Credit risk transfer: A critical component of GSE reform

GSE CRT is an innovation that, when used strategically, strengthens the U.S. housing market finance system and can improve the equity return for potential private investors

Commissioned by Liberty Mutual's Mortgage Insurance and Reinsurance Group

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Executive summary

Credit risk transfer (CRT) is an important financial innovation developed by the U.S. Federal Housing Finance Agency (FHFA) and the government-sponsored enterprises (GSEs) in the aftermath of the 2008 housing crisis. Introduced in 2013, CRT reduces the exposure of the GSEs—and, by extension, U.S. taxpayers—to potential mortgage credit losses by transferring a portion of that risk to private investors. This critical tool reduces the U.S. housing finance system's reliance on government guarantees and taxpayer bailouts while fostering a resilient and accessible housing finance system. As policymakers consider reforming the GSEs and releasing them from conservatorship, preserving and building upon CRT is critical. CRT offers an efficient and cost-effective way for the GSEs to raise capital, manage economic risks, and improve their return on capital, making it a vital component of the housing finance system.

Past GSE CRT market pricing and risk-based modeling show that placements have attractive economics for the GSEs, covering a relatively high number of forecasted stress losses in comparison to the premiums paid for the coverage. These economics were generally consistent for the duration of the GSE CRT program. However, the introduction of the FHFA Enterprise Regulatory Capital Framework (ERCF) in 2020 contributed to reduced issuance and the unintended consequence of increasing the amount of risk retained by the GSEs. To keep this valuable tool economically viable, the ERCF must be adjusted to align the regulatory capital benefit with the demonstrated economic benefit of GSE CRT.

GSE CRT participants have demonstrated the ability and willingness to provide private capital and market-based pricing to the GSEs. From a counterparty risk standpoint, highly capitalized reinsurance companies are not correlated with mortgage credit risk, have demonstrated an ability to reasonably price risk during uncertainty, and have proved themselves to be a durable, diversified source of capital. If the GSEs are released from conservatorship, they will require multiple sources of diversified capital. GSE CRT provides many benefits to the GSEs and can be structured to simultaneously manage risk and optimize the return on capital. Both outcomes enhance the equity value of the enterprises.

If changes to the ERCF were implemented that provided more capital credit for CRT, the market would be ready and able to participate in a greater volume of CRT issuance, facilitating the transition out of conservatorship. GSE CRT can be a consistent, efficient, and strategic source of capital for the GSEs, and GSE CRT participants are in a strong position to support the enterprises with private capital.

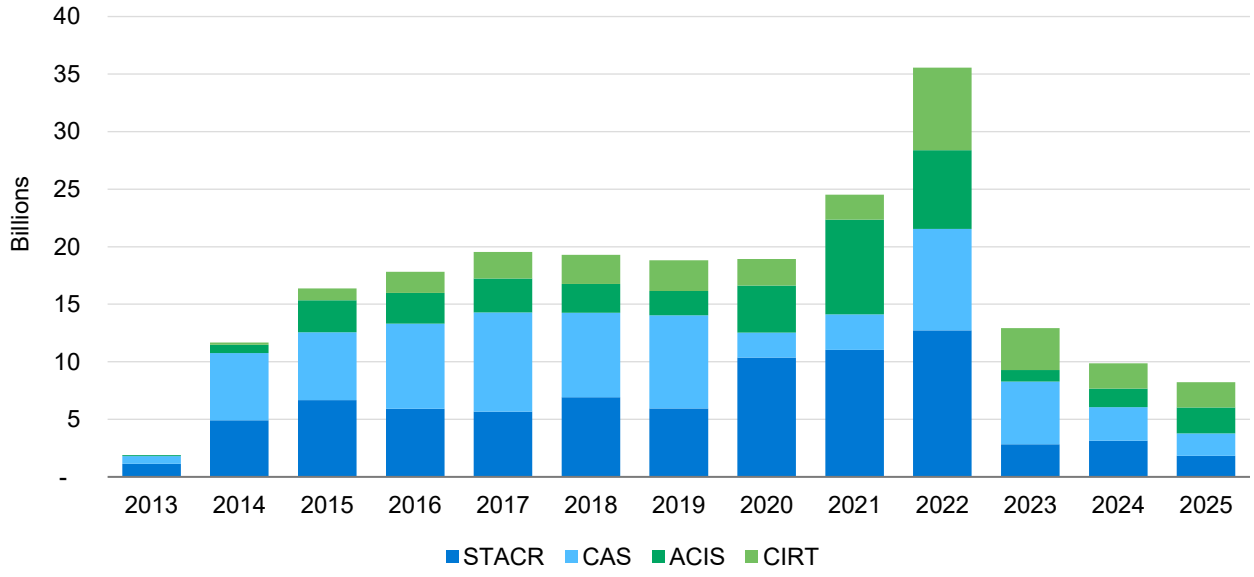
Introduction

CRT, or Significant Risk Transfer (SRT) in the European Union, is a well-established tool for managing credit risk within financial institutions. It allows firms to reduce the amount of economic capital—funds set aside to absorb unexpected losses—needed for credit exposure.

CRT typically involves either the issuance of bonds (funded) or the purchase of reinsurance (unfunded) to transfer the risk of credit losses from a pool of loans to private investors in exchange for a premium paid to the investors. For bond CRT, investors purchase bonds from the issuer; they receive interest payments in return for assuming the risk that credit losses may reduce the principal repaid. For reinsurance CRT, insurers receive periodic premium payments and reimburse the issuer for credit losses as they occur. In both cases, the issuer pays a premium to transfer the risk of credit losses on the loan pool to private investors.

The largest CRT market in the U.S. is operated by the GSEs Freddie Mac and Fannie Mae. These are defined by Freddie Mac's STACR (bond) and ACIS (reinsurance) program and Fannie Mae's CAS (bond) and CIRT (reinsurance) program. The GSE CRT program began in 2013 as a tool to manage credit risk from the GSEs and to transfer credit risk to private market participants. Figure 1 shows the issuance volume of CRT by calendar year and program. From 2013 through 2025, the enterprises issued more than $200 billion of CRT securities and reinsurance covering over $7 trillion of unpaid principal balance (UPB)[1].

FIGURE 1: GSE CRT ISSUANCE BY ISSUANCE YEAR AND PROGRAM



Source: Derived using data from Freddie Mac, Fannie Mae and Milliman M-PIRe

1. Source: Milliman M-PIRe valuation & securitization software. https://www.milliman.com/en/products/milliman-m-pire.

GSE CRT issuance volume historically has been correlated to mortgage origination volume (with a timing lag to allow for loan accumulation and securitization). The decline in issuance starting in 2023 is a function of both a reduction in mortgage origination volume (refinance volume significantly declined from 2022 to 2023 as interest rates increased) and due to the introduction of the ERCF.

The strategic benefits of CRT have been well documented across public sector, private sector, and academic research. In particular, the Joint Center for Housing Studies from Harvard University published a series of white papers—Demystifying GSE credit risk transfer—in 2020, outlining the following key benefits of CRT to the GSEs:

1. GSE CRT can provide a mechanism to reduce systemic risk arising from the GSEs' monoline business structure
2. GSE CRT can provide a mechanism to reduce taxpayer exposure
3. GSE CRT can provide a feedback loop and force market discipline with respect to credit risk management for the GSEs
4. GSE CRT can provide an efficient source of capital
5. Through a lower cost of capital, GSE CRT can support lower guarantee fees

The papers, authored by Don Layton (the CEO of Freddie Mac from 2012 through 2019), qualify these potential benefits, stating, "This is not to say that CRT is a panacea, or that it does not have its issues. No system of finance is just strengths and no weaknesses. But housing finance with CRT is, in my view, a clearly much superior system to one without it."[2]

This paper provides a narrative of how GSE CRT has shifted from initially transferring most credit risk to private capital to now being a capital management tool where most credit risk is retained by the GSEs. We conclude by discussing how GSE CRT can be leveraged to facilitate the recapitalization and release of the GSEs, simultaneously increasing ROE and mitigating the risk of the GSEs' monoline business structure. This paper was written independently by Milliman at the request of Liberty Mutual's Mortgage Insurance and Reinsurance Group.

1. 2013 through 2017 GSE CRT: Transferring risk to the private sector

The GSEs were put into conservatorship in 2008, as they lacked the equity capital needed to absorb unexpected losses and a regulatory capital framework to determine the appropriate level of capital for the risks assumed. At that time, with the exception of transferring a portion of loan-level credit risk through mortgage insurance (MI) to the then seven MI companies, the GSEs retained all the credit risk exposure for guaranteed mortgages and the U.S. Department of Treasury provided financial support to the GSEs through Senior Preferred Stock Purchase Agreements (SPSPAs).

In 2012, the SPSPAs between the U.S. Treasury and the GSEs were revised, resulting in most earnings from the GSEs being allocated to the U.S. Treasury as part of a "net worth sweep." The agreement allowed each enterprise to hold capital up to $3 billion; any earnings exceeding this capital amount were sent to the U.S. Treasury.[3]

However, the GSEs continued to guarantee mortgages; as of December 2024, the GSEs collectively guaranteed $6.6 trillion of agency mortgages[4]. Expected losses for the mortgages underlying the mortgage-backed securities, which are the amount of credit losses that would be expected during average economic conditions, are supported and priced into the ongoing guarantee fees assessed by the GSEs. However, unexpected losses, which are the amount of credit losses more than expected losses that could occur during economic stress, could require the use of taxpayer funds given the limited equity of the enterprises. GSE CRT was introduced to transfer the risk of unexpected losses from the taxpayer to private market participants.

2. Layton, D. (2020, January). *Demystifying GSE credit risk transfer*. Joint Center for Housing Studies of Harvard University. https://www.jchs.harvard.edu/sites/default/files/media/imp/harvard_jchs_gse_crt_part1_layton_2020.pdf.

3. Layton, D. (2019, October 2). *Temporarily ending the GSE net worth sweep: A limited but important step towards GSE reform*. Joint Center for Housing Studies of Harvard University. https://www.jchs.harvard.edu/blog/temporarily-ending-the-gse-net-worth-sweep-a-limited-but-important-step-towards-gse-reform.

4. Hussain, S. (2025, January 27). GSE reform resurfaces: Challenges and implications. *J.P.Morgan Asset Management*. https://am.jpmorgan.com/us/en/asset-management/institutional/insights/portfolio-insights/fixed-income/fixed-income-perspectives/gse-reform-resurfaces-challenges-and-implications/.

To encourage the development of the market, the FHFA, responsible for overseeing Freddie Mac and Fannie Mae in conservatorship, required both enterprises to transfer most of their credit risk to the private sector. Figure 2 shows excerpts from FHFA's 2016 and 2017 GSE scorecards[5].

FIGURE 2: EXCERPTS FROM FHFA'S 2016 AND 2017 GSE SCORECARDS

Year	CRT Objective
2016	Transfer credit risk on at least 90 percent of the unpaid principal balance of newly acquired single-family mortgages in loan categories targeted for risk transfer. Targeted categories are non-HARP, fixed-rate terms greater than 20 years, and loan-to-value ratios above 60%.
2017	Transfer credit risk on at least 90 percent of the unpaid principal balance of newly acquired single-family mortgages in loan categories targeted for risk transfer. Targeted categories are non-HARP and non-high LTV refinance, fixed-rate terms greater than 20 years, and LTV ratios above 60%.

Source: 2016 and 2017 FHFA GSE Scorecards

Initially, FHFA set a specific amount of UPB that must be covered by CRT transactions. This ensured the GSEs had sufficient private capital to absorb unexpected losses.

GSE CRTs are typically "excess of loss" structures, such that if credit losses are below a predetermined amount on a pool of mortgages, the losses are fully paid by the GSE. If losses exceed a predetermined amount, the losses are covered by the GSE CRT transaction, up to the contract limit. Further, contracts are structured to have different layers to provide for different risk and return profiles.

Figure 3 provides an example of a GSE CRT structure using ACIS 2017-4, a Freddie Mac reinsurance transaction. The transaction provides credit protection on a $10.1 billion mortgage pool. The first loss is retained by Freddie Mac. Losses between 0.30% and 2.15% of the original mortgage pool were transferred to the market, and Freddie Mac retained a 10% vertical slice of each tranche. The premium rate for each tranche decreases as the attachment point increases, reflecting market expectations on the relative risk of each tranche. Tranches with higher attachment points have a lower probability of loss and a lower premium rate. Risk above the M-1H tranche was retained by Freddie Mac.

[5] U.S. Federal Housing Finance Agency. (2015, December 17). *2016 scorecard for Fannie Mae, Freddie Mac, and common securitization solutions*. https://www.fhfa.gov/sites/default/files/2023-03/2016-Scorecard.pdf
U.S. Federal Housing Finance Agency. (2016, December 15). *2017 scorecard for Fannie Mae, Freddie Mac, and common securitization solutions*. https://www.fhfa.gov/document/scorecard-for-fannie-freddie-and-css

FIGURE 3: ACIS 2017-4 STRUCTURE DIAGRAM

Reference Pool	Senior Retained Risk	Reinsurer Ceded Risk	Total Size
$10.1bn	$9.9bn	$168.5M	2.15%

Tranche Name	Credit Enhancement	Premium Rate	Insurer Tranche Amount	Retention Amount	ACIS Issuance	STACR Issuance
M-1H	1.90%	0.95%	$25.3M	$2.5M	$22.8M	
M-2H	1.30%	1.70%	$60.7M	$6.1M	$54.6M	
M-3H	0.60%	4.10%	$70.8M	$7.1M	$63.7M	
M-4H	0.30%	6.90%	$30.4M	$3.0M	$27.3M	
B-H	0.00%	0.00%	$30.4M	$30.4M		

Source: Milliman M-PIRe

Figure 4 provides a summary of the GSE CRT premium rate and coverage for 2013 through 2017 issuance. Coverage refers to the attachment point and detachment point for the contracts. For example, the range "0.3%–3%" means the GSE CRT contract would reimburse the GSE for credit losses that exceed 0.3% of the original UPB of the reference pool up to 3% of the original UPB of the reference pool.

From 2013 through 2017, GSE CRT generally covered losses that would attach (i.e., lead to private capital covering losses) under moderate economic stress scenarios and detach at a severe stress event, such as a repeat of the amount of credit losses experienced during the 2008 financial crisis. Note, in 2015 and 2016, some of the attachment points were 0%, meaning the CRT contract reimbursed the GSE starting with the first dollar of loss on the reference mortgage pool. The interest rate spread (referenced off a base rate, such as SOFR) and the premium referenced in Figure 4 are expressed as an annual percentage of the original UPB of the reference pool. Although the premium is typically paid off the issued tranche and reflected as a percentage of the issued tranche, Figure 4 reflects the premium as a percentage of the UPB to standardize the reporting and make it directly comparable to the GSEs' G-Fee. Average premium rates are calculated assuming a certain duration of each tranche (e.g., high tranches that amortize over the first two years are given a weight equal to the limit of the tranche times 2 and low tranches that amortize and can be called after five years are given a weight equal to the limit of the tranche times 5).

FIGURE 4: GSE CRT AVERAGE PREMIUM AND COVERAGE FOR 2013 THROUGH 2017 ISSUANCE

	STACR		CAS		ACIS		CIRT	
Issue Year	Interest Rate Spread	Coverage	Interest Rate Spread	Coverage	Premium	Coverage	Premium	Coverage
2013	0.12%	0.3%–3%	0.12%	0.3%–3%	0.12%	0.3%–3%		
2014	0.16%	0.46%–5.19%	0.09%	0.38%–3.17%	0.10%	0.3%–3.95%	0.14%	0.5%–3.5%
2015	0.24%	0%–5.44%	0.14%	0.56%–3.87%	0.21%	0.14%–5.43%	0.14%	0.5%–3%
2016	0.23%	0%–5.18%	0.22%	0.05%–3.96%	0.18%	0.02%–4.79%	0.14%	0.47%–2.86%
2017	0.12%	0.22%–3.83%	0.11%	0.5%–3.93%	0.10%	0.47%–3.77%	0.13%	0.46%–2.76%

Source: Derived using data from Freddie Mac, Fannie Mae and Milliman M-PIRe

The average premium for CRT ranged from approximately 10 basis points to 25 basis points from 2013 through 2017. The risks covered ranged from almost all credit risk to credit risk above expected losses and up to a severe stress event. For reference, the average guarantee fee was approximately 55 basis points from 2014 through 2017. Therefore, for approximately 25% of the guarantee fee premium, the GSEs obtained private capital to cover losses above expected losses and up to loss levels like those observed during the 2008 financial crisis.

In 2017, average attachment points increased, and the premium paid to investors decreased. This relationship is typical, as the risk of loss is lower when attachment points (i.e., credit enhancement) are higher. As the risk of loss becomes less likely (i.e., a higher attachment point), two key aspects change for CRT market participants:

First, premium rates decline, but are still bound by a minimum return on capital required by market participants. With lower attachment points, market participants price in a risk premium for the risk of loss. As the risk of loss becomes more remote, the risk premium declines, and the total premium required by the market drifts towards a minimum required return on capital.

Second, market feedback for underwriting quality is less frequent and less important, as CRT investors are assuming less credit risk. If investors are in a first loss position, there is a strong incentive for them to scrutinize underwriting trends and communicate concerns with the GSEs.

As an example, from 2017 through 2018, debt-to-income ratios started increasing on the underlying mortgages. High debt-to-income ratios are a risk factor for mortgage credit risk, and GSE CRT investors provided feedback that this was a risk that should be mitigated. Upon review, the GSEs tightened underwriting around debt-to-income ratios, and debt-to-income ratios on GSE mortgages reverted to lower levels[6].

The initial GSE CRT market was structured around transferring risk to private market participants and reducing the risk retained by the GSEs. The early market for GSE CRT demonstrates market ability and appetite for low attachment GSE CRT deals that are economical for both issuers and investors.

6. Structured Finance Association. (2021, September). *Economics of Freddie Mac and Fannie Mae credit risk transfer*. https://structuredfinance.org/wp-content/uploads/2021/09/SFA-CRT-White-Paper-FINAL-FORMAT.pdf.

Strategic case for GSE CRT #1

GSE CRT transactions with low attachment points effectively and economically transfer risk to private market participants, reduce risks for the GSEs, and provide protection for the U.S. taxpayer.

GSE CRT transactions with high attachment points do not.

2. 2018 through 2020 GSE CRT under the CCF

FHFA introduced the Conservatorship Capital Framework (CCF) in 2017 and proposed legislation in 2018 to determine the minimal amount of capital that would be required by the GSEs if they were to exit conservatorship. As explained in Layton's "Demystifying GSE Credit Risk Transfer," the capital framework included a nonbinding minimum leverage ratio.

Since the leverage ratio was nonbinding and the FHFA scorecards required the transfer of risk to private market participants, the GSE CRT market continued to operate consistently after the introduction of the CCF. The FHFA scorecards continued the requirement to transfer credit risk on at least 90% of UPB of certain newly acquired mortgages.

One item of note was that the attachment points increased after the introduction of the CCF. This resulted in lower premium rates on CRT. In 2019, the SPSPAs were revised further to allow the enterprises to retain earnings and build capital up to $20 billion and $25 billion for Freddie Mac and Fannie Mae, respectively, providing an incentive to reduce the cost of GSE CRT and increase retained earnings. Figure 5 provides a summary of GSE CRT issuance spreads and coverage for 2018 through 2020.

FIGURE 5: GSE CRT AVERAGE PREMIUM AND COVERAGE FOR 2018 THROUGH 2020 ISSUANCE

	STACR		CAS		ACIS		CIRT	
Issue year	Interest Rate Spread	Coverage	Interest Rate Spread	Coverage	Premium	Coverage	Premium	Coverage
2018	0.14%	0.31%–4.16%	0.10%	0.5%–4.24%	0.13%	0.33%–3.81%	0.13%	0.51%–3.31%
2019	0.20%	0.1%–4.27%	0.10%	0.24%–3.18%	0.18%	0.1%–4.07%	0.14%	0.46%–3.49%
2020	0.16%	0.18%–3.79%	0.09%	0.23%–4.15%	0.14%	0.21%–3.59%	0.15%	0.37%–3.66%

Source: Derived using data from Freddie Mac, Fannie Mae and Milliman M-PIRe

The economics of the cost of GSE CRT and guarantee fee from 2018 through 2020 are generally consistent with the economics from 2013 through 2017. That is, for approximately 25% of the guarantee fee premium, the GSEs obtained private capital to cover losses above expected losses and up to loss levels like those observed during the 2008 financial crisis.

From the inception of the GSE CRT program through 2020, GSE CRT was predominantly used for risk management to limit exposure to unexpected losses and reduce the monoline risk assumed. The GSE CRT program was expanded from a few investors and reinsurance participants to a broad base of diverse counterparties. The GSE business model shifted from a "buy and hold" model to one that strategically managed capital through CRT. The "buy and hold" business model for the GSEs concentrates a large amount of risk across two entities, and the GSEs' business is concentrated in a single exposure − mortgage credit risk. Transferring risk to multiple market participants reduces the exposure of the GSEs to catastrophic losses.

As an example, using data from Fannie Mae's Data Dynamics[7], Figure 6 calculates the hypothetical benefit from CRT that could have been provided during the crisis for origination years 2004 through 2008. The figure shows the origination UPB and actual losses from the data. If CRT coverage was in place on these loans and had similar terms to CRT transactions issued between 2017 and 2020, Figure 6 calculates the CRT benefit and net impact to the losses incurred by Fannie Mae. Note, the data from Data Dynamics represents a set of mortgages with similar underwriting quality to loans originated after 2008. Importantly, it removes originations and credit losses from the riskier loan products that produced higher loss rates than those shown in the figure. Further, Figure 6 assumes the CRT structures are efficient and cover all losses above the attachment point and losses up to the detachment point (i.e., losses from 0.5%–3.75%).

FIGURE 6: HYPOTHETICAL BENEFIT OF CRT FOR 2004 THROUGH 2008 ORIGINATIONS FOR FANNIE MAE

Original year	Original Volume ($ B) A	Actual Loss Rate B	Actual Losses ($ B) C	CRT Benefit (assuming coverage from 0.5%–3.75%) ($ B) D = A × min (3.25%, B − 0.5%)	Actual Losses less CRT Benefit E = C − D
2004	274	0.97%	2.7	1.3	1.4
2005	252	2.41%	6.1	4.8	1.3
2006	199	3.75%	7.5	6.5	1.0
2007	246	3.69%	9.1	7.8	1.2
2008	315	1.46%	4.6	3.0	1.6
Total	**1,286**	**2.32%**	**29.9**	**23.4**	**6.4**

Source: Milliman calculations

Figure 6 demonstrates that CRT transactions could have shifted a material portion of the crisis period credit losses from the GSEs to private market participants. After the transfer of risk, the GSEs transfer the risk of severe credit losses and therefore should hold less economic capital, all else equal.

This business model is common across the insurance industry. An insurance company may cover a particular risk or set of risks that exceed internal risk limits to a given exposure or type of exposure, and it obtains reinsurance to manage its exposure. The insurance industry uses reinsurance (and other forms of risk transfer, such as insurance-linked securities) to limit exposure risk, increase capacity to write new business, and reduce concentration risk to a specific line of business. Reinsurers rely on the primary insurance company's expertise in writing the business, and reinsurers provide a diversified capital base.

The same concept applies to GSE CRT issued from 2013 through 2020. GSEs have significant expertise, systems, relationships, and processes to underwrite and guarantee mortgage credit risk. GSE CRT spreads this risk across various investors while leveraging the strengths of the GSEs. Since the inception of the program, investor and reinsurance participants in GSE CRT have invested in risk analytics tools and staff to evaluate and price the risk.

Strategic case for GSE CRT #2

When properly structured, CRT is an effective mitigant of credit risk during economic stress. Had a robust CRT program been in place before the 2008 global financial crisis, the GSEs would have incurred fewer losses and potentially avoided conservatorship.

7. Fannie Mae, July 22, 2025, Historical Loan Credit Performance Data. https://datadynamics.fanniemae.com/data-dynamics/#/report/3/HP. Numbers have been adjusted due to rounding

3. 2020 through 2022 GSE CRT during the COVID-19 pandemic and the introduction of the ERCF

GSE CRT placements underwent a meaningful shift beginning in 2020. These changes were driven by three key external factors:

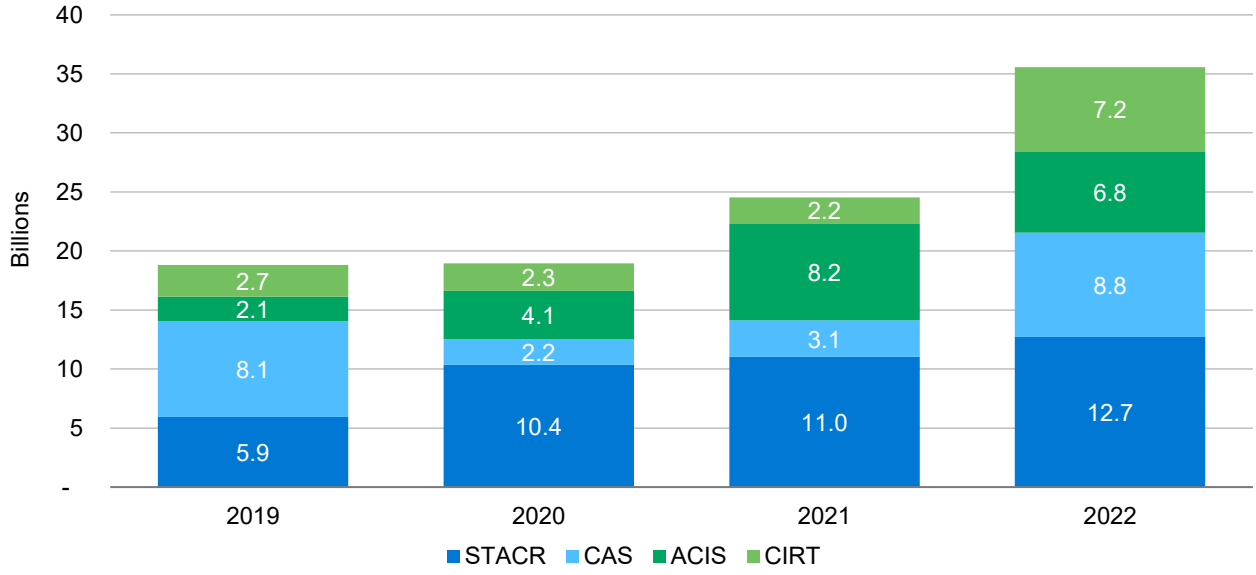
1. Changes in the FHFA scorecard for the use of CRT
2. The COVID-19 pandemic
3. The introduction of a regulatory capital framework to replace the CCF, the ERCF

Starting in 2020, the FHFA scorecard for the GSEs changed the CRT requirement from an explicit percent of new acquisitions to "Continue to transfer a significant amount of credit risk to private markets in a commercially reasonable and safe and sound manner."[8] From 2020 through 2025, the requirements around CRT from the FHFA have been similar, with slight changes from year to year. For example, the 2025 requirements are to "Transfer a meaningful amount of credit risk to private investors in a commercially reasonable and safe and sound manner, reducing risk to taxpayers."

Although these changes are slight and still encourage the use of CRT to reduce risk, when combined with the other two factors, the impact on the CRT market has been meaningful.

The COVID-19 pandemic introduced uncertainty into the global economy, particularly the housing market. At the start of the pandemic, the impact on mortgage credit risk was not clear; the initial reaction in financial markets (prior to risk-mitigating activity from the Federal Government) was negative, with equity markets declining sharply and credit spreads widening. The availability of credit was significantly impacted across all credit types. Despite these headwinds, the GSE CRT market remained open, and the reinsurance issuance of GSE CRT doubled from 2019 through 2020, increasing further in 2021 during continued macroeconomic uncertainty. Figure 7 provides a summary of GSE CRT issuance by transaction year.

FIGURE 7: GSE CRT ISSUANCE 2019 THROUGH 2022 BY PROGRAM



Source: Derived using data from Freddie Mac, Fannie Mae and Milliman M-PIRe

[8] U.S. Federal Housing Finance Agency. (2019, October 28). *2020 scorecard for Fannie Mae, Freddie Mac, and common securitization solutions*. https://www.fhfa.gov/document/2020-scorecard-for-fannie-freddie-and-css

In 2020, ACIS issuance nearly doubled from the prior year; in 2021, the issuance nearly doubled once again. This strong growth demonstrated a resiliency of capital from the reinsurance market. CIRT issuance was relatively constant in 2020 and 2021 but increased materially in 2022.

In general, 2021 CRT issuance increased from 2020 due to the high volume of refinance mortgages originated in 2020 and 2021, resulting from low interest rates. The COVID-19 pandemic highlighted the strength of the reinsurance market, as reinsurers acted upon their long-term view of risk and continued providing capital to support the U.S. housing finance system through unprecedented economic uncertainty.

Strategic case for GSE CRT #3

The GSE CRT market participants, particularly the reinsurance industry, provided capital support throughout the pandemic, increasing their capital allocation to support the GSEs and strengthen the U.S. housing finance system.

One objective in the 2021 FHFA GSE scorecard was "…to provide support to FHFA as needed to develop a roadmap with milestones for exiting conservatorship, including the development of any capital restoration plans." In addition to starting to plan for capital restoration, the 2021 FHFA GSE scorecard directed the GSEs to "Implement capital management and capital planning capabilities that transition away from the existing Conservatorship Capital Framework to the Enterprise Capital Rule requirements."[9]

In 2020, FHFA introduced a capital framework to replace the CCF with an updated capital framework called the ERCF. The ERCF included many changes to the CCF and generally resulted in higher capital requirements for the GSEs. Important aspects of the ERCF for GSE CRT include binding minimum capital ratios, conservative counterparty haircuts, a countercyclical capital component, and various adjustments that impact the regulatory capital efficiency of GSE CRT.

Binding minimum capital ratios complicate the economic benefits of risk transfer. Figure 8 provides a simplified example to quantitatively demonstrate how minimum capital ratios reduce the economic benefit of GSE CRT. The GSEs charge a guarantee fee that is large enough to cover expected losses (the losses anticipated on a mortgage pool) and earn an economic profit to build capital for potential future stress losses. Sufficient capital is required to absorb unexpected losses (i.e., losses that exceed the level of the guarantee fee assessed against the risk). Without GSE CRT, the return on capital for the GSEs is equal to the guarantee fee less losses divided by the capital held against the risk. Figure 8 provides a demonstration of these economics assuming a guarantee fee of 50 basis points, a multiple of 5 years on the guarantee fee, 25 basis points of lifetime credit losses, and a capital requirement of 6%. A stress scenario is also provided, assuming credit losses of 4%. Under these assumptions, the return on capital is calculated to be 6.6% under a baseline scenario and −5.6% under a stress scenario.

9. U.S. Federal Housing Finance Agency. (2021, February 16). *2021 scorecard for Fannie Mae, Freddie Mac, and common securitization solutions*. https://www.fhfa.gov/AboutUs/Reports/ReportDocuments/2021-Scorecard.pdf.

FIGURE 8: DEMONSTRATIVE RETURN ON CAPITAL WITHOUT CRT

	Formula	Baseline	Stress Scenario
Mortgage UPB	*A*	$1,000,000	$1,000,000
Average annual G-Fee	*B*	0.50%	0.50%
Multiple for G-Fee	*C*	5 years	5 years
Lifetime guarantee fee income	*D = A × B × C*	$25,000	$25,000
Credit loss rate	*E*	0.25%	4.00%
Lifetime credit loss	*F = A × E*	$2,500	$40,000
Lifetime guarantee net income	*G = D − F*	$22,500	($15,000)
Capital requirement	*H*	6%	6%
Starting capital	*I = A × H*	$60,000	$60,000
Annual return on starting capital	*J = (1+G / I) ^ (1/5) − 1*	6.6%	-5.6%

Source: Milliman calculations

Assume the GSE executed a GSE CRT transaction that covered credit losses from 50 basis points to 375 basis points at a cost of 12 basis points with a cancellation provision after 5 years. This transaction would cover most of the unexpected losses for this pool of mortgages, so we assume the economic capital required for the exposure is reduced from 6% to 2.75% (note, 2.75% is equal to the starting capital less the coverage from the CRT transaction). Under most economic conditions, credit losses would be retained by the GSE, but the amount of economic capital is lower. Therefore, the return on capital is greater under this transaction, even after consideration of the premium paid to transfer the risk. Specifically, the five-year return on capital increases from 6.6% to 9.9%. Importantly, under the stress scenario with elevated losses, most of the losses are absorbed by the GSE CRT transaction. Therefore, the return on capital remains positive, thus demonstrating both the capital efficiency of CRT and economic benefit. These calculations are shown in Figure 9.

FIGURE 9: DEMONSTRATIVE RETURN ON CAPITAL WITH CRT

	Formula	Baseline	Stress Scenario
Mortgage UPB	*A*	$1,000,000	$1,000,000
Average annual G-Fee	*B*	0.50%	0.50%
Multiple for G-Fee	*C*	5	5
Lifetime guarantee fee income	*D = A × B × C*	$25,000	$25,000
Credit loss rate	*E*	0.25%	4.00%
Lifetime credit loss	*F = A × E*	$2,500	$40,000
Lifetime guarantee net income	*G = D − F*	$22,500	($15,000)
GSE CRT premium	*H*	0.12%	0.12%
Lifetime GSE CRT premium	*I = A × H × 5*	$6,000	$6,000
Lifetime GSE CRT loss coverage	*J = max[0, min(3.75%–0.5%, F − 0.5%) × A]*	$0	$32,500
Lifetime guarantee income GSE CRT	*K = G − I + J*	$16,500	$11,500
Capital requirement	*L = 6% − (3.75%–0.5%)*	2.75%	2.75%
Starting capital	*M = A × L*	$27,500	$27,500
Annual return on starting capital	*N = (1 + K / M) ^ (1/5) − 1*	9.9%	7.2%

Source: Milliman calculations

If there is a regulatory capital floor greater than 2.75%, then return on capital after the CRT transaction will be lower because the GSE will not be able to recognize the full economic benefit of the transaction. Figure 10 calculates the return on capital under capital minimums ranging from 6% to 2.5% in 50-basis-point increments. This figure also highlights the impact of how a misalignment between regulatory capital and economic capital reduces the value of risk-mitigating activities through GSE CRT. Without recognition of the economic benefits of CRT, the return on capital would be 5%. This level of return would not be attractive to private investors, and the value of equity would be commensurate with the return on capital.

FIGURE 10: RETURN ON CAPITAL WITH CRT AND MINIMUM CAPITAL RATIOS

Minimum capital ratio	6.0%	5.5%	5.0%	4.5%	4.0%	3.5%	3.0%	2.5%
Capital	6.0%	5.5%	5.0%	4.5%	4.0%	3.5%	3.0%	2.75%
Annual return on capital for baseline scenario	5.0%	5.4%	5.9%	6.4%	7.2%	8.0%	9.2%	9.9%
Annual return on capital for stress scenario	3.6%	3.9%	4.2%	4.7%	5.2%	5.8%	6.7%	7.2%

Source: Milliman calculations

The above example uses representative assumptions to demonstrate the differences between regulatory capital and economic benefit, and the representative assumptions are consistent with the GSE CRT economics for deals issued through 2020[10]. The example highlights that GSE CRT is an efficient source of capital that can lower the economic risk of the GSEs' guarantee exposure. That is, the cost of the guarantee is a small percentage (e.g., 25%) of the lifetime guarantee fee income collected by the GSEs and the economic benefit is large (e.g., most stress losses).

Strategic case for GSE CRT #4

GSE CRT can be utilized by the GSEs to efficiently raise capital, reduce risk, and increase the return on equity. These benefits are attractive to potential equity investors. Under the current version of ERCF, the capital benefit of GSE CRT is limited due to overly conservative assumptions in the framework and minimum capital ratios.

The examples in Figures 8, 9, and 10 assume the GSE CRT transaction is fully efficient; that is, all future losses above and below the attachment point are covered by the transaction. GSE CRTs are structured securities that have various attributes where the full loss may not be covered by the transaction. For example, scenarios with high initial prepayment speeds followed by high defaults may amortize some of the protection, so the ultimate reimbursement could be less than the initial coverage provided by the transaction. Therefore, it is reasonable to recognize less than dollar-for-dollar credit for GSE CRT. Caution must be taken when developing factors because conservatism across each factor will compound and result in separation between regulatory capital credit and the economic benefit.

10. Structured Finance Association. (2021, September). *Economics of Freddie Mac and Fannie Mae credit risk transfer*. https://structuredfinance.org/wp-content/uploads/2021/09/SFA-CRT-White-Paper-FINAL-FORMAT.pdf.

The ERCF applies several conservative assumptions to the effectiveness of CRT transactions. As a result, the methodology leads to a gap between the economic benefits provided by CRT coverage and the level of regulatory capital credit the GSEs receive for these transactions. Figure 11 provides an estimate of the summary of the coverage from CRT and regulatory capital for GSE CRT by issuance year. Coverage is calculated as the outstanding principal amount for bonds and limit for reinsurance transactions. Figure 11 calculates how much regulatory capital is provided for each dollar of CRT issuance. Under the ERCF, the regulatory capital benefit of CRT transactions decreases as the transactions season. For newer issuance, the benefit is greater but there is still a haircut of more than 20% on the capital provided.

FIGURE 11: ESTIMATE OF CRT CAPITAL BENEFIT

Issuance Year	CRT Outstanding Bond Principal + Insurance Limit	Estimated ERCF Capital Benefit[11]	Ratio of Estimated ERCF Capital Benefit to Outstanding CRT
2014	1,137,042,760	-	0%
2015	1,264,997,266	92,998,918	7%
2016	2,538,602,353	135,521,243	5%
2017	5,096,917,462	-	0%
2018	5,480,442,177	307,675,681	6%
2019	4,325,428,871	1,363,783,152	32%
2020	5,894,928,160	2,310,093,715	39%
2021	17,989,890,113	9,329,204,349	52%
2022	28,209,377,607	14,670,636,998	52%
2023	10,986,419,192	8,010,452,298	73%
2024	8,703,433,133	6,777,938,216	78%
Total	**91,627,479,094**	**42,998,304,569**	**47%**

Source: Milliman M-PIRe

An example of conservatism in the ERCF for GSE CRT is the counterparty haircut assumed in the ERCF. The counterparty haircut table segments counterparties into different risk levels, and the haircut varies based on the counterparty concentration in mortgage. Details are not provided on how counterparties are assigned to a rating, but we assume here that most counterparties have either a 2 or 3 rating and are without a high mortgage concentration. This results in a haircut of approximately 5% to the capital benefit of the transaction. The assumption in the framework, therefore, is that the five-year default rate for the counterparties is approximately 11%, or greater than one out of ten counterparties, even though the counterparties are highly rated diversified global reinsurers with limited actual historical insolvencies, inclusive of the 2008 global financial crisis[12].

It is important that the GSEs perform adequate counterparty risk evaluation and engage with highly rated, well-capitalized and diversified entities. The GSEs have programs to review and approve counterparties; however, the haircuts to the capital provided by these entities imply a far greater risk of default than historical default experience supports.

11. Freddie Mac and Fannie Mae's 2025 Q1 ERCF reports show a CRT benefit of $44 billion, which is generally consistent with the results presented in Figure 11. See https://www.fanniemae.com/media/55756/display and https://www.freddiemac.com/investors/docs/1Q25_ERCF_Public_Disclosure.pdf.

12. The initial ERCF proposal provides the formula for calculating the factor; it assumes a loss given default rate of 45%. Assuming a 5% haircut, this implies a default rate of 11% where 11% = 5% / 45%. Reinsurance Association of America's "Basel III Endgame US Implementation, Reinsurance Credit Risk Transfer" (April 2024) also notes that the issues with AIG were caused primarily by AIG's Financial Products group, which was not an insurance company and was not subject to insurance regulation.

Strategic case for GSE CRT #5

Overly conservative assumptions in the ERCF result in a misalignment between the economics of the transactions and the regulatory capital treatment. This gap results in the GSEs retaining more risk, leading to a greater risk to U.S. taxpayers in economic downturns, which achieves the opposite desired outcome of the ERCF. Capital credit for GSE CRT should be recalibrated to reflect the economics of the transactions.

4. 2023 through 2025 GSE CRT under the ERCF and the impact of the countercyclical capital adjustment

The ERCF was published for comment on June 30, 2020. After the comment period, the final rule for the ERCF was published on December 17, 2020, with an effective date of February 16, 2021. After implementation of the rule, the structure of GSE CRT dramatically changed and the amount of GSE CRT issuance declined (see Figure 1 for GSE CRT issuance). Figure 12 shows the average premium and coverage from 2013 through 2025. The prior years are repeated in the figure for reader convenience.

FIGURE 12: GSE CRT AVERAGE PREMIUM AND COVERAGE FOR 2013 THROUGH 2025 ISSUANCE

	STACR		CAS		ACIS		CIRT	
Issue Year	Interest Rate Spread	Coverage	Interest Rate Spread	Coverage	Premium	Coverage	Premium	Coverage
2013	0.12%	0.3%–3%	0.12%	0.3%–3%	0.12%	0.3%–3%		
2014	0.16%	0.46%–5.19%	0.09%	0.38%–3.17%	0.10%	0.3%–3.95%	0.14%	0.5%–3.5%
2015	0.24%	0%–5.44%	0.14%	0.56%–3.87%	0.21%	0.14%–5.43%	0.14%	0.5%–3%
2016	0.23%	0%–5.18%	0.22%	0.05%–3.96%	0.18%	0.02%–4.79%	0.14%	0.47%–2.86%
2017	0.12%	0.22%–3.83%	0.11%	0.5%–3.93%	0.10%	0.47%–3.77%	0.13%	0.46%–2.76%
2018	0.14%	0.31%–4.16%	0.10%	0.5%–4.24%	0.13%	0.33%–3.81%	0.13%	0.51%–3.31%
2019	0.20%	0.1%–4.27%	0.10%	0.24%–3.18%	0.18%	0.1%–4.07%	0.14%	0.46%–3.49%
2020	0.16%	0.18%–3.79%	0.09%	0.23%–4.15%	0.14%	0.21%–3.59%	0.14%	0.37%–3.66%
2021	0.09%	0.25%–2.57%	0.05%	0.27%–2.57%	0.09%	0.23%–2.85%	0.08%	0.62%–4.12%
2022	0.29%	0.55%–4.93%	0.12%	0.46%–3.53%	0.11%	0.95%–4.75%	0.09%	0.51%–3.88%
2023	0.18%	1.68%–5.21%	0.13%	1.14%–4.81%	0.12%	1.47%–5.37%	0.11%	1.22%–4.25%
2024	0.05%	2.24%–5.34%	0.08%	1.23%–5.15%	0.05%	1.96%–5.58%	0.05%	1.71%–5.04%
2025	0.04%	2.05%–5.41%	0.06%	1.85%–5.54%	0.04%	1.64%–5.25%	0.04%	1.59%–4.96%

Source: Derived using data from Freddie Mac, Fannie Mae and Milliman M-PIRe

As the GSEs began to implement the framework, GSE CRT structures shifted and the attachment points increased from an average of 0.25% in 2021 to greater than 1.50% by 2023. On average, attachment points in 2025 exceed 2.00% for STACR issuance. For perspective, expected credit losses on the underlying reference pools are less than 0.25% and only a few origination years have historical losses greater than 1.00%. The premium paid for coverage decreased from approximately 12 basis points (i.e., about 25% of the annual guarantee fee) to an average of 4 basis points (i.e., about 7% of the annual guarantee fee) in 2025. Under these structures, the GSEs will only be reimbursed for losses stemming from the most severe stress events.

There are several contributing drivers for the change in attachment points and coverage:

1. The ERCF includes a countercyclical adjustment factor that increases capital requirements for the GSEs during strong home price markets in anticipation of a potential correction. With strong home price appreciation from 2020 through 2025, the countercyclical adjustment factor results in capital that nearly doubles the capital requirement for new originations relative to periods without a high countercyclical capital adjustment factor.
2. The ERCF does not differentiate in the credit for capital based on the attachment point or detachment point, if the coverage is greater than the expected loss and less than the ERCF stress capital level for the reference pool of mortgages. Therefore, the capital benefit for high attaching structures is the same as the capital benefit for lower attaching structures.
3. Higher attachment points have a lower probability of attachment; therefore, the premium is lower (all else equal). As the GSEs are building capital, lower premium expense for GSE CRT results in more retained earnings and fewer CRT expenses (assuming losses are near or below expected losses).
4. The regulatory capital benefit of CRT under the ERCF is lower than the economic benefit, so the incentive and the impact on the return on capital are limited by the framework.

The net impact of these changes is that GSE CRT has shifted from a cost-effective risk management tool (i.e., a way to limit the capital impact of stress losses) to a regulatory capital optimization tool, where most of the credit risk is being retained by the GSEs. For example, using Fannie Mae's Data Dynamics, the 2006 loss rate on the GSE business was 3.75%[13]. A CRT structure with an attachment point of 0.5% and detachment point of 3.75% would cover 86% of the 2006 origination year losses; losses that could occur with a mild stress would be covered by the transaction. A CRT structure with an attachment point of 2.0% and a detachment point of 5.25% would only cover 46% of the 2006 origination year losses and losses would only be covered under severe economic conditions.

For international risk transfer (i.e., SRT) to qualify for capital credit "among other things, regulators require the attachment point be sufficiently low and the detachment point sufficiently high, so that the 'significant majority' of the potential losses on the asset pool are covered by the protection provider."[14]

Strategic case for GSE CRT #6

The ERCF had an immediate impact on GSE CRT structures, resulting in less risk transfer and more risk retention. The guarantee fee charged by the GSEs is sufficient to cover expected losses, expenses, and earn an economic profit. However, the guarantee fees are not sufficient to cover unexpected losses, and the GSEs' capital levels are below regulatory requirements. The combination of low CRT and capital below regulatory requirements presents a significant risk to U.S. taxpayers.

5. GSE CRT as a source of efficient and flexible capital

In January 2025, FHFA and Treasury took steps to prepare for a potential release of the GSEs from conservatorship[15]. The terms of recapitalization and the release have not been finalized; several issues need to be resolved in advance of the release. This section will discuss how GSE CRT can be used as a flexible and efficient source of capital for the GSEs.

13. The data available in Data Dynamics is filtered to loans with similar characteristics to those originated post-crisis. No documentation loans, interest-only loans, or other higher-risk loans are included in the data.
14. Bell, I., et al. (2025). Strengthening financial stability through insurance-based credit risk transfer. https://iacpm.org/wp-content/uploads/2025/05/20250502-Strengthening-Financial-Stability-through-Insurance-based-Credit-Risk-Transfer-v54bis-FINAL.pdf.
15. U.S. Department of the Treasury. (2025, January 2). *Treasury Department and Federal Housing Finance Agency amend preferred stock purchase agreements for Fannie Mae and Freddie Mac* [Press release]. https://home.treasury.gov/news/press-releases/jy2767.

One critical item for the release of the GSEs is to answer these questions: How much capital is required to release the GSEs from conservatorship? What form of capital is required? The ERCF addresses these questions. For capital, the initial ERCF proposal states: "…each Enterprise must be capitalized to be regarded as a viable going concern by creditors and counterparties both during and after a severe economic downturn."[16] The ERCF calculates the amount and type of capital required under this premise, with minimums for equity capital and leverage. Equity capital, or common equity tier 1 capital, must be at least 4.5% of risk-weighted assets (RWA). Total capital must be at least 8% of RWA. Therefore, the rule allows for CRT capital as a form of capital, subject to a minimum level of equity capital.

Figure 13 summarizes the current capital levels and capital requirements according to the 2025 Q1 ERCF reports from Fannie Mae[17] and Freddie Mac[18]; values are in billions. As of 2025 Q1, Fannie Mae and Freddie Mac had capital shortfalls under the ERCF of $220 billion and $162 billion, respectively. Therefore, for a release from conservatorship, Freddie Mac and Fannie Mae will require significant capital levels from private market participants. This potentially includes a large equity offering in combination with CRT.[19]

FIGURE 13: FREDDIE MAC AND FANNIE MAE 2025 Q1 CAPITAL

	Adjusted Total Capital (regulatory)	Adjusted Total Capital (ERCF)	Shortfall
Fannie Mae	(33)	187	220
Freddie Mac	(15)	147	162

Source: Freddie Mac and Fannie Mae 2025 Q1 ERCF report

An influential component of the ERCF under this paradigm is the countercyclical capital factor (CCA)[20]. The CCA increases the amount of capital required in environments where home prices are above an assumed long-term average trend, and it reduces the amount of capital required during environments where home prices are below an assumed long-term average trend. From 2020 through 2025, home price growth has exceeded the long-term average trend, and we estimate this factor is resulting in capital requirements that are approximately twice as high as the capital requirement would be without the countercyclical capital adjustment. As an example, Figure 14 provides Milliman's estimates of the ERCF stress capital factors for 2025 ACIS transactions. The figure shows the total ERCF stress capital factor, the ERCF stress capital factor without the CCA, the impact of the countercyclical capital adjustment, and the ratio of the countercyclical capital adjustment as a percentage of the total ERCF stress capital factor. Data for these values are as of June 2025, and the values are prior to receiving CRT capital.

FIGURE 14: 2025 ACIS ISSUANCE ERCF CAPITAL ESTIMATES

Deal Name	ERCF Stress Capital Factor	ERCF Stress Capital Factor without CCA	Impact Due to the CCA	Ratio of the CCA to the Stress Capital Factor
ACIS 2025-SPH1	6.69%	3.77%	2.92%	44%
ACIS 2025-SPH2	6.79%	3.81%	2.98%	44%
ACIS 2025-SPH3	6.00%	3.25%	2.75%	46%
ACIS 2025-SPL1	6.90%	2.98%	3.92%	57%

Source: Milliman M-PIRe

16. Federal Housing Finance Agency (2020, December 17). *Enterprise Regulatory Capital Framework*. Federal Register. https://www.federalregister.gov/documents/2020/12/17/2020-25814/enterprise-regulatory-capital-framework
17. Fannie Mae. *Enterprise Regulatory Capital Framework disclosures for the quarterly period ended March 31, 2025*. https://www.fanniemae.com/media/55756/display.
18. Freddie Mac. (n.d.). *Enterprise Regulatory Capital Framework (ERCF) public disclosures for the standardized approach for the quarterly period ended March 31, 2025.* https://www.freddiemac.com/investors/docs/1Q25_ERCF_Public_Disclosure.pdf.
19. Freddie Mac and Fannie Mae reported net income of approximately $25 billion for 2024; therefore, it would take several years for Freddie Mac and Fannie Mae to build capital from retained earnings.
20. This is separate from the countercyclical capital buffer.

The CCA is not a permanent adjustment. It is calculated each quarter using economic data series for home price trends and inflation. Under baseline economic forecasts, the impact of CCA will decline over time and the capital requirement will be reduced.

Assuming the capital requirement decreases over the next several years, it would be inefficient for the GSEs to raise the entire amount of capital through equity. Equity is a fungible form of capital, but it is also an expensive (and permanent) form of capital. GSE CRT provides a more efficient form of capital for situations where the required capital level is fluid and subject to regulatory formulas.

To demonstrate this point, we made the following assumptions, which are generally consistent with capital levels under the ERCF for 2025 acquisitions and RWA:

FIGURE 15: ASSUMPTIONS FOR 2025 ERCF CAPITAL LEVELS

Single-family UPB	*A*	$1,000,000,000
Single-family RWA (75%)	*B*	750,000,000
Capital (8% of RWA)	*C = 0.08 × B*	60,000,000
Capital as a percentage of UPB	*D = C / A*	6.0%

Source: Milliman assumptions

From the above discussion on the CCA, assume that the RWA declines from 75% to 50% over the next four years. All else equal, the required capital would decline from 6% to 4%. If equity capital were raised for the full 6% of assets, the entity would be overcapitalized by 50% and the return on capital would be adversely impacted. Instead of raising equity capital, CRT transactions could be structured to reduce the exposure to credit losses over the next four years. Under this scenario, CRT investors would receive a risk-adjusted premium, provide capital coverage for the next four years, and the transactions would either amortize or could be called when they were no longer providing economic or regulatory benefit to the enterprise.

One feature of CRT transactions is that they can be structured to meet the internal objectives of the issuer. CRT transactions can be structured (subject to regulatory approval) to have varying levels of duration, have amortization features, cover specific loan pools, have attachment and detachment points, and have other features that make them an attractive and efficient source of capital. One example of innovation with reinsurance CRT is that the transactions can be structured to cover mortgages not yet originated. These are known as “forward” transactions. Reinsurers have executed forward transactions with the GSEs and commonly execute similar structures with private mortgage insurance companies. New or innovative CRT structures must be carefully evaluated and analyzed to ensure they provide the necessary coverage across varying conditions.

Strategic case for GSE CRT #7

GSE CRT can be structured to be an efficient source of capital for the GSEs. Structures can be designed that transfer risk from the GSEs to the private market, have a limited duration to match the capital requirements of the GSEs, and cover forward risks to ensure capital availability.

The strategic use of GSE CRT for recap and release

CRT is an efficient source of economic capital for the GSEs. GSE CRT can be structured to bolster finances and improve operational efficiency while meeting specific requirements for regulatory capital.

Equity capital, while fungible, is not the most efficient capital source, and excessive reliance on equity capital results in low returns for equity investors. GSE CRT can be utilized to both increase the return on capital for equity investors and reduce the systemic risk inherent in the monoline business structure of the enterprises.

Under the ERCF, there are several reductions to the efficacy of CRT. This punitive regulatory treatment diminishes its use as an effective form of capital. Multiple aspects of the ERCF standardized approach can be adjusted to align economic capital with regulatory capital. Adjustments to the framework must be analyzed carefully to limit unintended consequences and any adjustments should require careful consideration, calibration, and scenario testing.

GSE CRT participants have heavily invested in developing infrastructure, staff, and allocating capital to support the U.S. housing finance systems. GSE CRT participants have demonstrated the ability and willingness to participate in transactions with low attachment points, thus providing private capital and market-based pricing to the GSEs. From a counterparty risk standpoint, highly capitalized reinsurance companies are not correlated with GSE risk and have demonstrated an ability to reasonably price risk during uncertainty and have proved themselves to be a durable source of capital.

GSE CRT can be a consistent, efficient, and strategic source of capital for the GSEs, and GSE CRT participants are in a strong position to support the enterprises. Further, if changes to the ERCF were implemented that provided more capital credit for CRT, the market's ability to support the GSEs in their recapitalization and growth would be even further enhanced, helping the GSEs establish solid footing and a path to the future as they leave conservatorship.

Disclosure

Liberty Mutual's Mortgage Insurance and Reinsurance Group commissioned Milliman to write this whitepaper to provide an analysis on the benefit of credit risk transfer. The observations and conclusions reflect the work product of the authors. If this paper is reproduced, it should be reproduced in its entirety as sections taken out of context can be misleading.

Milliman does not intend to benefit any third-party recipient of its work product. Models used in the preparation of our analysis were applied consistently with their intended use. We have reviewed the models, including their inputs, calculations, and outputs for consistency, reasonableness, and appropriateness to the intended purpose and in compliance with generally accepted actuarial practice and relevant actuarial standards of practice (ASOP). The models, including all input, calculations, and output may not be appropriate for any other purpose. Where we relied on models developed by others, we have made a reasonable effort to understand the intended purpose, general operation, dependencies, and sensitivities of those models.

In performing our analysis, we relied on datasets and other information provided by Freddie Mac, Fannie Mae and the FHFA. We have not audited or verified this data, but we have reviewed it for reasonableness. If the underlying data or other listings are inaccurate or incomplete, the results of our analysis may also be inaccurate or incomplete.

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