

MSR Industry Report: First Quarter 2017



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Industry MSR Risk Management Results - Q1 2017

FNCL Δ in bps (Internal)	3.5
10Y Swap Δ in bps (Bloomberg)	5.4

Company symbols listed are actual exchange-traded ticker symbols.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	
	Static Valuation									OAS Valuation															Average			
	NSM	NRZ	OCN	WAC	NLY	EVER	BOKF	HMST	RWT	WFC	JPM	USB	BAC*	PFSI	STI	PNC	BBT	FITB	TWO	PHH	C	RF	FBC	HBAN	Static	OAS	Total	
MSR Roll Forward & Risk Results:																												
1 Change in Value due to Inputs & Assumptions	14	(1)	(1)	(18)	(6)	23	2	2	(1)	174	43	32	(37)	16	27	18	26	4	3	(2)	67	4	10	2	2	26	17	
2 Change in Hedge Values									(1)	(72)	(95)	(20)		(22)	(20)	(6)	(20)	(1)				(2)	(8)	(1)	(1)	(24)	(19)	
3 Net Risk Management Results									(1)																0	8	6	
4 Percent MSR <i>Asset Only</i> WU/(WD)	0.4%	-0.1%	-0.1%	-1.8%	-1.0%	8.3%	0.8%	0.9%	-0.6%	1.3%	0.7%	1.2%	-1.6%	1.0%	1.7%	1.5%	2.8%	0.5%	0.5%	-0.3%	4.3%	1.2%	3.0%	1.0%	0.8%	1.3%	1.1%	
5 Annualized Hedge (Cost) / Benefit as % of MSR Value							0.3%	4.3%	-5.1%	3.1%	-3.4%	1.8%		-1.4%	1.7%	3.8%	2.5%	1.5%				2.5%	2.7%	2.9%	-0.2%	1.6%	1.2%	
6 Net Additions	64	1,062	8	34	0	13	8	16	(4)	536	146	124	35	136	96	100	38	55	77	(65)	(1,011)	8	(44)	10	134	16	60	
7 Changes in Value due to Payments/Other	(70)	(26)	(40)	(36)	(14)	(16)	(8)	(9)	(2)	(461)	(206)	(105)	(147)	(55)	(50)	(39)	(33)	(27)	(26)	(27)	(53)	(10)	(6)	(7)	(24)	(83)	(61)	
8 Implied Annual Decay / Amort Rate	-9%	-9%	-15%	-15%	-9%	-22%	-13%	-15%	-8%	-14%	-14%	-16%	-27%	-13%	-12%	-13%	-14%	-14%	-15%	-17%	-20%	-12%	-8%	-14%	-13%	-15%	-14%	
MSR Asset Empirical Risk Measures:																												
Empirical Duration																												
9 Based on FNCL change	(12.8)	1.9	2.5	53.7	28.0	(229.9)	(21.5)	(26.6)	16.5	(38.3)	(20.4)	(35.2)	48.4	(27.5)	(48.4)	(42.5)	(80.5)	(15.2)	(12.7)	9.0	(181.2)	(35.5)	(91.5)	(29.9)	(20.9)	(40.1)	(32.9)	
10 Based on 70% 10Y Swap, 30% FNCL	(9.1)	1.3	1.8	38.5	20.0	(164.8)	(15.4)	(19.1)	11.8	(27.5)	(14.6)	(25.3)	34.7	(19.7)	(34.7)	(30.4)	(57.7)	(10.9)	(9.1)	6.4	(129.9)	(25.4)	(65.6)	(21.4)	(15.0)	(28.7)	(23.6)	
11 Based on Swap change	(8.1)	1.2	1.6	34.3	17.9	(146.9)	(13.8)	(17.0)	10.5	(24.5)	(13.0)	(22.5)	30.9	(17.6)	(30.9)	(27.1)	(51.5)	(9.7)	(8.1)	5.7	(115.8)	(22.7)	(58.5)	(19.1)	(13.4)	(25.6)	(21.0)	
MSR Valuation Details:																												
12 Beginning MSR Fair Value (MM)	3,160	659	1,043	950	652	274	247	226	119	12,959	6,096	2,591	2,279	1,628	1,572	1,182	915	744	694	690	1,564	324	335	186	814	2,251	1,712	
13 Ending MSR Fair Value (MM)	3,168	1,695	1,011	930	632	294	249	236	111	13,208	6,079	2,642	2,129	1,725	1,645	1,261	946	776	748	596	567	326	295	191	925	2,209	1,727	
14 Change in MSR Fair Value (MM)	8	1,035	(32)	(19)	(20)	20	2	10	(8)	249	(17)	51	(150)	97	73	79	31	32	54	(94)	(997)	2	(40)	5	111	(42)	15	
15 MSR Fair Value % of Common Equity	188.5%	41.3%	162.7%	328.8%	5.5%	15.4%	7.5%	36.8%	9.5%	7.5%	2.6%	6.3%	0.9%		7.4%	2.8%	3.5%	5.1%	21.6%	58.2%	0.3%	2.1%	21.5%	2.0%	88.4%	10.1%	40.8%	
16 MSR Fair Value % of Tier 1 Capital						15.5%		38.0%		8.8%	3.3%	7.8%	1.3%		9.8%	4.0%	5.2%	6.1%			0.4%		27.5%	2.5%	26.7%	7.0%	10.0%	
17 Beginning MSR UPB (BN)	312	80	207	101	55	30	22	19	10	1,205	593	230	307	129	130	125	90	54	63	85	168	31	31	19	93	217	171	
18 Ending MSR UPB (BN)	303	185	198	100	54	30	22	20	10	1,204	584	232	296	135	136	130	91	55	68	72	71	31	27	19	103	210	170	
19 Change in MSR UPB (BN)	(9)	105	(8)	(1)	(1)	0	0	1	(1)	(1)	(9)	2	(11)	6	6	5	1	2	5	(13)	(97)	(0)	(4)	0	10	(7)	(1)	
20 Implied MSR Cap Portfolio Price	1.04%	0.91%	0.51%	0.93%	1.17%	0.97%	1.13%	1.16%	1.13%	1.10%	1.04%	1.14%	0.72%	1.27%	1.21%	0.97%	1.04%	1.40%	1.10%	0.83%	0.80%	1.05%	1.10%	1.00%	1.00%	1.05%	1.03%	
21 Δ in Portfolio Price (Q/Q)	0.03%	0.09%	0.01%	-0.01%	-0.01%	0.06%	0.01%	0.00%	0.00%	0.02%	0.01%	0.01%	-0.02%	0.01%	0.00%	0.02%	0.03%	0.01%	-0.01%	0.01%	-0.13%	0.02%	0.03%	0.02%	0.02%	0.00%	0.01%	
22 Disclosed Servicing Revenue (MM)	234	65	214	132		21	17	14	7	824	487	192	245	106	100	94	68	47	39	54	106	23	20	13	88	161	136	
23 Stated Service Fee		0.27%				0.27%	0.31%	0.28%	0.26%			0.30%		0.31%	0.30%		0.28%		0.25%	0.28%		0.27%	0.27%	0.28%	0.28%	0.28%		
24 Implied Servicing Revenue Rate ^{1,2}	0.30%	0.20%	0.42%	0.52%		0.27%	0.30%	0.29%	0.27%	0.27%	0.33%	0.33%	0.33%	0.32%	0.30%	0.29%	0.30%	0.34%	0.24%	0.28%	0.35%	0.30%	0.28%	0.27%	0.32%	0.30%	0.31%	
25 Servicing Revenue Multiple ^{3,4}	3.43	3.39	1.20	1.78		3.58	3.65	4.15	4.36	4.01	3.15	3.80	2.21	4.07	4.04	3.29	3.71	4.06	4.34	2.96	2.25	3.84	4.14	3.65	3.19	3.57	3.44	

* Line 3 includes gain / loss on sales of MSRs.

1 Implied servicing revenue rate may include late charges, ancillary fees, and unreimbursed cost/advances.

2 Calculated as (Line 25 * 4) / (Line 22 * 1000).

3 WFC servicing revenue calculated by backing out an assumed 7 bps commercial servicing strip from the disclosed servicing revenue resulting in a multiple of 4.01.

If the stated industry average servicing fee of ~28 bps is assumed the multiple would result in 3.92.

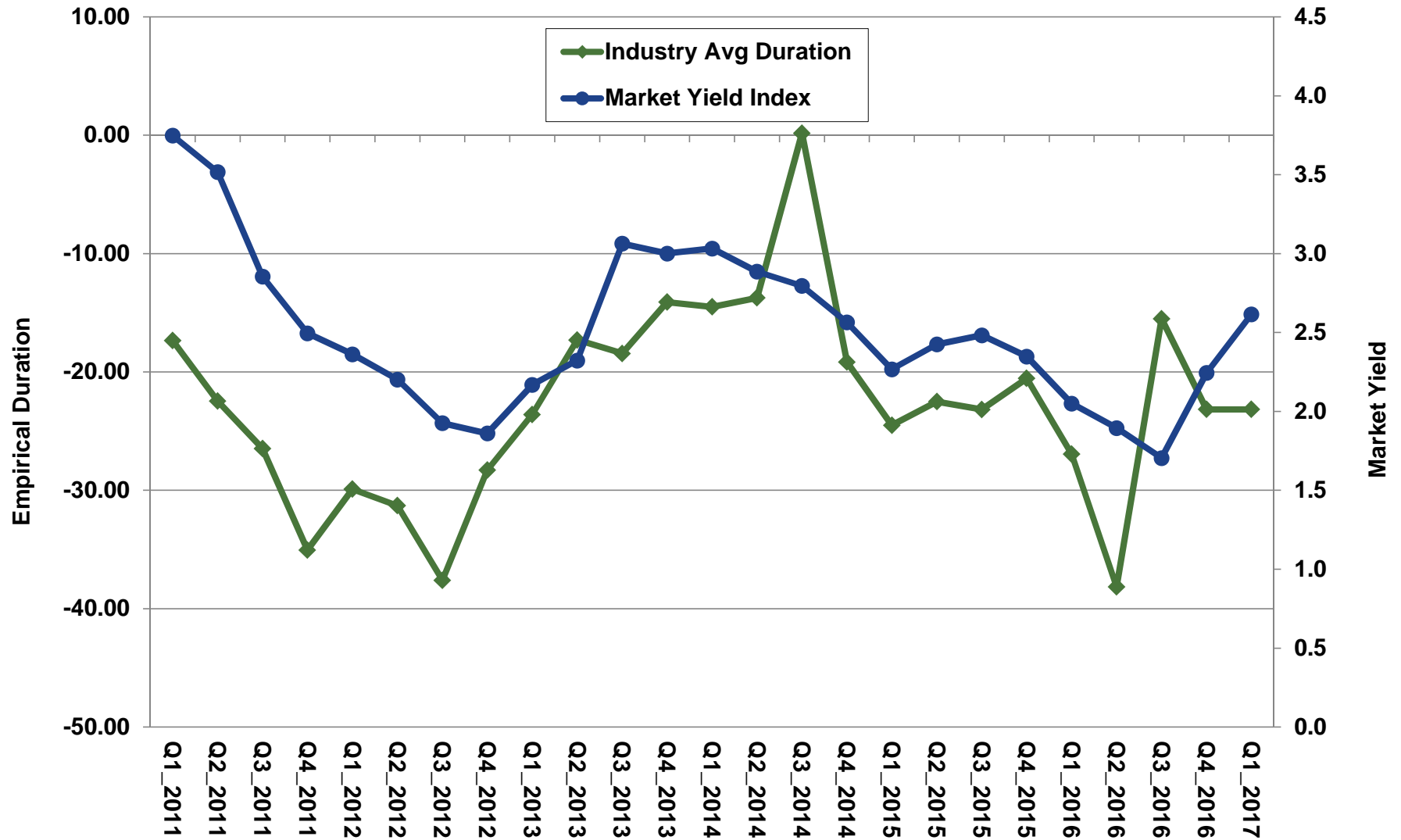
4 Implied servicing revenue rate used in calculation if the stated fee isn't available.

Industry MSR Risk Management Results - Quarterly Trend

	2017	2016				2015				2014				2013				2012				2011				
	Q1	Q4	Q3	Q2	Q1	Q4	Q3	Q2	Q1	Q4	Q3	Q2	Q1	Q4	Q3	Q2	Q1	Q4	Q3	Q2	Q1	Q4	Q3	Q2	Q1	
MSR Roll Forward & Risk Results:																										
1 Number of Companies	24	23	23	23	23	23	23	23	22	21	22	21	21	19	21	20	20	13	13	13	13	13	13	13	13	13
2 Change in Value due to Inputs & Assumptions	17	304	10	(129)	(189)	69	(149)	166	(104)	(166)	6	(83)	(100)	134	8	287	126	124	(202)	(412)	117	(95)	(1,075)	(289)	146	
3 Change in Hedge Values	(19)	(355)	20	164	244	(55)	179	(164)	150	235	19	183	140	(114)	16	(296)	(99)	(26)	261	473	(68)	189	1,099	370	(113)	
4 Net MSR Risk Management Results	6	10	38	17	39	25	12	33	24	26	23	70	9	36	13	40	43	99	59	61	49	79	24	81	34	
5 Percent MSR Asset Only WU/(WD)	1.1%	21.9%	1.1%	-9.6%	-12.6%	3.9%	-8.5%	10.0%	-5.4%	-6.7%	0.0%	-3.1%	-3.2%	4.5%	1.9%	13.4%	6.5%	4.9%	-7.9%	-14.4%	6.3%	-4.5%	-25.3%	-6.2%	3.2%	
6 Annualized Hedge (Cost) / Benefit as % of MSR Value	1.2%	0.0%	6.7%	2.2%	2.5%	1.7%	0.0%	7.9%	4.9%	4.7%	3.0%	7.8%	2.7%	4.2%	7.2%	7.7%	9.4%	13.1%	2.7%	7.7%	16.1%	5.8%	3.1%	7.7%	3.1%	
7 Net Additions	60	73	76	60	52	53	79	73	63	65	61	38	73	47	124	138	149	194	197	156	224	173	152	(33)	(208)	
8 Changes in Value due to Payments/Other	(61)	(71)	(76)	(76)	(67)	(70)	(73)	(75)	(76)	(75)	(70)	(73)	(73)	(81)	(81)	(101)	(110)	(151)	(155)	(135)	(151)	(175)	(172)	(218)	(247)	
9 Implied Annual Decay / Amort Rate	-14%	-19%	-21%	-20%	-16%	-15%	-16%	-16%	-18%	-16%	-14%	-14%	-12%	-14%	-17%	-22%	-24%	-28%	-27%	-22%	-22%	-21%	-19%	-20%	-22%	
MSR Asset Risk Measures:																										
<u>Empirical Duration</u>																										
10 Based on FNCL change	(32.9)	(25.8)	(23.8)	(37.2)	(31.9)	(18.5)	(33.5)	(23.1)	(35.0)	(18.8)	0.1	(11.8)	(20.2)	(14.2)	18.0	(17.7)	(14.9)	(27.8)	(14.9)	(33.3)	(109.7)	(36.7)	(30.4)	(23.3)	(19.0)	
11 Based on 70% 10Y Swap, 30% FNCL	(23.6)	(23.2)	(15.5)	(38.2)	(26.9)	(20.5)	(23.2)	(22.5)	(24.5)	(19.2)	0.2	(13.7)	(14.5)	(13.8)	(18.4)	(18.0)	(23.6)	(35.6)	(37.6)	(31.3)	(29.9)	(35.0)	(26.5)	(22.5)	(17.3)	
12 Based on Swap change	(21.0)	(22.2)	(13.5)	(38.6)	(25.2)	(21.6)	(20.5)	(22.2)	(21.8)	(19.3)	0.2	(14.8)	(12.9)	(13.6)	(23.8)	(18.1)	(31.5)	(40.4)	(108.7)	(30.6)	(22.8)	(34.4)	(25.1)	(22.1)	(16.7)	
MSR Valuation Details:																										
13 Beginning MSR Fair Value (MM)	1,712	1,434	1,424	1,570	1,772	1,720	1,864	1,704	1,890	2,061	2,058	2,243	2,347	2,414	2,188	1,937	1,867	2,303	2,464	2,857	2,668	2,842	4,247	4,656	4,529	
14 Ending MSR Fair Value (MM)	1,727	1,739	1,434	1,424	1,568	1,772	1,720	1,864	1,776	1,889	2,056	2,126	2,252	2,508	2,237	2,253	2,029	2,470	2,303	2,464	2,855	2,759	3,076	4,206	4,319	
15 Change in MSR Fair Value (MM)	15	305	10	(146)	(204)	51	(144)	160	(114)	(172)	(2)	(117)	(95)	94	50	316	162	90	(87)	(222)	111	(83)	(1,171)	(450)	(210)	
16 MSR Fair Value % of Common Equity	40.8%	65.2%	60.9%																							
17 MSR Fair Value % of Tier 1 Capital	10.0%	9.7%	7.8%																							
18 Beginning MSR UPB (BN)	171	180	182	187	190	196	199	204	217	212	224	237	239	256	244	253	261	359	368	375	378	436	445	460	413	
19 Ending MSR UPB (BN)	170	173	180	182	187	193	196	199	213	210	219	231	237	251	242	246	264	354	359	368	375	424	436	492	455	
20 Change in MSR UPB (BN)	(1)	(7)	(3)	(4)	(3)	(3)	(3)	(5)	(4)	(2)	(4)	(5)	(2)	(5)	(3)	(6)	3	(4)	(9)	(6)	(3)	430	(9)	(14)	0	
21 Implied MSR Cap Portfolio Price	1.03%	1.04%	0.83%	0.81%	0.86%	0.97%	0.92%	1.00%	0.89%	0.95%	0.99%	0.98%	1.01%	1.04%	0.95%	0.95%	0.82%	0.77%	0.72%	0.76%	0.87%	0.76%	0.71%	0.86%	0.95%	
22 Δ in Portfolio Price (Q/Q)	0.01%	0.21%	0.02%	-0.07%	-0.12%	0.04%	-0.07%	0.11%	-0.04%	-0.07%	0.01%	-0.03%	-0.02%	0.05%	0.03%	0.13%	0.07%	0.05%	-0.04%	-0.10%	0.08%	-0.01%	-0.25%	0.01%		
23 Disclosed Servicing Revenue (MM)	136	137	142	144	146	149	154	134	166	169	174	186	189	180	201	208	222	269	279	282	287	397	353	637	452	
24 Stated Service Fee	0.28%	0.29%	0.29%	0.29%	0.28%	0.29%	0.29%	0.29%	0.29%	0.29%	0.29%	0.30%	0.30%	0.31%	0.32%	0.32%	0.32%	0.33%								
25 Implied Servicing Revenue Rate	0.31%	0.31%	0.31%	0.31%	0.30%	0.31%	0.30%	0.30%	0.30%	0.31%	0.31%	0.31%	0.31%	0.31%	0.32%	0.32%	0.32%	0.33%	0.33%	0.33%	0.33%	0.31%	0.29%	0.33%	0.30%	
26 Servicing Revenue Multiple	3.44	3.51	2.83	2.74	2.93	3.30	3.16	3.42	3.02	3.24	3.33	3.25	3.36	3.41	3.10	3.08	2.63	2.43	2.21	2.33	2.68	2.50	2.52	3.00	3.62	

Note: quarterly values presented on this page are averages of all companies considered.

MSR Industry Empirical Duration Trend



- Market Yield Index is a Weighted Average of the CMM Yield and 10yr Swap Yield with a 30% / 70% Weighting, Respectively.
 - The Industry Avg Duration is the Empirical Duration Measured as the Average % Value Change Divided by the Change in the Market Yield Index.

Additional Portfolio Characteristics and Sensitivities

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
	Static Valuation									OAS Valuation															Average		
	NSM	NRZ	OCN	WAC*	NLY	EVER*	BOKF	HMST	RWT	WFC*	JPM	USB	BAC^	PFSI*	STI*	PNC*	BBT*	FITB*	TWO*	PHH*	C	RF*	FBC*	HBAN*	Static	OAS	Total
1 Ending FV (MN)	3,168	1,695	1,011	930	632	294	249	236	111	13,208	6,079	2,642	2,129	1,725	1,645	1,261	946	776	748	596	567	326	295	191	925	2,209	1,727
2 Ending UPB (BN)	303	185	198	100	54	30	22	20	10	1,204	584	232	296	135	136	130	91	55	68	72	71	31	27	19	103	210	170
3 Servicing Revenue Multiple ¹	3.43	3.39	1.20	1.78		3.58	3.65	4.15	4.36	4.01	3.15	3.80	2.21	4.07	4.04	3.29	3.71	4.06	4.34	2.96	2.25	3.84	4.14	3.65	3.19	3.57	3.44
4 WA CPR	13.6	10.3	13.7	9.2	8.9	13.0		12.2	9.0	10.2	9.2	9.8		9.0	13.0	9.3	7.9	11.6	9.3	9.0		7.6	9.0	8.4	11.2	9.5	10.2
5 FV Impact of 10% Adverse Change	-3.9%			-3.2%		-4.3%				-4.3%	-3.7%		-4.1%	-3.0%	-3.5%	-3.7%	-2.9%	-4.1%	-3.7%	-3.2%		-5.8%	-3.4%	-2.8%	-3.8%	-3.7%	-3.7%
6 FV Impact of 20% Adverse Change	-7.5%			-6.2%		-8.4%				-8.2%	-7.0%		-7.9%	-5.9%	-6.6%	-7.1%	-5.6%	-7.9%	-7.1%	-6.0%		-10.4%	-6.1%	-5.4%	-7.4%	-7.0%	-7.1%
7 FV Impact of 1 CPR Adverse Change ²	-2.9%			-3.5%		-3.3%				-4.2%	-4.0%			-3.4%	-2.7%	-4.0%	-3.6%	-3.6%	-3.9%	-3.5%		-7.7%	-3.8%	-3.3%	-3.2%	-4.0%	-3.8%
8 WA OAS / Discount	10.6	11.5	11.4	11.8	10.4	9.7	10.1	10.4	11.0	680	860	800	1000	1051	800	850	1000	534	950	1215	1238	1058	656	1048	10.8	916	10.0
9 FV Impact of 100bps Adverse Change	-3.8%			-4.3%		-3.4%		-3.6%		-5.0%	-4.1%		-3.8%	-3.0%	-4.7%	-3.1%	-3.6%	-2.0%	-3.5%	-4.6%		-4.0%	-2.1%	-3.1%	-3.8%	-3.6%	-3.6%
10 FV Impact of 200bps Adverse Change	-7.3%			-8.2%		-6.7%		-6.9%		-9.5%	-7.8%		-7.4%	-8.1%	-9.2%	-6.2%	-6.9%	-4.4%	-6.8%	-8.6%		-8.2%	-4.1%	-6.0%	-7.3%	-7.2%	-7.2%
11 WA Note Rate	4.38	4.40		4.15	3.83	4.14	3.96	3.96	3.93	4.23		4.05		3.82	4.00		4.01		3.90	4.10		4.20	3.91	4.11	4.09	4.03	4.06
12 WA Life (Years)	6.30	6.80		6.00				6.32		6.40		7.10	6.00	7.70	5.30	6.90	7.20	5.93		6.30	6.23		6.60	7.00	6.35	6.55	6.50

Notes: All data is from company press releases. Comparison of CPR values across firms is difficult due to undisclosed methodologies for computation.

* Reported disclosures are modified to fit generic sensitivity measures in this report

^ Sensitivities include an adjustment to account for non-US residential MSR; WAL and OAS shown is for fixed-rate product only

1 Multiples shown are calculated on page 3

2 Values calculated based on 10% adverse value change

Additional Portfolio Characteristics and Sensitivities - Quarterly Trend

		2017	2016				2015				2014				2013
		Q1	Q4	Q3	Q2	Q1	Q4	Q3	Q2	Q1	Q4	Q3	Q2	Q1	Q4
1	Ending FV (MN)	1,727	1,747	1,441	1,446	1,593	1,801	1,745	1,972	1,778	1,892	2,061	2,126	2,245	2,455
2	Ending UPB (BN)	170	173	179	181	185	191	194	204	206	209	211	223	227	233
3	Servicing Revenue Multiple	3.44	3.50	2.84	2.83	3.01	3.41	3.25	3.46	3.09	3.24	3.33	3.25	3.36	3.41
4	WA CPR	10.2	10.2	14.8	15.5	13.3	11.2	12.2	10.6	13.1	12.6	11.0	11.2	10.2	9.8
5	FV Impact of 10% Adverse Change	-3.7%	-3.5%	-4.9%	-5.3%	-4.8%	-4.1%	-4.8%	-4.7%	-4.8%	-4.6%	-4.4%	-4.4%	-4.0%	-4.1%
6	FV Impact of 20% Adverse Change	-7.1%	-6.7%	-9.4%	-10.1%	-9.1%	-7.8%	-9.3%	-9.2%	-9.4%	-9.1%	-8.7%	-8.9%	-8.0%	-8.1%
7	FV Impact of 1 CPR Adverse Change ¹	-3.8%	-3.6%	-3.5%	-3.5%	-3.6%	-3.7%	-3.8%	-4.3%	-3.7%	-3.6%	-4.0%	-4.1%	-4.2%	-4.4%
8	WA OAS / Discount	9.7	9.4	10.0	9.5	9.8	9.4	9.6	9.8	9.8	9.9	9.8	9.9	10.1	10.2
9	FV Impact of 100bps Adverse Change	-3.6%	-3.2%	-3.2%	-3.3%	-3.5%	-3.7%	-3.7%	-4.4%	-3.6%	-3.7%	-3.8%	-3.8%	-3.9%	-4.3%
10	FV Impact of 200bps Adverse Change	-7.2%	-6.3%	-6.2%	-6.4%	-6.7%	-7.2%	-7.2%	-8.5%	-6.9%	-7.2%	-7.5%	-7.5%	-7.6%	-8.3%
11	WA Note Rate	4.06	4.05	4.08	4.11	4.14	4.17	4.18	4.23	4.27	4.27	4.31	4.37	4.38	4.44
12	WA Life (Years)	6.50	6.67	5.22	4.97	5.29	6.06	5.82	6.36	5.52	5.77	6.16	6.07	6.51	6.84
13	FNCL Δ in bps (Internal)	3.47	74.76	4.37	-27	-42.56	20.0	-26.4	39.9	-15.9	-37.7	5.4	-29.0	-16.1	31.4
14	10Y Swap Δ in bps (Bloomberg)	5.43	87.09	7.7	-26.03	-53.87	17.2	-43.19	41.5	-25.6	-36.6	3.9	-23.0	-25.1	32.7

Note: quarterly values presented on this page are averages of all companies considered.

Company symbols used in this report are the actual exchange-traded ticker symbols for the respective companies.

<u>Symbol</u>	<u>Company</u>
BAC	Bank of America Corporation
BBT	BB&T Corporation
BOKF	BOK Financial Corp.
C	Citigroup Inc.
EVER	EverBank Financial Corp.
FBC	Flagstar Bancorp Inc.
FITB	Fifth Third Bancorp
HBAN	Huntington Bancshares Incorporated
HMST	HomeStreet Inc.
JPM	JPMorgan Chase & Co.
NLY	Annaly Capital (Pingora)
NRZ	New Residential Investment Corp.
NSM	Nationstar Mortgage Holdings Inc.
OCN	Ocwen Financial Corp.
PFSI	PennyMac Financial Services Inc.
PHH	PHH Corporation
PNC	The PNC Financial Services Group Inc.
RF	Regions Financial Corporation
RWT	Redwood Trust Inc.
STI	SunTrust Banks Inc.
TWO	Two Harbors Investment Corp.
USB	U.S. Bancorp
WAC	Walter Investment Management Corp.
WFC	Wells Fargo & Company

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Where an explicit assumption or adjustment to the publicly reported data is made, it has been documented in the footnotes to this report.

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