Freddie Mac Single-Family | Credit Risk Transfer

Investor Day Virtual Event Series 2020

Thursday | June 11 | 2020

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9:00 – 9:30 a.m.	CEO Perspective David Brickman – Chief Executive Officer, Freddie Mac
	Opening Remarks Mike Reynolds – Vice President, Single-Family Credit Risk Transfer
9:30 – 10:00 a.m.	Economic and Housing Market Updates Sam Khater – Vice President and Chief Economist, Economic and Housing Research
10:00 – 10:30 a.m.	Loss Mitigation Overview Eric Will – Senior Director, Single-Family REO Operations Jennifer Meagher – Director, Single-Family Operations Change Management
10:30 – 11:00 a.m.	Portfolio Management and Analytics Sacha Rosenthal – Vice President, Single-Family Servicing Portfolio Analytics
11:00 – 11:30 a.m.	Operational Efficiencies and Performance Dave Lucchino – Senior Vice President, Single-Family Operations
11:30 – 12:00 p.m.	Panel Discussion: CRT Market Updates Mike Reynolds – Vice President, Single-Family Credit Risk Transfer Ben Walker – Senior Managing Director, Aon Matt Spoerlein – Managing Director, Head of CRT Trading, Bank of America Jim Egan – Executive Director, Morgan Stanley

Freddie Mac Single-Family | Credit Risk Transfer

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CEO Perspective

David Brickman

Chief Executive Officer, Freddie Mac

Freddie Mac Single-Family | Credit Risk Transfer

Investor Day Virtual Event Series 2020

Opening Remarks

Mike Reynolds

Vice President, Single-Family Credit Risk Transfer

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Economic and Housing Market Updates

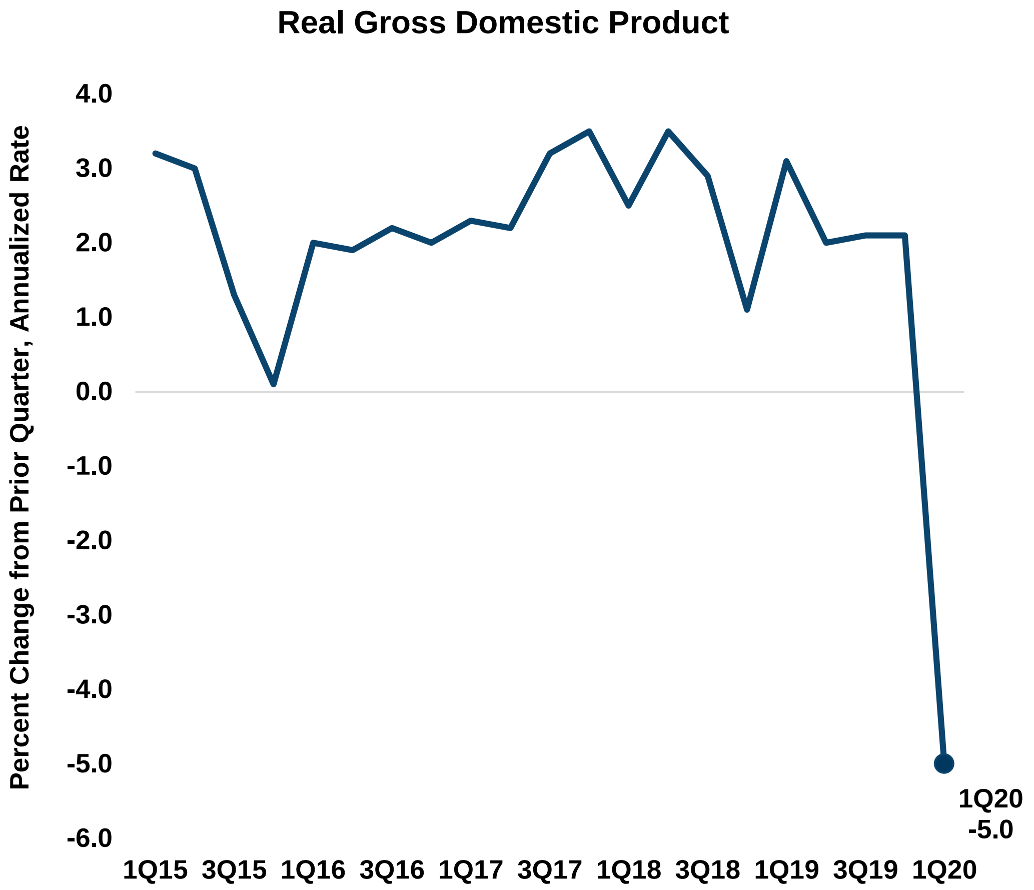
Sam Khater

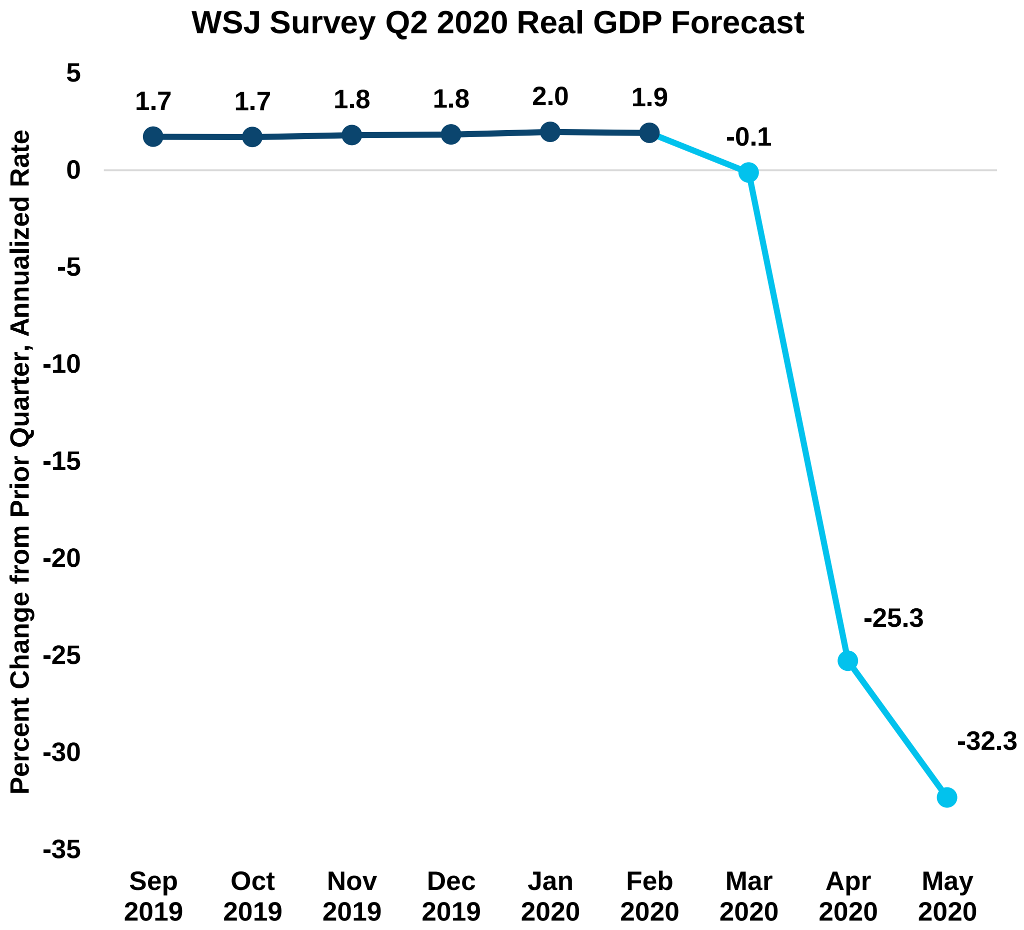
Vice President and Chief Economist,
Economic and Housing Research

Summary

- Economy shrank by 5% in Q1 and is expected to contract by over 30 percent in Q2
- Contraction is not just deep, but very broad and it impacts most industries
- Employment remains 20 million below February but is rebounding faster than expected
- Daily economic transaction data suggest the economy hit bottom in mid-April and has been improving since then
- Residential real estate demand declined at similar rates to broader economy, but the housing market is recovering much faster than most economic segments

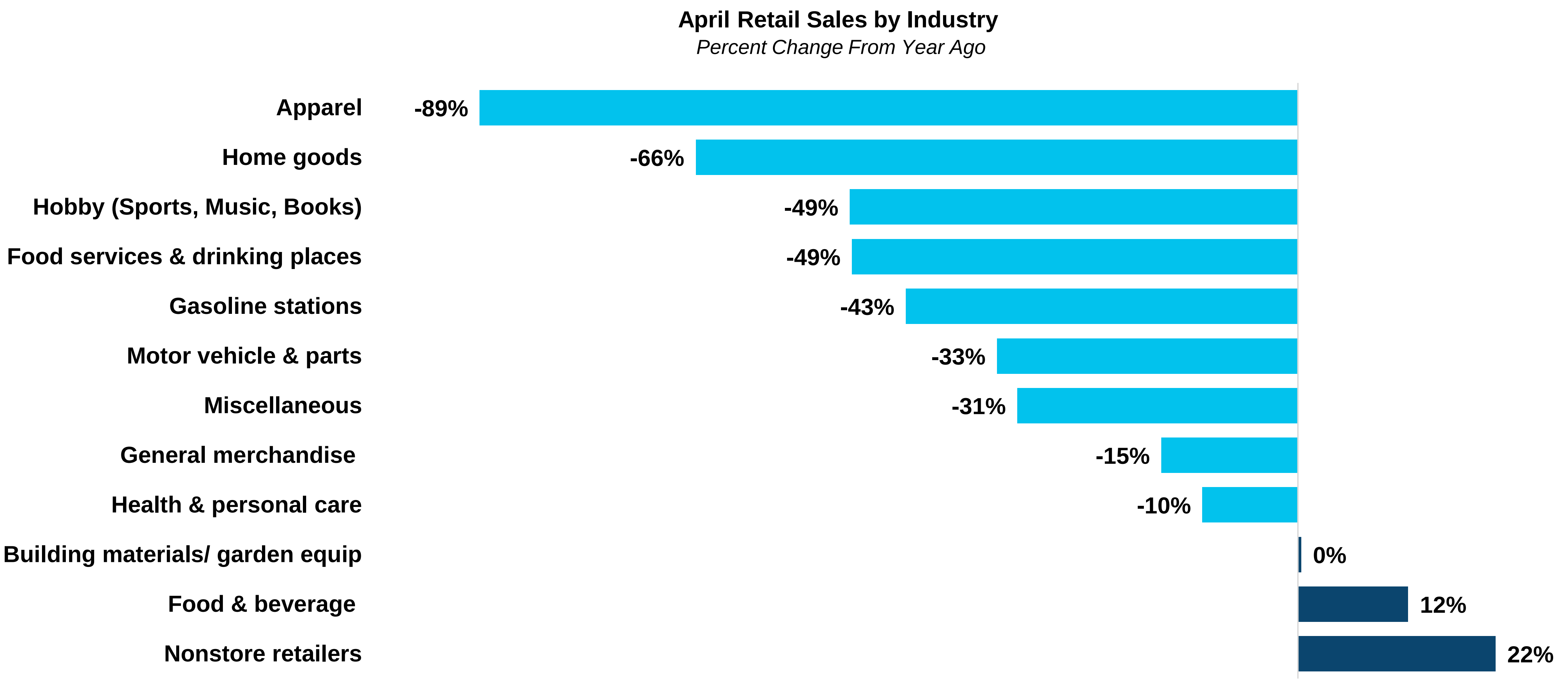
Economic Growth Expected to Contract By Over 30% in Q2





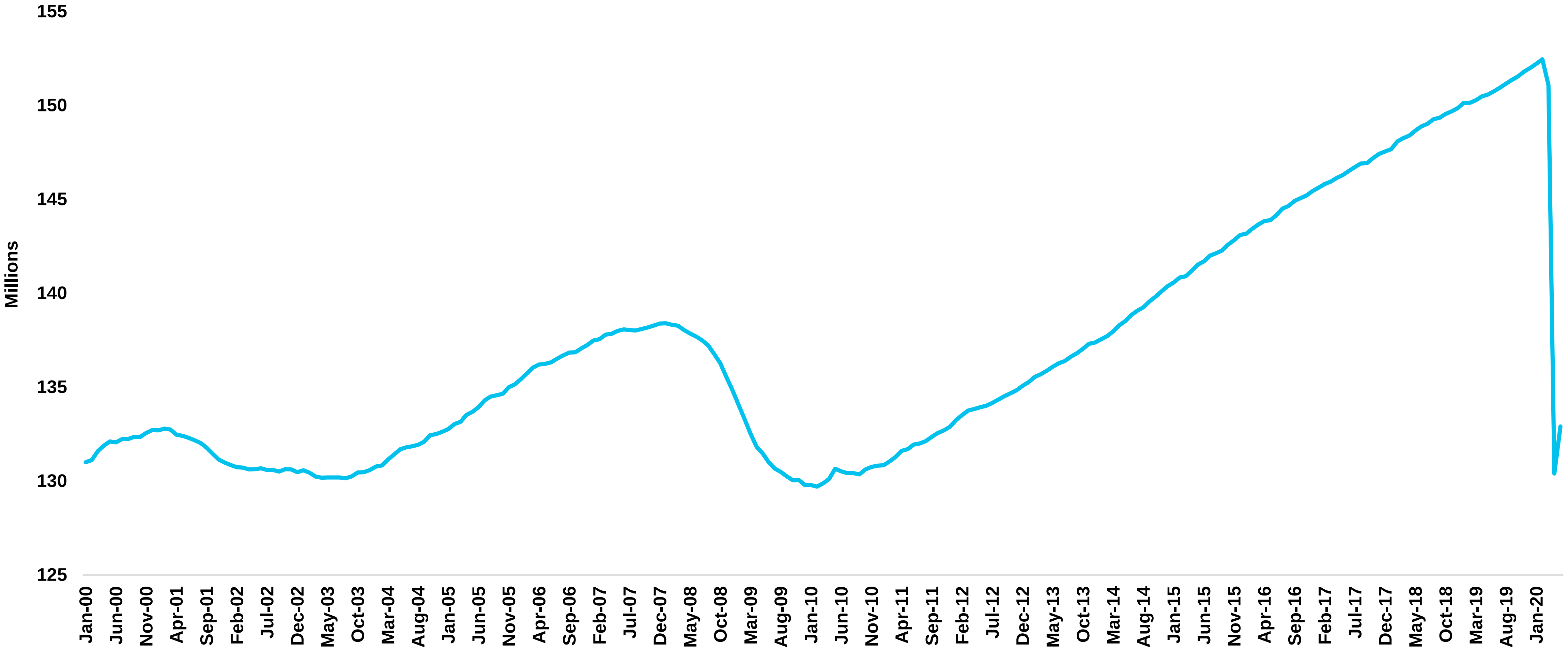
Source: BEA and WSJ May 2020 Survey

Decline in Consumer Spending Occurred Across Most Categories



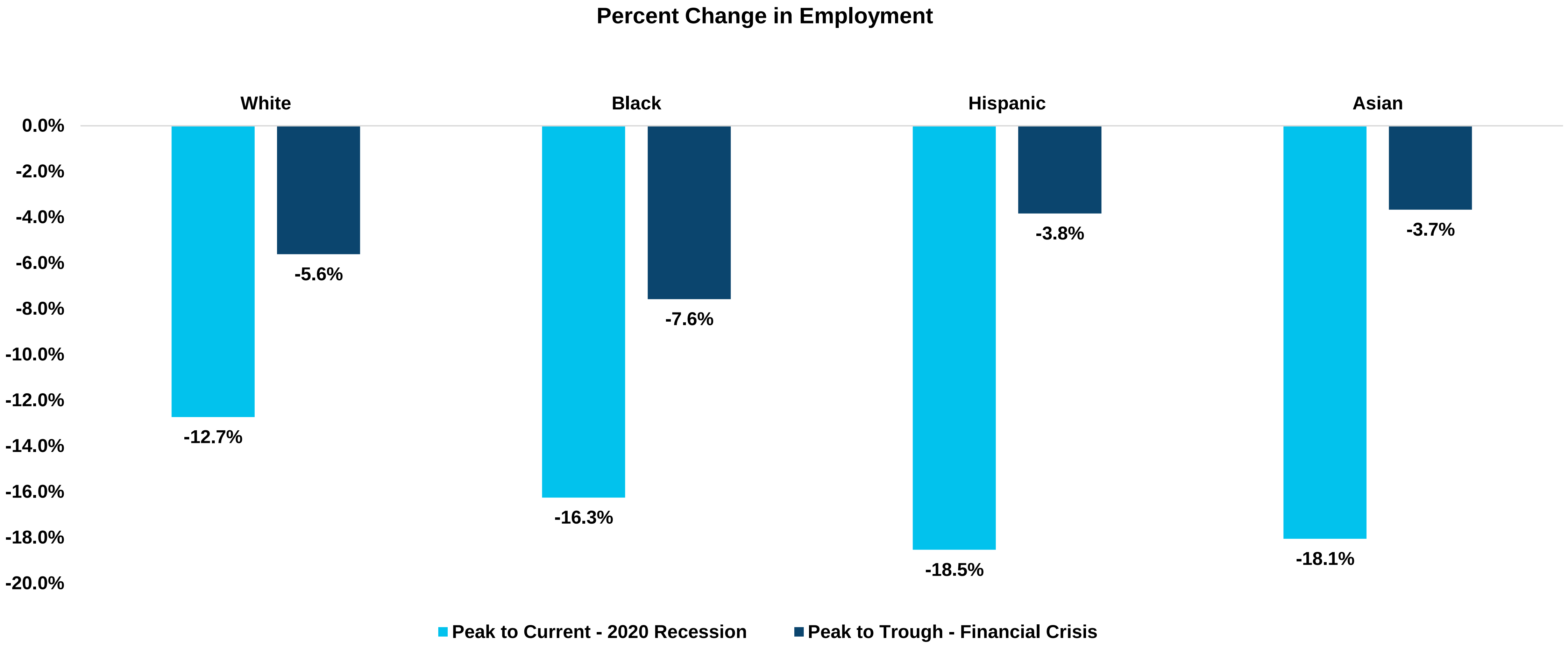
Source: U.S. Census Bureau (BOC): Monthly Retail Trade Report

In May Employment Rose 2.5 Million but Remains 20 Million below February's Level as the Recession Began



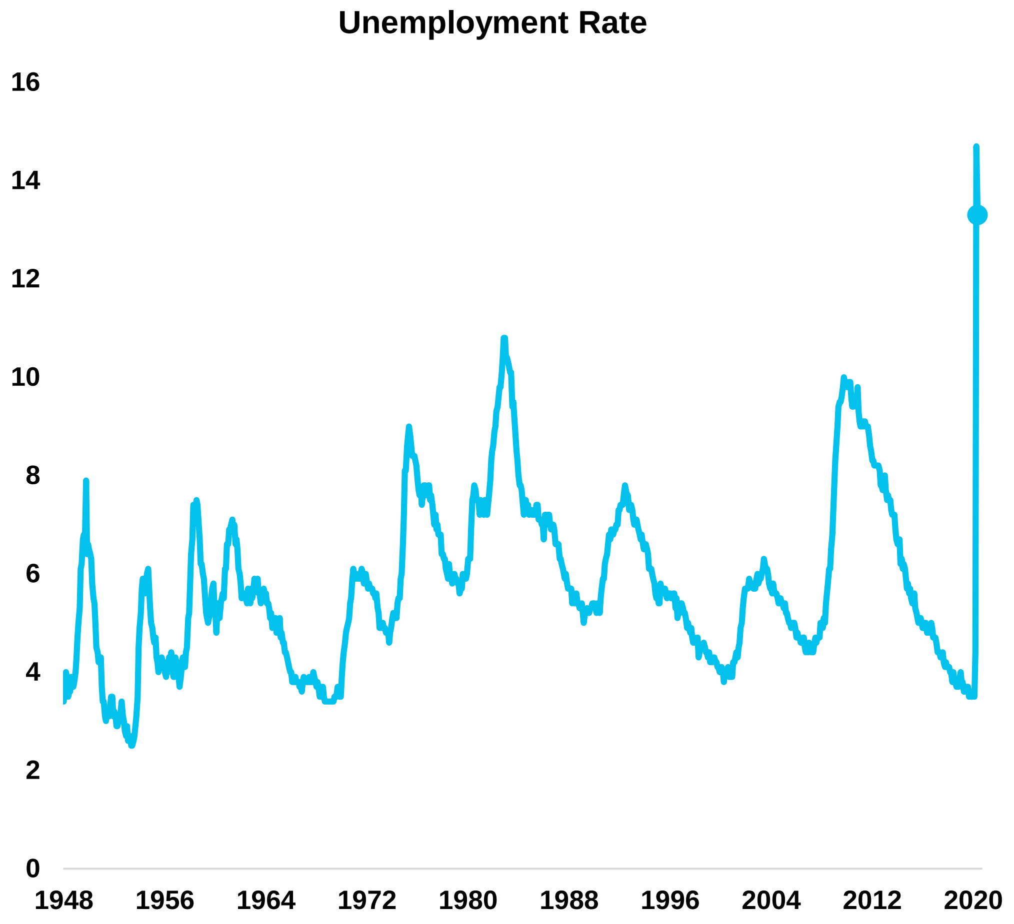
Source: BLS

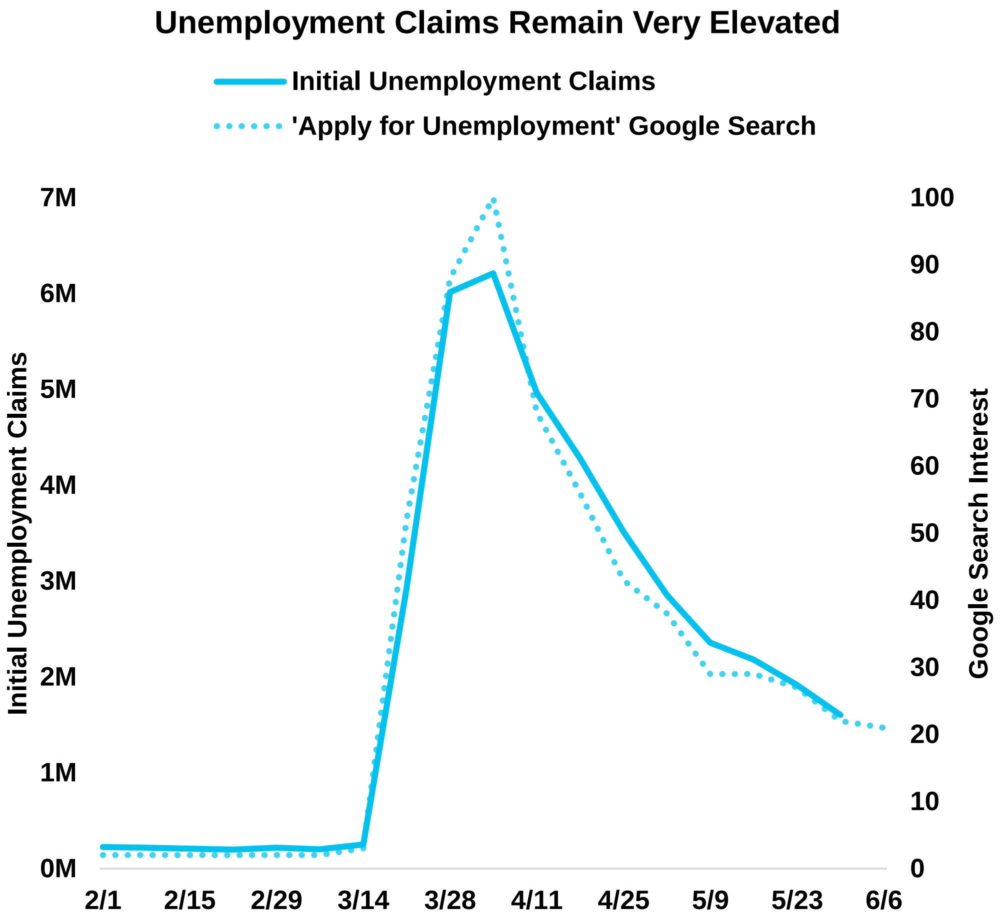
Hispanics and Asians Have Experienced the Largest Declines in Employment, Especially Compared to Financial Crisis



Source: BLS

Unemployment Rate is 13% and Will Likely Remain Elevated for Remainder of Year

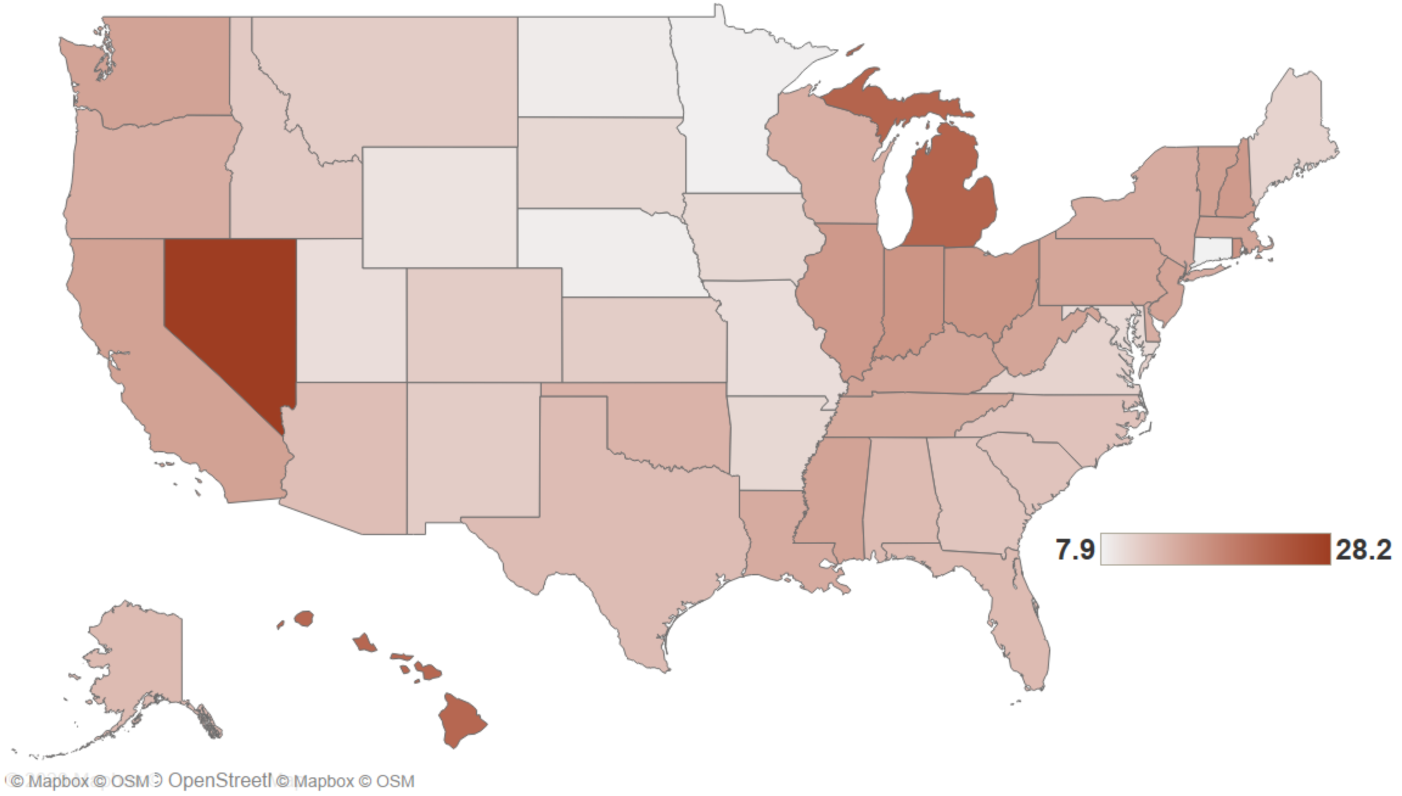




Source: BLS; Google Trends; Note: Numbers represent search interest relative to the highest point on the chart for the given region and time. A value of 100 is the peak popularity for the term. A value of 50 means that the term is half as popular. A score of 0 means there was not enough data for this term.

States Dominated by Leisure, Hospitality and Manufacturing Experienced the Largest Rise in Unemployment

April 2020 Unemployment Rate by State



Top 10 States

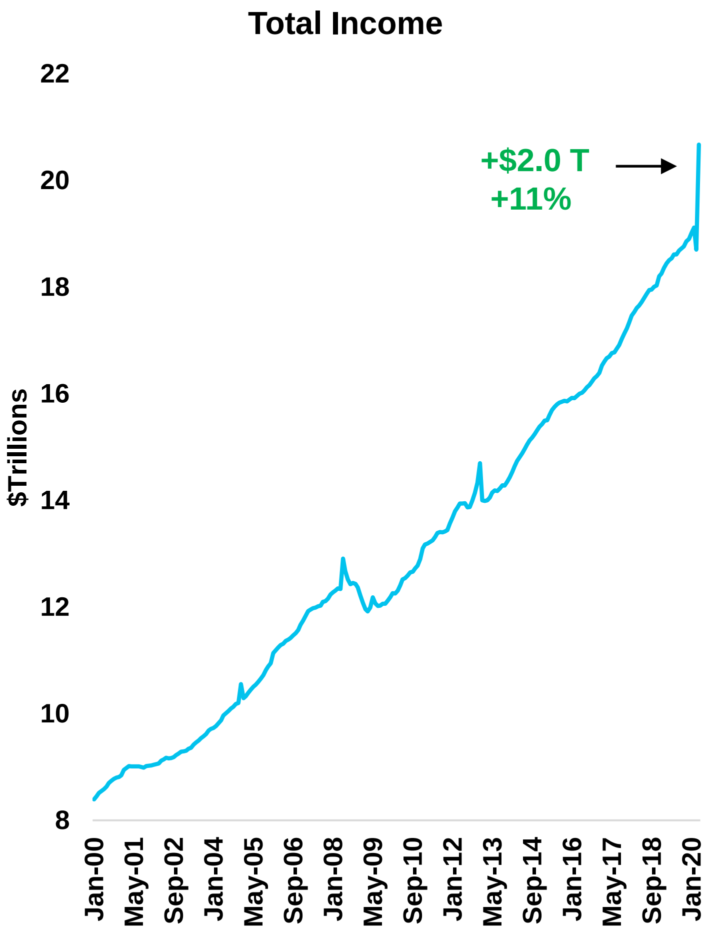
Nevada	28.2
Michigan	22.7
Hawaii	22.3
Rhode Island	17.0
Indiana	16.9
Ohio	16.8
Illinois	16.4
New Hampshire	16.3
Vermont	15.6
California	15.5

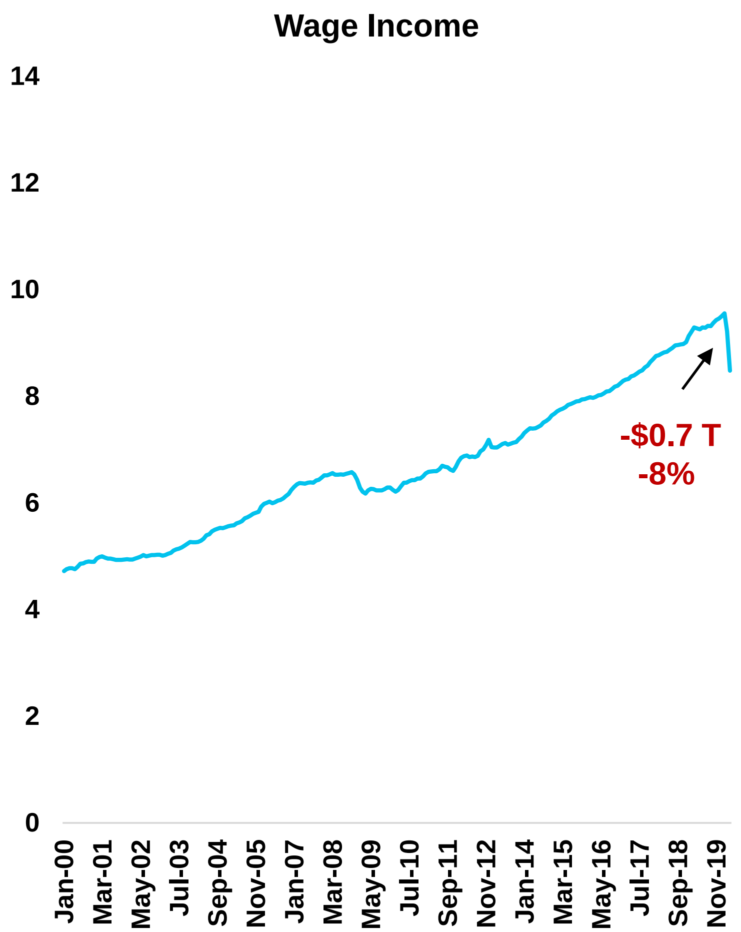
Bottom 10 States

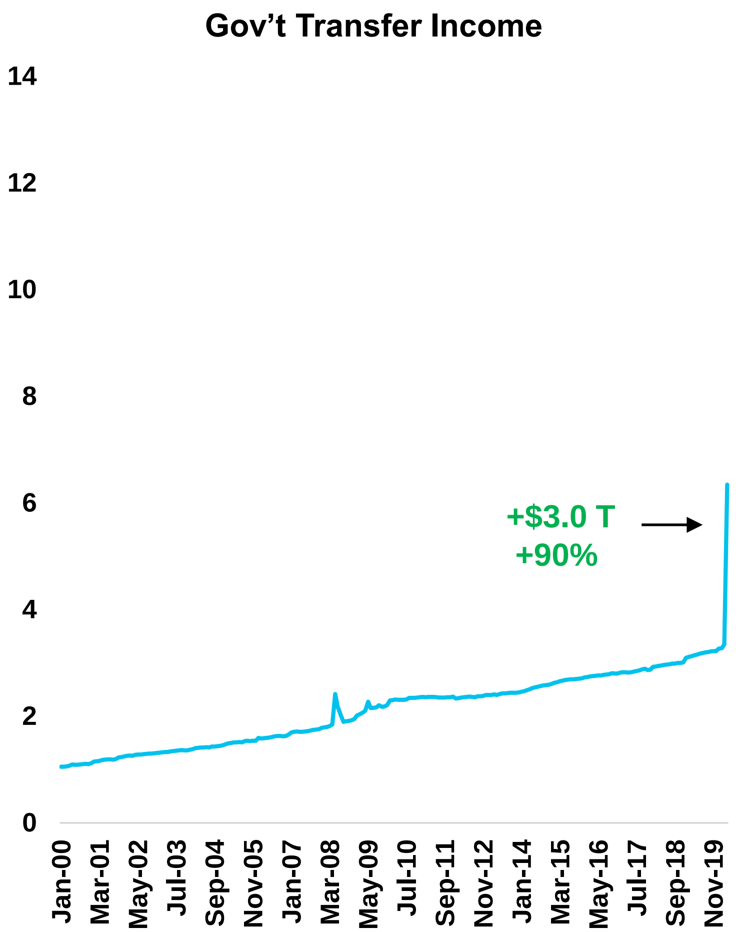
Iowa	10.2
Arkansas	10.2
Maryland	9.9
Utah	9.7
Missouri	9.7
Wyoming	9.2
North Dakota	8.5
Nebraska	8.3
Minnesota	8.1
Connecticut	7.9

Source: BLS

Personal Income Rose a Record $2 Trillion in April, But the Rise Was Driven Entirely by the Economic Stimulus

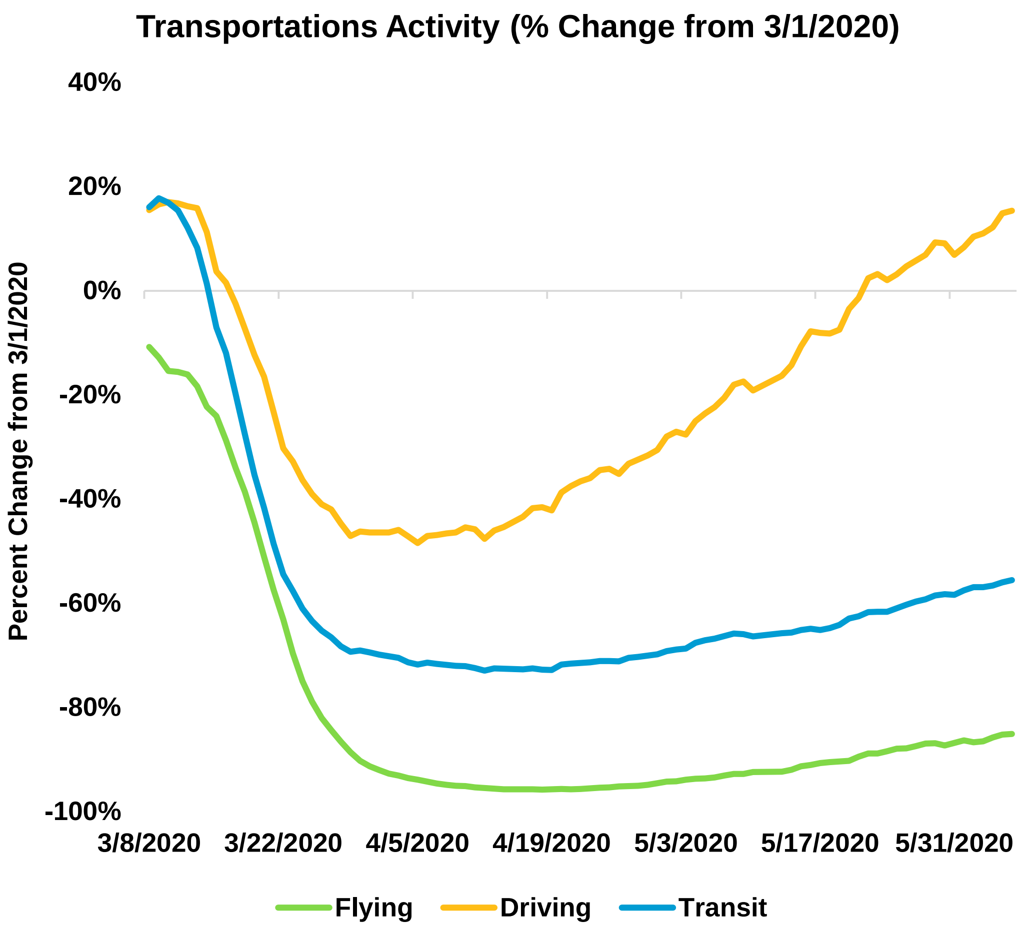


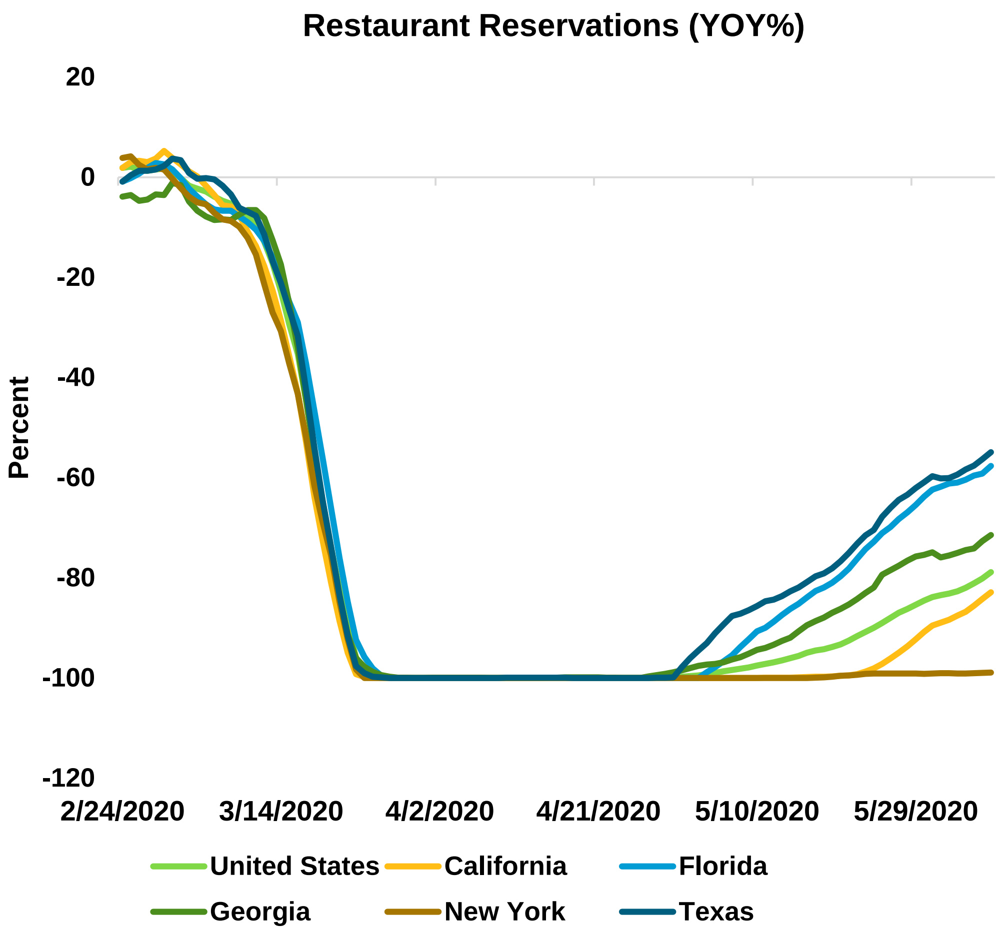




Source: BLS

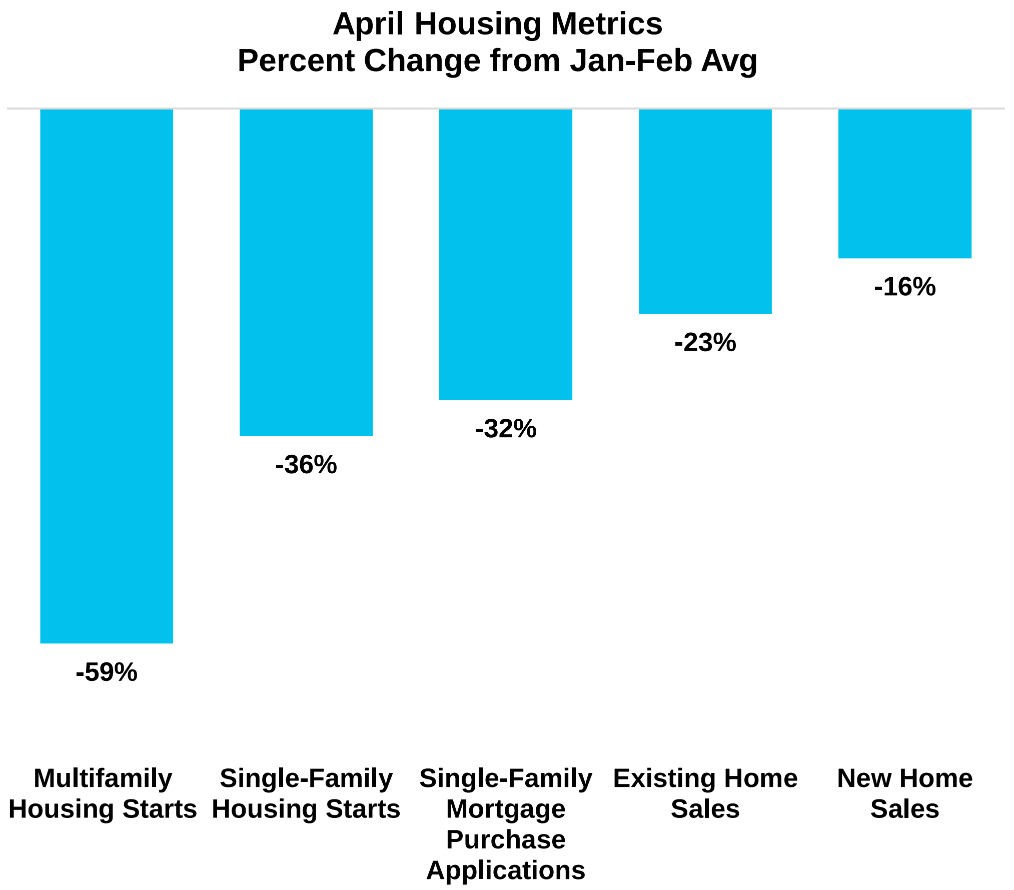
Economy Opening Up, but Still Far Below Pre-Recession Levels

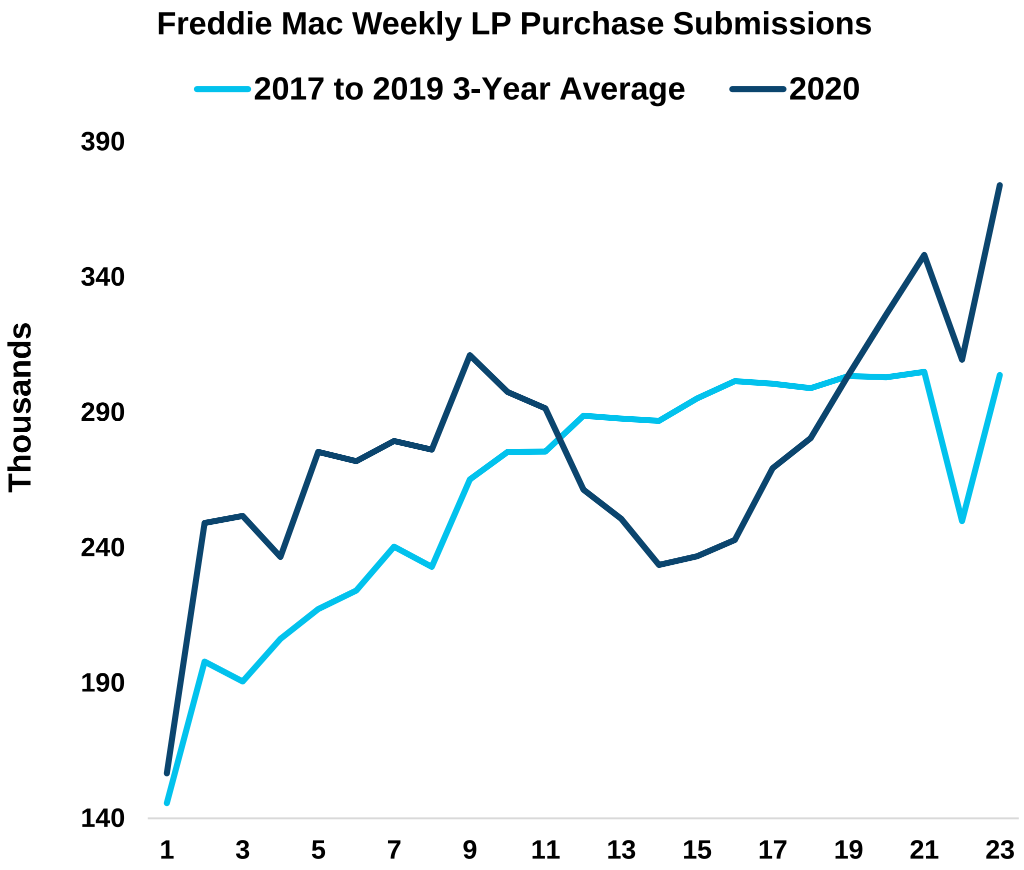




Source: Apple, TSA, OpenTable. Note: 7 Day Moving Average

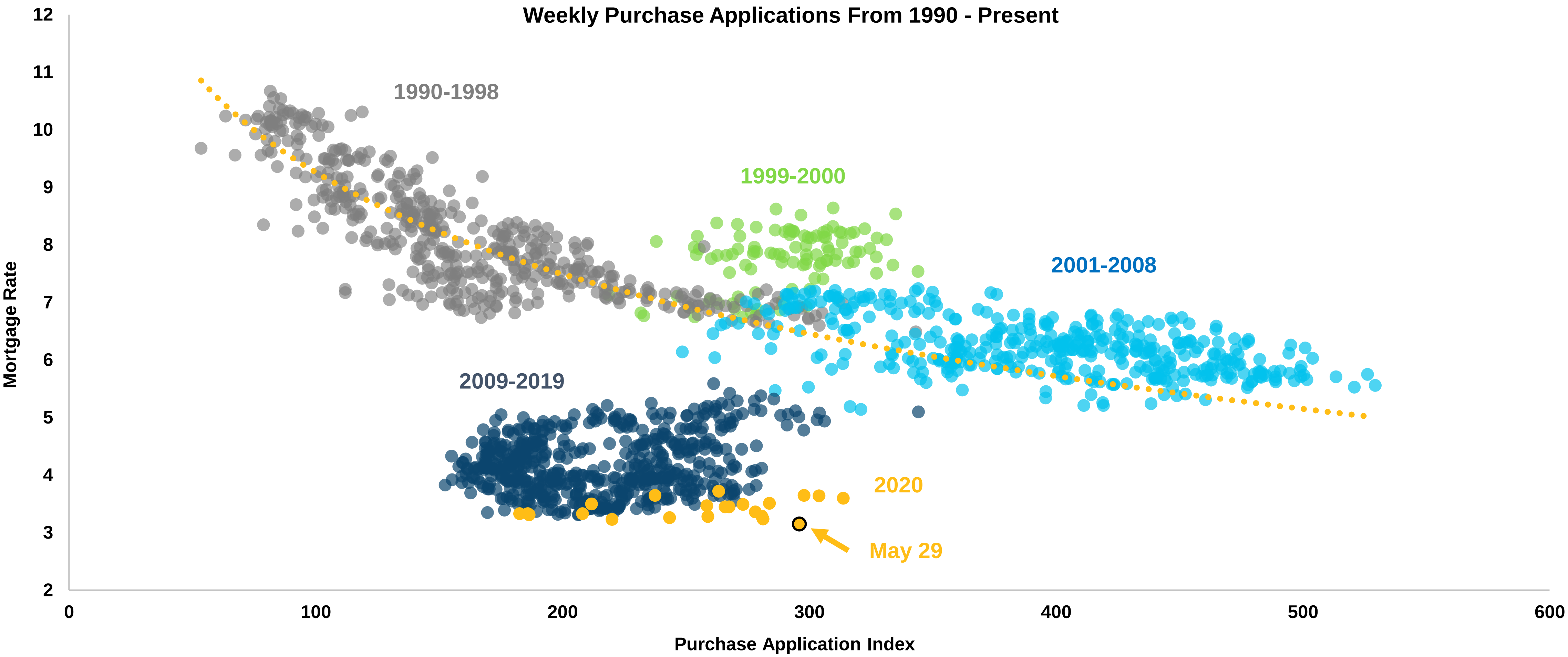
Despite Large Decline in Housing Data, Purchase Applications Data Suggest Single-Family Demand is Quickly Recovering…





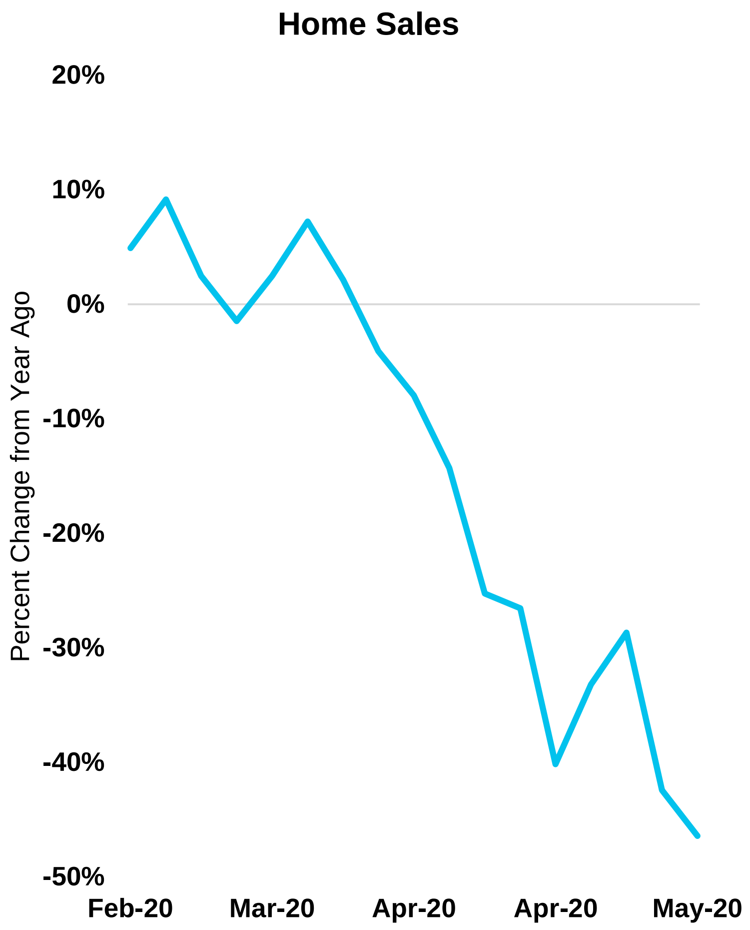
Note: Freddie Mac weekly data aggregated Friday to Saturday, similar to MBA Index
Source: Freddie Mac, MBA and Bureau of the Census

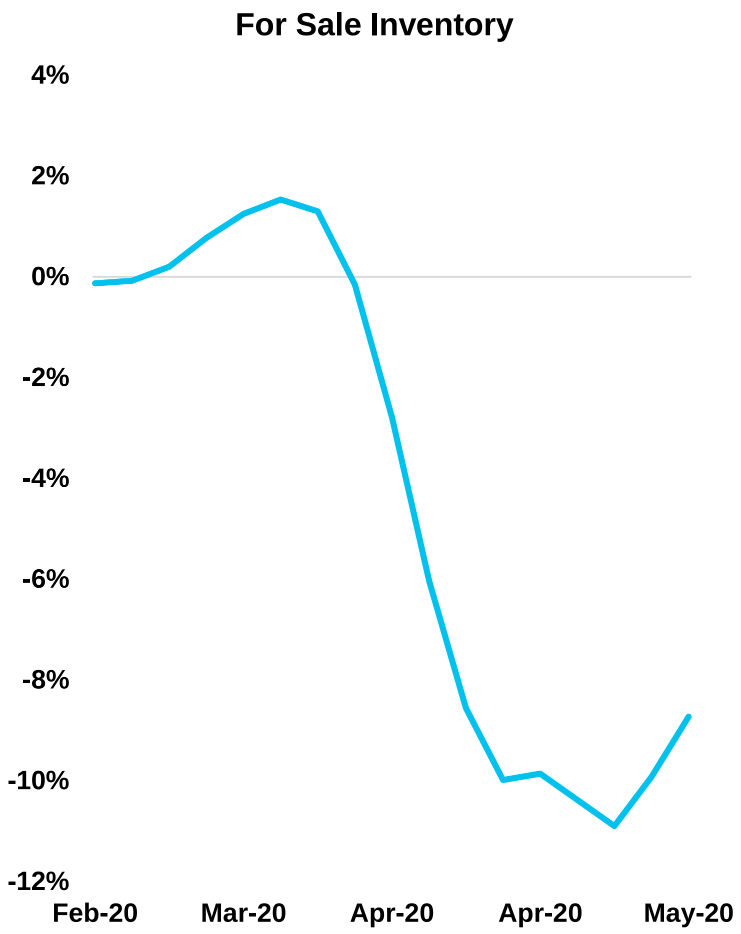
…Unlike the Last Recession Where Demand Remained Low for Nearly a Decade

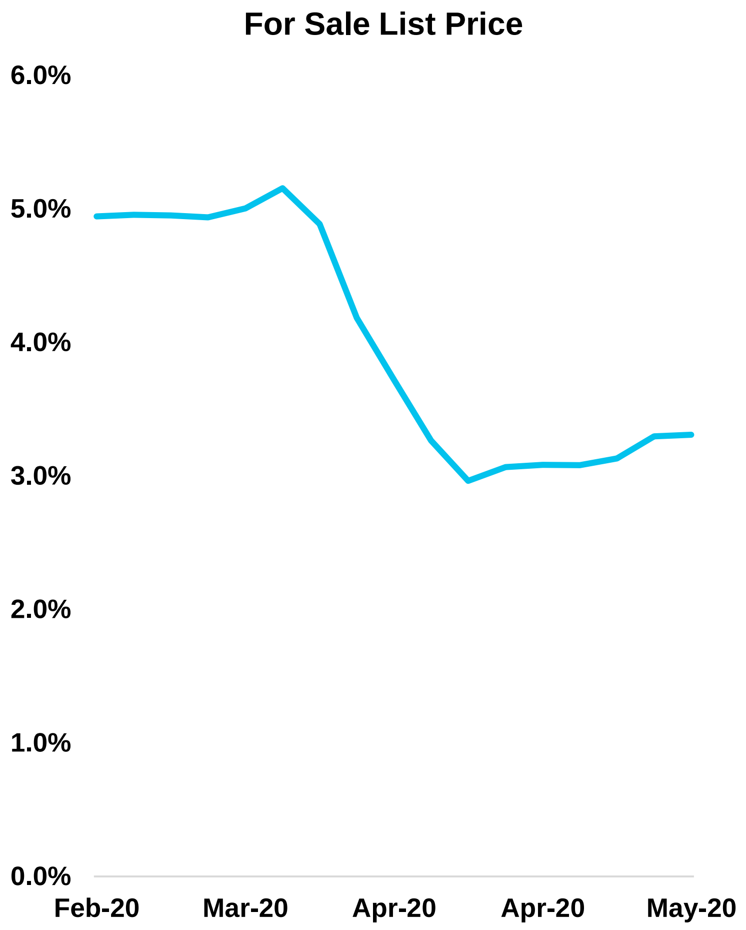


Source: Freddie Mac and MBA

Home Sales Declining while Inventory Increasing, List Price Growth Softening

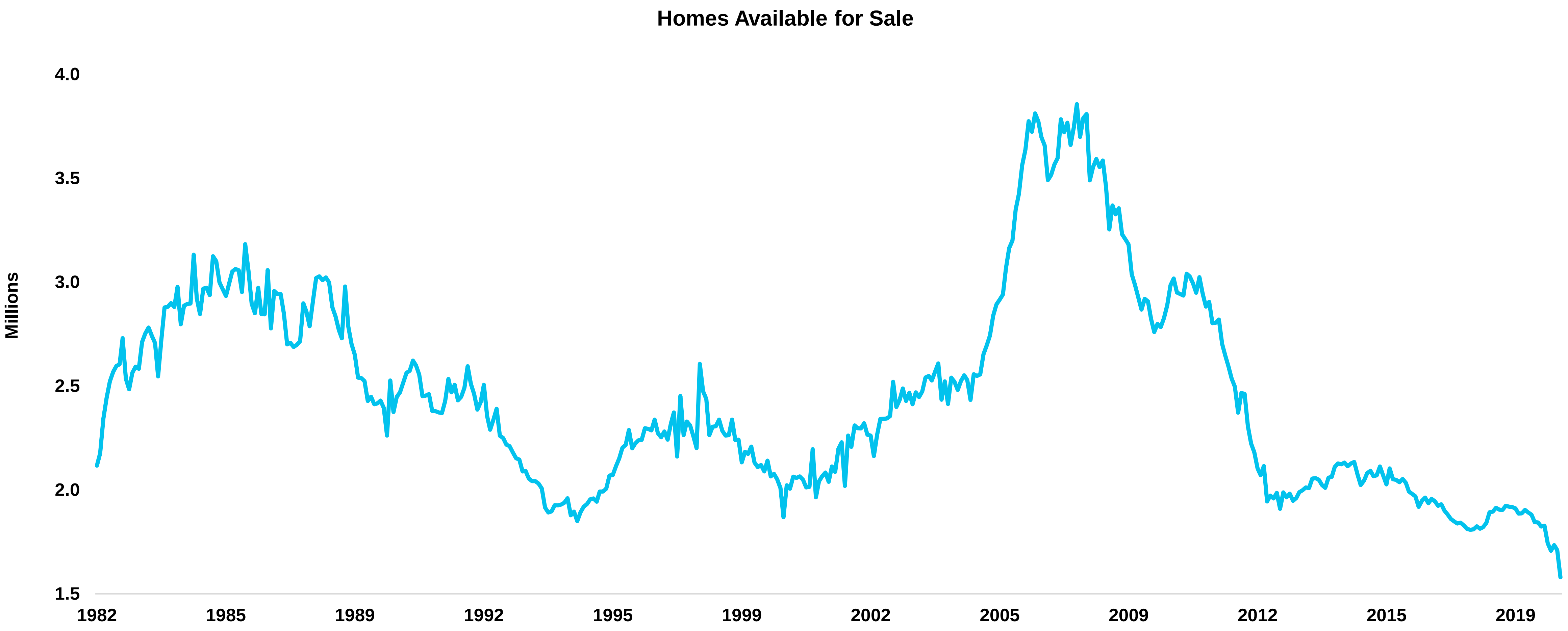






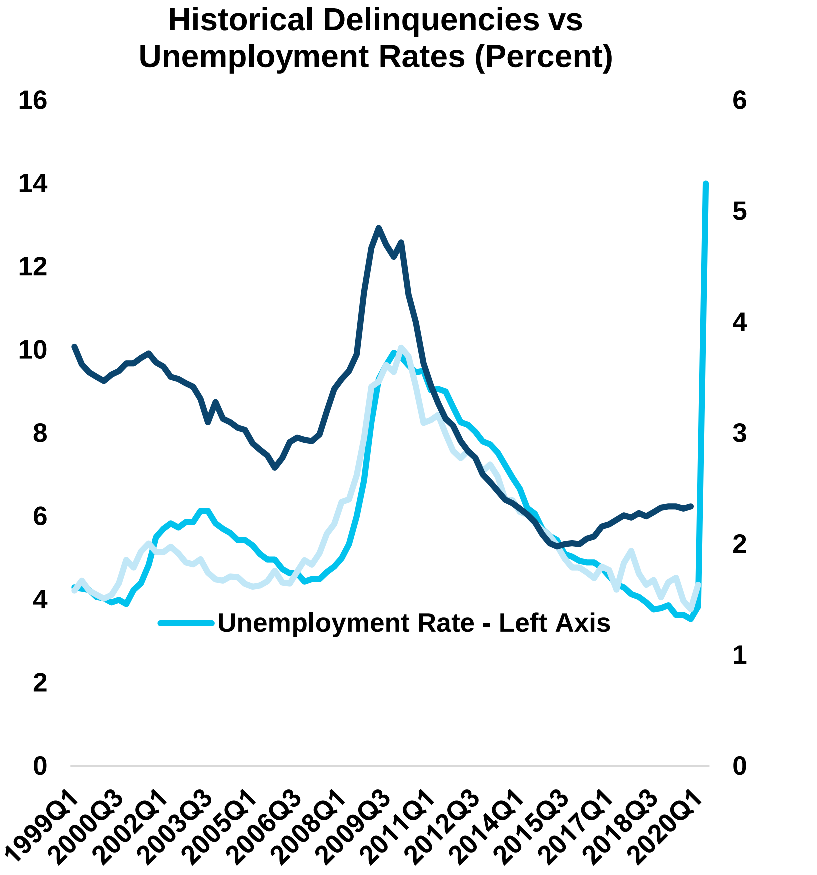
Note: Data is a two week moving average through May 27th. Source: CoreLogic

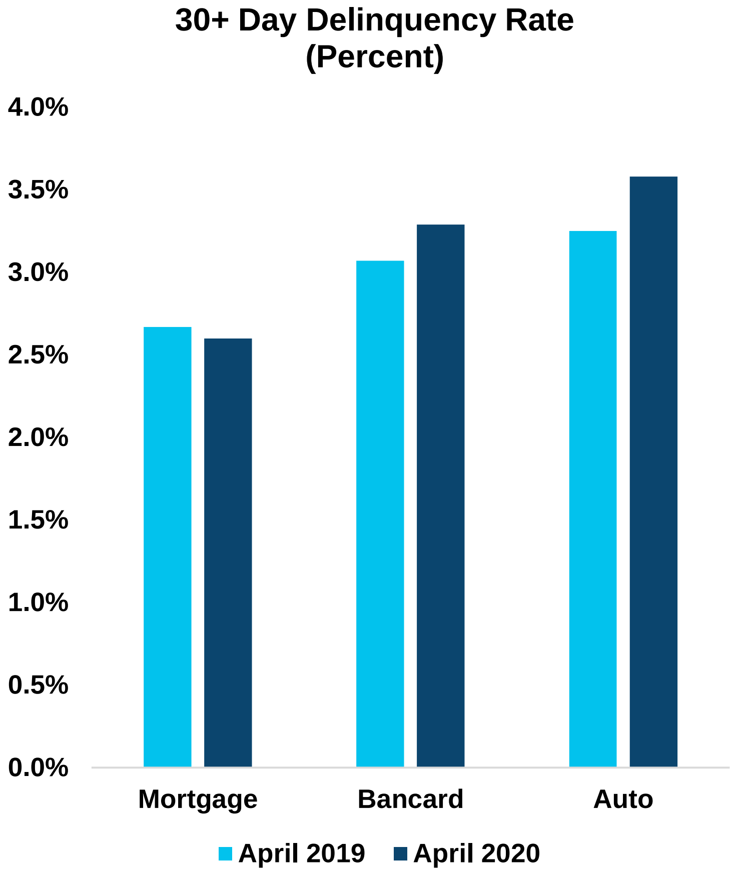
Inventory of Unsold Homes is at Historic Lows and Will Provide Support to Home Prices

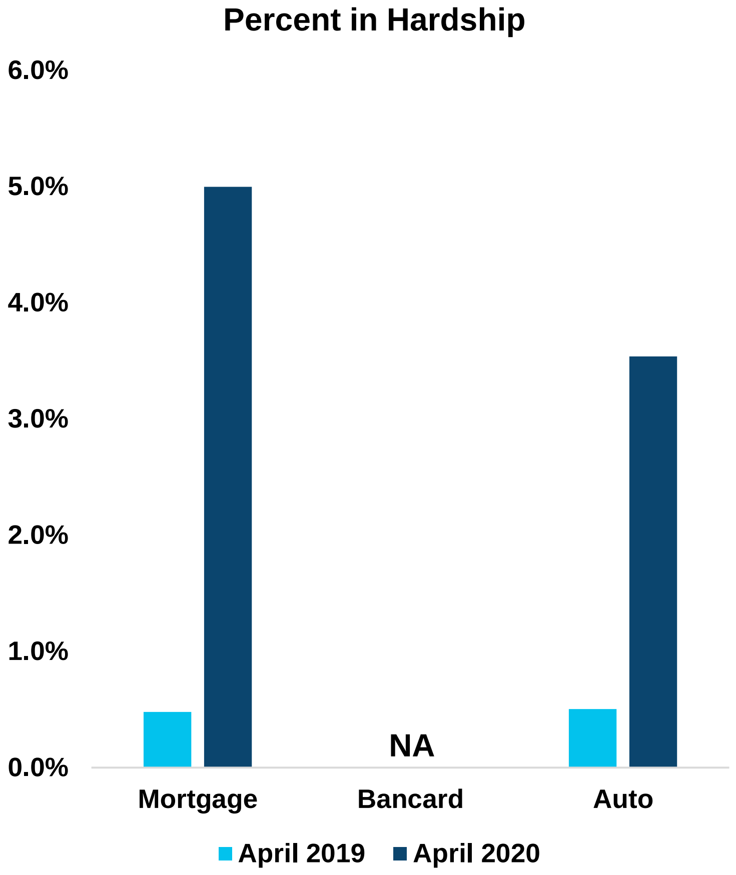


Note: Excludes condo & co-ops
Source: National Association of Realtors

Consumer Credit Cycle Was Worsening Prior to Recession and Impact on Official Delinquencies Remains Small, but Large Impact Captured in Hardships Exists

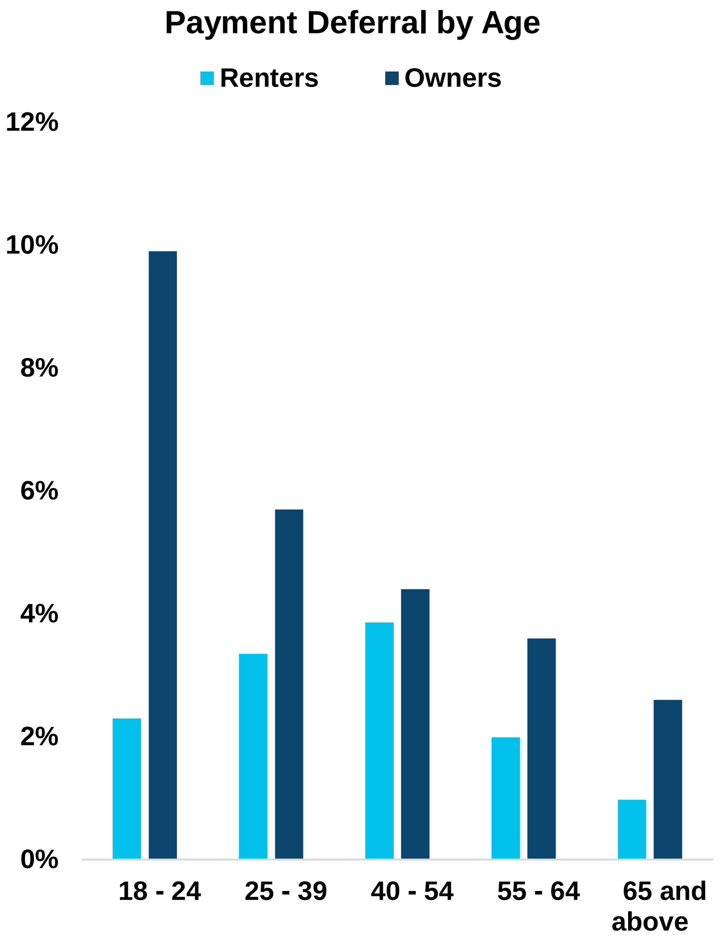


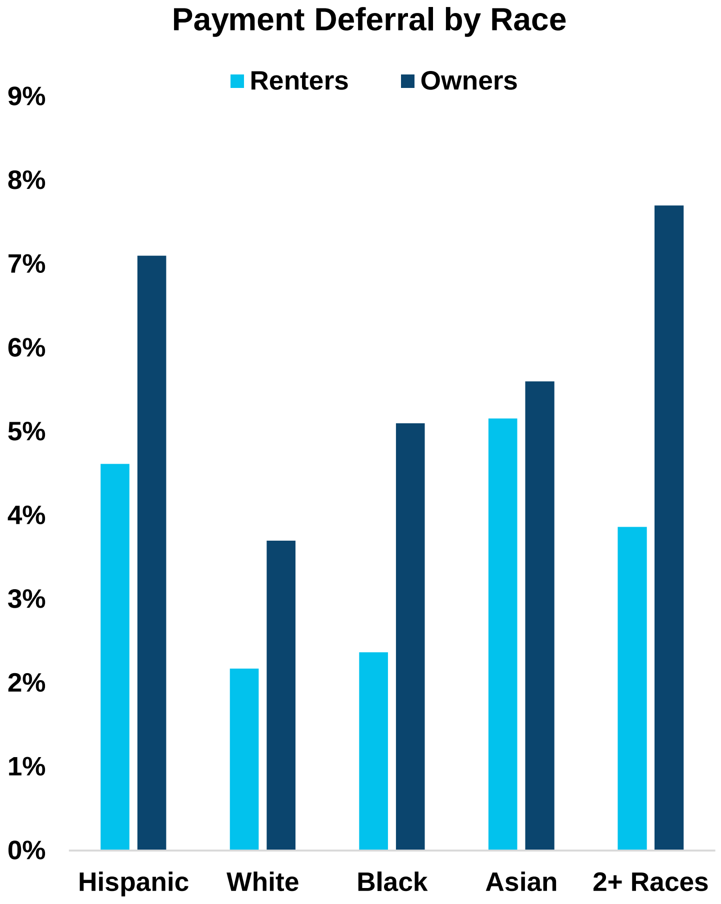


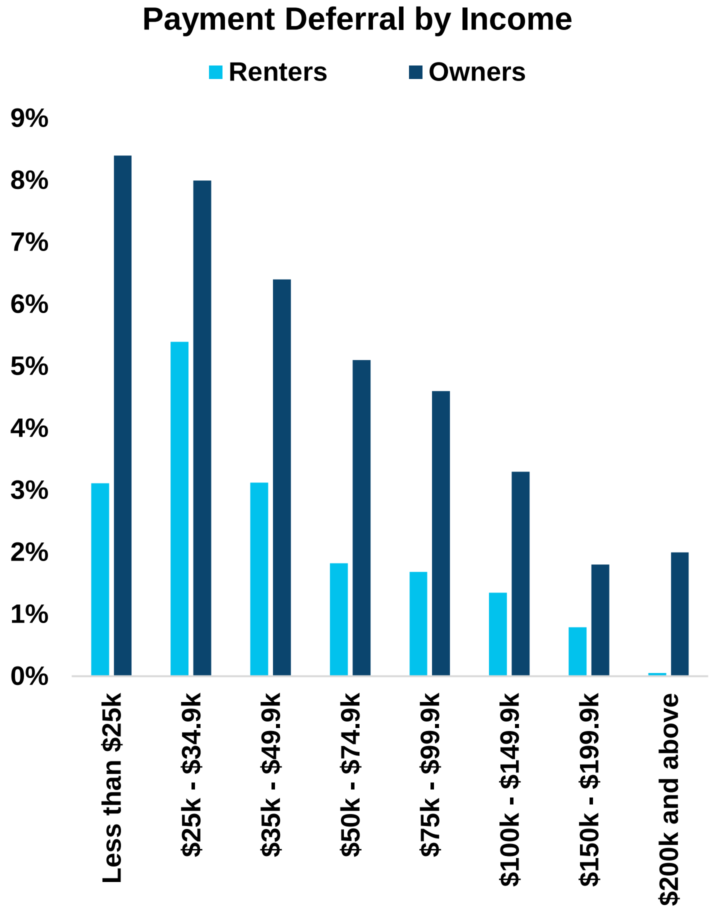


Source: FDIC, MBA, Transunion, Federal Reserve Bank of New York and BLS

Homeowners Deferring Payments More than Renters and Hispanics/Asians More Impacted than Blacks







Source: May US Census Bureau Household Pulse Survey

Questions?

If we missed your question today, please email: **Fixed_Income_Marketing@freddiemac.com**

Corporate HQ
1551 Park Run Dr
McLean VA 22102

Freddie Mac Single-Family | Credit Risk Transfer

Investor Day Virtual Event Series 2020

Servicing Operations / REO Overview

Eric Will

Senior Director, Single-Family
REO Operations

Jennifer Meagher

Director, Single-Family
Operations Change Management

Agenda

01 **Mission**

02 **Business Model**

03 **Core Competencies**

04 **Key Accomplishments**

05 **Portfolio Overview**

06 **Business Drivers & Focus**

Mission

To effectively manage Freddie Mac's *credit losses* in a way that maximizes financial recoveries and supports *community stabilization*.

Credit Loss Management

- Improve Collateral Values
- Manage Expenses
- Maximize Remedies

Community Stabilization

- Preserve, Maintain, & Repair
- Price Homes At Fair Market Value
- Non-Profit / Owner Occupant Priority

Business Model

Freddie Mac utilizes the asset management firm Radian Real Estate Management (RREM), to perform the core REO disposition activities using its vendor network.

REO Core Process

Outsourced With Freddie Mac Oversight

RREM and its vendors are required to use Freddie Mac systems, follow detailed policies & procedures, and utilize proprietary methodologies for valuation, pricing, and repair decision-making.

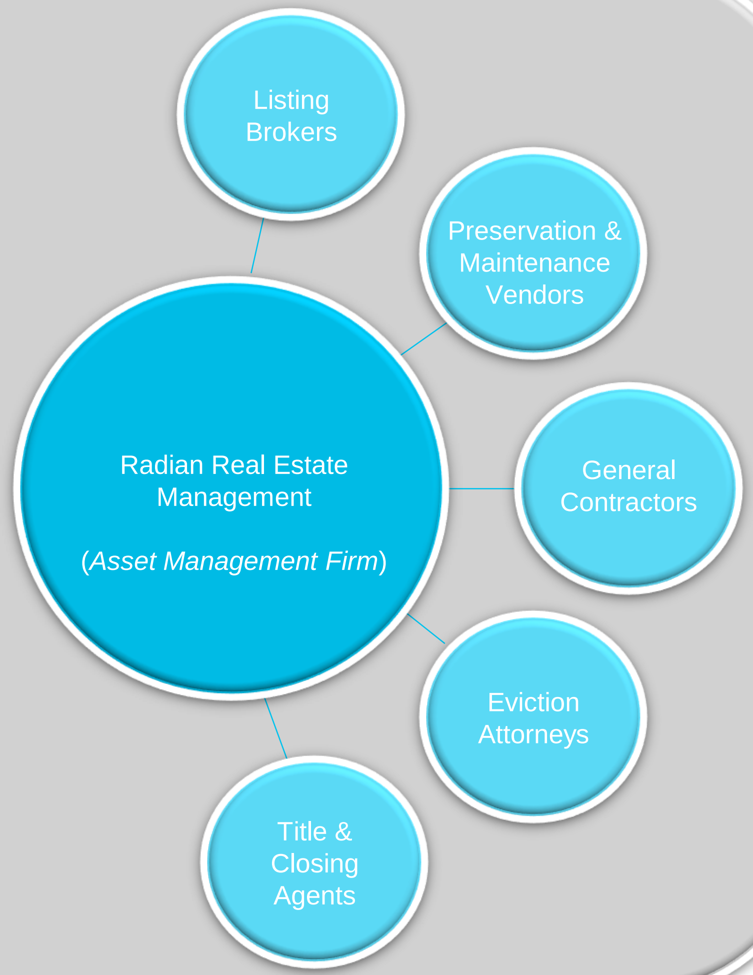
REO Support & Financial Functions

Managed By Freddie Mac Staff

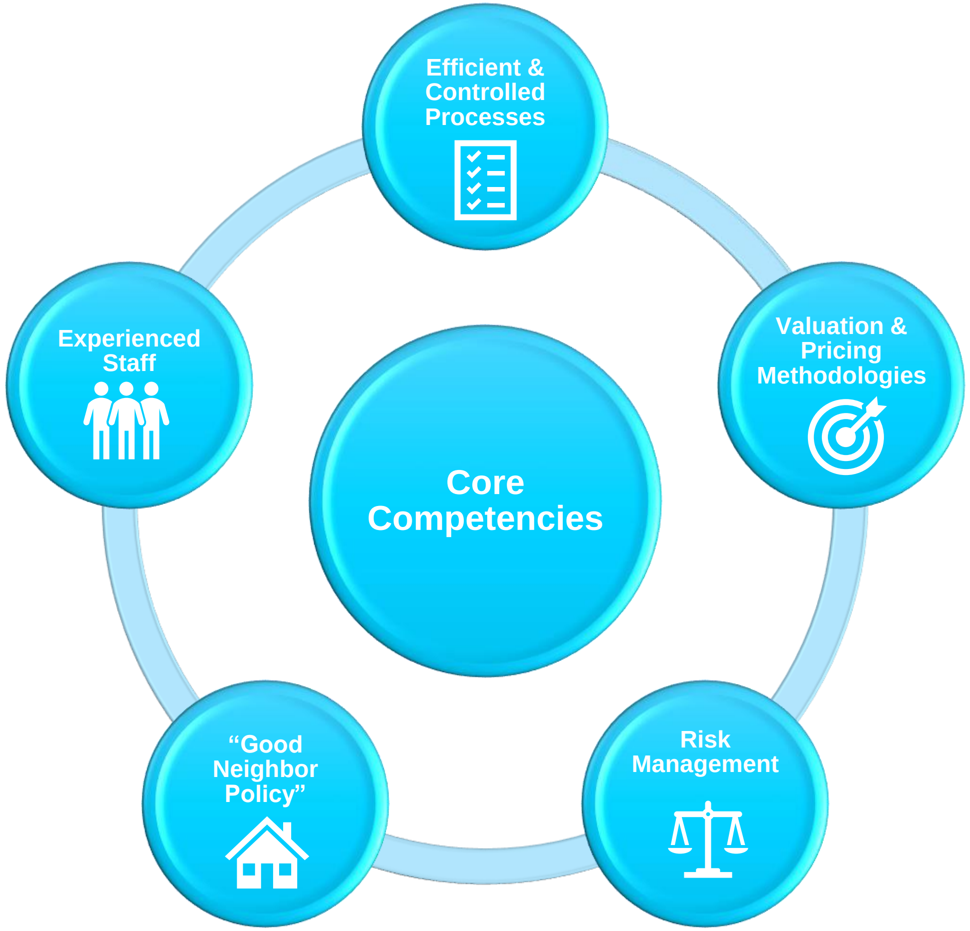
Freddie Mac staff perform oversight monitoring, support, and financial functions.

Freddie Mac

- *Oversight*
- *Support*
- *Financial Functions*

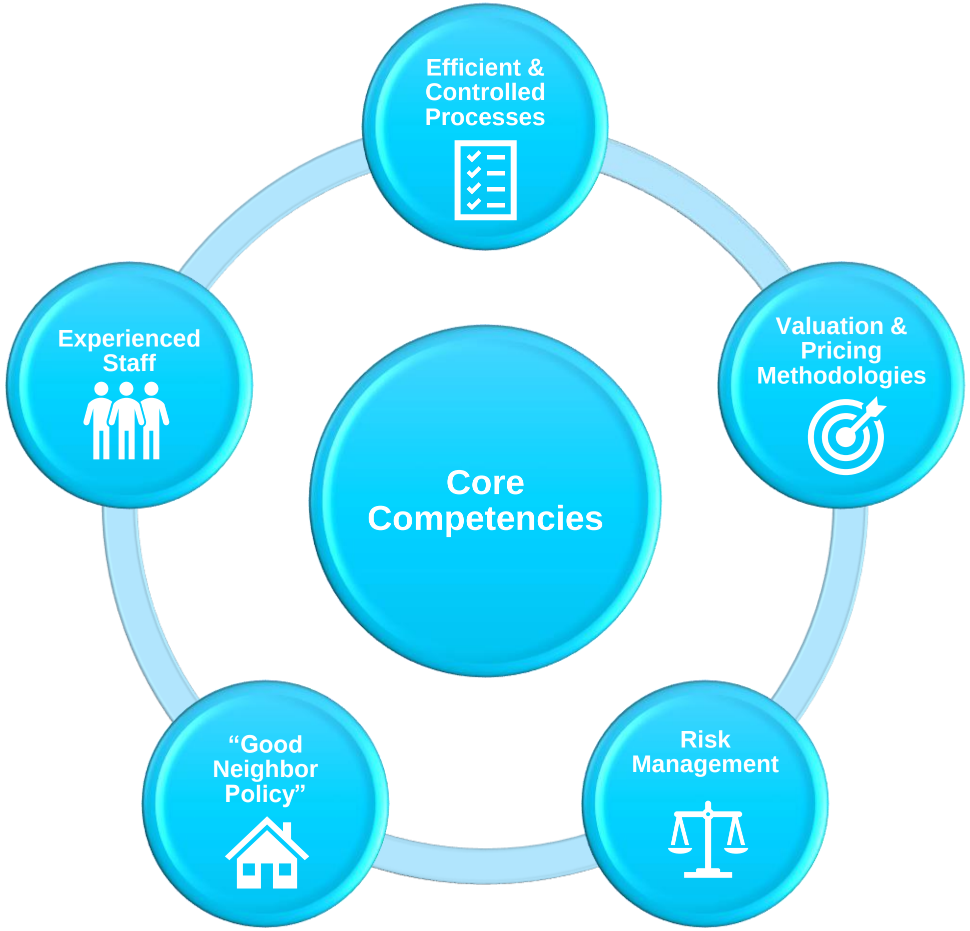


Core Competencies



Freddie Mac heavily invested in enhancements to our business model, processes, people, vendor networks, and systems in response to the significant increase in REO inventory resulting from the last housing crisis. As the inventory has returned to pre-crisis levels (*and lower*), we continue to refine and streamline those processes.

Core Competencies



Mature, efficient, and controlled disposition processes that helped us effectively manage our REO portfolio during the last financial crisis. Processes are continually refined as business and market conditions change.

Extensive disposition data and analytics used to develop pricing models and disposition strategies to maximize collateral recoveries.

Proven financial, liability and reputation risk management practices.

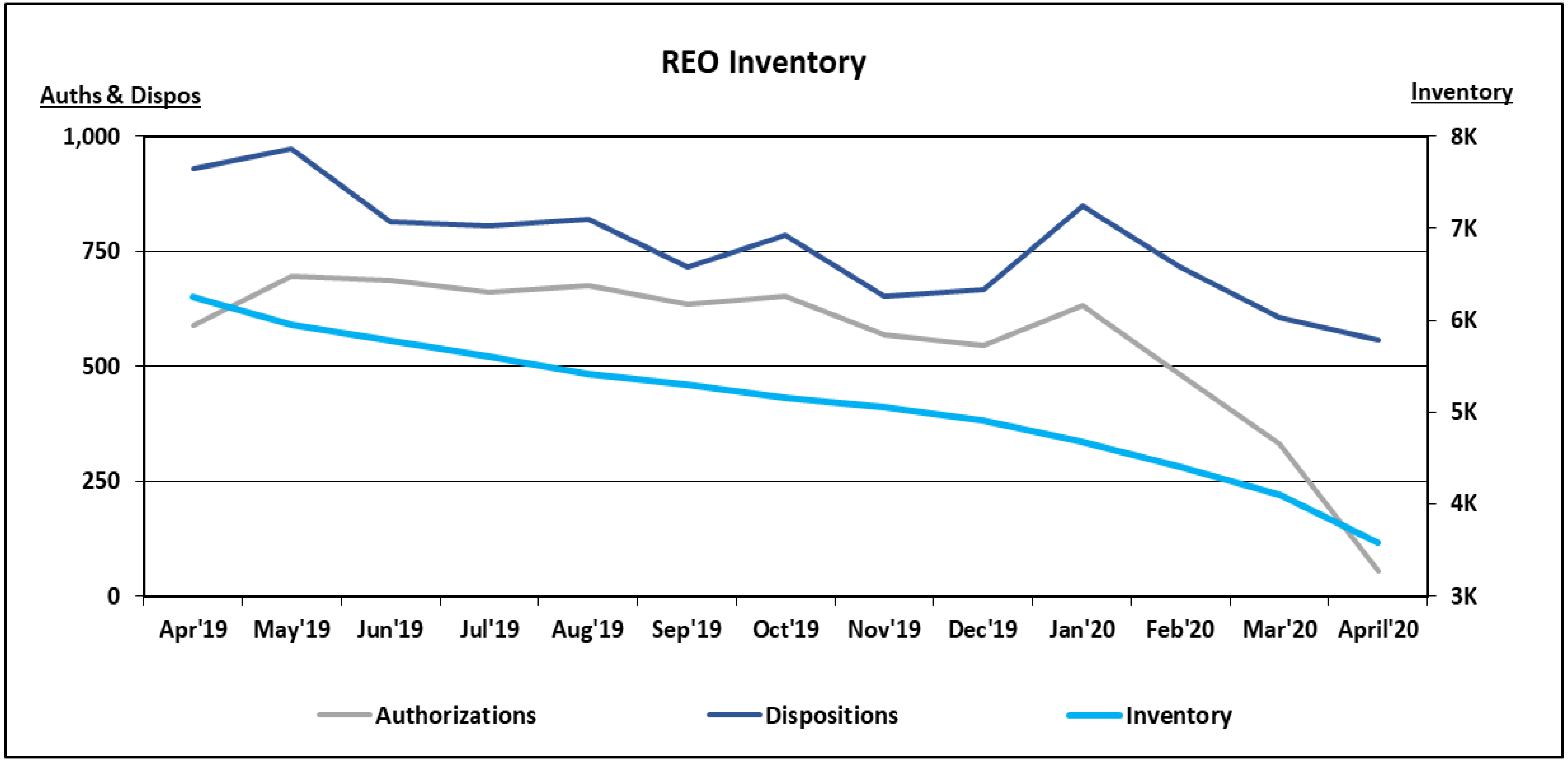
REO homes are properly maintained and priced to protect communities. Nonprofit / Owner Occupant exclusive purchase opportunities.

Experienced and tenured staff & management team.

Key Accomplishments *(Since 2009)*

- Sold over 572,000 homes, recovering approximately 95% of our established market value.
- 66% of our homes have been sold to owner occupant buyers.
- Paid approximately 12.3M invoices and $5.5B in property expenditures, leveraging volume to reduce costs.
- Collected over $13.5B in remedies from mortgage insurance, repurchase, make-wholes, hazard insurance and redemptions.
- Implemented new pricing and disposition strategies that have generated more than $800M in improved collateral recoveries.
- Reduced overall timelines by 45+ days and losses per asset by $24K
- Continued to streamline our processes and systems to create improved controls and efficiencies.
- Implemented *Imagine REO* removing all REO responsibilities from our Servicers.

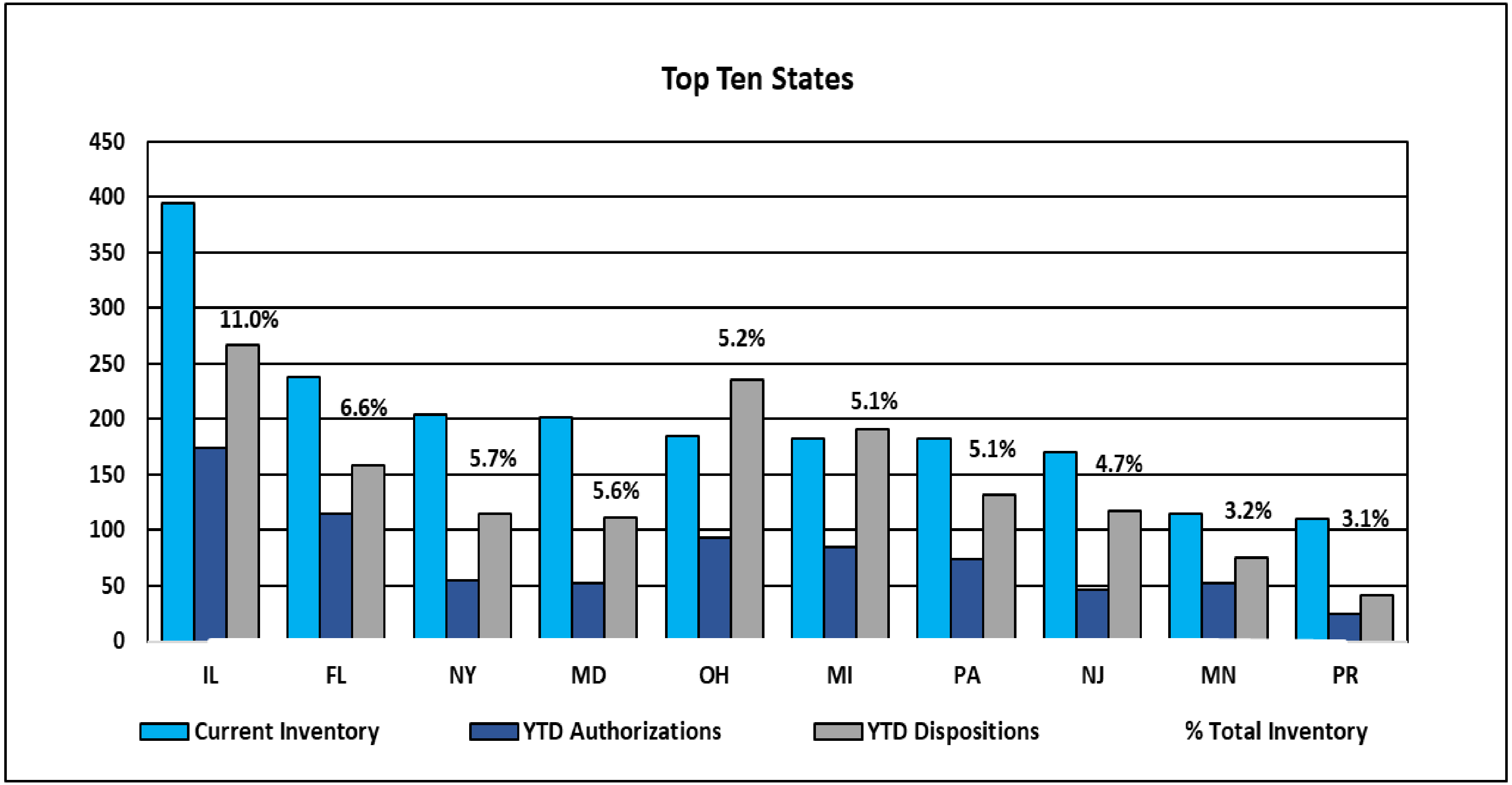
Portfolio Overview – *Inventory Levels*



- Between Apr 2019 and Apr 2020, inventory levels have decreased by approximately 2.7K units representing a 42.7% reduction.

- Drivers of the reduction include the improved credit quality of our book of business, upstream loss mitigation remedies, market improvements, effective REO disposition strategies and most recently the Covid Pandemic.

Portfolio Overview – *Top 10 States*



- Our current portfolio is less concentrated, located in areas where the housing stock is older, more highly distressed, and in judicial states, many of which have redemption or confirmation periods.
- The top 10 states comprise 55.3% of our total portfolio.
- The top volume state has 394 assets with the tenth volume state having 110 assets.

Business Drivers & Focus

- Responding to ongoing federal, state, and local ordinances in regard to management of vacant/occupied foreclosed homes as well as a host of new COVID related policies to support borrowers and tenants.
- Adjusting to the rapidly shrinking portfolio and preparing for the longer term impacts from COVID.
- Shifting geographic footprint/concentration. Assets are lower valued, more highly distressed, less concentrated, older in age, primarily located in the Midwest and East Coast, and in judicial states.
- Changing market conditions. Some markets are still improving while others are stabilizing or beginning to slow.
- Refining business processes to improve controls and create operational efficiencies.
- Developing and implementing more model driven/business rule disposition strategies to reduce discretion, achieve a more uniform result, reduce timelines, and increase collateral recoveries.

Questions?

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Freddie Mac Single-Family | Credit Risk Transfer

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Portfolio Management and Analytics

Sacha Rosenthal

Vice President, Single-Family Servicing Portfolio Analytics

Agenda

01	**What We Know**
02	**What We Have Seen/Heard – Anecdotes!**
03	**What We Don’t Know**

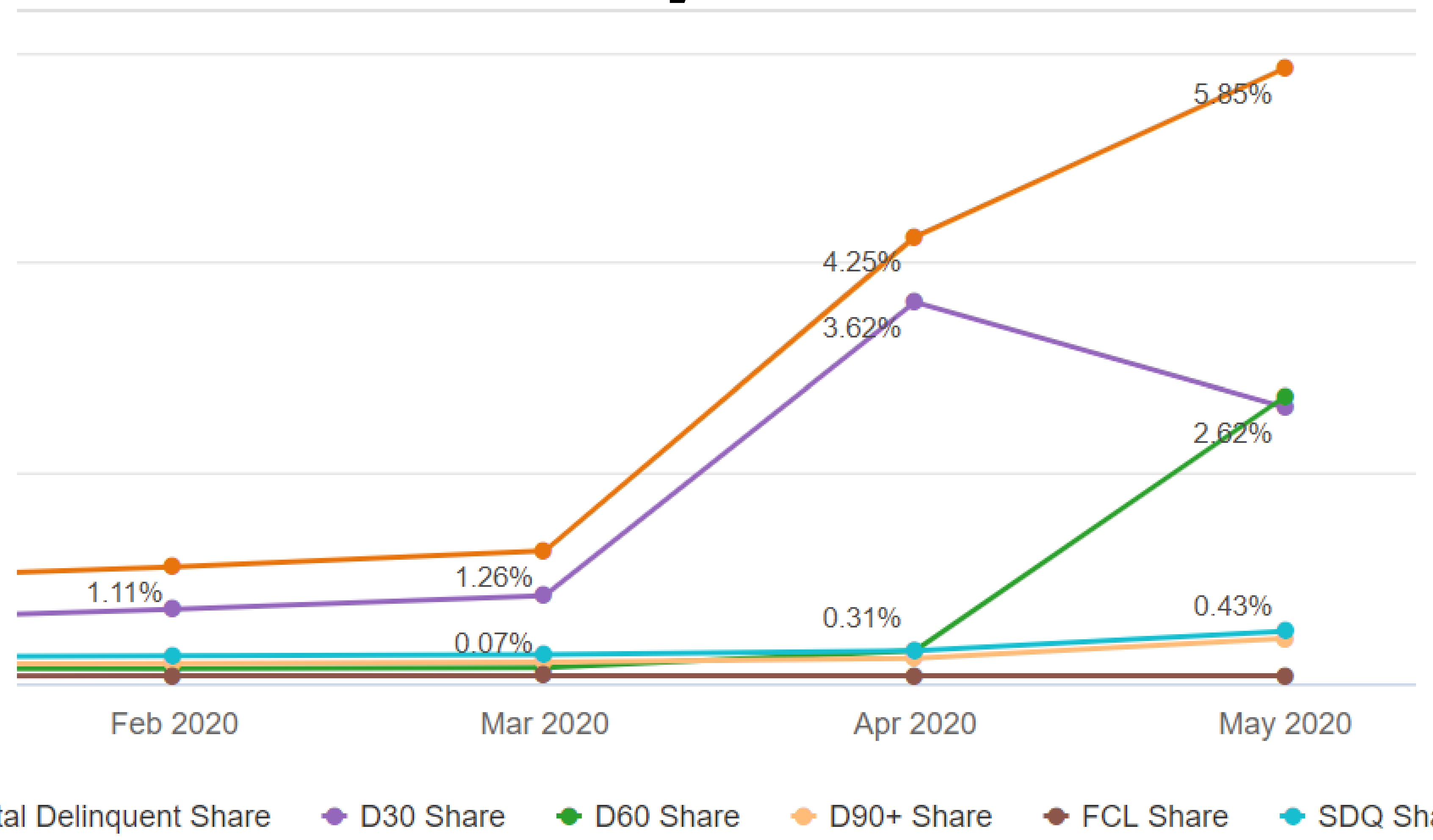
01

What We Know

- Mid to late March and early April there was a surge in Forbearance (FB) requests and FB Plan starts; new FB volumes were lower in May
- Servicers struggled to keep up with the volume
- Many of the FB plans were given to borrowers who were current on their mortgage
- Many of the borrowers who were current on their mortgage continued to pay in the month following the FB plan start
- A borrower is technically <u>not</u> on FB (even if they are on a FB plan) until they miss a payment (or remit a reduced payment)
- Total Delinquency rate on CRT covered loans for April was 4.25% and May (prelim) was 5.85%
- MBA and Black Knight state that FB plans for Fannie/Freddie is ~6%
- Income loss vs. Unemployment will drive DLQ/Default
- The portfolio today is better in quality and lower in risk than the portfolio leading up to the 2008 Financial Crisis/Great Recession

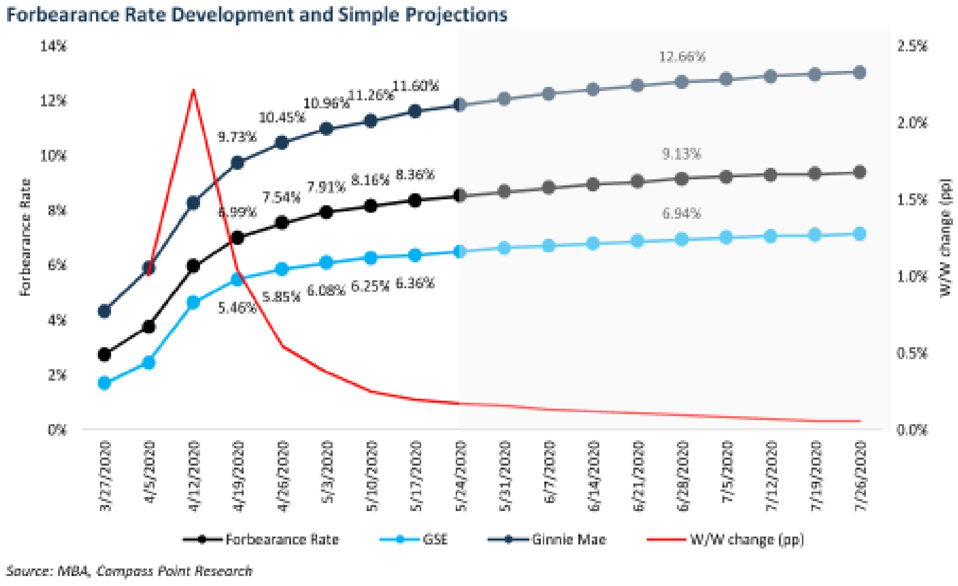
01

May DLQ – Preliminary Results; CRT Covered



02

What We Have Seen/Heard – Anecdotes!



- FB plan starts appear to be flattening off (per Compass Point/MBA and Black Knight)
- Some borrowers continue to pay whilst on FB plans, even if they have already missed a payment
- Some borrowers MAY have been put on FB plans by mistake during the initial roll out
- Some borrowers have asked to have the FB plan cancelled
- Some borrowers went on FB as an 'insurance' policy
- There may be some element of 'Strategic' FB plans, but the default impact should technically be small if truly strategic
- Unemployment benefits can, in some cases, be worth more than people were making during their employment
  - This could lower short term DLQ rates (maybe default), but at the same time, slow down the recovery

03

What We Don’t Know

- Will there be a resurgence of the virus in the fall as states open up?
- Will we have a Natural Disaster (Hurricane) strike in the coming months that augments the existing risk?
- Do we see a spike in FB plans and thus DLQs later in the year?
- How fast will the economy recover?
- Will all the unemployed get their jobs back? Will they return to work if UI benefits are better?
- Will there be a vaccine?
- How many loans will ultimately default?
- How effective will the new loss mitigation policies be?
- How many FB plans are ‘Strategic’?
- Past experiences with Hurricanes, FB plans, FB plan exits may not be a good indicator of what’s to come, due to all the above

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Operational Efficiencies and Performance

Dave Lucchino

Senior Vice President, Single Family Operations

Agenda

01 Organization

02 Current Performance

03 Adapting & Preparing

04 Reimagine Servicing

05 Questions

Organization

Andy Higginbotham
Single Family COO

- Strategic Delivery
- **Dave Lucchino** – *SVP Servicing Operations*
- Data & Decisions

Customer Service
Rob Cooper
Customer Service Senior Director
- *1 (800) Freddie Contact Center*
- *Consumer Assistance Network*
- *SPARK Center*

Servicing Operations
Ken Burke
VP – Servicing Operations
- *Investor Reporting*
- *Loss Mitigation*
- *Default Fees & Claims*
- *REO*

Customer Experience
Kathi Chun-Owens
Customer Experience Senior Director
- *CX Support For SF Operations*
- *CX Analytics & Insights*

Accounts Receivable
Robert Riendeau
VP – Accounts Receivable
- *Billing*
- *Cash*
- *Collections*
- *Counterparty Compliance*
- *Revenue Assurance*

Securities Operations
Bellore Raghuram 'BR'
VP – Security Operations
- *Issuance*
- *Bond Admin & Payments*
- *Disclosures*
- *Investor Tax Reporting*
- *CSS Governance*

Current Performance

- **Accounts Receivable** has processed record $ volume with no impact to risk or results.
- **Securities Operations** is running close to '*business as usual*' while handling evolving securitization and disclosure requirements.
- The **Contact Center** continues to achieve strong service levels while volume has increased approximately 50% and **Customer Assistance Network** requests have increased 100%.
- **Servicing Operations** has implemented several COVID-related changes, including a new hardship tracking code, a new Payment Deferral option, and a moratorium on foreclosure and eviction processes.

Adapting & Preparing

- The current spike in mortgage delinquency and forbearance may drive a tide of modification and related default activity.
- Volume increases may cascade through Servicing Operations over the next 18+ months.
- We have made significant enhancements to our policies, processes, and platforms since the last financial crisis.
  - Policy now **delegates decision authority to Servicers for many activities** that are low risk.
  - **Specialized 'Master Servicing' teams** ensure proactive dialogue and action regarding workout and foreclosure pipelines.
  - Considerable **automation** in Investor Reporting and Loss Mitigation has improved **efficiency**, **accuracy** and **effectiveness**.
  - **Transformation** of our **REO** operating model.
- As a result, we can now handle a 4-fold increase in mods with less than a 10% increase relative to our current staff in that area.

Reimagine Servicing®

Simple. Transparent. Connected.

Minimize losses by **transforming our processes** and platform; **removing friction** and **reducing costs** for both servicers and Freddie Mac

- **Approach** - Reimagine Servicing has been an industry leading approach to gaining commitment from our servicers and vendor partners in transformational efforts that improve efficiency and reduce cost.
- **Engagement** - In addition to servicers, we are leveraging other industry partners that play key roles in the market and engaging in robust exchange of ideas that is driving our innovation.
- **Design** - Our key design principles are Simpler, Connected, Faster and Transparent processes combined with leveraging data in new ways.
- **Focus** - Current focus areas include Expense Reimbursement, Servicing Gateway, and Loss Mitigation.

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Simple. Transparent. Connected.

Reimagine Servicing

Minimize losses by **transforming our processes** and platform; **removing friction** and **reducing costs** for both servicers and Freddie Mac

Portfolio

- Servicer insights are at the center of solutions and strategy. We are utilizing them to enhance portfolio performance and minimize credit losses.

Platform

- One by one we're enhancing and rebuilding tools to be best in class and to remove pain points and help Servicers work more efficiently.
- We have the servicing data and insights to lead the transformation of mortgage servicing.

Performance

- We're developing new programs and changing policies to better manage and reduce risk.

Partnerships

- We're leveraging strategic partnerships to transform servicing by connecting the industry players and delivering valuable solutions to the market.

Questions?

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Corporate HQ
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McLean VA 22102

Panel Discussion: CRT Market Updates

MIKE REYNOLDS

Vice President,
Single-Family Credit
Risk Transfer,
Freddie Mac

BEN WALKER

Senior Managing
Director,
Aon

MATT SPOERLEIN

Managing Director,
Head of CRT Trading,
Bank of America

JIM EGAN

Executive Director,
Morgan Stanley

Thank you!

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Tuesday | June 16 | 2020

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9:00 – 9:05 a.m.	**Opening Remarks** Mike Reynolds – Vice President, Single-Family Credit Risk Transfer
	Single-Family Business Update Donna Corley - Executive Vice President and Head of the Single-Family Business
9:05 – 9:30 a.m.	**Servicing Policy and Updates** Bill Maguire – Vice President, Single-Family Servicing Portfolio Management
9:30 – 10:00 a.m.	**AI's Role in Risk Mitigation** Michael Bradley – Senior Vice President, Single-Family Modeling and Analytics
10:00 – 10:30 a.m.	**Panel Discussion: CRT Program Updates** Mike Reynolds – Vice President, Single-Family Credit Risk Transfer Christian Valencia – Vice President, Single-Family Credit Risk Transfer Jeff Shue – Director, Single-Family Credit Risk Transfer
10:30 – 11:00 a.m.	**Counterparty Credit Risk Management** Katie Shilinsky – Vice President, Single-Family Counterparty Credit Risk Management
11:00 – 11:30 a.m.	**Underwriting and Credit Policy** Terri Merlino – Senior Vice President and Chief Credit Officer, Single-Family Business
11:30 – 12:00 p.m.	**Closing Remarks** Mike Reynolds – Vice President, Single-Family Credit Risk Transfer

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Opening Remarks

Mike Reynolds

Vice President, Single-Family Credit Risk Transfer

Freddie Mac Single-Family | Credit Risk Transfer

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Single-Family Business Update

Donna Corley

Executive Vice President and
Head of the Single-Family Business

Freddie Mac Single-Family | Credit Risk Transfer

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Servicing Policy and Updates

Bill Maguire

Vice President, Single-Family
Servicing Portfolio Management

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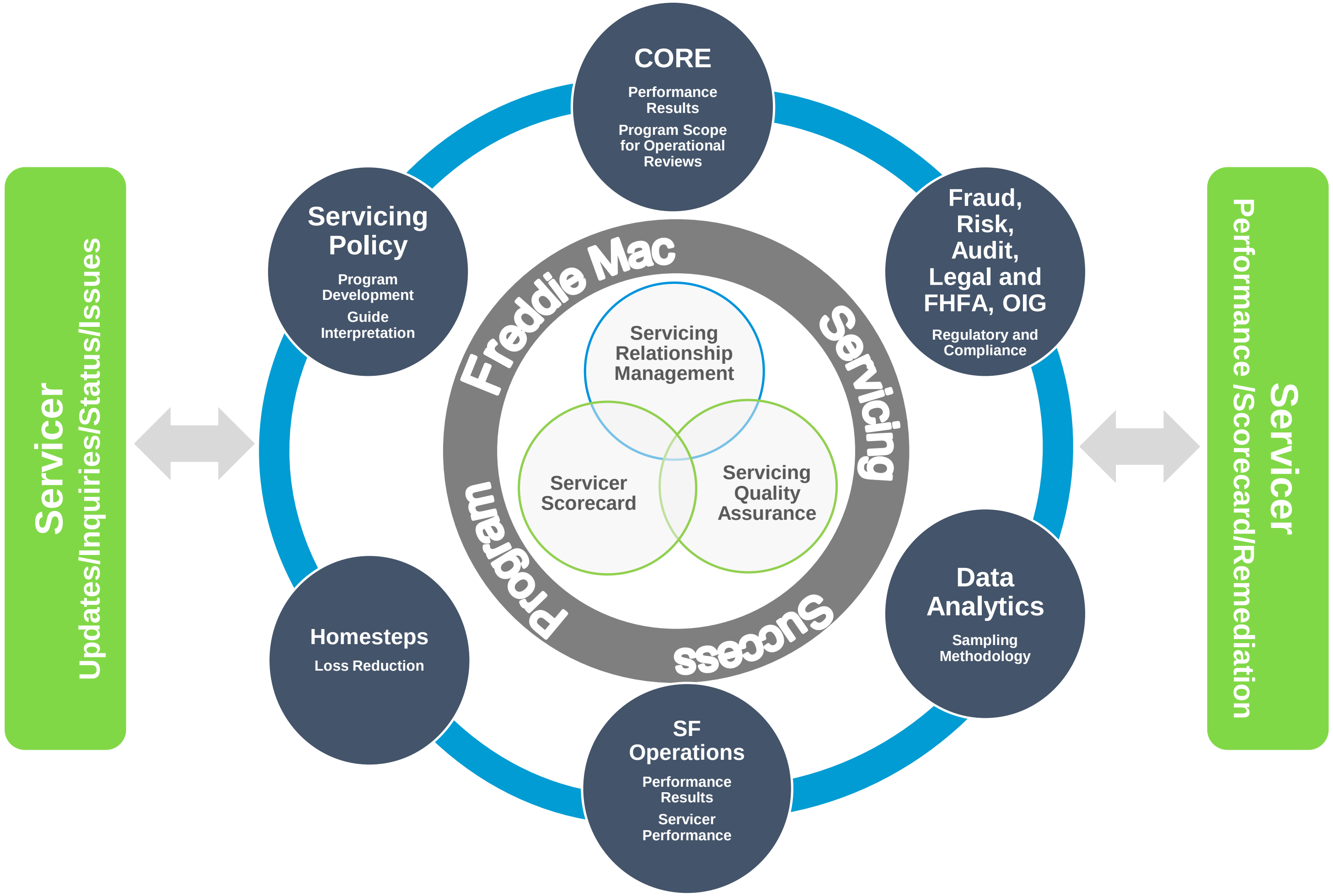
Servicing Overview

Single Family Servicing Portfolio Management – Who We Are

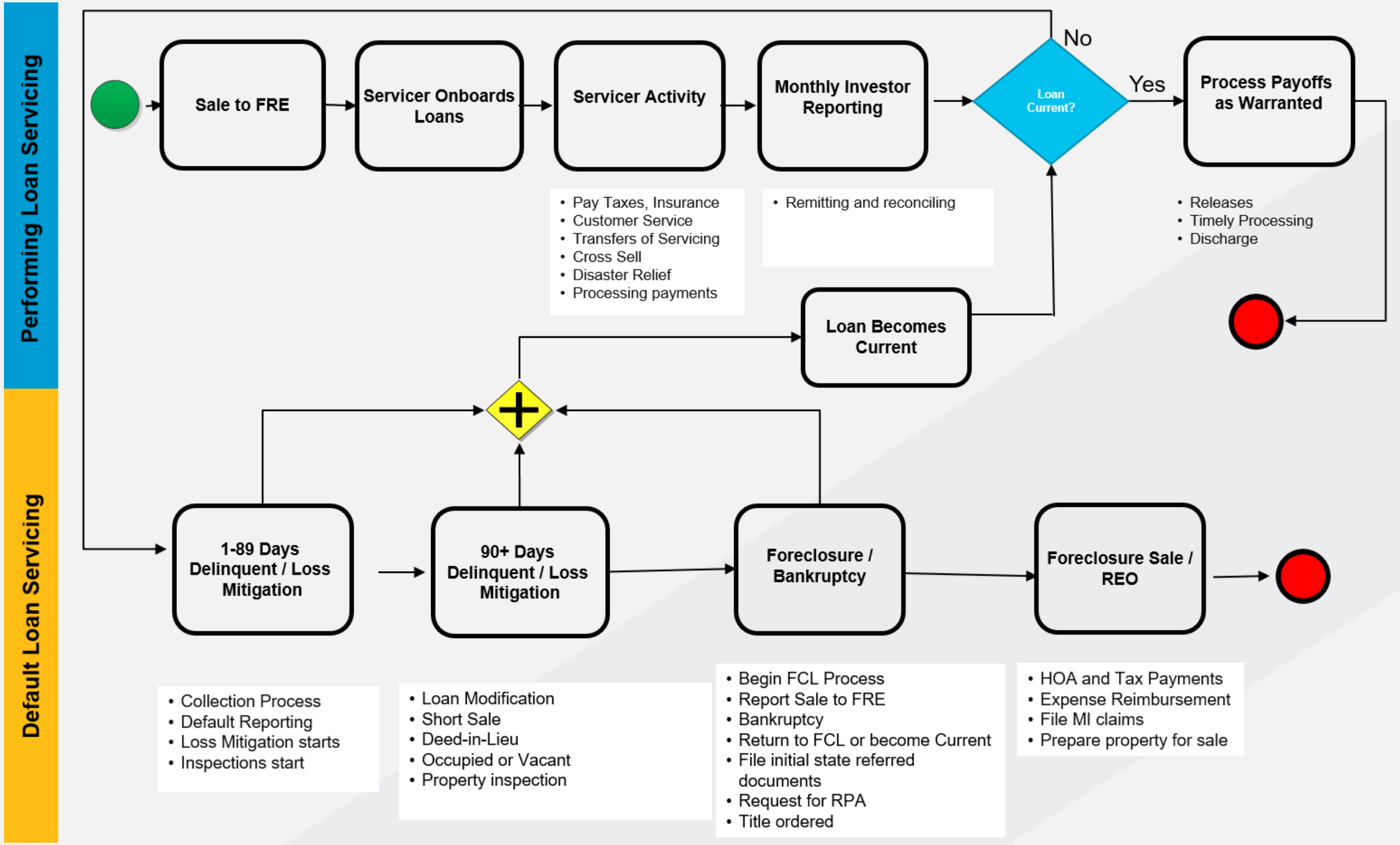
Bill Maguire

Relationship Management	Servicing Policy	Structured Transactions
Performance Management Operational Risk	Quality Assurance	Servicing Capital

The Servicing Ecosystem



Servicing Life Cycle



All aspects of servicing must adhere to investor and regulatory guidelines

Who Are Our Servicers

Portfolio

- The Freddie Mac Servicing Portfolio consists of 10.8 million loans with $1.9 trillion UPB (as of December 2019)
- The top 20 servicers (by loans serviced) service approximately 75% of the portfolio

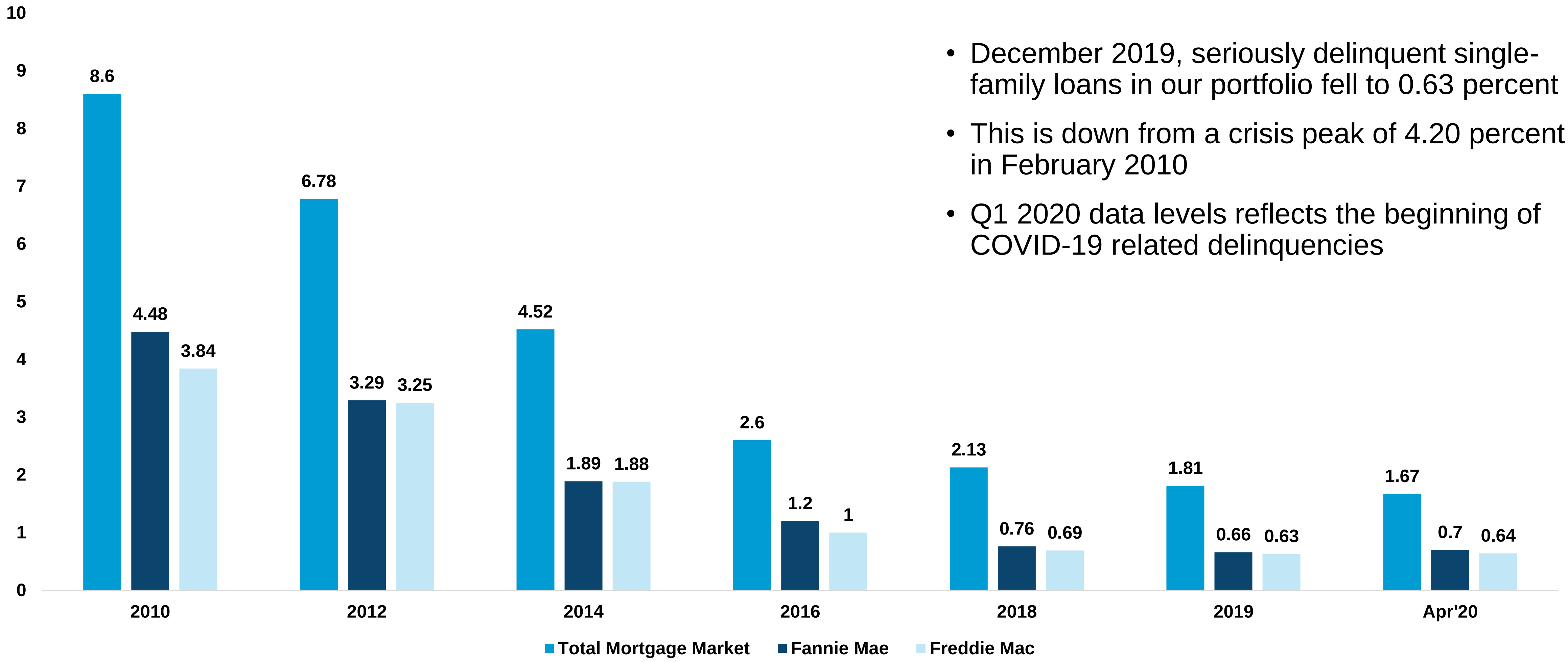
Servicer Profile

- ~ 1, 200+ active servicers (New in 2019: 31)

Sub-servicing

- Continued growth in subservicing with a few new players in the market
- Subservicing Volume: ~$474B in UPB (as of December 2019) an increase of 22% YOY and about 25% of the total FRE servicing portfolio

Serious Delinquency Rate



- December 2019, seriously delinquent single-family loans in our portfolio fell to 0.63 percent
- This is down from a crisis peak of 4.20 percent in February 2010
- Q1 2020 data levels reflects the beginning of COVID-19 related delinquencies

Please note: Total Mortgage Market data is reflective of Q1 2020. April data is not yet publicly available.

How We Monitor Performance

Servicer Relationship Mgmt

Average 25+ years of industry experience

All have worked in servicing through the housing crisis

Well-rounded view of performance provides broad and in-depth analysis of servicing of performing and non-performing loans

Supporting ongoing discussions with customers on performance strengths, challenges, as well as risk concentration and operational risk

Account Plans

- Focused on covered National, Regional and Community Servicers, Independent Mortgage Bankers, Specialty Servicers, Master Servicers, and Subservicers.
- Sets goals and objectives.
- Establishes agreed-upon action plans and milestones.

Scorecard

- Performance Categories:
  - Default Mgmt
  - Investor Reporting
  - File Review Defect Rates
- Performance evaluation:
  - Specific to servicer segments (rank groups)
  - Uses synthetics & ranks
- **SHARP℠** – Servicer Honors and Rewards Program

File Reviews, Rewards, and Remedies

- Identifies servicing performance gaps and trends. Resolve issues that prevent achievement of top performance.
- Encourages and rewards quality servicing.
- Provides consequences for poor data quality and servicing processes

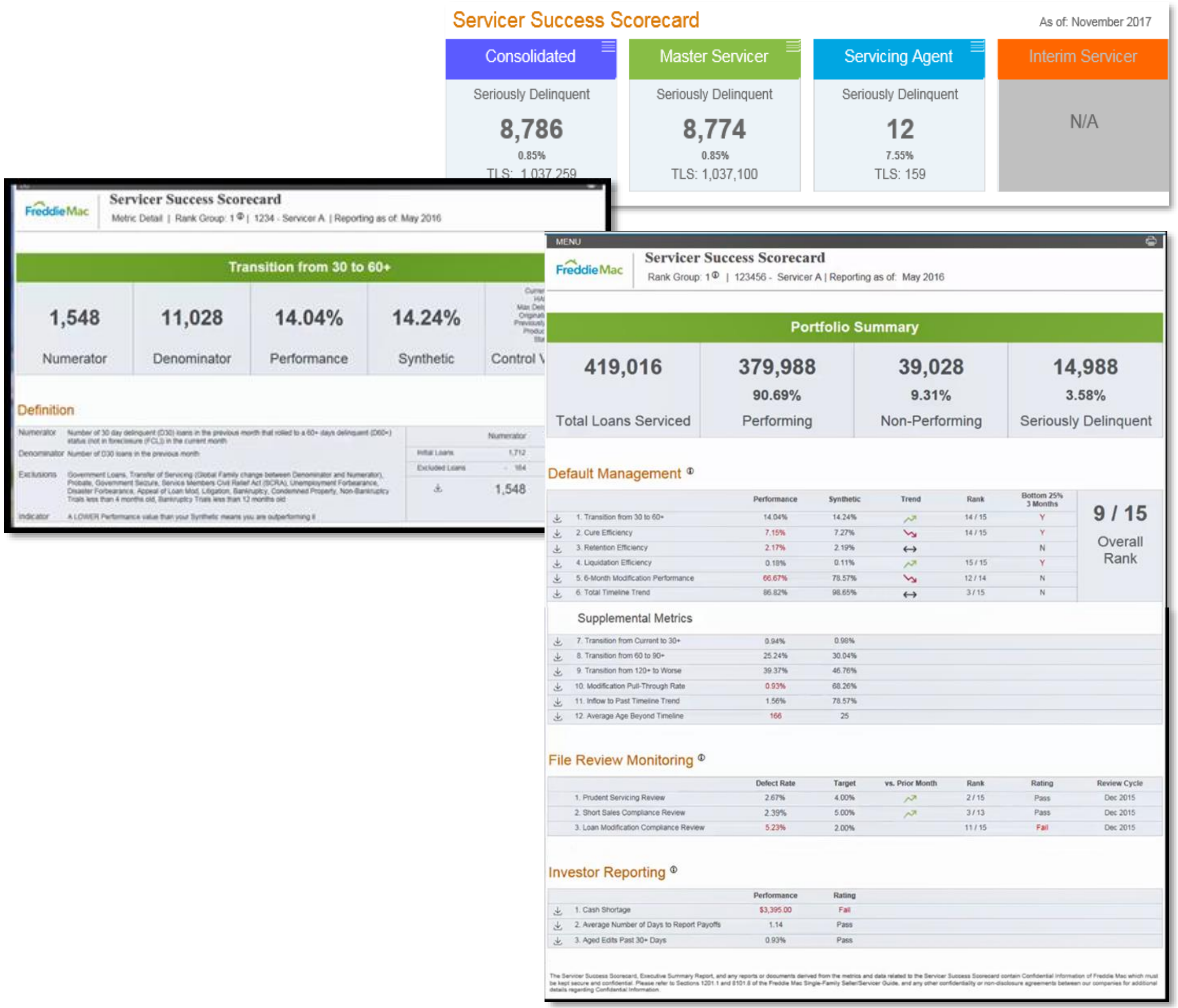
CORE

- Works closely with Servicer Relationship Mgmt to ensure review scope addresses new/ emerging risks.
- Identifies SF counterparty operational risk issues and monitors remediation.
- Provides assessment of Counterparty's compliance to Guide Requirements
- Conducts on-site due diligence of Servicers' preparedness for large MSR transfers.

Tools to Manage Performance

Scorecard:

- Covers all active servicers
- Covers servicers in every mode of servicing (Master, Interim, Subservicer, and Consolidated)
- Focused on early delinquency
- Provides loan-level data and analyses
- Provides detail and definitions enabling better tool use



* All data shown is for demonstration purposes only and does not represent factual data.

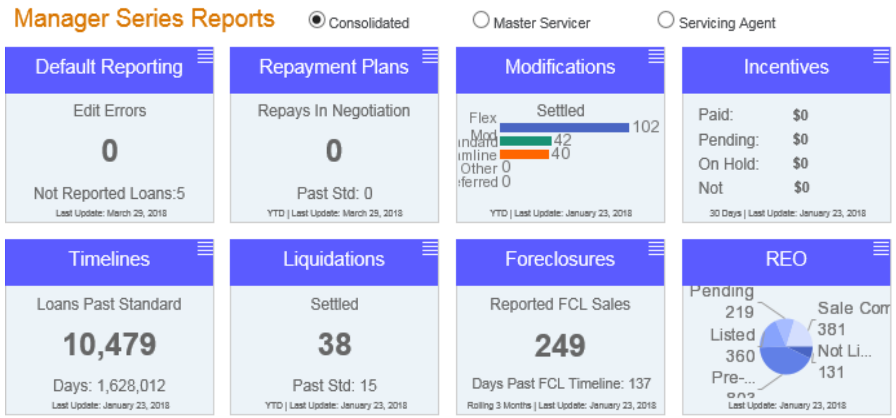
Tools to Manage Performance

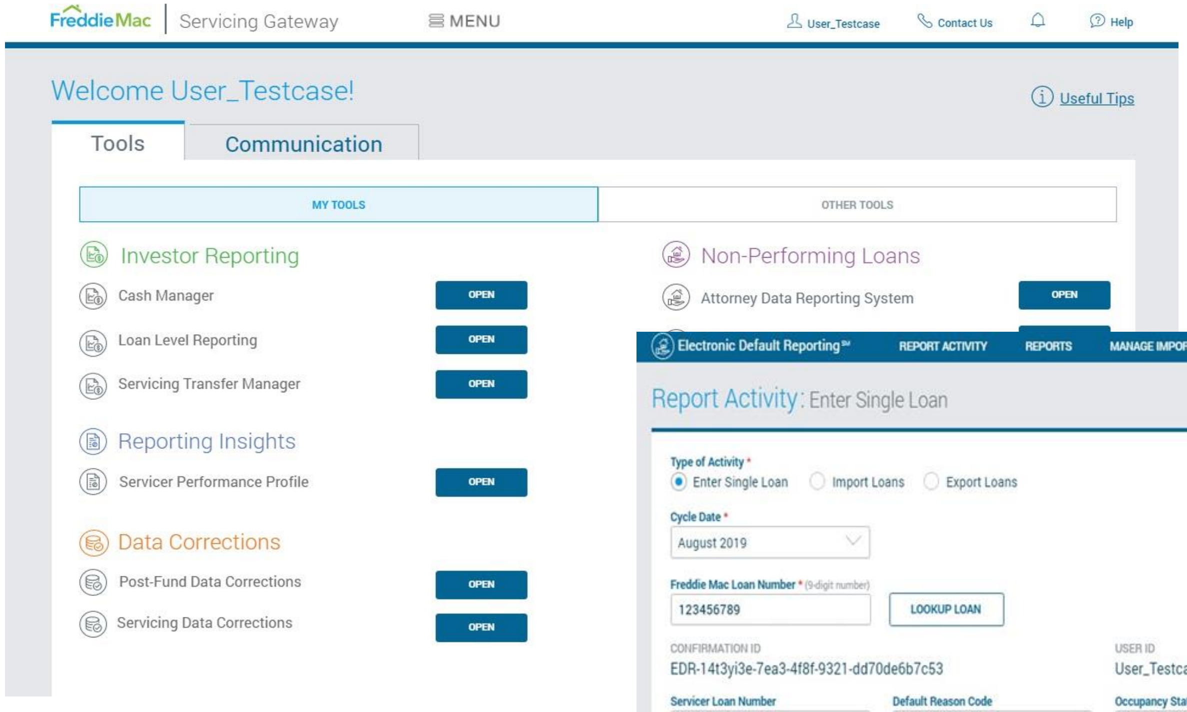
Manager Series:

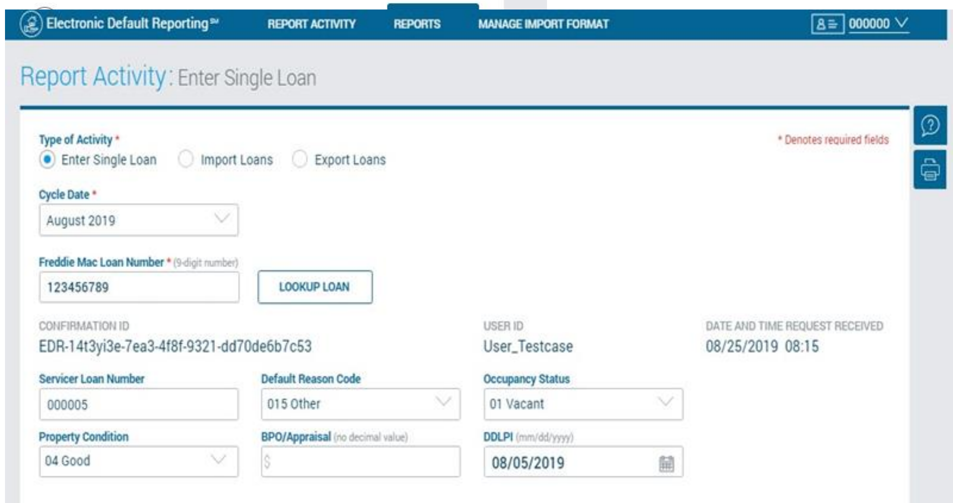
- Loan-level data updated daily; Organized by loan lifecycle and is activity-based

Servicing Gateway:

- One access point for all servicing tools with consolidated access to related information and notifications







* All data shown is for demonstration purposes only and does not represent factual data.

Freddie Mac's SHARP℠ 2019 Winners

A component of the Servicer Success Program

- Freddie Mac's Servicer Honors and Rewards Program℠ (SHARP) enables eligible servicing clients to receive annual rewards based on completion of the Servicer Success Scorecard

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Servicing COVID-19 Response

Published 5 COVID-19 Related Bulletins in the Last 8 Weeks

Bulletin 2020-4

March 18, 2020

Temporary measures that support your efforts to help borrowers who may face hardships due to COVID-19:

- Reporting to credit repositories
- Evaluating borrowers for loan modifications
- Approving borrowers for forbearance plans
- Suspending foreclosure sales
- Learn more

Bulletin 2020-7

March 25, 2020

Guidance for Servicers in response to the continued challenges resulting from COVID-19:

- EDR reporting mortgages impacted by COVID-19 (default reason code 032)
- Temporary relief from certain property inspection and preservation requirements
- Additional updates
- Learn more

Bulletin 2020-10

April 8, 2020

Announced clarifications to temporary servicing measures in response to inquiries around the Coronavirus Aid, Relief, and Economic Security Act (“CARES Act”):

- Credit reporting
- Foreclosure moratorium
- Bankruptcy motions for relief from automatic stay
- Forbearance plans
- Quality right party contact (QRPC)
- Learn more

Bulletin 2020-10 Updated Previous Guidance in Response to the CARES Act

	Previous Bulletins	NEW Guidance
Bankruptcy Motions	Servicers must file a motion for relief from automatic stay, upon certain milestones based on the length of delinquency or post-petition payments per Guide Sections 9401.6 and 9401.7.	Servicers are temporarily relieved from meeting these milestones.
Credit Reporting	Servicers must not report to credit repositories a Borrower who is on an active forbearance plan, repayment plan or trial period plan as a result of a COVID-19-related hardship.	Adjusted language related to credit reporting for borrowers impacted by COVID-19 to align with the FCRA and CARES Act.
Forbearance Plans	We authorize Servicers to approve forbearance plans for all Borrowers who have a COVID-19-related hardship, regardless of property type.	Servicers can enter into or extend the forbearance plan beyond a date that may result in a delinquent amount exceeding the cumulative total of 12 months of the borrower’s monthly mortgage payment.
Foreclosure Moratorium	Applies to foreclosure sales only.	Applies to all foreclosure actions (see examples detailed in the Bulletin).
QRPC	Servicer must initiate outreach attempts no later than 30 days prior to the end of Borrower’s COVID-19-related forbearance, and attempt to contact them until QRPC has been established or until a forbearance plan has expired.	For a forbearance plan evaluation, if Servicer is unable to complete QRPC in accordance with all Guide requirements, they must still offer a forbearance plan to a borrower in compliance with the CARES Act, as applicable. Servicer is not required to determine occupancy when establishing QRPC for loss mitigation options.

Announced New Post-Forbearance Product – COVID-19 Payment Deferral

Bulletin 2020-15

May 13, 2020

Announced a new product to support borrowers impacted by COVID-19 post forbearance/delinquency:

- For borrowers where their COVID-19 related hardship that has since been resolved
- Up to 12 months of deferred payment
- A borrower must have been current or less than 31 days delinquent as of March 13, 2020, the date of the National Emergency declaration related to COVID-19 and be 31 or more days delinquent but less than 360 days delinquent as of the date of evaluation
- COVID-19 related hardship that has since been resolved
- Up to 12 months of deferred payment
- A borrower must have been current or less than 31 days delinquent as of March 13, 2020, the date of the National Emergency declaration related to COVID-19 and be 31 or more days delinquent but less than 360 days delinquent as of the date of evaluation

Bulletin 2020-16

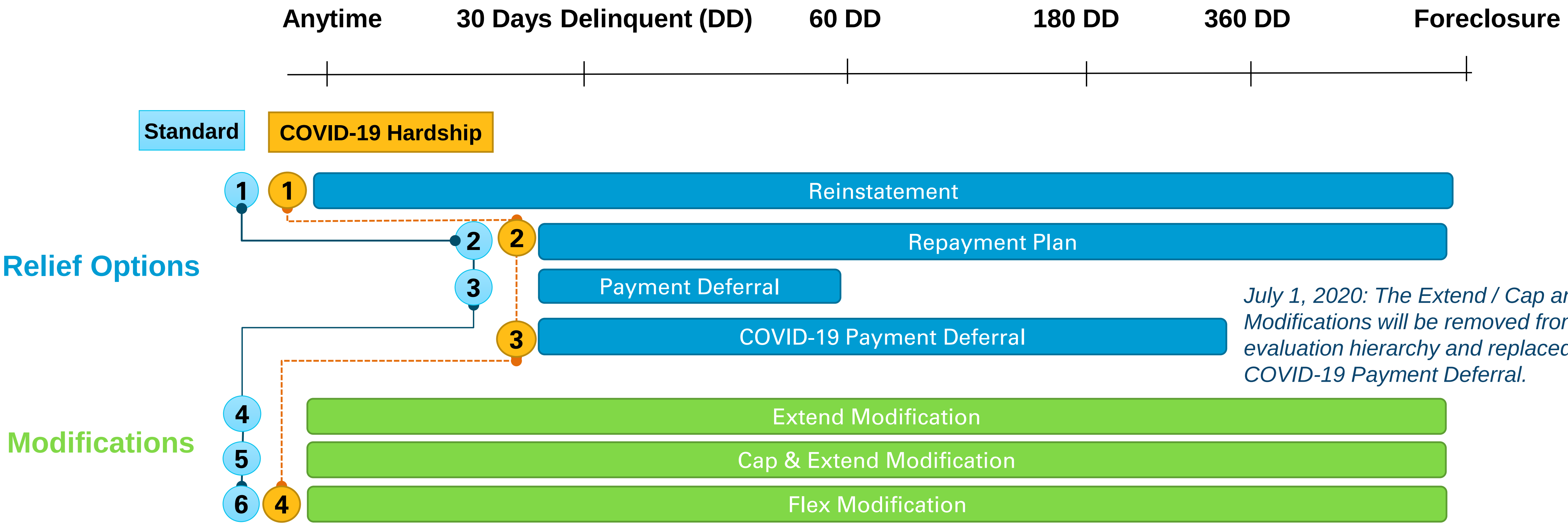
May 14, 2020

As we continue to monitor and assess the situation, and in response to Servicer questions, with this Bulletin we are providing additional clarity on the following items :

- Extension to the COVID-19 foreclosure moratorium through June 30, 2020
- Property inspections for delinquent mortgages not allowed if the borrower is experiencing a COVID-19 related hardship
- EDR reminder – report code 032 for mortgages impacted by COVID-19
- Property valuations for short sales and deeds-in-lieu of foreclosure
- HAMP good standing for mortgages on a COVID-19 forbearance plan, repayment plan, or COVID-19 Payment Deferral

How to Evaluate a Borrower After Forbearance

After forbearance, a borrower must be evaluated for a workout to bring the loan current, whether it be a relief option or a modification. There are two evaluation hierarchy tracks – it depends if the hardship is related to COVID-19.



July 1, 2020: The Extend / Cap and Extend Modifications will be removed from the evaluation hierarchy and replaced with COVID-19 Payment Deferral.

Sustaining Homeownership: Workout Options – What are they?

Relief Options

Reinstatement: An option to catch up on all the missed payments at once in a single lump-sum payment.

Repayment: An option to spread out past due amount on the mortgage over a set time frame (e.g., 3, 6, 9 or up to 12 months) and added onto the existing mortgage payments.

Payment Deferral: An option to defer up to two monthly delinquent amounts to create a non-interest bearing balance that will become due at the earlier of the mortgage maturity date, payoff date, or upon transfer or sale of the mortgaged premises.

COVID-19 Payment Deferral (Effective July 1, 2020)**:** An option to defer up to twelve monthly delinquent amounts to create a non-interest bearing balance that will become due at the earlier of the mortgage maturity date, payoff date, or upon transfer or sale of the mortgaged premises. The hardship must be related to COVID-19.

Modification Options

Extended Modification: An option to maintain pre-forbearance payments and extend the term of the loan by the number of missed monthly payments.

Cap & Extend Mod: An option that offers additional help to cover escrow amounts paid by the Servicers during forbearance, such as taxes and insurance.

Flex Modification: An option for borrowers who can no longer afford their pre-forbearance payment. It adds unpaid balances from a forbearance period to an unpaid loan balance. The payment reduction is calculated depending on the LTV.

July 1, 2020: The Extend / Cap and Extend modifications will be removed from the evaluation hierarchy and replaced with COVID-19 Payment Deferral.

Visit the COVID-19 Resources web page

Resources:

[COVID-19 Resource web page]

[Servicer eBook] – *Guidance for Helping Impacted Borrowers*

[Guide Bulletin 2020-15] (May 13, 2020)

[Guide Bulletin 2020-16] (May 14, 2020)

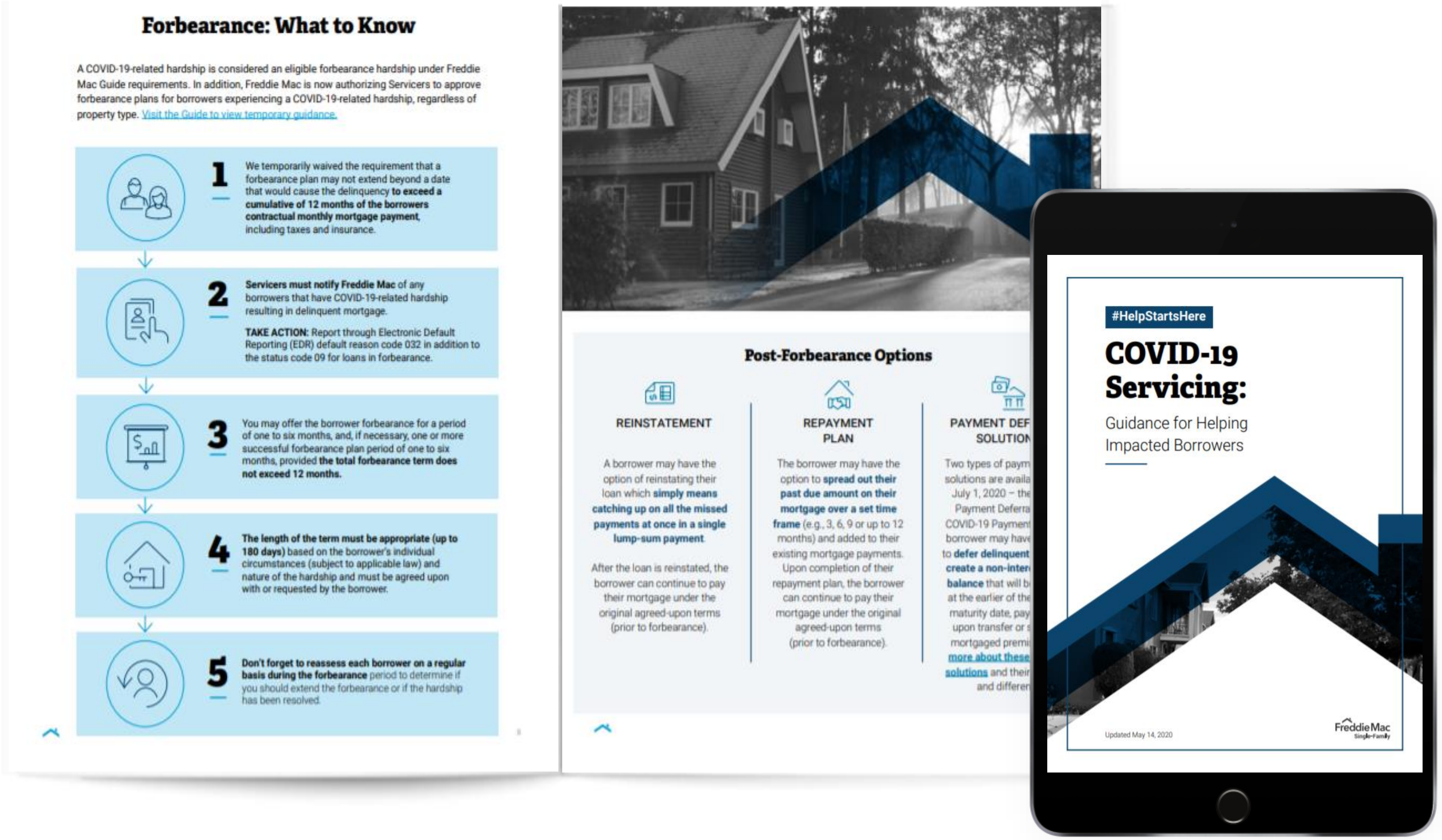
[Forbearance Call Script]

[Webinar Playback:] (May 14)

[Servicing COVID-19 FAQs]

[Servicer COVID-19 Reference Guide]

[Payment Deferral web page]



Questions?

If we missed your question today, please email: **Fixed_Income_Marketing@freddiemac.com**

Freddie Mac Single-Family | Credit Risk Transfer

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1551 Park Run Dr
McLean VA 22102

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AI's Role in Risk Mitigation

Michael Bradley

Senior Vice President, Single-Family
Modeling and Analytics

COVID-19 and Our Major Models

We are experiencing a Black Swan and mortgage models across the industry are being challenged to incorporate dynamic and fluid events, including projections of interest rates, mortgage rates, house prices, defaults, and prepayments.

Freddie Mac has been assessing the ability of our major models to perform as expected during the pandemic so we can fulfill our mission and provide stability and liquidity:

- Develop a set of Covid-19 scenarios (e.g., V, check, U).
- Determine the key drivers (e.g., GDP, unemployment rate) from these scenarios and determine which of our models use these drivers as inputs.
- Assess the need for possible extrapolation risk and the need for adjustments/overlays.

COVID-19 and Our Major Models continued

The three Divisions have rallied to make sense of the how the pandemic—followed by Fed Monetary Stimulus actions, fiscal policy responses, and the granting of forbearances—is affecting our businesses.

Credit policy, Portfolio Analytics, Technology, and Modeling teams have worked in tandem to make needed adjustments to our credit policies and models so we continue to understand and appropriately price the risks we decide to take.

We've used new data and analytics to help inform our decisions. Examples include:

- Data from our Servicers, via surveys and Platform providers
- Real-time data on consumer behavior (e.g., restaurant reservations, hotel occupancy rates, traffic patterns)
- Analysis of prior CAT events (e.g., Katrina, Harvey, Irma)
- A new set of behavioral analytics
- Benchmarking our loss estimates to those produced by others
- Capturing house price movements by using HVE relative to sale prices recorded in LPA applications, closing data, and appraisals
- More frequent credit-bureau updates on loans in portfolio and new credit bureau data on loans submitted to our front-end scoring engine

We're comfortable with the adjustments and overlays put in place and have built-in flexibility to adjust them as the situation changes or new data become available.

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How Can Freddie Mac Use Artificial Intelligence (AI) to Mitigate Risk and Create Value?

The answer lies in the responses to a few questions:

1. What is AI?
2. Why do we need AI?
3. How can we leverage AI to mitigate risk /create value?
4. How should we best govern our use of AI?

What Is AI?

AI is the theory and development of computer systems able to perform tasks that normally require human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages.

AI Can Help Us Do Our Work Better!!

The Dawn of Artificial Intelligence

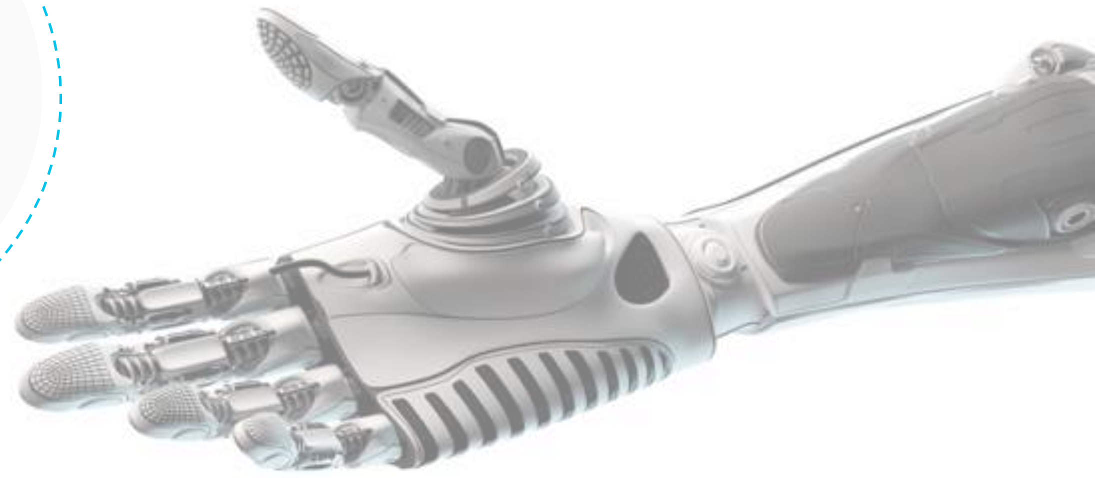
Big Data

The more data, the more we can learn!

Infinite Computing

Encourages experimentation

Artificial Intelligence



Machine Learning

Need machine learning's nonlinear capabilities to model most phenomena

Machine Learning (ML)

Machine learning allows the computer to, in a sense, program itself. By making complex connections between data, the computer can create new useful information.

A particularly effective application of Machine Learning is Facebook's ***learning algorithms***.

ML Can Help Us Make Better Predictions!!

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Why Do We Need AI?

Why We Need AI

- ✓ Our Major Models Allow Us to Scale Massively!
- ✓ We face an existential threat—others are using AI in an attempt to disrupt our business model!
- ✓ Humans Predictably Make Mistakes “Thinking Fast and Slow”

AI Can Help Us Do Our Work Better!!

Our Major Models Allow Us to Scale

Wells Fargo:

~ 1.9T in Assets

~ 230K employees

Freddie Mac:

~ 2T in Assets

~6K employees

Our Major Models Allow Us to Scale Massively!!

We Face an Existential Threat

In fact, the business plans for the next 10,000 start-ups are easy to forecast: Take X and add AI. Find something that can be made smarter by adding online smartness to it….This list of X is endless. The more unlikely the field, the more powerful adding AI will be.

Others are Trying to Use AI to Disrupt Us!!

Source: The Inevitable: Understanding the 12 Technological Forces that Will Shape our Future, by Kevin Kelly,Viking Press, New York, NY, (2016), pp. 33 and 35.

Meet Linda:

- She's thirty-one years old, single, outspoken, and very bright.
- In college, Linda majored in philosophy. As a student she was deeply concerned with issues of discrimination and social justice, and participated in anti-nuclear demonstrations.
- Before I tell you more about Linda, let me ask you a question about her. Which is more likely?
    a. Linda is a bank teller.
    b. Linda is a bank teller and is active in the feminist movement.

Source: When: The Scientific Secrets of Perfect Timing, by Daniel Pink, 2018, p. 20.

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Leveraging AI to Create Value

CCE: Collateral Condition Evaluator

Developed model to better detect properties in poor condition and replace or complement ACE condition rules.

- Waive appraisals on fewer properties in poor condition.
- Waive appraisals on more properties in good condition.

- Applies Data Robot and **machine learning** in the cloud to research, develop, test, and deploy the model.

HVE: Home Value Explorer

HVE is Freddie Mac's automated valuation model (AVM)

- ✓ Outputs include point estimates of property value and the FSD measuring the precision of the estimated property values.
- ✓ Estimates the fair market value for single-family, condo, coops, and 2-unit properties in the United States (~ 100 million properties).
- ✓ HVE consumes sales data from different sources, including public records data, appraisal data, MLS data, and Freddie and Fannie data.
- ✓ HVE follows Freddie Mac model governance which covers data quality controls, model updates, and performance monitoring.

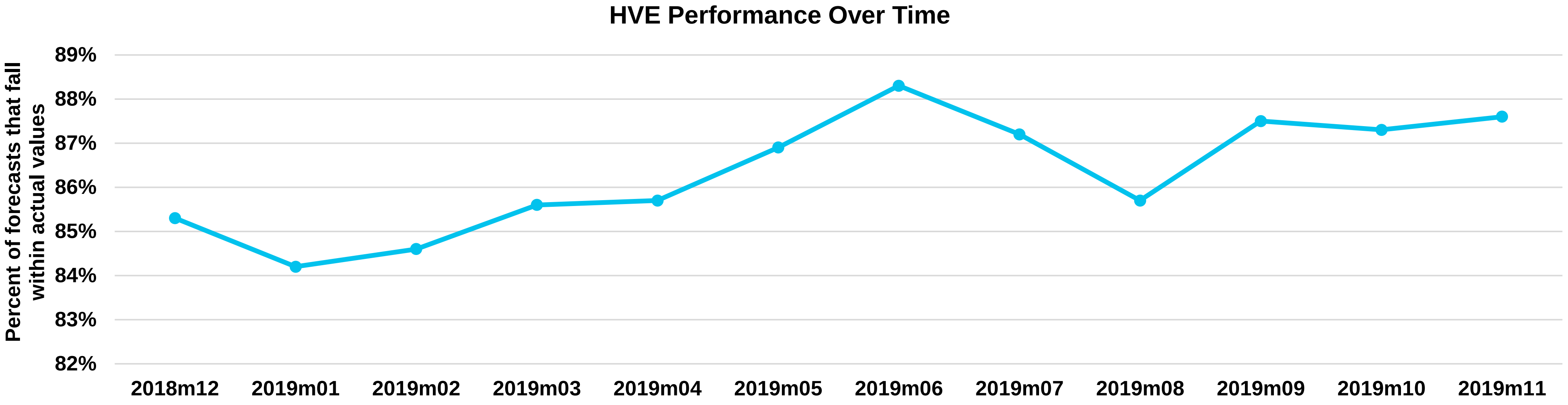
❑ **Ensemble model** that applies **machine-learning techniques** to huge swaths of Freddie Mac and vendor-acquired data.

HVE: Home Value Explorer

HVE was designed and is continually enhanced for the purposes of managing risk.

- ✓ Includes proprietary algorithms to deliver property-specific estimates of value.
- ✓ Leverage MLS data conservatively to mitigate overvaluation risk since we own the credit risk.
- ✓ HVE is used throughout the organization to support important functions such as pricing, costing, and QC.
  - ❑ **Model output is used at several points of the loan manufacturing process:**
    - Providing minimum assessment feedback (MAF) in Loan Product Advisor
    - Providing values for the relief refi program (HARP)
    - Input to LCA (Loan Collateral Advisor) and ACE (Automated Collateral Evaluation)
    - Detecting inflated appraisals and potentially fraudulent loans
    - Creating an independent source of LTV calculations used in risk modeling.

HVE: Performance Is Fit for Use



Notes: PC10 is a common metric used for measuring AVM performance. It measures the percentage of the forecasts that are within +/- 10 percent of the actual sales price.

- Freddie Mac completed a study that evaluated refinance loans funded prior to, during, and after the crisis (“Evaluating the Accuracy of Home Appraisals Using Refinance Transactions”, Liyi Liu et al. addresses 2000-2009 findings.) to assess the predictive power of appraisals and HVE.

HVE: Home Value Explorer

Models should be tested for how they are used, but in our industry AVM tests are rare!

- ✓ AVMs are typically tested only against sales prices.
- ✓ Many AVMs are optimized to perform well in industry tests, e.g., by giving a heavy weight to MLS data.
- ✓ It’s sort of like having the answer key when taking an exam.
- ✓ Performance of such AVMs in production is often disappointing.

❑ **Freddie Mac is working with industry participants to improve and standardize AVM testing practices.**

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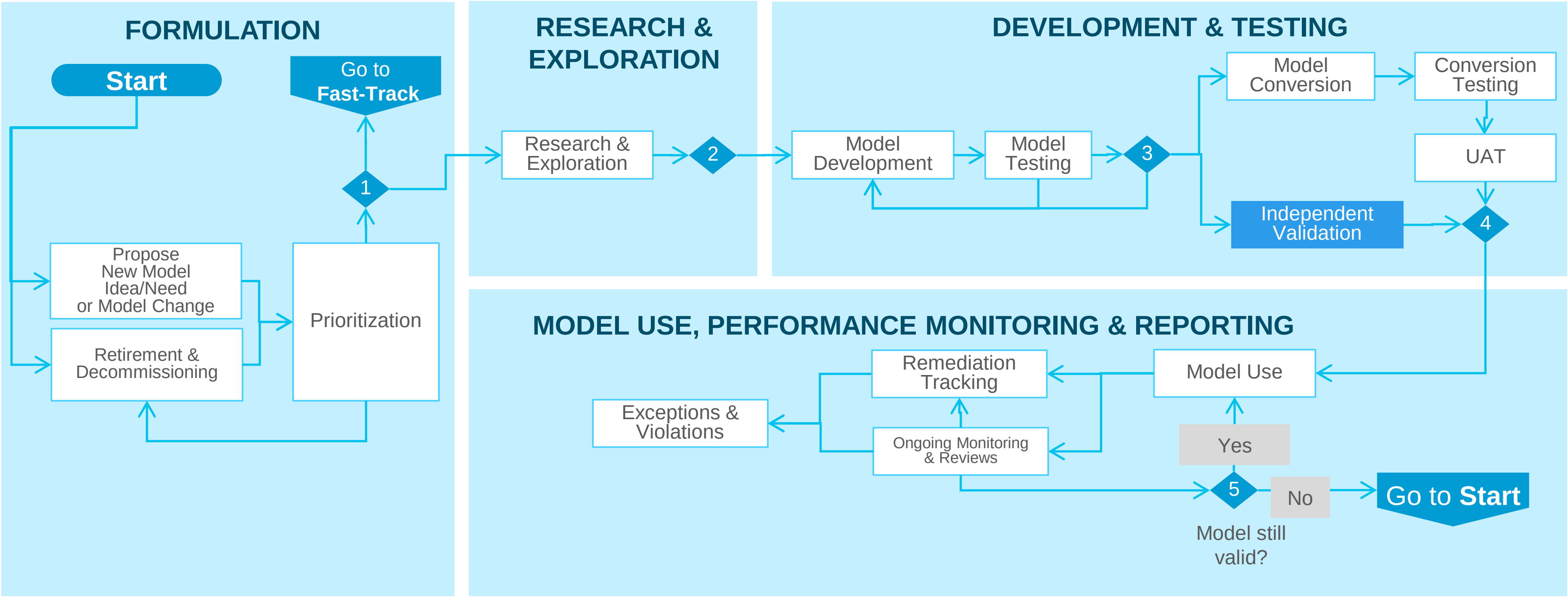
How Should We Govern Our Use of AI?

Model Governance Framework

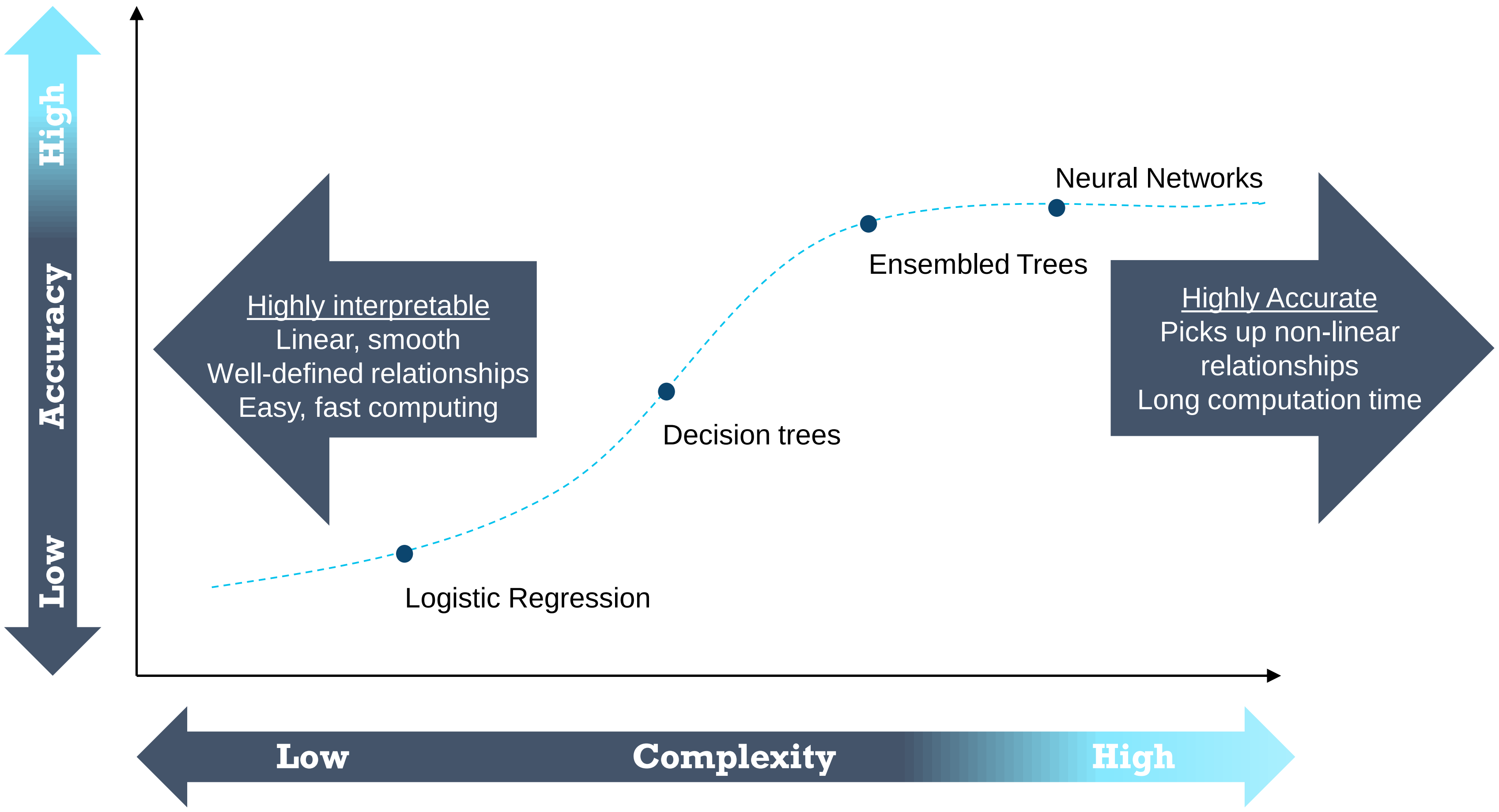
Freddie Mac deploys **three lines of defense** to manage risk.

Model Lifecycle Management is the core of the overall Model Risk Management Framework and is the foundation for the Modeling team's responsibilities.

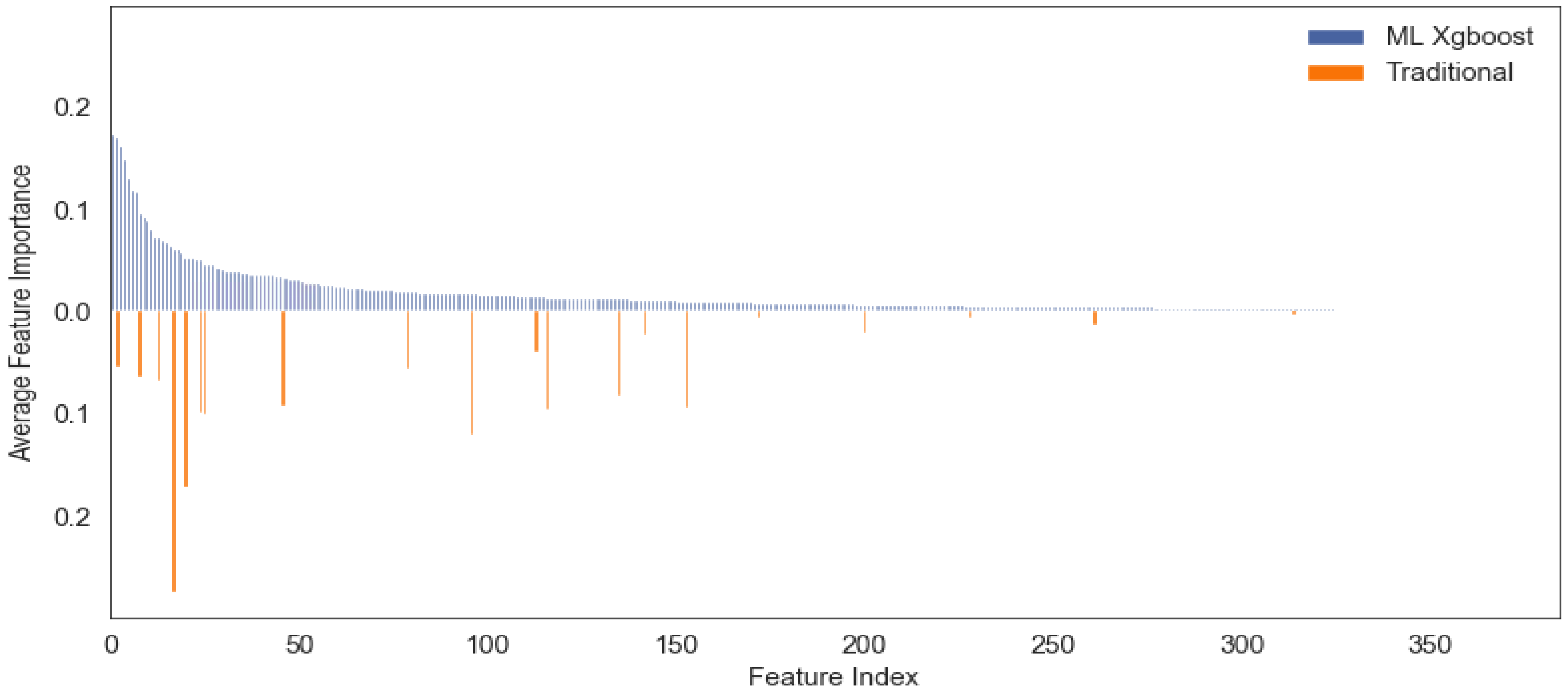
Each 'gate' provides a **key point of control and interaction** across stakeholders.



Modeling Tradeoffs



Number and Importance of Features



The two models choose different variables, and for the overlapping variables, they weight them differently. Compared to the traditional model, no one variable has an as ‘big’ influence in the ML model.

Parsimony Versus Prediction Accuracy

The Answer Depends on the Purpose of the Model:

- Some models (e.g., those used for capital) will need to be transparent and respond to ‘shocks’ in expected ways.
- Other models (e.g., fraud) can use the full power of Machine Learning.

AI Requires Changes to Model Governance

Model Validation has been enhanced to cover amplified risks:

- **Input:** Feature engineering
- **Model Development Process:** Hyper-parameters
- **Output:** Interpretability and bias
- **Implementation:** Production readiness
- **Ongoing Monitoring:** Dynamic model calibration

Source: Derisking machine learning and artificial intelligence, McKinsey white paper by Bernhard Babel, Kevin Buehler, Adam Pivonka, and Derek Waldron, February 2019.

Questions?

If we missed your question today, please email: **Fixed_Income_Marketing@freddiemac.com**

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McLean VA 22102

Panel Discussion: CRT Program Updates

MIKE REYNOLDS

Vice President, Single-Family Credit Risk Transfer

CHRISTIAN VALENCIA

Vice President, Single-Family Credit Risk Transfer

JEFF SHUE

Director, Single-Family Credit Risk Transfer

Single-Family CRT by the Numbers

RMBS Deal of the Year

2019

GlobalCapital Securitization Awards

7 Years Since First Transaction	**130+** Transactions Issued Across Single-Family CRT Offerings	**250+** Unique Investors in Single-Family CRT Offerings	**$3.5 Billion** Average Trading per Month in Secondary Market for 2020
$58 Billion Risk Transferred to Private Capital on Single-Family Mortgages	**$1.6 Trillion** Single-Family Mortgages with Credit Risk Protection	**51%** Portion of Single-Family Portfolio with Credit Risk Protection	**75%** Reduction in Conservatorship Capital Needed For Credit Risk

Source: Freddie Mac, as of 3/31/2020.
Note: Includes STACR, ACIS, certain senior subordination securitization structures, and certain lender risk-sharing transactions; Average trading per month in secondary market for 2020.

Timeline

2012

Developed Concept
- Freddie Mac Single-Family CRT team established

2013

Established Market
- Issued first STACR and ACIS transactions (60-80% LTV fixed-rate collateral)

2014

Generated Momentum
- Introduced HQ series (>80% LTV)

2015

Created Scale and Depth
- Began transferring actual loss in lieu of fixed severity

2016

Expanded Opportunity
- Issued first ACIS 15-year standalone transaction

2017

Broadened Focus
- Issued first STACR HARP transaction

2018

Strengthened Structure
- Issued first STACR Trust transaction
- Issued Class B-2 notes and extended STACR term to 30 years
- Launched IMAGIN, (Integrated Mortgage Insurance)

2019

Leveraged Success
- Issued first FTR transaction (seasoned B-2 notes)
- Released Clarity data intelligence portal
- Issued first STACR REMIC transaction

2020

Driving to Exit Conservatorship while Adapting to Market Environment

FHFA Proposed Capital Rule

FACT SHEET: RE-PROPOSED RULE ON ENTERPRISE CAPITAL

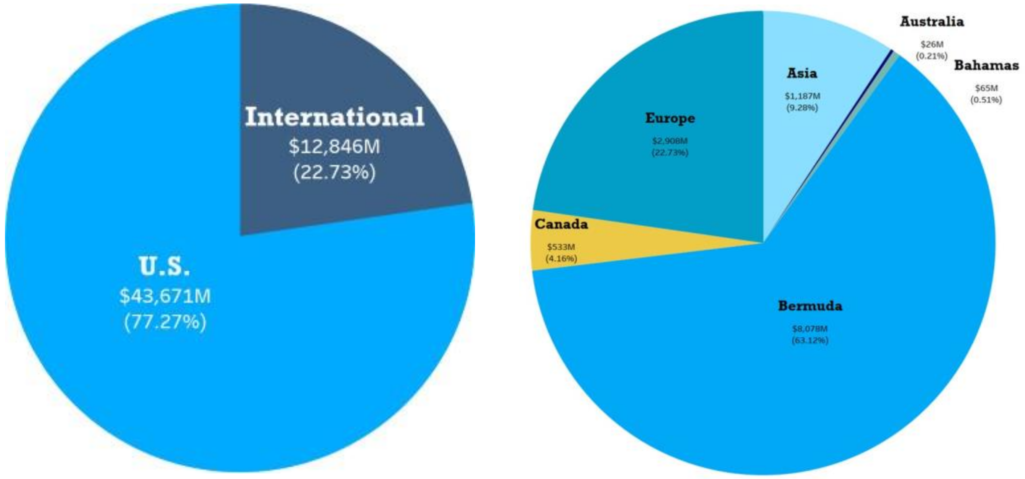
Preamble Table 26: Comparison of Single-family Risk-based Capital Requirements under the 2018 Proposal and the Proposed Rule, as of September 30, 2019

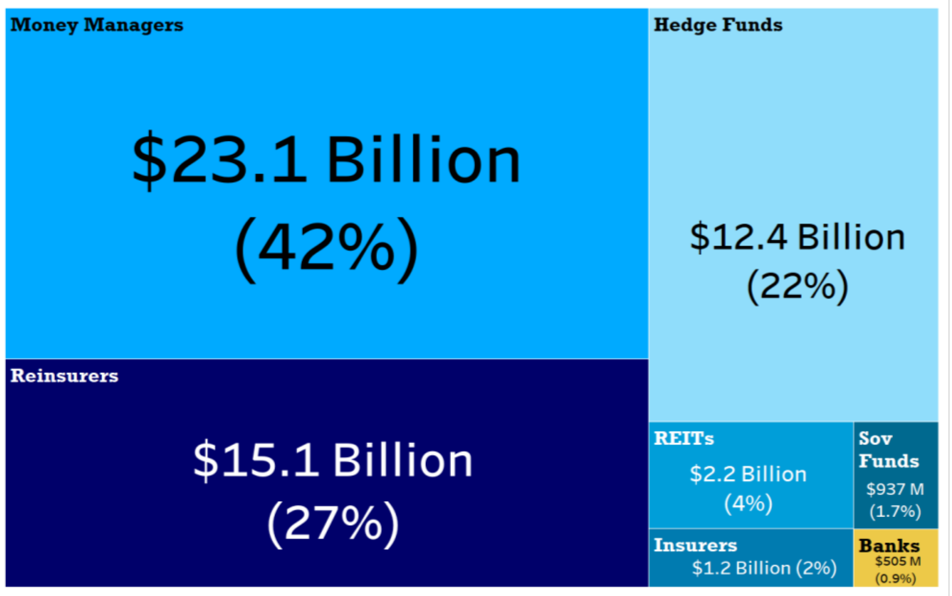
$ in billions	Fannie Mae		Freddie Mac		Enterprises Combined			
	2018 Proposal	Proposed Rule	2018 Proposal	Proposed Rule	2018 Proposal	Risk Weight	Proposed Rule	Risk Weight
Gross Credit Risk	$61.8	$75.1	$38.0	$47.4	$99.9	25%	$122.4	31%
Loan Level Enchancement	(11.0)	(10.4)	(6.9)	(6.6)	(17.9)		(17.0)	
Net Credit Risk	50.8	64.6	31.2	40.8	82.0	20%	105.4	26%
CRT Impact, net	(15.2)	(6.2)	(12.0)	(4.7)	(27.2)		(10.9)	
Post-CRT Net Credit Risk	35.6	58.4	19.1	36.1	54.7	14%	94.5	24%
Market Risk	3.6	3.6	5.5	5.5	9.1		9.1	
Operational Risk	2.4	4.5	1.5	2.9	3.9		7.4	
Subtotal	41.6	66.5	26.2	44.5	67.8		111.0	
Going-concern Buffer	22.4	0.0	14.5	0.0	36.9		0.0	
Total Capital Requirement	$64.0	$66.5	$40.7	$44.5	$104.7		$111.0	
Total UPB	$2,944.9	$2,944.9	$2,058.8	$2,058.8	$5,003.8		$5,003.8	

Includes single-family whole loans, Fannie Mae and Freddie Mac guarantees of single-family securities held by third parties, and investments in single-family securities guaranteed by Fannie Mae, Freddie Mac or Ginnie Mae.

Investor Depth – Participation at Issuance

Global Participation





In the Numbers
Over 250 unique investors have participated in the programs to date

Repeat Investors and (Re)insurers
Investors typically participate in our programs multiple times to take advantage of our underwriting and credit risk management practices

Global Capital
CRT sources global capital to support U.S. Housing

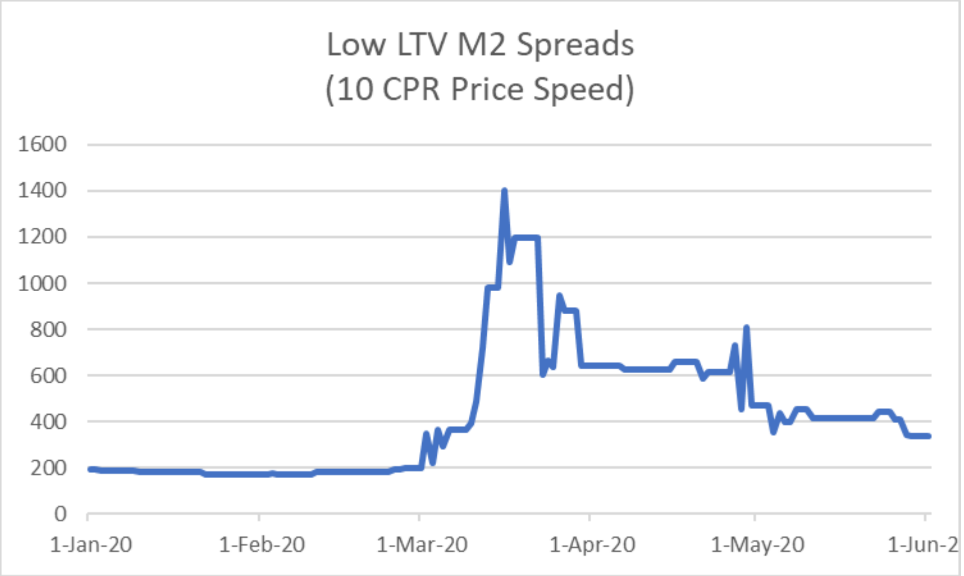
Continue Investor Expansion
Our programs see new investor growth every year

Source: Freddie Mac, as of June 2020.

CRT Market Color – Liquidity Crunch

- SF CRT investors faced liquidity crunch from high redemptions and margin calls.
- CRT was a victim of its own success, with relatively liquid markets providing cash at an all time high of $11B of trades in March and another $8B of trades in April.
- Cash came at a steep premium with large price drops, as high as 60 points. TRACE facilitated transparency promoting the volume of trading and accelerating price moves.

SF CRT markets survived the worst of the liquidity technical



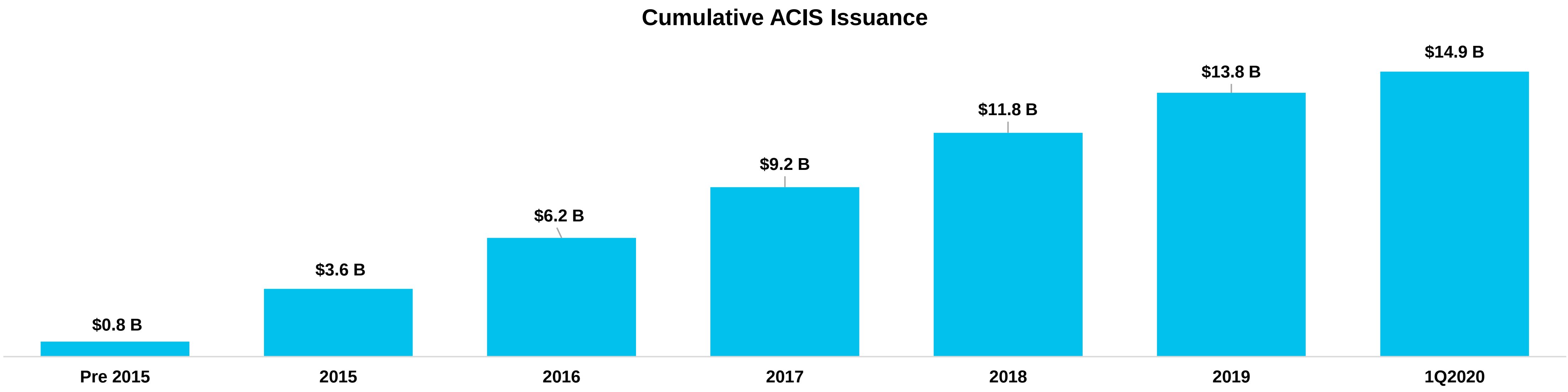
SF CRT LIBOR Transition

- The Alternative Reference Rates Committee (ARRC) endorsed SOFR as its recommended alternative rate to LIBOR in anticipation of LIBOR going away. Freddie Mac supports this ARRC recommendation.
- SF CRT LIBOR transition:
  - Freddie Mac adopted new fallback language starting with STACR 2020-HQA2 transaction providing greater clarity and certainty to the market, consistent with industry best practice.
  - On May 28 Freddie Mac published CRT LIBOR transition Playbook and FAQs, laying out the roadmap and key milestones for CRT LIBOR/SOFR transition.
  - Freddie Mac announced its intention to begin issuing SOFR-indexed CRT deals in Q4 2020 (subject to market conditions and readiness), and discontinue issuance of LIBOR-indexed CRT deals by Q4 2020.
  - Conduct joint Freddie/Fannie market survey for SOFR methodology and market readiness in the second half of June.
  - Target is to publish final SOFR methodology and convention this summer, in alignment with Fannie Mae) for SOFR-indexed CRT issuance, providing advance notice to the market.
  - Continue to work with Fannie Mae, FHFA and ARRC for legacy CRT LIBOR transition. Further announcement expected later in 2020.

ACIS Overview

Flagship CRT offering and portfolio management tool

~$15 billion coverage placed since inception



Pre 2016

- Pioneered first reinsurance transactions in GSE CRT market
- Developed key relationships with global reinsurers, brokers, and service providers

2016-2019

- Diversified reinsurer panel
- Launched ACIS Standalone, ACIS Forward (AFRM), ARMR series (HARP), and sold seasoned B2 risk
- Executed first Introduced 5-year call option

2020

- 2nd largest quarter of issuance in program history ($1.1 B)
- Executed ACIS DNA3 through unprecedented market volatility in March 2020
- Restarting ACIS issuances

CRT Performance – Clarity

Overall loss rates remain well below recent CRT attachment points, while D60 rates reflect recent uptake in forbearance.

CRT Performance Metrics Pulled from Clarity

Deal Type	D60 bps	D90 bps	D120+ bps	Credit Event bps	Loss bps	Severity %	Recent CRT Attachment
All DNA	31	7	18	2	**0.6**	24%	**10**
All HQA	42	10	34	6	**0.3**	5%	**10**
All SAP	23	6	15	1	**0.4**	30%	**5**
All HRP	41	10	49	14	**3.5**	25%	**25**
All FTR	21	3	4	0	**0.0**	7%	**10**
Total	**31**	**7**	**19**	**11**	**1.5**	**13.5%**	**-**

Other Key Observations

- D60 rates are 2-3x since early 2020 while D90/D120+ are more stable.
- HARP deals trending with slightly higher delinquency rates, SAP with slightly lower, than DNA deals.
- FTR deals not yet as seasoned as other benchmarks.
- Severities on HQA deals lower as a result of MI benefit.

CRT Credit Profile – Clarity

Stable credit trends with recent CRT reference pools

Deal	Issuance UPB	Rate %	OLTV	FICO	DTI	Investor %	Cash-out %	DTI > 45 %	FICO < 680 %	Risk Layer
2020-HQA2	$35,066M	4.14	92	750	37	0.3	1.5	12	4	0.4
2020-HQA1	$24,268M	4.49	92	749	37	0.3	1.6	13	5	0.2
2019-HQA4	$13,399M	4.93	92	745	38	0.5	1.8	16	6	0.5
2018-HQA2	$36,193M	4.22	93	744	37	0.5	0.4	13	6	0.6
2017-HQA3	$21,641M	4.06	92	747	36	0.3	0.5	7	5	0.7
2020-DNA2	$43,596M	4.18	76	755	36	6.0	19.6	15	6	0.2
2020-DNA1	$29,641M	4.54	76	752	36	8.6	23.1	16	7	0.5
2019-DNA4	$20,550M	4.91	76	748	36	10.7	24.9	17	7	0.2
2018-DNA3	$29,614M	4.34	76	744	36	13.2	29.5	17	10	0.2
2017-DNA3	$56,151M	3.99	75	749	35	9.5	29.6	10	7	0.1

Other Key Observations

- Reduction in overall risk layering across the portfolio.
- Consistent credit fundamentals relative to historical DNA/HQA deals.

Loss Mitigation Waterfall

Payment Relief Options	1. Forbearance 2. Reinstatement 3. Repayment Plan 4. Deferred Payment Alternatives
Loan Modification Options	5. Extend Modification 6. Cap & Extend Modification 7. Flex Modification
Liquidation Options	8. Applicable Credit Events

1.	**Forbearance**	Provides a temporary reduction or suspension of payments to give Borrowers a specified period of time to improve their financial situation. No mod loss impact.
2.	**Reinstatement**	The most desirable resolution for a temporary hardship. Reinstatement is the act of restoring a delinquent Mortgage to current status.
3.	**Repayment Plan**	Gives the Borrower a defined period of time to reinstate the Mortgage following a temporary hardship by paying normal regular payments plus an additional agreed upon amount in repayment of the Delinquency.
4.	**Payment Deferral**	A relief option for Borrowers who became delinquent due to a short-term hardship that has since been resolved. Past due payments are deferred (non-interest bearing) and will be due at maturity, payoff date, or upon transfer or sale of the Mortgaged Premises.
	COVID-19 Payment Deferral	Leverages a similar concept to the Payment Deferral solution. An eligible Borrower will be brought current by deferring delinquent amounts to create a non-interest bearing balance that will become due at the earlier of the Mortgage maturity date, payoff date, or upon transfer or sale of the Mortgaged Premises.
5.	**Extend Modification**	A modification option for a Borrower with a resolved temporary hardship from an Eligible Disaster. The Servicer will extend the term of the mortgage and the Borrower will resume making the contractual monthly payments.
6.	**Cap & Extend Modification**	An alternative modification option for a Borrower with a resolved temporary hardship from an Eligible Disaster. The Servicer will capitalize arrearages, and extend the term of the mortgage.
7.	**Flex Modification**	An affordable modification that provides significant payment relief to eligible borrowers, leverages requirements of the Freddie Mac Standard and Streamlined Modifications.
8.	**Applicable Credit Events**	Credit Events such as short sale, third party sale, deed-in-lieu, REO disposition

New Disclosure

- July enhancement
  - Borrower Assistance Flag: show the payment relief status of a loan (forbearance, repayment, trial period) without regards to delinquency.
  - Payment Deferral Flag: payment deferral will not be treated as modifications in CRT. To be transparent, we will provide a Payment Deferral Flag to show any loans that have taken up the payment deferral plan.
- Reminder of existing flag
  - Disaster Flag – this is our existing disclosure to show if a loan becomes delinquent due to disaster related hardship, including COVID.

FreddieMac Single-Family | Credit Risk Transfer

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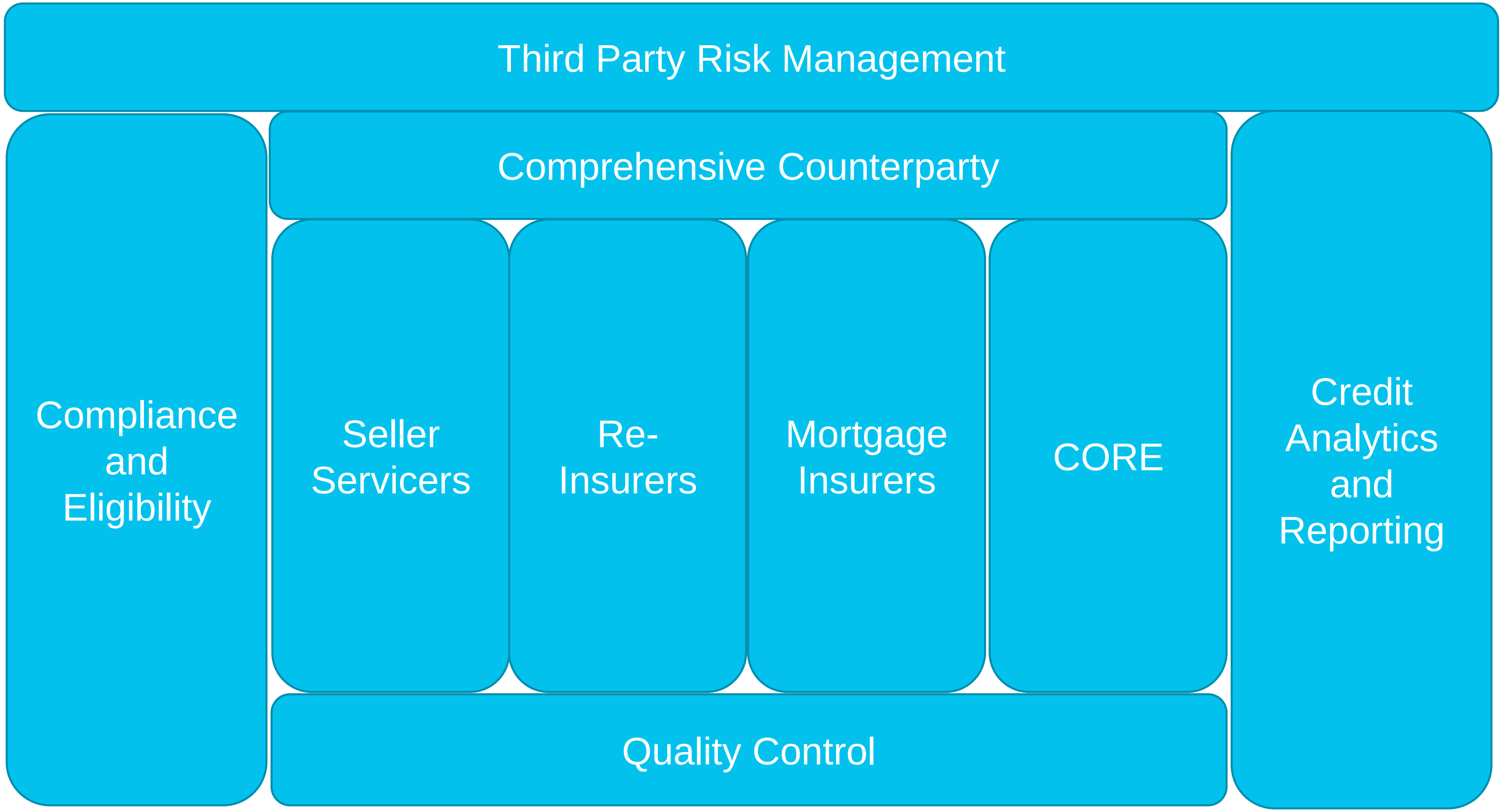
Counterparty Credit Risk Management

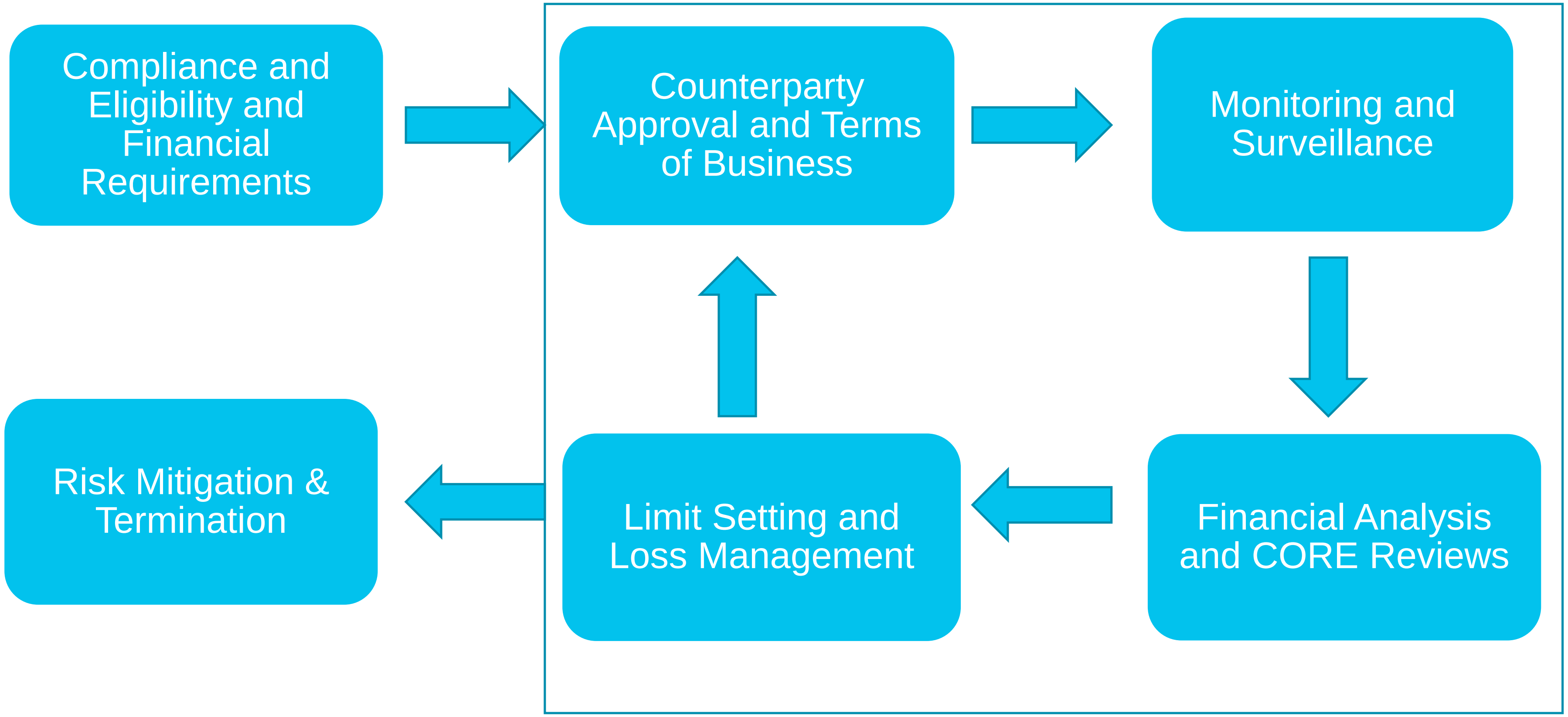
Katie Shilinsky

Vice President, Single-Family
Counterparty Credit Risk Management

Expanded View of Counterparty Risk Family



Counterparty Life Cycle



Performance of a counterparty life cycle is managed by our people and platform

Counterparty Oversight

Freddie Mac has established a comprehensive counterparty oversight process that allows for real time monitoring and oversight of counterparties. This enables rapid and proactive actions to be recognized and taken as needed.

Comprehensive Counterparty Discussion	S/S Contingency Group	Counterparty Task Force	FHFA / FRE
▪ Counterparties are identified and/or confirmed as at risk of financial or operational failure through daily updates and analysis. ▪ At risk counterparties are labeled as <u>Troubled</u> (most severe), <u>Watchlist</u> (heighted monitoring) or <u>Special Mention</u> (watching for now).	▪ Troubled and Watchlist counterparties are escalated for contingency plan discussion and development of action plans.	▪ Group led by 2nd line to facilitate any needed approvals prior to communication with FHFA. ▪ Changes in divisional policies or strategies that could impact oversight of counterparties are discussed.	▪ Any actions recommended for counterparties in financial distress are discussed collectively with FHFA before action is taken.

Counterparty Risk Management Overview

Institutional credit risk appetite

- Risk appetite thresholds based on stressed loss of the portfolio and board limit
- Stressed Loss incorporates the probability of counterparty default, loss given default, and exposure at default
- Thresholds are reviewed at least annually

Risk rating and management limit

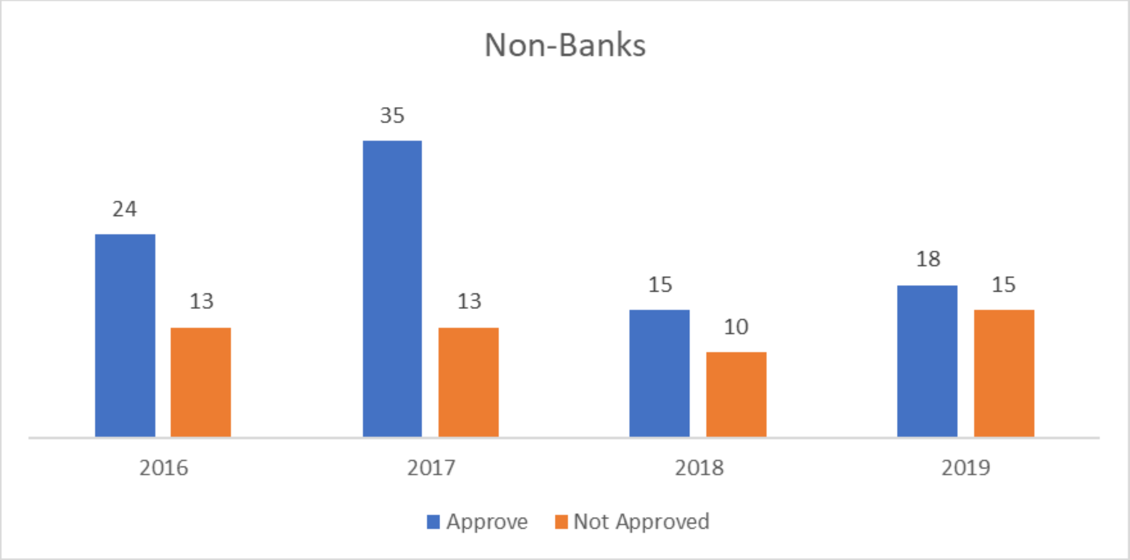
- Risk rating generated by scorecard and/or in depth financial review
- Management limit determined by risk rating and the size and type of counterparty; measures against stressed loss upon default which includes probability of loss recovery
- Management limit set below the board limit to give cushion
- Risk ratings and management limits are reviewed periodically

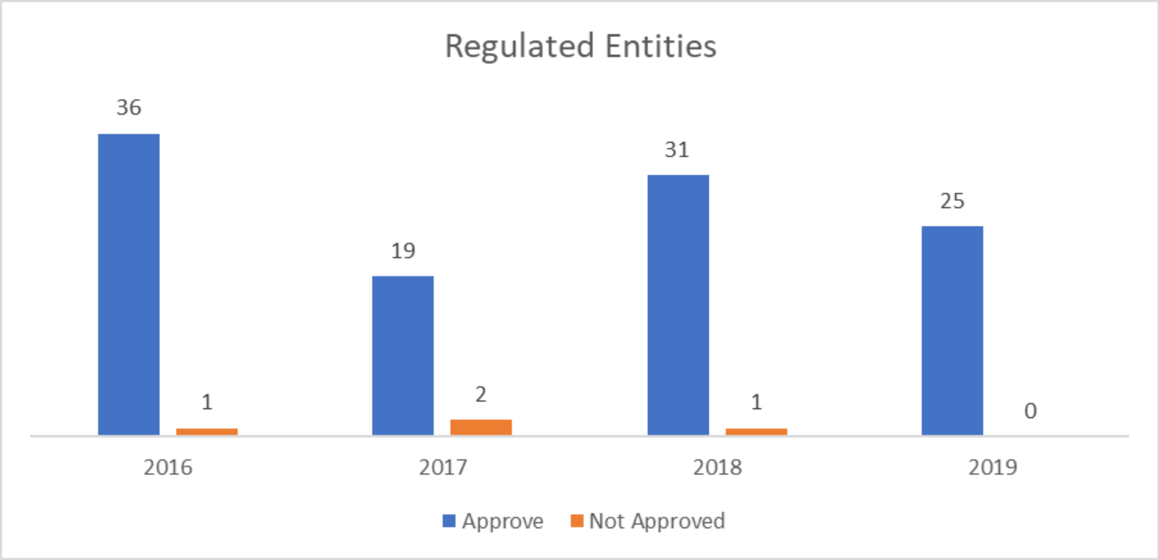
Monitoring and reporting

- Monthly KRIs and KPIs such as changes in loss given default rate and deterioration of risk rating
- Monthly management reporting for high risk counterparties may trigger deep dive credit reviews or adverse action
- Policies for various activities counterparties may pose risk
- Collaboration across business areas for compressive counterparty view

Robust and effective management framework has repeatedly prevented losses

New Seller / Servicer Application Approval
Trends in the rate of approvals and declines





Approval rate declined sequentially in 2019 for non-banks but remained similar for regulated entities. Our credit standard remains focused on transacting with counterparties of healthy financial conditions, strong financial and operational controls, and those that are able to adjust quickly when market condition changes.

Non-banks that were not approved in 2019 were due to poor financial credit, weak financial reporting, or fail to meet minimum standards.

Minimum Financial Requirements

Requirement	Current	Proposed
Minimum Net Worth	\$2.5 million + 25 bps of UPB for total 1-4 unit residential mortgage loans serviced	\$2.5 million + 35 bps of UPB for Ginnie Mae Servicing + 25 bps of UPB for all other 1-4 unit residential mortgage loans serviced
Minimum Capital Ratio	Tangible Net Worth / Total Asset >= 6%	Tangible Net Worth / Total Asset >= 6%
Minimum Liquidity		
Base Liquidity	3.5 bps of Agency Servicing UPB	4.0 bps of Enterprise servicing UPB + 10bps of Ginnie Mae servicing UPB
NPL Threshold	Agency NPL > 6% requires an incremental NPL charge.	Agency NPL > 4% requires an incremental NPL charge.
Incremental NPL Charge	+ an incremental 200 bps charge on Agency NPL for the portion of Agency NPL > 6.0% of Agency servicing.	+ an incremental 300 bps charge on Agency NPL for the portion of Agency NPL > 4.0% of Agency servicing.
Allowable Assets for Liquidity	Cash and Cash Equivalents (Unrestricted) Available for Sale (AFS) or Held for Trading (HFT) Investment Grade Securities: • Agency MBS • Obligations of GSEs • US Treasury Obligations Unused/available portion of committed servicing advance lines of credit.	Cash and Cash Equivalents (Unrestricted) Available for Sale (AFS) or Held for Trading (HFT) Investment Grade Securities: • Agency MBS • Obligations of GSEs • US Treasury Obligations [Remove from list of Allowable Assets] ~~Unused/available portion of committed servicing advance lines of credit.~~

- Proposed minimum financial eligibility requirements provides further transparency and consistency of the capital and liquidity required for Seller/Servicers of different business model
- Addresses the risk factors related to servicing Ginnie Mae mortgage
- Incorporates Ginnie Mae guidelines for consistency in the market place
- Strengthen servicer financial capacity to in event of economic downturn
- Proposed standards will be effective December 31, 2020
- Seller/Servicers that do not comply with the proposed minimum financial requirements may be considered for a transition period

Financial Analysis

CCRM conducts "baseline" reviews of over 2,000 counterparties

- Deeper reviews are conducted using a risk based approach
  - Annual review schedule (largest counterparties)
  - Quarterly reviews (risk based selection)
- Automated quarterly rating and limit updates for all single family counterparties

Reviews cover the following

- Affirm/change ratings and limits
- Approve terms of business
- Ensure compliance with policies and procedures
- Identify potential candidates for risk mitigating actions

Watchlist and Troubled Counterparty designation

- Automatic inclusion defined by specific criteria
- Management may also add a counterparty based on judgment

Financial Analysis

Surveillance tools include (but are not limited to):

- Monitoring of stress loss versus limits (including sub-limits)
- Periodic financial analysis (early warning tools)
- Monitoring of changes in internal and external risk ratings
- Coordinating with other business leaders / market information
- Monitoring of operational performance

Increased focus on industry trends and how market changes are impacting our banks versus non banks

Limit Setting and Loss Mitigation

Risk appetite based on stress loss

- Allows FRE to monitor potential loss and account for collateral

Continue to refine our Probability of Default tools for better prediction of default within our segmented populations

- New tools allow us to more accurately monitor our portfolio
- Tools and models keep the customer experience in mind
- Allow for transparency to the client and other internal stakeholders

Management limits for internal monitoring

Counterparty Eligibility Requirements for Mortgage Insurers (“PMIERs”)

Private Mortgage Insurer Eligibility Requirements (“PMIERs”) 2.0

- Effective March 31, 2019
- Further improves the required quality of MIs’ PMIERs capital by:
  - Eliminating the inclusion of premium credit for legacy loans and proceeds from debt
  - Limiting proceeds from surplus notes
- Established counterparty haircuts for risk transferred to third-party reinsurers
- Improved alignment of quality control requirements with GSE standards and mortgage insurance rescission
- Under PMIERs 2.0, most of mortgage insurers have a surplus of approximately **$1B** above the minimum requirement
  - Average surplus of the six mortgage insurers is $823M, which equates to the average mortgage insurer holding 42% more PMIERs available assets relative to the requirement

Mortgage Insurer Monitoring Framework

GOAL | Monitor the MIs' financial strength, including their compliance with PMIERs

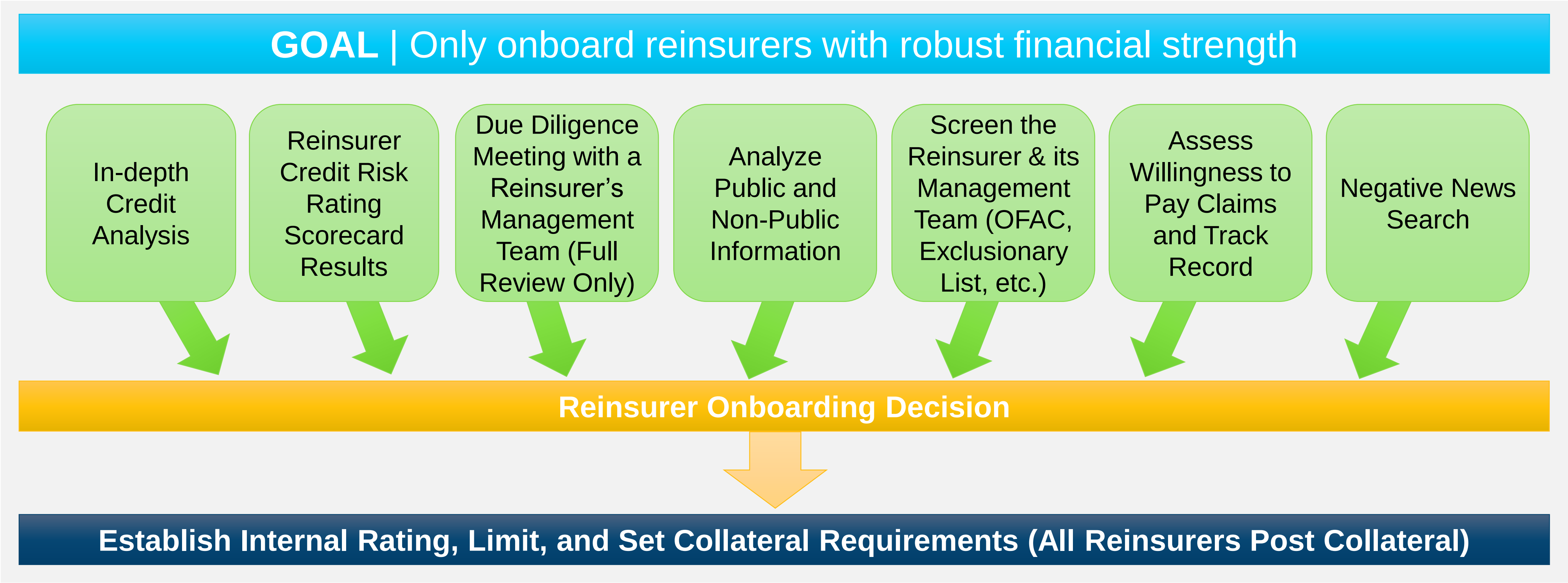
Mortgage Insurer Counterparty Framework

- Monitor Each MI's Quarterly Financial Results
- Monitor each MI's PMIERs Compliance Each Quarter
- Quarterly Business Performance Review with Each MI
- MI Operational Scorecard Performance
- In-depth Credit Analysis of Each MI
- Periodic On-Site Operational Risk Reviews (CORE)
- MI Credit Risk Rating Scorecard Results

Counterparty Risk Assessment

Assign an Appropriate Internal Rating and Determine Our Loss Reserve Amount for Each MI

Reinsurer Onboarding Framework



Reinsurer Monitoring Framework

GOAL | Closely monitor our reinsurance counterparties' financial strength, limit utilization, and the overall level of our reinsurer counterparty concentration

- In-depth Credit Analysis of Each Reinsurer
- Reinsurer Credit Risk Rating Scorecard Results
- Identify Changes in Reinsurers' External Ratings
- Negative News Searches
- Monitor Limit Utilization and Forecast Future Utilization
- Calculate the Level of our Concentration to Our Panel of Reinsurers
- Use Dashboards to Monitor Potential Red Flags

Develop a view of the financial strength of our reinsurance counterparties, determine if any reinsurers are close to reaching their limit, and determine our overall level of counterparty concentration

Take action as appropriate, including adjusting internal ratings, collateral requirements, and limits

Questions?

If we missed your question today, please email: **Fixed_Income_Marketing@freddiemac.com**

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1551 Park Run Dr
McLean VA 22102

Freddie Mac Single-Family | Credit Risk Transfer

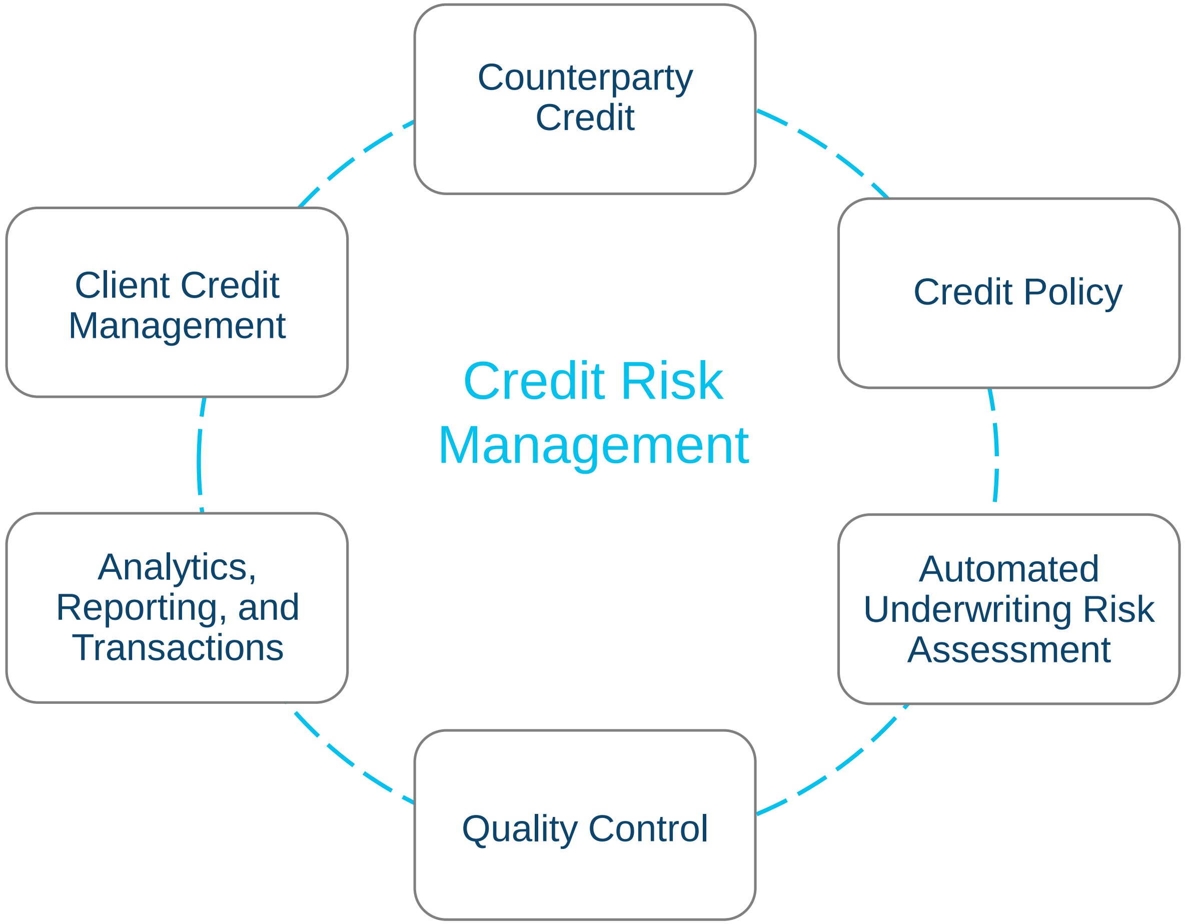
Investor Day Virtual Event Series 2020

Credit Risk Management Overview

Terri Merlino

Senior Vice President and Chief Credit Officer,
Single-Family Business

Single-Family Credit Risk Management



Trusted partner in support of business objectives and operational effectiveness of Freddie Mac's Single-Family business.

The 3 Cs

Credit

In this context, credit refers to a borrower's ***willingness*** to repay the loan

Capacity

Capacity refers to a borrower's ***ability*** to repay the loan

- AIM for Assets
- AIM for Income
- AIM for Self-Employed
- AIM for Direct Deposit

Collateral

Collateral refers to ***property*** used to secure the loan

- Automated Collateral Evaluation (ACE)
- Loan Collateral Advisor
- Condo Project Advisor

Our Platform:

Automated Underwriting Risk Assessment

Loan Product Advisor®
Enhanced Underwriting Workflow

Loan Quality Advisor®
Eligibility Evaluated

Loan Collateral Advisor®
Accurate Evaluations

Condo Project Advisor®
Determine Viability

We require the loans we purchase to be assessed by one of our proprietary underwriting software tools, Loan Product Advisor or Loan Quality Advisor, prior to purchase

Temporary Guide Updates

Credit Quality, Safety and Soundness

- Income
- Employment
- Assets

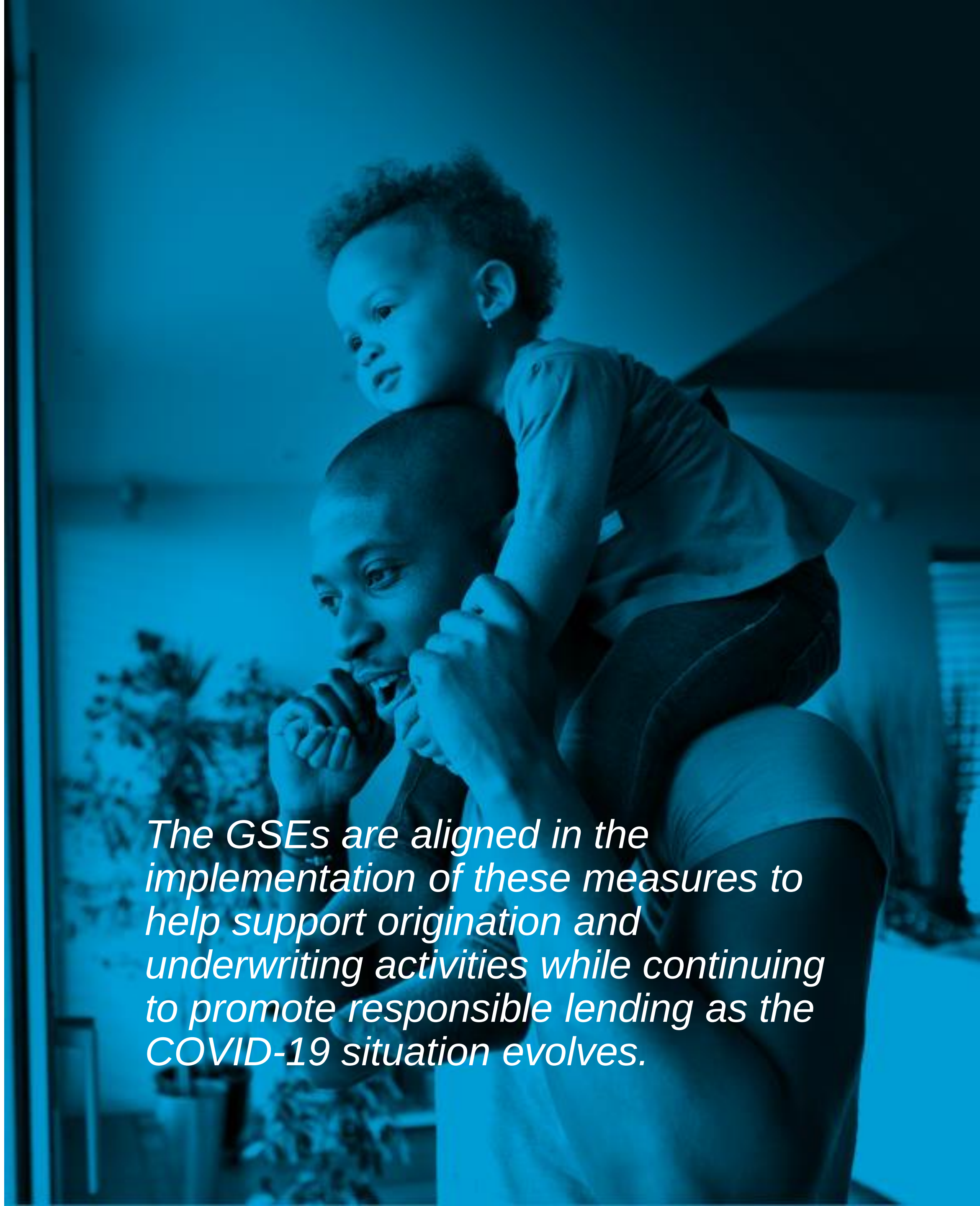
Flexibilities

- Closing documentation
- Collateral

Liquidity

- Forbearance

Loan Product Advisor® will not be updated to reflect these temporary measures



The GSEs are aligned in the implementation of these measures to help support origination and underwriting activities while continuing to promote responsible lending as the COVID-19 situation evolves.

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Closing Remarks

Mike Reynolds

Vice President, Single-Family Credit Risk Transfer

Thank you!

If we missed your question today, please email: **Fixed_Income_Marketing@freddiemac.com**

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Freddie Mac Single-Family | Credit Risk Transfer

Investor Day Virtual Event Series 2020

Alphabetical Speaker Biographies

AI's Role in Risk Mitigation

MICHAEL BRADLEY

Senior Vice President, Single-Family Modeling and Analytics

Michael Bradley is senior vice president of modeling, econometrics, data science and analytics (MEDA) in Freddie Mac's Single-Family division. He is responsible for setting the modeling and analytics strategy and positioning for Freddie Mac to become the best credit guarantor.

Mr. Bradley was with Freddie Mac from 1991 to 2003. Among his roles during that time, he served as vice president and general manager of Strategic Information Services, where he helped innovate and bring Home Value Explorer® to market. He returns to Freddie Mac after serving as senior vice president of the consumer analytics and modeling unit at Citigroup and, most recently, as senior vice president of the decision analytics and research team at CoreLogic.

Mr. Bradley holds a Bachelor of Science in economics from the University of Delaware and a Master of Science and a doctorate, both in economics, from the University of Illinois.

CEO Perspective

DAVID BRICKMAN

Chief Executive Officer, Freddie Mac

David Brickman is chief executive officer of Freddie Mac, one of the largest providers of mortgage financing in the United States. He is also a member of the company's Board of Directors.

Previously, Mr. Brickman served as president of Freddie Mac and was responsible for all three of Freddie Mac's business lines – Single-Family, Multifamily and Capital Markets. Prior to this role, he was the head of Freddie Mac Multifamily, where he presided over a remarkable period of growth – raising annual production from $16 billion in 2010 to almost $80 billion in 2018. He also firmly established the company's flagship K-Deal Securitization program as one of the leading securitized products in the structured finance markets.

Mr. Brickman completed all doctoral coursework for his Ph.D. in economics and real estate at The Massachusetts Institute of Technology. He holds a master's degree in public policy from Harvard University and a bachelor's degree from the University of Pennsylvania.

Single-Family Business Update

DONNA CORLEY

Executive Vice President and Head of the Single-Family Business

Donna Corley is executive vice president and head of the Freddie Mac Single-Family business, where her responsibilities include managing the company's relationships with its Seller/Servicers, the performance of Freddie Mac's guarantee book of business, and all sourcing, servicing, risk management and business operations.

For the past five years, Ms. Corley was the Single-Family chief risk officer, focused on bringing a fresh perspective to managing risk while leading a team of approximately 500 employees responsible for analyzing and managing the risks that impact Freddie Mac's Single-Family business. A 24-year Freddie Mac veteran, Ms. Corley began her career as a research analyst and, subsequently, held various portfolio manager positions within the investment and capital markets division, as well as led Freddie Mac's Single-Family credit pricing, risk transfer and securitization teams.

Ms. Corley holds a Bachelor of Science in business administration from American University and a Chartered Financial Analyst (CFA) designation.

Housing Market Update

SAM KHATER

Vice President and Chief Economist, Economic and Housing Research

Sam Khater is vice president, chief economist and head of Freddie Mac's Economic and Housing Research division. He is responsible for research, analysis and forecasts of the macroeconomy, with a special focus on housing and mortgage markets.

Mr. Khater came to Freddie Mac from CoreLogic, where he served as vice president of research and deputy chief economist. His responsibilities included producing original research and advising clients, regulators, policymakers and investors on real estate and mortgage market trends. As a compelling spokesperson with a unique ability to translate complicated subjects, he is regularly quoted in national, local and real estate trade media outlets.

Prior to joining CoreLogic, Mr. Khater was a senior economist at Fannie Mae and an economist at the National Association of Realtors®.

Operational Efficiencies and Performance

DAVE LUCCHINO

Senior Vice President, Single-Family Operations

Dave Lucchino is senior vice president of Operations for Freddie Mac's Single-Family business. He oversees Servicing Operations, Securities Operations, and Customer and Support Services. These departments focus on loss mitigation, investor reporting, the 1(800) FREDDIE contact center, back office support for all mortgage backed securities, and a variety of other critical processes that support Freddie Mac as well as its origination, servicing, and investor partners.

Prior to this role, Mr. Lucchino consulted with the Single-Family business, focusing on operations. He leveraged his industry experience to identify and implement numerous opportunities to improve efficiency, reduce credit loss, and improve the experience for Freddie Mac clients. He has held senior operational roles in mortgage loan origination and servicing for JPM Chase, CitiMortgage, and other industry leaders.

Mr. Lucchino received his Bachelor of Science in business and economics from Wilson College.

Servicing Policy and Updates

WILLIAM MAGUIRE

Vice President, Single-Family Servicing Portfolio Management

Bill Maguire is vice president of Servicing Portfolio Management for Freddie Mac's Single-Family business, which includes overseeing the performance of Freddie Mac's $1.8 T servicing portfolio. Mr. Maguire joined Freddie Mac in September 2010 and is responsible for Freddie Mac's relationships with Servicers, including managing their performance as well as creating and implementing programs, initiatives, policies, and capital market-based transactions to reduce credit losses and loan severities.

Prior to Freddie Mac, Mr. Maguire was the principle of a mortgage servicing consulting firm. He also had a distinguished 22-year career at GMAC Mortgage Corp, serving in multiple leadership positions within its servicing organization, including senior vice president of Investor Relations, Investor Reporting, Default Management and president of Executive Trustee Services.

Mr. Maguire holds a B.A. in accounting from St. Joseph's University. He's also a graduate of the Mortgage Bankers Association School of Mortgage Banking.

Loss Mitigation Overview

JENNIFER MEAGHER

Director, Single-Family Operations Change Management

Jennifer Meagher is a director of Operations Change Management in the Single-Family division. She is responsible for leading change management, management reporting, risk and controls, application oversight and support, and compliance within the REO unit.

Her experience and areas of responsibility cover SOX compliance, operational risk management, vendor network management, supplier diversity and inclusion, strategic planning, business continuity/disaster recovery, budget planning, vendor audits, management reporting, and departmental systems design and management.

Ms. Meagher has been in the REO industry for over 28 years and with Freddie Mac since 1994.

Credit Risk Management Overview

TERRI MERLINO

Senior Vice President and Chief Credit Officer, Single-Family Business

Terri Merlino is senior vice president and chief credit officer for Freddie Mac's Single-Family business. As chief credit officer, Ms. Merlino leverages her broad-based knowledge of mortgage operations, sales, processing, underwriting, quality control and secondary marketing activities to substantially and positively impact Freddie Mac's mortgage credit risk management efforts, as well as our client experience.

Prior to Freddie Mac, Ms. Merlino held the roles of chief credit officer and chief risk officer at New Penn Financial. Before New Penn Financial, she spent many years at PHH Mortgage as senior vice president, credit and operational risk, where she was responsible for fostering a risk-aware culture through her leadership of all aspects of credit and operational risk management.

Ms. Merlino holds a Bachelor of Business Administration in accounting from the University of Houston.

CRT Market and Program Updates

MIKE REYNOLDS

Vice President, Single-Family Credit Risk Transfer

Mike Reynolds is the vice president of Freddie Mac's Single-Family Credit Risk Transfer (CRT) program. CRT comprises capital markets, reinsurance, and mortgage insurance, including the Structured Agency Credit Risk (STACR®) and Agency Credit Insurance Structure (ACIS®) family of credit securities – multi-billion dollar programs that transfer mortgage credit risk to private investors.

Mr. Reynolds has over 20 years of GSE experience and joined Freddie Mac in 2012 to help launch the Single-Family CRT program. Prior to Freddie Mac, he was vice president of strategic initiatives at Fannie Mae. Earlier in his career, he worked on automated underwriting.

Mr. Reynolds holds a Bachelor of Science in business administration from Northeastern University and a Master of Science in finance from George Washington University.

Portfolio Management and Analytics

SACHA ROSENTHAL

Vice President, Single-Family Servicing Portfolio Analytics

Sacha Rosenthal leads the Servicing Portfolio Analytics department for the Single-Family Portfolio Management division. He is accountable for developing strategies and analytics related to portfolio management, loss mitigation, distressed collateral liquidation, natural disasters and climate change, 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.

Since 2001, Mr. Rosenthal’s Freddie Mac experience has encompassed several roles spanning both the Investment and Capital Markets division and Single Family division, including structured transactions, servicing capital markets, relationship management and portfolio management.

Mr. Rosenthal holds a BSc in biochemistry from the University of Bristol, UK.

Counterparty Credit Risk Management

KATIE SHILINSKY

Vice President, Single-Family Counterparty Credit Risk Management

Katie Shilinsky is the vice president of counterparty credit within the Single-Family division. She leads teams responsible for managing the counterparty risk profile of Seller/Servicers, mortgage insurers and reinsurers. She also manages the Single-Family teams responsible for manging fraud, third-party risk, executing operational risk exams and ensuing counterparty compliance and eligibility.

Prior to joining Freddie Mac, Ms. Shilinsky worked at GE Capital, where she was the credit governance leader for the lending and leasing portfolios. Her responsibilities included establishing and implementing risk management policies and practices as well as ongoing management of credit limits, thresholds and tolerances. Prior to GE Capital, she worked for the Federal Reserve Bank of Richmond as a quality assurance team leader and senior bank examiner.

CRT Program Updates

JEFF SHUE

Director, Single-Family Credit Risk Transfer

Jeff Shue is a director in the Credit Risk Transfer division within the Single-Family business. His work includes leading the product development and management efforts for Agency Credit Insurance Structure (ACIS), Freddie Mac's reinsurance credit risk transfer vehicle. The program has transferred risk on $1.5 trillion of Single-Family loans across 57 transactions since inception in 2013.

Mr. Shue has 19 years of experience in mortgage finance and credit risk management. Since 2002, he has held several positions at Freddie Mac in the pricing, costing, capital and credit modeling groups, and led the development of the ACIS program from 2012 to 2016. Between 2016 and prior to returning to Freddie Mac in 2019, Mr. Shue worked as a managing director in Aon Plc's Credit Guaranty and Government group, focused on building new reinsurance-based CRT solutions for commercial and public entity clients.

Mr. Shue holds degrees from Cornell University and American University.

CRT Program Updates

CHRISTIAN VALENCIA

Vice President, Single-Family Credit Risk Transfer

Christian Valencia is the director of Credit Risk Transfer (CRT) in Freddie Mac's Single-Family division. He manages the core transaction team that issues the Structured Agency Credit Risk (STACR) notes, Freddie Mac's flagship CRT program. Some of the STACR program enhancements he has led include moving the program to actual losses from fixed severity, issuing STACR under Trust Structure, and taking the STACR program to REMIC.

An industry veteran with over 18 years of experience in capital markets, Mr. Valencia has worked in structured finance in both the U.S. and abroad, most recently as CFO leading the treasury and structuring departments of a securitization company in Ecuador.

Mr. Valencia holds an MBA in finance from the University of Maryland and a B.S. in business and finance from the University of West Florida.

Loss Mitigation Overview

ERIC WILL

Senior Director, Single-Family REO Operations

Eric Will is the senior director of REO Operations within the Single-Family Operations division. Externally in the real estate community, Freddie Mac's REO department is commonly known as HomeSteps®.

Mr. Will is responsible for managing the operational, strategic and oversight activities related to valuation, preservation and maintenance, eviction, title, sales, and closing of Freddie Mac's REO inventory nationwide.

During his 27-year career at Freddie Mac, he has held various positions in the Technology, National Lending and Default Servicing divisions of the organization.

Mr. Will graduated from James Madison University.