

INVESTOR DAY 2023

Portfolio Management & Analytics



Sacha Rosenthal

Vice President, Single-Family Servicing Portfolio Analytics

Sacha Rosenthal is accountable for developing strategies and analytics related to portfolio management, climate change and natural disasters, loss mitigation, distressed collateral liquidation, servicing policy, non-performing loan and re-performing loan transaction support as well as analytics to support Servicer relationship management. He is also responsible for servicing data, business intelligence applications and the Servicer Performance Profile. Mr. Rosenthal holds a BSc in biochemistry from the University of Bristol, UK.

Our Agenda

- 1. Portfolio Delinquency Rates**
- 2. Forbearance & Foreclosure Volumes**
- 3. Natural Disasters**
- 4. Climate Risk**

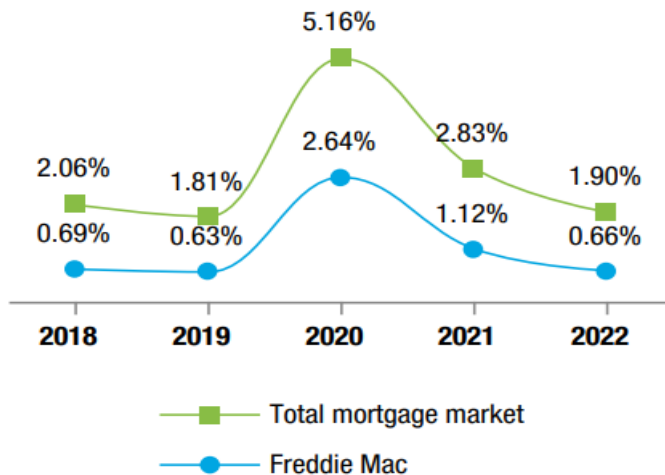


Portfolio Delinquency Rates

- Early delinquency rates have remained relatively consistent
 - D30 rates show volatility, which is normal
- We ended 2022 with 0.66% Serious Delinquency rate
- We are close to pre-pandemic levels (0.63% as of December 2019)

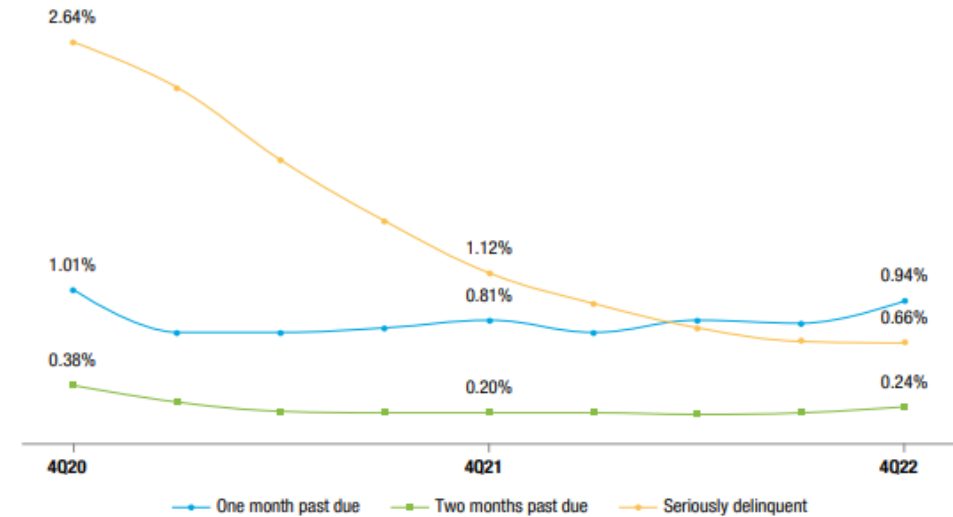
https://www.freddiemac.com/investors/financials/pdf/10k_021320.pdf

**Single-Family Serious Delinquency Rates
as of December 31,**



Source: National Delinquency Survey from the Mortgage Bankers Association. For 2022, the total mortgage market rate is as of September 30, 2022 (latest available information).

Single-Family Delinquency Rates

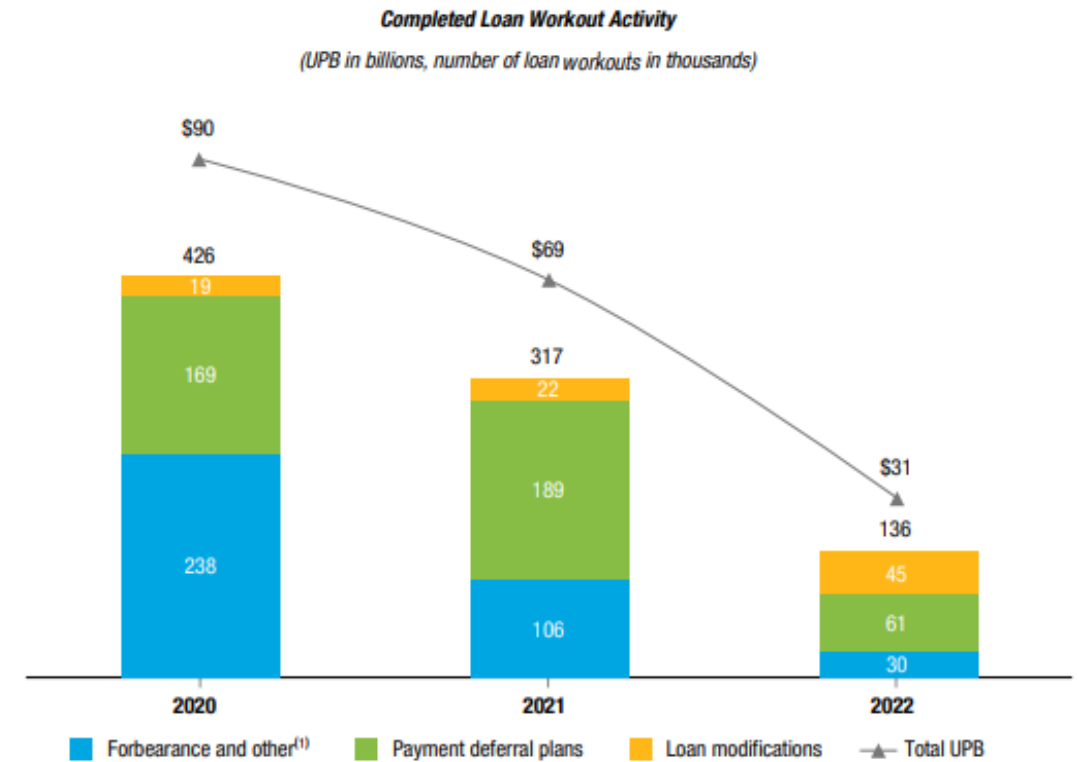


https://www.freddiemac.com/investors/financials/pdf/10k_022223.pdf

- Serious Delinquency Rates continue to improve and are lower than the total market average

Forbearance Volume and Workouts

- Forbearances continue to decline to low levels
- Payment Deferrals, designed for short-term/temporary hardship, continue to make up a large part of the loss mitigation activity
- We have seen a transition to Flex Modifications (designed for permanent/long-term hardships), but they are still less than 50% of our loss mitigation efforts



https://www.freddiemac.com/investors/financials/pdf/10k_022223.pdf

Foreclosure Volume - National

DECEMBER 2022 DATA SUMMARY

	Dec-22	Monthly Change	YTD Change	Yearly Change
Delinquencies	3.08%	2.31%	-6.68%	-8.89%
Foreclosure	0.37%	0.71%	31.76%	53.47%
Foreclosure Starts	26,900	14.96%	-18.24%	556.10%
Seriously Delinquent (90+) or in Foreclosure	1.38%	-0.55%	-26.83%	-31.38%
New Originations (data as of Nov-22)	322K	-18.1%	-64.7%	-65.6%

DECEMBER 2019 DATA SUMMARY

	Dec-19	Monthly Change	YTD Change	Yearly Change
Delinquencies	3.40%	-3.75%	-9.30%	-12.43%
Foreclosure	0.46%	-1.57%	-9.60%	-11.59%
Foreclosure Starts	39,500	17.91%	-21.31%	-14.69%
Seriously Delinquent (90+) or in Foreclosure	1.27%	-2.50%	-14.43%	-15.98%
New Originations (data as of Nov-19)	708K	-13.5%	57.6%	47.4%

	Oct-22	Sep-22	Aug-22	Jul-22	Jun-22	May-22	Apr-22	Mar-22	Feb-22	Jan-22	Dec-21	Nov-21	Oct-21
Delinquencies	3.08%	3.01%	2.91%	2.78%	2.79%	2.89%	2.84%	2.75%	2.80%	2.84%	3.36%	3.30%	3.38%
Foreclosure	0.37%	0.37%	0.35%	0.35%	0.35%	0.35%	0.36%	0.33%	0.32%	0.32%	0.31%	0.28%	0.24%
Foreclosure Starts	26,900	23,400	19,600	18,400	20,300	17,700	23,800	18,800	21,400	24,300	25,000	32,900	4,100
Seriously Delinquent (90+) or in Foreclosure	1.38%	1.39%	1.38%	1.39%	1.41%	1.46%	1.48%	1.45%	1.52%	1.62%	1.79%	1.89%	2.02%
New Originations		322K	393K	459K	523K	499K	600K	618K	676K	776K	675K	717K	910K



FORECLOSURE STARTS

December's 26.9K starts, the third consecutive monthly increase, remained 30% below pre-pandemic norms

Foreclosure actions began on just 4.9% of serious delinquencies in December

- Foreclosure referrals have begun and rising, yet are still below pre-pandemic levels
- There is a time lag before we see foreclosure referrals go to sale
 - Not every loan that is referred ultimately goes to sale

https://www.blackknightinc.com/wp-content/uploads/2023/02/BKI_MM_Dec2022_Report.pdf

https://www.blackknightinc.com/wp-content/uploads/2020/01/BKI_MM_Dec2019_Report.pdf

Things to Noodle

Is borrower behavior different this time around vs. the 2007-2008 crisis?

- Many borrowers have equity
- Unemployment is very low
- Are borrowers prioritizing mortgage payment over other debt as the house is their most valuable asset? Selling, moving and renting is expensive
- Forbearance could be considered commonplace; will we see a higher level of baseline Forbearance going forward?

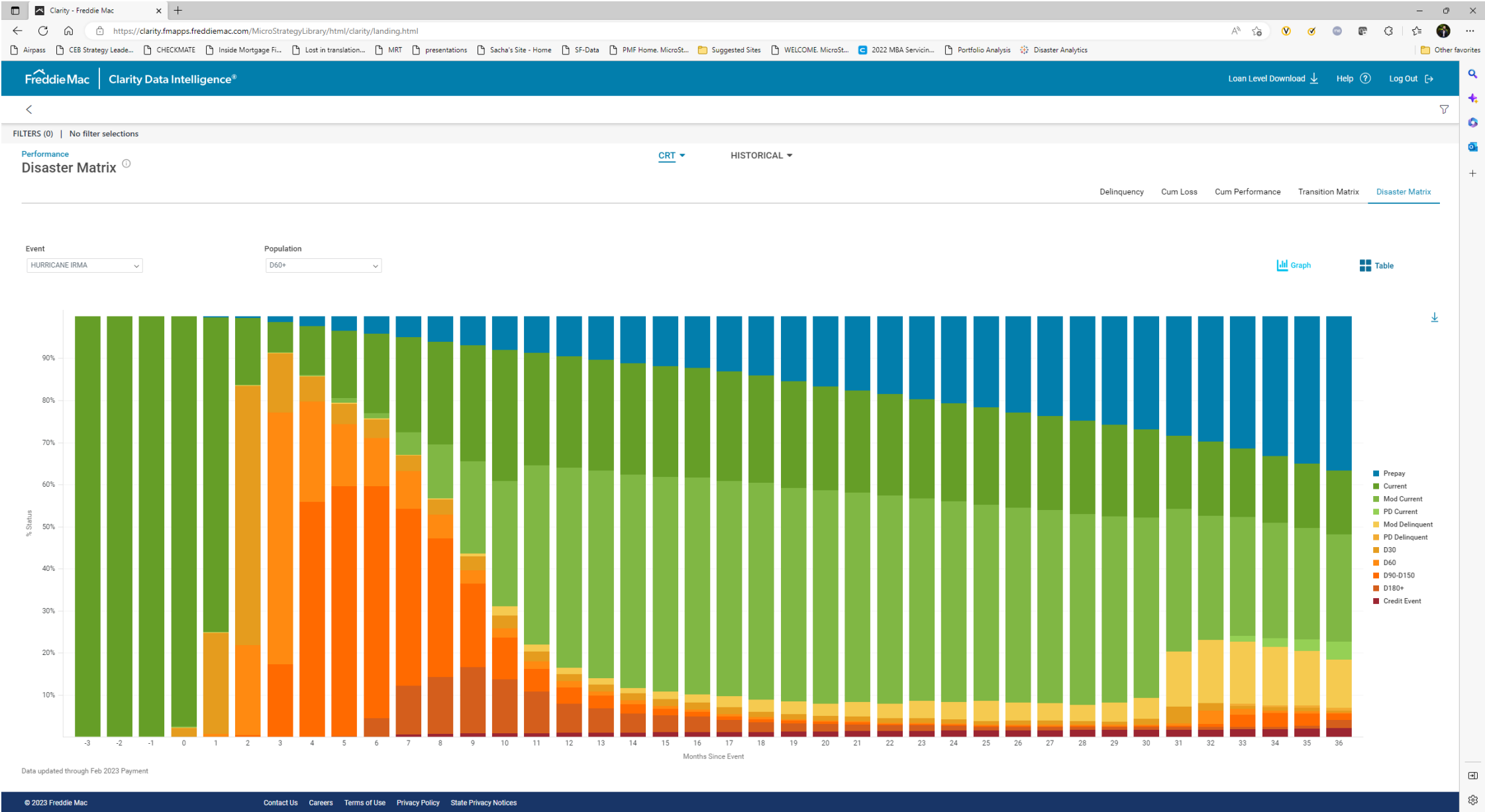


Natural Disasters

Natural Disasters

- We have developed an application that checks FEMA's declaration page daily and maps/tags every loan in the portfolio that is impacted by Individual Assistance
- When large events strike (such as a hurricane), a full analysis on impacts is conducted
 - We leverage several external models to overlay windspeed, path of storm, storm surge, flood, fire boundary (if from wildfire) etc. to better understand risk
 - Most hurricanes show a similar pattern of increase in DQ in the months following, with a return to 'normal' within 12-18 months
 - It is very difficult to link a default with a natural disaster

Hurricane Delinquency Pattern – Example





Climate Risk

Physical Risk

Physical risk stems from the direct and indirect effects of physical hazards whose frequency/intensity may be worsening with climate change

- **Hazards** include:
 - Flood
 - Wind (including hurricanes)
 - Drought and water stress
 - Wildfire
 - Rising temperatures and heat waves
- Physical risk can be mitigated with **insurance, resiliency features** at the building or municipal level, disaster preparation, and disaster relief



Transition Risk



Transition risk stems from the societal and economic transition to a **low-carbon economy**

- **Regulations** that require energy efficiency can result in costly retrofits or fines
- Carbon taxes or strained supply can lead to increased **energy costs**
- Shifting **market demand** and **economic impacts** on carbon energy-intensive sectors
- Transition risk can be mitigated with **energy efficiency**; green mortgage programs help to incentivize efficiency and reduce credit risk



Residential emissions make up 15% of total U.S. emissions



Global emissions need to be cut by 45% by 2030 to keep warming under 1.5C

Municipalities with net-zero commitments will need to address residential emissions



Insurance

Increasing physical hazards make it a challenge for the insurance industry to offer **sufficient and affordable coverage**



Cost

- Premiums increase as a result of rising hazard risk
- Rising premiums increase the overall costs of homeownership



Coverage

- Property owners may purchase only the minimum required insurance
- Insurers and reinsurers may limit or add conditions for coverage



Availability

- For some hazards, in some locations, insurers have retreated
- States are stepping in to provide coverage; may not be sustainable

Borrower Impacts

Impacts will fall disproportionately on low income and minority populations, making it increasingly difficult to sustain safe, affordable housing



Affordability

- **Repair costs** for uninsured damage from physical hazards
- Higher **insurance premiums (or insurance cancellation)** from expectation of higher future risk
- Increased **energy consumption**, rising **utility costs** and **upgrade costs**
- Localized **macroeconomic impacts** leading to unemployment/ reduced income



Property Value

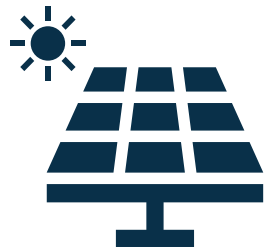
- Price adjustments for **unrepaired damages**
- Decreased demand due to **changing expectations** of future climate risk
- Decreased demand for properties lacking **resiliency and efficiency** features
- Localized **macroeconomic impacts** leading to property devaluation

Climate Scenario Analysis

Climate scenario analysis is a method to assess physical and transition risks based on different climate pathways over time

Climate scenario analysis can help us identify **risks**...

- Properties and locations most vulnerable to climate risks
- Circumstances that may lead to significant losses
- Disproportionate impacts to socially vulnerable communities



...and **opportunities**

- Targeted borrower education efforts
- Initiatives to increase resiliency and energy efficiency of the U.S. housing stock



Questions?



Thank You