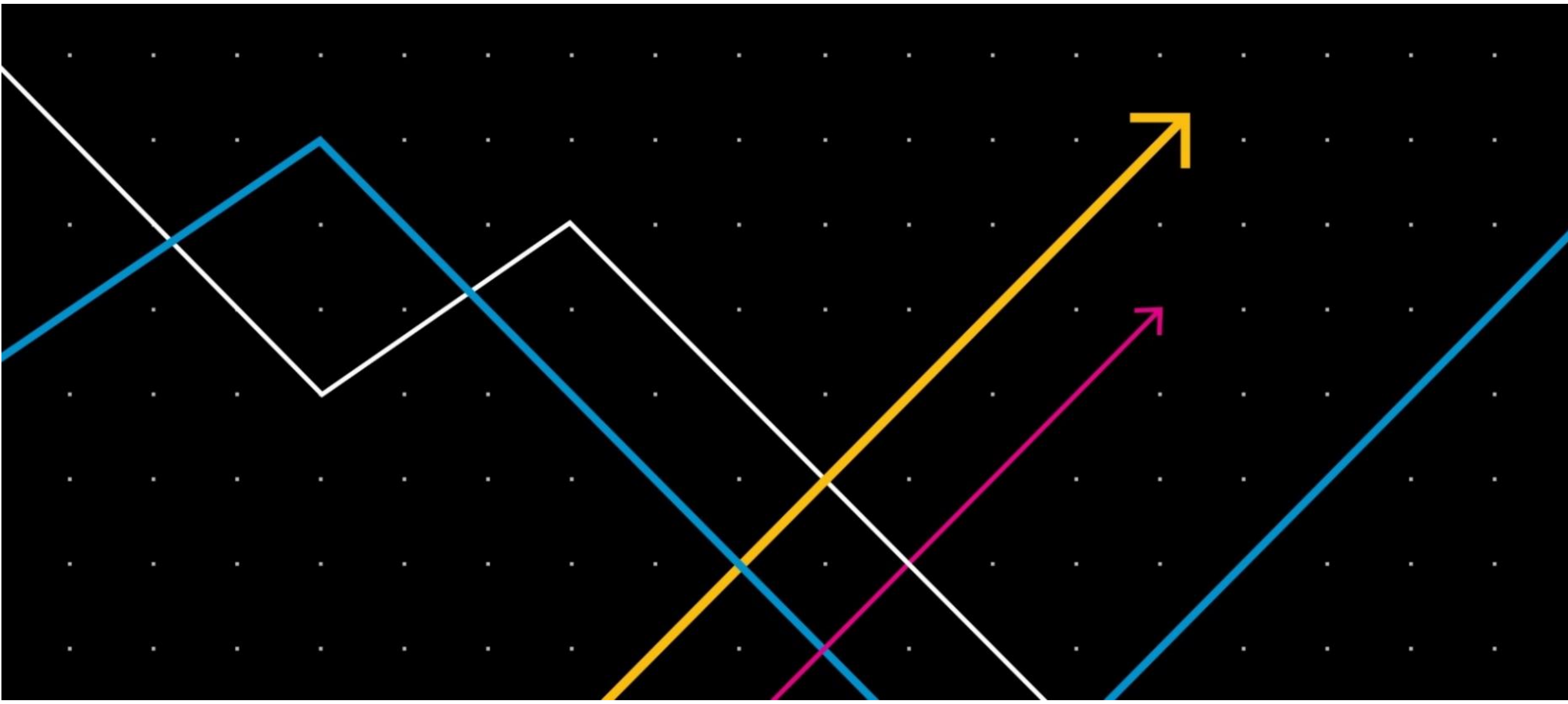
HOUSING FINANCE POLICY CENTER



MORTGAGE INSURANCE DATA AT A GLANCE

2023

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Contents

Overview

The Role of Mortgage Insurance in the Mortgage Market

During the past 66 years, the private mortgage insurance (PMI) industry has enabled homeownership for more than 38 million borrowers who lack sufficient funds for a 20 percent down payment on a conventional mortgage. This data publication quantifies the role of PMI in the agency mortgage market. It describes the borrowers served by PMI and how they compare with conventional borrowers without PMI as well as borrowers with government mortgage insurance (e.g., Federal Housing Administration, or FHA, and US Department of Veterans Affairs, or VA, borrowers) along key dimensions, such as loan-to-value (LTV) ratios, credit scores, and first-time homebuyer status. In addition to loan origination characteristics, this publication quantifies the performance of PMI-insured agency loans as measured by historical delinquency rates and loss severities, as well as the role of PMI in reducing losses to the government-sponsored enterprises (GSEs) Fannie Mae and Freddie Mac.

This data publication is an update to the 2021 data publication *Mortgage Insurance: Data at a Glance* to provide an up-to-date snapshot of the mortgage insurance market. For an in-depth explanation of the past and present role of PMI, see the 2017 comprehensive research report *Sixty Years of Private Mortgage Insurance in the United States*, available at urban.org.

This publication relies on two main sources:

Data on the Agency Mortgage Market

This section compares loan origination characteristics for GSE PMI mortgages with GSE non-PMI, FHA, and VA mortgages using loan-level agency security data (from eMBS) for Ginnie Mae, Fannie Mae, and Freddie Mac, available from 2013 onward. These data contain all agency origination data, but they do not contain credit performance data.

Government-Sponsored Enterprise Loan-Level Credit Data

These data, covering loans from 1999 onward, are provided by the GSEs in support of Fannie Mae's Connecticut Avenue Securities and Freddie Mac's Structured Agency Credit Risk deals and cover loans similar to those included in the deals: fixed-rate, full-documentation, fully amortizing loans not purchased under special programs.

A Few Highlights

- **GSE mortgages with PMI** have been the most common execution for low down payment borrowers since 2018.

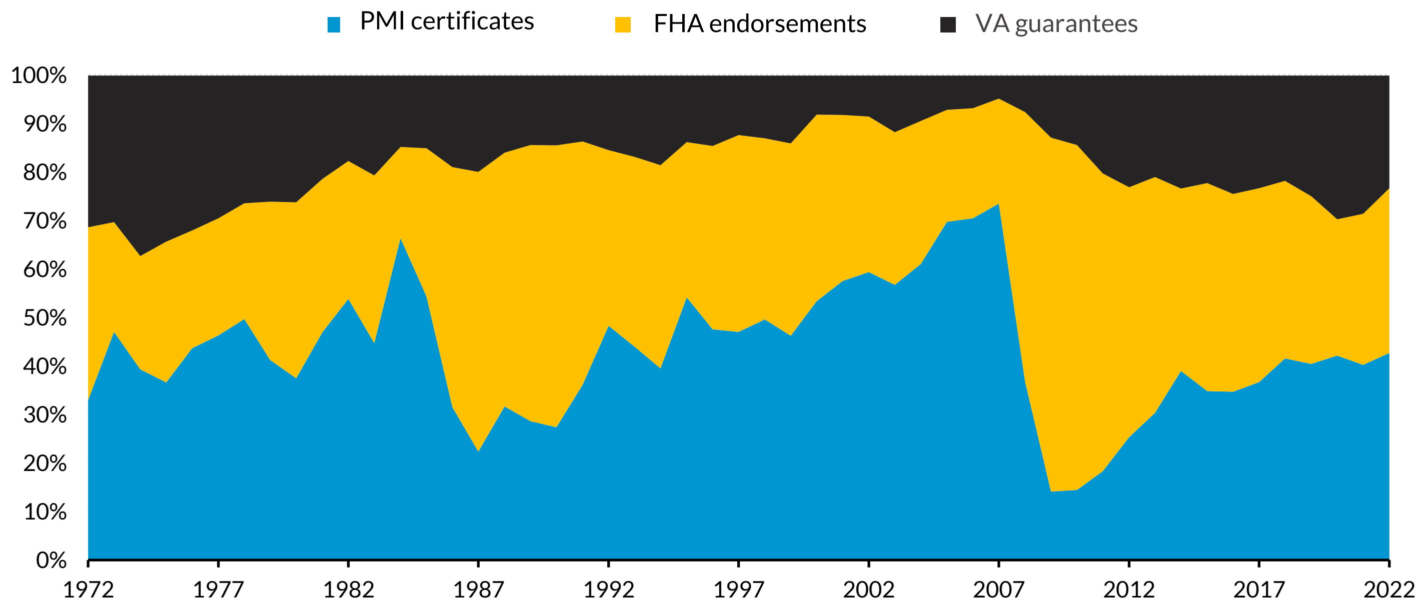
- **Total loss severity** for the 1994 to 2022 origination period of GSE loans without PMI was 11.2 percent higher than the loss severity for loans with PMI.

- **Using credit risk transfer,** since 2015, private mortgage insurers have executed 52 mortgage insurance-linked note (ILN) transactions and 42 reinsurance (quota share and excess of loss) deals to transfer more than $68.2 billion in risk.

Mortgage Insurance Market

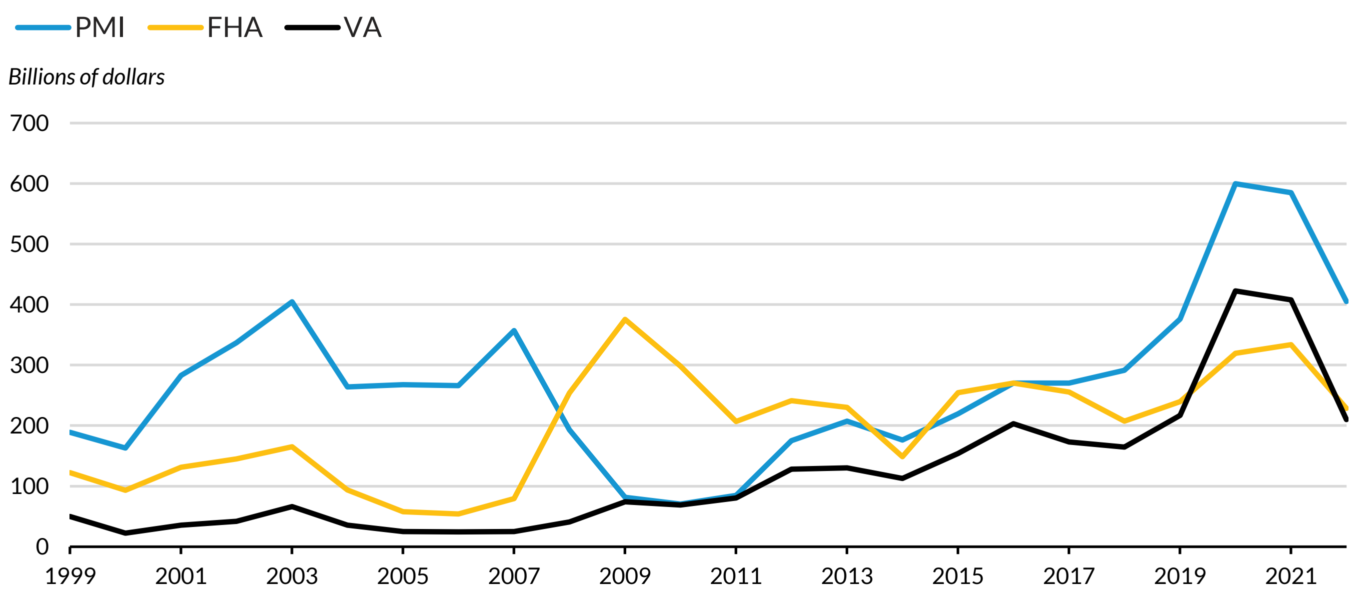
The PMI share has varied widely since 1972. Historically, the PMI share has expanded during strong economic environments, and the FHA and VA share has expanded during downturns. This held true during the strong mortgage market of 2020, which saw the PMI share expand. Although market share has fluctuated year to year because of the economic environment and pricing policies, PMI has been the most common execution for low–down payment borrowers since 2018.

Mortgage Insurance Market Share Based on Loan Count, 1972–2022



Sources: Before 2016, data are from the US Department of Housing and Urban Development (US Housing Market Conditions archives), Mortgage Insurance Companies of America, and U.S. Mortgage Insurers; after that, data are from eMBS and the Urban Institute.
Notes: FHA = Federal Housing Administration; PMI = private mortgage insurance; VA = US Department of Veterans Affairs. eMBS numbers on PMI are for government-sponsored enterprise loans only.

Annual Mortgage Insurance Volume: PMI, FHA, and VA



Sources: Inside Mortgage Finance and the Urban Institute.
Note: FHA = Federal Housing Administration; PMI = private mortgage insurance; VA = US Department of Veterans Affairs.

Loan Composition for the Agency and Non-Agency Mortgage Market

Black Knight data (which include agency issuance, bank portfolio loans, and some private-label securities) show that from 1999 to 2022, 62.8 percent of loans originated were conventional loans without PMI, 15.2 percent were conventional loans with PMI, 13.0 percent were FHA loans, and 5.3 percent were VA loans. Since 2008, conventional loans without mortgage insurance have had smaller loan balances, on average, than conventional loans with mortgage insurance. In recent years, conventional loans with PMI had lower average FICO credit scores, higher DTI ratios, and higher LTV ratios than conventional loans without PMI.

		% of all loans	Average loan size ($ thousands)	Note rate (%)	LTV ratio (%)	FICO score	DTI ratio (%)
1999–2004	Conventional PMI	16.0	128.0	6.4	89.6	707	34
	FHA	10.4	106.7	6.8	97.5	645	34
	VA	3.0	119.3	6.4	100.0	678	37
	Conventional non-PMI	67.3	136.0	5.9	70.8	734	32
	Other	3.3	105.3	7.3	80.0	630	38
	All	100.0	128.0	6.1	77.5	719	33
2005–2008	Conventional PMI	15.6	164.0	6.4	89.0	709	38
	FHA	7.1	138.9	6.3	96.4	643	38
	VA	1.5	168.5	6.0	100.0	675	39
	Conventional non-PMI	67.8	172.5	6.4	73.5	720	37
	Other	8.0	130.0	7.5	79.4	629	39
	All	100.0	163.6	6.4	78.1	706	37
2009–2010	Conventional PMI	7.2	203.0	4.9	88.2	761	33
	FHA	27.4	158.4	5.0	96.7	691	40
	VA	4.9	185.0	5.0	100.0	703	40
	Conventional non-PMI	59.1	194.8	4.9	69.1	773	32
	Other	1.4	129.9	5.0	90.0	725	32
	All	100.0	180.5	4.9	79.4	753	34

Sources: Black Knight and the Urban Institute.
Notes: DTI = debt-to-income ratio; FHA = Federal Housing Administration; LTV = loan-to-value ratio; PMI = private mortgage insurance; VA = US Department of Veterans Affairs. "Conventional PMI" includes government-sponsored enterprise and portfolio loans with PMI. "Other" refers to loans insured by the US Department of Housing and Urban Development's Office of Public and Indian Health and the US Department of Agriculture's Rural Development.

Loan Composition for the Agency and Non-Agency Mortgage Market (Continued)

		% of all loans	Average loan size ($ thousands)	Note rate (%)	LTV ratio (%)	FICO score	DTI ratio (%)
2011–2016	Conventional PMI	14.8	198.5	4.1	92.7	753	34
	FHA	16.9	157.1	3.9	95.9	687	39
	VA	7.6	200.9	3.8	98.6	714	37
	Conventional non-PMI	57.8	195.0	3.9	70.5	770	32
	Other	2.8	143.0	3.9	99.0	703	34
	All	100.0	185.0	3.9	80.0	751	34
2017–2019	Conventional PMI	18.9	238.8	4.4	92.3	749	36
	FHA	18.0	191.5	4.3	96.5	670	42
	VA	10.1	242.2	4.0	99.1	711	39
	Conventional non-PMI	50.9	230.0	4.3	72.3	761	34
	Other	2.1	148.9	4.3	99.5	702	34
	All	100.0	222.4	4.3	80.0	740	36
2020–2022	Conventional PMI	16.1	293.1	3.3	90.8	756	35
	FHA	10.3	230.8	3.3	96.6	669	41
	VA	9.0	288.0	2.8	94.8	731	36
	Conventional non-PMI	63.1	272.0	3.0	67.3	772	33
	Other	1.5	197.0	3.3	97.9	719	31
	All	100.0	270.1	3.0	75.0	760	34
All	Conventional PMI	15.2	180.0	5.1	90.0	735	35
	FHA	13.0	149.4	4.9	96.6	673	39
	VA	5.3	203.3	3.9	99.3	710	38
	Conventional non-PMI	62.8	181.5	5.1	70.3	751	34
	Other	3.8	132.0	6.5	80.0	655	37
	All	100.0	175.0	5.0	78.7	734	35

Sources: Black Knight and the Urban Institute.
Notes: DTI = debt-to-income ratio; FHA = Federal Housing Administration; LTV = loan-to-value ratio; PMI = private mortgage insurance; VA = US Department of Veterans Affairs. "Conventional PMI" includes government-sponsored enterprise and portfolio loans with PMI. "Other" refers to loans insured by the US Department of Housing and Urban Development's Office of Public and Indian Health and the US Department of Agriculture's Rural Development.

Agency Mortgage Market

Mortgage Insurance Market

PMI borrowers tend to have lower credit scores and higher LTV and DTI ratios than non-PMI GSE borrowers, but for 2022 originations, PMI borrowers had an average FICO credit score two points higher than for the non-PMI borrowers. In 2022, 29.4 percent of GSE loans had PMI. The share was higher for purchase loans (47.5 percent) than for refinance loans (2.0 percent). The average loan size of a GSE PMI loan was just over 20 percent larger than that of a non-PMI GSE loan. But the average value of a home where the borrower has PMI is $369,209, compared with $442,718 for borrowers without PMI (based on average loan size and LTV ratio in the table below). GSE PMI borrowers averaged 92.7 percent LTV ratios versus 64.3 percent LTV ratios for GSE borrowers without PMI.

All GSE Loans

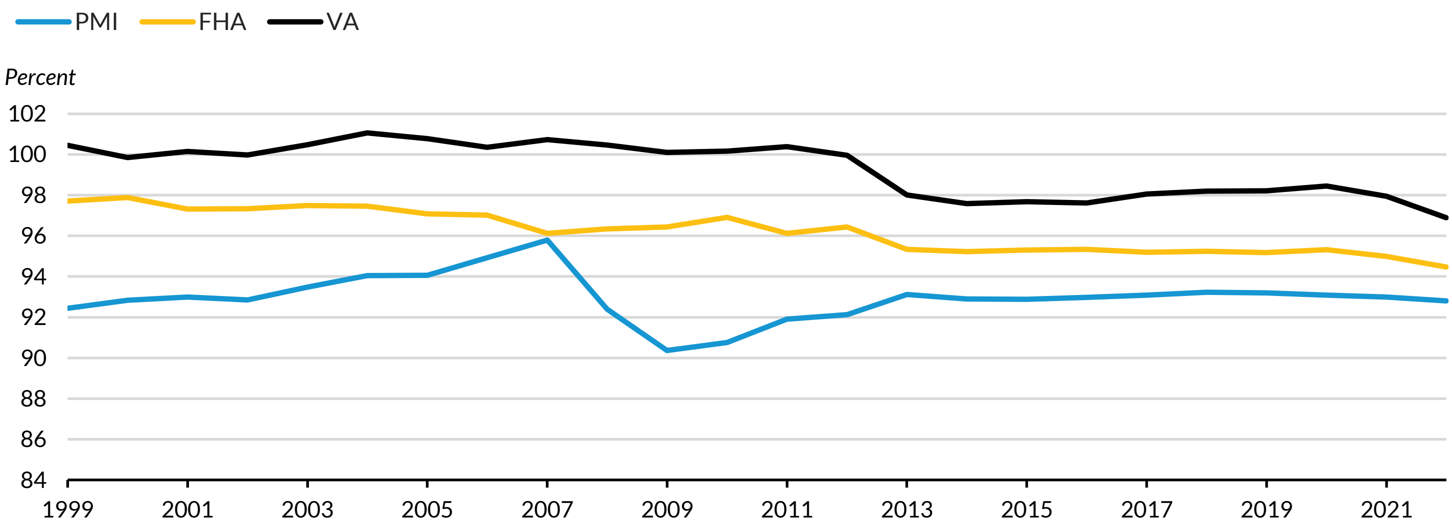
	% of Loans		Average Loan Size ($ Thousands)		Note Rate (%)		Purchase Share (%)		FRM 30 (%)		LTV Ratio (%)		FICO Score		DTI Ratio (%)	
	PMI	Non-PMI	PMI	Non-PMI	PMI	Non-PMI	PMI	Non-PMI	PMI	Non-PMI	PMI	Non-PMI	PMI	Non-PMI	PMI	Non-PMI
2014	30.5	69.5	208.9	208.8	4.5	4.2	66.7	42.4	84.9	64.6	94.0	67.3	736	747	34.9	33.5
2015	26.9	73.0	223.2	221.8	4.1	3.9	71.3	35.1	87.7	66.5	92.7	66.8	741	750	34.6	33.2
2016	26.3	73.6	233.9	233.0	3.9	3.7	75.5	32.5	89.6	67.0	92.3	66.1	742	751	34.8	33.1
2017	30.0	70.0	236.0	225.6	4.3	4.1	86.5	43.5	91.8	70.3	92.7	67.2	740	745	36.0	34.6
2018	34.4	65.6	243.6	227.9	4.8	4.7	93.1	51.1	95.3	77.8	92.9	67.4	740	744	37.6	35.9
2019	32.4	67.6	268.6	256.4	4.2	4.1	82.2	38.1	95.3	76.3	92.4	67.1	745	751	36.6	34.7
2020	22.4	77.5	289.7	283.8	3.2	3.1	66.4	18.6	93.0	69.9	91.3	64.2	749	762	35.3	32.6
2021	19.7	80.3	309.9	279.8	3.1	2.9	81.9	20.4	95.3	69.2	91.9	62.7	746	755	35.8	33.4
2022	29.4	70.6	342.1	284.5	5.0	4.5	97.3	44.8	97.0	79.9	92.7	64.3	746	744	37.9	35.9

Sources: eMBS and the Urban Institute.
Notes: DTI = debt-to-income; FRM 30 = 30-year fixed-rate mortgage; LTV = loan-to-value; PMI = private mortgage insurance. Home Affordable Refinance Program loans are included and counted as refinances. PMI numbers are for government-sponsored enterprise loans only.

Mortgage Insurance Market

Since 1999, the average LTV ratios for PMI purchase originations has been consistently lower than those for FHA or VA loans. LTV ratios have trended slightly downward since 2020 for all three channels. The total GSE security volume backed by PMI reached $561.1 billion in 2021, by far the largest origination year since we started tracking these data in 2014. Origination volume dropped for all channels in 2022, but GSE PMI volumes remained larger than for the FHA and VA individually.

Average LTV Ratio, Purchase Originations



Sources: Before 2016, data are from Laurie Goodman et al., *Mortgage Insurance at a Glance, June 2017* (Washington, DC: Urban Institute, 2017); after that, they are from eMBS and the Urban Institute.
Notes: FHA = Federal Housing Administration; LTV = loan-to-value; PMI = private mortgage insurance; VA = US Department of Veterans Affairs. Purchase loans only.

All Loans

	Origination Volume, by Loan Amount ($ Billions)					Origination Volume, by Loan Count (Thousands of Loans)				
Pool issuance year	PMI	FHA	VA	GSE non-PMI	Other	PMI	FHA	VA	GSE non-PMI	Other
2014	190.4	159.1	109.7	438.4	27.5	987.8	1,232.1	622.2	2,714.9	129.3
2015	219.7	254.8	152.9	598.9	27.2	565.9	1,251.5	616.6	1,681.5	124.9
2016	258.4	275.7	203.3	711.7	25.1	1,110.5	1,334.5	793.5	3,076.4	132.8
2017	258.8	251.6	172.4	601.4	21.7	1,090.2	1,188.9	670.1	2,621.7	137.4
2018	270.4	218.6	153.1	511.9	18.7	1,105.4	995.8	570.6	2,165.7	116.8
2019	342.9	262.0	221.2	688.6	16.7	1,291.6	1,122.6	759.9	2,676.9	103.8
2020	561.1	328.0	410.4	1,827.8	27.2	1,951.6	1,349.7	1,343.1	6,484.7	142.5
2021	549.6	395.1	421.9	2,081.7	27.2	1,794.2	1,389.7	1,293.8	7,433.2	124.6
2022	367.9	278.4	221.6	807.1	15.0	1,083.4	863.8	600.5	2,826.3	64.3

Sources: eMBS and the Urban Institute.
Notes: FHA = Federal Housing Administration; GSE = government-sponsored enterprise; LTV = loan-to-value; PMI = private mortgage insurance; VA = US Department of Veterans Affairs. PMI numbers are for government-sponsored enterprise loans only.

PMI Compared with FHA and VA: All Loans

For 2022 originations, 48.8 percent of agency mortgages had mortgage insurance (PMI, FHA, or VA). Of these insured mortgages, 42.7 percent had PMI coverage, 34.0 percent were FHA insured, and 23.3 percent were VA insured. The PMI share of the insured market has gradually increased since 2017, while the combined FHA and VA share has declined. The average loan amount in 2022 for mortgages with PMI ($342,106) was larger than for FHA mortgages ($269,857) and smaller than for VA mortgages ($352,264). In 2021 and 2022, the average LTV ratio for FHA originations was lower than the average PMI loan, driven by an increase in cash-out refinances as a share of total refinances in the FHA channel. FHA regulation restricts borrowers to taking out a maximum of 80 percent of the current home value on cash-out refinances.

All Loans

		% of All Insured Loans				Average Loan Size ($ Thousands)			Note Rate (%)		
	% of loans with MI	PMI	FHA	VA	All	PMI	FHA	VA	PMI	FHA	VA
2014	51.0	42.0	35.5	22.4	100	208.9	173.1	231.2	4.46	4.22	3.99
2015	51.6	34.6	43.8	21.7	100	223.2	195.1	244.0	4.12	3.99	3.74
2016	50.8	34.7	40.3	25.0	100	233.9	198.2	255.2	3.88	3.77	3.50
2017	53.3	37.5	39.6	22.8	100	236.0	202.0	255.2	4.27	4.16	3.86
2018	55.5	42.2	36.5	21.3	100	243.6	207.4	264.4	4.81	4.80	4.53
2019	54.2	40.5	34.6	24.9	100	268.6	225.9	289.6	4.22	4.24	3.87
2020	40.7	42.2	28.2	29.7	100	289.7	234.9	304.2	3.22	3.29	2.90
2021	37.4	40.3	31.1	28.6	100	309.9	242.5	314.1	3.07	3.04	2.63
2022	48.8	42.7	34.0	23.3	100	342.1	269.9	352.3	5.01	4.85	4.47

	Purchase (%)			LTV Ratio (%)			FICO Score			DTI Ratio (%)		
	PMI	FHA	VA	PMI	FHA	VA	PMI	FHA	VA	PMI	FHA	VA
2014	66.7	76.6	57.3	94.0	92.6	95.2	736	680	707	34.9	40.2	38.2
2015	71.3	66.0	52.2	92.7	92.6	94.9	741	683	708	34.6	40.1	38.2
2016	75.5	67.7	44.7	92.3	92.3	94.5	742	681	710	34.8	40.7	38.4
2017	86.5	73.6	57.6	92.7	91.8	94.3	740	676	709	36.0	42.1	39.9
2018	93.1	78.3	67.8	92.9	92.0	95.3	740	670	707	37.6	43.3	41.4
2019	82.2	67.8	48.9	92.4	91.7	94.4	745	670	711	36.6	43.2	40.2
2020	66.4	61.2	31.1	91.3	92.0	90.5	749	677	727	35.3	42.7	39.0
2021	81.9	59.2	35.1	91.9	90.3	88.1	746	671	724	35.8	42.9	39.2
2022	97.3	73.8	65.7	92.7	88.9	91.5	746	665	712	37.9	44.2	42.2

Sources: eMBS and the Urban Institute.
Notes: FHA = Federal Housing Administration; LTV = loan-to-value; PMI = private mortgage insurance; VA = US Department of Veterans Affairs. PMI numbers are for government-sponsored enterprise loans only.

PMI Compared with FHA and VA: Purchase Loans

For purchase originations in 2022, 62.9 percent of agency loans had mortgage insurance, with PMI composing 50.7 percent of the insured market. Purchase loans with PMI had an average LTV ratio of 92.8 percent, lower than the 94.5 percent average ratio for FHA loans or the 96.9 percent average ratio for VA loans. PMI borrowers also had higher FICO credit scores and lower DTI ratios than FHA and VA borrowers in 2022 for both purchase loans and refinance loans (page 13).

Purchase

		% of All Insured Loans				Average Loan Size ($ Thousands)			Note Rate (%)		
	% of loans with MI	PMI	FHA	VA	All	PMI	FHA	VA	PMI	FHA	VA
2014	62.6	41.2	39.9	18.9	100	218.2	177.7	236.4	4.44	4.20	4.05
2015	66.3	38.0	44.5	17.4	100	226.7	190.6	245.2	4.13	4.02	3.82
2016	67.2	40.5	42.2	17.3	100	234.0	197.7	254.2	3.90	3.80	3.61
2017	66.2	43.4	39.0	17.6	100	237.2	204.6	262.6	4.28	4.21	3.96
2018	66.7	47.7	34.7	17.6	100	244.1	209.0	269.5	4.82	4.86	4.60
2019	68.1	48.3	34.0	17.7	100	260.3	221.2	282.8	4.27	4.33	4.01
2020	66.7	51.4	31.7	16.9	100	285.0	236.1	317.6	3.24	3.32	3.07
2021	63.0	53.7	30.0	16.3	100	313.7	255.8	353.6	3.10	3.14	2.86
2022	62.9	50.7	30.6	18.7	100	342.5	283.2	372.6	5.04	5.00	4.75

	LTV Ratio (%)			FICO Score			DTI Ratio (%)		
	PMI	FHA	VA	PMI	FHA	VA	PMI	FHA	VA
2014	92.9	95.2	97.6	743	681	711	34.6	40.7	38.8
2015	92.9	95.3	97.7	744	684	711	34.6	40.5	39.1
2016	93.0	95.3	97.6	743	682	711	34.9	41.0	39.4
2017	93.1	95.2	98.1	741	678	712	36.0	42.4	40.4
2018	93.2	95.2	98.2	741	672	712	37.6	43.5	41.6
2019	93.2	95.2	98.2	744	671	713	36.9	43.4	41.2
2020	93.1	95.3	98.5	748	677	720	35.8	43.1	40.4
2021	93.0	95.0	98.0	746	672	719	36.0	43.4	40.7
2022	92.8	94.5	96.9	746	671	719	37.9	44.7	43.1

Sources: eMBS and the Urban Institute.
Notes: FHA = Federal Housing Administration; LTV = loan-to-value; PMI = private mortgage insurance; VA = US Department of Veterans Affairs. PMI numbers are GSE only.

PMI Compared with FHA and VA: Refinance Loans

For refinance originations in 2022, 24.2 percent of agency loans had mortgage insurance, with PMI composing 6.5 percent of the insured market. With mortgage rates rising in 2022 the overall number of refinances declined significantly.

Refinance

		% of All Insured Loans				Average Loan Size ($ Thousands)			Note Rate (%)		
	% of loans with MI	PMI	FHA	VA	All	PMI	FHA	VA	PMI	FHA	VA
2014	36.6	43.9	26.1	30.1	100	190.3	158.0	224.2	4.49	4.27	3.91
2015	36.6	28.3	42.3	29.4	100	214.5	203.7	242.7	4.09	3.95	3.64
2016	35.1	24.0	36.9	39.1	100	233.6	199.3	256.0	3.82	3.69	3.42
2017	33.7	20.1	41.6	38.3	100	227.9	194.8	245.1	4.16	4.02	3.72
2018	31.1	16.5	44.7	38.8	100	236.8	201.7	253.6	4.64	4.61	4.38
2019	37.2	23.2	35.9	40.9	100	306.7	235.7	296.1	3.99	4.05	3.73
2020	27.7	31.2	24.0	44.9	100	299.0	232.8	298.1	3.18	3.23	2.82
2021	22.7	19.0	33.0	48.1	100	293.1	223.3	292.8	2.93	2.89	2.51
2022	24.2	6.5	49.4	44.2	100	326.6	232.3	313.3	3.97	4.43	3.94

	LTV Ratio (%)			FICO Score			DTI Ratio (%)		
	PMI	FHA	VA	PMI	FHA	VA	PMI	FHA	VA
2014	96.2	83.9	87.5	722	675	702	35.7	37.5	36.7
2015	92.4	86.9	87.3	735	683	706	34.4	38.4	36.4
2016	90.1	85.1	86.9	739	679	709	34.3	39.4	36.5
2017	89.8	81.6	88.6	733	671	703	35.8	41.0	39.0
2018	88.8	79.8	89.1	735	663	696	36.8	42.4	40.9
2019	88.5	83.8	90.6	749	667	708	35.6	42.3	38.2
2020	87.8	86.5	86.7	753	675	731	34.1	41.1	36.1
2021	87.0	83.2	82.6	746	668	727	34.6	41.3	36.6
2022	87.5	73.0	80.9	738	648	697	36.6	42.5	40.3

Sources: eMBS and the Urban Institute.
Notes: FHA = Federal Housing Administration; LTV = loan-to-value; PMI = private mortgage insurance; VA = US Department of Veterans Affairs. PMI numbers are for government-sponsored enterprise loans only.

State-Level Analysis: All Loans

For 2022 agency originations, 48.8 percent had FHA, VA, or private mortgage insurance. Of these, 42.7 percent had PMI, and the remaining 57.3 percent were either FHA or VA insured. The five states with the highest PMI shares were the District of Columbia, Illinois, Michigan, Minnesota, and Wisconsin; the District of Columbia had the highest share (68.7 percent). The five states with the lowest PMI shares were Alabama, Alaska, Hawaii, Mississippi, and New Mexico; Mississippi had the lowest share (26.4 percent).

	% of Loans with Insurance			Number of Loans				% All Agency Loans with Insurance
State	PMI	FHA	VA	PMI	FHA	VA	All	
National	42.7	34.0	23.3	989,722	788,506	538,993	2,317,221	48.8
Alabama	30.9	37.6	31.5	13,581	16,491	13,841	43,913	57.4
Alaska	27.2	23.3	49.5	1,709	1,466	3,114	6,289	61.8
Arizona	39.8	32.5	27.6	28,639	23,416	19,886	71,941	43.9
Arkansas	34.4	39.6	26.0	7,600	8,755	5,751	22,106	52.9
California	42.6	35.2	22.2	66,855	55,206	34,789	156,850	37.9
Colorado	43.6	27.3	29.2	24,828	15,544	16,611	56,983	46.5
Connecticut	47.9	40.2	11.9	10,669	8,956	2,642	22,267	50.0
Delaware	40.2	38.3	21.6	3,938	3,756	2,114	9,808	49.0
District of Columbia	68.7	15.2	16.1	2,107	466	492	3,065	45.5
Florida	37.8	35.4	26.8	75,273	70,542	53,459	199,274	48.2
Georgia	35.5	36.7	27.7	38,192	39,503	29,839	107,534	53.8
Hawaii	32.6	11.6	55.7	2,007	715	3,427	6,149	46.8
Idaho	36.1	33.0	30.9	5,004	4,574	4,276	13,854	39.9
Illinois	53.4	34.8	11.8	47,548	31,021	10,493	89,062	53.3
Indiana	44.1	39.8	16.0	26,400	23,832	9,579	59,811	53.0
Iowa	51.4	30.1	18.5	9,552	5,591	3,437	18,580	52.3
Kansas	45.7	29.7	24.6	8,976	5,833	4,842	19,651	54.9
Kentucky	35.8	41.7	22.5	11,442	13,330	7,172	31,944	54.5
Louisiana	35.8	44.0	20.2	11,685	14,354	6,573	32,612	57.5
Maine	38.2	35.1	26.8	2,916	2,681	2,044	7,641	46.4
Maryland	42.1	34.9	23.0	24,113	19,952	13,174	57,239	56.9
Massachusetts	48.5	38.3	13.2	13,069	10,333	3,556	26,958	41.3
Michigan	52.7	33.5	13.9	36,654	23,290	9,644	69,588	48.3
Minnesota	62.5	24.1	13.4	26,170	10,078	5,603	41,851	49.1
Mississippi	26.4	45.6	28.0	5,007	8,647	5,322	18,976	59.4
Missouri	43.3	34.9	21.8	21,550	17,338	10,846	49,734	51.6
Montana	42.0	22.1	35.9	2,665	1,405	2,278	6,348	39.1
Nebraska	50.9	26.4	22.8	7,205	3,733	3,225	14,163	52.5
Nevada	38.5	31.7	29.8	12,071	9,914	9,329	31,314	47.6
New Hampshire	46.9	30.4	22.6	3,915	2,541	1,889	8,345	42.1
New Jersey	47.0	42.7	10.3	23,640	21,437	5,176	50,253	43.8
New Mexico	32.5	37.0	30.4	5,593	6,365	5,227	17,185	54.8
New York	51.0	37.1	11.9	27,376	19,928	6,382	53,686	40.6
North Carolina	39.5	27.5	33.0	37,121	25,903	31,057	94,081	50.8
North Dakota	51.4	21.2	27.4	2,071	854	1,102	4,027	53.9
Ohio	45.1	38.4	16.5	39,880	34,020	14,600	88,500	54.6
Oklahoma	36.2	34.7	29.1	11,625	11,161	9,347	32,133	57.2
Oregon	50.2	26.7	23.2	14,446	7,678	6,669	28,793	41.4
Pennsylvania	50.2	35.7	14.1	37,919	26,991	10,698	75,608	50.6
Rhode Island	34.3	51.5	14.2	2,497	3,756	1,036	7,289	50.4
South Carolina	34.7	33.8	31.5	18,426	17,917	16,723	53,066	52.2
South Dakota	46.2	27.4	26.5	2,864	1,699	1,642	6,205	51.1
Tennessee	38.0	33.3	28.8	22,079	19,322	16,707	58,108	47.7
Texas	44.8	33.8	21.4	98,868	74,651	47,292	220,811	49.7
Utah	51.7	30.5	17.8	14,155	8,367	4,873	27,395	40.9
Vermont	47.3	29.7	23.0	1,154	724	562	2,440	38.1
Virginia	34.6	25.9	39.5	29,459	22,048	33,561	85,068	58.1
Washington	45.7	24.3	30.0	25,001	13,320	16,388	54,709	44.5
West Virginia	33.0	41.3	25.6	3,348	4,190	2,596	10,134	57.5
Wisconsin	56.0	26.9	17.1	18,365	8,842	5,617	32,824	47.0
Wyoming	36.2	31.2	32.6	1,665	1,435	1,499	4,599	48.3

Sources: eMBS and the Urban Institute. **Notes:** PMI numbers are GSE only. Data are based on agency issuance in 2022. National numbers include Guam, Puerto Rico, and the Virgin Islands. The District of Columbia is considered a state for this analysis.

State-Level Analysis: Purchase Loans

For 2022 agency purchase originations, 62.9 percent had FHA, VA, or private mortgage insurance. Of these, 50.7 percent had PMI, and 49.6 percent were either FHA or VA insured. The five states with the highest PMI shares of purchase originations were the District of Columbia, Michigan, Minnesota, Utah, and Wisconsin. The five states with the lowest PMI shares were Alabama, Alaska, Louisiana, Mississippi, and New Mexico.

	% of Loans with Insurance			Number of Loans				% All Agency Loans with Insurance
State	PMI	FHA	VA	PMI	FHA	VA	All	
National	50.7	30.6	18.7	962,688	581,859	354,207	1,898,754	62.9
Alabama	37.6	35.4	27.0	12,911	12,145	9,271	34,327	67.8
Alaska	30.3	23.0	46.7	1,638	1,242	2,526	5,406	75.5
Arizona	51.8	28.0	20.1	28,244	15,280	10,971	54,495	59.0
Arkansas	40.1	38.2	21.7	7,134	6,788	3,869	17,791	63.7
California	53.0	31.9	15.1	65,298	39,358	18,650	123,306	57.3
Colorado	52.6	24.3	23.1	24,247	11,183	10,629	46,059	59.9
Connecticut	54.8	36.3	8.8	10,433	6,911	1,681	19,025	65.0
Delaware	48.5	35.0	16.5	3,822	2,758	1,303	7,883	59.2
District of Columbia	74.8	11.3	13.9	2,038	307	378	2,723	62.5
Florida	46.9	31.9	21.1	74,363	50,598	33,449	158,410	59.5
Georgia	45.4	32.5	22.1	37,299	26,693	18,120	82,112	66.9
Hawaii	39.6	7.7	52.7	1,971	383	2,625	4,979	61.7
Idaho	46.6	30.6	22.8	4,922	3,227	2,411	10,560	53.0
Illinois	59.0	31.4	9.6	45,936	24,426	7,447	77,809	65.7
Indiana	53.5	34.3	12.3	25,818	16,534	5,917	48,269	65.6
Iowa	57.6	26.9	15.5	9,074	4,248	2,441	15,763	65.1
Kansas	52.5	26.3	21.2	8,747	4,379	3,521	16,647	67.2
Kentucky	43.0	38.4	18.6	11,078	9,902	4,791	25,771	65.8
Louisiana	38.2	43.9	17.9	10,514	12,077	4,923	27,514	68.6
Maine	48.1	31.7	20.2	2,856	1,880	1,198	5,934	61.4
Maryland	50.2	31.6	18.2	23,129	14,536	8,391	46,056	72.2
Massachusetts	57.3	34.2	8.5	12,816	7,655	1,894	22,365	59.4
Michigan	62.8	27.2	10.0	35,596	15,407	5,666	56,669	64.8
Minnesota	69.5	20.5	10.0	25,356	7,484	3,647	36,487	62.7
Mississippi	29.7	45.2	25.1	4,426	6,724	3,740	14,890	69.8
Missouri	51.9	30.4	17.8	20,850	12,211	7,139	40,200	64.2
Montana	53.5	18.5	27.9	2,597	899	1,354	4,850	53.3
Nebraska	58.7	22.5	18.8	6,959	2,673	2,230	11,862	66.5
Nevada	48.8	28.8	22.4	11,917	7,029	5,473	24,419	61.5
New Hampshire	58.5	25.3	16.2	3,854	1,668	1,064	6,586	58.0
New Jersey	55.8	37.0	7.3	23,059	15,282	2,998	41,339	57.4
New Mexico	39.4	34.7	25.9	5,412	4,772	3,552	13,736	68.8
New York	57.7	33.1	9.1	26,795	15,384	4,242	46,421	53.7
North Carolina	49.4	22.8	27.8	36,355	16,741	20,442	73,538	62.3
North Dakota	55.8	19.3	24.9	1,923	664	858	3,445	65.5
Ohio	53.9	33.1	13.0	38,872	23,891	9,374	72,137	67.2
Oklahoma	41.6	33.6	24.9	10,951	8,846	6,549	26,346	67.0
Oregon	60.1	24.0	15.9	14,206	5,677	3,759	23,642	55.0
Pennsylvania	59.3	30.1	10.5	37,001	18,801	6,576	62,378	63.3
Rhode Island	41.1	48.6	10.3	2,450	2,898	613	5,961	68.4
South Carolina	43.1	30.4	26.5	17,988	12,670	11,048	41,706	61.6
South Dakota	52.7	25.6	21.7	2,728	1,324	1,125	5,177	63.8
Tennessee	49.7	27.3	23.0	21,633	11,886	10,013	43,532	59.6
Texas	46.1	33.4	20.5	96,354	69,961	42,873	209,188	66.5
Utah	60.8	26.5	12.7	13,752	5,997	2,876	22,625	58.0
Vermont	56.9	25.5	17.6	1,127	504	348	1,979	52.8
Virginia	42.0	23.7	34.4	28,489	16,072	23,316	67,877	70.5
Washington	56.2	21.5	22.3	24,506	9,381	9,724	43,611	59.5
West Virginia	39.7	38.3	22.0	3,195	3,081	1,774	8,050	68.0
Wisconsin	64.3	22.6	13.1	17,746	6,224	3,620	27,590	62.5
Wyoming	44.6	27.8	27.6	1,587	989	983	3,559	60.3

Sources: eMBS and the Urban Institute. **Notes:** PMI numbers are GSE only. Data are based on agency issuance in 2022. National numbers include Guam, Puerto Rico, and the Virgin Islands. The District of Columbia is considered a state for this analysis.

State-Level Analysis: Refinance Loans

Rising interest rates in 2022 resulted in a significant decline in refinances nationally relative to prior years. For 2022 agency refinance originations, 24.2 percent had FHA, VA, or private mortgage insurance. Of these, 6.5 percent had PMI, and 93.5 percent were either FHA or VA insured. The five states with the largest PMI shares of refinance originations were the District of Columbia, Iowa, Louisiana, North Dakota, and Texas. The five states with the lowest PMI shares were Arizona, Florida, Idaho, Nevada, and Tennessee.

	% of Loans with Insurance			Number of Loans				% All Agency Loans with Insurance
State	PMI	FHA	VA	PMI	FHA	VA	All	
National	6.5	49.4	44.2	27,034	206,647	184,786	418,467	24.2
Alabama	7.0	45.3	47.7	670	4,346	4,570	9,586	37.1
Alaska	8.0	25.4	66.6	71	224	588	883	29.3
Arizona	2.3	46.6	51.1	395	8,136	8,915	17,446	24.4
Arkansas	10.8	45.6	43.6	466	1,967	1,882	4,315	31.1
California	4.6	47.2	48.1	1,557	15,848	16,139	33,544	16.9
Colorado	5.3	39.9	54.8	581	4,361	5,982	10,924	24.0
Connecticut	7.3	63.1	29.6	236	2,045	961	3,242	21.3
Delaware	6.0	51.8	42.1	116	998	811	1,925	28.8
District of Columbia	20.2	46.5	33.3	69	159	114	342	14.4
Florida	2.2	48.8	49.0	910	19,944	20,010	40,864	27.8
Georgia	3.5	50.4	46.1	893	12,810	11,719	25,422	32.9
Hawaii	3.1	28.4	68.5	36	332	802	1,170	23.1
Idaho	2.5	40.9	56.6	82	1,347	1,865	3,294	22.2
Illinois	14.3	58.6	27.1	1,612	6,595	3,046	11,253	23.0
Indiana	5.0	63.2	31.7	582	7,298	3,662	11,542	29.4
Iowa	17.0	47.7	35.4	478	1,343	996	2,817	24.9
Kansas	7.6	48.4	44.0	229	1,454	1,321	3,004	27.2
Kentucky	5.9	55.5	38.6	364	3,428	2,381	6,173	31.8
Louisiana	23.0	44.7	32.4	1,171	2,277	1,650	5,098	30.6
Maine	3.5	46.9	49.6	60	801	846	1,707	25.1
Maryland	8.8	48.4	42.8	984	5,416	4,783	11,183	30.4
Massachusetts	5.5	58.3	36.2	253	2,678	1,662	4,593	16.6
Michigan	8.2	61.0	30.8	1,058	7,883	3,978	12,919	22.8
Minnesota	15.2	48.4	36.5	814	2,594	1,956	5,364	19.8
Mississippi	14.2	47.1	38.7	581	1,923	1,582	4,086	38.4
Missouri	7.3	53.8	38.9	700	5,127	3,707	9,534	28.2
Montana	4.5	33.8	61.7	68	506	924	1,498	20.9
Nebraska	10.7	46.1	43.2	246	1,060	995	2,301	25.2
Nevada	2.2	41.8	55.9	154	2,885	3,856	6,895	26.4
New Hampshire	3.5	49.6	46.9	61	873	825	1,759	20.7
New Jersey	6.5	69.0	24.4	581	6,155	2,178	8,914	20.9
New Mexico	5.2	46.2	48.6	181	1,593	1,675	3,449	30.3
New York	8.0	62.5	29.5	581	4,544	2,140	7,265	15.8
North Carolina	3.7	44.6	51.7	766	9,162	10,615	20,543	30.6
North Dakota	25.4	32.6	41.9	148	190	244	582	26.4
Ohio	6.2	61.9	31.9	1,008	10,129	5,226	16,363	29.8
Oklahoma	11.6	40.0	48.4	674	2,315	2,798	5,787	34.2
Oregon	4.7	38.8	56.5	240	2,001	2,910	5,151	19.3
Pennsylvania	6.9	61.9	31.2	918	8,190	4,122	13,230	26.0
Rhode Island	3.5	64.6	31.9	47	858	423	1,328	23.2
South Carolina	3.9	46.2	50.0	438	5,247	5,675	11,360	33.5
South Dakota	13.2	36.5	50.3	136	375	517	1,028	25.5
Tennessee	3.1	51.0	45.9	446	7,436	6,694	14,576	29.9
Texas	21.6	40.4	38.0	2,514	4,690	4,419	11,623	9.0
Utah	8.4	49.7	41.9	403	2,370	1,997	4,770	17.1
Vermont	5.9	47.7	46.4	27	220	214	461	17.3
Virginia	5.6	34.8	59.6	970	5,976	10,245	17,191	34.4
Washington	4.5	35.5	60.0	495	3,939	6,664	11,098	22.4
West Virginia	7.3	53.2	39.4	153	1,109	822	2,084	36.1
Wisconsin	11.8	50.0	38.2	619	2,618	1,997	5,234	20.3
Wyoming	7.5	42.9	49.6	78	446	516	1,040	28.7

Sources: eMBS and the Urban Institute. **Notes:** PMI numbers are GSE only. Data are based on agency issuance in 2022. National numbers include Guam, Puerto Rico, and the Virgin Islands. The District of Columbia is considered a state for this analysis.

Credit Box Distribution: FICO Scores

In 2022, GSE borrowers with PMI had higher median FICO credit scores than FHA and VA borrowers but lower FICO credit scores than GSE borrowers without PMI. The median FICO score for purchase originations was 750 for PMI borrowers, 661 for FHA borrowers, and 711 for VA borrowers. Almost 60 percent of PMI purchase borrowers had FICO credit scores of at least 740, compared with 8.7 percent of FHA borrowers and 41.7 percent of VA borrowers. Almost 63 percent of FHA purchase borrowers had FICO credit scores below 680, compared with 29.8 percent of VA borrowers and 5.3 percent of PMI borrowers. Median PMI FICO credit scores were higher than median FHA and VA FICO credit scores in the refinance space.

All Loans, 2022

	Loan count	≤ 619	620–679	680–739	≥ 740	Median	Mean
All	4,716,089	2.8%	19.7%	29.6%	47.9%	735	728
PMI	989,471	0.0%	5.4%	35.3%	59.3%	750	746
FHA	772,824	12.9%	54.2%	25.6%	7.3%	661	665
VA	522,975	4.6%	29.1%	30.0%	36.3%	711	712
GSE non-PMI	2,376,052	0.3%	12.2%	28.2%	59.3%	754	744
Other	54,767	3.0%	37.3%	39.4%	20.3%	692	696

Purchase Loans, 2022

	Loan count	≤ 619	620–679	680–739	≥ 740	Median	Mean
All	3,015,414	2.3%	18.0%	28.6%	51.1%	741	732
PMI	962,438	0.0%	5.3%	35.1%	59.6%	750	746
FHA	580,929	9.7%	53.3%	28.4%	8.7%	665	671
VA	353,890	3.2%	26.6%	28.5%	41.7%	722	719
GSE non-PMI	1,064,456	0.1%	6.5%	22.2%	71.1%	769	757
Other	53,701	2.8%	37.3%	39.6%	20.3%	692	696

Refinance Loans, 2022

	Loan count	≤ 619	620–679	680–739	≥ 740	Median	Mean
All	1,700,675	3.6%	22.7%	31.4%	42.3%	724	720
PMI	27,033	0.1%	7.7%	40.6%	51.7%	741	738
FHA	191,895	23.0%	57.2%	16.8%	3.0%	647	648
VA	169,085	7.8%	34.8%	33.5%	23.9%	693	697
GSE non-PMI	1,311,596	0.4%	16.8%	33.0%	49.7%	739	734
Other	1,066	13.8%	34.0%	29.0%	23.2%	681	687

Sources: eMBS and the Urban Institute.
Notes: FHA = Federal Housing Administration; GSE = government-sponsored enterprise; PMI = private mortgage insurance; VA = US Department of Veterans Affairs. "Other" refers to loans insured by the US Department of Housing and Urban Development's Office of Public and Indian Housing and the US Department of Agriculture's Rural Development. Data are based on agency issuance in 2022. PMI numbers are for government-sponsored enterprise only.

Credit Box Distribution: LTV Ratios

In 2022, GSE borrowers with PMI had lower median LTV ratios than FHA and VA borrowers but higher LTV ratios than GSE borrowers without PMI. The median LTV ratio was 95 percent for PMI purchase borrowers, 96.5 percent for FHA borrowers, and 100 percent for VA borrowers. Most FHA and VA purchase borrowers (73.3 and 82.3 percent, respectively) had LTV ratios at or above 95 percent, compared with 15.1 percent of PMI borrowers. VA loans led in the refinance space for loans with LTV ratios over 95 percent; 13.5 percent of VA refinance loans had LTV ratios of at least 95 percent, compared with 0.6 percent of FHA loans and 0.3 percent of loans with PMI.

All Loans, 2022

	Loan count	≤ 80%	80–90%	90–95%	> 95%	Median	Mean
All	4,746,208	56.7%	10.6%	12.9%	19.8%	80.0	77.7
PMI	989,722	0.0%	35.7%	49.6%	14.7%	95.0	92.7
FHA	786,691	25.9%	6.2%	11.9%	55.9%	96.5	88.9
VA	537,686	15.9%	18.6%	4.2%	61.3%	100.0	91.5
GSE non-PMI	2,377,157	100.0%	0.0%	0.0%	0.0%	70.0	64.3
Other	54,952	3.8%	4.0%	5.4%	86.9%	101.0	98.0

Purchase Loans, 2022

	Loan count	≤ 80%	80–90%	90–95%	> 95%	Median	Mean
All	3,017,407	36.9%	13.2%	19.8%	30.1%	90.0	85.6
PMI	962,688	0.0%	34.5%	50.4%	15.1%	95.0	92.8
FHA	581,499	3.9%	7.4%	15.4%	73.3%	96.5	94.5
VA	354,189	6.7%	6.1%	5.0%	82.3%	100.0	96.9
GSE non-PMI	1,065,506	100.0%	0.0%	0.0%	0.0%	75.0	70.0
Other	53,525	3.1%	3.6%	5.3%	88.0%	101.0	98.5

Refinance Loans, 2022

	Loan count	≤ 80%	80–90%	90–95%	> 95%	Median	Mean
All	1,728,801	92.2%	5.8%	0.7%	1.3%	67.0	63.9
PMI	27,034	0.0%	77.6%	22.1%	0.3%	87.0	87.5
FHA	205,192	95.9%	2.6%	0.8%	0.6%	77.4	73.0
VA	183,497	37.0%	47.1%	2.4%	13.5%	85.3	80.9
GSE non-PMI	1,311,651	100.0%	0.0%	0.0%	0.0%	62.0	59.6
Other	1,427	41.5%	31.0%	6.8%	20.7%	83.4	79.7

Sources: eMBS and the Urban Institute.
Notes: FHA = Federal Housing Administration; GSE = government-sponsored enterprise; LTV = loan-to-value ratio; PMI = private mortgage insurance; VA = US Department of Veterans Affairs. "Other" refers to loans insured by the US Department of Housing and Urban Development's Office of Public and Indian Housing and the US Department of Agriculture's Rural Development. Data are based on agency issuance in 2022. PMI numbers are for government-sponsored enterprise loans only.

Credit Box Distribution: DTI Ratios

In 2022, GSE borrowers with PMI had lower median DTI ratios than FHA and VA borrowers but slightly higher DTI ratios than GSE borrowers without PMI. The median purchase DTI ratio was 39.0 percent for PMI borrowers, 45.5 percent for FHA borrowers, and 43.0 percent for VA borrowers. Nearly 39 percent of PMI purchase borrowers had DTI ratios lower than 36 percent, and the corresponding shares for FHA and VA purchase borrowers were 16.1 percent and 24.6 percent. In addition, 63.0 percent and 52.9 percent of FHA and VA borrowers, respectively, had DTI ratios at or above 43 percent in 2022, compared with 30.4 percent of PMI borrowers. The median PMI DTI ratio was lower than the median FHA and VA DTI ratio in the refinance space.

All Loans, 2022

	Loan count	≤ 36%	36–43%	43–48%	≥ 48%	Median	Mean
All	4,688,921	38.3%	26.4%	20.1%	15.2%	40.0	38.4
PMI	989,703	38.9%	30.9%	21.9%	8.3%	39.0	37.9
FHA	764,250	18.1%	21.2%	21.9%	38.9%	45.5	44.2
VA	503,258	27.3%	22.8%	18.2%	31.6%	43.0	42.2
GSE non-PMI	2,376,678	46.6%	26.6%	19.4%	7.4%	37.0	35.9
Other	55,032	49.0%	41.3%	9.4%	0.2%	36.1	35.1

Purchase Loans, 2022

	Loan count	≤ 36%	36–43%	43–48%	≥ 48%	Median	Mean
All	3,012,390	35.7%	26.0%	20.7%	17.6%	40.4	39.1
PMI	962,671	38.8%	30.9%	22.0%	8.4%	39.0	37.9
FHA	581,327	16.1%	20.9%	22.3%	40.7%	46.0	44.7
VA	349,204	24.6%	22.5%	18.6%	34.3%	43.8	43.1
GSE non-PMI	1,065,346	46.6%	24.7%	19.9%	8.8%	38.0	36.0
Other	53,842	49.0%	41.5%	9.4%	0.1%	36.2	35.2

Refinance Loans, 2022

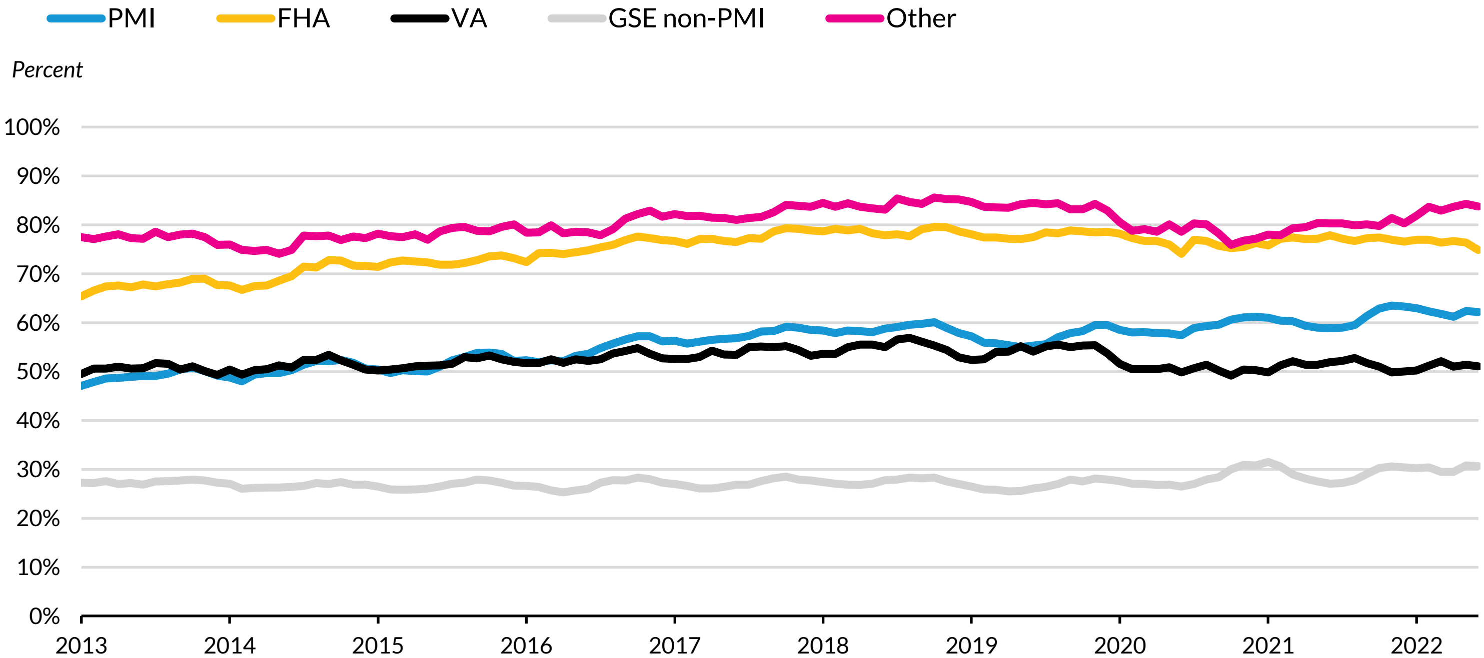
	Loan count	≤ 36%	36–43%	43–48%	≥ 48%	Median	Mean
All	1,676,531	43.0%	27.0%	19.1%	10.9%	38.1	37.0
PMI	27,032	45.6%	29.9%	18.9%	5.6%	38.0	36.6
FHA	182,923	24.4%	22.1%	20.5%	33.0%	43.9	42.5
VA	154,054	33.5%	23.6%	17.4%	25.5%	40.9	40.3
GSE non-PMI	1,311,332	46.7%	28.1%	19.1%	6.2%	37.0	35.8
Other	1,190	50.5%	29.7%	11.9%	7.9%	31.9	30.8

Sources: eMBS and the Urban Institute.
Notes: DTI = debt-to-income ratio; FHA = Federal Housing Administration; GSE = government-sponsored enterprise; LTV = loan-to-value ratio; PMI = private mortgage insurance; VA = US Department of Veterans Affairs. "Other" refers to loans insured by the US Department of Housing and Urban Development's Office of Public and Indian Housing and the US Department of Agriculture's Rural Development. Data are based on agency issuance in 2022. PMI numbers are for government-sponsored enterprise loans only.

Credit Box: First-Time Homebuyer Status

In 2022, 62.2 percent of GSE borrowers with PMI, 74.9 percent of FHA borrowers, 51.1 percent of VA borrowers, and 30.7 percent of GSE borrowers without PMI were first-time homebuyers. For 2022 purchase originations, the average first-time homebuyer was more likely than the average repeat buyer to take out a smaller loan and have a lower credit score, higher LTV ratio, and lower DTI ratio. First-time and repeat buyers had similar interest rates across insurance types and uses. Among FHA borrowers, first-time homebuyers had higher average credit scores than repeat buyers.

First-Time Homebuyer Share



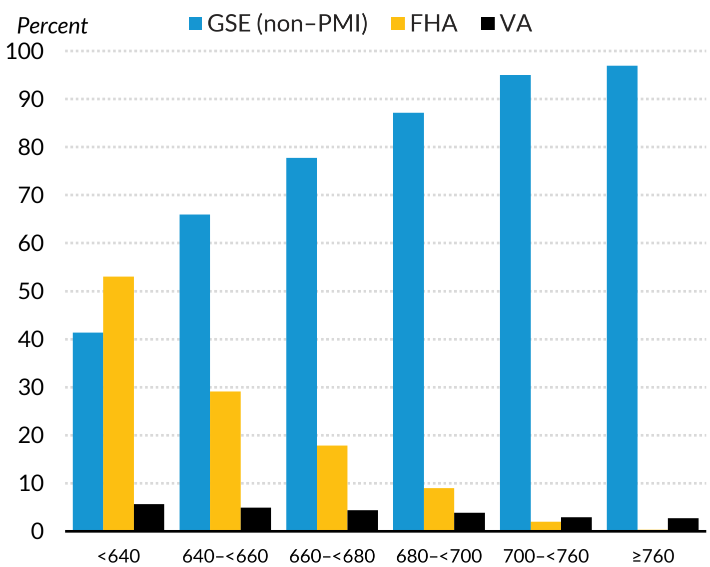
	PMI		FHA		VA		GSE Non-PMI		Other	
	First-time	Repeat	First-time	Repeat	First-time	Repeat	First-time	Repeat	First-time	Repeat
Loan amount ($ thousands)	330.2	367.5	279.3	295.4	339.7	406.4	323.5	331.3	182.0	193.0
FICO score	743.8	749.9	671.9	668.8	708.3	729.6	750.1	759.5	695.8	699.5
LTV ratio (%)	93.5	92.1	95.0	92.7	98.9	94.8	72.6	67.6	98.5	98.6
DTI ratio (%)	37.4	39.0	44.5	45.5	42.5	43.7	35.6	36.5	35.2	35.5
Note rate (%)	5.1	5.0	5.0	5.0	4.8	4.7	5.0	4.9	4.8	4.7

Sources: eMBS and the Urban Institute.
Notes: DTI = debt-to-income ratio; FHA = Federal Housing Administration; GSE = government-sponsored enterprise; LTV = loan-to-value ratio; PMI = private mortgage insurance; VA = US Department of Veterans Affairs. "Other" refers to loans insured by the US Department of Housing and Urban Development's Office of Public and Indian Housing and the US Department of Agriculture's Rural Development. Data in table are based on agency purchase originations in 2022. PMI numbers are for government-sponsored enterprise loans only.

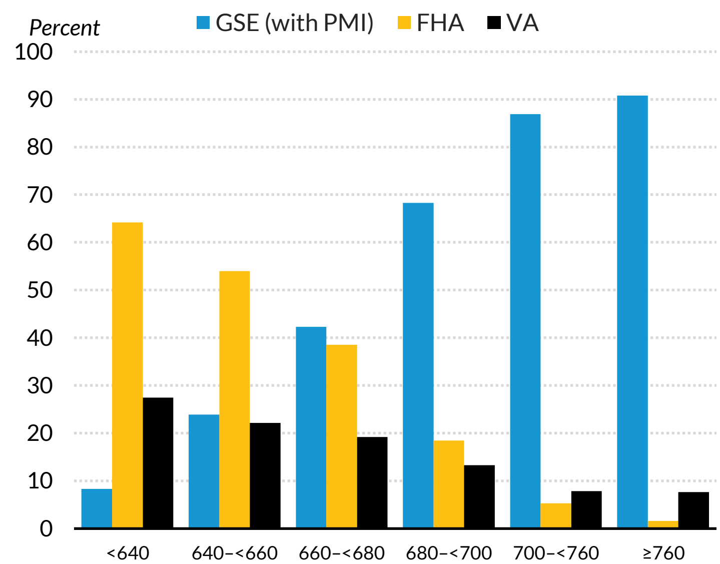
Channel, by FICO Score and LTV Ratio: All Loans

For all 2022 originations, borrowers with LTV ratios up to 80 percent and FICO credit scores of 640 and above were more likely to choose non-PMI GSE mortgages over any other channel. Borrowers with LTV ratios up to 80 percent and FICO credit scores below 640 were more likely to choose FHA mortgages. Borrowers with LTV ratios from 80 to 95 percent and FICO credit scores of 660 and above were more likely to choose GSE loans with PMI over FHA or VA loans, while borrowers with FICO credit scores below 660 were more likely to choose FHA loans over PMI or VA loans. FHA loans dominated the market with LTV ratios from 95 to 97 percent and FICO credit scores below 700; borrowers in this LTV ratio and FICO credit score band were more likely to choose FHA loans over PMI or VA loans. In the market with LTV ratios above 97 percent, VA loans dominated all FICO credit score buckets.

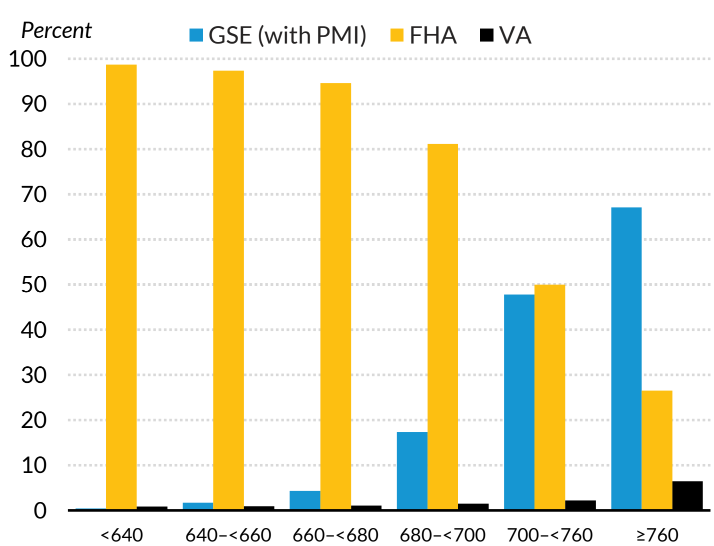
FICO Score Distribution, by Channel, for Loans with LTV Ratios up to 80 Percent



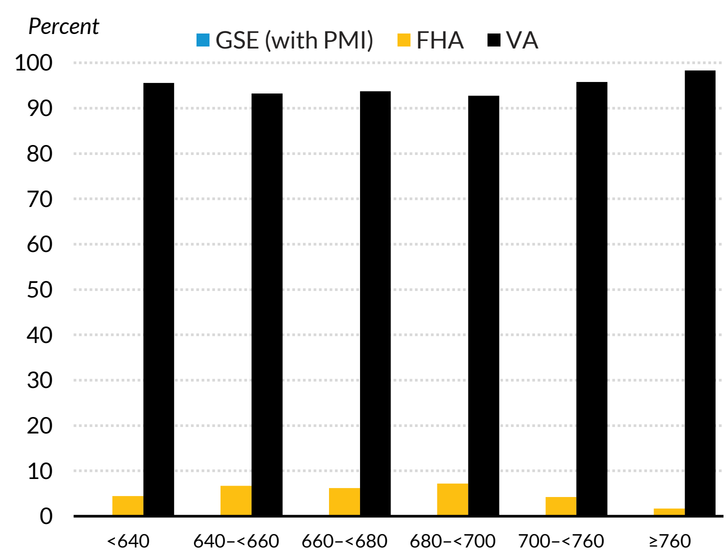
FICO Score Distribution, by Channel, for Loans with LTV Ratios from 80 to 95 Percent



FICO Score Distribution, by Channel, for Loans with LTV Ratios from 95 to 97 Percent



FICO Score Distribution, by Channel, for Loans with LTV Ratios above 97 Percent

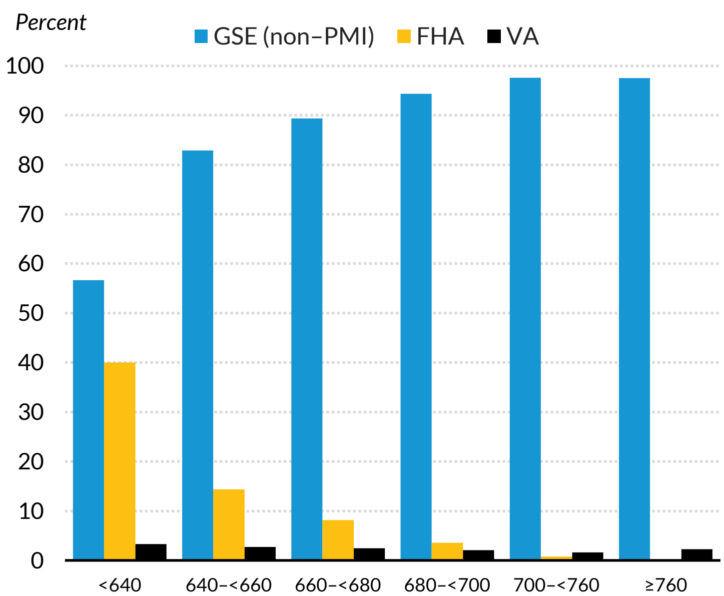


Sources: eMBS and the Urban Institute. **Notes:** FHA = Federal Housing Administration; GSE = government-sponsored enterprise; LTV = loan-to-value ratio; PMI = private mortgage insurance; VA = US Department of Veterans Affairs. Data are based on agency originations in 2022. PMI numbers are for GSE loans only.

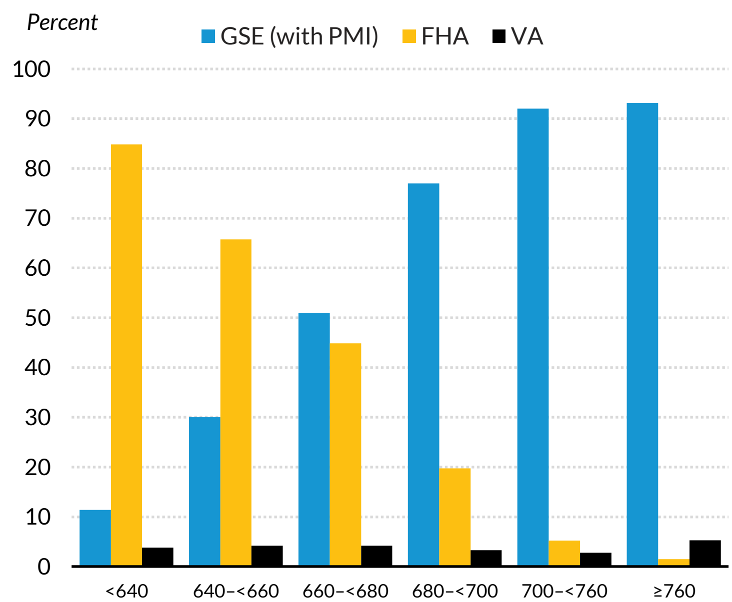
Channel, by FICO Score and LTV Ratio: Purchase Loans

Because of the low refinance rate in 2022, credit characteristics of purchase loans closely reflected the market as a whole. Purchase borrowers with LTV ratios up to 80 percent were likely to choose non-PMI GSE mortgages over any other channel, regardless of FICO credit score. Borrowers with LTV ratios from 80 to 95 percent and FICO credit scores of 660 and above were more likely to choose GSE loans with PMI over FHA or VA loans, while borrowers with FICO credit scores below 660 were more likely to choose FHA loans over PMI or VA loans. FHA loans dominated the market with LTV ratios from 95 to 97 percent and FICO credit scores below 700; borrowers in this LTV ratio and FICO credit score band were more likely to choose FHA loans over PMI or VA loans. In the market with LTV ratios above 97 percent, VA loans dominated all FICO credit score buckets.

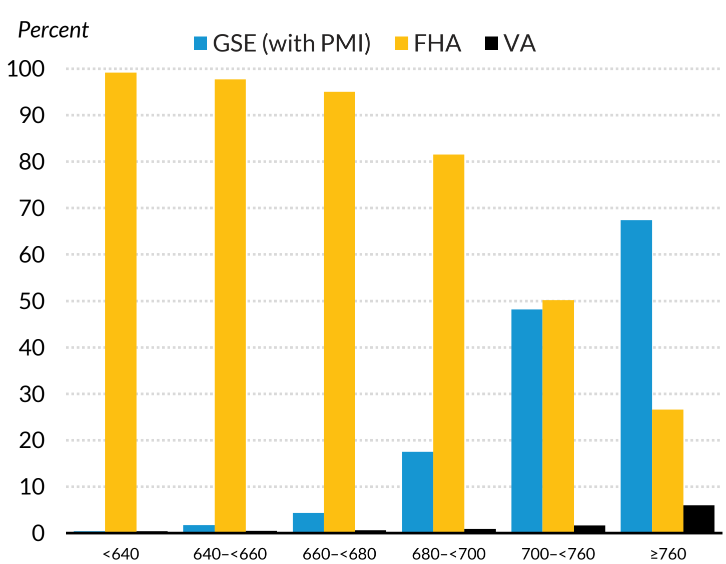
FICO Score Distribution, by Channel, for Loans with LTV Ratios up to 80 Percent



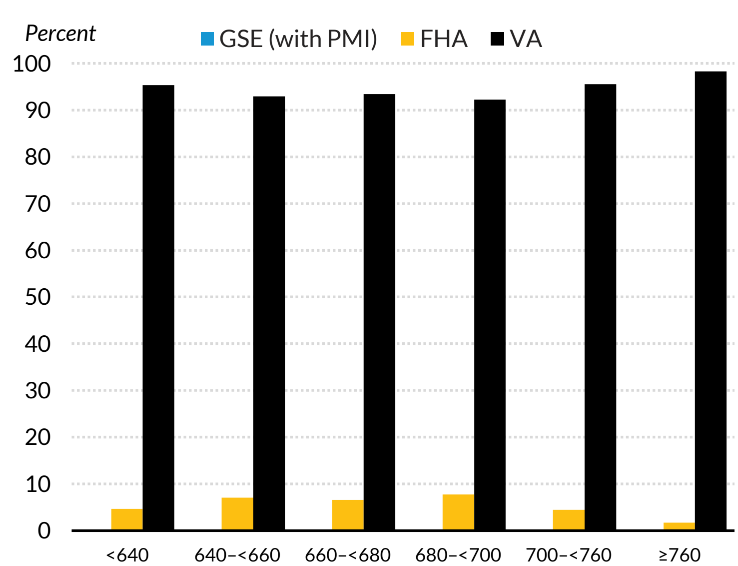
FICO Score Distribution, by Channel, for Loans with LTV Ratios from 80 to 95 Percent



FICO Score Distribution, by Channel, for Loans with LTV Ratios from 95 to 97 Percent



FICO Score Distribution, by Channel, for Loans with LTV Ratios above 97 Percent

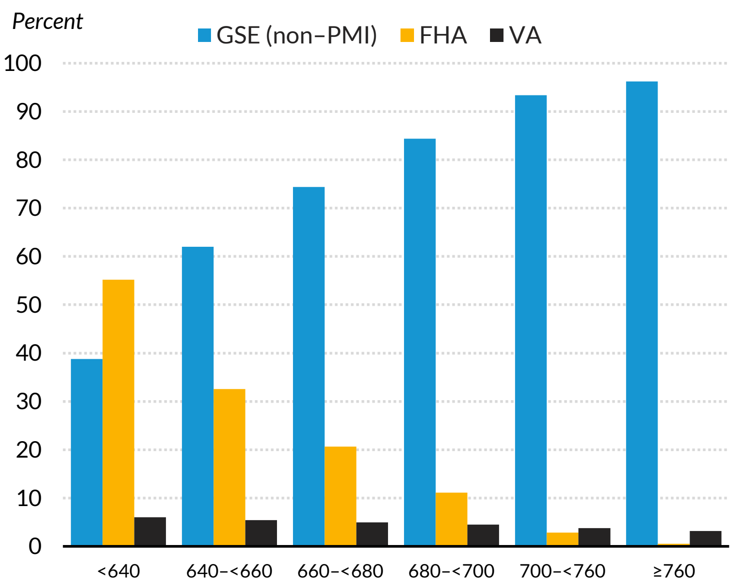


Sources: eMBS and the Urban Institute. **Notes:** FHA = Federal Housing Administration; GSE = government-sponsored enterprise; LTV = loan-to-value ratio; PMI = private mortgage insurance; VA = US Department of Veterans Affairs. Data are based on agency originations in 2022. PMI numbers are for GSE loans only.

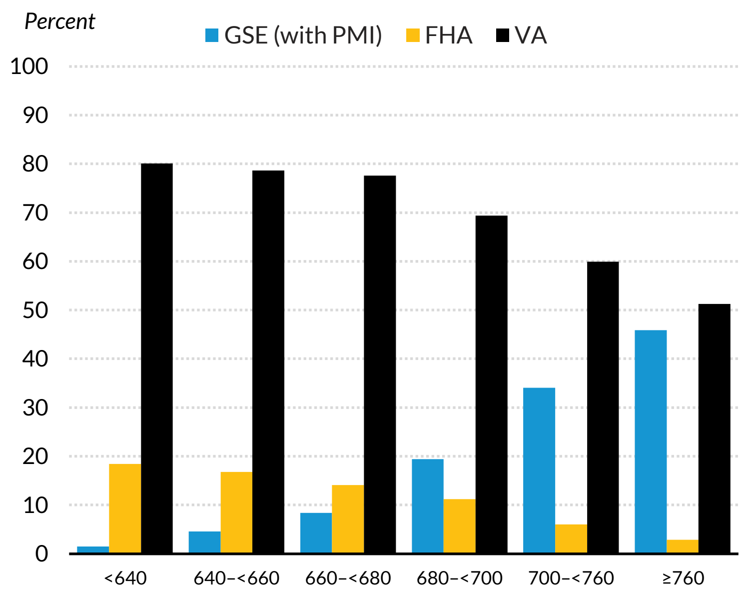
Channel, by FICO Score and LTV Ratio: Refi Loans

For 2022 refinance originations, borrowers with LTV ratios up to 80 percent were likely to choose non-PMI GSE mortgages over any other channel, regardless of FICO credit score. Borrowers with LTV ratios from 80 to 95 percent were more likely to be VA borrowers than FHA or PMI borrowers, regardless of FICO credit score. Most refinance originations with LTV ratios from 95 to 97 percent were VA and FHA loans, with the VA share dominating and increasing at higher FICO credit scores. In the market with LTV ratios above 97 percent, VA loans dominated all FICO credit score buckets. Amid high interest rates in 2022, most refinances were cash-out refinances. The VA insured more refinance loans with LTV ratios above 80 percent because of higher LTV ratio caps for cash-out refinances.

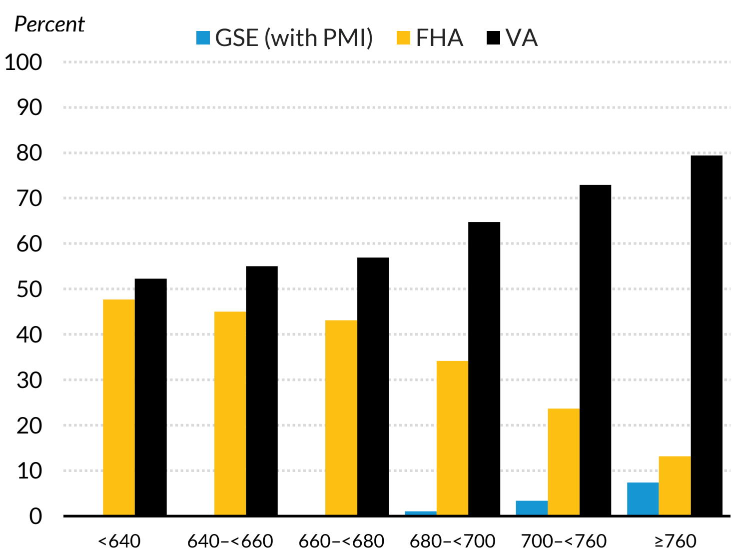
FICO Score Distribution, by Channel, for Loans with LTV Ratios up to 80 Percent



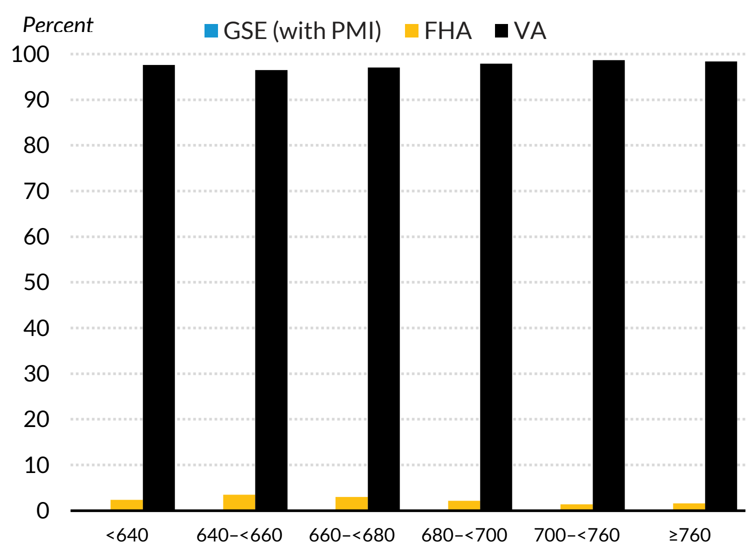
FICO Score Distribution, by Channel, for Loans with LTV Ratios from 80 to 95 Percent



FICO Score Distribution, by Channel, for Loans with LTV Ratios from 95 to 97 Percent



FICO Score Distribution, by Channel, for Loans with LTV Ratios above 97 Percent

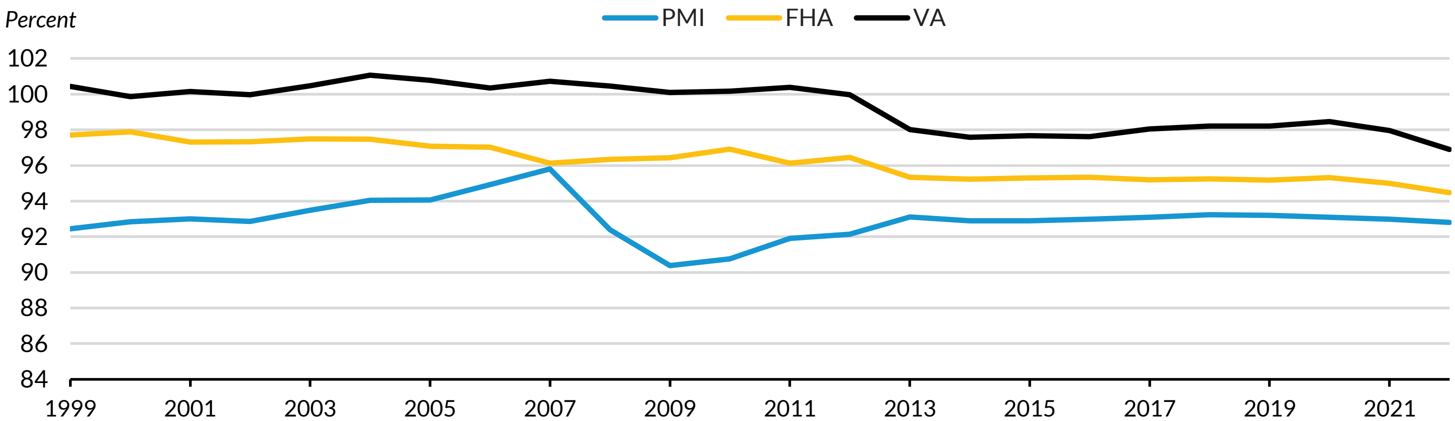


Sources: eMBS and the Urban Institute. **Notes:** FHA = Federal Housing Administration; GSE = government-sponsored enterprise; LTV = loan-to-value ratio; PMI = private mortgage insurance; VA = US Department of Veterans Affairs. Data are based on agency originations in 2022. PMI numbers are for GSE loans only.

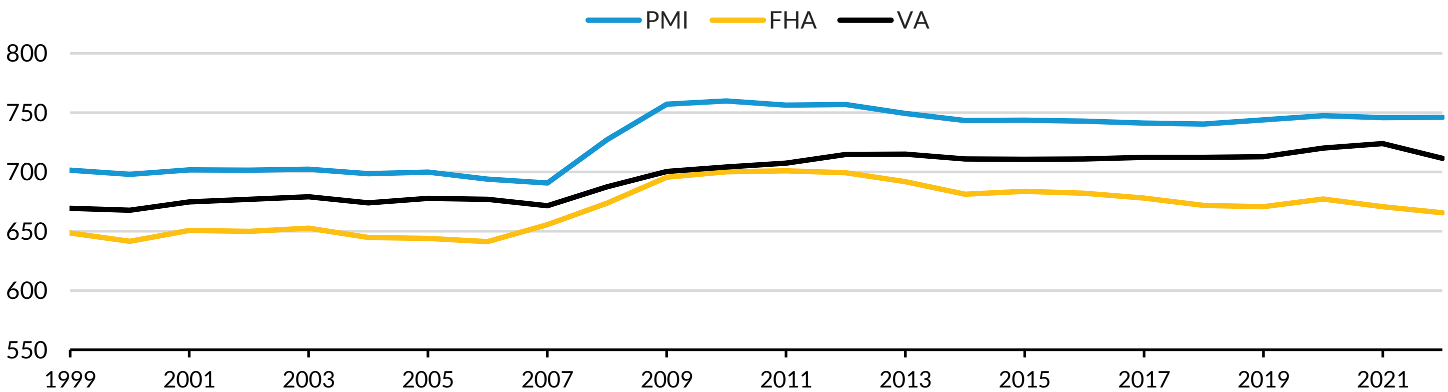
Average LTV, DTI, and FICO Score Trends

Conventional loans with PMI have lower LTV ratios and higher FICO credit scores than FHA or VA loans. Post-crisis, conventional loans with PMI have exhibited lower DTI ratios than loans insured by the FHA and VA. Since 2020, LTV ratios and FICO credit scores for all loans have decreased, and DTI ratios have increased, reflecting a slowdown in the market caused primarily by rising interest rates.

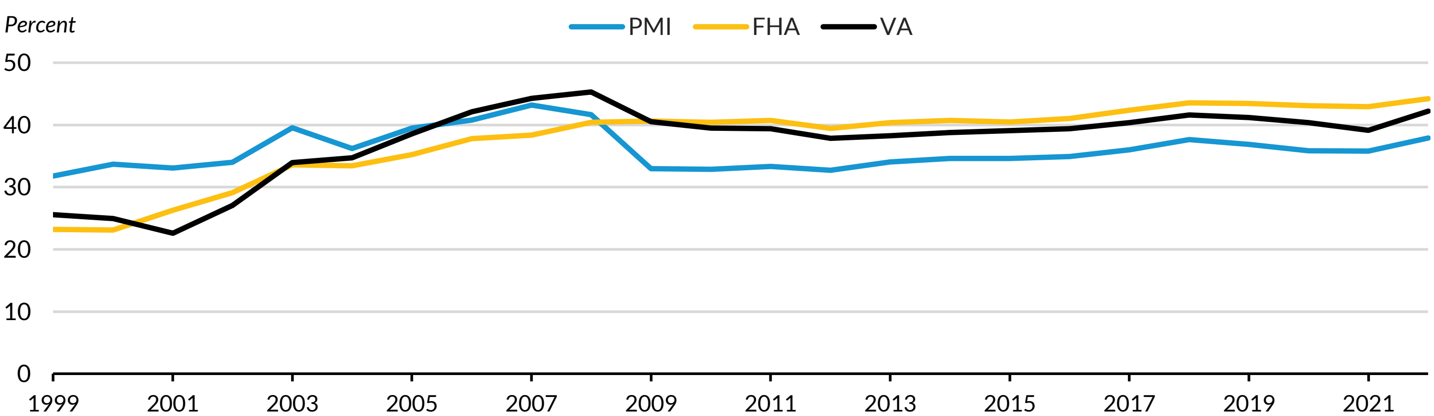
Average LTV Ratio, Purchase Originations



Average FICO, Purchase Originations



Average DTI Ratio, Purchase Originations



Sources: Before 2016, data are from Laurie Goodman et al., *Mortgage Insurance at a Glance* (Washington, DC: Urban Institute, 2017); after that, they are from eMBS and the Urban Institute.
Notes: DTI = debt-to-income ratio; FHA = Federal Housing Administration; LTV = loan-to-value ratio; PMI = private mortgage insurance; VA = US Department of Veterans Affairs. Private-label securities are excluded. Data are based on purchase loans only. PMI numbers are for government-sponsored enterprise loans only.

GSE Loan-Level Credit Data

Composition

From 1994 to 2022, 24.0 percent of 30-year fixed rate, full-documentation, fully amortizing GSE loans had private mortgage insurance. This share was as low as 8.9 percent for 2009–10 originations and was 27.5 percent for 2020–22 originations. From 1999 to 2022, the average PMI coverage was 25.2 percent. Compared with GSE loans without PMI, GSE loans with PMI are slightly smaller, are more heavily purchase loans, have higher LTV ratios, have lower FICO credit scores, and have higher DTI ratios. These data do not include streamlined refinance programs, such as the Home Affordable Refinance Program. Thus, this dataset contains a smaller share of refinance loans than do the data used for pages 5 to 7.

Loan Count and Share for GSE Loans, by PMI Category

	Loan Count		Share		
Origination year	PMI	Non-PMI	PMI	Non-PMI	Average PMI coverage
1994–2004	3,781,748	13,804,929	21.5%	78.5%	24.3%
2005–2008	1,510,827	7,123,490	17.5%	82.5%	24.4%
2009–2010	524,591	5,374,729	8.9%	91.1%	23.2%
2011–2016	3,838,068	11,217,240	25.5%	74.5%	26.0%
2017–2019	3,188,685	5,434,309	37.0%	63.0%	25.4%
2020–2022	4,356,990	11,468,082	27.5%	72.5%	25.6%
Total	17,200,909	54,422,779	24.0%	76.0%	25.2%

Origination Loan Characteristics, by PMI Category

	Average Loan Size ($ Thousands)		Note Rate (%)		Purchase (%)		LTV Ratio (%)		FICO Score		DTI Ratio (%)	
Origination year	PMI	Non-PMI	PMI	Non-PMI	PMI	Non-PMI	PMI	Non-PMI	PMI	Non-PMI	PMI	Non-PMI
1994–2004	139.1	158.2	6.9	6.5	65.4	32.0	91.1	68.2	731.8	746.0	35.7	32.9
2005–2008	181.9	199.5	6.3	6.2	66.5	40.3	91.2	68.0	721.6	733.3	39.6	37.0
2009–2010	216.1	234.4	4.9	4.9	58.3	25.3	90.9	67.1	756.4	762.5	32.7	32.9
2011–2016	229.7	237.0	4.2	4.1	77.2	38.4	93.1	70.7	750.3	757.1	34.2	33.1
2017–2019	254.3	251.3	4.4	4.5	89.6	50.5	92.7	69.3	747.0	750.8	36.8	35.7
2020–2022	310.0	301.2	3.5	3.4	80.7	28.9	92.0	66.0	751.3	757.6	36.1	34.1
Total	230.1	226.8	4.9	4.9	76.3	35.0	92.1	68.2	743.5	751.2	35.9	34.1

Sources: Fannie Mae, Freddie Mac, and the Urban Institute.
Note: DTI = debt-to-income ratio; GSE = government sponsored enterprise; LTV = loan-to-value ratio; PMI = private mortgage insurance; REO = real estate owned.

Defaults: 180 or More Days Delinquent

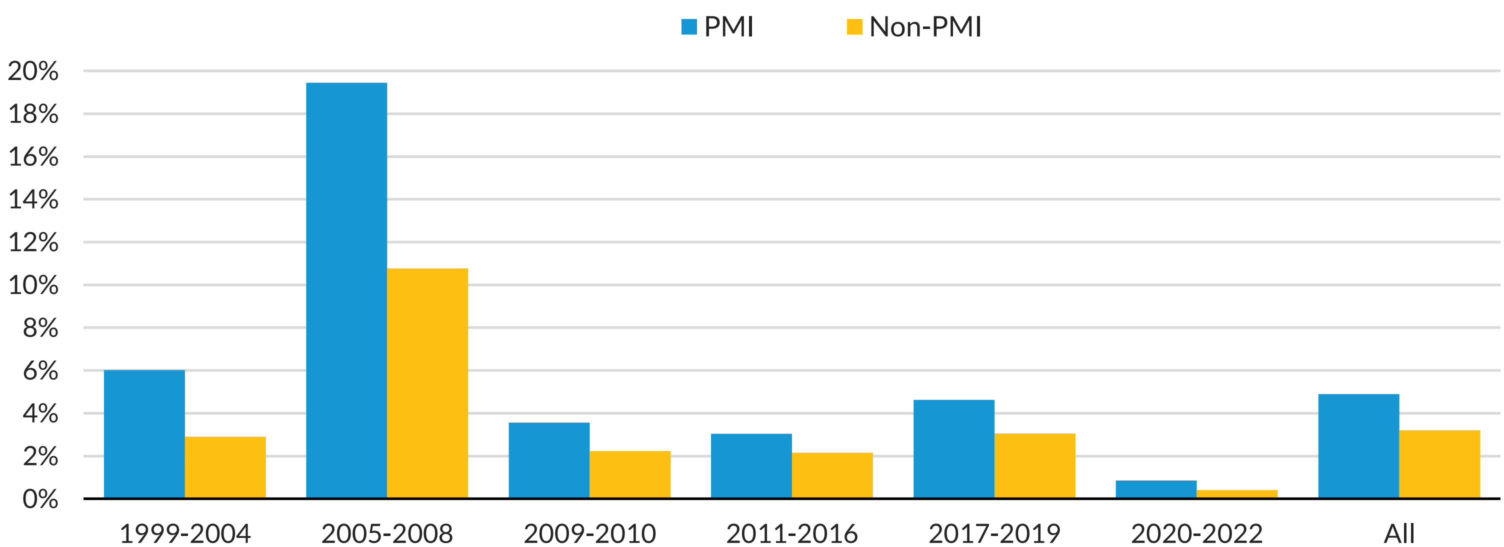
GSE loans with PMI go 180 or more days delinquent more frequently than GSE loans without PMI. Borrowers who are in forbearance and do not pay their mortgage are counted as delinquent for this purpose. From 1994 to 2022, 3.2 percent of GSE loans without PMI went 180 or more days delinquent, versus 4.9 percent of loans with PMI. For the highest delinquency issue year, 2007, the share of loans that went 180 or more days delinquent were 13.2 percent and 24.7 percent, respectively. For 2011–16 vintages, the rates were 2.2 percent for GSE loans without PMI and 3.0 percent for those with PMI. GSE loans with PMI have higher LTV ratios and weaker credit characteristics than non-PMI GSE loans, hence the higher default rates.

Loans Ever 180 or More Days Delinquent

	D180+ Rates (by Loan Count)		D180+ Rates (by UPB)	
Origination year	**PMI**	**Non-PMI**	**PMI**	**Non-PMI**
1994–2004	6.0%	2.9%	4.8%	2.2%
2005–2008	19.5%	10.8%	19.6%	10.1%
2009–2010	3.6%	2.2%	3.1%	1.8%
2011–2016	3.0%	2.2%	2.7%	1.9%
2017–2019	4.6%	3.1%	4.6%	3.1%
2020–2022	0.9%	0.4%	0.9%	0.4%
Total	4.9%	3.2%	3.9%	2.6%

Historical Default Rates (D180+) for GSE Loans, by Origination Year

By loan count



Sources: Fannie Mae, Freddie Mac, and the Urban Institute.
Notes: D180+ = loans that have been delinquent for 180 or more days; PMI = private mortgage insurance; UPB = unpaid principal balance; Q1 = first quarter. Government-sponsored enterprise credit data include 30-year fixed-rate, full-documentation, fully amortizing mortgage loans only. Fannie Mae data include loans originated from Q1 1999 through Q4 2022; performance data for these loans are also available through Q4 2022. Freddie Mac data include loans originated from Q1 1999 to Q4 2022; performance data for these loans are available through Q3 2022. Default is defined as six months delinquent or disposed of via short sales, third-party sales, deeds in lieu of foreclosure, or real-estate-owned acquisitions.

Defaulted Loans and Loss Severity

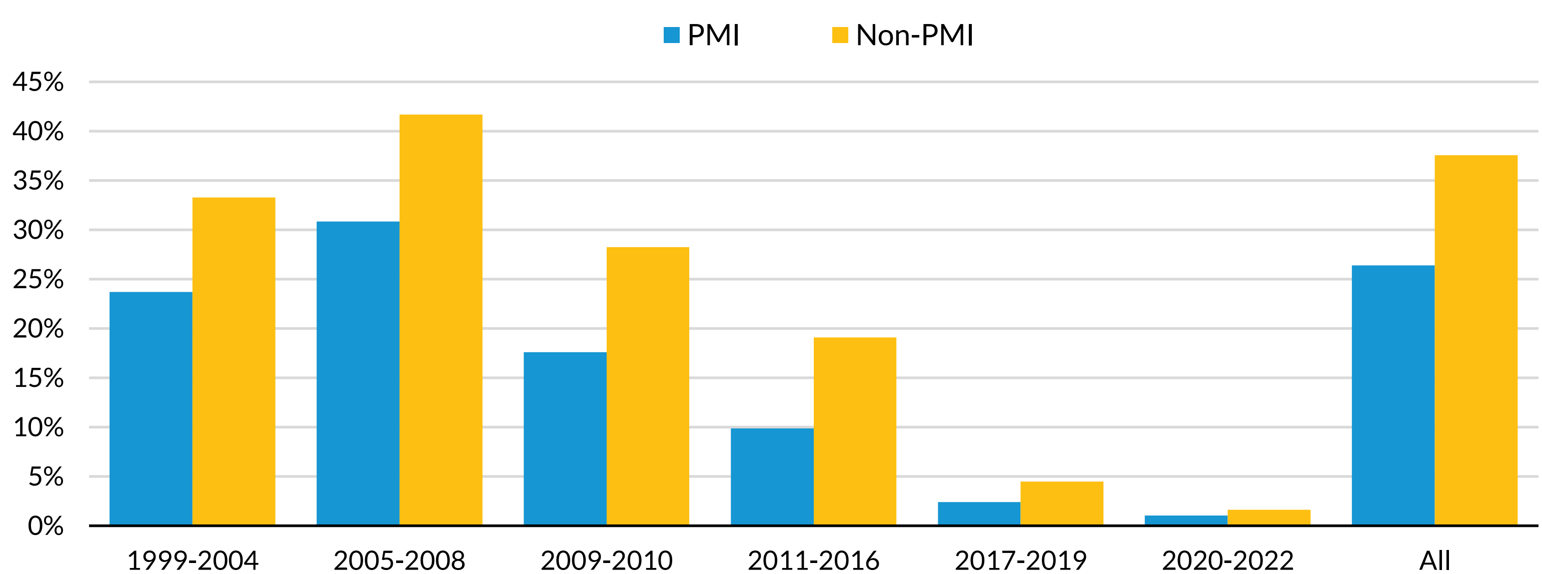
Once they are more than 180 days delinquent, GSE loans with PMI are less likely than those without PMI to become current or to prepay and are more likely to liquidate for each set of origination years. From 2020 to 2022, 0.9 percent of GSE loans with PMI were liquidated, versus 0.5 percent of loans without PMI. But once the loan is liquidated (through real estate ownership or a foreclosure alternative), the loss severity the GSEs experience is lower for loans with PMI than for those without, because mortgage insurance recoveries reduce losses.

What Happens to Defaulted Loans?

Share, by loan count

	Current		Prepay		REO or Foreclosure Alternatives		Persistently Delinquent	
Origination year	PMI	Non-PMI	PMI	Non-PMI	PMI	Non-PMI	PMI	Non-PMI
1994–2004	4.6%	6.4%	19.1%	28.1%	73.2%	61.9%	3.1%	3.6%
2005–2008	4.1%	5.4%	10.9%	16.8%	81.2%	74.4%	3.8%	3.4%
2009–2010	10.9%	15.5%	15.8%	25.7%	67.2%	52.1%	6.1%	6.7%
2011–2016	33.9%	36.6%	27.8%	28.9%	22.8%	21.7%	15.6%	12.8%
2017–2019	44.7%	46.3%	30.8%	33.6%	4.6%	3.4%	20.0%	16.8%
2020–2022	43.4%	45.9%	14.1%	16.7%	0.9%	0.5%	41.6%	36.9%
Total	17.6%	15.7%	19.3%	23.3%	53.1%	53.8%	9.9%	7.2%

Loss Severity for GSE Loans with and without PMI



Sources: Fannie Mae, Freddie Mac, and the Urban Institute.
Notes: GSE = government-sponsored enterprise; PMI = private mortgage insurance; REO = real estate owned; Q1 = first quarter. Foreclosure alternatives include short sales, third-party sales, note sales, and reperforming sales. GSE credit data include 30-year fixed-rate, full-documentation, fully amortizing mortgage loans only. Fannie Mae data include loans originated from Q1 1999 through Q4 2022; performance data for these loans are also available through Q4 2022. Freddie Mac data include loans originated from Q1 1999 to Q3 2022; performance data for these loans are available through Q4 2022.

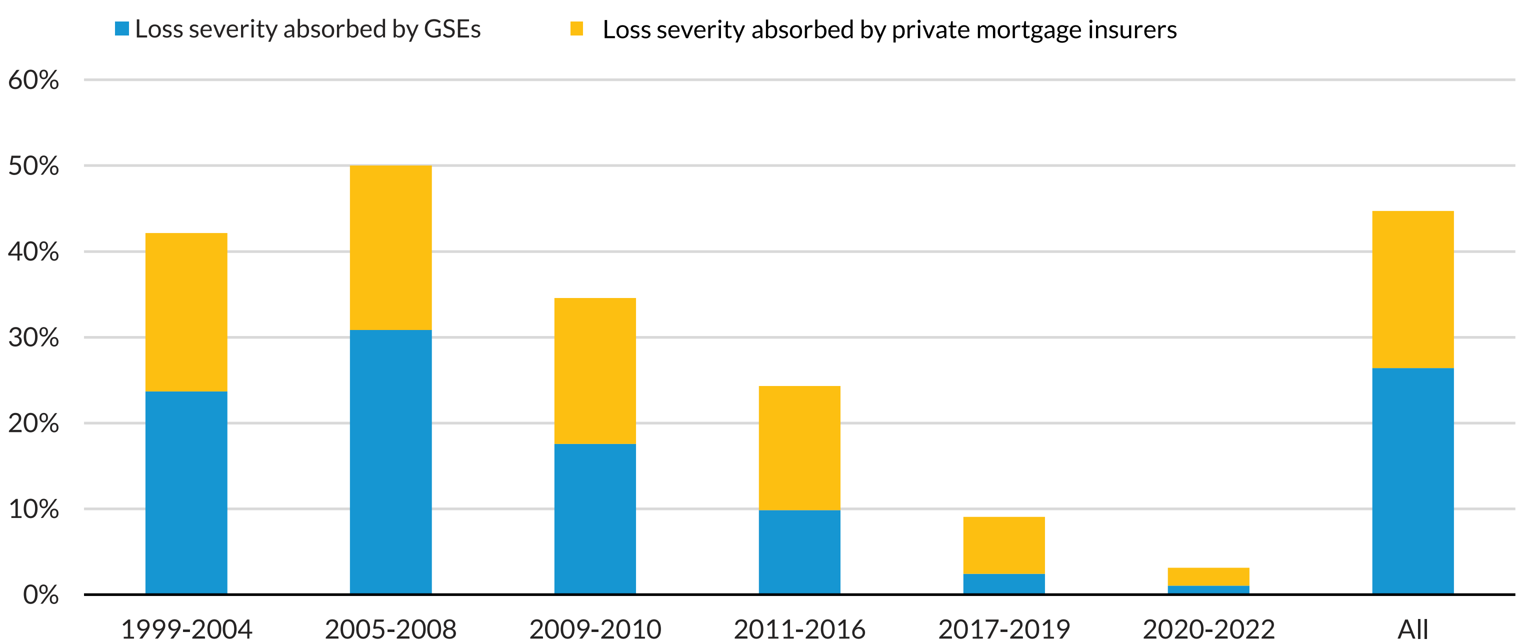
Loss Severity

For the 1994–2022 origination period, the loss severity of GSE loans without PMI was 37.6 percent, higher than the 26.4 percent severity for loans with PMI. For loans with PMI, mortgage insurance recovery was 18.3 percent. Absent PMI recovery, loss severity for GSE loans with PMI would be 44.7 percent (or 18.3 percent plus 26.4 percent). The pattern of higher severity for PMI loans than for non-PMI loans before the mortgage insurance recovery and the reduced loss severity for the GSEs attributable to PMI holds across all origination years.

Total Loans

Origination year	Loss severity for loans without PMI	Total severity for PMI loans	Severity without MI recovery	MI recovery
1994–2004	33.3%	23.7%	42.1%	18.5%
2005–2008	41.7%	30.8%	50.0%	19.2%
2009–2010	28.2%	17.6%	34.6%	17.0%
2011–2016	19.1%	9.9%	24.3%	14.5%
2017–2019	4.5%	2.4%	9.1%	6.6%
2020–2022	1.6%	1.0%	3.1%	2.1%
Total	37.6%	26.4%	44.7%	18.3%

Reduction in GSE Loss Severity Because of PMI



Sources: Fannie Mae, Freddie Mac, and the Urban Institute.
Notes: GSE = government-sponsored enterprise; PMI = private mortgage insurance; REO = real estate owned; Q1 = first quarter. Foreclosure alternatives include short sales, third-party sales, note sales, and reperforming sales. GSE credit data include 30-year fixed-rate, full-documentation, fully amortizing mortgage loans only. Fannie Mae data include loans originated from Q1 1999 through Q4 2022; performance data for these loans are also available through Q4 2022. Freddie Mac data include loans originated from Q1 1999 to Q3 2022; performance data for these loans are available through Q4 2022.

Loss Severity Foreclosure Alternatives and REOs

For the 1994–2022 origination period, the GSEs' loss severity from foreclosure alternatives and real estate ownership was higher for loans without PMI than for those with PMI.

Foreclosure Alternatives

Origination year	Loss severity for loans without PMI	Total severity for PMI loans	Severity without MI recovery	MI recovery
1994–2004	21.4%	14.9%	24.6%	9.7%
2005–2008	33.9%	21.0%	37.5%	16.4%
2009–2010	21.3%	10.8%	25.4%	14.6%
2011–2016	16.4%	8.1%	19.7%	11.6%
2017–2019	7.1%	2.5%	10.4%	7.9%
2020–2022	4.2%	1.9%	6.0%	4.0%
Total	29.6%	17.9%	32.5%	14.5%

REOs

Origination year	Loss severity for loans without PMI	Total severity for PMI loans	Severity without MI recovery	MI recovery
1994–2004	48.0%	28.9%	52.7%	23.8%
2005–2008	58.6%	41.6%	65.9%	24.4%
2009–2010	44.8%	26.3%	48.3%	22.0%
2011–2016	39.6%	16.5%	41.6%	25.1%
2017–2019	17.2%	4.8%	22.2%	17.3%
2020–2022	2.3%	0.3%	3.5%	3.2%
Total	54.7%	35.6%	59.7%	24.1%

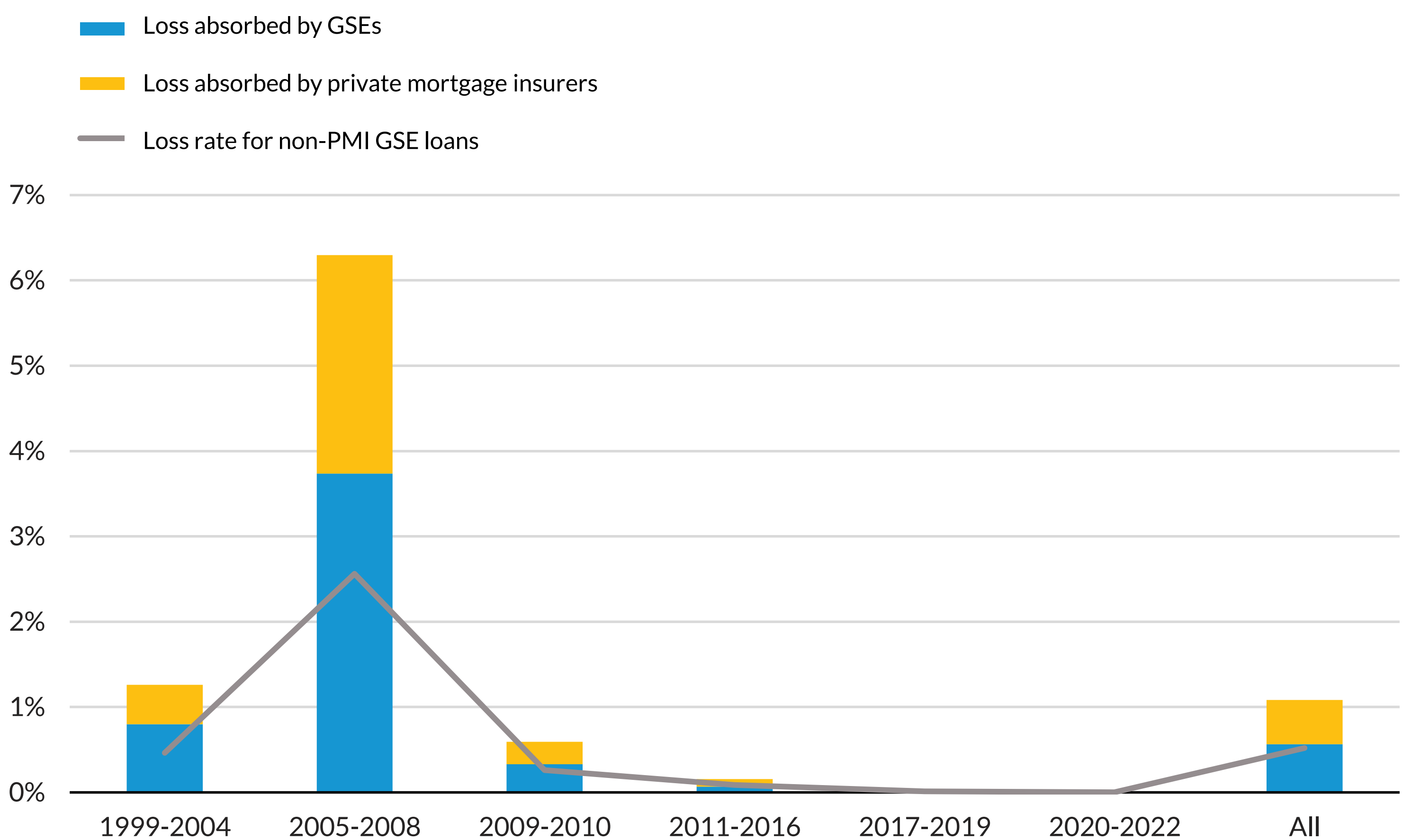
Sources: Fannie Mae, Freddie Mac, and the Urban Institute.
Notes: GSE = government-sponsored enterprise; PMI = private mortgage insurance; REO = real estate owned; Q1 = first quarter. Foreclosure alternatives include short sales, third-party sales, note sales, and reperforming sales. GSE credit data include 30-year fixed-rate, full-documentation, fully amortizing mortgage loans only. Fannie Mae data include loans originated from Q1 1999 through Q4 2022; performance data for these loans are also available through Q4 2022. Freddie Mac data include loans originated from Q1 1999 to Q3 2022; performance data for these loans are available through Q4 2022.

Loss Rate for GSE Loans with PMI

The loss rate is the ratio of total losses to the dollar volume of GSE mortgages. It combines the probability of default (loans going 180 or more days delinquent) and the loss severity rate upon liquidation. This figure shows loss rates separately for GSE loans with and without PMI. The loss rate for GSE loans without PMI (the gray line) is consistent with the portion of the loss rate the GSEs absorb for loans with PMI (the blue bars). The yellow bars show the portion of the loss rate the private mortgage insurers absorbed that would have otherwise been borne by the GSEs.

The presence of PMI reduces the losses the GSEs experience on loans with LTV ratios above 80 percent to the same levels as the losses they experience on loans with LTV ratios up to 80 percent. This indicates that PMI is highly effective in reducing losses to the GSEs.

Loss Rate for GSE Loans



Sources: Fannie Mae, Freddie Mac, and the Urban Institute.
Notes: GSE = government-sponsored enterprise; PMI = private mortgage insurance; REO = real estate owned; Q1 = first quarter. Foreclosure alternatives include short sales, third-party sales, note sales, and reperforming sales. GSE credit data include 30-year fixed-rate, full-documentation, fully amortizing mortgage loans only. Fannie Mae data include loans originated from Q1 1999 through Q4 2022; performance data for these loans are also available through Q4 2022. Freddie Mac data include loans originated from Q1 1999 to Q3 2022; performance data for these loans are available through Q4 2022.

PMI Credit Risk Transfer

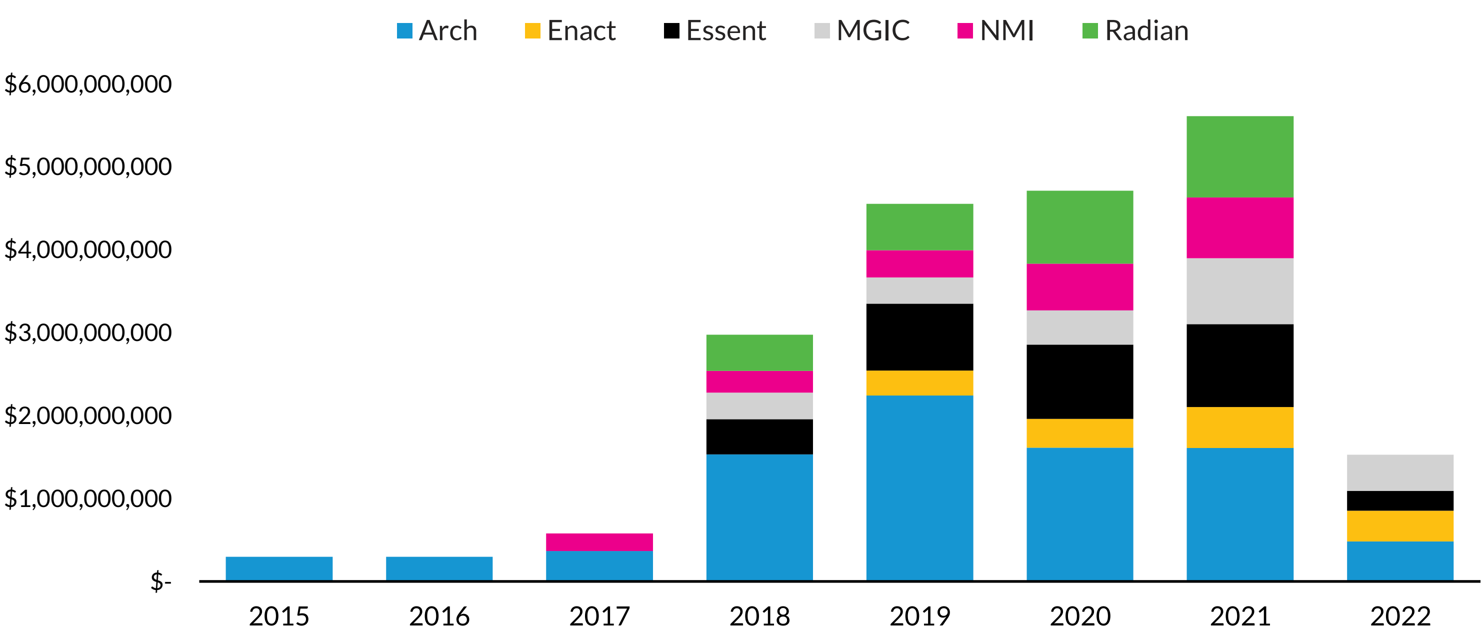
Insurance-Linked Notes

Private mortgage insurers have become increasingly proactive in managing and distributing credit risk. In 2015, the industry expanded its credit risk transfer capabilities and issued $298.9 million in insurance-linked notes (ILNs), covering $32.4 billion of insurance in force. By 2021, the annual issuance increased to $6.3 billion, protecting $652.2 billion in mortgage loans. Because of rapidly changing market conditions, ILN issuance dropped significantly in 2022 to $1.2 billion, protecting $41.4 billion in risk in force and $205.9 billion in mortgage loans. Since 2015, private mortgage insurers have executed 42 reinsurance deals, ceding $47.1 billion in risk on approximately $1.1 trillion of insurance in force using excess of loss (XOL) and quota share reinsurance (QSR) transactions. The bottom chart shows annual ILN volume issued by individual private mortgage insurers.

Mortgage ILN Issuance Metrics

	ILN issues	IIF	RIF
2015	$298,900,000	$32,370,000,000	$8,250,000,000
2016	$298,600,000	$26,020,000,000	$6,640,000,000
2017	$579,420,000	$60,190,000,000	$13,002,000,000
2018	$2,975,491,000	$298,301,000,000	$60,433,000,000
2019	$4,555,327,000	$389,755,440,732	$86,634,140,080
2020	$4,712,746,000	$511,147,912,753	$115,526,044,566
2021	$6,287,153,000	$652,230,000,000	$146,539,286,057
2022	$1,157,868,000	$205,897,042,756	$41,447,049,592
Total	$20,865,505,000	$2,175,911,396,241	$478,471,520,295

Mortgage ILN Issuances, by Year and Company



Sources: U.S. Mortgage Insurers.
Note: IIF = insurance in force; ILN = insurance-linked notes; MGIC = Mortgage Guaranty Insurance Corporation; NMI = National Mortgage Insurance Corporation; QSR = quota share reinsurance; RIF = risk in force.

FHA Compared with PMI: Borrowing Costs

MORTGAGE INSURANCE
DATA AT A GLANCE

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Initial Monthly Payment Comparison

This section compares initial borrower monthly payments for GSE mortgages with PMI and FHA at different FICO credit scores and LTV ratios, as well as with and without loan-level pricing adjustments (LLPAs). This analysis accounts for up-to-date FHA up-front and annual mortgage insurance premiums, GSE loan-level payment adjustments, and PMI pricing. For borrowers with a 96.5 percent LTV ratio with LLPAs included (3.5 percent down), FHA insurance is more economical than PMI for all borrowers except those with FICO credit scores above 760. For the same borrowers without LLPAs included, PMI is more economical for those with FICO credit scores of 740 and above (highlighted in blue). PMI cancels at a 78 percent LTV ratio, whereas the FHA annual premium stays in place for the life of the loan.

FHA Compared with PMI: 96.5% LTV Ratio

FICO score	≤ 639	640–659	660–679	680–699	700–719	720–739	740–759	760–779	≥ 780
FHA MI premiums									
FHA UFMIP	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75
FHA MIP	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
PMI									
GSE LLPA	1.75	1.50	1.25	1.13	0.88	0.75	0.50	0.25	0.13
PMI premium	1.86	1.65	1.54	1.21	0.99	0.87	0.70	0.58	0.58
Monthly payment									
FHA	$2,020	$2,020	$2,020	$2,020	$2,020	$2,020	$2,020	$2,020	$2,020
PMI	$2,379	$2,318	$2,282	$2,198	$2,135	$2,101	$2,050	$2,012	$2,007
PMI advantage	-$359	-$298	-$262	-$178	-$115	-$81	-$31	$8	$13

Assumptions: Property value: $300,000; Loan amount: $289,500; Base rate conforming: 6.67%; Base rate FHA: 6.63%

FHA Compared with PMI: 96.5% LTV Ratio (No LLPAs)

FICO score	≤ 639	640–659	660–679	680–699	700–719	720–739	740–759	760–779	≥ 780
FHA MI premiums									
FHA UFMIP	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75
FHA MIP	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
PMI									
GSE LLPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PMI premium	1.50	1.31	1.23	0.98	0.79	0.70	0.58	0.46	0.46
Monthly payment									
FHA	$2,062	$2,062	$2,062	$2,062	$2,062	$2,062	$2,062	$2,062	$2,062
PMI	$2,264	$2,218	$2,199	$2,139	$2,093	$2,071	$2,042	$2,013	$2,013
PMI advantage	-$202	-$156	-$137	-$77	-$31	-$9	$20	$49	$49

Assumptions: Property value: $300,000; Loan amount: $289,500; Base rate conforming (with points adjustment): 6.88%; Base rate FHA (with points adjustment): 6.85%

Sources: PMI premiums are taken from Enact MI rate card, MBA, Freddie Mac, Ginnie Mae, and Urban Institute. Rates as of June 23, 2023.
Notes: FHA = Federal Housing Administration; GSE = government-sponsored enterprise; LLPA = loan-level price adjustment; LTV = loan-to-value ratio; MBA = Mortgage Bankers Association; MIP = mortgage insurance premium; PMI = private mortgage insurance; UFMIP = up-front mortgage insurance premium. Mortgage insurance premiums are listed in percentage points. The PMI monthly payment calculation with LLPAs excludes special programs, such as Fannie Mae's HomeReady and Freddie Mac's Home Possible, which offer more favorable rates for low- and moderate-income borrowers. The calculation without LLPAs allows for Home Ready and Home Possible coverage. Both calculations exclude property taxes and insurance. FHA UFMIP is financed into the loan amount. Calculations with LLPAs use standard-level PMI coverage with the Primary Mortgage Market Survey rate for conforming loans and MBA's Weekly Application Survey contract rate for FHA-backed loans. Calculations without LLPAs use charter-level MIP coverage with point-adjusted contract rates from MBA's Weekly Application survey for both conforming and FHA-backed loans.

Initial Monthly Payment Comparison

For borrowers with a 95 percent LTV ratio (5 percent down) and LLPAs included, PMI is more economical than FHA loans for FICO credit scores of 740 and above. For borrowers with a 95 LTV ratio and no LLPAs included, PMI loans are more economical for FICO credit scores of 720 and above. Because PMI cancels at a 78 percent LTV ratio, whereas the FHA annual premium stays in place for the life of the loan, the economic benefit of PMI is greater in the long term than that indicated in the tables below. For example, using the costs in the first table below, assuming a borrower stays in a mortgage for 11 years, and further assuming the borrower can cancel PMI after 6 years as the loan has reached 78 LTV, the total life-of-loan cost for PMI is more economical than FHA loans for FICO credit scores of 700 and above. For borrowers with FICO credit scores of 780 and above, the life-of-loan discounted cost of PMI is approximately $11,000 less than FHA loans.

FHA Compared with PMI: 95.0% LTV Ratio

FICO score	≤ 639	640–659	660–679	680–699	700–719	720–739	740–759	760–779	≥ 780
FHA MI premiums									
FHA UFMIP	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75
FHA MIP	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
PMI									
GSE LLPA	2.25	1.88	1.63	1.38	1.13	0.88	0.63	0.50	0.25
PMI premium	1.42	1.33	1.28	0.96	0.78	0.66	0.53	0.38	0.38
Monthly payment									
FHA	$1,988	$1,988	$1,988	$1,988	$1,988	$1,988	$1,988	$1,988	$1,988
PMI	$2,256	$2,221	$2,199	$2,114	$2,061	$2,023	$1,983	$1,943	$1,933
PMI advantage	-$268	-$232	-$211	-$125	-$73	-$35	$5	$46	$55

Assumptions: Property value: $300,000; loan amount: $285,000; base rate conforming: 6.67%; base rate FHA: 6.63%

FHA Compared with PMI: 95.0% LTV Ratio (No LLPAs)

FICO score	≤ 639	640–659	660–679	680–699	700–719	720–739	740–759	760–779	≥ 780
FHA MI premiums									
FHA UFMIP	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75
FHA MIP	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
PMI									
GSE LLPA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PMI premium	1.25	1.19	1.11	0.87	0.68	0.59	0.48	0.34	0.34
Monthly payment									
FHA	$2,030	$2,030	$2,030	$2,030	$2,030	$2,030	$2,030	$2,030	$2,030
PMI	$2,170	$2,155	$2,136	$2,079	$2,034	$2,013	$1,987	$1,954	$1,954
PMI advantage	-$140	-$125	-$106	-$49	-$4	$17	$43	$76	$76

Assumptions: Property value: $300,000; loan amount: $285,000; base rate conforming (with points adjustment): 6.88%; base rate FHA (with points adjustment): 6.85%

Sources: PMI premiums are taken from Enact MI rate card, MBA, Freddie Mac, Ginnie Mae, and Urban Institute. Rates as of June 23, 2023.
Notes: FHA = Federal Housing Administration; GSE = government-sponsored enterprise; LLPA = loan-level price adjustment; LTV = loan-to-value ratio; MBA = Mortgage Bankers Association; MIP = mortgage insurance premium; PMI = private mortgage insurance; UFMIP = up-front mortgage insurance premium. Mortgage insurance premiums are listed in percentage points. The PMI monthly payment calculation with LLPAs excludes special programs, such as Fannie Mae's HomeReady and Freddie Mac's Home Possible, which offer more favorable rates for low- and moderate-income borrowers. The calculation without LLPAs allows for Home Ready and Home Possible coverage. Both calculations exclude property taxes and insurance. FHA UFMIP is financed into the loan amount. Calculations with LLPAs use standard-level PMI coverage with the Primary Mortgage Market Survey rate for conforming loans and MBA's Weekly Application Survey contract rate for FHA-backed loans. Calculations without LLPAs use charter-level MIP coverage with point-adjusted contract rates from MBA's Weekly Application survey for both conforming and FHA-backed loans.

Initial Monthly Payment Comparison

For borrowers with a 90 percent LTV ratio (10 percent down) with LLPAs included, PMI is more economical than FHA loans for FICO credit scores of 720 or above. For borrowers with an 85 percent LTV ratio (15 percent down), PMI loans are more economical than FHA loans for FICO credit scores 680 or above. PMI cancels at a 78 percent LTV ratio, whereas the FHA annual premium stays in place for the life of the loan.

FHA Compared with PMI: 90.0% LTV Ratio

FICO score	≤ 639	640–659	660–679	680–699	700–719	720–739	740–759	760–779	≥ 780
FHA MI premiums									
FHA UFMIP	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75
FHA MIP	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
PMI									
GSE LLPA	2.63	2.00	1.75	1.50	1.25	1.00	0.75	0.50	0.25
PMI premium	0.94	0.91	0.90	0.65	0.55	0.46	0.38	0.28	0.28
Monthly payment									
FHA	$1,884	$1,884	$1,884	$1,884	$1,884	$1,884	$1,884	$1,884	$1,884
PMI	$2,043	$2,014	$2,002	$1,937	$1,906	$1,876	$1,849	$1,818	$1,809
PMI advantage	-$160	-$130	-$119	-$53	-$22	$7	$34	$66	$75

Assumptions: Property value: $300,000; loan amount: $270,000; base rate conforming: 6.67%; base rate FHA: 6.63%

FHA Compared with PMI: 85.0% LTV Ratio

FICO score	≤ 639	640–659	660–679	680–699	700–719	720–739	740–759	760–779	≥ 780
FHA MI premiums									
FHA UFMIP	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75
FHA MIP	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
PMI									
GSE LLPA	2.88	2.50	2.13	1.88	1.50	1.25	1.00	0.63	0.38
PMI premium	0.44	0.40	0.38	0.28	0.25	0.23	0.20	0.19	0.19
Monthly payment									
FHA	$1,779	$1,779	$1,779	$1,779	$1,779	$1,779	$1,779	$1,779	$1,779
PMI	$1,832	$1,811	$1,794	$1,764	$1,745	$1,732	$1,717	$1,702	$1,693
PMI advantage	-$53	-$32	-$14	$15	$35	$47	$62	$77	$86

Assumptions: Property Value: $300,000 Loan Amount: $255,000 Base Rate Conforming (with Points Adjustment) : 6.88% Base Rate FHA (with Points Adjustment): 6.85%

Sources: PMI premiums are taken from Enact MI rate card, MBA, Freddie Mac, Ginnie Mae, and Urban Institute. Rates as of June 23, 2023. **Notes:** FHA = Federal Housing Administration; GSE = government-sponsored enterprise; LLPA = loan-level pricing adjustment; LTV = loan-to-value ratio; MBA = Mortgage Bankers Association; MIP = mortgage insurance premium; PMI = private mortgage insurance; UFMIP = up-front mortgage insurance premium. Mortgage insurance premiums are listed in percentage points. The PMI monthly payment calculation with LLPAs excludes special programs, such as Fannie Mae's HomeReady and Freddie Mac's Home Possible, which offer more favorable rates for low and moderate-income borrowers. The calculation without LLPAs allow for charter level coverage. Both calculations exclude property taxes and insurance. FHA UFMIP is financed into the loan amount.

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