

VIEWPOINT

Assessing Hurricane Impact on Mortgage Credit

BRIAN S. ROSENLUND | OCTOBER 20, 2017



We mourn with those who lost loved ones to hurricanes Harvey and Irma this year and we sympathize with those borrowers who must bear the brunt of costly property losses. Here we quantify the impact of these storms to residential mortgage credit investments in the Legacy Non-Agency RMBS market and the Credit Risk Transfer (CRT) market by using hurricane Katrina as a relative benchmark. We will also explore the responses of Fannie Mae, Freddie Mac and Ginnie Mae (FHA), identify sources of financial risk (or lack thereof) to servicers and mortgage insurance providers; highlight implications for borrowers, and distinguish between financial risk among actual-loss severity CRT deals and fixed-loss severity CRT deals.

While devastating to those who lost loved ones and/or homes, the final analysis shows that neither Harvey nor Irma will be as costly as Katrina. Exposure to these two storms will likely result in 0-5 basis points of cumulative losses in Legacy Non-Agency RMBS and CRT deals in aggregate. Of course, deal-level performance will vary based on exposure to impacted areas.

Katrina

Hurricane Katrina struck New Orleans on August 29, 2005. Levees gave way the next day, flooding 80% of the city. More than 1,800 people lost their lives as a result of this super storm and 275,000 homes sustained major damage or were destroyed¹. The cost of Katrina is estimated at \$108 billion (2005 dollars) or approximately \$135 billion in 2017 dollars². As a portion of this cost, the Federal Emergency Management Agency (FEMA) approved \$6.55 billion in assistance through the Individual & Household Program (IHP)³. The result of the devastation was a mass exodus of over half the population of New Orleans. Before Katrina, the population was 484,674. One year after the storm, in July 2006, the population was 230,172⁴.



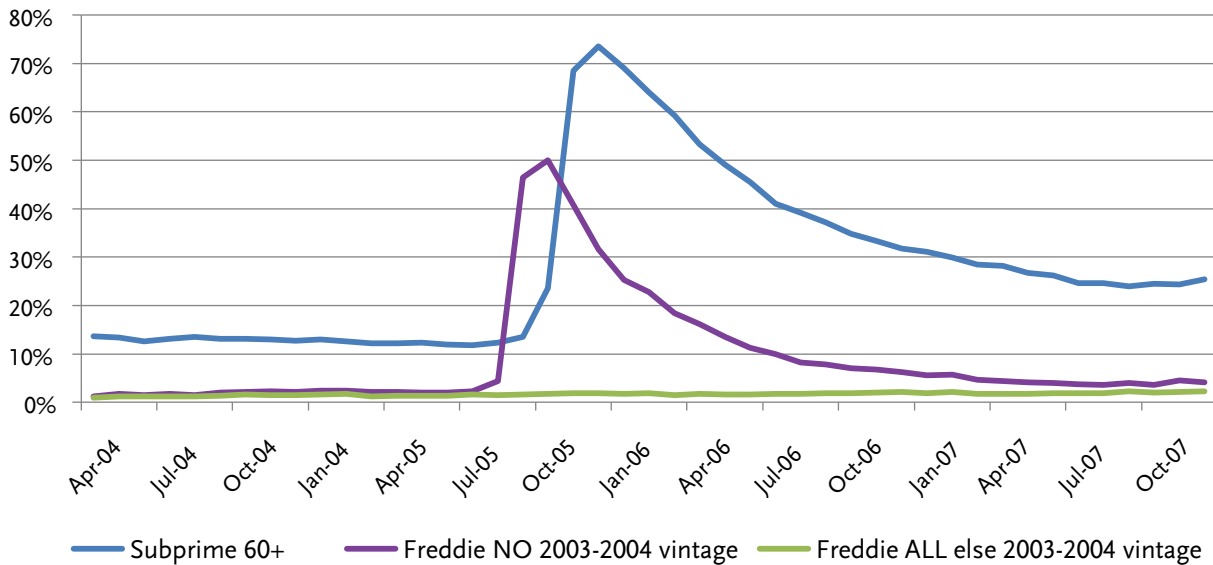
Brian S. Rosenlund, CFA
Senior Vice President
U.S. Fixed Income

Mr. Rosenlund is a Senior Securitized Products Analyst in the U.S. Fixed Income group. Mr. Rosenlund joined TCW in 2009 during the acquisition of Metropolitan West Asset Management LLC (MetWest). At MetWest, he performed research and analysis of mortgage-backed and asset-backed securities. He joined MetWest's risk management department in 2001 and moved to the trade room as a credit analyst in 2002. Prior to joining MetWest, He worked at Clinger & Co. Mr. Rosenlund earned a BS in Sociology and a BA in Philosophy with minors in Physics and Logic from Brigham Young University. He is a CFA charterholder.

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Understandably, over half the population stopped making mortgage payments in the months immediately following the storm. Figure 1 shows the delinquency performance of Agency and Non-Agency mortgages backed by homes in New Orleans and compares it to the delinquency performance of Agency non-New Orleans mortgages across the broader United States.

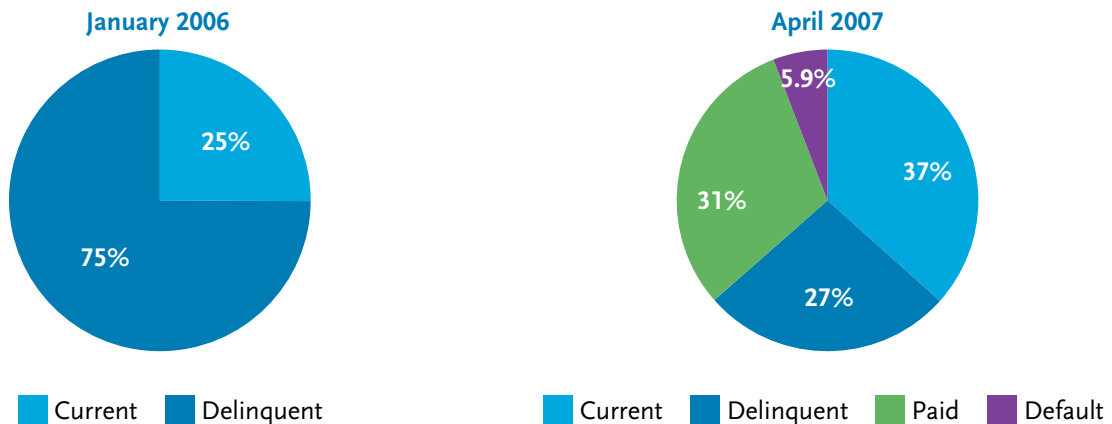
Figure 1. Katrina's Delinquency Impact



Source: Corelogic, eMBS, TCW

Unable to access homes, jobs, checkbooks, bank accounts, mail boxes, etc., New Orleans homeowners missed payments. Half of Agency mortgage borrowers missed payments and 75% of Non-Agency Subprime borrowers missed payments as they tried to put their lives back together. Figure 2 compares the Subprime New Orleans borrower loan status at the apex (January 2006) to the period when defaults of this cohort normalized (April 2007).

Figure 2. Delinquency Status of Subprime New Orleans Borrowers in January 2006 and April 2007



Source: Corelogic, TCW

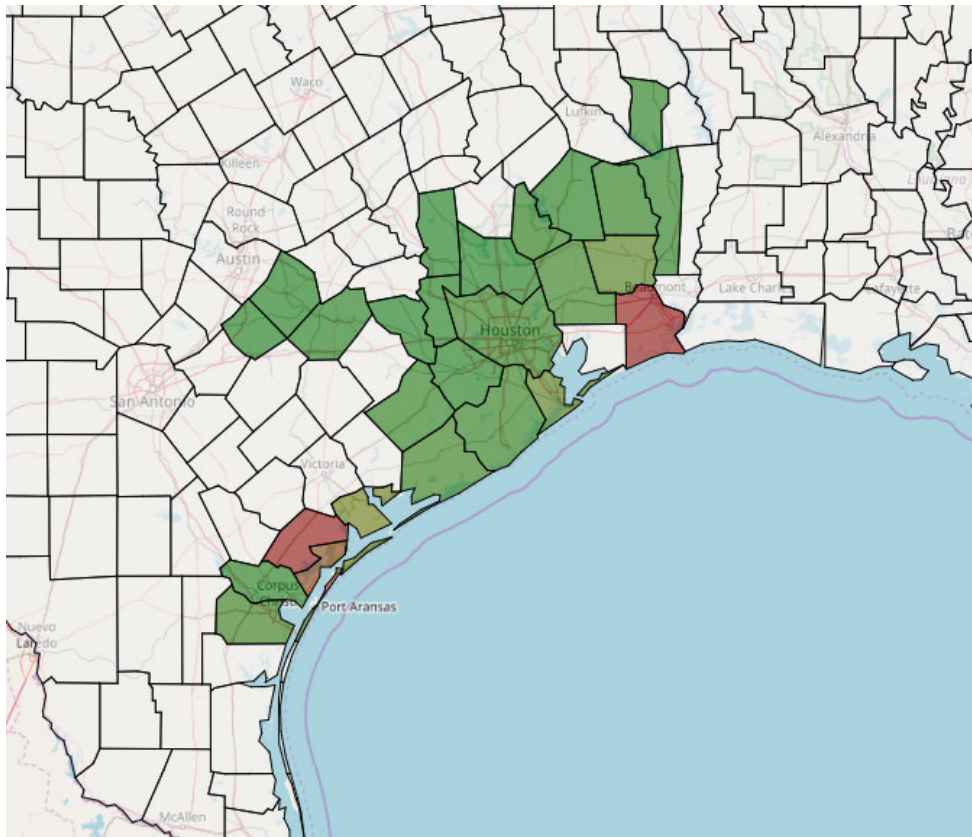
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Despite the devastation and the forebodingly high delinquency statistics, Subprime loss severities were 24% and cumulative losses for these New Orleans loans were only 1.4%. A combination of government assistance, private assistance and insurance helped limit losses.

Harvey

Hurricane Harvey struck the Texas Gulf coast on August 26, 2017 and dropped over 40 inches of water in some areas during the subsequent two days. A total of 88 people lost their lives⁵ due to this storm and 73,000 (3.4%) homes have either been destroyed (10,800 – 0.5%) or sustained major damage (62,000 – 2.9%). It is still early, but the cost estimate appears to be \$70 billion. To date, \$1.19 billion in FEMA assistance has been approved under the IHP⁶. Refugio, Jefferson and Aransas counties sustained the highest percentages of homes receiving major damage or destruction at 39%, 27%, and 21% respectively. In Harris County (the most populous county in the area) 2.4% of homes sustained major damage and 0.1% of homes were destroyed for a 2.5% affected rate⁷.

Figure 3. Counties with FEMA designated Major Damage or Destruction



Source: Texas Department of Public Safety

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Irma

Hurricane Irma struck the Florida coast on September 10, 2017 at the Keys and took a path up the Gulf coast to Tampa. While Florida emergency services have not completed their analysis of the damage left in the wake of Irma, we have some information. A total of 72 people lost their lives in Florida as a result of Irma⁸. In the Florida Keys 90% of homes were either totally destroyed (13,250 – 25%)⁹ or sustained major damage (34,450 – 65%)¹⁰. The Keys took the brunt of the storm and damage to mainland Florida was much lower than anticipated. Cost estimates for the storm are around \$50 billion¹¹ and FEMA has approved \$776 million for individual and household assistance under the IHP¹².

What are Fannie, Freddie, and Ginnie doing?

Fannie, Freddie, and Ginnie have matured in their abilities to respond to borrower hardship since Katrina. The aftermath of the 2008 financial crisis introduced loan-modification programs at mortgage servicers which have since matured through standardization. Moreover, politicians are more aware now than pre-Katrina of the value of accommodating hurricane victims quickly and comprehensively. The following messages are representative of what is being sent to Harvey and Irma victims by these three mortgage giants¹³:

- Borrowers are eligible to temporarily stop making monthly mortgage payments for three month intervals (up to 12 months)
- No late fees
- No delinquency reported to credit bureaus
- Loan modifications will allow borrowers to “catch up” without much of a payment increase

Servicing Impact

In addition to implementing the GSE response among hurricane victims, servicers are on the hook financially for restoring homes to pre-hurricane state if the mortgages are guaranteed by HUD. This provision would be triggered upon re-conveyance of the property to HUD through the foreclosure/deed-in-lieu/short sale process. Prior to conveyance the mortgagee is responsible for repairing any damage caused by fire, flood, earthquake, tornado, hurricane¹⁴... If the property doesn't have proper insurance coverage and the borrower cannot restore the property (hence the re-conveyance) the servicer must pay for these repairs prior to submitting a claim to HUD. The financial burden on servicers will vary depending on the number of serviced homes that are re-conveyed to HUD.

Implications for Mortgage Insurance providers

Private mortgage insurance is required on Fannie and Freddie loans when the loan-to-value ratio exceeds 80%. For example, if a borrower buys a \$100,000 home with a Fannie Mae guarantee using \$5,000 as a down payment, private mortgage insurance (MI) is required for \$15,000 of the \$95,000 mortgage. In the event of borrower default, the private mortgage insurer will pay out \$15,000 as a claim. However, private mortgage insurance policies contain the following exclusion:

“It is understood and agreed that the Company shall not be liable for and the Policy shall not apply, extend to or cover the following:

Physical Damage – Any cost or expense related to the repair or remedy of any Physical Damage to the Property, including but not limited to Physical Damage arising from the following causes; (i) contamination by toxic or hazardous waste, chemical, or other substances, (ii) earthquake, flood, or any act of God, (iii) civil war or riot, or (iv) any defects in the construction of the Property not identified in the Application.”¹⁵

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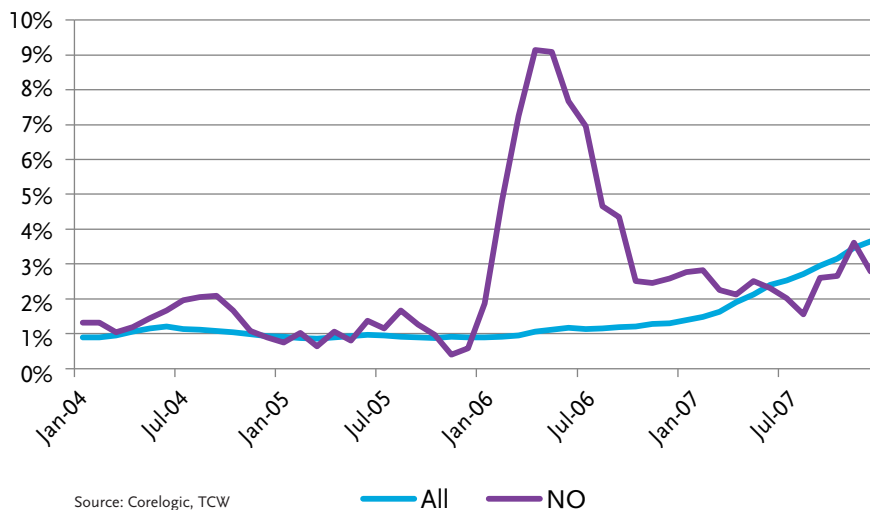
In other words, “prior to a private mortgage insurance claim being submitted, the property would have to be brought back to the same condition as of the commitment date, less reasonable wear and tear, typically with the help of the homeowner’s insurance and/or flood insurance.”

This provision will likely protect the MI providers’ equity holders from experiencing large losses due to these storms. Rather, these losses would be passed on to Fannie and Freddie, who pass the loss on to CRT investors in actual loss severity high LTV deals. But for the loss to occur, the borrower must first default on the mortgage after exhausting the modification/payment extension options presented by the servicer.

Loss Expectations




It is still early in the data collection process to have a high degree of confidence in loss projections stemming from Harvey and Irma. For this reason we take a conservative approach to estimated losses and expect realized losses to be below our estimates. Figure 4 shows that the Katrina-driven losses among Subprime loans (CDRs) began emerging from the broader Subprime market in January 2006 and normalized in April 2007.

Figure 4. Subprime CDRs in New Orleans and Across U.S.



Over those 16 months, Katrina generated 0.03%, 0.78% and 1.42% of cumulative losses in the greater New Orleans area among 2003-2004 vintage Prime, Alt-A and Subprime loans respectively. If we use these benchmarks for estimating Harvey and Irma losses it would represent the conservative part of the loss spectrum due to the fact that neither of these two storms is as costly as Katrina. To bring our loss project estimate a bit closer to reality, we can take the current cost estimates for Harvey (\$70 billion) and Irma (\$50 billion) and scale down the cumulative loss numbers by their respective ratios to the Katrina loss estimate of \$135 billion. Figure 5 summarizes this analysis.

Figure 5. Comparing Katrina to Harvey and Irma

	 Katrina	 Harvey	 Irma
Hurricane Date	8/29/2005	8/26/2017	9/10/2017
Lives Lost	1,833	88	72
Homes with Destroyed or Major Damage*	275,000	73,000	48,000
Estimated Cost in 2017 Dollars (blns)	\$135	\$70	\$50
FEMA IHP Assistance Dollars (mm)	\$6,549	\$1,192	\$776
Prime Cumulative Losses in Affected Areas	0.03%	0.02%	0.01%
Alt-A-Cumulative Losses in Affected Areas	0.78%	0.40%	0.29%
Subprime Cumulative Losses in Affected Areas	1.42%	0.74%	0.53%

Number of Irma homes destroyed or damaged on Florida Keys only. No information on home count on Florida mainland yet.

If we assume that the STACR and CAS loans are conservatively equivalent to Non-Agency Alt-A loans originated in the 2003-2004 timeframe, then we can use the above analysis to estimate program/sector level losses due to these two storms. This takes into consideration the geographic diversification of the average deal in Figure 6.

Figure 6. Cumulative Loss Expectations across Program/Sector

	Exposure		Cumulative Loss Exp		
	Harvey	Irma	Harvey	Harvey	Total
Prime	8/29/2005	8/26/2017	0.000%	0.000%	0.001%
Alt-A	1,245	77	0.004%	0.017%	0.021%
Option Arm	275,000	73,000	0.001%	0.044%	0.45%
Subprime	\$135	\$70	0.016%	0.038%	0.054%
STACR	0.03%	0.02%	0.011%	0.011%	0.022%
CAS	0.78%	0.40%	0.012%	0.011%	0.023%

Source: Corelogic, TCW

Hence, our current estimates of economic loss due to the combined impact of hurricanes Harvey and Irma ranges from 0-5 basis points.

Actual vs. Fixed Severity and HLTV STACR/CAS Deals

The above analysis assumes that all STACR/CAS have actual severities determined losses. However, initial deal structures under the STACR/CAS framework included a provision to limit loss severity to a fixed amount based on a “calculated loss” schedule until specified credit event thresholds were breached (eg. loss severity starts at 15% and steps up to 25% and caps out at 40% when the pool’s cumulative credit events exceed 1% and 2% respectively). Later (April 2015) this element was replaced by passing through the actual severity generated by the collateral liquidation of the reference obligation. In situations where the severity is higher than the fixed amount, actual severity deals will generate higher cumulative losses. Given that the most severely damaged properties will likely have higher severities than the fixed severity schedule, distinguishing between the loss expectations in these two types of deals is informative.

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Given delinquency spikes of 50% for GSE loans post-Katrina and combined Harvey/Irma exposures of 6.43% and 6.73% for STACR and CAS respectively, severity step-ups are a real concern for fixed-severity deal investors. However, Fannie and Freddie have announced the forbearance as a result of Harvey and Irma will NOT count toward the credit event thresholds. Rather, the GSEs will wait until the later of 20 months from the disaster recovery relief or three months from the conclusion of its forbearance period due to the hurricanes to evaluate the loans for a delinquency-related credit event. This gift to fixed severity deal investors likely cuts losses in half (to 1 basis point for STACR/CAS fixed-severity deals) under conservative assumptions.

While actual severity STACR/CAS cumulative loss estimates may be 2 basis points as seen in Figure 6, the High LTV deals are likely to have higher losses. Normally, the portion of the LTV above 80% would be covered by MI. But, we've seen above that the MI policy will not pay out on these claims. In order to estimate the impact we once again look to Katrina for insight. High LTV (>80%) Alt-A loans from 2003-2004 origination years generated 1.77% cumulative losses during the January 2006 to April 2007 timeframe. This is 227% of the 78 basis points of cumulative losses seen in the New Orleans Alt-A loan universe. Hence we would expect high LTV STACR/CAS deals to have cumulative losses of 5 basis points.

Conclusion

Though these results may seem benign in aggregate, there are deals that have much higher exposure to the geographic areas exposed to Harvey and Irma damage. Losses may vary widely based upon concentrations in these areas and differences in deal structures. Loss estimates will also certainly change as new data come out of Texas and Florida during the coming months. More broadly, these disasters have reminded investors accustomed to expressing home price views that mortgage credit products also carry natural disaster risks.

¹ [nytimes.com/2017/08/28/us/hurricane-katrina-harvey.html](https://www.nytimes.com/2017/08/28/us/hurricane-katrina-harvey.html)

² [nhc.noaa.gov/data/tcr/AL122005_Katrina.pdf](https://www.nhc.noaa.gov/data/tcr/AL122005_Katrina.pdf)

³ <https://www.fema.gov/disaster/1603>; <https://www.fema.gov/disaster/1604>

⁴ [cnn.com/2013/08/23/us/hurricane-katrina-statistics-fast-facts/index.html](https://www.cnn.com/2013/08/23/us/hurricane-katrina-statistics-fast-facts/index.html)

⁵ [texastribune.org/2017/10/13/harveys-death-toll-reaches-93-people/](https://www.texastribune.org/2017/10/13/harveys-death-toll-reaches-93-people/)

⁶ [fema.gov/disaster/4332](https://www.fema.gov/disaster/4332)

⁷ [dps.texas.gov/dem/sitrep/default.aspx](https://www.dps.texas.gov/dem/sitrep/default.aspx)

⁸ [irstpost.com/world/hurricane-irma-death-toll-rises-to-72-in-florida-112-in-caribbean-4086391.html](https://www.irstpost.com/world/hurricane-irma-death-toll-rises-to-72-in-florida-112-in-caribbean-4086391.html)

⁹ [wsj.com/articles/hurricane-irma-destroyed-25-of-homes-in-florida-keys-fema-estimates-1505233551](https://www.wsj.com/articles/hurricane-irma-destroyed-25-of-homes-in-florida-keys-fema-estimates-1505233551)

¹⁰ [abcnews.go.com/US/irma-death-toll-rises-30-states/story?id=49814367](https://www.abcnews.go.com/US/irma-death-toll-rises-30-states/story?id=49814367)

¹¹ [businessinsider.com/ap-harvey-and-irma-to-slow-us-growth-but-rebound-should-follow-2017-9](https://www.businessinsider.com/ap-harvey-and-irma-to-slow-us-growth-but-rebound-should-follow-2017-9)

¹² [fema.gov/disaster/4337](https://www.fema.gov/disaster/4337)

¹³ [fanniemae.com/resources/file/aboutus/pdf/hurricane-relief-consumer-gses.pdf](https://www.fanniemae.com/resources/file/aboutus/pdf/hurricane-relief-consumer-gses.pdf)

¹⁴ [hud.gov/sites/documents/43304C2HSGH.PDF](https://www.hud.gov/sites/documents/43304C2HSGH.PDF)

¹⁵ [radian.biz/sfc/servlet.shepherd/version/download/068C0000001uXPkIA2](https://www.radian.biz/sfc/servlet.shepherd/version/download/068C0000001uXPkIA2)

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