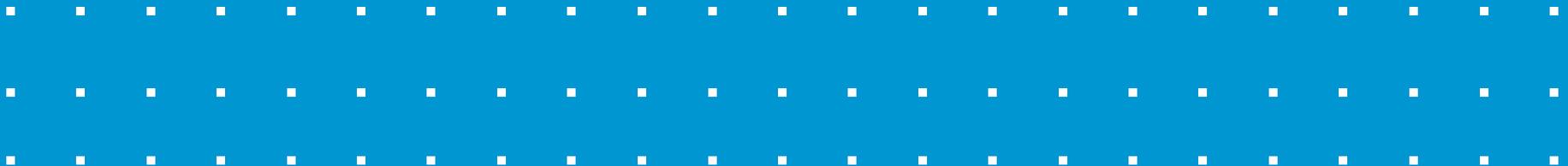




Normalizing the Fed Balance Sheet: Practical Considerations

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July 11, 2017



Questions about the wind down

- What should the terminal size of Fed portfolio be?
 - Much larger than pre-crisis.
 - The growth of currency in circulation alone requires that.
- What should the terminal composition of the Fed portfolio be? Treasuries only, Treasuries + MBS?
 - The case for the inclusion of MBS in a perfect world is weak.
 - A more active MBS policy could act as a stabilizer, its not clear to me that this should be the Fed's role
- What do you do with the MBS tail?
 - The tail will be quite sizeable.
 - Would just holding it distort the market?
- Wind down mix?
 - Do you want to wind down Ginnie/Conventional mix less than proportionately in order to favor the first time home buyer?
 - Do you want to reinvest in MBS that are less prone to prepayment slowdowns?
- Will the Fed convert legacy Freddie's to the single security (Q2, 2019)?
 - Does it matter?

Determining the Fed's target portfolio size

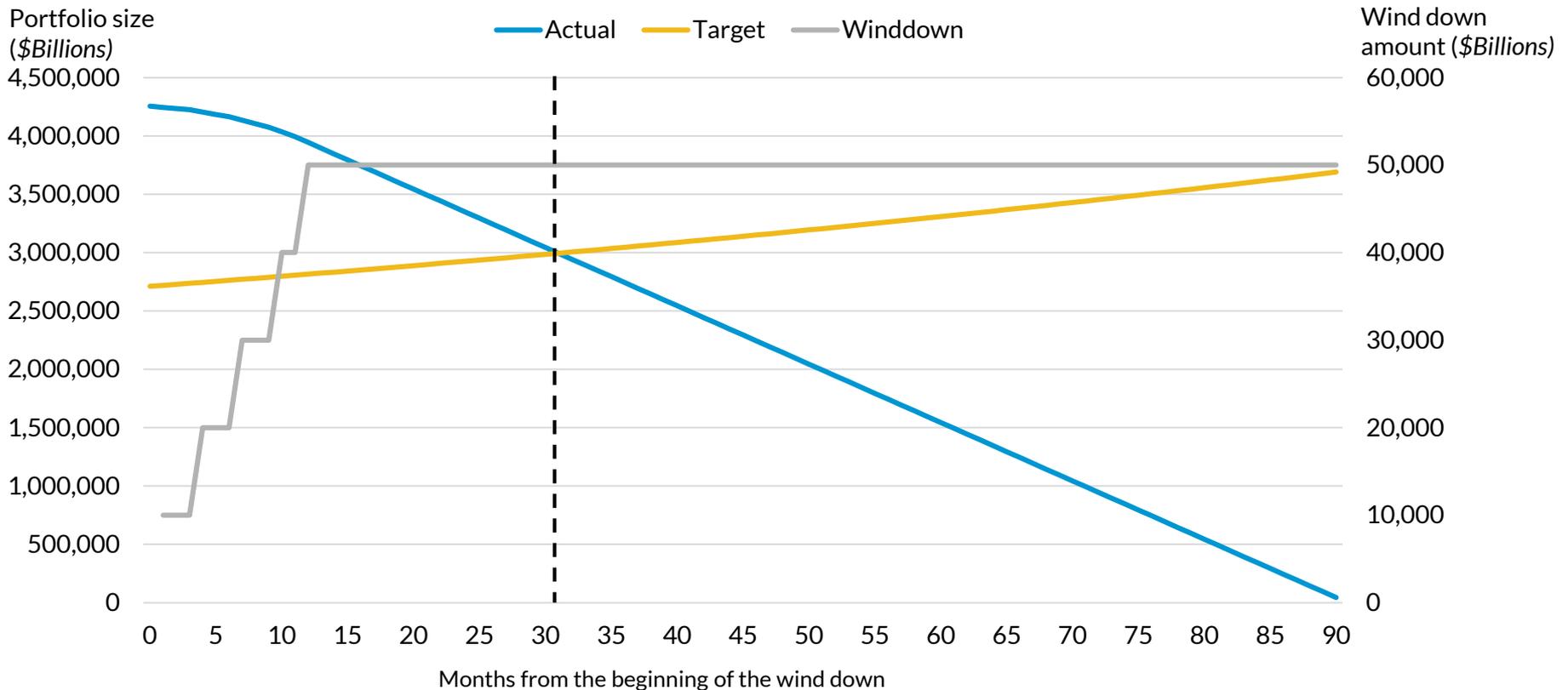
The Federal Reserve Balance Sheet through time				
Assets (\$Billions)	20-Jun-07	20-Jun-12	21-Jun-17	Target
Securities held outright	\$790,439	\$2,623,099	\$4,254,154	\$2,644,376
Unamortized premiums and discounts	\$0	\$0	\$151,898	\$0
Repurchase Agreements	\$21,000	\$0	\$0	\$0
Maiden Lane and TALF	\$0	\$15,597	\$1,709	\$0
Gold + SDRs	\$13,237	\$16,237	\$16,237	\$16,237
Other Assets	\$46,192	\$218,106	\$50,259	\$50,259
Total Assets	\$870,868	\$2,873,039	\$4,474,257	\$2,710,872
Liabilities (\$Billions)				
Currency in Circulation (Federal Reserve Notes)	\$773,636	\$1,066,758	\$1,508,773	\$1,508,773
Deposits other than reserve balances ¹	\$12,923	\$183,913	\$305,881	\$305,881
Reverse Repurchase Agreements ²	\$30,443	\$84,108	\$446,236	\$247,467
Other liabilities	\$28,137	\$23,808	\$7,895	\$7,895
Capital Account	\$16,106	\$54,669	\$40,856	\$40,856
Bank Reserves	\$9,441	\$1,459,783	\$2,164,616	\$600,000
Total Liabilities	\$870,686	\$2,873,039	\$4,474,257	\$2,710,872

Sources: Urban Institute Calculations from FRB H.4.1 Statistical Release. **Note:** Target assumes 600b in target reserve balances and repurchase agreements other than those of foreign official and international accounts go to zero. All numbers are in billions of dollars.

¹ Comprised of US Treasury General Account, Term deposits of depository institutions, foreign official and other deposits, and bank clearing deposits.

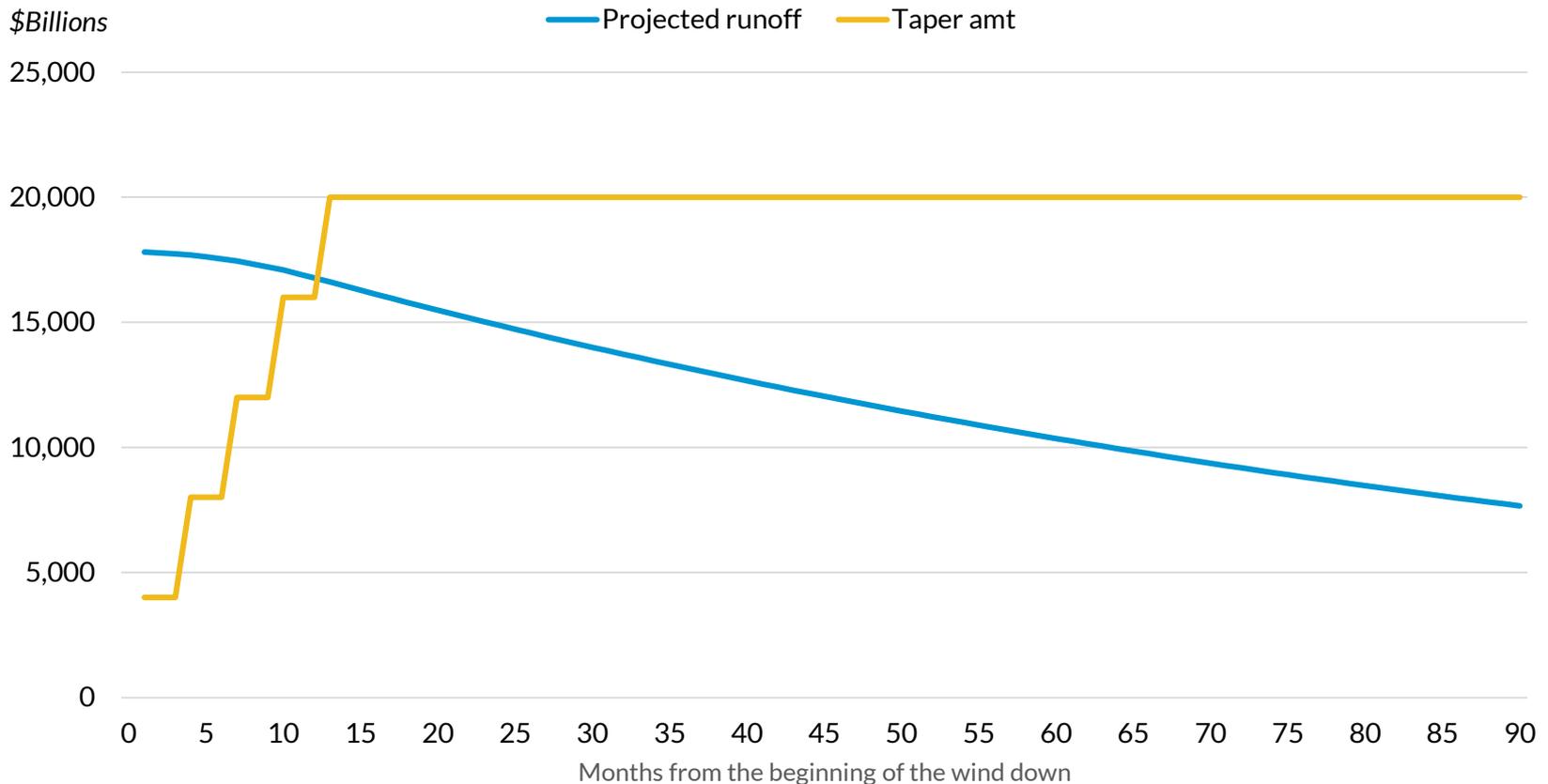
² Comprised of foreign official/international accounts and other

Growth of target portfolio over time vs. stated winddown



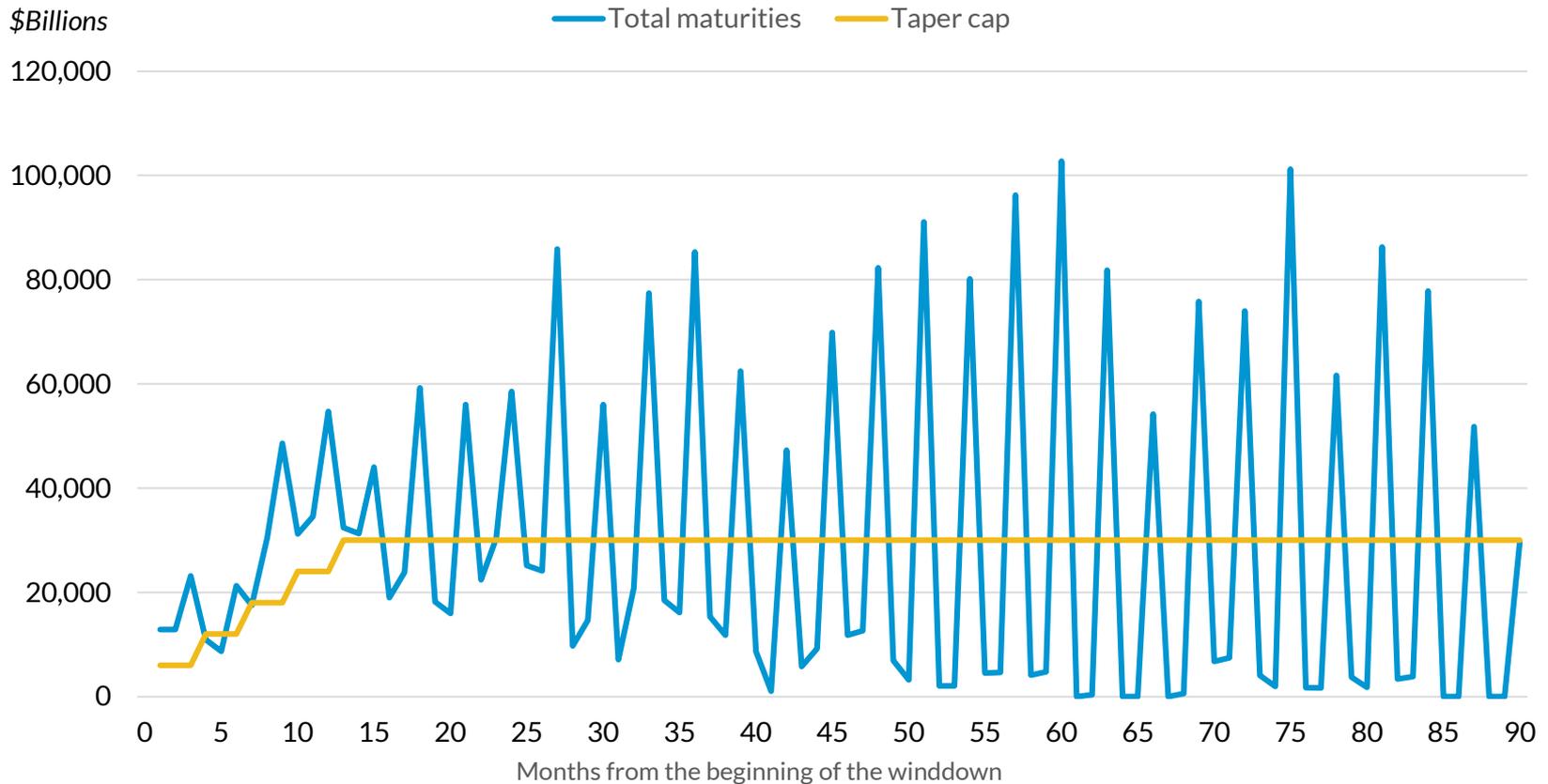
Sources: Urban Institute Calculations from FRB H.4.1 Statistical Release. Note: Target assumes 600b in target reserve balances and repurchase agreements other than those of foreign official and international accounts go to zero.

MBS are not going to winddown at plan



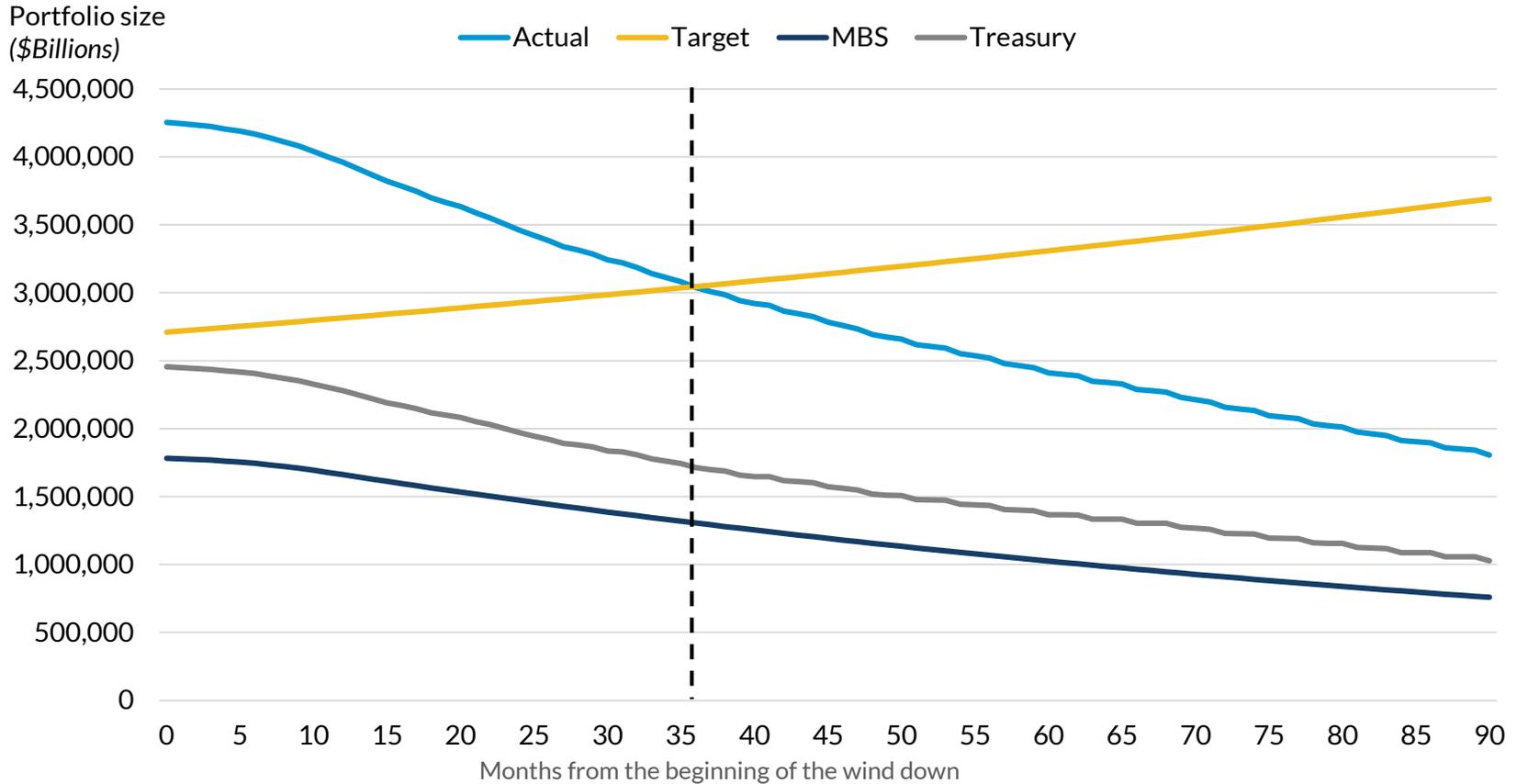
Sources: Urban Institute Calculations from FRB H.4.1 Statistical Release. **Note:** Target assumes 600b in target reserve balances and repurchase agreements other than those of foreign official and international accounts go to zero.

Neither are treasuries



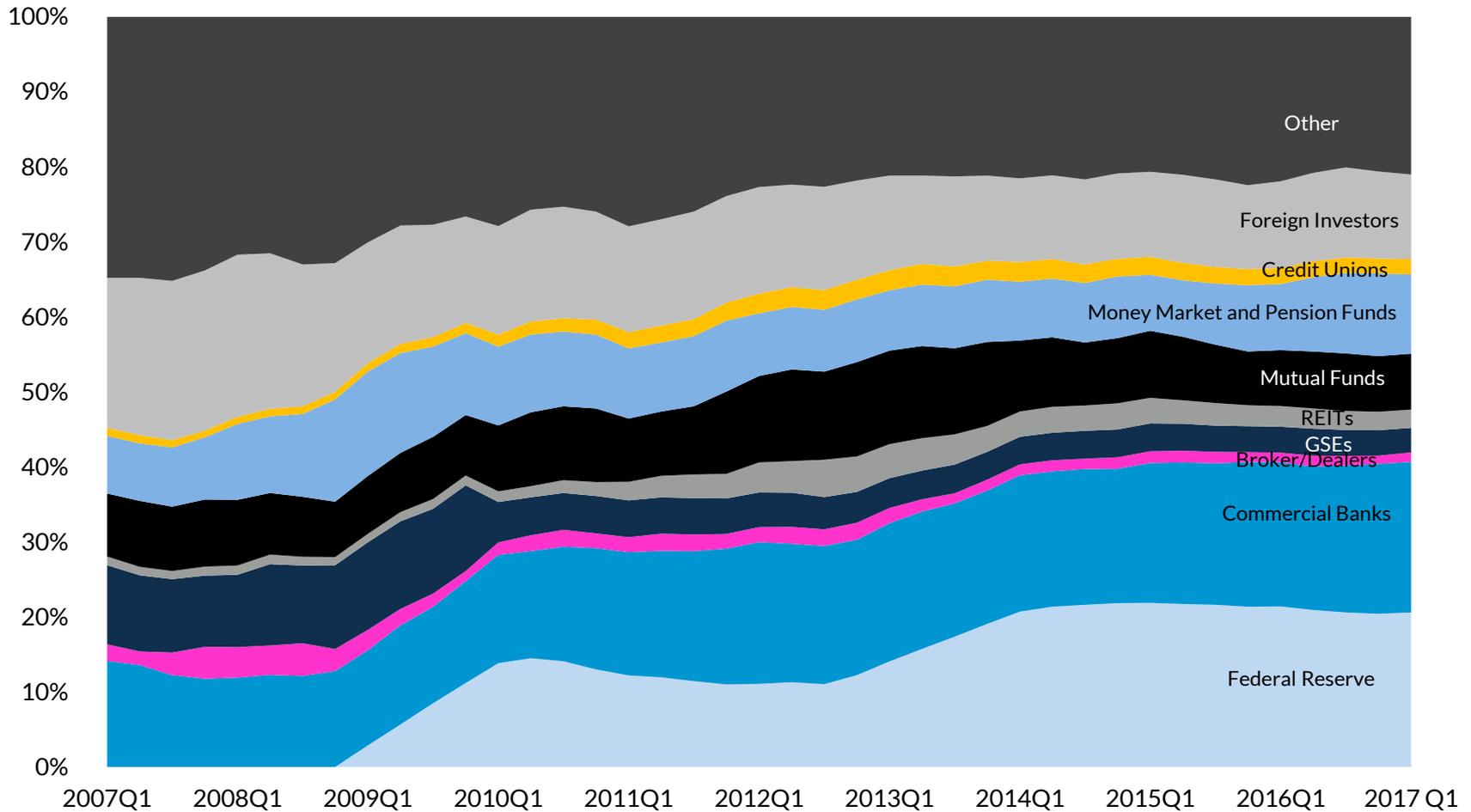
Sources: Urban Institute Calculations from FRB H.4.1 Statistical Release. **Note:** Target assumes 600b in target reserve balances and repurchase agreements other than those of foreign official and international accounts go to zero.

Actual winddown base case



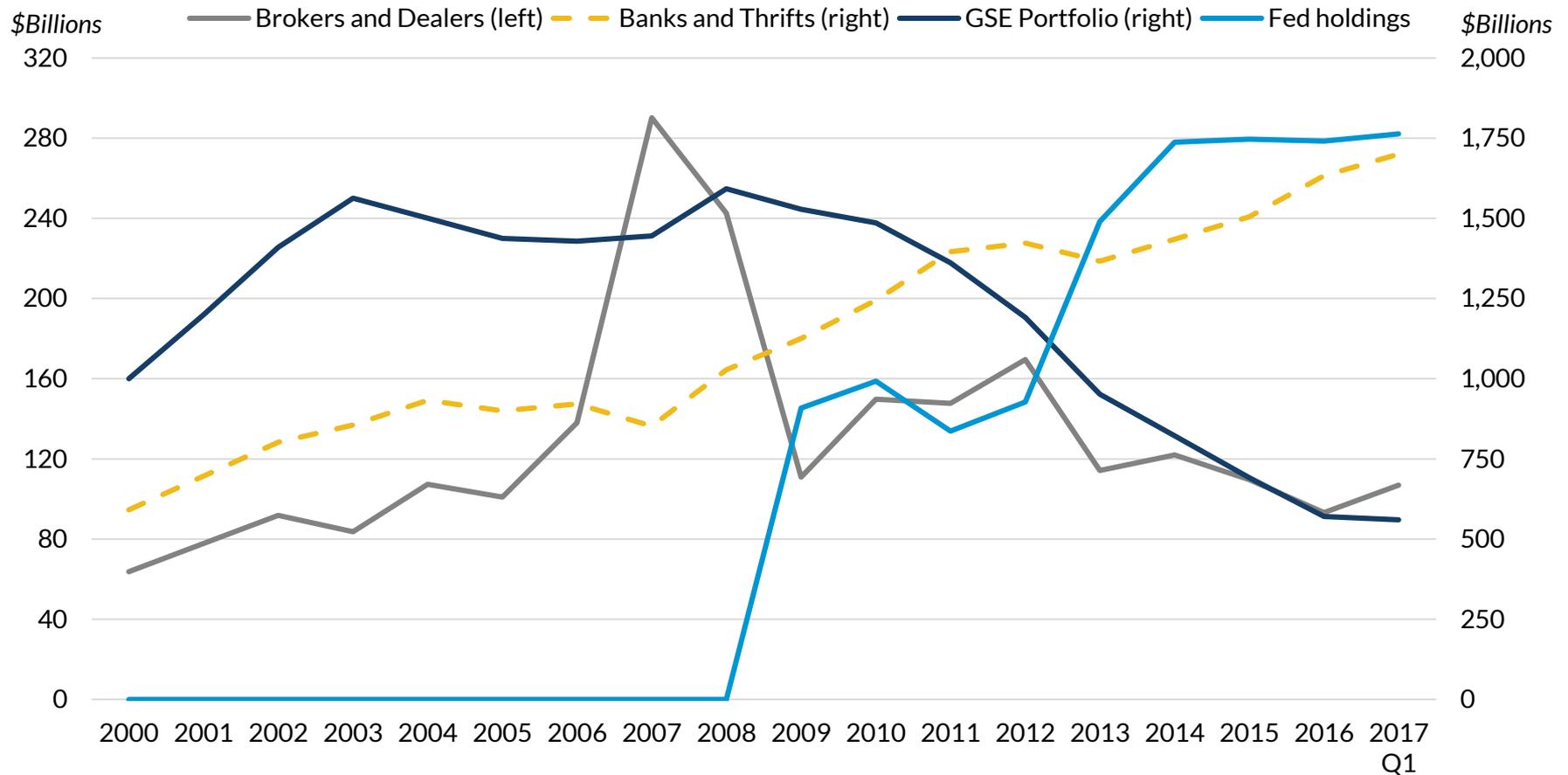
Sources: Urban Institute Calculations from FRB H.4.1 Statistical Release. Note: Target assumes 600b in target reserve balances and repurchase agreements other than those of foreign official and international accounts go to zero.

Who owns total Agency debt?



Sources: Federal Reserve Flow of Funds and Urban Institute.

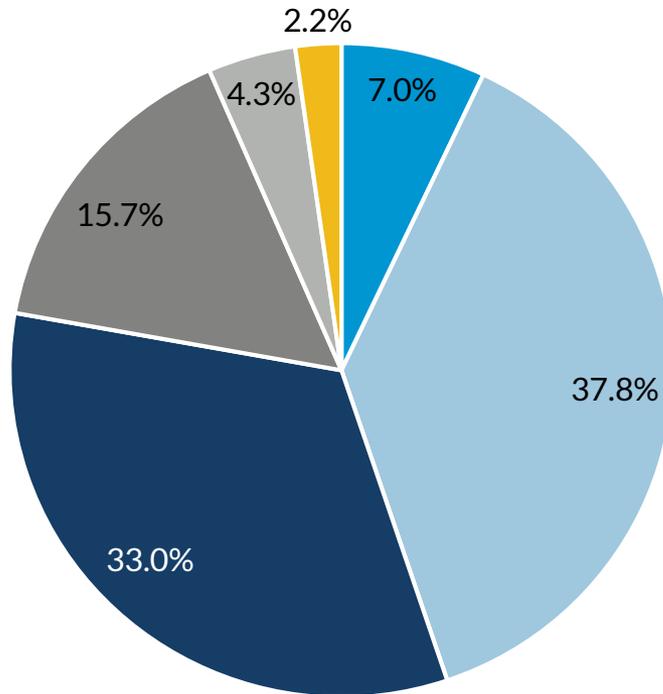
Move from Active Investors to more Passive Investors



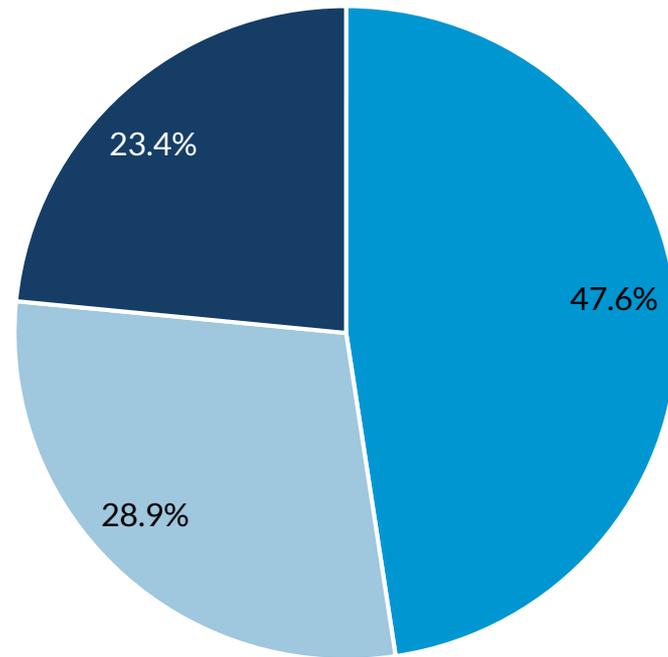
Sources: Federal Reserve Flow of Funds, Board of Governors of the Federal Reserve System, Inside Mortgage Finance, and Urban Institute.

Fed holdings by coupon and agency

Fed holdings by coupon



Fed Holdings by Agency



■ 2.5 and lower ■ 3 ■ 3.5 ■ 4 ■ 4.5 ■ 5 and higher

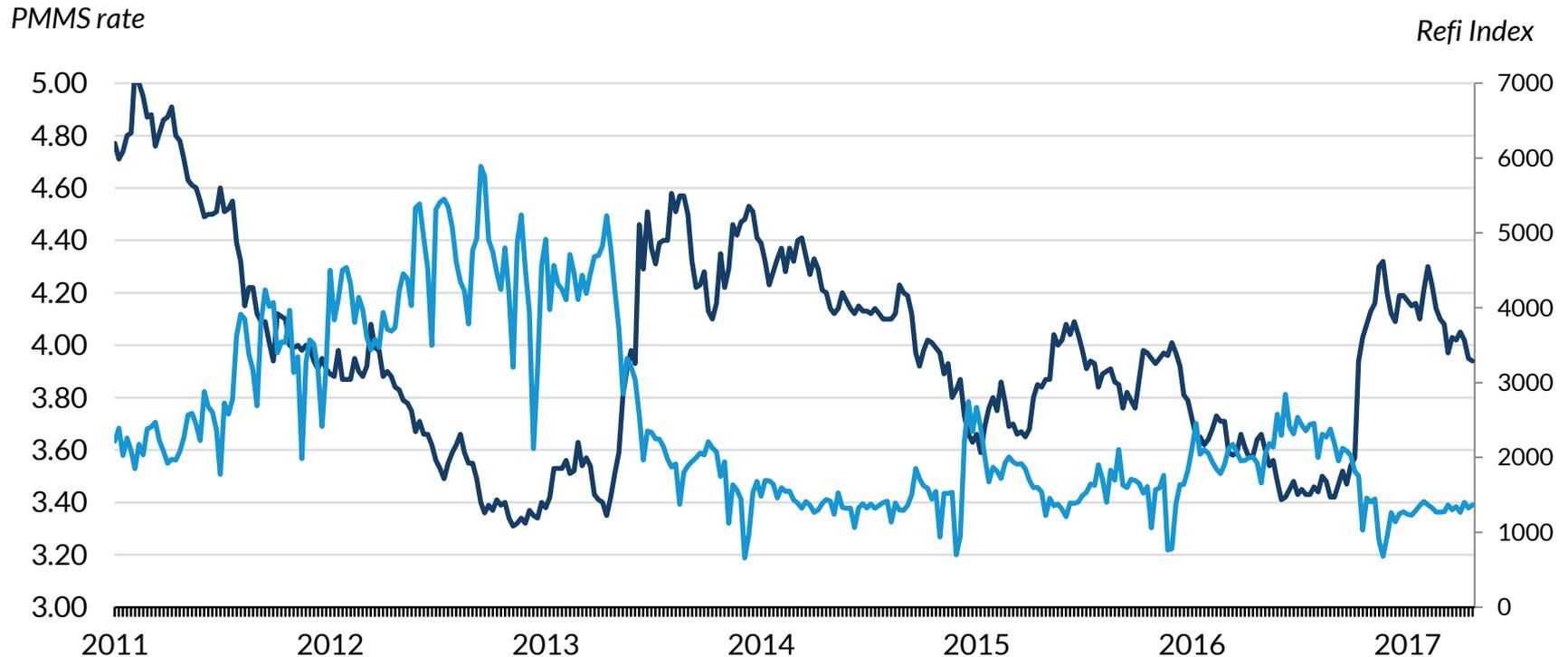
■ Fannie Mae ■ Freddie Mac ■ Ginnie Mae

Sources: Federal Reserve Bank of New York, eMBS, and Urban Institute.

Rising rates have choked off refinancing activity

PMMS rate vs. Refi Activity Index

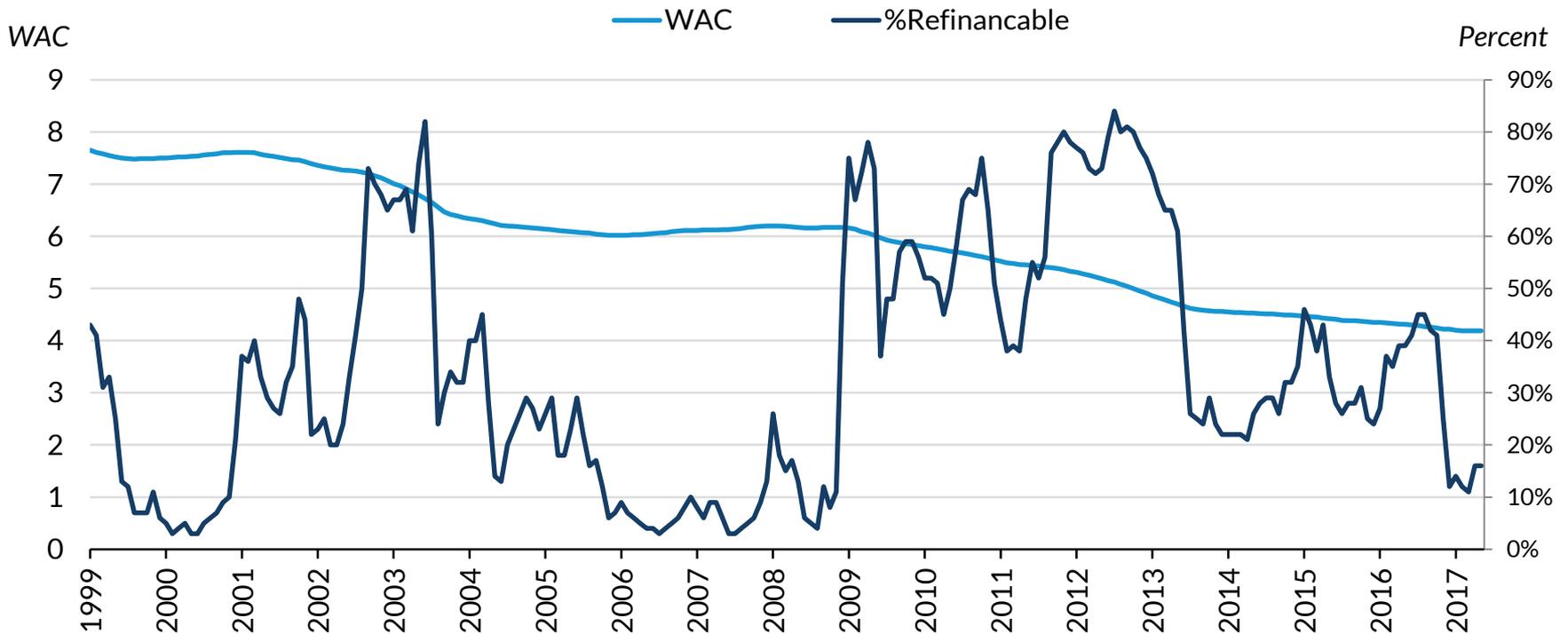
— PMMS
— MBA Applications Survey: Refi Activity Index



Sources: Credit Suisse and Urban institute

As rates have risen, most of the mortgage universe has become non-refinanceable

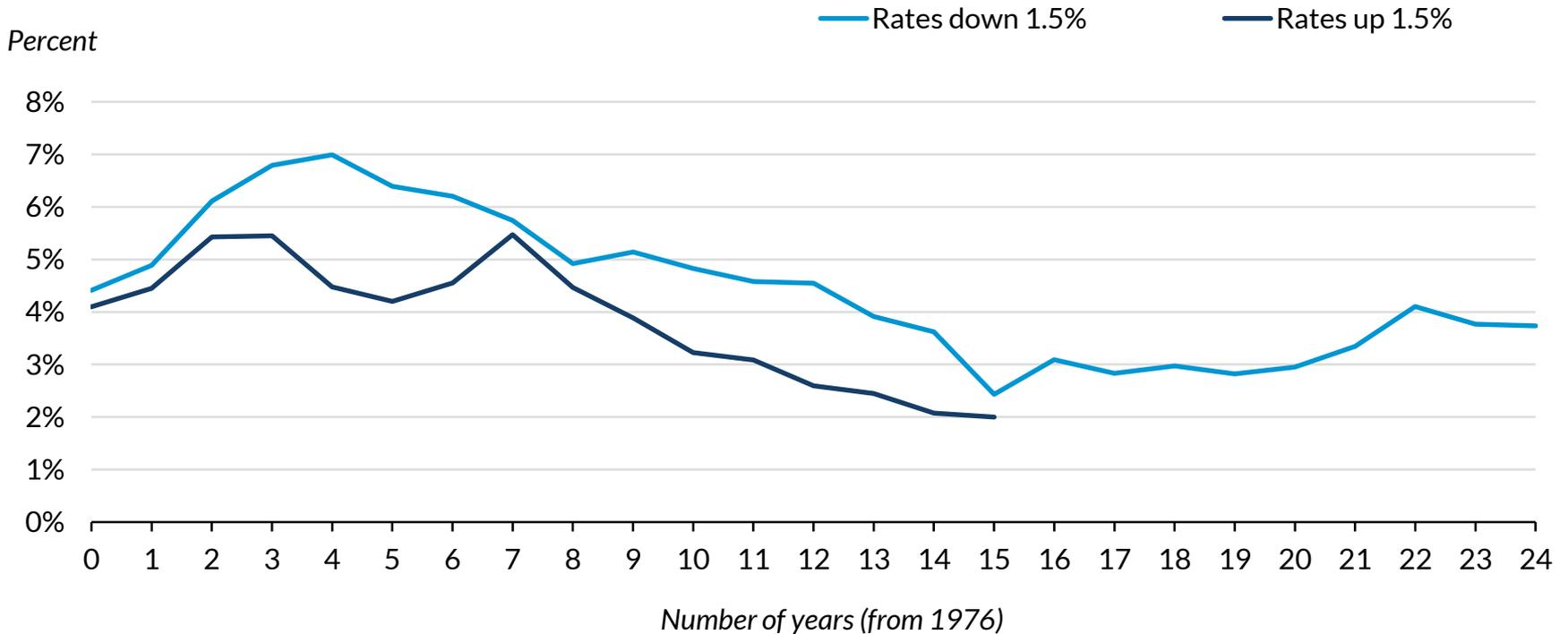
Percent of the 30-year universe that is refinanceable versus the weighted average coupon of the Agency market



Sources: eMBS, Freddie Mac Primary Mortgage Market Survey (PMMS), and Urban institute

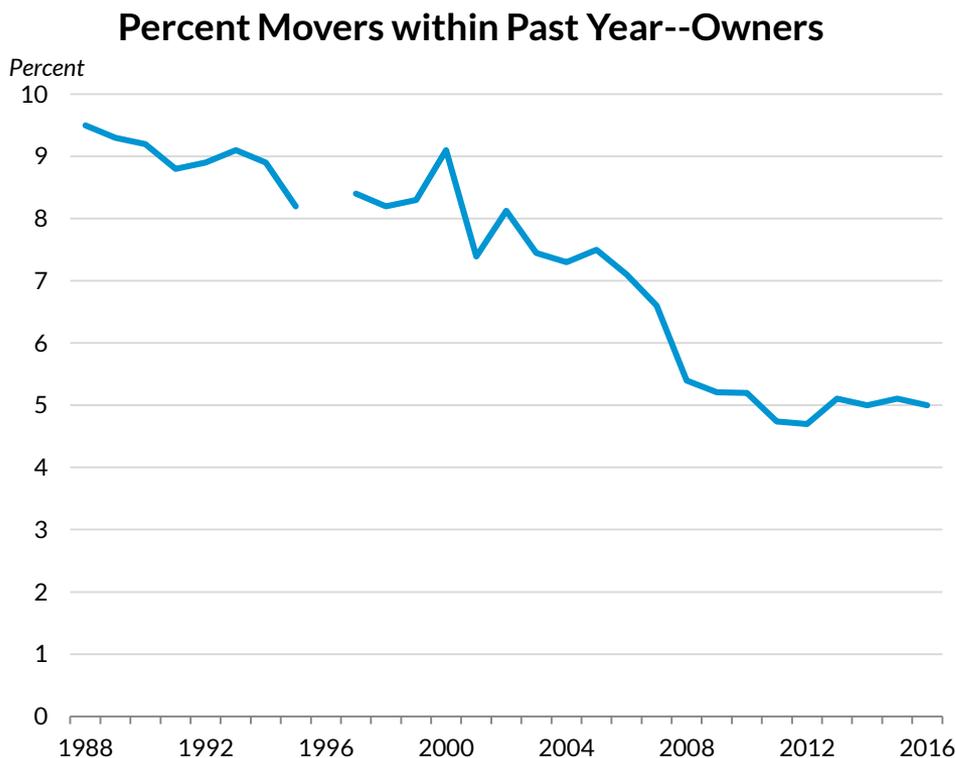
The lock in effect is powerful--higher rates do impact mobility

Percent of homebuyers that sell, by length of ownership: 1976-2016

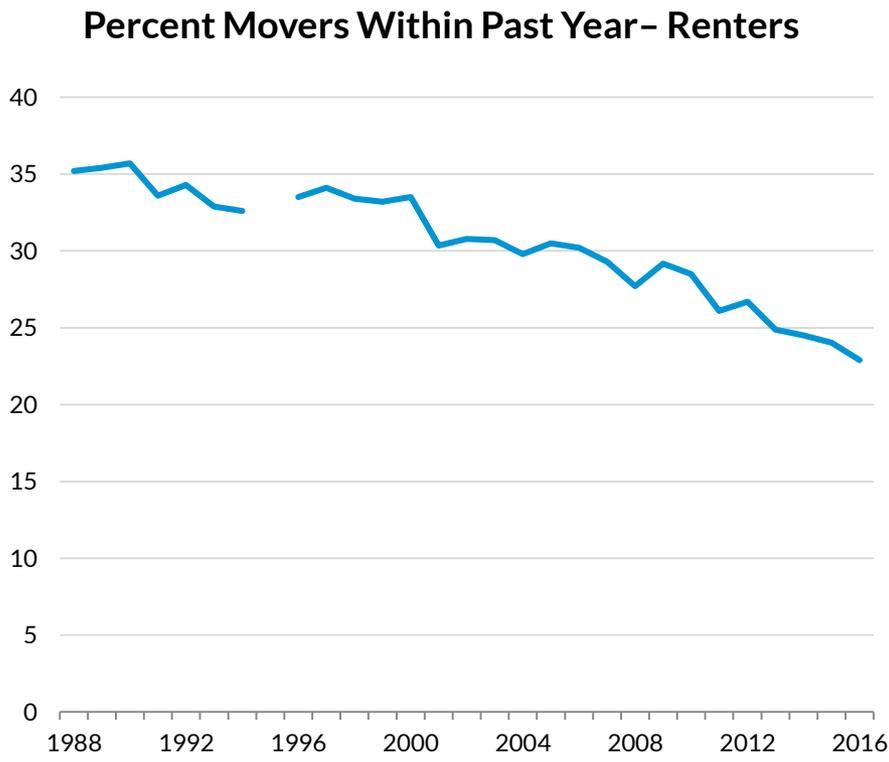


Source: CoreLogic

Payment rates may slow more than expected as geographic mobility is down



Source: U.S. Census Bureau, Current Population Survey



Source: U.S. Census Bureau, Current Population Survey

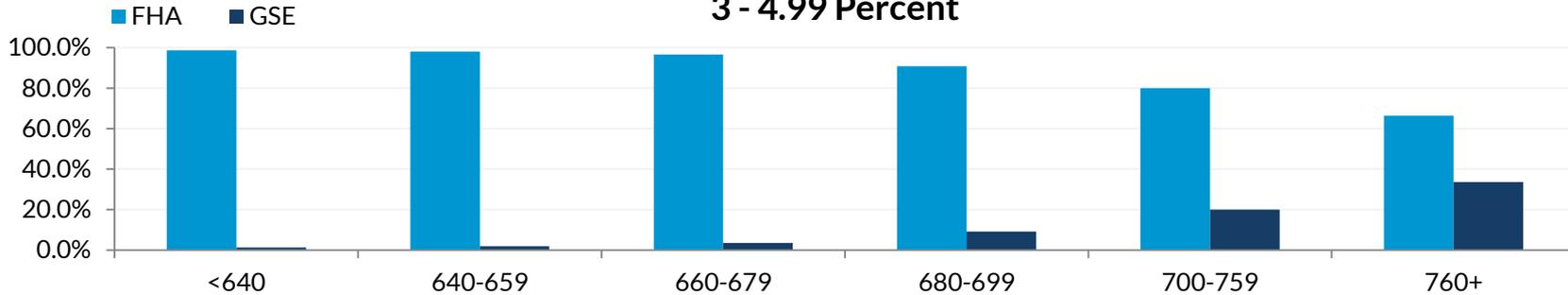
30 –year prepayment speeds by coupon

3 Month CPR			6 Month CPR			12 Month CPR			
Ginnie Mae	Fannie Mae	Freddie Mac	Ginnie Mae	Fannie Mae	Freddie Mac	Ginnie Mae	Fannie Mae	Freddie Mac	
2.5	12.68	6.64	5.09	11.8	6.02	5.04	12.78	7.41	6.46
3	10.21	7.38	6.91	9.88	7.10	6.59	14.99	10.74	10.43
3.5	14.68	10.72	10.01	15.26	11.74	11.16	20.93	17.20	16.85
4	21.04	14.86	14.85	22.07	17.03	16.95	24.42	22.59	22.61
4.5	19.84	16.82	16.96	20.54	19.30	19.64	23.00	22.83	23.42
5	19.70	20.35	19.86	20.88	21.47	21.75	22.72	22.89	23.43
5.5	19.44	21.65	22.67	18.82	22.61	23.51	20.01	23.36	23.77

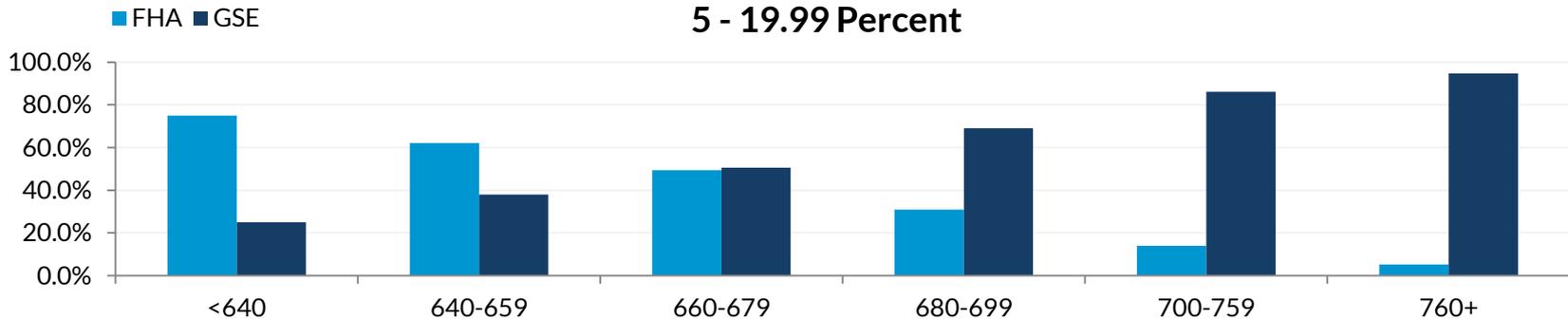
Sources: Freddie Mac Primary Mortgage Market Survey, Mortgage Bankers Association, and Urban Institute.

FHA Captures the Riskier Borrowers

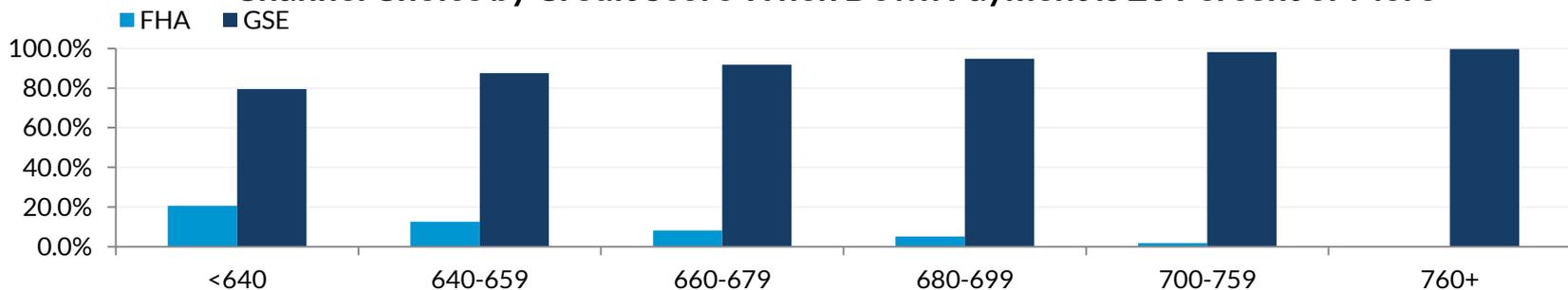
Channel Choice by Credit Score When Down Payment is 3 - 4.99 Percent



Channel Choice by Credit Score When Down Payment is 5 - 19.99 Percent



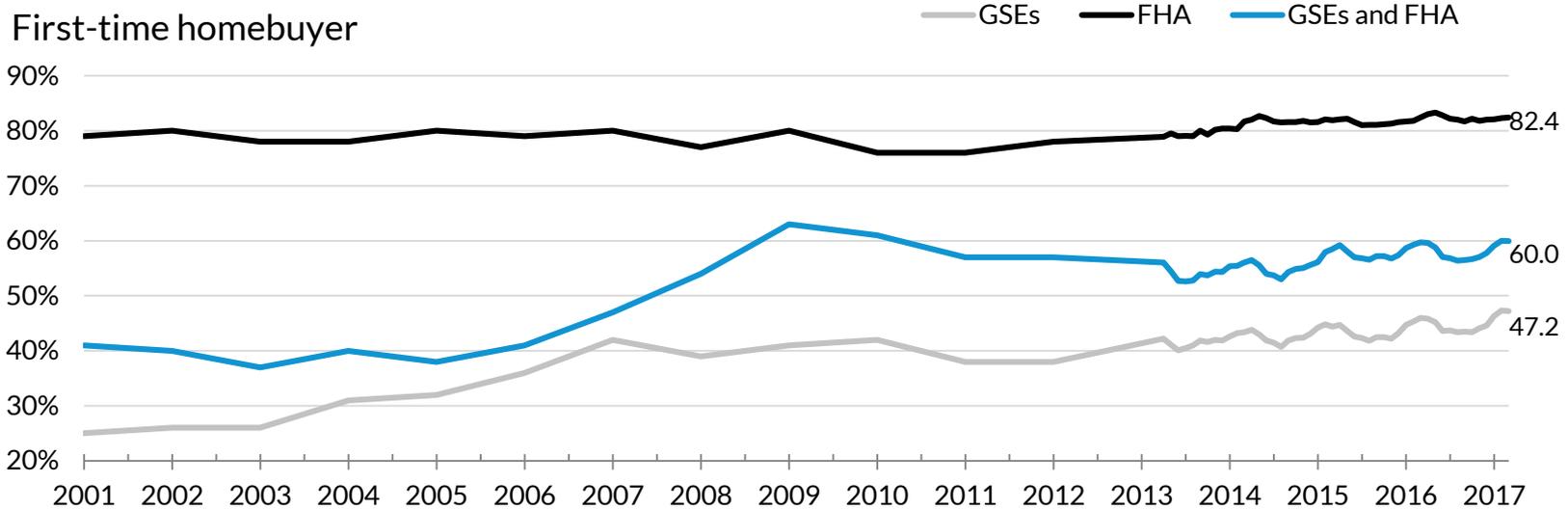
Channel Choice by Credit Score When Down Payment is 20 Percent or More



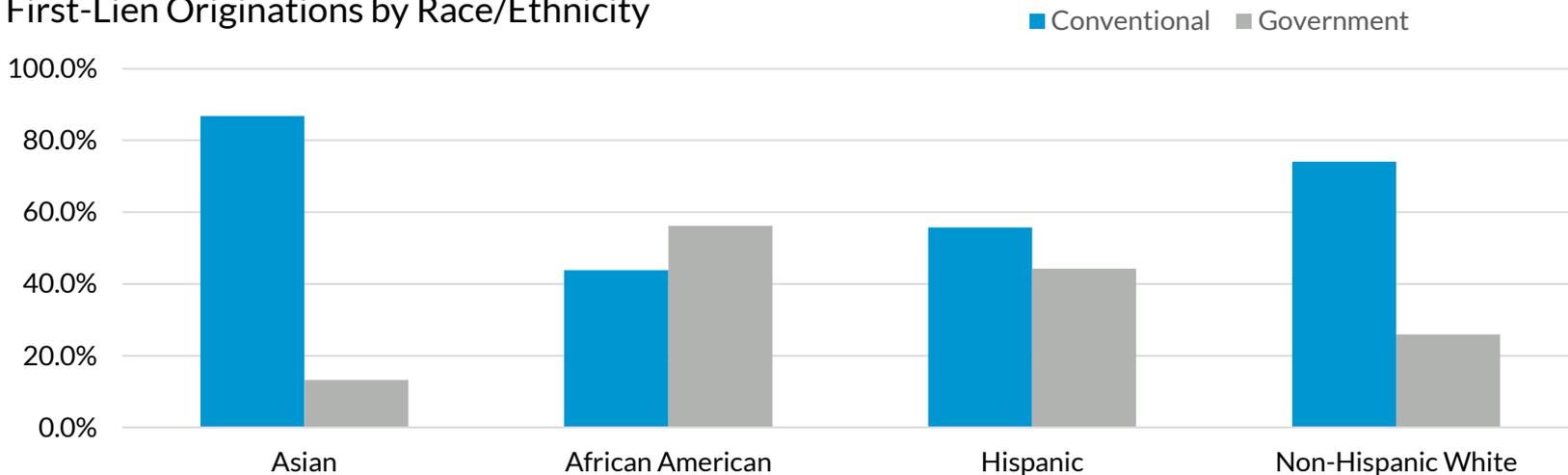
Source: eMBS and the Urban Institute.

Note: 2016 purchase and refinance mortgage.

FHA more important for FTHB and Minorities



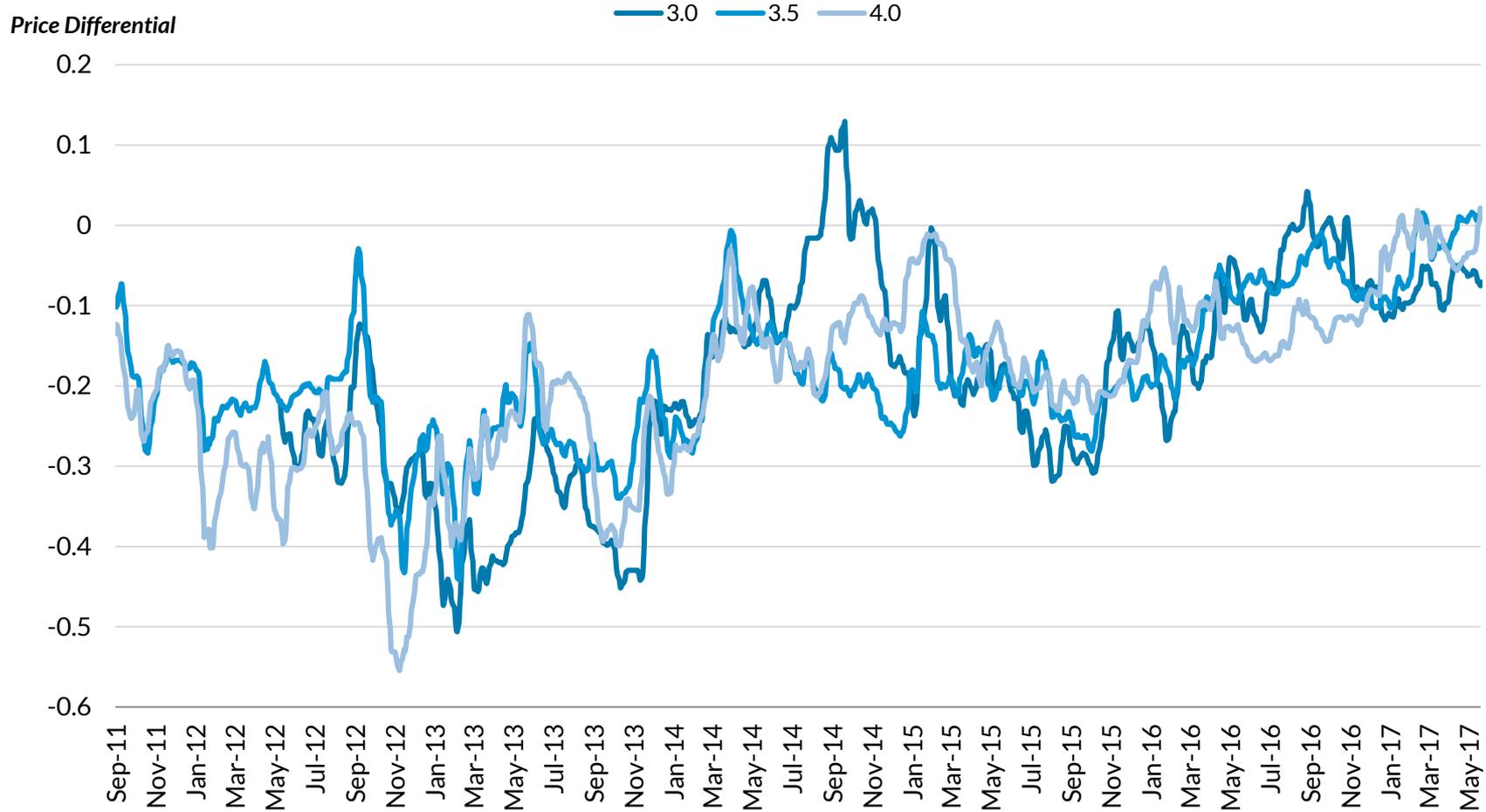
First-Lien Originations by Race/Ethnicity



Sources: eMBS, Federal Housing Administration (FHA), HMDA and Urban Institute. Note: All series measure the first-time homebuyer share of purchase loans for principal residences.

Single Security

3.0, 3.5, and 4.0 Percent Coupons (Freddie Mac Less Fannie Mae Prices)



Some thoughts for a practical wind down

1. It would be very helpful to know how the Fed is thinking about its target portfolio, so that market participants can better gauge the necessary amount of the wind down.
2. It would be very helpful to know how the Fed is thinking about the mortgage tail.
3. It may well make sense to skew reinvestments in MBS towards slightly higher coupons, as it will lessen the tail issue

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