the issue date of the bonds
- Qualified hedges generally must contain no significant investment element
  - Pre-paid Caps or options and "off-market" swaps may not be considered qualified hedges under the IRS regulations
- Issuers should consult their Tax Counsel for guidance

Additional Considerations

- Legal authority to execute swaps (Authorizing Resolution, compliance with swap policy etc.)
- Rating agency considerations
- Bond Covenants/Indenture
- New Financial Reform Law requirements for use of swaps by municipalities

Dodd-Frank Act

Dodd-Frank Act (DFA) Overview

- Dodd-Frank Wall Street Reform and Consumer Protection Act (DFA)
- An act created to promote the financial stability of the U.S.
- Improve accountability and transparency in the financial system
- End ‘‘too big to fail’’
- Protect the American taxpayer by ending bailouts
- Protect consumers from abusive financial services practices
- Commodity Exchange Act (CEA)
- Passed in 1936 and regulates the trading of commodity futures in the U.S.
- Section 731 of DFA amends the CEA
- Commodity Futures Trading Commission (CFTC)
- Created in 1974 by Congress as an independent agency with the mandate to regulate commodity futures and option markets in the U.S.
- CFTC’s mandate has been expanded most recently by the DFA
- Securities and Exchange Commission (SEC)
- Created in 1934 and holds primary responsibility for enforcing the federal securities laws and regulating the securities industry, the nation's stock and options exchanges, and other electronic securities markets in the U.S.
- DFA provides CFTC and SEC with authority to regulate swaps and security-based swaps

Dodd-Frank Key Definitions

- **Swap Dealer**
  - Regularly enters into swaps with counterparties as an ordinary course of business
  - Engages in activity causing itself to be commonly known in the trade as a dealer or market maker in swaps
- **Major Swap Participant**
  - A person that maintains a “substantial position” in any of the major swap categories
  - A person whose outstanding swaps create “substantial counterparty exposure that could have serious adverse effects on the financial stability of the U.S. banking system or financial markets
  - Any “financial entity” that is “highly leveraged relative to the amount of capital such entity holds and that is not subject to capital requirements established by an appropriate Federal banking agency” and that maintains a “substantial position” in any of the major swap categories
- **Special Entity**
  - States, municipalities, state and federal agencies, pension plans, governmental plans and endowments (excludes 501c3 entities, e.g. colleges, non-profit hospitals)
  - Swap dealers have additional responsibilities with respect to transacting with Special Entities
- **Qualified Independent Representative (Swap Advisor)**
  - Independent fiduciary to Special Entity capable of evaluating the transaction and its risks

DFA Guidelines

- DFA provides for registration and comprehensive regulation of Swap Dealers and Major Swap Participants
- Requires SDs and MSPs to become and remain members of a registered futures association
- *Requires mandatory clearing of all swaps through an exchange or clearinghouse unless no clearing house will accept the swap or one of the parties is a commercial end-user*
- DFA provides an exemption for mandatory clearing if one of the parties is a non-financial entity and is using swaps to "hedge or mitigate commercial risk"
  - It is expected that all Special Entities, i.e. munis, will qualify for the clearing exemption
  - All Special Entities are required to use a QIR when executing swaps

Other areas include:

- Capital and margin
  - To offset risk to the SDs or MSPs and the financial system arising from use of swaps
- Reporting and recordkeeping
  - SDs and MSPs should make reports regarding transactions and positions and financial condition of the SDs and MSPs and to maintain daily records of trading and all recorded communications

Summary

Summary

Swaps can be valuable tools for both debt and interest rate risk management

There are potential risks and pitfalls

Issuers should seek out independent, informed advice on the use of swaps

The risks/rewards of any swap should be clearly understood before entering into a transaction

Overview of PFMSA

The PFM Group

PFM Swap Advisors LLC ("PFMSA") is an affiliate to PFM Asset Management LLC ("PFMAM"), PFM Financial Advisors LLC ("PFMFA"), and Public Financial Management, Inc. ("PFM"), all of which are subsidiaries of The PFM Group, a nationally recognized financial and investment advisor to the public and non-profit sector.

PFMSA serves as QIR and Designated Evaluation Agent in advising public sector and 501c3 clients on the use of derivatives and hedging products. We analyze the benefits, risks and costs for each option, assist in the selection of an option and implement the plan in the best interest of the client.

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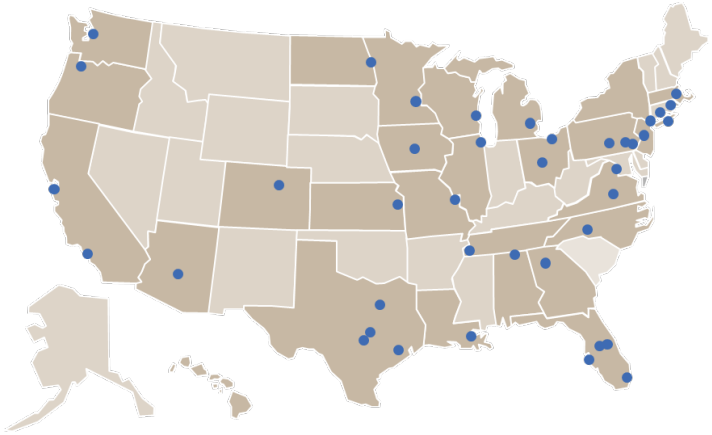
Alfred Mukunya, *Director*
George Hu, *Senior Managing Consultant*
Brooke Pierce, *Swap Accounting Coordinator*

Swap Advisory Services for Municipal and Tax-Exempt Entities

41 Office Locations

Ann Arbor	Dallas	Largo	New Orleans	San Antonio
Arlington	Denver	Long Island (West Holbrook)	New York	Seattle
Atlanta	Des Moines	Los Angeles	Orlando	St. Louis
Austin	Fargo	Malvern	Orlando East	Wallingford
Boston	Harrisburg	Memphis	Philadelphia	
Chandler	Houston	Miami (Coral Gables)	Portland	
Charlotte	Huntsville	Milwaukee	Princeton	
Chicago	Kansas City (Overland Park)	Minneapolis	Providence	
Cleveland			Richmond	
Columbus			San Francisco	

UNITED STATES



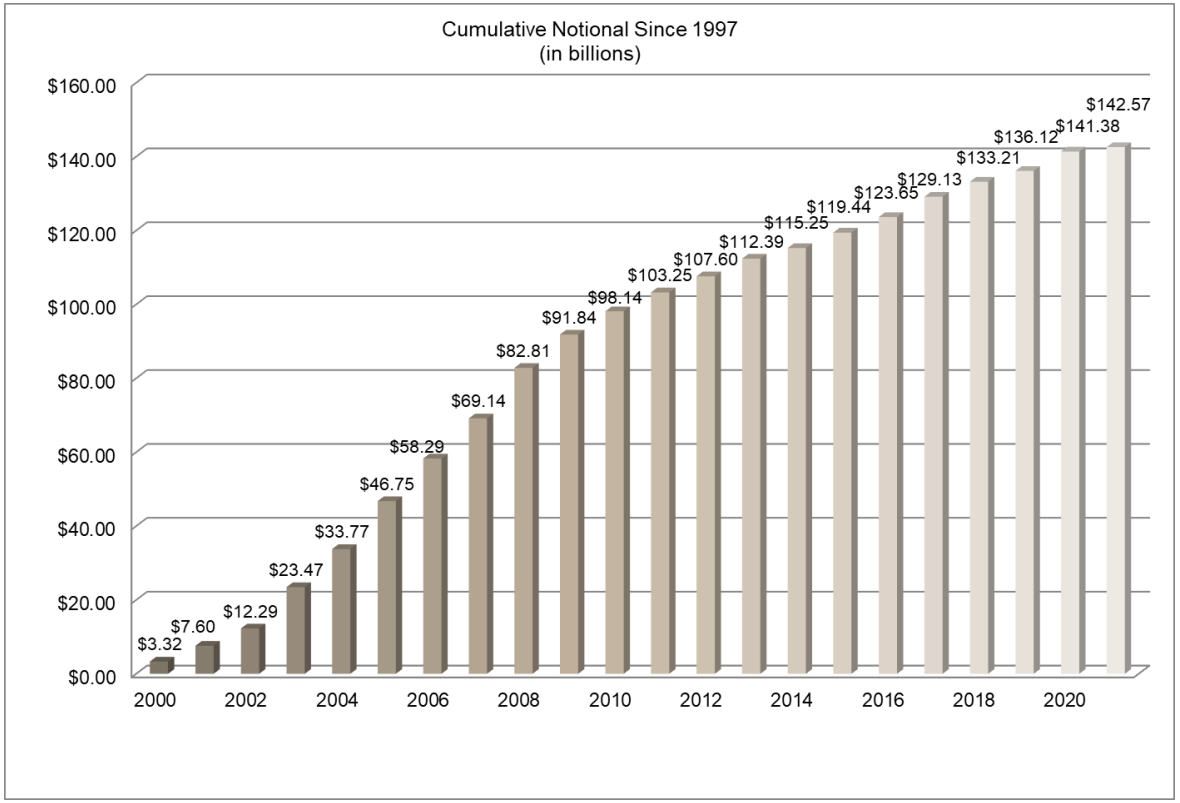
UNITED KINGDOM

London

Competitive Edge

- ***Strong team with 30+ years Wall Street experience that is familiar with all aspects of swap and derivative transactions (over 2000 transactions and $142 billion in notional principal arranged since 1997)***
- ***Access to market price information and trading screens and state-of-the art derivatives valuation software***
- ***Swap and derivative products advisory provided by a Registered Municipal Advisor, subject to Securities and Exchange Commission regulation (PFMSA is not a swap broker or dealer; we serve only as a fiduciary to our clients).***
- ***Registered with the Commodity Futures Trading Commission ("CFTC") as a Commodity Trading Advisor ("CTA")***

- Assists with seamless transaction execution
- Advises on maintaining orderly market through:
  - Real time pricing
  - Market communication
  - Minimize front-running dealers
- Advocate issuer objectives, requirements and transaction needs to Wall Street
- Seek to generate lowest cost funding for issuers



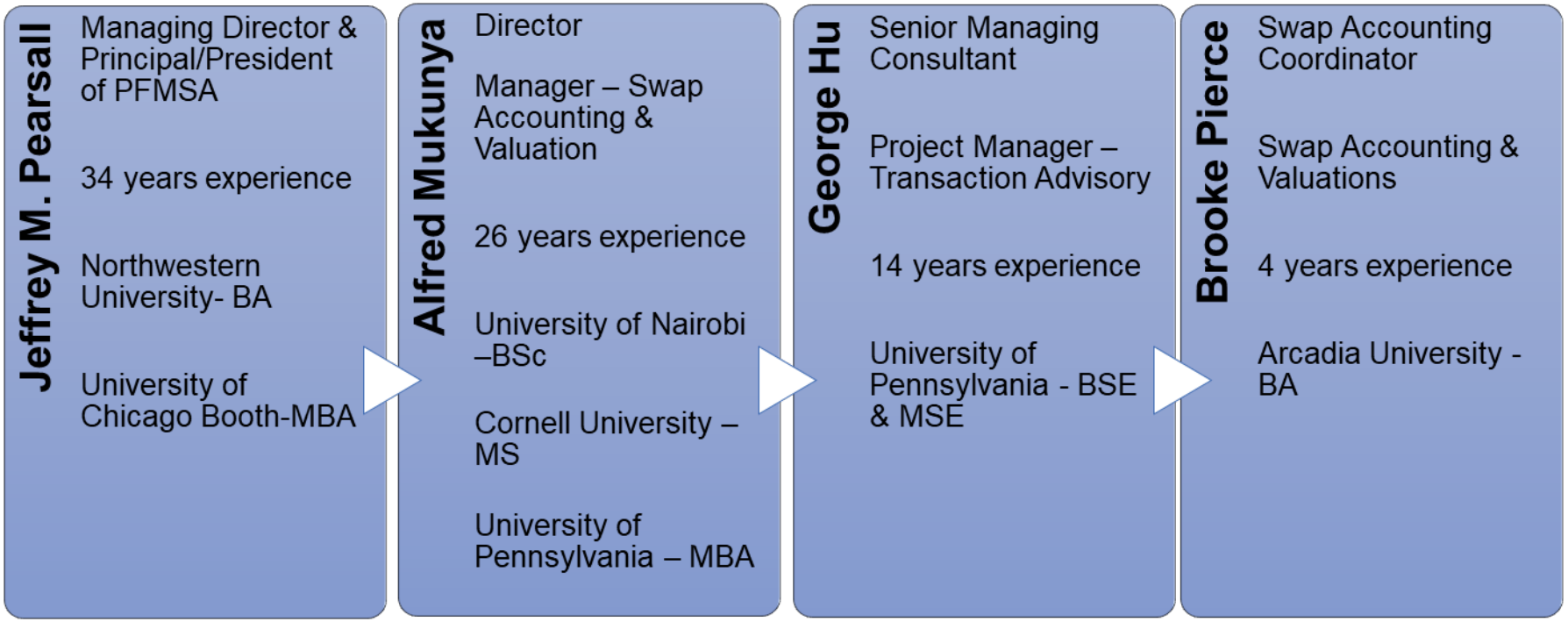
**Source: Internal database updated as of March 31, 2021.*

PFMSA Services

- PFMSA provides comprehensive services in regard to interest rate swaps, including:

Swap and Derivatives Policy Development	Transaction Review and Risk Analysis	Structuring Advice
Board or Rating Agency Education	Provider Identification	Documentation Review
Hedge Accounting & Reporting	Pricing and Execution Advice (Competitive Bid or Negotiated)	Fair Market Opinions
Portfolio Monitoring and Surveillance	Qualified Independent Representative (Dodd Frank)	Designated Evaluation Agent (Dodd Frank)

PFM Swap Advisory Professionals



Disclosures

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Consulting services are provided through PFM Group Consulting LLC. Institutional purchasing card services are provided through PFM Financial Services LLC. PFM's financial modelling platform for strategic forecasting is provided through PFM Solutions LLC.

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Thank You

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