

Expanding the portfolio management toolkit

A primer on Credit Risk Transfer (CRT)
solutions for North American banks

EXECUTIVE SUMMARY

US and Canadian bank balance sheets are facing growing pressures from both cyclical and structural headwinds. Credit Risk Transfer (CRT) solutions are emerging as a vital component of banks' credit portfolio management toolkit.

CRT solutions are a mechanism to pass a bank's credit risk to third-party investors or insurers. We define CRT solutions as including Non-Payment Insurance (NPI), Funded CRTs (i.e., Credit-Linked Notes), and Unfunded CRTs. The impact of these trades is a reduction in credit risk, lower limit utilization (e.g., concentration limits), and varying degrees of capital benefit depending on the product and jurisdiction (US vs. Canada). Banks, insurers, and private capital managers each play a role in facilitating these transactions. This collaboration enhances the banks' ability to manage their credit portfolios, expand credit capacity, and create investment opportunities for third-party investors.

The European Significant Risk Transfer (SRT) market has grown dramatically since 2012, reaching €165 billion in 2022 across more than 25 institutions. While North American banks' adoption of CRT solutions is still nascent, the North American CRT market is gaining momentum. Maturing CRT operating models and increasing regulatory clarity have enabled this shift, while the implementation of Basel III Endgame may accelerate it even further.

Marsh McLennan, with the combined capabilities of Marsh, Guy Carpenter, and Oliver Wyman, has a proven track record of helping the largest banks in North America and Europe execute NPI and CRT/SRT transactions. We provide support to banks in establishing CRT programs, structuring and distributing CRT solutions, and assessing their impact on bank economics.

Contents

Executive summary	3
North American bank balance sheets are facing growing headwinds	5
Banks are increasingly tapping external capital pools to manage credit portfolios	6
Credit Risk Transfers (CRTs) are expanding the portfolio management toolkit	7
The opportunity for CRTs in North America is vast	12
CRT operating models are maturing, with leading banks investing in analytics and risk management capabilities	14
Marsh McLennan is a leading provider of CRT solutions	16
Appendix A	19
Appendix B	20

North American bank balance sheets are facing growing headwinds

Credit provision and portfolio management are evolving in North America, as banks seek to serve their clients' financing needs while optimizing their own economics via new sources of capital.

This transformation is the product of both cyclical and structural factors. Interest rates and credit spread volatility coupled with concerns about the macroeconomic environment have pressured loan growth in the US and Canada, particularly for regional banks. Likewise, net interest income (NII) expansion has slowed as deposits repriced, making NII protection a priority and sharpening the focus on fee income generation.

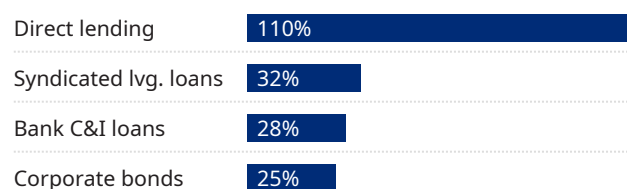
Structurally, changes in capital rules in Canada and the US will serve as a further headwind to bank returns. In Canada, Basel IV has introduced a "capital floor", which increases minimum capital requirements¹, while in the US, the implementation of the Basel III Endgame² is also expected to materially increase capital requirements. The extent of this is yet to be confirmed, as revisions to the original proposal are likely to be less than the ~24% risk-weighted assets (RWA) estimate based on the original proposal, with the FRB's Vice Chair for Supervision, Michael S. Barr, expecting "a set of broad, material changes to the rule."

From a competitive perspective, non-bank credit providers now have a material share in certain spaces (e.g., sponsored middle-market acquisition finance) and are increasingly taking share from other bank lending franchises (e.g., asset-based finance, trade

finance/supply chain finance). As seen in Exhibit 1, growth in direct lending has outpaced that of bank C&I (commercial and industrial) lending by ~4x in the last five years, driven by a growing pool of non-bank capital.

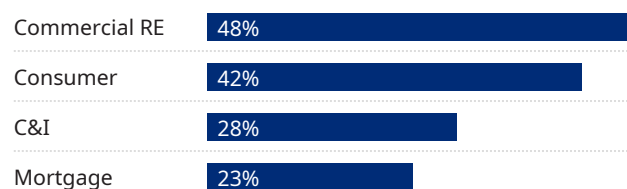
Institutional investors — namely, insurers and pension funds — have targeted yield via increased allocations towards illiquid credit across the risk spectrum. This confluence of headwinds for bank balance sheets, and tailwinds for private capital deployment, has changed the landscape and created new opportunities for collaboration.

Exhibit 1: Sources of growth in commercial credit — % change in outstanding loans, 2Q18 to 2Q23



Source: Fed Flow of Funds, Pitchbook LCD, H8, Autonomous

Exhibit 2: US banks' share of lending market — Loan portfolios' % share of US lending market, 2Q23



Source: Fed Flow of Funds, Pitchbook LCD, H8, Autonomous

¹ Source: OSFI, Moody's Analytics

² In the US, Basel IV is referred to as Basel III Endgame.

Banks are increasingly tapping external capital pools to manage credit portfolios

To continue serving clients' financing needs in the face of these pressures, banks are expanding the tools in their portfolio management toolkits using new sources of external capital. We see management teams prioritizing optionality in their distribution capabilities, offering clients access to multiple pools of capital across public and private markets, while using the bank's own balance sheet strategically for both warehoused and held-to-maturity assets.

Historically, North American banks relied on capital markets to manage risk in credit portfolios, including portfolio sales; loan syndications, to distribute risk in large deals; public securitizations, via traditional securitizations and ABS markets; and credit default swaps (CDS), to hedge certain exposures on the balance sheets. However, each of these approaches has its drawbacks, some of which have become more acute in recent years:

- CDS can be limited or too costly and can introduce material basis risk to be managed.
- Syndicated loan facilities open up borrower relationships to potential competitors in the syndicate.
- Not all asset types are eligible for public securitization.

Partnerships between banks and private credit managers have garnered significant attention in recent months, with over 15 partnerships announced or in progress, as of this publication.

In these partnerships, a bank will originate facilities that are placed in a fund backed by third-party capital (e.g., from insurers, pension funds, sovereign wealth funds). This has allowed banks to expand the types of credits they can offer (e.g., direct lending businesses not meeting underwriting standards) and counteract softness in the broadly syndicated loan market since 2021. However, joint ventures can require significant investment to stand up the infrastructure and market the opportunity, while partner selection and economic sharing models have proven prohibitively challenging for some.

Credit Risk Transfers (CRTs) are expanding the portfolio management toolkit

CRT solutions have been gaining momentum in North America as another mechanism for risk distribution, offering some material advantages relative to other portfolio management tools.

CRT solutions fall into three primary structures

CRT solutions are bespoke transactions and can take several different forms depending on a bank's needs. Three models represent the majority of CRT exposures:

- **Non-Payment Insurance (NPI)** — Policies that protect against default for a single exposure or pool of exposures on a pro rata basis (not usually tranching, but sometimes covering loss in excess of retention).
- **Funded CRTs/SRTs** — Synthetic securitizations where investors purchase a tranche of risk on a pool of exposures, packaged into a Credit Linked Note (CLN) issued by a special purpose vehicle (SPV) or the bank itself.
- **Unfunded CRTs/SRTs** — Synthetic securitizations where insurers guarantee the risk on a tranching pool of exposures on an uncollateralized or semi-collateralized basis.

Exhibit 3: Common CRT-related acronyms

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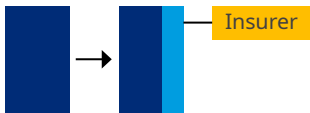
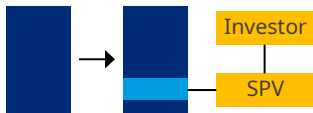
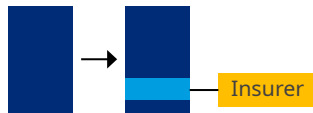
CRT	Credit Risk Transfer (or Capital Relief Trades), terminology primarily used in the US
SRT	Significant Risk Transfer (or Synthetic Risk Transfer), terminology primarily used in Canada, UK, and Europe
NPI	Referring to Non-Payment Insurance or Credit Insurance

Source: Marsh McLennan analysis

These solutions are deployed to different ends — in the US, NPI tends to be used to alleviate utilization of credit concentration limits (e.g., single name credit limits, industry/country concentration limits), while CRTs are typically structured to maximize capital benefit. Given CRTs' tranching structure, banks can offload the most capital-intensive portions of the risk while retaining an outsized share of the loan's economics.

In prior transactions in which Marsh McLennan has participated, we have seen meaningful tangible benefits, including significantly reduced capital consumption with increases in return on equity, due to the relatively attractive cost of capital of private capital providers and (re)insurance capital, while also allowing for the credit risk mitigation of illiquid assets. Banks can use these transactions to help improve the return and risk profile of businesses as traditional banking evolves.

Exhibit 4: Three primary transaction models of CRT solutions

	NON-PAYMENT INSURANCE	FUNDED CRTs/SRTs	UNFUNDED CRTs/SRTs
			
Scope	Single loans, smaller pools of exposures	Larger loan portfolios	
Products	Most common in C&I, CRE, trade and commodity finance, project finance, fund finance, lvg. loans, and derivative exposures	Most common in residential and commercial RE, retail/consumer, SME, and corporate plan portfolios	
Typical investors	Highly rated, diversified P&C insurers and reinsurers	Private credit funds, hedge funds	Highly rated, diversified insurers and reinsurers
Canada impacts	✓ Material risk mitigation benefits and capital relief		
US impacts	✓ Decreased risk limit utilization ✓ Capital benefit may be introduced through Basel III Endgame	✓ Material risk mitigation benefits and capital relief ✓ Higher cost relative to Unfunded CRTs/SRTs	✓ Material risk mitigation benefits ✓ Additional capital savings may be available through Basel III Endgame

Source: Marsh McLennan analysis

Banks, insurers, private capital managers, and brokers all play a critical role in the CRT solutions ecosystem

Banks, as the originators of the risk, play the foundational role in the CRT solutions ecosystem — building and managing borrower relationships, originating financing opportunities, pricing and structuring the underlying facilities, and managing portfolios throughout a loan's lifecycle. Insurers and private capital managers provide the capital behind NPI and CRT/SRT trades, driving the pricing and structuring of CRT solutions via a thorough review of the underlying portfolio's risks. Brokers and other intermediaries also play an important role in the ecosystem, both by supporting the initial structuring of CRT solutions, and by syndicating the exposures across a wider array of investors — especially for P&C insurers and reinsurers.

Bank appetite for CRT transactions is generally determined by an asset portfolio's expected loss (EL) and unexpected loss (UL). In a CRT transaction, banks often retain the EL and do not seek to hedge this level of loss; EL is the cost of doing business and can be managed through pricing and loss provisioning, not regulatory capital. The primary function of bank regulatory capital is to protect against UL. CRT transactions allow banks to transfer this UL to third parties. As such, remote losses that are retained by the bank benefit from reduced capital requirements.

In practice, for CRT/SRT structures, banks generally retain the majority of the most senior/least risky tranches, while also retaining a minimum of junior/first-loss exposure to satisfy regulatory risk retention requirements. For NPI structures, risk is shared between banks and insurers on a pari passu basis, irrespective of which tranche(s) is being covered (including mezzanine).

Insurers and reinsurers typically have the expertise and capacity to underwrite both senior and mezzanine tranches based on a variety of factors, such as their existing portfolio exposures, underwriting capacity, and experience in underwriting risk for a given asset class. Private capital players typically have higher risk appetites and are willing to participate in more complex CRT structures, generally focused on mezzanine tranches. Given these varying degrees of risk appetite, insurers and private capital managers will sometimes participate in the same deals, with private capital taking on the highest risk portion of the mezzanine tranche (on a funded basis) and insurers taking a more senior tranche (on an unfunded basis).

Exhibit 5: Overview of CRT solutions ecosystem

PLAYER	DESCRIPTION	DETAILS (GENERALIZED)
(Re)insurers	Role	Provision of risk mitigation products
	Risk tolerance	Low-moderate
	Tranches insured	Mezzanine and senior
	Participation goals	• Lower risk return/revenue generation from premiums • Diversification of risk portfolio • Cost efficiencies
Private capital	Role	Investment into CRT solutions
	Risk tolerance	High
	Tranches insured	Junior/first loss and mezzanine
	Participation goals	• Potential for higher returns • Diversification of investment portfolio • Tailored risk exposure of investment • Enhanced client engagement
Banks	Role	Origination of a pool of assets to insure or transfer to a funding vehicle
	Risk tolerance	n.a.
	Tranches insured	Junior/first loss and senior
	Participation goals	• Capital/balance sheet optimization • Credit risk management • Management of NPL exposure

Source: Marsh McLennan analysis

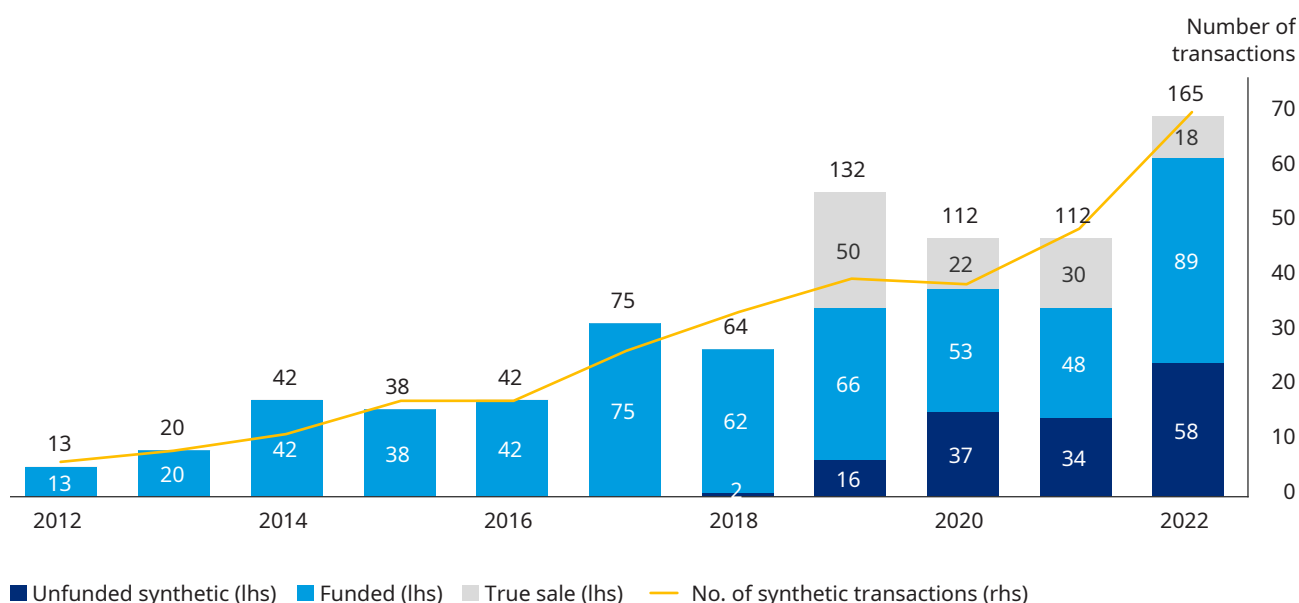
The evolution of the SRT market globally is a template for growth in North America

The European Significant Risk Transfers (SRTs) began in the late 1990s and accelerated in the early 2010s following the implementation of Basel II. The European SRT market was €165 billion as of 2022, reflecting a compounded annual growth of 29% since 2012.

Several forces coincided to drive the growth of the European SRT market:

- Higher cost of capital for European banks due in part to post-GFC regulation and investor pressure to reallocate capital to higher returning businesses.
- Lack of availability or depth in some traditional capital markets products (e.g., CDS, securitization).
- Insurer interest in credit exposure, driven by regulatory clarification of capital relief benefits of SRTs and appetite for additional risk/reward opportunities.
- Regulatory clarity under the Basel framework and 2016 guidance by the ECB on the use of SRTs.

Exhibit 6: Total performing CRT portfolio market volume in Europe (2012-2022) — € billion



Source: Marsh McLennan analysis, SCI, ECB: Values have been adjusted using average tranche/portfolio for the missing values and are underestimated due to lack of public information. Excludes non-payment insurance trades due to lack of public information; values for true sale from ECB SRT database are only available since 2019

The North American CRT solutions market is in its infancy relative to Europe, but with a strong growth trajectory

CRT solutions are not as prevalent with US banks as with their European peers, however US appetite is growing quickly.

In Canada, the market for CRT solutions is well established and expanding. Major banks have been using NPI trades since the mid-2010s, Funded CRTs since 2023, and most are considering entering Unfunded CRT trades today. The Canadian CRT solutions market benefited from earlier implementation of Basel IV, which allowed for recognition of Unfunded CRTs for capital relief purposes.

In the US, many banks have been users of NPI since the early 2010s, mostly for sectoral and counterparty limit management, and general risk management purposes. Initially, capacity was primarily utilized for trade and commodity finance, secured RCFs, and asset-based lending. However, the market has evolved to take considerable volumes of project finance and, increasingly, tax equity/tax credit and offtake risk, especially in the various onshore US energy markets and burgeoning renewables market.

Guidance from the Federal Reserve Board in September 2023³ clarified the treatment of certain Funded CRT activity and inaugural issuances from

a number of US regional banks. Significant lack of clarity remains under current rules for the regulatory capital treatment of Unfunded CRTs for certain counterparties (e.g., multiline (re)insurers); however, additional regulatory guidance and clarity on current rules and capital benefits could unlock opportunities for growth, potentially bringing the US Unfunded CRT market closer to Canadian and European peers in the coming years. This could be a material tailwind for the CRT market, as in most cases Unfunded CRTs can be executed more cost effectively (than Funded CRTs and capital markets products).

Exhibit 7: Summary of CRT solutions market maturity by region

Phase I	Phase II	Phase III (2028+)
Prominence of funded transaction activity, some unfunded transaction activity Under the Basel III regime	Funded market reaches scale, growth in unfunded transaction activity Adoption of Basel III Endgame/IV changes	Fully developed unfunded market Long-term Basel III Endgame/IV execution
Level of maturity by region, as of 2024		
US market		
Mainly funded transaction activity, with more limited use of NPI for risk mitigation, counterparty, and limit relief		
Canadian market		
Growing NPI and CRT/SRT transaction activity following regulatory clarifications		
European market		
Fully developed NPI and Unfunded SRT market and regulatory framework in place		

Source: Marsh McLennan analysis

3 See Question 2 <https://www.federalreserve.gov/supervisionreg/legalinterpretations/reg-q-frequently-asked-questions.htm>

The opportunity for CRTs in North America is vast

We estimate that approximately 22% (\$3 trillion) of bank loans in North America would be attractive for CRT solutions under currently proposed capital rules.

While portfolio eligibility for CRT solutions is influenced by a number of factors (e.g., execution volume and track record, transaction complexity, pricing, insurer underwriting expertise/appetite for certain asset classes, single name and insurance sector credit risk appetite for Unfunded CRTs), we used three primary principles to assess CRT viability:

1. RWA density⁴: Assets with a higher RWA density⁵ would benefit most from CRT transactions, as they provide most room for meaningful risk weight reduction. Some products (e.g., residential mortgages in Canada⁶) will see their risk weighting increased in the coming years and are expected to become increasingly attractive for CRTs.

2. Probability of default: Banks gain limited risk or capital management benefits from insuring low-risk exposures (i.e., A- ratings or above, which have a risk weight of 20%-30%). Exposures with a high probability of default (i.e., CCC+ or below) make less attractive candidates for CRT solutions given lack of insurer appetite for this level of risk, which in turn could result in aggressive deal terms that are unappealing to banks⁷.

3. Loan exposure geography: Insurer focus is primarily on US, Canadian, and European borrowers — loans to borrowers in other geographies are currently less attractive for CRTs/SRTs (although commonly insured with NPI, especially in Europe).

While we do not expect the North American CRT market to surpass the European SRT market in the near future, this assessment of asset attractiveness illustrates the potential scale of the long-term opportunity.

In Canada, we estimate CA\$0.8 trillion of bank assets will be attractive for Unfunded CRTs under the current Basel IV regime (~17% of banks' IRB portfolio exposure).

The aggregate size of the IRB portfolios⁸ of Canada's six largest banks (BMO, RBC, CIBC, TD, Scotia, and National Bank) is approximately CA\$4.8 trillion as of Q4 2023⁹.

Following the principles above, our outside-in view suggests that ~17% of Canadian banks' IRB portfolio (CA\$ ~0.8 trillion) could be eligible for CRTs under the Basel IV regime. This includes corporate and SME loans, and some infrastructure, shipping, aviation, and equipment leasing.

⁴ RWA density is defined as the ratio of RWA to total asset exposure and measures the riskiness of each asset exposure.

⁵ The risk weight of the insured portion of the exposure can be substituted for the risk weight of the guarantor and will lead to reduced capital charges for the guaranteed exposure if the former's risk weight is higher than its substitute. As such, exposures with a risk weight below 35% lead to minimal capital relief benefits. However, this is not a strict cut-off, as certain insurers have expertise and capacity to complete more complex underwriting for certain loan exposures. Source: Basel Framework CRE 22.23

⁶ Source: Basel Framework CRE 20.82

⁷ Insurers have limited appetite for insuring loans with a rating above BB+ or below CCC+, roughly corresponding to a probability of default range of 0.15% to 2.5%. Portfolios we view as being most eligible for CRTs fall within this range. Source: Basel Framework CRE 31.13-31.16

⁸ IRB portfolio is comprised of on-balance-sheet gross exposures, including sovereign, corporate, corporate specialized lending, and bank exposures, as well as retail exposures (insured residential exposure, uninsured mortgages, HELOCs, qualifying revolving retail, retail SME, and other retail).

⁹ Source: Q4 2023 Supplementary regulatory capital disclosures/Pillar 3 reports

In the US, we estimate \$2.2 trillion will become attractive for CRTs under the Basel III Endgame regime (~25% of US on-balance-sheet gross loans).

Total US gross bank loan exposures was \$8.9 trillion for large banks¹⁰ as of Q4 2023. Following the principles above, our outside-in view suggests that ~25% of US banks' gross loan exposures (\$~2.2 trillion) could become eligible for CRTs under the Basel III Endgame regime. This includes commercial and industrial (including SME loans), residential mortgage, CRE (ex-multifamily), and credit card, auto, and other consumer.

On an aggregate basis, regional and other non-G-SIB banks are set to benefit most from CRTs, as they hold higher concentrations of eligible portfolios across all asset classes.

Furthermore, CRT solutions also present an opportunity to both increase the return on equity of underperforming assets to earn their cost of capital via a reduction in tangible equity and enhance already profitable products, while providing relatively affordable risk mitigation benefits (vs. capital market products or portfolio transactions). These solutions, however, contribute to a reduction in NII, as some of the interest income is paid out to insurers and investors.

CRT solutions come with a set of risks, which must be assessed and managed by all stakeholders involved, including:

1. Risk of counterparty (i.e., insurer) not paying a bank in an NPI or Unfunded CRT/SRT structure due to insufficient reserves. NPI and CRT/SRT exposures comprise a minority proportion of insurer portfolios and, unlike in the GFC, monoline insurers are unable to participate in CRT/SRTs. However, typically insurers participating in this market are highly rated by multiple credit rating agencies, and insurance risk management frameworks and regulatory oversight are also focused on ensuring insurers remain well capitalized and maintain sufficient reserves.

To address this risk, banks should ensure that NPI and Unfunded CRT/SRT exposures are integrated within broader credit risk management frameworks — prioritizing highly rated insurers/reinsurers — and the risks related to operational requirements and settlement timing are well understood.

2. Risk of a counterparty being unavailable for new transactions in times of stress. If banks originate debt with the intent to distribute via CRT solutions, but no counterparties are willing to take the other side of the CRTs when needed (e.g., due to retraction in leverage provision and/or investor asset allocation to CRT strategies), banks could be forced to build capital at inopportune times. The tenor of NPI and CRTs/SRTs tend to match the maturity profile of the underlying portfolios, mitigating 'roll risk'. However, debt that has been originated by banks with the intent to distribute via CRT/SRT would be impacted by unexpected unavailability of a willing counterparty. Banks should clearly identify where origination is dependent on CRT solutions for distribution and manage the associated pipeline risks appropriately.

3. Misunderstood risks in underlying credits. As with any distributed asset, incentives between originator and buyer can become misaligned. To mitigate this risk, NPI and CRTs/SRTs typically require a material amount of risk retention by a bank, maintaining 'skin in the game' on originated credits. Likewise, investors in CRTs/SRTs perform thorough due diligence on the underlying loan portfolios to assess the expected losses from the referenced portfolio in various macroeconomic scenarios. Finally, unlike CDS in the GFC, CRT structures require dollar-for-dollar participation on both sides of the trade — avoiding potential for amplification of risk via speculative products. All risks related to CRT solutions should be evaluated as part of regular risk identification exercises and incorporated in existing risk management frameworks, adding new controls where required.

¹⁰ Includes loan books from banks with total assets greater than \$20 billion.

CRT operating models are maturing, with leading banks investing in analytics and risk management capabilities

Today, many North American CRT contracts are non-programmatic and fragmented within the individual bank, with relationships managed by a mix of business, portfolio management, and other function personnel, underpinned by a small pool of episodic transactions. However, leading banks have consolidated CRT management to a single team and have scaled their CRT participation in areas supporting their long-term strategies with committed external partners.

Key enablers of successful CRT solutions programs include:

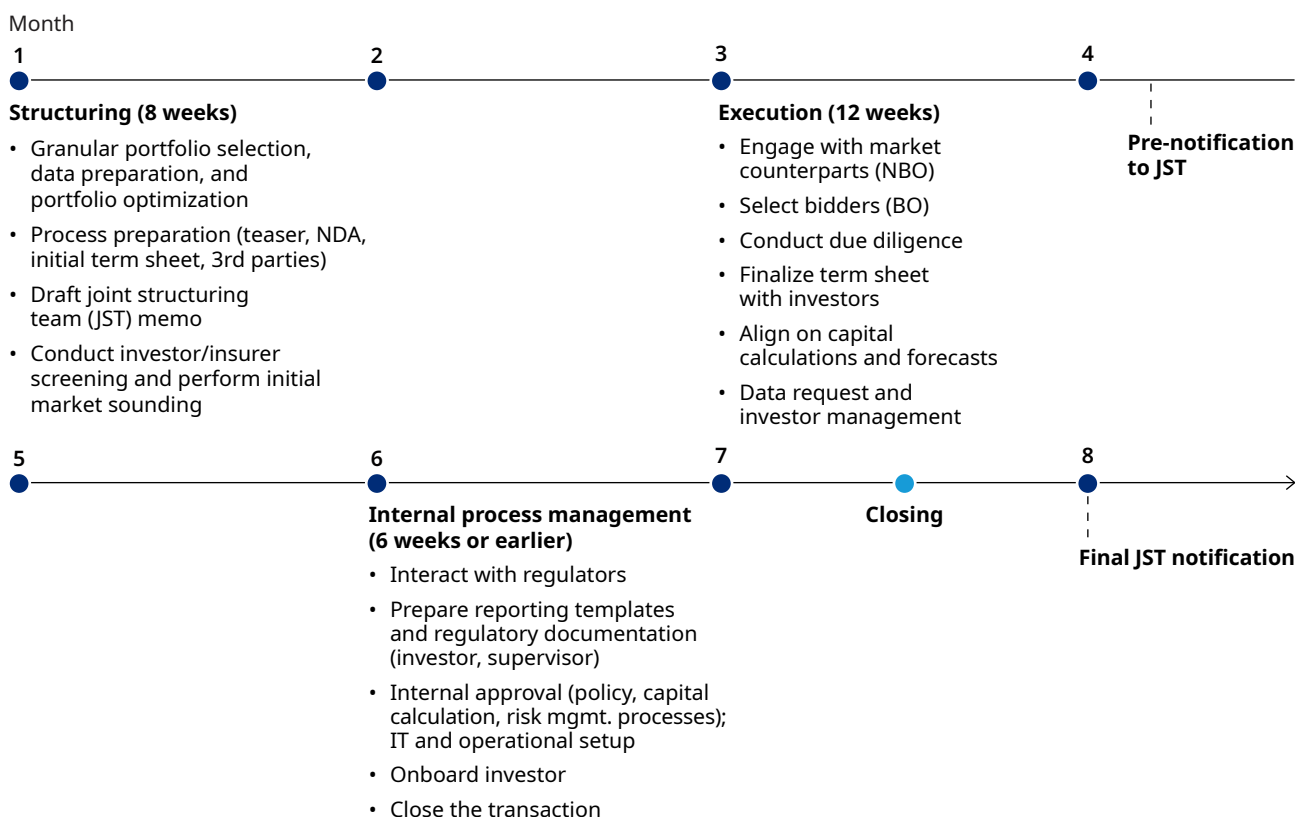
- **Clear strategy** — Articulation of CRT objectives and role within broader CPM toolkit.
- **Refined operating model** — Clear roles and responsibilities across groups, detailed knowledge of regulatory requirements, and single buying point within the organization.
- **Flexible analytics** — Approaches used to estimate the potential capital impact of various CRT structures.
- **Robust governance and risk management** — Ownership and accountability clearly assigned across three lines of defense.

For new issuers, CRT/SRT transactions can take six to eight months to execute, depending on the length and intensity of the bank's new product approval processes — however, once operational requirements are in place, subsequent CRT/SRT transactions tend to take one to three months. NPI transactions are often faster from structuring to closure, with new issuers requiring up to two months following product approval. Once a bank has established standardized documentation, counterparty limits on a panel of insurers, and insurers have gotten comfortable with the bank's credit approval process, transaction velocity increases, with trades executed within several days or a few weeks, from initial quote, to risk approval, to signed documentation.¹¹

¹¹ Based on previous Marsh McLennan experience supporting NPI and CRT/SRT transactions

Exhibit 8: Timeline of typical CRT/SRT transaction

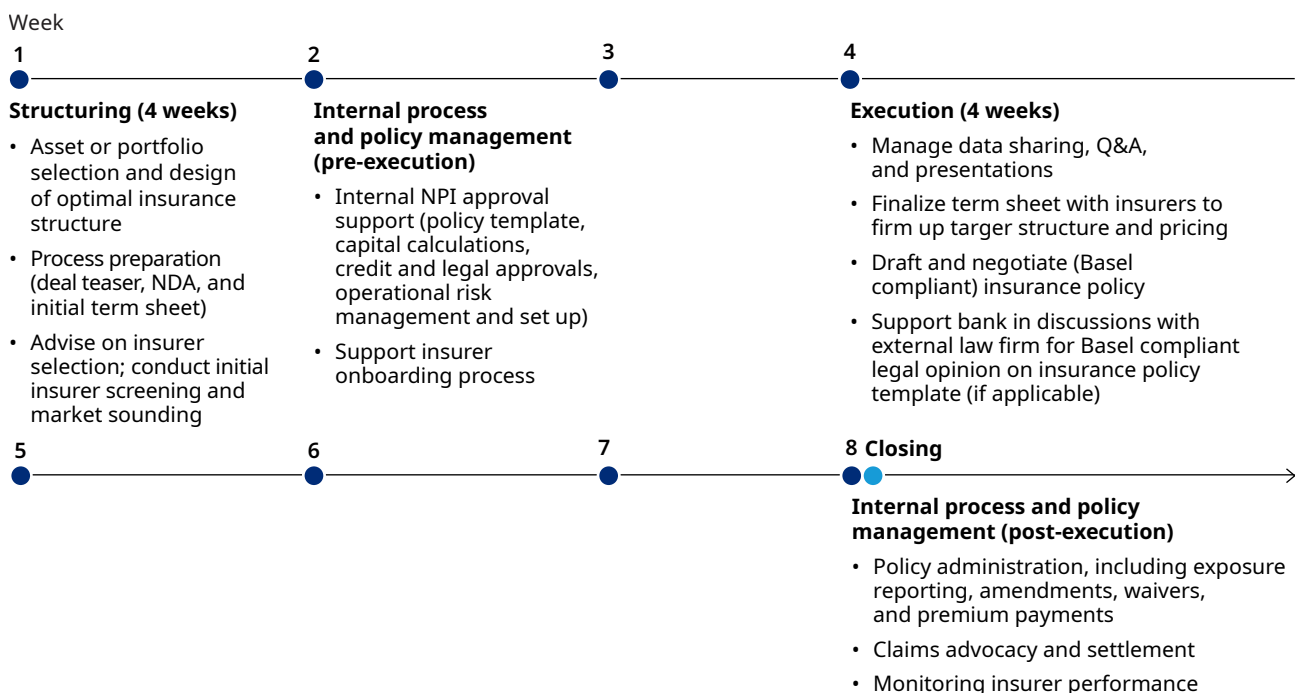
Initial CRT/SRT transactions may take 6–8 months to execute, while subsequent ones tend to take 1–3 months



Source: Marsh McLennan analysis — based on previous Marsh McLennan experience supporting CRT/SRT transactions

Exhibit 9: Timeline of typical NPI transaction

NPI transactions are faster than CRT/SRT ones, with initial transactions taking ~2 months and subsequent ones days



Source: Marsh McLennan analysis — based on previous Marsh McLennan experience supporting NPI transactions

Marsh McLennan is a leading provider of CRT solutions

Marsh McLennan is a leading provider of CRT solutions, bringing unparalleled credit risk expertise, strong distribution capabilities to insurers and reinsurers, and a proven track record of successful execution of CRT solutions.

Marsh, Guy Carpenter, and Oliver Wyman collaborate to design and deploy effective CRT solutions at scale in North America. Oliver Wyman supports clients with defining CRT strategies, developing risk management frameworks, assessing potential impact to capital from various CRT structures, and overseeing the implementation of new CRT programs. Marsh is a global leader in insurance brokerage services that supports banks with transaction structuring, negotiation, execution, and process management,

as well as the product and insurer counterparty approval process with internal and external stakeholders. Guy Carpenter is an integrated solutions provider and global leader in the reinsurance market that provides support to banks in the portfolio selection phase, portfolio analytics, structuring, market building, deal placement and execution, loss distribution modelling, and hedging pricing guidance, as well as the monitoring and control of counterparty risk of (re)insurers.

These combined capabilities allow Marsh McLennan to assist an originating bank in each of the stages of implementation of programs for CRT solutions and with each type of CRT transaction.

Exhibit 10: Typical stages of program implementation for CRT/SRT transactions

1	Portfolio selection, tranching, and RWA impacts	• Data collection and analysis, data tape structuring, and assessment of informational gaps • Portfolio analysis to optimize the transaction structure and key features • Support on origination, structuring, and assessment of capital/IS impacts	Structuring and deal execution Marsh Guy Carpenter Oliver Wyman
2	Legal analysis and management of advisors	• Design overall process, including appointment and scope of 3rd party advisors (counsel, verification agent, VDR) • Support on the draft of initial term sheet • Advise on terms negotiation and finalization of legal documentation	
3	Pricing and investor scouting	• Initial market sounding and pricing analysis • Brokerage of the opportunity to the market and support in the selection of the best offer (single point of contact) • Support on due diligence and Q&A sessions preparation with investors	

4 CRT notification and supervisory dialogue	• Prepare pre-notification and final notification for the JST • Prepare reporting templates • Support during interaction and Q&A with the regulator	Internal operational machine set-up Oliver Wyman
5 Internal approval	• Support in preparing the internal communication of the operation and the Q&A sessions with the bank's board of directors (BoD)	
6 CRT operating model	• Create a CRT Financial model and handover to CRT team • Create a Day 1 capital release model • Infrastructure build out and bank's teams upskilling (development of CRT governance framework, capital release model, downstream impact of CRT trade on core risk management processes, e.g., ICAAP, business and capital planning, etc.)	
7 Ongoing report	• Support in preparing reporting models for the BoD and regulator • Performance monitoring of the positions in the tranche and remaining guarantee level calculation based on recorded losses for regulatory purposes	Reporting Generally managed by the bank

Source: Marsh McLennan analysis — based on previous Marsh McLennan experience supporting CRT/SRT transactions

Exhibit 11: Typical stages of program implementation for NPI transactions

1 Asset/portfolio selection and RWA impacts	• Data analysis and assessment of informational gaps • Analysis to optimize the transaction structure and key features • Advise on policy structuring and assessment of capital impacts	Structuring and deal execution Marsh Oliver Wyman
2 Legal analysis and management of advisors	• Draft initial term sheet • Advise on terms negotiation and finalization of contractual documentation • Support on discussions with internal and external law firms on legal opinion confirming Basel compliance (if applicable)	
3 Pricing and insurer scouting	• Initial market sounding and pricing analysis • Brokerage of the opportunity to the market and support in the selection of the best offer (single point of contact) • Support on due diligence and Q&A sessions preparation with insurers	
4 Internal approval	• Support in preparing the internal communication on NPI and Q&A sessions with key internal stakeholders • Guidance through insurer counterparty approvals process	Internal approval support Oliver Wyman
5 Ongoing reporting	• Manage policy operational/reporting requirements (e.g., exposure reporting, amendments and waiver requests, premium payments) • Monitor and benchmark insurer performance	Reporting Generally managed by the bank

Source: Marsh McLennan analysis — based on previous Marsh McLennan experience supporting NPI transactions

Marsh McLennan has helped several of the largest North American and European banks in executing NPI as well as Funded and Unfunded CRT/SRT transactions. Below are case studies of recently completed transactions, with further details in Appendix B.

Exhibit 12: Sample case studies of NPI and CRT/SRT transactions executed by Marsh McLennan
(Appendix B for reference)

	NON-PAYMENT INSURANCE	UNFUNDED RISK TRANSFER	FUNDED RISK TRANSFER
Case Study			
Case context	A data center sector bank executed a \$300 million senior secured term loan transaction, aiming to grow client relationships and fee income. Oliver Wyman/Marsh advised on the transaction, using a methodology based on the insurer's rating to determine the loss given default (LGD) on the insured portion.	In December 2022, a Euro-zone European bank closed its inaugural bilateral synthetic SRT transaction with an undisclosed insurer protecting the mezzanine tranche of the structure. Oliver Wyman/Marsh advised as a sole structurer and arranger on the full scope of transaction.	GC Securities, a division of MMC Securities LLC, has executed on several Funded CRT transactions, including co-managing some of the GSEs' CRT transactions.
Key highlights	Release of capital for redeployment, enabling the bank to optimize its capital allocation strategy and pursue new growth opportunities. Return of value to shareholders through the realization of increased profitability and efficient capital utilization.	Risk transfer achieved through a cost-efficient insurance policy from a Tier 1 insurer, improving CET1 ratio and broadening potential future capital sources. Transaction executed in four to five months, allowing the bank to regain access to international capital markets in a tightening credit market context.	Reference pool was a \$13.4 billion portfolio of high-LTV mortgage loans in recent GSE's MBS securitizations. The capital structure of the transaction was four mezzanine tranches referencing 0.10%-4.50% of potential portfolio losses. Total bond issuance for the funded transactions was \$432 million.

Source: Marsh McLennan experience and analysis

Appendix A

Exhibit 13: Comparison of pre-GFC CDS to current capital markets and (re)insurance CRT solutions

	Pre-GFC derivatives	Capital markets	(Re)insurance
	Pre-GFC credit default swaps (CDS)	Funded (CRT)	Unfunded (CRT)
Distribution vs. concentration of risk	Bilateral arrangements limited to a handful of market participants that sold virtually uncapped credit protection	Distributes credit risk to a broad set of fixed income investors	Distributes credit risk to a broad set of highly rated multiline global (re)insurers
Counterparty credit and wrong-way risk	Highly leveraged counterparties with un/undercollateralized positions highly exposed to market and credit risk	Full upfront cash collateralization	Highly regulated investment grade diversified multiline (re)insurers where CRT risk is uncorrelated to core property and casualty exposures
Alignment of interest	No requirement	Investors require issuers to retain some risk	(Re)insurers require issuer to retain some risk
Hedging vs. speculation	Allowed for highly leveraged market speculation beyond direct hedging	Issuers only able to hedge risk to which they are actually exposed	Issuers only able to hedge risk to which they are actually exposed
Hedge availability	Highly exposed to liquidity risk and mark-to-market impacts	Stress in active secondary market may impact CRT availability when most needed	Limited, risk held to maturity and no secondary market

Source: Marsh McLennan analysis

Appendix B

CASE STUDY #1

We facilitated a \$300 million Non-Payment Insurance transaction for a US bank

Marsh supported the release of risk capital to increase lending capacity for the bank

CONTEXT		KEY HIGHLIGHTS
• A bank executed a \$300 million senior secured term loan transaction in the data center sector, growing fee income and preserving existing client relationships. • Oliver Wyman/Marsh advised on the transaction, utilizing a methodology where the LGD on the insured portion is based on the insurer's rating. • Activities included: — Structuring the transaction — Setting up the NPI framework — Leading the regulatory advisory notification and process — Placing the transaction	Portfolio Structure Bank's existing exposures Retained portfolio Insured portfolio Insurer Bank's optimum exposure limit (ex. borrower, PE sponsor)	• Risk transfer achieved by a non-payment insurance policy provided by a Tier 1 insurer. • Release of capital for redeployment, enabling the bank to optimize its capital allocation strategy and pursue new growth opportunities. • Generation of fee income, as lender earns skim on margin and fees. • Growth and protection of client relationships, instead of introducing competitors to clients to meet their borrowing needs. • Insurance policy executed before or after financial close.

Source: Marsh McLennan analysis

CASE STUDY #2

We supported a European bank conducting its first unfunded synthetic SRT trade of €1.0 billion of corporate loans

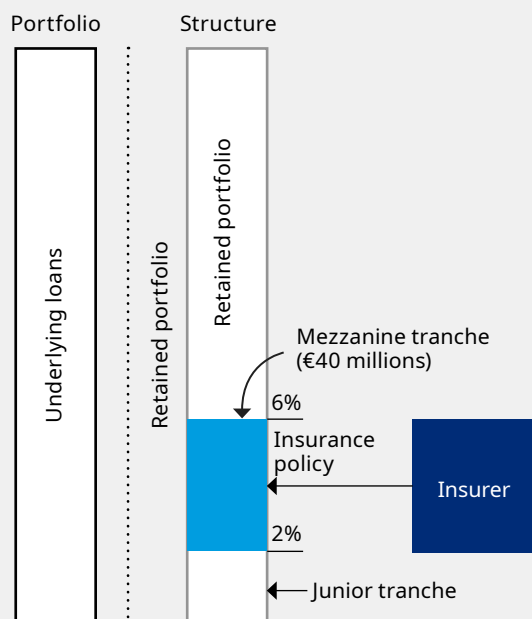
Oliver Wyman and Marsh acted as a sell-side advisor to the bank

CONTEXT

- In December 2022, a Euro-zone European bank closed its inaugural bilateral synthetic SRT transaction with an undisclosed insurer protecting the mezzanine tranche of the structure.
- Oliver Wyman/Marsh (Marsh McLennan) advised as a sole structurer and arranger on the full scope of this transaction by:
 - Structuring the transaction
 - Modelling the capital and supervisory tests
 - Providing the required securitization tools
 - Setting up the SRT framework
 - Leading the regulatory advisory, notification process
 - Placing the transaction
- This transaction builds on a strong track record of +13 SRT trades arranged since 2019 by Marsh McLennan.

KEY HIGHLIGHTS

- Risk transfer achieved by a cost efficient unfunded insurance policy provided by a Tier 1 insurer.
- Improvement of CET1 ratio by 12bps at a cost below the bank's cost of equity.
- Trade allowed the bank to regain access to international capital markets in a context of significantly tightening credit markets.
- Broadened the sources of potential future capital by establishing the bank's relationship and its reusable capabilities in the European SRT market.
- Transaction was executed in four to five months.



CAPITAL STRUCTURE OF THE SYNTHETIC SRT

Tranche	Size (€ millions)	AP	Status
Senior	940	6%	Retained
Mezzanine	40	2%	Protected
First loss	20	0%	Retained
Total	1000		

Source: Insurance Enabled Banking; Marsh McLennan analysis

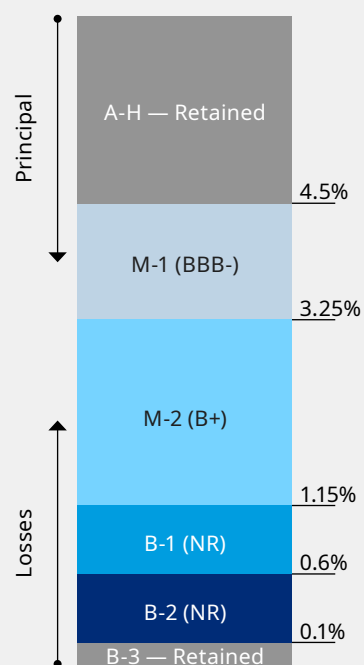
CASE STUDY #3

We executed several Funded CRT transactions for GSE programs in the US

Guy Carpenter acted as the sole executor of these transactions

KEY HIGHLIGHTS

- GC Securities, a division of MMC Securities LLC, has executed on several Funded CRT transactions, including co-managing some of the GSEs' CRT transactions.
- GSEs have an active role CRT program to achieve risk transfer and regulatory capital relief.
- Transaction highlights:
 - Reference pool: \$13.4 billion portfolio of high-LTV mortgage loans in the GSE's recent MBS securitizations
 - Capital structure: Four mezzanine tranches referencing; 0.10%-4.50% of potential portfolio losses
- Bond issuance: \$432 million.
- Guy Carpenter capabilities include due diligence, structuring, deal marketing, and placement.



Source: Insurance Enabled Banking; Marsh McLennan analysis

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