TOBIAS READ
STATE TREASURER

JACQUELINE KNIGHTS
TREASURER'S DESIGNEE

CHRISTINE REYNOLDS
CHAIR

MUNICIPAL DEBT ADVISORY COMMISSION
350 WINTER STREET NE, SUITE 100
SALEM, OREGON 97301-3896
(503) 378-4930

PUBLIC MEETING NOTICE

MUNICIPAL DEBT ADVISORY COMMISSION MEETING

Tuesday, November 3, 2020
1:30 – 3:00 PM

Audio and video participation: Join Microsoft Teams Meeting
Audio participation only: 971-279-6217 Conference ID: 835 346 22#

Meeting materials are accessible on the MDAC web page under "Meeting Dates, Agendas, and Minutes"

AGENDA

		BEGIN[1]	END[1]	Presenter
1.	Call to Order and Roll Call	1:30 PM	1:35 PM	Christine Reynolds
2.	June 15, 2020 Meeting Minutes/Recording https://www.oregon.gov/treasury/oregon-bonds/municipal-debt-advisory/pages/default.aspx			Christine Reynolds
3.	MDAC Member Introductions	1:35 PM	1:40 PM	Christine Reynolds
4.	Proposed Legislative Concepts: a. Electronic Legal Document Execution: ORS 286A, ORS 287A, ORS 84 (Uniform Electronic Transactions Act) b. Consistent Notice Publications about Revenue Bond Authorizing Actions (e.g., Conform ORS 777 & ORS 778 to ORS 287A Revenue Bond Notice Timing) c. Other Legal Functions Affected by Remote Work	1:40 PM	2:00 PM	Christine Reynolds
5.	Direct Purchases and Private Placements	2:00 PM	2:10 PM	Lee Helgerson
6.	LIBOR/SOFR Transition https://www.orrick.com/en/People/D/A/4/Howard-S-Altarescu https://www.orrick.com/en/People/1/A/F/Nikiforos-Mathews https://www.orrick.com/en/Practices/LIBOR-Transition-and-Contract-Remediation	2:10 PM	2:40 PM	Christine Reynolds Jacqueline Knights Howard S. Altarescu Nikiforos Mathews
7.	Taxable vs. Tax-Exempt Bond Sales a. Taxable Bonds in the Current Market	2:40 PM	2:55 PM	Margie Backstrom Matthew Harris
8.	Q & A / Public Comment	2:55 PM	3:00 PM	
9.	Adjournment			

[1] Estimated times

TAB 5 – Direct Purchases and Private Placements

TAB 6 – LIBOR/SOFR Transition

Topic 5: Direct Purchases and Private Placements

Lee Helgerson, Debt Management Division

Topic 6: LIBOR/SOFR Transition

Jacqueline Knights
Director, Debt Management Division

Howard Altarescu and Nik Mathews
Partners, Orrick Herrington & Sutcliffe LLP

TOPICS 5 & 6:

- **DIRECT PURCHASE & PRIVATE PLACEMENT CONSIDERATIONS**

- **LIBOR / SOFR TRANSITION**

- **TOPIC 5:**

DIRECT PURCHASE & PRIVATE PLACEMENT CONSIDERATIONS

Benefits of Bank Loans and Private Placements

Bank loans and private placements have historically been a common source of funding for small or short-term financings such as for vehicles and equipment. More recently both have come to be used to fund larger capital projects traditionally financed with publicly sold bonds or lease obligations. Some benefits include:

- Perceived lower cost of issuance
  - Generally lower up-front fees and associated underwriting costs
  - May not require **opinion from** bond counsel or a municipal advisor*
- Less time and resources required of the borrower
  - No official statement or rating requirement
  - **Possible limited scope of ongoing** disclosure obligations **directly to lender (no EMMA filings)**
- Ability to customize financing structure
- Flexibility to avoid issuance in volatile market environments and times of pricing uncertainty

**Note that while the absence of bond counsel or municipal advisor may reduce costs of issuance, the exclusion of these parties is often not in the best interest of the issuer.*

Private Placements, Direct Purchases and Bank Loans

- Private Placement – Sale of securities in a non-public offering directly to a single purchaser or to a limited number of investors. Also referred to as a direct purchase.
- Bank Loan – Direct loans in which the borrower enters into a loan agreement with a bank.
  - The borrower often has an established relationship with the lending bank and the transaction is generally conducted without the use of a placement agent.
  - A bank loan or direct borrowing is basically a type of a direct purchase.
- Primary difference between a bank loan and a private placement:
  - A bank borrowing is usually a loan instrument.
  - A private placement is usually a security.

Negatives of Bank Loans and Private Placements

While certain costs of issuance such as underwriting fees and rating agency fees may not be required with bank loans and private placements they are often not an issuers' best financing option. Some negatives include:

- Generally higher interest rates as compared to rates obtained from a public offering.
  - No ratings makes it difficult for investors to determine risk = "risk premium"
- **Certain structures are sold to a** limited number and variety of investors.
  - May require minimum denominations (e.g. $100,000 or more)
  - Private placements limited to sophisticated **(accredited)** investors
  - Traveling investor letter requirements
- Banks often require short-term financing (generally 10 years or shorter).
  - May impose risk of uncertain access to refinancing when the loan matures
- Banks may require unfavorable covenants that **can have negative implications on existing bond ratings, among other considerations**

While banks may provide issuers easy financing with lower costs of issuance they have no fiduciary duty to protect the issuer's interests.

Unfavorable Terms and Covenants

Some examples of unfavorable terms and covenants include:

- Bank loans often include events of default that can result in a mandatory redemption of the loan.
  - Cross-defaults to other unrelated obligations
  - Rating downgrade provisions may put issuer at risk especially given that ratings are not something that the issuer directly controls
  - Adverse change provisions are often unclear and subject to interpretation
- Waiver of jury trial
- Many loans have provisions known as “gross-up provisions” that allow the bank to change the rate on the loan if the corporate tax rate is changed. Billions of bank loans and private placements had rate resets after the 2017 Tax Act was enacted and changed the corporate tax rate from 35% to 21%.
- Many bank loans include rate resets related to the length of the loan. For example, you may have a 10-year loan in which the rate is only fixed for 5 years and then adjusted based on some predefined future condition such as the bank’s prime rate.
- Some bank loans are structured with balloon payments which may, depending on the circumstances, require the issuer to refinance the loan.

SEC Disclosure Requirements

- Prior to February 2019 there were no SEC or MSRB requirements relating to continuing disclosure for private placements and bank loans.
- Effective February 27, 2019 changes to SEC Rule 15c2-12 require disclosure of private placements and bank loans in certain circumstances. Specifically, SEC Rule 15c2-12 was amended to include new events 15 and 16:
  - (15) Incurrence of a financial obligation of the obligated person, if material, or agreement to covenants, events of default, remedies, priority rights, or other similar terms of a financial obligation of the obligated person, any of which affect security holders, if material; and
  - (16) Default, event of acceleration, termination event, modification of terms, or other similar events under the terms of a financial obligation of the obligated person, any of which reflect financial difficulties.
- For more information regarding the SEC Rule 15c2-12 disclosure changes see:
  - See http://www.msrb.org/~/media/Files/Resources/10-Things-to-Know-New-SEC-Rule-15c2-12.ashx?

Consider Your Options

- Bank loans or private placements may be feasible for a particular transaction but consider your options.
- For large capital expenditures, bank loans and private placements may be an expensive alternative to publicly sold bonds or **other debt** obligations.
- Use a request for proposals that permits firms to submit proposals for either a private placement or public offering
  - If you determine that a bank loan or private placement is the best approach, then a competitive proposal will also help you determine which bank offers the best rates and terms.
- Finally, if you determine to proceed with a bank loan or private placement, then a municipal advisor and bond counsel can assist in the development of favorable financing terms and covenants that won't negatively affect your financial situation or bond rating.

- **TOPIC 6:**

  LIBOR/SOFR TRANSITION

LIBOR: A Historical Perspective

- LIBOR (London Interbank Offered Rate) is the reference rate at which large banks can borrow short-term funds on an unsecured basis
  - USD LIBOR Fixing is determined by the collection of data daily (11am) from the largest and most creditworthy banks that are active in the US markets
  - LIBOR serves as the reference or benchmark rate for short-term financial contracts
    - A futures market was developed that provided for the development of a LIBOR rate curve for use in structuring long term contracts
  - At its peak, it is estimated that LIBOR based contracts were valued at $350 Trillion
    - This compares to total outstanding US Fixed Income securities of $42 Trillion
- Banks and market participants employ the use of LIBOR for many financing vehicles
  - Interbank Lending
  - Adjustable Rate Mortgages
  - Interest rate and other swaps
  - Bank Loans
  - Student Loans
  - Floating Rate Notes

Source: Federal Reserve Bank of NY, Statements from Chairman Powell

LIBOR: Inherent Weaknesses as a Benchmark Index

- The Financial Crisis, (2007-2009), highlighted fundamental weaknesses in LIBOR as a Benchmark
  - LIBOR exhibited tremendous volatility as early as July 2007 when the initial mortgage market issues came to light
  - Volatility increased significantly in the credit crunch preceding the Lehman bankruptcy and the ensuing liquidity / credit freeze in the banking sector, reflecting the credit risk component of LIBOR
  - When used as a benchmark, the credit component LIBOR transfers to LIBOR Based financial contracts that were unrelated to the banking sector credit risks
  - The Liquidity Crisis escalated LIBOR rate manipulation by representatives of major financial institutions during LIBOR Fixings
    - Some banks provided inaccurate borrowing information and estimated borrowing costs, with the potential of increasing bank profits in certain situations
    - This led to the erosion of the credibility of LIBOR as a viable index
- In 2017, The Financial Conduct Authority ("FCA") and UK Regulators determined LIBOR to be untenable and established August 2021 to be the end of LIBOR as an Index

Source: Federal Reserve Bank of NY, Statements from Chairman Powell, Bloomberg

The Emergence of SOFR (Secured Overnight Financing Rate)

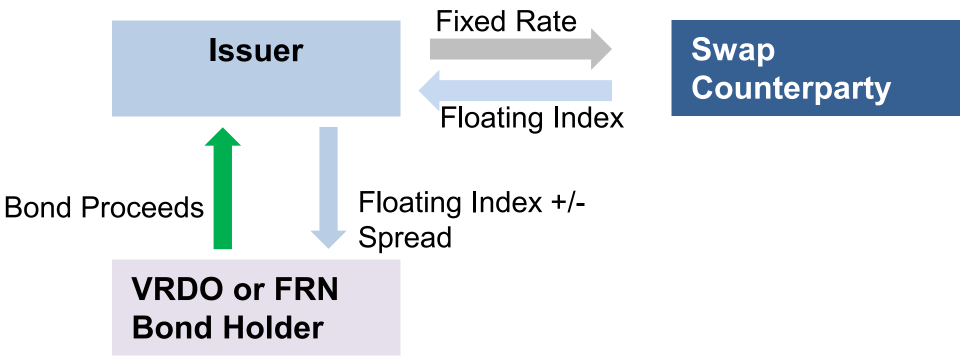
- SOFR is a broad measure of the cost of borrowing cash overnight using transactions that are collateralized by US Treasury Securities
- Key features of SOFR
  - Collateralized by US Treasuries, which approximates a risk free rate
  - Rate determined based on actual transactions - volume weighted repo transactions cleared through designated and established clearing centers including BNY Mellon, Fixed Income Clearing Corp (FICC) / Depository Trust & Clearing Corp (DTCC)
  - Since consideration of SOFR as a potential LIBOR replacement, SOFR volume has increased and daily trades now approximate $800 Bn to $1,000 Bn
- SOFR addresses fundamental concerns with LIBOR
  - Credit risk of banking sector / financial institutions is removed from pricing
  - Market manipulation risk is minimized as rate is based on actual transactions
- SOFR Considerations
  - SOFR is primarily an overnight index rate
  - In May of 2020, SOFR futures contracts began trading on the Chicago Mercantile Exchange
    - Futures contracts permit the development of an interest rate curve using SOFR
    - With longer term rates, SOFR can be used for longer term securities

Source: Federal Reserve Bank of NY, Statements from Chairman Powell, Bloomberg

LIBOR and SOFR: Nuances of the Transition

- LIBOR is embedded in a variety of municipal transactions
  - Direct placements with banking institutions
  - Variable Contracts ("VRDOs") / Floating Rate Notes ("FRNs): [% of] LIBOR + [Spread]
  - LIBOR Based Interest Rate Swap Language will need to be reviewed to determine how a successor index will be treated

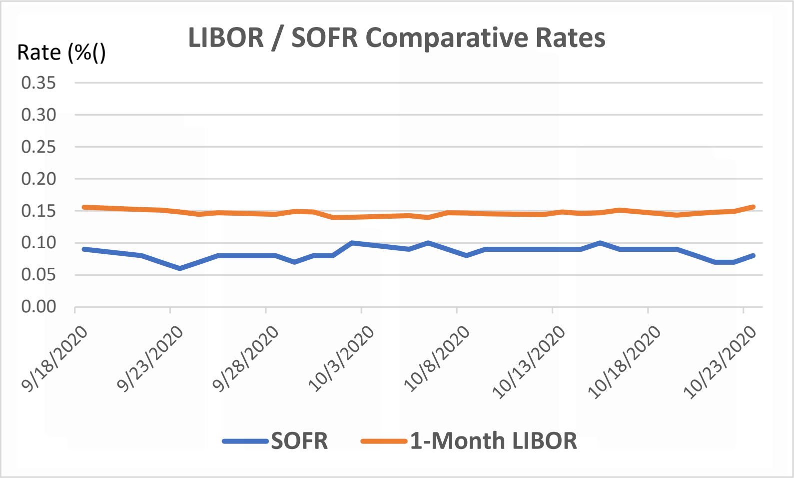
Fixed Interest Rate Swap Illustration

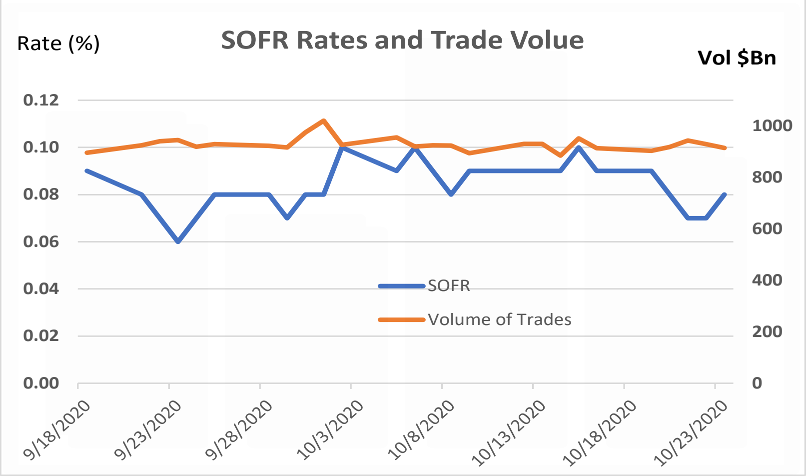


- Many financial documents have language regarding conversion to a successor index
  - Issuers need to be concerned with the conversion factor from LIBOR to SOFR
  - For hedging instruments, will a conversion cause a reissuance or no longer satisfy the definition of an integrated swap for hedging purposes
  - As these contracts are heavily negotiated, issuers need to carefully review the conversion language to determine the effect of the conversion on their overall cost

LIBOR and SOFR: Preparing for Conversion – Know Your Documents

- How to prepare for LIBOR/SOFR Conversion
  - With compression of LIBOR / SOFR Spread and an active SOFR market, wait until the market determines the conversion factor
  - Review bond and swap documents to determine if there is language governing a successor index
  - Review indentures to determine if it needs to be amended to include SOFR as a permissible index
  - Review agreements that could potentially have LIBOR embedded structures
    - ✓ Loan Agreements
    - ✓ Standby / Direct Pay LOC's
    - ✓ Direct Placement with Banks
    - ✓ Reserve Funds
    - ✓ Swaps and Bond Documents
    - ✓ Indentures





LIBOR DISCONTINUANCE AND ITS IMPLICATIONS

PREPARED FOR:

OREGON STATE TREASURY

HOWARD ALTARESCU, PARTNER

NIKIFOROS MATHEWS, PARTNER

orrick

Industry Focus / Legal Considerations

- Critical Areas of Focus
  - Triggers
  - Replacement Benchmark
  - Replacement Benchmark Spread

Industry Focus / Legal Considerations (cont.)

- Alternative Reference Rates Committee (the ARRC)
- New Cash Instruments
  - The ARRC has published its final recommended language for the following products, as well as for spread adjustment methodologies.
    - Adjustable Rate Mortgages
    - Bilateral Business Loans
    - Floating Rate Notes
    - Securitizations
    - Syndicated Loans
    - Variable Rate Private Student Loans
    - Spread Adjustment Methodologies for Fallbacks in Cash Products

Derivatives

- Derivatives account for approximately 95% of USD LIBOR exposure
- Most interest rate derivatives use some form of LIBOR as their reference rate.
- The predominant one in the U.S. is USD-LIBOR-ICE of varying maturities

Derivatives – What Currently Happens?

- Incorporation of 2006 ISDA Definitions
- LIBOR determined with respect to each “Reset Date”
- Fallback to “USD-LIBOR-Reference Banks” determined on the basis of a dealer poll
- In case of permanent discontinuance of LIBOR, looking to “Reference Banks” would be unworkable

ISDA Initiatives – Transition to SOFR

- 2018 / 2019 IBOR Consultations
- Selection of Vendor
- Amendment of 2006 Definitions
- Protocol for “Legacy” Derivatives

The LIBOR Transition

Legacy Cash Instruments

- Contract Inventory and Exposure Assessment
  - Fallback provisions
  - Alternative benchmarks
  - Choice of the alternative
  - Margin
  - Trigger determination
  - Amendment/consent provisions

Legal Considerations: The Problem

If LIBOR is not available, legacy instruments provide for a fallback to …

- Last Available LIBOR
- Average Quotes Provided by Bank Poll
- Administrative Agent (Or Other) Determination
- No Fallback Provisions
- Lender Cost of Funds/ Prime Rate, etc.

The State Legislation "Solution"

ARRC Proposed New York State legislation

- Last Available LIBOR
  - Replace with SOFR and related adjustment provisions
- Average of Quotes Provided by Bank Poll
  - Replace with SOFR and related adjustment provisions
- Administrative Agent (Or Other) Determination
  - Litigation safe harbor if they select SOFR and related adjustment provisions
- No Fallback Provisions
  - Insert SOFR and related adjustment provisions
- Lender Cost of Funds/ Base Rate (i.e., Prime Rate)
  - <u>No override</u>

Contract parties may mutually opt-out of mandatory application of the proposed legislation at any time.
New York law is the governing law in the vast majority of corporate financing documents in the U.S.

The Contracts Clause Hurdle

United States Constitution (Article I, section 10, clause 1)

- United States Constitution (Article I, section 10, clause 1)
- Prohibits states from passing any “Law impairing the Obligation of Contracts”

U.S. Supreme Court opinions – Questions to be asked

- Does the statute effect a “substantial impairment” of contracts?
- Is the law designed to reflect the intent of the parties?
- Is the law likely to disturb any parties’ expectations at the time of contracting?
- If a substantial impairment is shown …
  - whether the impairment is supported by “a significant and legitimate purpose,” and
  - whether it does so in an “appropriate” and “reasonable” manner

The U.S. Federal Legislation “Solution”, etc.

Possible Federal Legislation

- Terms essentially the same as New York Legislation
- Nationwide Fix
- Timing: TBD

UK Legislation/ Regulations

- Financial Services Legislation
- Amendments to the Benchmarks Regulation to support LIBOR transition: Policy Statement

Litigation Risks

> *"When you looked at the underlying contracts that used LIBOR, they didn't provide very well for LIBOR simply disappearing.... This is a* ***DEFCON 1 litigation event*** *if I've ever seen one."*
>
> **— NY Fed Exec. VP and General Counsel Michael Held**

- Impracticality
- Breach of contract
- Unexpected-circumstances doctrines
  - ✓ Impossibility
  - ✓ Frustration of purpose
  - ✓ Mutual mistake of fact
- Implied covenant of good faith and fair dealing
- Force majeure
- Federal securities law disclosure
- Federal securities law fraud
- Consumer protection claims

APPENDIX A

KEY RESOURCES

orrick

Key Resources

- **ARRC – Alternative Reference Rates Committee** In 2014, the Board of Governors of the Federal Reserve System and the Federal Reserve Bank of New York convened the Alternative Reference Rates Committee in order to identify best practices for alternative reference rates, identify best practices for contract robustness, develop an adoption plan, and create an implementation plan with metrics of success and a timeline.
- **ISDA – International Swaps and Derivatives Association** The Official Sector Steering Group (OSSG) approached ISDA in 2016 and requested that ISDA embark on an initiative designed to improve the contractual robustness of contracts referencing IBOR rates. ISDA has since published certain related consultative papers.
- **LSTA – Loan Syndication and Trading Association** The LSTA promotes a fair, orderly, efficient, and growing corporate loan market and provides leadership in advancing and balancing the interests of all market participants. The LIBOR Working Group engages with ARRC, regulators and other trade associations to help with LIBOR replacement.
- **LMA – Loan Market Association** The LMA has as its key objective improving liquidity, efficiency and transparency in the primary and secondary syndicated loan markets in Europe, the Middle East and Africa (EMEA). The LMA is working with the market, other trade associations and the regulators on contingencies.
- **SFIG – Structured Finance Industry Group** SFIG's LIBOR Task Force was formed to identify potential membership actions that should be taken in response to the phase-out of LIBOR. Given that the impact of this change will be felt across the securitization industry, a Steering Committee representing key sectors of the industry helps guide the Task Force.

Key Resources (cont.)

- **SIFMA – Securities Industry and Financial Markets Association** SIFMA plays a central role among our stakeholders in ensuring market resiliency and preparedness. By laying the foundation to transition away from the use of LIBOR, identifying new risk-free rates (with futures trading now underway), improving our fallbacks in derivatives and new securities transactions, and implementing other elements of the Alternative Reference Rate Committee's (ARRC) paced transition plan, we are reducing risk in our marketplaces and making our system more resilient.
- **FCA – Financial Conduct Authority** In July 2017, the chief executive of the UK's Financial Conduct Authority (FCA), Andrew Bailey, announced that the FCA would no longer compel or persuade banks to provide submissions for LIBOR post-2021.
- **ICE Benchmark Administration** ICE LIBOR is a benchmark rate produced for five currencies with seven maturities quoted for each - ranging from overnight to 12 months, producing 35 rates each business day.
- **IBOR Global Benchmark Transition Report June 2018** SIFMA, SIFMA AMG, ISDA, AFME and ICMA published a new report that assesses the issues involved with benchmark reform, and makes recommendations on steps firms can take to prepare for the transition from interbank offered rates (IBORs) to alternative risk-free rates (RFRs).

APPENDIX B

ARRC UPDATE AS OF OCTOBER 28, 2020

orrick

AARC Update as of October 28, 2020

The ARRC has published its final recommended language for the following products, as well as for spread adjustment methodologies.

- Adjustable Rate Mortgages
- Bilateral Business Loans
- Floating Rate Notes
- Securitizations
- Syndicated Loans
  - Technical Appendices
- Variable Rate Private Student Loans
- Spread Adjustment Methodologies for Fallbacks in Cash Products

orrick

TAB 7 – Taxable vs. Tax-Exempt Bond Sales

Morgan Stanley

Taxable Municipal Bonds

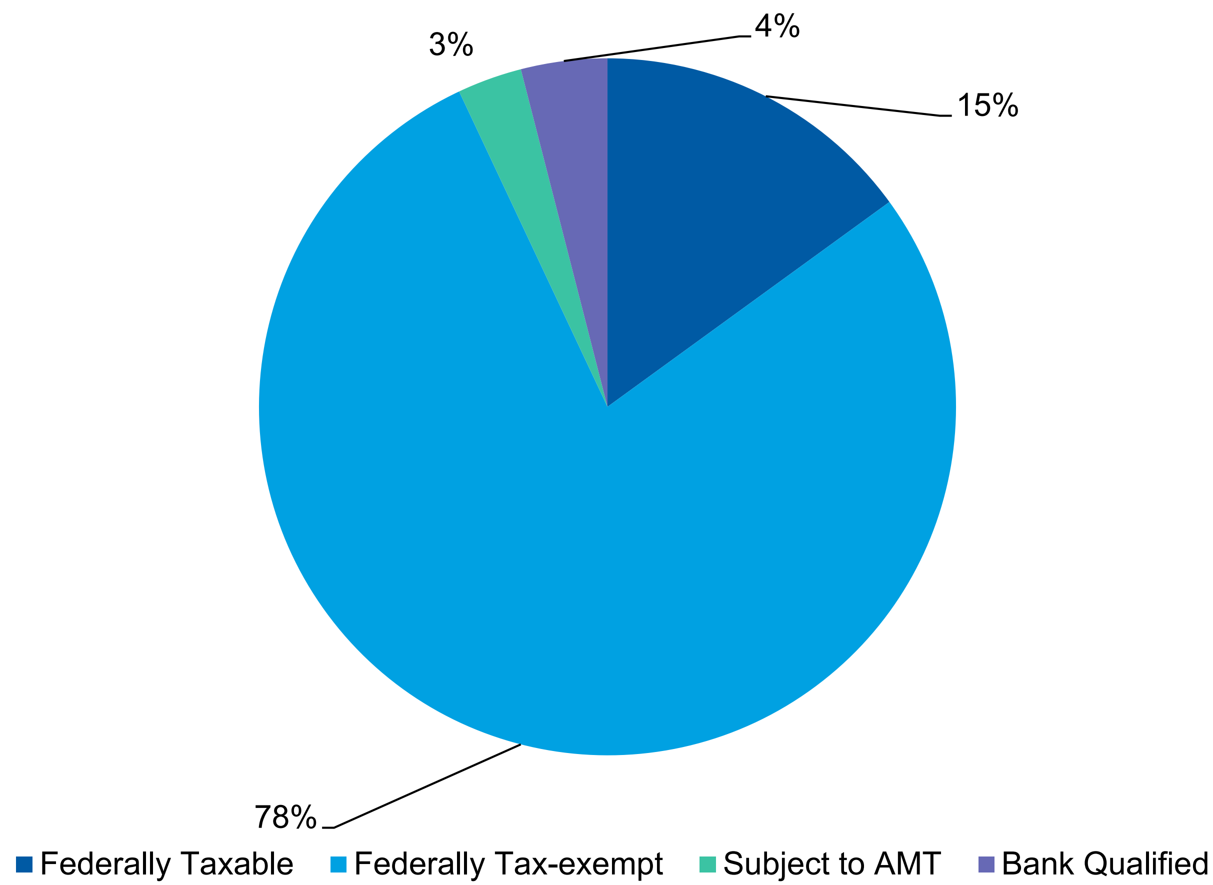
Discussion Materials

November 3, 2020

Municipal Bond Market Overview

- The majority of municipal bonds (85%) are issued as federally tax-exempt, but a small portion is taxable
- Issuer may issue taxable bonds for a number of reasons including, but not limited to:
  – Private use of facility
  – Advance refunding
  – Relative rates in tax-exempt versus taxable markets
  – Decreases post-issuance tax compliance

Percent of Market by Tax Status

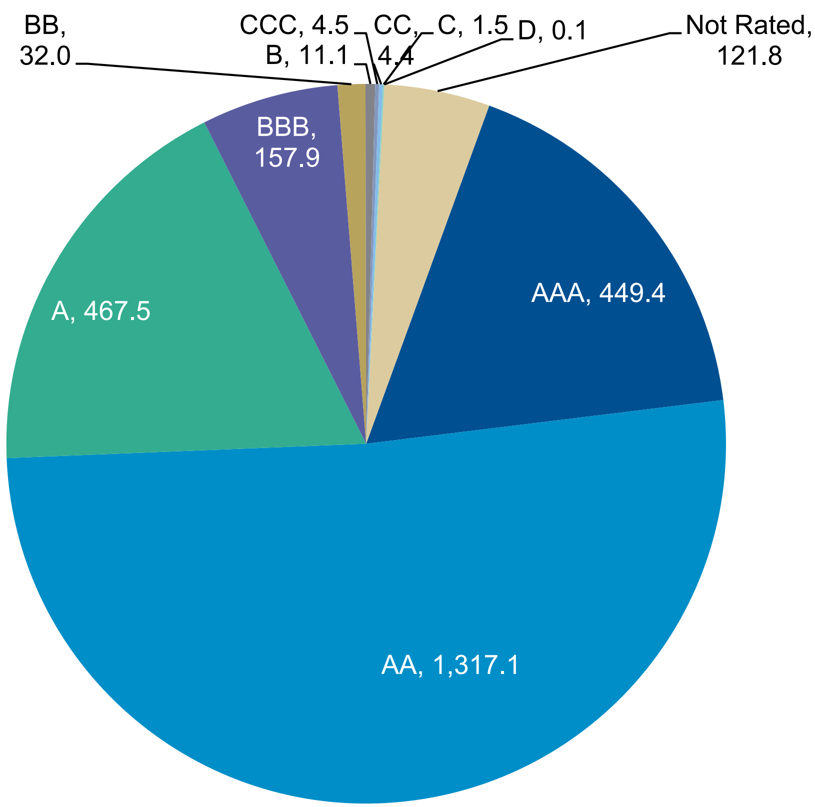


Source: Morgan Stanley Research, Bloomberg MSRC as of 8/21/3030

Ratings Distribution

Main Index Composite Ratings

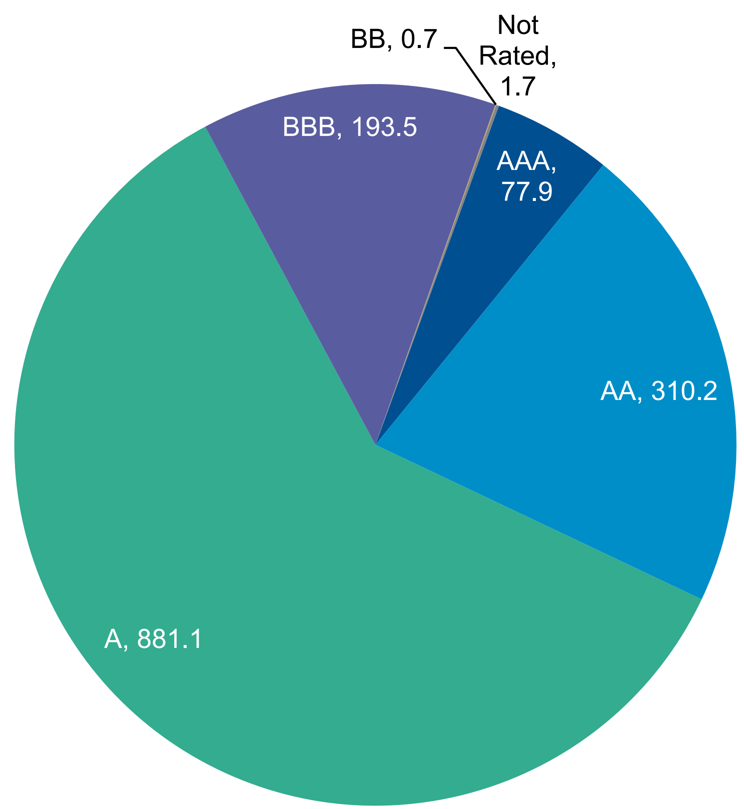
Market Value ($B)



Source: Morgan Stanley Research, S&P as of 8/31/2020

Taxable Index Composite Ratings

Market Value ($B)

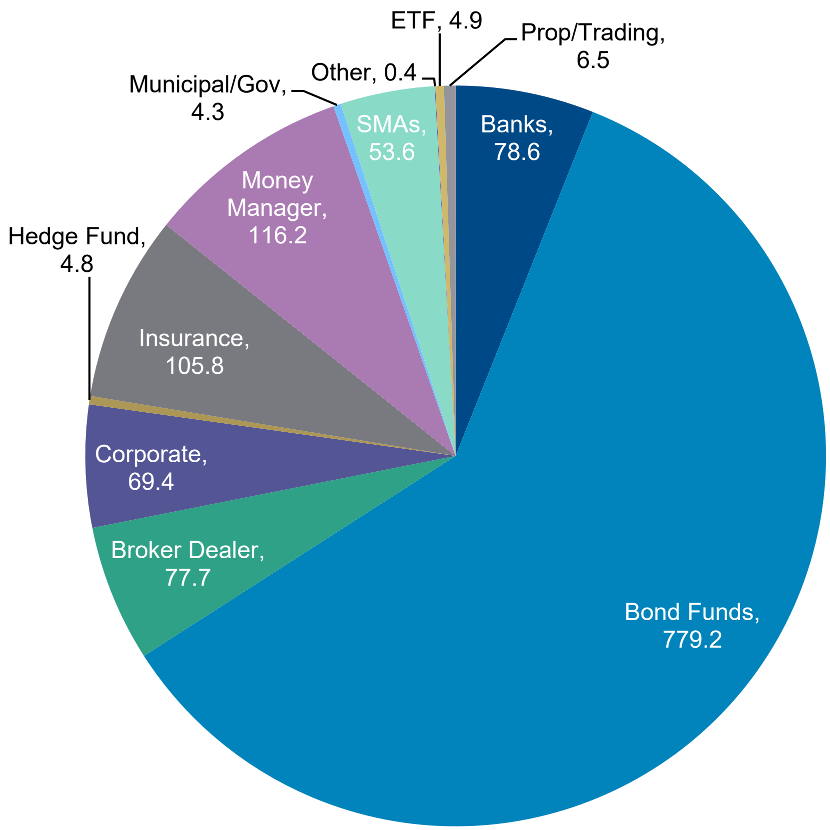


Source: Morgan Stanley Research, S&P as of 8/31/2020

Top Buyers

Top Buyers of Tax-Exempt Municipal Bonds

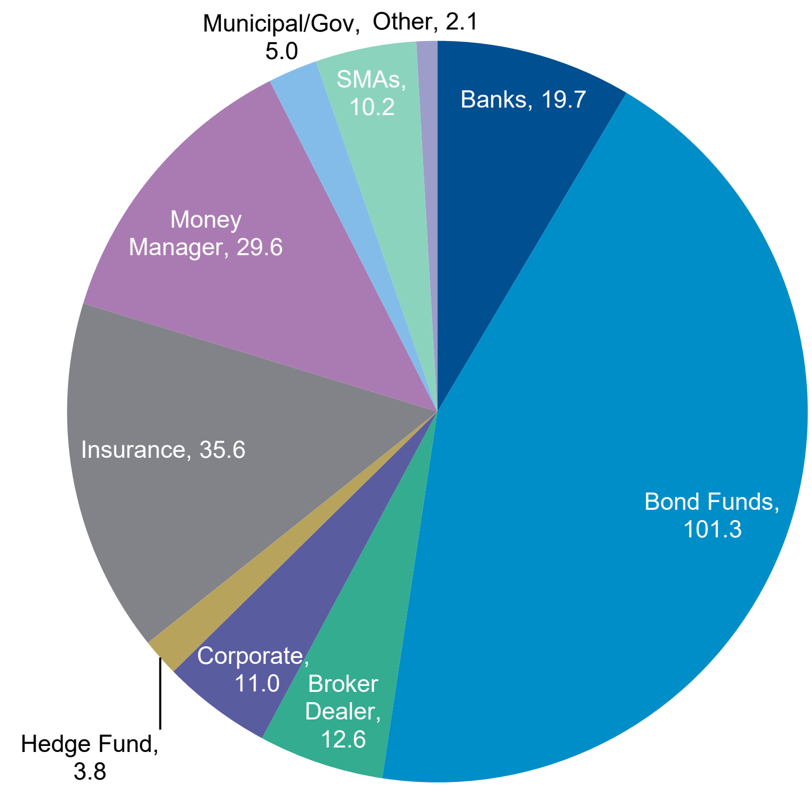
Market Value ($B)



Source: Bloomberg as of 10/21/2020

Top Buyers of Taxable Municipal Bonds

Market Value ($B)



Source: Bloomberg as of 10/21/2020

Primary Differences Between Taxable and Tax-Exempt Transactions

- Taxable buyer base may include more insurance companies and fewer retail investors
  - Underwriter may suggest including language in the POS that allows international investors to purchase the bonds
- Taxable market developed from corporate market, so certain conventions in call provisions and pricing can vary
  - **Call provisions:** 10 year par call that is dominant in tax-exempt market is uncommon in corporate market, but common for taxable municipal bonds
  - **Issue Price:** Taxable bonds price at par, which means that the coupon and the yield on the bond at issuance will be the same, in contrast to tax-exempt bonds in which premium bonds are currently dominant. This results in higher par amounts for taxable sales (to get the same amount of proceeds), but often lower debt service in early years due to lower coupons
  - **Pricing convention:** Tax-exempt bonds price from the yield while taxable bonds price at a spread to US Treasuries and a separate process is completed to lock the yields
  - **Pricing range:** Initial taxable bonds pricing may indicate a range of spreads using terms like “Area” or “+/-5”

Pricing Progression

State of Oregon Department of Transportation

$186,465,000 Subordinate Lien Bonds Series 2020A (Tax-Exempt)

Pre-Marketing (9/9)							Preliminary Pricing (9/10)								Reprice (9/10)								Spread Progression
Maturity	Par ($000)	Coupon (%)	Yield to Call (%)	Yield to Maturity (%)	9/8 MMD	Spread	Maturity	Coupon (%)	Yield to Call (%)	Yield to Maturity (%)	9/9 MMD	MMD Change	Spread	Spread Δ vs. Pre-Market	Maturity	Par ($000)	Coupon (%)	Yield to Call (%)	Yield to Maturity (%)	9/10 MMD	MMD Change	Spread	Final Spreads vs. Pre-Market
11/15/2035	18,230	5.00%	1.41%	2.33%	1.16%	25	11/15/2035	5.00%	1.41%	2.33%	1.16%	-	25	-	11/15/2035	19,030	5.00%	1.37%	2.31%	1.17%	1	20	-5
11/15/2036	19,175	5.00%	1.46%	2.49%	1.21%	25	11/15/2036	5.00%	1.46%	2.49%	1.21%	-	25	-	11/15/2036	20,025	5.00%	1.46%	2.49%	1.22%	1	24	-1
11/15/2037	20,180	5.00%	1.50%	2.61%	1.25%	25	11/15/2037	5.00%	1.50%	2.61%	1.25%	-	25	-	11/15/2037	21,070	5.00%	1.50%	2.61%	1.26%	1	24	-1
11/15/2038	21,245	5.00%	1.54%	2.72%	1.29%	25	11/15/2038	5.00%	1.54%	2.72%	1.29%	-	25	-	11/15/2038	-	-	-	-	-	-	-	-
11/15/2038	-	-	-	-	-	-	11/15/2038	-	-	-	-	-	-	-	11/15/2038	22,065	4.00%	1.74%	2.55%	1.30%	-	44	-
11/15/2039	50,325	5.00%	1.58%	2.83%	1.33%	25	11/15/2039	5.00%	1.58%	2.83%	1.33%	-	25	-	11/15/2039	20,900	5.00%	1.58%	2.63%	1.34%	1	24	-1
11/15/2039	-	-	-	-	-	-	11/15/2039	-	-	-	-	-	-	-	11/15/2039	30,025	4.00%	1.78%	2.83%	1.34%	-	44	-
11/15/2040	52,875	5.00%	1.62%	2.92%	1.37%	25	11/15/2040	5.00%	1.62%	2.92%	1.37%	-	25	-	11/15/2040	53,350	5.00%	1.62%	2.92%	1.38%	1	24	-1

$611,505,000 Senior Lien Refunding Bonds Series 2020B (Federally Taxable)

Indications of Interest (IOI's) (9/9)			Price Guidance (9/10)			Launch (9/10)			Coupon Set (9/10)					Spread Progression
Maturity	Par ($000)	Spread	Maturity	Spread	Spread Δ vs. IOI's	Maturity	Spread	Spread Δ vs. PG	Maturity	Spread	Bench. UST	UST Yield (%)	Coupon/ Yield (%)	Final Spreads vs. IOI's
11/15/2021	12,120	15	11/15/2021	10 +/-5	-5	11/15/2021	5	-5	11/15/2021	5	UST2Y	0.141%	0.191%	-10
11/15/2022	12,160	25	11/15/2022	20 +/-5	-5	11/15/2022	15	-5	11/15/2022	15	UST2Y	0.141%	0.291%	-10
11/15/2023	12,220	35	11/15/2023	30 +/-5	-5	11/15/2023	25	-5	11/15/2023	25	UST3Y	0.164%	0.414%	-10
11/15/2024	12,295	40	11/15/2024	35 +/-5	-5	11/15/2024	30	-5	11/15/2024	30	UST5Y	0.266%	0.566%	-10
11/15/2025	21,575	50	11/15/2025	45 +/-3	-5	11/15/2025	42	-3	11/15/2025	42	UST5Y	0.266%	0.686%	-8
11/15/2026	31,950	55	11/15/2026	50 +/-3	-5	11/15/2026	47	-3	11/15/2026	47	UST7Y	0.464%	0.934%	-8
11/15/2027	61,810	70	11/15/2027	65 +/-3	-5	11/15/2027	62	-3	11/15/2027	62	UST7Y	0.464%	1.084%	-8
11/15/2028	80,845	65	11/15/2028	65	0	11/15/2028	65	0	11/15/2028	65	UST10Y	0.680%	1.330%	0
11/15/2029	81,975	75	11/15/2029	75	0	11/15/2029	75	0	11/15/2029	75	UST10Y	0.680%	1.430%	0
11/15/2030	84,950	85	11/15/2030	85	0	11/15/2030	85	0	11/15/2030	85	UST10Y	0.680%	1.530%	0
11/15/2031	90,125	100	11/15/2031	100 +/-2	0	11/15/2031	98	-2	11/15/2031	98	UST10Y	0.680%	1.660%	-2
11/15/2032	70,085	110	11/15/2032	110 +/-2	0	11/15/2032	108	-2	11/15/2032	108	UST10Y	0.680%	1.760%	-2
11/15/2033	17,660	120	11/15/2033	115 +/-2	-5	11/15/2033	113	-2	11/15/2033	113	UST10Y	0.680%	1.810%	-7
11/15/2034	22,420	125	11/15/2034	120 +/-2	-5	11/15/2034	118	-2	11/15/2034	118	UST10Y	0.680%	1.860%	-7

Taxable Sales Process Overview

Sample Taxable Sales Process

Date	Time (EDT)	Event	Differences to Tax-Exempt Process
Day 1	9:30 am	Call to determine spreads to Treasuries for Taxable Indications of Interest ("IOI") Process	Tax-Exempt process does not include Indications of Interest step. Retail order period (if any) rates will be determined on this call as well, but for the taxable sale, it is for all interested buyers rather than just retail.
	10 am (approx)	Indications of Interest Process begins	Investors place orders based on the spreads to Treasuries and not an exact yield.
		Orders on IPREO for the Taxable bonds will be viewable during the IOI process	Retail orders (if holding a ROP) on the tax-exempt bonds will also come in on IPREO during this time.
	4 pm	Call to discuss results of the day and discuss potential adjustments to spreads based on the order book	
Day 2	9:30 am	Call to determine adjustments to spreads to Treasuries and go out with Price Guidance	Adjustments are to the spreads and not to the yields.
	10 am (approx)	Price Guidance begins	
		During Price Guidance process, depending on the market tone and the adjustments that were agreed upon, additional orders could come in or orders could drop	
	11 am	Taxable Launch call. Exact spreads to Treasuries are agreed upon between the underwriters and the Issuer and its Advisors	This is equivalent to the Verbal Award call for a tax-exempt bond sale. This locks in the spreads to Treasuries, but not the actual yields however for the taxable sale.
	2 pm	Escrow bids received. Issuer determines whether to accept the winning bid for the escrow or use SLGS. This allows the final bond sizing to be calculated and allotments to be made prior to the Coupon Set.	The taxable sale requires allotments prior to the coupon set because investors may hedge their purchases with Treasuries simultaneous with the Coupon Set, so they need to know how many bonds they have been allotted. In a tax exempt sale, allotment occurs after the pricing process is complete.
	2:30 pm	Coupon Set Call. The exact coupons on the taxable bonds are determined based on the reference Treasury yields at that moment in time and the spreads agreed upon during the Taxable Launch call	In a tax-exempt sale, the exact yields are determined on the Verbal Award call.

Morgan Stanley

APPENDIX

Disclaimers

MSRB G-23 and Municipal Advisor Disclaimer

(a) Morgan Stanley & Co. LLC ("Morgan Stanley") is not recommending an action to you; (b) Morgan Stanley is not acting as an advisor to you and does not owe a fiduciary duty pursuant to Section 15B of the Exchange Act to you with respect to the information and material contained in this communication; (c) Morgan Stanley is acting for its own interests; (d) you should discuss any information and material contained in this communication with any and all internal or external advisors and experts that you deem appropriate before acting on this information or material; and (e) Morgan Stanley seeks to serve as an underwriter on a future transaction and not as a financial advisor or municipal advisor. The information provided is for discussion purposes only in anticipation of being engaged to serve as underwriter. The primary role of an underwriter is to purchase securities with a view to distribution in an arm's-length commercial transaction with the issuer. The underwriter has financial and other interests that differ from those of the issuer and obligated persons.

Any non-historical interest rates used herein are hypothetical and take into consideration conditions in today's market and other factual information such as the issuer's or obligated person's credit rating, geographic location and market sector. As such, these rates should not be viewed as rates that Morgan Stanley guarantees to achieve for the transaction should we be selected to act as underwriter. Any information about interest rates and terms for SLGs is based on current publically available information and treasury or agency rates for open-market escrows are based on current market interest rates for these types of credits and should not be seen as costs or rates that Morgan Stanley guarantees to achieve for the transaction should we be selected to act as underwriter.

Disclaimer

This material was prepared by sales, trading, banking or other non-research personnel of one of the following: Morgan Stanley & Co. LLC, Morgan Stanley & Co. International plc, Morgan Stanley MUFG Securities Co., Ltd., Morgan Stanley Capital Group Inc. and/or Morgan Stanley Asia Limited (together with their affiliates, hereinafter “Morgan Stanley”). Unless otherwise indicated, the views herein (if any) are the author’s and may differ from those of the Morgan Stanley Research Department or others in the Firm. This information should be treated as confidential and is being delivered to sophisticated prospective investors in order to assist them in determining whether they have an interest in the type of instruments described herein and is solely for internal use.

This material does not provide investment advice or offer tax, regulatory, accounting or legal advice. By submitting this document to you, Morgan Stanley is not advising you to take any particular action based on the information, opinions or views contained in this document, and acceptance of such document will be deemed by you acceptance of these conclusions. You should consult with your own municipal, financial, accounting and legal advisors regarding the information, opinions or views contained in this document. Unless stated otherwise, the material contained herein has not been based on a consideration of any individual client circumstances and as such should not be considered to be a personal recommendation. This material was not intended or written to be used, and it cannot be used by any taxpayer, for the purpose of avoiding penalties that may be imposed on the taxpayer under U.S. federal tax laws. Each taxpayer should seek advice based on the taxpayer’s particular circumstances from an independent tax advisor.

This material has been prepared for information purposes only and is not a solicitation of any offer to buy or sell any security, commodity, futures contract or instrument or related derivative (hereinafter “instrument”) or to participate in any trading strategy. Any such offer would be made only after a prospective participant had completed its own independent investigation of the instrument or trading strategy and received all information it required to make its own investment decision, including, where applicable, a review of any prospectus, prospectus supplement, offering circular or memorandum describing such instrument or trading strategy. That information would supersede this material and contain information not contained herein and to which prospective participants are referred. If this material is being distributed in connection with or in advance of the issuance of asset backed securities, information herein regarding any assets backing any such securities supersedes all prior information regarding such assets. Unless otherwise specifically indicated, all information in these materials with respect to any third party entity not affiliated with Morgan Stanley has been provided by, and is the sole responsibility of, such third party and has not been independently verified by Morgan Stanley or its affiliates or any other independent third party. We have no obligation to tell you when information herein is stale or may change. We make no express or implied representation or warranty with respect to the accuracy or completeness of this material, nor are we obligated to provide updated information on the instruments mentioned herein. Further, we disclaim any and all liability relating to this material.

To the extent any prices or price levels are noted, they are for informational purposes only and are not intended for use by third parties, and are indicative as of the date shown and are not a commitment by Morgan Stanley to trade at any price.

This material may have been prepared by or in conjunction with Morgan Stanley trading desks that may deal as principal in or own or act as market maker or liquidity provider for the instruments or issuers mentioned herein and may also seek to advise issuers of such instruments. Where you provide us with information relating to your order or proposed transaction ("Information"), we may use that Information to facilitate the execution of your orders or transactions, in managing our market making, other counterparty facilitation activities or otherwise in carrying out our legitimate business (which may include, but is not limited to, hedging a risk or otherwise limiting the risks to which we are exposed). Counterparty facilitation activities may include, without limitation, us taking a principal position in relation to providing counterparties with quotes or as part of the ongoing management of inventories used to facilitate counterparties. Where we commit our capital in relation to either ongoing management of inventories used to facilitate clients, or in relation to providing you with quotes we may make use of that information to enter into transactions that subsequently enable us to facilitate clients on terms that are competitive in the prevailing market conditions. Trading desk materials are not independent of the proprietary interests of Morgan Stanley, which may conflict with your interests. Morgan Stanley may also perform or seek to perform investment banking services for the issuers of instruments mentioned herein ‘Characteristics and Risks of Standardized Options,’ which is available from your account representative.

Any securities referred to in this material may not have been registered under the U.S. Securities Act of 1933, as amended, and, if not, may not be offered or sold absent an exemption therefrom. In relation to any member state of the European Economic Area, a prospectus may not have been published pursuant to measures implementing the Prospectus Directive (2003/71/EC) and any securities referred to herein may not be offered in circumstances that would require such publication. Recipients are required to comply with any legal or contractual restrictions on their purchase, holding, sale, exercise of rights or performance of obligations under any instrument or otherwise applicable to any transaction. In addition, a secondary market may not exist for certain of the instruments referenced herein.

The securities, commodities, futures or other instruments (or related derivatives) discussed in this material may not be suitable or appropriate for all investors. This material has been prepared and issued by Morgan Stanley for distribution to market professionals and institutional investor clients only. This material does not provide individually tailored investment advice or offer tax, regulatory, accounting or legal advice. Prior to entering into any proposed transaction, recipients should determine, in consultation with their own investment, legal, tax, regulatory and accounting advisors, the economic risks and merits, as well as the legal, tax, regulatory and accounting characteristics and consequences, of the transaction. You should consider this material among other factors in making an investment decision.

Options and futures are not for everyone. Before purchasing or writing options, investors should understand the nature and extent of their rights and obligations and be aware of the risks involved, including the risks pertaining to the business and financial condition of the issuer and the underlying instrument. For Morgan Stanley customers who are purchasing or writing exchange-traded options, please review the publication ‘Characteristics and Risks of Standardized Options,’ which is available from your account representative.

Disclaimer

The value of and income from investments may vary because of changes in interest rates, foreign exchange rates, default rates, prepayment rates, securities, prices of instruments or securities, market indexes, operational or financial conditions of companies or other factors. There may be time limitations on the exercise of options or other rights in instruments (or related derivatives) transactions. Past performance is not necessarily a guide to future performance. Estimates of future performance are based on assumptions that may not be realized. Actual events may differ from those assumed and changes to any assumptions may have a material impact on any projections or estimates. Other events not taken into account may occur and may significantly affect the projections or estimates. Certain assumptions may have been made for modeling purposes only to simplify the presentation and/or calculation of any projections or estimates, and Morgan Stanley does not represent that any such assumptions will reflect actual future events or that all assumptions have been considered or stated. Accordingly, there can be no assurance that estimated returns or projections will be realized or that actual returns or performance results will not materially differ from those estimated herein. Some of the information contained in this document may be aggregated data of transactions executed by Morgan Stanley that has been compiled so as not to identify the underlying transactions of any particular customer.

Notwithstanding anything herein to the contrary, Morgan Stanley and each recipient hereof agree that they (and their employees, representatives, and other agents) may disclose to any and all persons, without limitation of any kind from the commencement of discussions, the U.S. federal and state income tax treatment and tax structure of the transaction and all materials of any kind (including opinions or other tax analyses) that are provided to it relating to the tax treatment and tax structure. For this purpose, "tax structure" is limited to facts relevant to the U.S. federal and state income tax treatment of the transaction and does not include information relating to the identity of the parties, their affiliates, agents or advisors

This information is not intended to be provided to and may not be used by any person or entity in any jurisdiction where the provision or use thereof would be contrary to applicable laws, rules or regulations.

This communication is directed in the UK to those persons who are eligible counterparties or professional clients and must not be acted on or relied upon by retail clients (each as defined in the UK Financial Services Authority's rules).

This information is being disseminated in Hong Kong by Morgan Stanley Asia Limited and is intended for professional investors (as defined in the Securities and Futures Ordinance) and is not directed at the public of Hong Kong.

This information is being disseminated in Singapore by Morgan Stanley Asia (Singapore) Pte. This information has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this information and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of this security may not be circulated or distributed, nor may this security be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore (the “SFA”), (ii) to a relevant person pursuant to Section 275(1) of the SFA, or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions, specified in Section 275 of the SFA or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA. Any offering of this security in Singapore would be through Morgan Stanley Asia (Singapore) Pte, an entity regulated by the Monetary Authority of Singapore.

This information is being disseminated in Japan by Morgan Stanley MUFG Securities Co., Ltd., Any securities referred to herein may not have been and/or will not be registered under the Financial Instruments Exchange Law of Japan (Law No. 25 of 1948, as amended, hereinafter referred to as the “Financial Instruments Exchange Law of Japan”). Such securities may not be offered, sold or transferred, directly or indirectly, to or for the benefit of any resident of Japan unless pursuant to an exemption from the registration requirements of, and otherwise in compliance with the Financial Instruments Exchange Law and other relevant laws and regulations of Japan. As used in this paragraph, “resident of Japan” means any person resident in Japan, including any corporation or other entity organized or engaged in business under the laws of Japan. If you reside in Japan, please contact Morgan Stanley MUFG Securities for further details at +613-5424-5000.

This information is distributed in Australia by Morgan Stanley Australia Limited A.B.N. 67 003 734 576, holder of Australian financial services license No. 233742, which accepts responsibility for its contents, and arranges for it to be provided to potential clients. In Australia, this report, and any access to it, is intended only for "wholesale clients" within the meaning of the Australian Corporations Act.

For additional information, research reports and important disclosures see https://secure.ms.com/servlet/cls. The trademarks and service marks contained herein are the property of their respective owners. Third-party data providers make no warranties or representations of any kind relating to the accuracy, completeness, or timeliness of the data they provide and shall not have liability for any damages of any kind relating to such data.