



# What Credit Risk Transfer Tells Us About Guarantee Fees

A Single-Family White Paper

Freddie Mac charges a fee (G-fee) to guarantee the timely payment of principal and interest on securities backed by mortgages sold to us by banks and other sellers. We, in turn, sell such guaranteed securities to investors. We do so to help provide liquidity, stability and affordability to the primary mortgage market and to protect taxpayers.

Over the last four years, Freddie Mac has led the development of a robust single-family Credit Risk Transfer (CRT) program, which enables us to move a portion of our credit risk off our balance sheet and into the private sector<sup>1</sup>. That program also has provided valuable, but not fully complete, insight into the G-fees Freddie Mac charges.

The appropriate level of G-fees is an important issue to the housing-finance policy community. The calculated market-implied G-fee, or market price of mortgage credit risk, is a key benchmark for policy discussions and provides information about what the private markets would charge for absorbing the credit risk generated by the credit guarantee business of a GSE (government sponsored enterprise) such as Freddie Mac. With certain key assumptions, which readers can provide on their own, it is therefore possible to calculate a market-implied G-fee based upon our transaction history.

Our findings are discussed in this white paper.

## Key Findings

- Freddie Mac's G-fees, using some key assumptions which readers may wish to specify on their own, are generally aligned with what CRT tells us the private market would charge for the credit risk we take – although to a lesser extent for higher-risk loans.
- CRT indicates that Freddie Mac's G-fees, set administratively under the guidance of the FHFA as conservator, are more stable than private sector pricing.
- Third-parties can attempt to calculate a market-implied G-fee through publicly available data, although it does require more than a simple extrapolation. We note that calculating a market-implied G-fee, even based upon all the data available to Freddie Mac, is difficult and subject to several key assumptions. An example of one such assumption is that pricing for CRT can be obtained on significantly higher amounts of volume than has been done historically; this could therefore be the source of a significant underestimate the requisite G-fee.

## Background

Freddie Mac provides a credit guarantee on its mortgage securities in order to serve its charter mission of promoting liquidity and stability to the primary mortgage markets and affordability to borrowers. To ensure that the taxpayers who support the company, while it is in conservatorship, get an appropriate return on the risk they are taking, the company needs to charge a certain level of fee to guarantee the securities that are backed by mortgages sold to us.

We also reduce taxpayers' exposure to our mortgage risks by transferring a portion of that credit risk to private investors through our CRT program. Over the past few years, this program has been steadily transferring a larger portion of risk, and the interest in CRT has proven to be reasonably durable. A secondary benefit of CRT trades is the increased transparency provided on the private market price of the credit risk associated with the mortgages Freddie Mac guarantees.

This paper presents a simplified framework for utilizing the pricing of CRT trades to calculate a market-implied G-fee, i.e. a market price of mortgage credit risk, but utilizing some key assumptions which the reader may wish to specify differently. It also discusses the factors that Freddie Mac weighs in setting G-fees.

The G-fee calculation methodology used in this paper is generally consistent with the framework highlighted by the Federal Housing Finance Agency (FHFA) in its March 2017 *Credit Risk Transfer Progress Report*<sup>2</sup>. The calculations can be replicated with publicly available data and third-party tools. Additionally, they can be updated programmatically as future CRT trades are issued into the marketplace.

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<sup>1</sup> Freddie Mac also has a robust multifamily CRT program.

<sup>2</sup> <<https://www.fhfa.gov/AboutUs/Reports/ReportDocuments/CRT-Progress-Report-Q12017.pdf>>

## What is a Guarantee Fee?

Freddie Mac retains a fee (the G-fee) from the payments received on mortgages as compensation for guaranteeing the timely payment of principal and interest on the mortgage pass-through securities that Freddie Mac issues.

The G-fee covers two categories of costs that Freddie Mac expects to incur if it retained all of the credit risk with no CRT transactions:

**Non-Credit Cost** includes the **General and Administrative** expenses associated with running the company, **Securitization Costs**<sup>3</sup>, and **Taxes**.

**Credit Cost** is the **Expected Cost** of borrowers who fail to make their mortgage payments (Expected Losses), plus the cost of implied capital needed to compensate us for losses like those experienced in 2008 (Unexpected Losses).

Keep in mind that losses can occur beyond even the Unexpected Losses. Such losses are known as **Catastrophic Losses**.

Collectively, these constitute the full economic cost of providing the credit guarantee. Consistent with FHFA's 2015 paper on G-fees<sup>4</sup>, the risk premium, or charge for unexpected losses, is by far the most significant charge within the G-fee calculation. The risk premium, similar to a cost of capital, is the amount of capital necessary to survive a severe economic downturn (similar to 2008) multiplied by a pre-tax target rate of return on that capital. Given its nexus to severe economic downturns, it is obvious to see why charging a risk premium is so important to protecting taxpayers.

In conservatorship, Freddie Mac does not hold a material amount of equity capital. However, in order to treat taxpayers fairly, that is, provide them a reasonable return on the risk they assume when we take on mortgage credit risk, Freddie Mac operates as if it holds a reasonable level of capital for that risk. By charging for that capital, Freddie Mac provides the taxpayer with the type of return earned by private sector investors who provide the capital that serves as the buffer against losses that large federally-regulated financial institutions in the United States are required to hold.

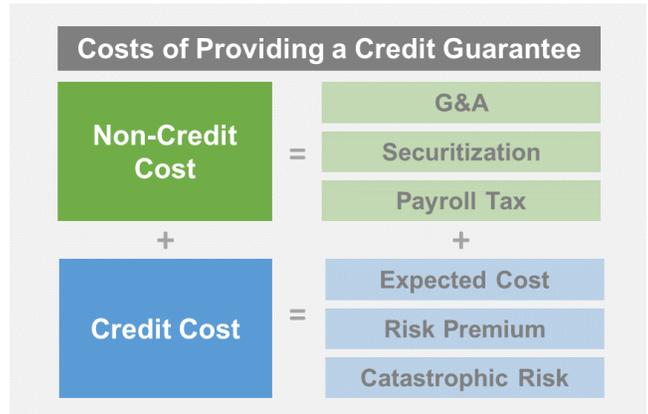
Again, there is also a remote risk of catastrophic losses, to which the U.S. government (and thereby the taxpayer) is exposed. Many proposals for housing finance reform would require the GSEs to pay the U.S. government for this risk in exchange for fully backstopping the guarantees issued by the GSEs.

## Using Credit Risk Transfer Trades to Calculate the Market-Implied Guarantee Fee

With the significant amount of credit risk being transferred to the private capital markets, we now have another tool to estimate the cost of the credit risk and calculate a market-implied G-fee, with some key assumptions.

Before proceeding, it is important to note how this approach could be misinterpreted; most importantly, a simple extrapolation from the cost of a specific tranche in a CRT trade is inaccurate since it does not represent the full cost of providing the credit guarantee. As a result, private entities will undoubtedly charge a different, higher G-fee than suggested by such a tranche-based extrapolation.

Further, the implied G-fees developed below relate to current CRT volumes and should not automatically be assumed to be consistent with implied G-fees on more significant CRT volumes. Extrapolating these prices to an assumed, much higher volume, will likely underestimate the requisite G-fee, especially related to the price Freddie Mac would need to pay



<sup>3</sup> The cost or benefit of timing mismatches of when Freddie Mac receives payments from servicers to when we pay the security investors.

<sup>4</sup> "Results of Fannie Mae and Freddie Mac Guarantee Fee Review".

<<https://www.fhfa.gov/Media/PublicAffairs/PublicAffairsDocuments/FHFAGFEEFactSheet4-17-2015.pdf>>

to sell larger volumes to investors; in particular, the amounts of the first-loss tranche would need to be dramatically upsized with a resulting increase in cost. Put simply, the larger the supply of a given tranche to be sold to investors, the higher the cost may be for the issuer to sell the entirety of that tranche. The reader is left to assume what level of such extra payment might be necessary; we have assumed zero for the purposes of this document.

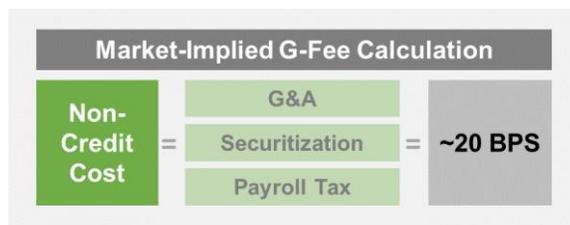
Using our STACR and ACIS transactions as an example, during 2016 Freddie Mac transferred the risk on approximately 95% of the less expensive, mezzanine tranches and 25% of the first-loss equity tranche. In order to capture an estimate of the market-implied G-fee, then, we will assume in this example that the cost to transfer 100% of each tranche would be the same, although in reality it will likely be higher, maybe much higher.

Another key assumption the reader can make is how today's CRT prices stack up against their expectations of prices averaged over the cycle. Our current overall conclusions are based on historically tight spreads. Over a longer view however, as market spreads change through different macroeconomic environments, average CRT prices could be significantly different – again, maybe much higher – than the current CRT prices.

With those key assumptions made, the market-implied G-fee based upon the cost of CRT transactions is presented below.

**Non-Credit Cost** includes three components that total approximately **20 bps**<sup>5</sup>:

- General expenses to run the company of **~8 bps**
- Cost of securitizing loans **~2 bps**
- The statutory Payroll Tax of **10 bps**



**Credit Cost** is comprised of (1) the cost of the credit risk transfer trade plus, (2) the cost for Freddie Mac to hold the retained risk that is not transferred to the private market plus, (3) the cost of catastrophic risk.

**Credit Risk Transfer Cost:** The cost<sup>6</sup> of the credit risk transfer trade for a particular tranche of a transaction can be estimated as the product of:

- i. The size of the tranche in the transaction: Freddie Mac has typically transferred risk that covers ~4-5% of the initial unpaid principal balance of the loans in STACR and ACIS transactions, two of the primary tools with which Freddie Mac transfers credit risk,
- ii. The amount paid to investors as compensation for bearing the risk, and
- iii. The weighted average life (WAL), or the weighted average time of principal repayment, of each tranche and the overall collateral pool.



The size and amount paid for each tranche are publicly available and allow us to calculate the cost of credit risk over the lifetime of the tranche. To get an annualized figure, we need to divide the lifetime cost by the weighted average life (WAL) of the mortgages. In order calculate the WAL, we leverage a similar approach outlined by FHFA in the *Credit Risk Transfer Progress Report* by using a simplified scenario (e.g., 10% Constant Prepayment Rate, 0.2% Constant Default Rate, 25% Loss Given Default or loss severity, and a 10-year early-redemption). With this flexibility, interested parties can leverage their own market assumptions or test a range of scenarios. Like FHFA, our analysis assumes that 100% of the STACR notes are sold, although Freddie Mac traditionally retains a portion of this risk (i.e. a 5% vertical of the mezzanine tranches and up to 75% of the first-loss tranche<sup>7</sup>).

<sup>5</sup> G-fees are presented in basis points, or 1/100 of 1% of a loan's unpaid principal balance.

<sup>6</sup> The annualized cost of the credit risk transfer trade is found by dividing the product of i, ii, and iii by the weighted average life of the mortgages.

<sup>7</sup> Because Freddie Mac retains some portion of risk on its CRT transactions, the actual amount Freddie Mac spends on CRT is less than calculated.

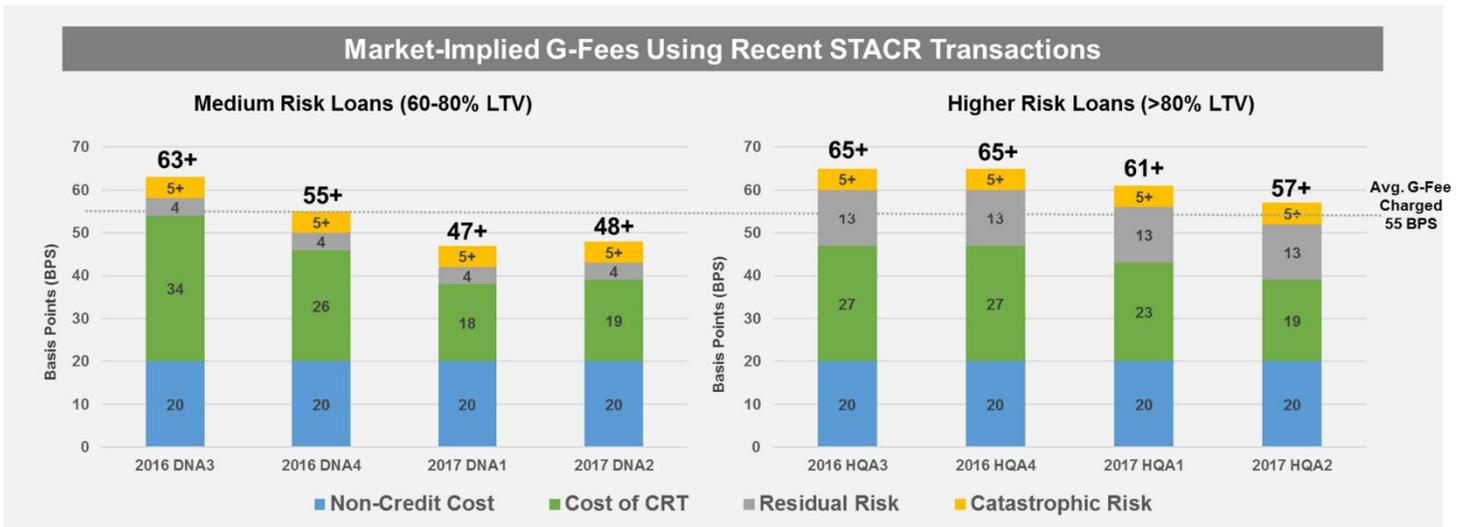
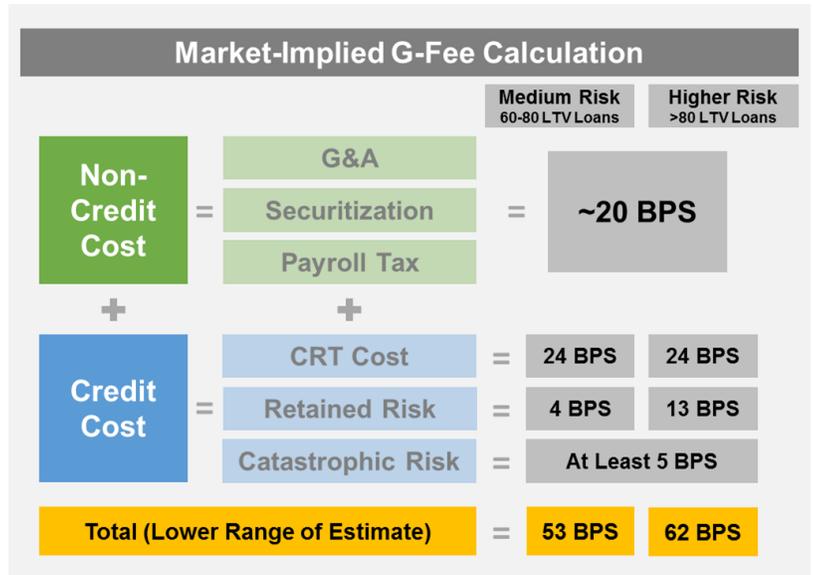
**Cost of Retained Risk:** Even under the assumption that 100% of the security is sold, Freddie Mac would still retain some risk. The retained risks include the risk of losses after the legal conclusion of the credit risk transfer transaction – generally 10 or 12.5 years. It also includes the counterparty risks that Freddie Mac continues to bear for seller/servicers and mortgage insurance companies, which is fully retained and not passed through to CRT investors.

The cost of holding the retained risk can be estimated by using an economic model, but, for this discussion, we will use a simple approach and assume that the cost to hold retained risks is within the range of **4 bps to 13 bps**<sup>8</sup>. Transactions where Freddie Mac bears a higher degree of counterparty risk will likely be towards the higher end of the range.

**Catastrophic Risk:** As previously discussed, an additional charge is likely needed for catastrophic losses above the levels included in CRT, based upon the assumption that the U.S. Government would charge for their absorbing the catastrophic risk. While ranges vary for such a payment, we will assume for this example that it is at least **5 bps**<sup>9</sup>. Readers can substitute their own assumption for what such a charge might be.

Using these figures, we can estimate the lower-range of a market implied G-fee. During the last year, this was on average **53 bps** for our 60%-80% LTV STACR transactions. The lower-range market implied G-fee for our > 80% LTV STACR transactions was **62 bps**.

See below for the results for all STACR transactions within the past year.



<sup>8</sup> Residual risk charge aligns with FHFA's *March 2017 Credit Risk Transfer Progress Report*.

<sup>9</sup> Analytically, the cost of catastrophic risk is very difficult to estimate as these losses are higher than what was experienced during the financial crisis.

## So how does that measure up against the G-fees we charge?

As previously noted, the appropriate level of guarantee fees is an issue to which many participants in the housing and mortgage finance community pay close attention. So what does the lower-range estimate of the market-implied G-fee tell us about Freddie Mac's current G-fee pricing?

The estimated average G-fee (including both contractual and delivery fees) Freddie Mac charged on newly acquired loans during 2016, including the 10 bps Payroll Tax, was 55 bps<sup>10</sup>. This tells us that our actual G-fees during 2016 were priced generally in line with the lower-range estimate of what the private market would charge, again using the key assumptions we have made and which the reader may wish to modify. The distinction in pricing between medium risk borrowers (60% – 80% LTV) and higher risk borrowers (> 80% LTV) is driven primarily by counterparty risk that Freddie Mac fully retains.

It is also important to note the volatility of the market-implied G-fees. Freddie Mac's G-fees are more stable than private sector pricing is likely to be. This validates the conventional wisdom on this issue. Simply put, professional investors will change their return requirements along with the pricing in markets for other traded credit instruments into which they can invest. Freddie Mac, as a monoline GSE with an obligation to support the primary mortgage markets on its own assumed equity (as we hold little in conservatorship), does not react to market pricing on other traded credit instruments. In fact, while in conservatorship, the G-fee is set administratively with significant guidance from the FHFA. Furthermore, CRT, when it is done as STACR or ACIS, has no impact on the GSE policy of G-fees that are level across the size of lenders.

## Conclusion

As Freddie Mac continues to expand and innovate CRT, we will remain committed to analyzing signals from the private market. Not only does this arm us with important knowledge, such as the market-implied price of providing our credit risk guarantee, it also helps us improve CRT and determine how the housing market – and our company – is changing for the better in real time.

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<sup>10</sup> Freddie Mac Reports Fourth Quarter and Full-Year 2016 Financial Results. <[http://www.freddie.com/investors/er/pdf/2016er-4q16\\_release.pdf](http://www.freddie.com/investors/er/pdf/2016er-4q16_release.pdf)>