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Overview of the transition from CDOR to CORRA

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Introduction and international background

Global transformation of interest rate benchmarks

Interest rate benchmarks are used to calculate interest payments and they are referenced in hundreds of trillions of dollars of financial products globally, including in derivatives, floating rate notes, loans and structured products etc.

- > The transformation involves moving from forward-looking bank credit-sensitive benchmark rates to ones based on overnight risk-free rates (RFR)
- ➤ UK, Swiss and Japanese markets have already transitioned to using RFRs with the cessation of the publication of their respective LIBOR (London Interbank Offered Rate) benchmark rates in December 2021
- ➤ US will finalize its transition to its RFR the Secured Overnight Financing Rate (SOFR) after the remaining USD LIBOR tenors are discontinued in June 2023
- This transformation requires extensive coordination and collaboration across jurisdictions, as well as between the private and public sectors

Globally, central banks and regulators, support the move away from these less robust bank credit-based benchmarks, especially for derivatives, given their potential fragilities and financial stability concerns

Efforts to reform benchmarks began after the Global Financial Crisis

Confidence in the reliability and robustness of major interest rate benchmarks was undermined by attempted market manipulation, false reporting and declining liquidity in the interbank unsecured market during and after the Global Financial Crisis.

- G20 tasked the Financial Stability Board (FSB) in February 2013 to undertake a review of the most widely used benchmarks globally
- The FSB formed in June 2013 the Official Sector Steering Group (OSSG), comprised of senior officials from central banks and regulatory agencies, to conduct this review:
 - Focus was on the three major credit-sensitive interbank offered rate (IBOR) benchmarks (LIBOR, EURIBOR and TIBOR)
 - Work was supported by a Market Participants Group (MPG) of global buy- and sell-side institutions
- The International Organization of Securities Commissions (IOSCO) published in July 2013 its Principles for Financial Benchmarks. These principles were endorsed by the FSB on the recommendation of the OSSG. They are the basis for any benchmark regulation, including the benchmark regulation introduced in Canada by the Canadian Securities Administrators in 2021
- The reform efforts gained speed after the FCA, LIBOR's regulator, set an effective end date for LIBOR of December 2021
- In March of 2021 the administrator of LIBOR (ICE Benchmark Administration) officially declared the end of LIBOR, with most settings ending on December 31, 2021, and some USD tenors ending on June 30, 2023



Canadian benchmark reform

Canadian benchmark reform efforts are led by CARR

Consistent with global benchmark reform efforts, Canada's <u>Canadian Fixed-Income Forum</u>* (CFIF) established <u>CARR</u> (the Canadian Alternative Reference Rate working group) in March 2018 to ensure Canada's interest rate benchmark regime is robust and resilient in the years ahead.

- The initial focus was to ensure that the Canadian RFR known as Canadian Overnight Repo Rate Average (CORRA) was robust.
- In 2020 CARR was also asked to review and make recommendations on the Canadian Dollar Offered Rate (CDOR)
- On December 16, 2021 CARR published the results of its review of CDOR (<u>White Paper</u>) which recommended that CDOR's administrator, Refinitiv Benchmark Services (UK) Ltd (RBSL), cease publication of CDOR after June 2024
- CARR's primary objectives today are to:

Support the transition to CORRA as a key financial benchmark

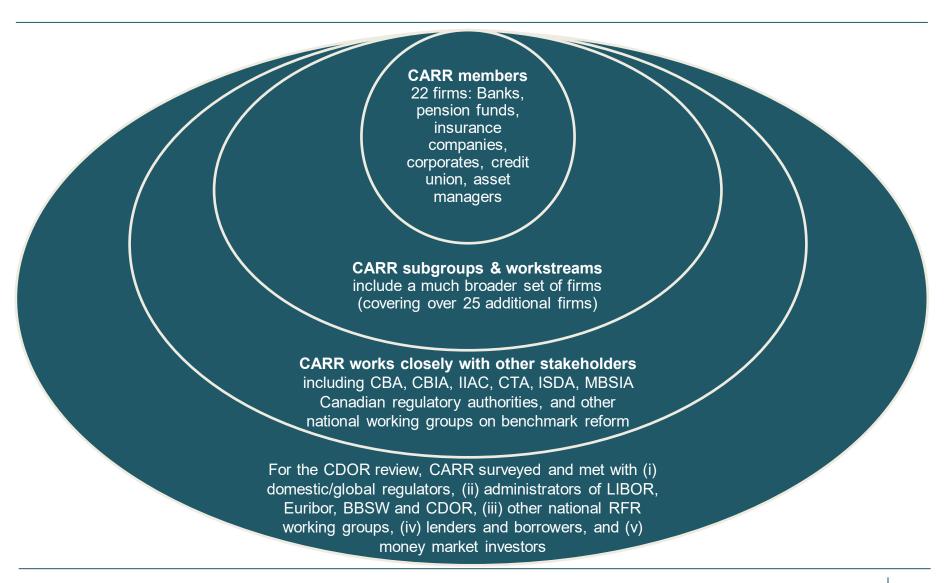
Design and execute a transition plan, encompassing all products referencing CDOR

Promote awareness of the need to prepare for CDOR's cessation

Oversee the development of a forward-looking Term CORRA benchmark

^{*} CFIF is a senior level industry committee established by the Bank of Canada to discuss developments in fixedincome market structure and functioning, market practices and related policy issues.

CARR has a broad reach across all relevant stakeholders



CDOR is Canada's bank credit-sensitive benchmark

- CDOR measures the rate at which Canadian banks are willing to offer their balance sheets to borrowers to lend via a Banker's Acceptance (BA) loan facility
 - ► CDOR is a survey-based rate (i.e. it is not a transaction-based benchmark) that reflects both term and a bank's credit risk
 - ▶ BAs issued in support of these loan facilities total about \$160 billion, of which approximately 45% are sold into market
 - ► CDOR is referenced as a financial benchmark in over \$20 trillion worth of financial products (of which over 97% are derivatives)
- CDOR is administered by <u>Refinitiv Benchmark Services (UK) Limited</u> (RBSL)
 - ► CDOR is calculated as the average of the CDOR submissions from Canada's big-6 banks, after trimming the highest and lowest contributions. More details on CDOR's calculation methodology can be found https://example.com/here-page-16 the average of the CDOR submissions from Canada's big-6 banks, after trimming the highest and lowest contributions. More details on CDOR's calculation methodology can be found https://example.com/here-page-16 the company of the CDOR submissions from Canada's big-6 banks, after trimming the highest and lowest contributions. More details on CDOR's calculation methodology can be found https://example.com/here-page-16 the company of the comp
 - ► CDOR currently has three tenors (1-month; 2-month and 3-month). After a public consultation, RBSL <u>discontinued</u> CDOR's 6- and 12-month tenors from Monday May 17, 2021 due to a lack of underlying BAs in those tenors
- The OSC and AMF designated CDOR as a domestically critical interest rate benchmark in September 2021, making it subject to the OSC and AMF's regulatory regime for financial benchmarks introduced in April 2021

CORRA is Canada's risk-free benchmark

- CORRA is an overnight risk-free interest rate benchmark that has been published since 1997
 - ➤ CORRA is a robust, reliable and representative measure of Canada's RFR the rate at which market participants borrow/lend Government of Canada (GoC) bonds and bills overnight
 - CORRA is very similar in construct to SOFR in the US
 - ▶ It is currently referenced in over \$3.3 trillion in financial instruments primarily overnight index swaps
- The Bank of Canada <u>became</u> CORRA's administrator in June 2020 and implemented a new enhanced <u>calculation</u> <u>methodology</u> developed by CARR
 - ▶ It is calculated based on GoC repo transactions conducted between any two unaffiliated counterparties
 - ► The Bank of Canada provides CORRA <u>data</u> on its website at no cost as a public good. It also <u>publishes</u> a CORRA Compounded Index to facilitate the use of CORRA in financial products
- The Bank of Canada also established a <u>CORRA Advisory Group (CAG)</u> to advise the Bank of Canada on changes in the underlying repo market as well as make recommendations in relation to CORRA's methodology should it need to change
 - CAG, like CARR, is comprised of a diverse group of market participants from across Canada's financial system

Comparing CDOR and CORRA

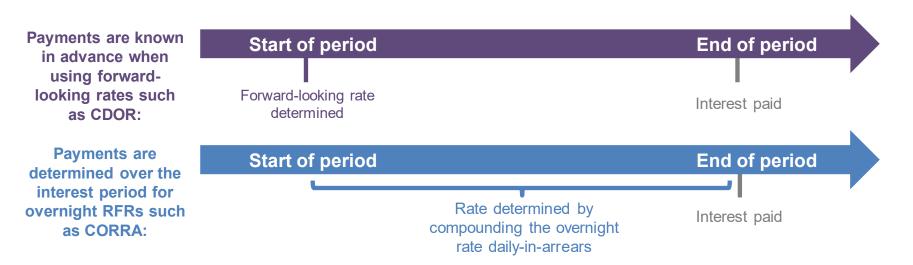
Canadian Dollar Offered Rate (CDOR)

- Credit based measure that incorporates both term and bank credit risk premium
- Measures the rate that Canadian banks are willing to lend to clients with existing credit agreements via banker's acceptances
- Rates are based on expert judgement, not specific transactions
- Term rate (1, 2, and 3-month)
- Forward-looking term rate (payment is known in advance)
- Administrator: <u>Refinitiv Benchmark</u> Services (UK) <u>Limited</u>

Canadian Overnight Repo Rate Average (CORRA)

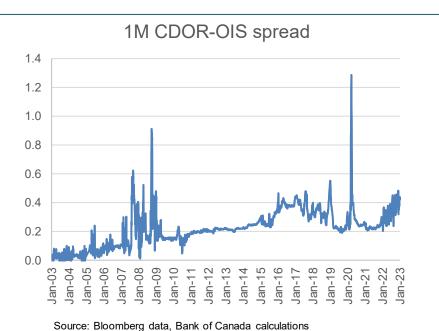
- Risk-free measures that reflects the overnight risk-free rate, closely tracks the Bank of Canada's <u>Target Rate</u>
- Measures the cost of overnight lending via general collateral repo transactions secured by Government of Canada debt
- Transaction-based and fully transparent, (i.e. reflects actual market transactions)
- Overnight rate
- Typically compounded in arrears to calculate the applicable term rate and payment
- Administrator: Bank of Canada

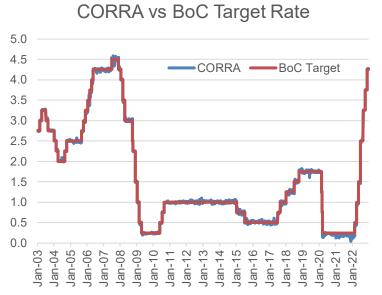
Difference between forward-looking and overnight rates



- Financial instruments referencing overnight CORRA will need to calculate the payment in-arrears, at the end of the period, by compounding each daily CORRA rate
 - ► CORRA is relatively stable tracking the Bank of Canada target rate closely and therefore typically changes only if there is a change in the Bank's policy rate (similarly to Prime)
 - ► Each payment can be easily estimated or hedged using the equivalent tenor overnight-index-swap (OIS) rate and as each day passes the total interest payment becomes more certain
 - ➤ The final payment is calculated a few business days before interest is due, providing time to confirm the interest due and arrange for payment
- Nonetheless, systems or processes may need to be adjusted to handle the new methodology and some new financial products may need to be created

Spreads need to adjust to reflect CORRA's risk-free status





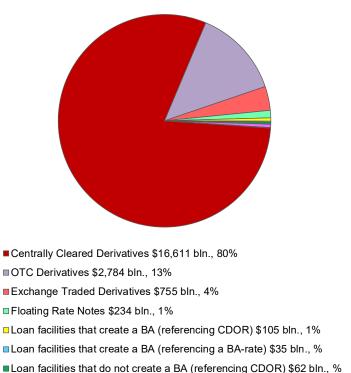
- As CDOR embeds both bank credit and a term premium, its rate (yield) is higher than CORRA's (or the equivalent-term OIS rate)
- A credit product (e.g. a loan or a FRN) that is priced at a spread above CDOR will therefore have a higher spread over CORRA

Example: If a fully drawn loan is priced at CDOR +60bps and the equivalent term CDOR/CORRA basis spread is 25bps, then upon migration to CORRA as the new loan reference rate, the economically equivalent loan would be priced at CORRA +85bps*

Products referencing CDOR¹

- Total notional exposure to CDOR is approximately \$20 trillion
- Over 97% of CDOR exposure is related to derivatives, with centrally cleared derivatives accounting for the bulk of the exposure, with most referencing the 3-month CDOR tenor
- Floating rate notes represent the second largest exposure with nearly all (~99%) referencing the 3-month rate. Just under half of **FRNs** outstanding have a remaining term of less than 3 years
- Loans represent the third largest exposure with the majority referencing 1-month CDOR as this is most common drawdown tenor.
- Securitized products referencing CDOR represent the fourth largest exposure, most of which reference 1-month CDOR. Just over 65% of these products have a remaining term to maturity of less than 3 years

Total outstanding's of products referencing CDOR



Source: Survey results, LCH, CME, CMHC, Bloomberg

■ Deposits \$18 bln., 0.1%

Securitized Products \$102 bln.. 0.5%

Last observation: 31/10/2020

97% of CDOR exposure relates to derivatives while only about 1% is related to BA/CDOR loans. Most products reference the 3-month CDOR rate, while the majority of BA issuance is 1-month



CARR's analysis and recommendations with respect to CDOR

CARR found four risks to CDOR's future robustness

➤ In 2021, CARR analyzed CDOR in the context of the new, higher standards expected of critical interest rate benchmarks to determine whether Canada's benchmark regime is robust and resilient to the future. While CDOR has served the Canadian dollar market well for many years, CARR found that there are certain aspects of CDOR's architecture that pose risks to its future robustness.

Lack of transparency

The global standard is for benchmarks to be primarily based on actual transactions. CDOR is primarily based on expert judgement, and it cannot be directly tied to observable arms length transactions

Inverted pyramid

The size of the market used to determine a benchmark should be commensurate with the size of the market based on the benchmark (i.e. proportionality).

There should be sufficient underlying data to support the benchmark in both normal times as well as stress periods.

Both of these issues are relevant to CDOR

Lack of sustainability

BA funding model is no longer an effective lending structure. Banks now term fund most of their loans. Banks have already started to shift to non-BA based CDOR lending or not selling the created BAs. It is likely that banks will continue to reduce or cease issuance of BAs

Increased panel fragility

New CSA benchmark rules increase the obligations on both the benchmark's administrator and its contributors. Contributing banks may decide they no longer wish to remain on CDOR's survey panel given the increased obligations and costs to do so

CARR determined it was not possible to reform CDOR

CARR investigated the potential for reforming CDOR, similar to what had been done with CORRA and other key global credit sensitive benchmarks. This included either introducing a transaction-based waterfall methodology, or by making it primarily transaction based

It was not possible to introduce a strict data hierarchy due to CDOR's design

Since CDOR's definition is not tied to specific, observable transactions, it is not possible to create a binding waterfall of inputs to CDOR submissions in which the first step is based on transactions. This leaves **CDOR** as a benchmark inherently reliant upon expert judgement. CARR concluded that CDOR does not definitionally or practically support the development of a formal waterfall of data inputs

It was not possible to make CDOR a transaction-based benchmark

If CDOR were changed to reflect the rate at which BA securities transacted in the market, it would be a legally different benchmark. Economically a benchmark based on BA security transactions would differ from the existing level of CDOR by the current CDOR/BA basis (currently over 20bps, vs. approximately 1bp when CORRA or the UK's SONIA were reformed)

CARR's analysis demonstrated that CDOR was not a sustainable benchmark over the longer-term. Since CDOR could not be reformed, a carefully managed transition was seen as the most prudent approach

CARR and CFIF members unanimously recommended that RBSL should cease the calculation and publication of CDOR after June 30, 2024

RBSL will cease publication of CDOR

January 31, 2022 Refinitiv launches a public consultation on the potential cessation of CDOR

May 16, 2022
RBSL announces decision to cease the publication of CDOR after June 28, 2024

- The decision to cease the publication of CDOR was authorized by the two lead provincial securities regulators for benchmark reform (the Ontario Securities Commission and the Autorité des marchés financiers); these regulators had designated CDOR a critical interest rate benchmark under Multilateral Instrument 25-102 on September 15, 2021
- The International Swaps and Derivatives Association (ISDA) confirmed that RBSL's statement constitutes an "Index Cessation Event" under its IBOR fallbacks supplement. As a result, Bloomberg <u>published</u>, as ISDA's calculation agent, the spread adjustments that would apply to any applicable contracts after June 28, 2024. The announcement also serves to trigger the same fallback spread adjustment for CDOR based floating-rate notes that have CARR recommended fallback language
- The Office of the Superintendent of Financial Institutions (OSFI) <u>published</u> their supervisory expectations for federally regulated financial institutions (FRFIs) and federally regulated private pension plans to transition from CDOR in accordance with CARR's recommended two-staged transition plan

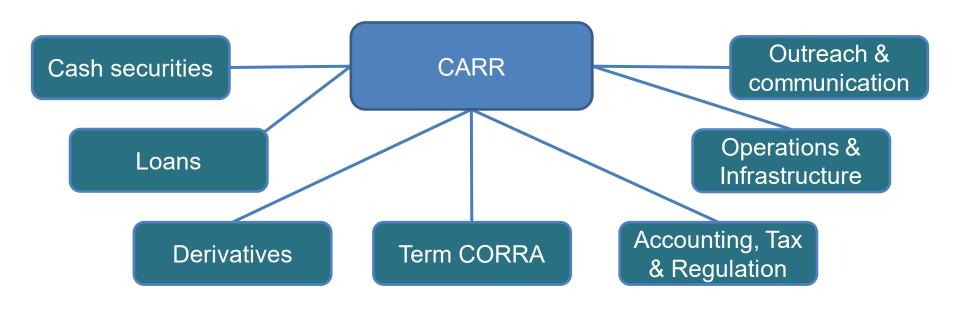
Canadian two-stage transition plan for CDOR

- With RBSL's <u>announcement</u> on May 16, 2022 that it will cease the publication of CDOR after June 28, 2024, CARR began to implement the two-stage transition plan published in its December 2021 <u>White Paper</u>:
 - ▶ <u>Stage 1:</u> By the end of June 2023 all market participants are expected to transition new derivative (bilateral, cleared and exchanged-traded) and securities contracts or transactions from CDOR to overnight CORRA calculated in-arrears. No new CDOR exposure will be booked after that date with limited exceptions. Those exceptions include derivatives that hedge or reduce CDOR exposures of derivatives or securities transacted before June 30, 2023 or in loan agreements transacted through until June 28, 2024.
 - ▶ <u>Stage 2:</u> Market participants would be allowed to continue to transact in new CDOR based loans, with robust CDOR fallbacks, until the cessation of CDOR after June 28, 2024. Market participants can continue to hedge CDOR based loans with CDOR based derivatives until this end date. Market participants can choose to transition their loan facilities to reference CORRA calculated in-arrears, Term CORRA or any other alternative rate that is available at any point during this transition period.
- No CDOR rates will be available or published after June 28, 2024 and any exposure to CDOR after this date will need to revert to any agreed CDOR fallbacks.



CARR's revised structure

- Following the publication of its December 2021 White Paper CARR restructured itself and updated its <u>Terms of Reference</u> in preparation for a potential decision by Refinitiv to cease CDOR's publication:
 - ► CARR's membership was broadened to encompass a broader cross-section of CDOR's stakeholders
 - ► Seven subgroups were established to carry out the work necessary to facilitate a smooth transition away from CDOR. Membership of these subgroups drew broad representation from across Canada's financial system





Transition plan and next steps

CDOR transition roadmap and milestones

Phased-in milestone

	Milestones	2022			2023				2024	
		Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
	Refinitiv CDOR announcement, ISDA fallback spread adjustment fixed	M	ay 16, 20	22						
Derivatives	1-month CORRA futures launched				Jar	nuary 23	, 2023			
	Interbank liquidity transitions to CORRA									
	CORRA-first (inter-dealer linear derivatives)				Jan	uary 9, 2	023			
	CORRA-first (inter-dealer non-linear derivs. & cross-currency basis swaps)					March 2	27, 2023			
	Liquidity for new client transactions moves to CORRA					•				
Cash securities	CMB FRNs move to CORRA		/lay 18, 2	022						
	New issue cash securities transition to CORRA									
	Publish recommended transition approach for tough legacy securities									
Term CORRA	Term CORRA consultation									
	CARR developing methodology/approach for 1M and 3M Term CORRA									
	CanDeal to publish beta version of Term CORRA									
	Term CORRA launched									
	End of stage 1 "No new CDOR derivatives or securities (except BAs)"				June 30	0, 2023				
Loans	Develop market conventions for Term CORRA loans									
	New loans can start to reference CORRA calculated-in-arrears									
	New loans can start to reference Term CORRA									
	Bank funding migrates away from BA issuance									
	End of stage 2 "CDOR cessation", CDOR fallbacks now in effect							J	une 28,	2024

Derivatives transition

New derivative transactions must only reference CORRA calculated-in-arrears after June 30, 2023 (except for loan-associated derivatives hedges, or transactions that reduce legacy CDOR derivative risk)

- CARR has finalized the transition path for CORRA based derivatives, which includes OTC (cleared and bilateral), listed (futures), swaptions or non-linear derivatives (bilateral and listed) as well as for other products including equity swaps and repo
 - CARR has established two <u>"CORRA First"</u> dates that will help build liquidity in CORRA derivatives. These will dictate protocols that dealers will follow when trading between each other in the inter-dealer market

January 9, 2023

Inter-dealer linear derivatives

March 27, 2023

Inter-dealer non-linear derivatives Inter-dealer cross-currency basis swaps

Client liquidity is expected to start transitioning to CORRA in earnest by the end of Q1-2023

- CARR expects the transition from BAX to CORRA futures to take place through the period until June 2023. MX launched 3-month IMM futures in June 2020 and will launch 1-month serial CORRA futures on January 23, 2023
- CDOR derivatives will continue to trade after June 30, 2023, but they are expected to be less liquid and potentially trade at a wider bid-offer spread
- Term CORRA derivatives will begin trading after the launch of Term CORRA (expected by end-Q3 2023)

Cash securities transition

New cash securities transactions, including those relating to floating rate and structured notes, securitizations, and capital securities, must only reference CORRA calculated-in-arrears after June 30, 2023

- CARR has recommended conventions for using CORRA as a reference rate in cash securities, including calculating the coupon using compounding-in-arrears methodology or the CORRA Compounded Index published by the Bank of Canada. CARR has also published recommended robust fallback language for CDOR and CORRA cash securities
- Canada Housing Trust (CHT) moved to using CORRA, in May 2022, for their floating rate Canada Mortgage Bond issuance (coupon based on the CORRA Compounded Index published by the Bank of Canada)
 - ► CMHC has also enhanced its mortgage securitization programs by introducing four pool types for which the coupon is based on CORRA. New CDOR-based MBS pools are no longer allowed to be issued after Dec 2022
- Most Canadian banks have already issued in-arrears CORRA based securities, including bail-in senior floating rate notes and NVCC

CDOR-based legacy securities

- CARR's analysis of the fallbacks in those cash securities that mature after June 28, 2024 (approximately \$130 billion) found that the amount and number of "toughest" legacy securities (those that have weak or no fallbacks and are difficult to modify) is very small and therefore a legislative solution is not required
- CARR recommends that these securities are amended to incorporate CARR's fallback language for CDOR-related securities. The use of Term CORRA will not be allowed as a fallback option in cash securities under its licensing agreement

Term CORRA development

CARR's public <u>consultation</u> on the potential need for a forward-looking interest rate benchmark found widespread support, particularly from non-financial companies. This need was specifically to support the transition from CDOR for Canada's loan market

- In response to this need, CARR announced on January 11 the development of a 1- and 3-month IOSCO-compliant Term CORRA benchmark
 - ► The methodology will be based on 1- and 3-month CORRA futures, similar to the Term SOFR rate produced by the CME. The calculation will use both transactions and executable bids and offers
 - ► The use of Term CORRA will be restricted, through a licensing agreement, to loan products and those derivative products that are tied or linked to a loan product
 - ► CARR expects that most of the liquidity in Canadian dollar derivatives will transition to overnight CORRA calculated in arrears, and therefore the cost of hedging using Term CORRA derivatives will be higher compared to using overnight CORRA based derivatives
 - ► Term CORRA will be administered by CanDeal Innovations Inc. with TMX Datalinx providing the licensing and distribution capabilities. CanDeal is expected to launch a beta version in the first half of 2023. The benchmark will be officially launched, subject to regulatory approval, by the end of Q3-2023
- CARR expects that Term CORRA and its administrator will be regulated under the Canadian benchmark regulation (ML 25-102) introduced in 2021
- The long-term viability of Term CORRA will depend on the liquidity of the underlying 1- and 3-month CORRA futures contracts being sufficiently robust to meet regulatory expectations. Therefore, any products referencing Term CORRA are expected to have a robust fallback, in most cases to overnight CORRA calculated in-arrears

Loan transition

The BA-based loan structure, Canada's primary wholesale lending model since the 1960s, is expected to disappear with the cessation of CDOR. As a result, banks will no longer be offering a BA-drawdown option. Therefore, corporate and commercial lending will need to transition to new types of loan facilities that use Term CORRA or overnight CORRA calculated in-arrears as the pricing benchmark by the end of June 2024. Loans have similarly transitioned to using RFR benchmarks in the five LIBOR currencies.

- CARR has recommended a <u>convention</u> for using overnight CORRA calculated in-arrears in Canadian loan products. This convention uses CARR's methodology for compounding daily CORRA, a 5-day lookback with no observation shift, and includes Actual/365 day count convention following the Bank of Canada Holiday Schedule
- > CARR will publish recommended conventions for using Term CORRA in loan products by the end of Q1-2023. However, Term CORRA will only be available for use once it is officially launched by the administrator.
- CARR has also published recommended hard-wired <u>fallback language</u> for CDOR-based loan facilities

Despite the development of Term CORRA for the loan market, CARR encourages the use of CORRA calculated-in-arrears, particularly for loans that are being hedged using derivatives

CARR will publish in Q2-2023 a white paper on the implications for the loan market of using CORRA as its pricing benchmark

Promoting market awareness and preparedness

Systems readiness

- CARR is working with major system vendors to ensure preparedness for the CDOR-to-CORRA transition within the published timelines
- > CARR will publish in the first half of 2023 a CDOR transition impact assessment checklist for market participants

Client outreach resources

- CARR will continue to update the transition roadmap and milestones as the work progresses. CARR's website will be a key source for further information on the transition
- CARR will release a series of CDOR transition-related webcasts, in partnership with TMX. These webcasts will bring together leading banking industry and market experts, as well as other stakeholders, to share their insights and perspectives on the transition from CDOR to CORRA. The webcasts will also provide practical advice and guidance to those affected by CDOR's upcoming cessation. They will be available on the CARR and TMX websites
- > CARR is working with each of the banks' IBOR transition teams to facilitate effective communication with their clients

If you have any questions or concerns about your specific exposures to CDOR, or with respect to transitioning your activities to CORRA, please talk to your banker or dealer, or to your accounting or legal representatives

Impact of CDOR's cessation on BA securities

With the cessation of Canadian Dollar Offer Rate's (CDOR) publication in June 2024, it is expected that bankers' acceptances (BAs) will cease to exist as a money market instrument. A heightened level of awareness is needed from investors, issuers, regulatory authorities, and policy makers on alternative investment options to BAs to facilitate a successful transition

- BAs are debt instruments created by banks as a result of a client loan drawdown from certain types of lending facilities that have a BA based borrowing option:
 - They are short-term discount instruments primarily issued in the 1-month tenor (the tenor of the BA matches the tenor of the client drawdown)
 - ▶ BAs are the second-biggest security in Canada's money market (accounting for about \$90 billion, or 20% of total assets) and are an especially important asset in the 1-month tenor for money market investors
 - ▶ Banks will replace their short-dated BA funding with longer-dated bearer deposit notes (BDNs) or bank deposits.
 This will leave a gap in bank-issued money market securities, particularly in the 1-month tenor
- CARR identified this eventual shortfall in money products and, as a result, CFIF held a series of workshops with a wide range of stakeholders to discuss the availability of alternative investment products, as well as any constraints that that investors currently have in transitioning to other products. A summary of the workshop discussions was published in January
- CFIF formed a BA-related working group to monitor and help facilitate, where appropriate, a smooth transition away from BAs

Thank you

To sign up for email notifications on CARR's website:

Canadian Alternative Reference Rate Working Group

The Canadian Alternative Reference Rate Working Group (CARR) was created to ensure Canada's interest rate benchmark regime is robust, relevant and effective in the years ahead. Find more information about our **background**, access our **key documents**, **market notices**, **publications**, **meetings**, and **membership**.





Receive <u>notification by email</u> whenever new CARR material is added to the website.



For questions on any aspect of the transition please email <u>CARR-WG@bankofcanada.ca</u> or speak to your banker/dealer or your legal/accounting representatives