Sunset Seminar
Credit Risk Transfer: Making a Successful Program Even Better

Andy Davidson, Andrew Davidson & Co. Inc.
Bill Roth, Two Harbors Investment Corp.
Howard Altarescu, Orrick
Rohit Gupta, Genworth US Mortgage Insurance
Laurie Goodman, Urban Institute
Faith Schwartz, CoreLogic

February 10, 2016
Turning mortgage data into investment insight
Credit Risk Transfer: Making a Successful Program Even Better

Andrew Davidson

Washington DC
February 2016
## How Big is CRT?

### Capital Markets Transactions ($Billions)

<table>
<thead>
<tr>
<th>Year</th>
<th>CRT Bonds</th>
<th>Reference Loans</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>$1.8</td>
<td>$85</td>
</tr>
<tr>
<td>2014</td>
<td>$10.6</td>
<td>$370</td>
</tr>
<tr>
<td>2015</td>
<td>$12.6</td>
<td>$398</td>
</tr>
<tr>
<td></td>
<td><strong>$25.0</strong></td>
<td><strong>$853</strong></td>
</tr>
</tbody>
</table>

### Insurance Transactions: $5 Billion

### Total $30 Billion
- exceeds GSE regulatory credit capital requirement
- exceeds MI industry capital
How much Risk is there?

Loan Losses Across Economic Scenarios

- ≤80 LTV
- >80 LTV

Loss:

- Benign
- Base Case
- Stress
- Severe Stress
How much Risk is there?

Losses with Scenario Probabilities

- **≤80 LTV**
- **>80 LTV**
- **Probability**

**Probability**

Benign | Base Case | Stress | Severe Stress
---|---|---|---
Probability

0% | 0% | 0% | 0%
2% | 2% | 2% | 2%
4% | 4% | 4% | 4%
6% | 6% | 6% | 6%
8% | 8% | 8% | 8%
10% | 10% | 10% | 10%
12% | 12% | 12% | 12%
14% | 14% | 14% | 14%
16% | 16% | 16% | 16%
18% | 18% | 18% | 18%
20% | 20% | 20% | 20%
MI is a form of Risk Sharing

MI Share of Losses by Scenario

Remaining

MI
### 2014 Freddie Mac Origination*

<table>
<thead>
<tr>
<th>Origination $ billions</th>
<th>MI</th>
<th>CRT</th>
<th>% of orig</th>
<th>risk shared</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT target</td>
<td>145</td>
<td>44</td>
<td>129</td>
<td>57%</td>
</tr>
<tr>
<td>Non-target</td>
<td>108</td>
<td>40</td>
<td>43%</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>253</td>
<td>69</td>
<td>129</td>
<td>100%</td>
</tr>
</tbody>
</table>

### RN Loss Expectation

<table>
<thead>
<tr>
<th>Percent of rows</th>
<th>MI</th>
<th>CRT</th>
<th>ACIS</th>
<th>risk shared</th>
<th>remainder</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT target</td>
<td>100%</td>
<td>26%</td>
<td>31%</td>
<td>7%</td>
<td>64%</td>
</tr>
<tr>
<td>Non-target</td>
<td>100%</td>
<td>12%</td>
<td>0%</td>
<td>0%</td>
<td>12%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>20%</td>
<td>18%</td>
<td>4%</td>
<td>42%</td>
</tr>
</tbody>
</table>

### Expected Shortfall

<table>
<thead>
<tr>
<th>Percent of rows</th>
<th>MI</th>
<th>CRT</th>
<th>ACIS</th>
<th>risk shared</th>
<th>Remainder</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT target</td>
<td>100%</td>
<td>19%</td>
<td>41%</td>
<td>8%</td>
<td>69%</td>
</tr>
<tr>
<td>Non-target</td>
<td>100%</td>
<td>9%</td>
<td>0%</td>
<td>0%</td>
<td>9%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>15%</td>
<td>24%</td>
<td>5%</td>
<td>43%</td>
</tr>
</tbody>
</table>

*Results based on representative loans and estimated weightings*
How much more is needed?

Freddie Mac 2014 Risk Sharing
Severe Scenarios -- Probability Weighted

Results based on representative loans and estimated weightings
How much more is needed?

- Recently $10 - $15 billion per year
- Could be up to $20 - $30 billion / year
- Total requirement is about $150 billion
  - 4% of $5 trillion is $200 billion
  - Assumes GSEs, or successors, retain 25% of risk
REIT and Two Harbors Overview

REIT – PERMANENT, PRIVATE CAPITAL TO SUPPORT MORTGAGE LENDING

• A Real Estate Investment Trust (REIT) is a company that owns income-producing real estate or engages in financing real estate by making or holding loans or other obligations that are secured by real estate collateral.

• REITs were created in 1960 for the purpose of giving all investors the opportunity to invest in large-scale, diversified portfolios of income-producing real estate, which had previously only been available through large financial intermediaries and to wealthy individuals.

• Mortgage REITs are one of the few significant private, permanent capital providers dedicated to the U.S. mortgage market.

TWO HARBORS INVESTMENT CORP. OVERVIEW

• Two Harbors is a publicly-traded mortgage REIT with an $11.1 billion portfolio and equity capital of approximately $3.6 billion as of December 31, 2015.

• Two Harbors invests in opportunities across Agency and non-Agency residential mortgage assets, including residential mortgage backed securities (RMBS), mortgage servicing rights (MSR), and residential mortgage loans, and also invests in commercial real estate debt.

• Two Harbors has deep expertise investing in and managing mortgage credit, interest rate, and prepayment risk, making it and other similar investors ideal candidates for investing in Credit Risk Transfer (CRT).

• Two Harbors is also expanding its credit investments in other areas, including offering an expanded set of loan acquisition guidelines to reach average credit-quality borrowers, which helps address persistent constraints on access to mortgage credit among these borrowers.

Distribution of Investors in CRT

• Typical buyers of the senior mezzanine securities (M1) include money managers, insurance companies, and sovereign funds.

• Typical buyers of the subordinate tranches (M2, M3 and B) include money managers, hedge funds, and REITs.

• Although REITs are participating in CRT, their market share is very small compared to their participation in private label securities.
  
  — REITs have purchased or retained the subordinate tranches in at least 60% of the private label securitizations issued over the past three years.\(^1\)
  
  — This compares to REIT purchases of only 2% of CRT issuance through July 2015.\(^2\)

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\(1\) Data as of December 31, 2015. Source: Bank of America.

Credit Investment Opportunities

- CRT represents a significant opportunity to invest in new issue residential mortgage credit risk.
- CRT subordinate bonds offer attractive expected yields.
- Other sectors offer comparable or (much) higher yields.

CREDIT RISK TRANSFER

<table>
<thead>
<tr>
<th>Relative Credit Exposure</th>
<th>Volatility</th>
<th>Available Liquidity</th>
<th>Unlevered Yield (No Loss)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRT - Senior Mezzanine (M1)</td>
<td>Medium</td>
<td>Medium</td>
<td>Very Low</td>
</tr>
<tr>
<td>CRT - Subordinate (M3)</td>
<td>High</td>
<td>Very High</td>
<td>Very Low</td>
</tr>
</tbody>
</table>

EXAMPLES OF OTHER CREDIT SENSITIVE INVESTMENTS

<table>
<thead>
<tr>
<th>Relative Credit Exposure</th>
<th>Volatility</th>
<th>Available Liquidity</th>
<th>Unlevered Yield (No Loss)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLO 2.0 (BB)</td>
<td>High</td>
<td>High</td>
<td>Very Low</td>
</tr>
<tr>
<td>High Yield Bonds (non-energy)</td>
<td>High</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>CMBS BBB- (10yr)</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>Single Family Rental BB</td>
<td>High</td>
<td>High</td>
<td>Very Low</td>
</tr>
</tbody>
</table>

Source: Indicative yields from dealer research and market intelligence.
REIT Investment Opportunities

- CRT is one of the few growing sectors of residential single family mortgage credit risk in securities form.
  - Investors able and willing to hold credit risk have few options beyond the small new issue PLS sector, declining legacy non-agency sector, or whole loans, which are less liquid and more idiosyncratic than securities.
- CRT offers competitive expected Return-on-Equity (ROE) for REITs.
- CRT subordinate bonds represent better opportunities for REITs relative to senior mezzanine bonds.

### CREDIT RISK TRANSFER

<table>
<thead>
<tr>
<th>Relative Credit Exposure</th>
<th>Volatility</th>
<th>Available Liquidity</th>
<th>Expected ROE&lt;sup&gt;(1)&lt;/sup&gt;</th>
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<td>CRT - Senior Mezzanine (M1)</td>
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</table>

### EXAMPLES OF OTHER REIT INVESTMENTS

<table>
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<tr>
<th>Relative Credit Exposure</th>
<th>Volatility</th>
<th>Available Liquidity</th>
<th>Expected ROE&lt;sup&gt;(1)&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>GSE MBS (Fannie Mae 3.5’s)</td>
<td>Very Low</td>
<td>Low</td>
<td>Very High</td>
</tr>
<tr>
<td>New Issue PLS Sub &amp; IO Securities</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Legacy Non-Agency</td>
<td>Medium</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>Non-Performing / Re-performing loans</td>
<td>High</td>
<td>Medium</td>
<td>Very Low</td>
</tr>
<tr>
<td>MSR</td>
<td>Low</td>
<td>High</td>
<td>Very Low</td>
</tr>
</tbody>
</table>

<sup>(1)</sup> Expected ROEs from dealer research and market intelligence and includes appropriate leverage for each asset class.
Liquidity & Volatility are Considerations

- **Liquidity** represents the amount of a security that can be bought or sold without changing the prevailing market price and **volatility** represents the degree of variation of a security’s trading price.

- CRT liquidity is quite poor, as evidenced by an average trade size of about $4 million, which has been declining.
  - It is not unreasonable to hope for greater liquidity for a market of this size ($25 billion securities issued as of December 2015).\(^{(1)}\)

- If investors can only buy or sell small amounts at the prevailing market price, they are likely to charge a risk premium, especially for assets with high price volatility where investors may want or need to trade quickly as the price changes.

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(2) Source: FINRA as of January 20, 2016.

(3) Source: Two Harbors trading and market color as of January 22, 2016.
Recommendations

• Improve liquidity (which could reduce volatility) by increasing investor base and consider policies to better allow broker-dealers to hold CRT on balance sheet.
  — Additional investors can help provide more buyers and sellers throughout market conditions.
  — Although we recognize that capital rules are unlikely to change for this asset class, consider other policies that can help broker-dealers improve market-making capabilities in CRT.

• Expand transparency and predictability through consistent issuance in all market conditions.
  — Supports continued investor interest because investors are best able and willing to commit capital when it is clear that issuance will be consistent and long term.
  — Maintains taxpayer protection.
  — Accurately and continually determines market assessment of risk to ensure g-fees are set correctly.

• Update REIT regulatory restrictions.
  — Ability of REITs to invest is constrained by current regulatory restrictions.
  — Internal Revenue Code and the Investment Company Act of 1940 limit the ability of REITs to invest in CRT.
  — If updated, REITs could more easily invest in all CRT investments, whether issued by the GSEs or a private issuer.
GSE Credit Risk Transfer
Expanding the Investor Base
’40 Act and Tax Considerations

February 10, 2016
Investment Company Act of 1940

Depicts the responsibilities and limitations placed on open-end mutual funds, unit investment trusts and closed-end funds that offer investment products to the public.

“Investment Company” Definition

“any issuer which . . . is or holds itself out as being engaged primarily . . . in the business of investing, reinvesting, or trading in securities”
Exempts Mortgage Banking Companies from ’40 Act registration and regulation

“[a]ny person . . . primarily engaged in . . . purchasing or otherwise acquiring mortgages and other liens on and interests in real estate”
The ’40 Act Issue

The Business of mREITs
• Investing in mortgages and mortgage securities

CAS and STACR Securities
• Debt obligations of the GSE
• Principal payments determined by credit performance of reference mortgage pool
• Do not represent interests in mortgages or other interests in real estate
Expand 3(c)(5)(C) exemption to apply to investments in CAS and STACR and similar transactions.

“[a]ny person who is . . . primarily engaged in one or more of the following businesses . . .
(c) purchasing or otherwise acquiring mortgages and other liens on and interests in real estate and CRT Securities”
Real Estate Investment Trust (REIT) Tax Legislation

- Enacted in 1960
- Extension of favorable mutual fund tax regime to real estate investments
- Intended to permit retail investors to invest in real property through a tax-efficient vehicle
- REITs generally do not pay corporate income taxes
REIT Qualification Tests

75% Quarterly Asset Test
real property, mortgages on real property, cash and cash items and government securities

75% Annual Income Test
interest on mortgages, rents from real property, gains from real property/mortgage dispositions and other specified real estate income

+ Other Tests
Treasury Regulations – Issue and Solution

Issue

CRT Securities generally do not represent interests in real property or mortgages

Solution

- Classify CRT Securities as “real estate assets”
- Classify gross income from CRT Securities as qualifying income for 75% Annual Income test
Dialogue with the SEC

“[REITs] are a logical investor in these transactions....Could you work with us to clarify that all of these risk transfer deals are viewed as good REIT assets that do not undermine investor protections?”

“We would be happy to work with you on that.”

U.S. Congressman Ed Royce

SEC Chair Mary Jo White

House Committee on Financial Services: “Examining the SEC’s Agenda, Operations, and FY 2017 Budget Request”

November 18, 2015
Bipartisan Support for Mortgage REIT Participation in CRT Transactions

“...significant value in exploring...different investors...”

“...requires a deep and varied investor base...”

“...test the long-term viability in different credit environments.”

“...experience and desire to participate in the market.”
Conclusion

The Issue

• ’40 Act and Tax Rules limit mREIT investment in CRT Securities

The Solution

• Amend ’40 Act and Tax Rules so that mREITs may invest in CRT Securities
Making Housing Finance More Sustainable

Front End Risk Sharing with Deeper Cover MI

Rohit Gupta, President & CEO
Genworth U.S. Mortgage Insurance
February 2016
Need for Sustainable Housing Finance

Consensus Principles of Housing Finance Reform

• Broad access to affordable, sustainable homeownership for creditworthy borrowers

• Private capital in first loss position ahead of taxpayers

• Access to the housing finance system for lenders of all sizes & types

• Liquidity for housing finance across economic cycles

Deeper Cover MI Supports These Consensus Policies
Enhanced Mortgage Insurance Reliability

- MIs have new higher capital standards under the Private Mortgage Insurer Eligibility Requirements (PMIERs) issued by the GSEs.
- MIs required to retain premiums earned during good times so that capital is available to pay claims during downturns.
- PMIERS include significant oversight of operations and risk management.
- New Master Policies provide even greater certainty regarding claims paying obligations.
Sustainability and Market Presence of MI

- MI is offered across cycles … mitigates market volatility
- Capital markets structures (PLS) exited during the crisis and have not returned in any meaningful volume since
- MIs covered over $50 billion in claims to the GSEs since the crisis began
- MI industry has attracted over $9 billion in new capital since the crisis
- MIs are well positioned to raise additional capital to meet demand
Risk Sharing Landscape

- Since 2012, the GSEs have purchased approximately $3 trillion in mortgage loans
- Just over 20% of those loans (~$700 billion) have been included in expanded risk sharing – virtually all were back end transactions
- Less than 1% of risk (~$22.5 billion) has been transferred via end risk sharing (mostly standard MI)

Data in 000s
Source: FHFA and GSE data
Front End Risk Sharing with Deeper Cover MI

- Today, most high LTV GSE loans have MI at standard cover levels
- MI can provide even deeper coverage on high LTV loans
- Deeper cover makes taxpayer and GSE risk even more remote – only minimal “tail risk” remains
- Deeper cover pricing is fully transparent
- MI can do this while insuring a broad range of borrowers
- Should lower borrower cost

Deeper MI Can Reduce Taxpayer and GSE Risks
Milliman observed that deeper cover MI:

- Almost doubles the amount of loss protection afforded to the GSEs
- Would allow the GSEs to reduce their committed capital for this risk by approximately 75%
- Should reduce G-fees by 50%, with savings going to borrowers

Example is based on a portfolio of high LTV loans.
Credit Risk Transfer: Making a Successful Program Even Better

Laurie Goodman
Director, Housing Finance Policy Center
Urban Institute
February 10, 2016
FHFA Scorecard Goals for 2016

1. The GSEs should transfer credit risk on at least 90 percent of the unpaid principal balance of newly acquired single-family mortgages in loan categories targeted for credit risk transfer. Target single family loan categories include non-HARP fixed rate loans with terms greater than 20-years and loan-to-value ratios greater than 60%. This differs from prior years where the target was expressed in dollar terms.

2. Continue efforts to evaluate, and implement if economically feasible, ways to transfer the credit risk on other types of newly acquired single-family mortgages that are not included in the targeted categories.

3. Transfer a substantial portion of the credit risk on the targeted loan categories, covering most of the credit losses projected to occur during stressful economic scenarios.

4. Continue to evaluate obstacles to expanding the investor base, propose ways to overcome these challenges, and with the FHFA to address them where possible.

5. Work with the FHFA to conduct an analysis and assessment of front-end credit risk transfer transactions, including work to support an forthcoming FHFA Request for Input.
Anticipated Risk Sharing Supply

**Q:** How does 90 percent of new targeted collateral compare to 2015?

**A:** Not much different

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total GSE Issuance 2015</td>
<td>$846 billion</td>
</tr>
<tr>
<td>Assume 88% of this for 2016</td>
<td>$744 billion</td>
</tr>
<tr>
<td>Assume 65% of this in the targeted category</td>
<td>$484 billion</td>
</tr>
<tr>
<td>Assume 95% of this (exceeding their goal)</td>
<td>$460 billion</td>
</tr>
</tbody>
</table>

This is 16% higher than the $397 billion done in 2015

**Total CAS and STACR issuance:**

<table>
<thead>
<tr>
<th>Entity</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fannie Mae:</td>
<td>$5.9 billion</td>
</tr>
<tr>
<td>Freddie Mac:</td>
<td>$6.6 billion</td>
</tr>
<tr>
<td>Total:</td>
<td>$12.5 billion</td>
</tr>
</tbody>
</table>

If we assume a 16% increase in back end risk sharing deals, it would suggest $14.5 billion in new CRT deals. And this may be high because if CAS/STACR spreads widen, reinsurance execution may be more favorable. In addition, we would expect more front end transactions in 2016.
New Freddie Data on Fixed Rate Mortgages (by original term): Shorter Mortgages Perform Better, Less Incentive to Lay Off Risk

<table>
<thead>
<tr>
<th>Year</th>
<th>a. &lt;= 180M</th>
<th>b. 181-240M</th>
<th>c. 241-360M</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999-2004</td>
<td></td>
<td></td>
<td>3.35%</td>
<td>3.35%</td>
</tr>
<tr>
<td>2005</td>
<td>2.66%</td>
<td>5.37%</td>
<td>9.21%</td>
<td>7.97%</td>
</tr>
<tr>
<td>2006</td>
<td>3.13%</td>
<td>6.95%</td>
<td>11.63%</td>
<td>10.59%</td>
</tr>
<tr>
<td>2007</td>
<td>3.03%</td>
<td>7.00%</td>
<td>12.85%</td>
<td>11.80%</td>
</tr>
<tr>
<td>2008</td>
<td>1.94%</td>
<td>3.33%</td>
<td>7.41%</td>
<td>6.58%</td>
</tr>
<tr>
<td>2009-2010</td>
<td>0.28%</td>
<td>0.38%</td>
<td>0.96%</td>
<td>0.78%</td>
</tr>
<tr>
<td>2011-2012</td>
<td>0.06%</td>
<td>0.08%</td>
<td>0.13%</td>
<td>0.11%</td>
</tr>
<tr>
<td>All</td>
<td>0.74%</td>
<td>2.24%</td>
<td>4.32%</td>
<td>3.75%</td>
</tr>
</tbody>
</table>
CAS 2015 – CO4: Expanding credit transfer requires either shedding more first loss risk or catastrophic risk.
Alternatives Credit Risk Transfer Vehicles: How Well Do They Meet the Goals?

<table>
<thead>
<tr>
<th>Goals:</th>
<th>Back-End Risk Sharing</th>
<th>Front-End Risk Sharing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CAS/STACR</td>
<td>Deep Cover MI</td>
</tr>
<tr>
<td>Reducing taxpayer risk</td>
<td>Effective in good economic times; unclear in tough times</td>
<td>Poses counterparty risk and risk of GSE-like monoline model, but both can be addressed</td>
</tr>
<tr>
<td>Maintaining broad borrower access to credit</td>
<td>Effective</td>
<td>Poses risk of overlays and risk-based pricing, but both can likely be addressed</td>
</tr>
<tr>
<td>Maintaining broad lender access to the secondary market</td>
<td>Effective</td>
<td>Effective</td>
</tr>
<tr>
<td>Maximizing transparency</td>
<td>Effective</td>
<td>FHFA would need to require measures to make transparent</td>
</tr>
<tr>
<td>Minimizing volatility</td>
<td>Ineffective</td>
<td>Capital will be less fleeting than the capital markets, but more than deep cover MI</td>
</tr>
<tr>
<td>Mitigating risk in the financial system</td>
<td>Ineffective</td>
<td>Effective but structure likely limited in scope</td>
</tr>
<tr>
<td></td>
<td></td>
<td>How effective will depend on how modest counterparty risk is addressed</td>
</tr>
</tbody>
</table>
Some Specific Suggestions to Improve Transparency

1. Currently in the CAS and STACR transactions the loans are segmented into those with LTVs of 60% to 80% and those that have LTVs >80%. However, loan level pricing adjustments are based on both LTV and FICO scores. Tranches could be segmented by both FICO and LTV. For example, the 60% to 80% LTV bucket could be carved into three or four FICO buckets. Liquidity could be preserved if Freddie and Fannie allow the FICO buckets in either the 60% to 80% or the >80% LTV bucket to be recombined into a single security with the appropriate weights.

2. There is currently no price transparency under the front-end risk-sharing arrangements with lenders. Fannie Mae and Freddie Mac pick a lender and negotiate a structure and a price, with the market receiving little transparency into the terms and none into price. A different lender may be willing to strike the GSEs a far better deal, but no one—including the GSEs and FHFA—would know.

The GSEs should instead specify publicly the risk that they are trying to lay off and the criteria for awarding that risk. Qualified lenders would bid on the front-end risk-sharing transaction, and the GSEs would provide the market information by publishing the cover bid (the second to the highest).

3. Under the back-end risk-sharing arrangements with re-insurers, there is also no price transparency. Again we suggest competitive bidding, with the GSEs publishing the cover bid.