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Introduction to Agency MBS

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Introduction to Agency MBS: what we'll cover

- **A brief history of the market**
  - GSEs/Ginnie
  - The "passthrough" structure
- **How does the agency MBS market actually link borrowers and investors?**
  - TBA forward sales, creation of spec pools
- **How does the market trade?**
  - TBAs, specs, CMOs
- **Who buys agency MBS?**
  - Why MBS fit into many different types of portfolios & how that impacts valuations

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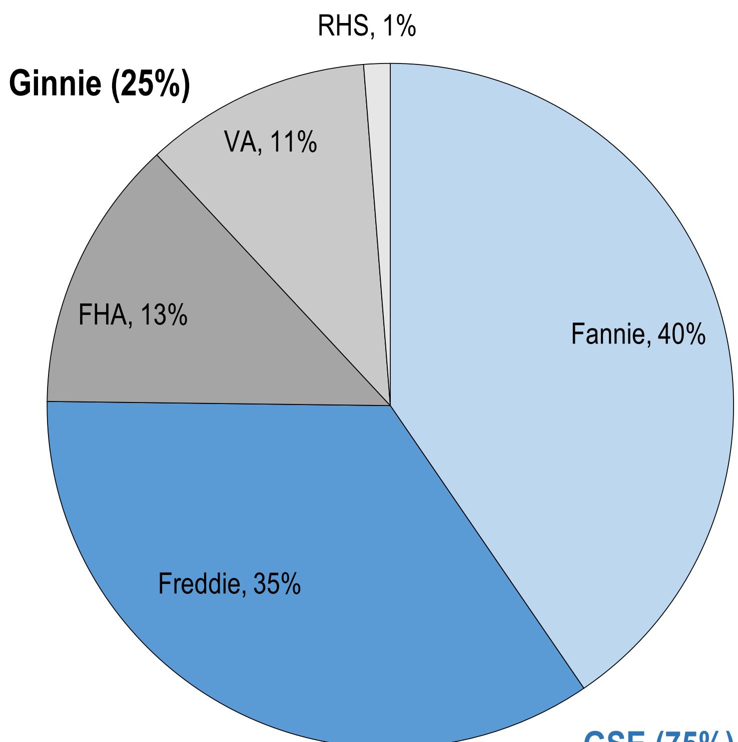
The guarantors of an $8.5tr market: Fannie, Freddie, and Ginnie

- **The US mortgage system operates with extensive government involvement**
  - Fannie Mae: Established in 1938 to raise home ownership and affordability via a liquid secondary market Initially purchased FHA insured mortgages, went public in 1968
  - Ginnie Mae: Split off from Fannie Mae in 1968 to insure FHA/VA/RHS mortgages
  - Freddie Mac: Created in 1970 to compete with the newly public Fannie Mae
- **Ginnie has an explicit, "full faith and credit" guarantee from the U.S. Government**
- **The Government Sponsored Enterprises (GSEs) each have a line of credit from Treasury ($114bn FN, $140bn FR)**



Source: J.P. Morgan, Ginnie Mae, Fannie Mae, Freddie Mac

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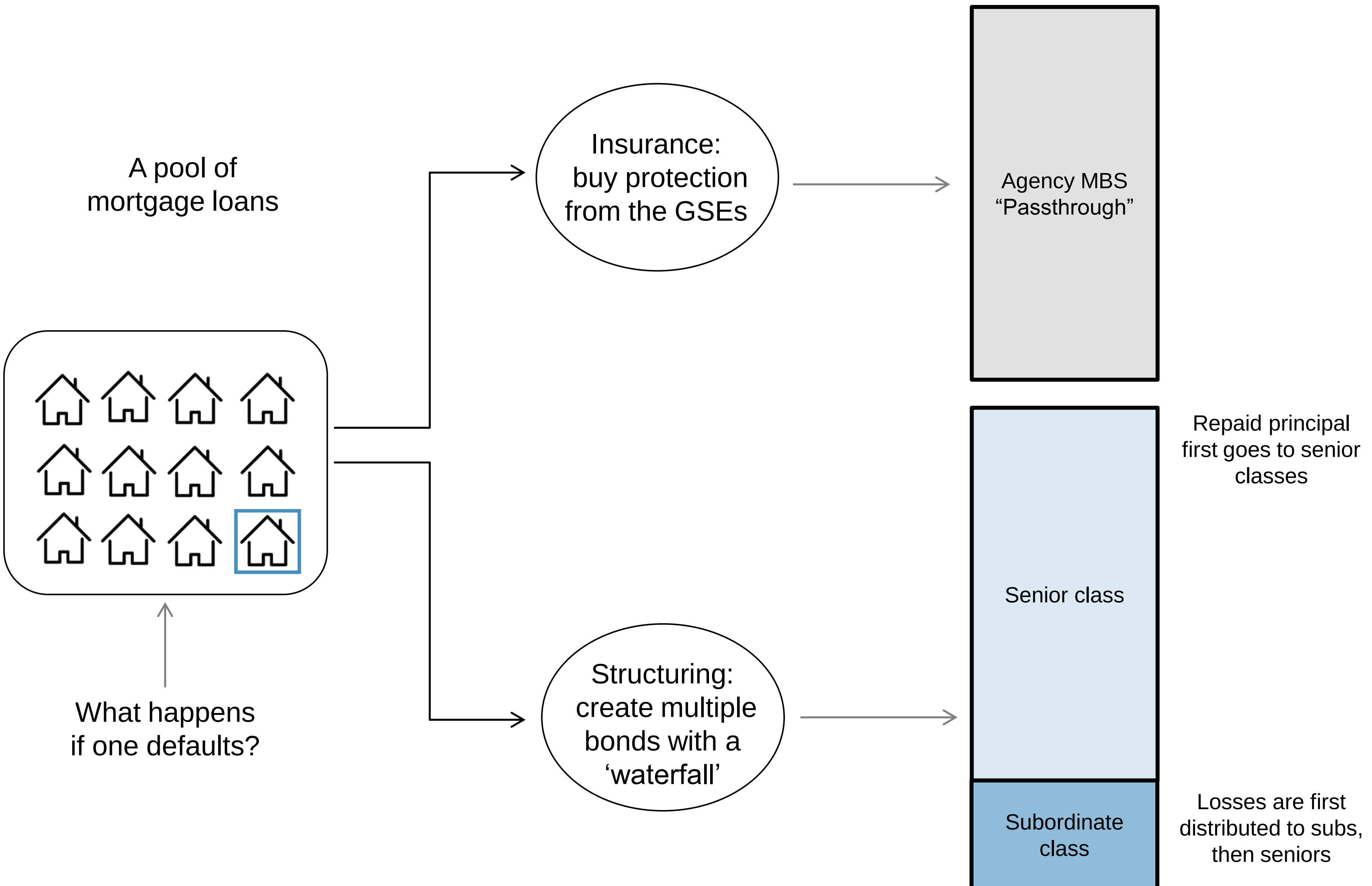
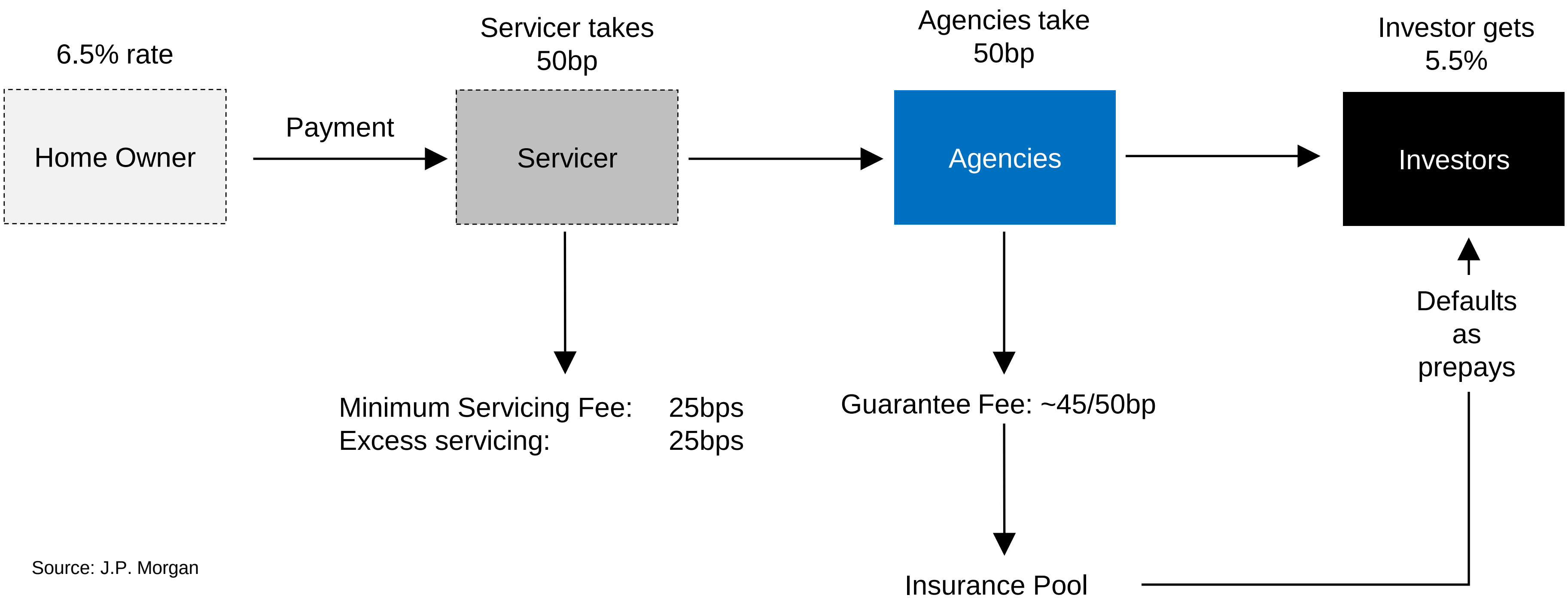
Credit protection: **insurance** vs. subordination



Source: J.P. Morgan

The passthrough: how does the borrower's payment get to the investor?



Source: J.P. Morgan

- By convention, MBS pools come almost exclusively in 50bp increments (i.e., 3%, 3.5%, 4%, etc.)
- Also by convention, mortgage loans typically come in 1/8ths (4.125%, 4.25%, 4.375%, etc.)
- Not all of the loans in a pool need to have the same rate, but the pool must pay a single coupon
- As a result, originators sometimes retain "Excess Servicing" (also called "XS")
- For example, if the borrower gets a 6.5% rate, and is pooled into a 5.5% coupon bond, the 1% of interest is divvied up as follows:

Required retained servicing:	25bp
Guarantee Fee:	50bp
Excess servicing:	25bp

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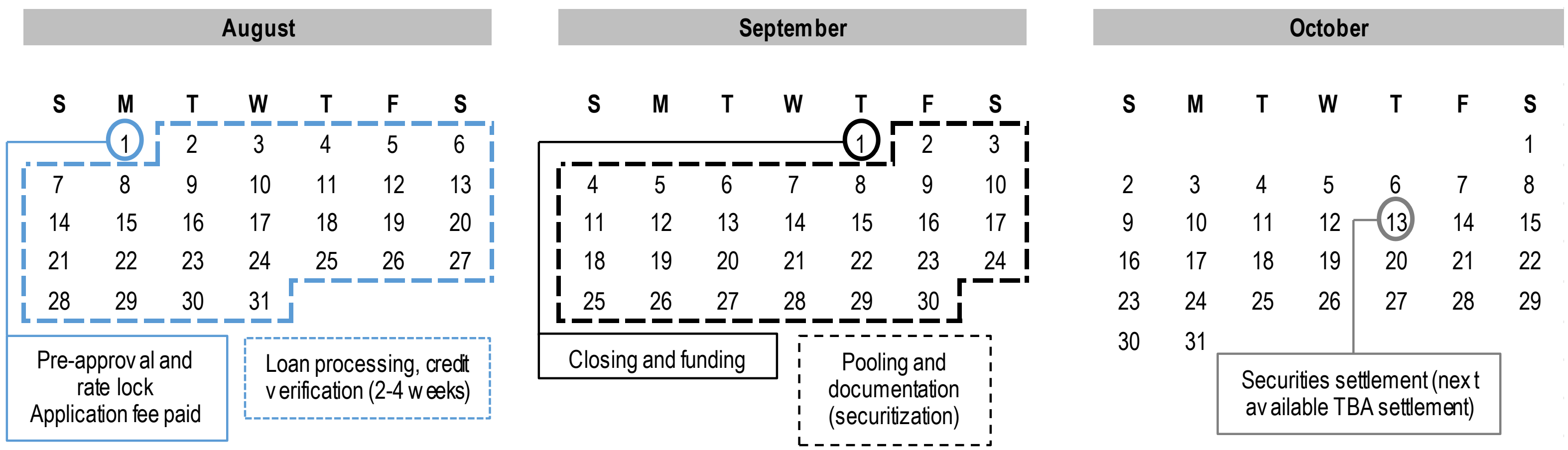
A borrower walks into a bank and asks for a mortgage loan… what happens next?

Sample mortgage origination timeline



Source: J.P. Morgan

- At time of rate lock, the originator sells a percentage of the mortgage origination forward as TBA
- Pull-through percentage (i.e. success rate) is based on rate moves and borrower qualification (borrowers can pull out of the loan if there is a rally and better rates become available)
- TBAs allow originators to hedge against market conditions
- Without forward settlement, risk would be high for originator, resulting in higher mortgage rates
- The current structure gives consumers a choice in “real time” on interest rates

Specified pools: the building block of the entire market


FN MA4733 No Price --/-- Yield --/-- Coupon 4.500% --
As of -- Prepay 132PSA Fannie Mae Pool
FN MA4733 Mtge Export Page 1/2 Security Description
100% FNCL 4.5 N 5.453(358)1 CUSIP 31418EHK9 Pool Level 95) Buy 96) Sell
Summary Comments

Pool	FN MA4733	16) Seasoning	FNCL 4.5 N	As Of	09/2022
Type	(CL) UMBS Conventional Conv 30 years...	17) Vintage	FNCL 4.5 2022	Issue Date	08/01/2022
Traits	30/360			Maturity Date	09/01/2052
11) Seller	Multiple	Issuer	FNMA		

12) Pool Information | PDI

Coupon	4.500	WAC	5.453	Orig WAC	5.453
		WARM	358	Orig WAM	360
		WALA	1		

Balance	
Factor	0.99487734
Orig Amt	5,716,864,897
Curr Amt	5,687,579,342

13) Collateral Information | CLC

WAOLTV	78	AOLS	414,249	Orig TPO	52.35
WAOLTV-HPI*	78	WAOLS	463,073	Curr TPO	52.41
WAOCLTV	79	MAXLS	1,867,000	Green Bond	N
WAOCS	756	WAOLT	360		
		WAODTI*	38		

Prepay	CPR	PSA
1 Month	4.7	2361
3 Month		
6 Month		
1 Year		
Life	4.7	2361

14) # Loans 13,781 Delay 54 (24)

18) States	%UPB
California	20.5
Colorado	5.5
Texas	4.7

TRACE Eligible
15) Paydown Information | PDI PERF
*Value calculated by Bloomberg

Prepay History	Sep22	Aug22
1 Month CPR	4.7	
3 Month CPR		
6 Month CPR		
12 Month CPR		

- Coupon = Bond coupon
- WAC = Borrower's rate
- WALA = Loan age, months
- WAM = Maturity, months
- LTV = Loan to value
- CS = Credit score, FICO
- LS = Loan size
- DTI = Debt to income

Source: Bloomberg Finance L.P.

- A single bond/CUSIP that could carry particular characteristics (such as loan size no larger than $225k) that will fetch a higher price than a TBA (to-be-announced) delivery

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TBA trading allows for flexibility and liquidity

- What is a TBA?
  - A TBA is a futures contract where the type of collateral due is 'to be announced'
  - Buyer agrees to take delivery of MBS with a particular **Term, Issuer, Coupon – on a particular day (1 per Delivery Month)**
    - (for example, 30-year Fannie Mae 3s for October settle)
    - Term: 30yr/15r, Issuer: UMBS/Ginnie, Coupon: 1.5-6.5s (varies), Month: typically 3 settles at any given time
  - Seller can decide which of many existing pools of collateral to deliver (WAC, vintage, loan size, etc.) into the TBA contract
  - Allows very large trades & huge volume ($200bn/day)
  - TBA trades settle on 1 day per month (a.k.a. PSA settle)

Characteristics of recently-issued 30-year Fannie Mae 3% MBS pools that are deliverable into a Fannie Mae 3% TBA

Issue Date	Pool Number	Cbal, $bn	WAC	WALA	Loan size, $k	FICO	% LTV	1m CPR	OAS
Jul 22	FN MA4698	0.5	3.62	3	399	761	78	2	31
Jun 22	FN MA4653	1.8	3.63	4	403	758	73	2	32
May 22	FN MA4624	3.3	3.65	4	389	759	73	3	33
Apr 22	FN MA4599	8.5	3.81	5	390	756	76	2	33
Mar 22	FN MA4579	13.5	3.84	6	402	748	76	4	36
Feb 22	FN MA4564	5.0	3.75	7	391	722	78	5	38
Jan 22	FN MA4549	1.9	3.73	8	388	713	79	4	39
Dec 21	FN MA4513	0.9	3.84	9	322	698	78	14	44
Nov 21	FN MA4494	0.5	3.82	10	333	698	79	10	45
Jun 21	FN MA4380	0.8	3.86	15	312	710	78	13	47
May 21	FN MA4357	0.8	3.85	16	324	710	79	9	48
Aug 20	FN MA4121	0.9	3.86	25	317	733	76	13	52
Jul 20	FN MA4097	1.6	3.86	26	316	733	77	13	53
Jun 20	FN MA4079	1.5	3.85	27	321	738	76	12	53
May 20	FN MA4048	1.6	3.85	28	304	741	77	11	54
Apr 20	FN MA4020	4.1	3.88	29	291	741	77	11	54
Mar 20	FN MA3991	2.9	3.87	30	317	751	75	13	53

The TBA typically prices to the 'worst-to-deliver' or 'cheapest-to-deliver'

Source: J.P. Morgan, Fannie Mae

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Dollar rolls: maintaining exposure to MBS without transacting in pools

Roll mechanics illustration for FN 5s

	October	November	December
Long FN 5s for Oct Settle →	Sell Oct @ 97-24+ Buy Nov @ 97-20 Earn drop: 4+ ticks →	Sell Nov @ 97-20 Buy Dec @ 97-16 Earn drop: 4 ticks →	**Long FN 5s for Dec settle**

Alternative: take delivery - how does the pool carry vs. the drop?

Source: J.P. Morgan

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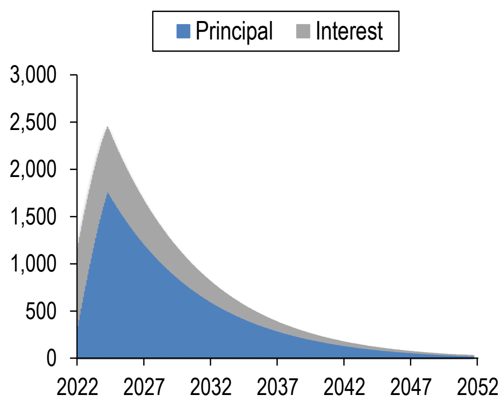
CMOs: customizing mortgage cashflows

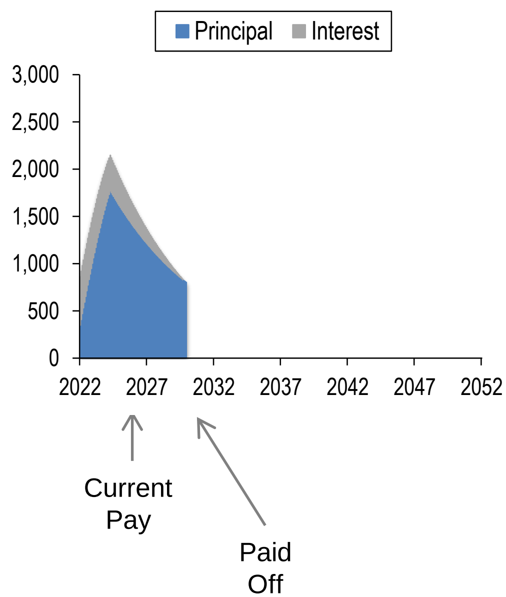
- Some investors want the spread of MBS but need different characteristics than passthroughs
  - Sequentials can help shorten or lengthen average life
  - PACs can provide protection against prepayments
  - IO (Interest Only): create bonds with negative duration and pair with a reduced-coupon ‘strip-down’
  - Floater/IIO: Take a fixed rate mortgage bond and split it into a principal-bearing floater (with a cap) and a paired interest-only bond with a coupon that floats inversely with SOFR

A simple example of a sequential structure

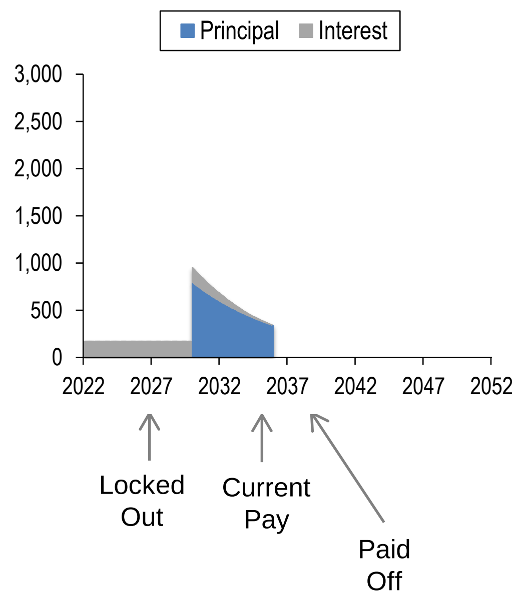
Original Passthrough



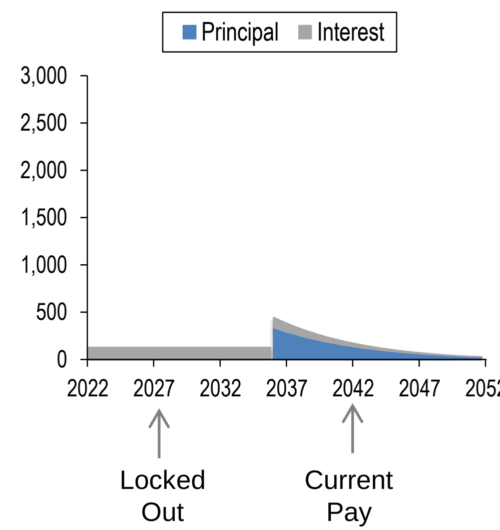
Front Sequential



Intermediate



Last Cash Flow



Source: J.P. Morgan

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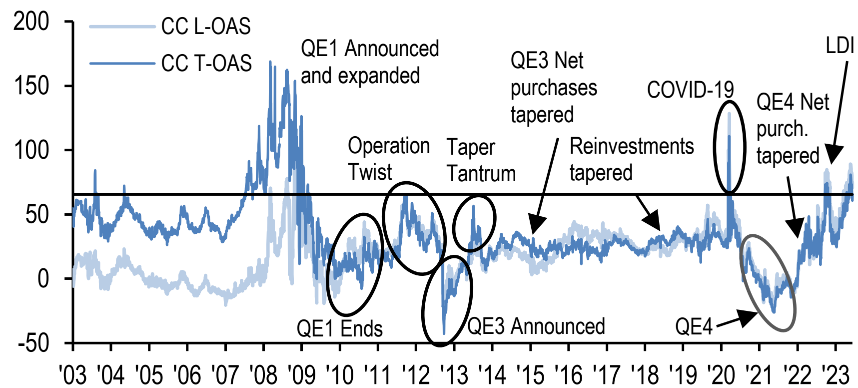
MBS offer spread to Treasuries in exchange for interest rate risk – not credit risk

Current coupon 30yr Treasury OAS, bp



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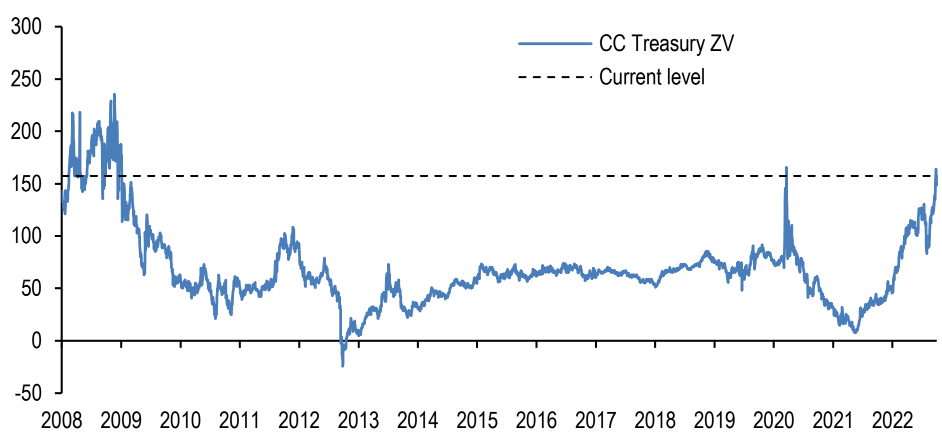
Current coupon 30yr Treasury ZV, bp



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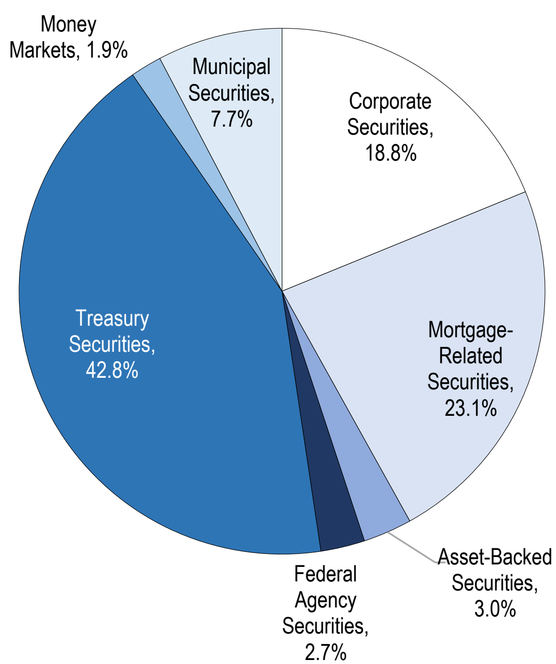
Agency MBS in the U.S. fixed income market

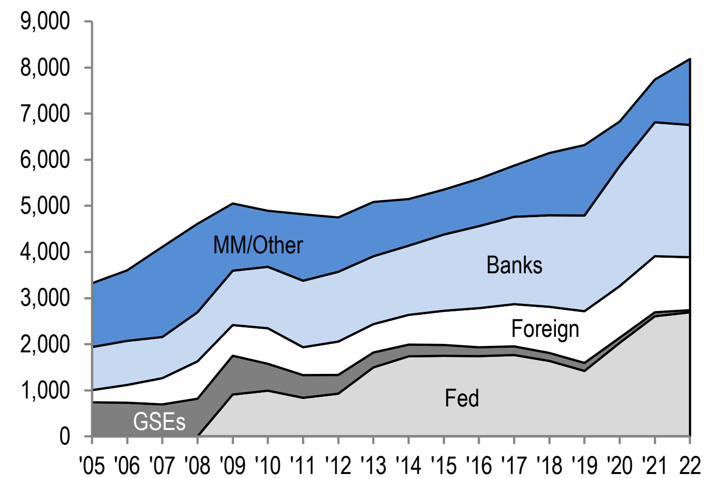
MBS in the fixed income universe (%)



Total = $52.8 trillion

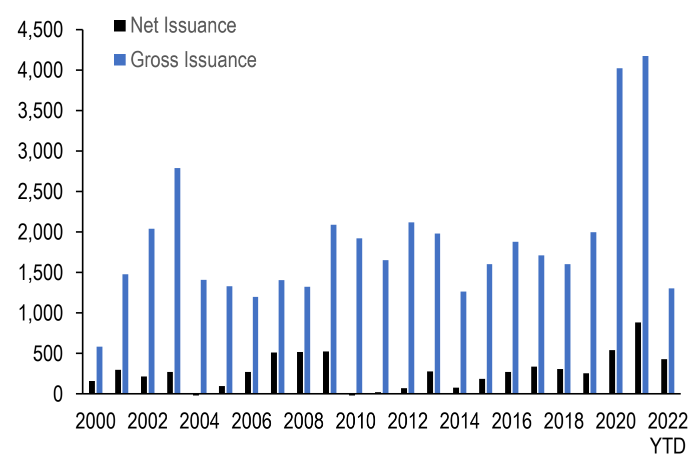
Source: Securities Industry and Financial Markets Association

Large holders of MBS ($bn)



Source: J.P. Morgan, Federal Reserve, Ginnie Mae, Fannie Mae, Freddie Mac, company filings

Gross and net agency MBS net issuance, $bn



Source: J.P. Morgan

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Agency MBS investors

Motivations for investing in MBS vary greatly

Agency MBS Investors	Market Share (%)	Role of agency MBS in their investment portfolio
Banks	34%	Agency MBS are an important part of their securities portfolio given regulatory treatment rivaled only by government guaranteed bonds. MBS are treated well for LCR and RWA purposes, but typically offer less yield than raw loans. Banks often lock MBS up in their held-to-maturity portfolios, thus reducing the tradeable float.
Federal Reserve	32%	The Federal Reserve first bought agency MBS in 2009 with the goal of supporting the mortgage and housing markets and generally fostering improved conditions in financial markets. They have been a major presence in the market since then with multiple rounds of bond buying programs, the latest of which concluded in September 2022. Purchases were made programmatically to roughly match issuance trends and were valuation insensitive. Currently plan on letting their portfolio runoff through monthly paydowns but could decide to actively sell at a later date.
Money Managers	15%	Often benchmarked to a fixed income index and can over/under allocate to the sector depending on the relative attractiveness of returns versus the full field of fixed income assets. Have more flexibility to move quickly on price dislocations versus more regulated portfolios.
Foreign Investors	14%	Foreign countries that export goods to the US hold significant reserves in USD and invest in high credit quality debt, which mostly means Treasuries and agency MBS. The majority of foreign holdings are from Asian countries and some restrict buying to only Ginnie Maes with their explicit government guarantee. For foreign life insurance companies seeking yield overseas, the level of foreign exchanged hedged yield versus other government bonds is one driver of investment decisions.
Mortgage REITs	2%	Mortgage REITs are alternative investment vehicles designed to invest in mortgage loans, MBS, and related securities on a levered basis, allowing them to provide large dividends based on the gap between MBS yield and funding cost. REITs use repurchase agreements to fund their MBS positions and proactively manage duration through interest rate swaps and short Treasury positions.
Insurers	2%	Typically a buyer of long-duration MBS based on the longer duration of their liabilities. Also active in corporate bond market and other forms of structured credit, but a typical agency MBS asset would be a last-cash flow CMO.
GSEs (Fannie/Freddie)	1%	The GSEs were an active buyer of mortgages before the GFC, using massive leverage to buy bonds offering advantageous spreads. Since that time they have faced mandates to shrink their portfolios and now hold only a small fraction of MBS pools and shouldn't be a major source of bond supply or demand going forward.
Hedge Funds	???	The most flexible form of total-return portfolio that can invest in any type of mortgage security and can go either long or short the market; also can buy structured interest-only cashflows for their implicit leverage.

Source: J.P. Morgan

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