

TREASURY INFLATION-PROTECTED SECURITIES (TIPS)
Ref CPI and Index Ratios for
August 2019

Security:			3-5/8% 30-Year TIPS	3-7/8% 30-Year TIPS	3-3/8% 30-1/2-Year TIPS	2-3/8% 20-1/2-Year TIPS
Description:			TIPS of April 2028	TIPS of April 2029	TIPS of April 2032	TIPS of January 2025
CUSIP Number:			912810FD5	912810FH6	912810FQ6	912810FR4
Dated Date:			April 15, 1998	April 15, 1999	October 15, 2001	July 15, 2004
Original Issue Date:			April 15, 1998	April 15, 1999	October 15, 2001	July 30, 2004
Additional Issue Date(s):			July 15, 1998	October 15, 1999 October 16, 2000	October 15, 2001	January 31, 2005 July 29, 2005
Maturity Date:			April 15, 2028	April 15, 2029	April 15, 2032	January 15, 2025
Ref CPI on Dated Date:			161.74000	164.39333	177.50000	188.49677
Date	Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio	
August 1 2019	256.09200	1.58336	1.55780	1.44277	1.35860	
August 2 2019	256.09365	1.58337	1.55781	1.44278	1.35861	
August 3 2019	256.09529	1.58338	1.55782	1.44279	1.35862	
August 4 2019	256.09694	1.58339	1.55783	1.44280	1.35863	
August 5 2019	256.09858	1.58340	1.55784	1.44281	1.35864	
August 6 2019	256.10023	1.58341	1.55785	1.44282	1.35865	
August 7 2019	256.10187	1.58342	1.55786	1.44283	1.35865	
August 8 2019	256.10352	1.58343	1.55787	1.44284	1.35866	
August 9 2019	256.10516	1.58344	1.55788	1.44285	1.35867	
August 10 2019	256.10681	1.58345	1.55789	1.44286	1.35868	
August 11 2019	256.10845	1.58346	1.55790	1.44286	1.35869	
August 12 2019	256.11010	1.58347	1.55791	1.44287	1.35870	
August 13 2019	256.11174	1.58348	1.55792	1.44288	1.35871	
August 14 2019	256.11339	1.58349	1.55793	1.44289	1.35872	
August 15 2019	256.11503	1.58350	1.55794	1.44290	1.35872	
August 16 2019	256.11668	1.58351	1.55795	1.44291	1.35873	
August 17 2019	256.11832	1.58352	1.55796	1.44292	1.35874	
August 18 2019	256.11997	1.58353	1.55797	1.44293	1.35875	
August 19 2019	256.12161	1.58354	1.55798	1.44294	1.35876	
August 20 2019	256.12326	1.58355	1.55799	1.44295	1.35877	
August 21 2019	256.12490	1.58356	1.55800	1.44296	1.35878	
August 22 2019	256.12655	1.58357	1.55801	1.44297	1.35878	
August 23 2019	256.12819	1.58358	1.55802	1.44298	1.35879	
August 24 2019	256.12984	1.58359	1.55803	1.44299	1.35880	
August 25 2019	256.13148	1.58360	1.55804	1.44299	1.35881	
August 26 2019	256.13313	1.58361	1.55805	1.44300	1.35882	
August 27 2019	256.13477	1.58362	1.55806	1.44301	1.35883	
August 28 2019	256.13642	1.58363	1.55807	1.44302	1.35884	
August 29 2019	256.13806	1.58364	1.55808	1.44303	1.35885	
August 30 2019	256.13971	1.58365	1.55809	1.44304	1.35885	
August 31 2019	256.14135	1.58366	1.55810	1.44305	1.35886	
CPI-U (NSA) for:			April 2019 255.548	May 2019 256.092	June 2019 256.143	

TREASURY INFLATION-PROTECTED SECURITIES (TIPS)
Ref CPI and Index Ratios for
August 2019

Security: Description: CUSIP Number: Dated Date: Original Issue Date: Additional Issue Date(s):			2% 20-Year TIPS TIPS of January 2026 912810FS2 January 15, 2006 January 31, 2006 July 31, 2006	2-3/8% 20-Year TIPS TIPS of January 2027 912810PS1 January 15, 2007 January 31, 2007 July 31, 2007	1-3/4% 20-Year TIPS TIPS of January 2028 912810PV4 January 15, 2008 January 31, 2008 July 31, 2008	2-1/2% 20-Year TIPS TIPS of January 2029 912810PZ5 January 15, 2009 January 30, 2009 July 31, 2009	
Maturity Date: Ref CPI on Dated Date:			January 15, 2026 198.47742	January 15, 2027 201.66452	January 15, 2028 209.49645	January 15, 2029 214.69971	
Date			Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio
August	1	2019	256.09200	1.29028	1.26989	1.22242	1.19279
August	2	2019	256.09365	1.29029	1.26990	1.22242	1.19280
August	3	2019	256.09529	1.29030	1.26991	1.22243	1.19281
August	4	2019	256.09694	1.29031	1.26992	1.22244	1.19281
August	5	2019	256.09858	1.29032	1.26992	1.22245	1.19282
August	6	2019	256.10023	1.29032	1.26993	1.22246	1.19283
August	7	2019	256.10187	1.29033	1.26994	1.22246	1.19284
August	8	2019	256.10352	1.29034	1.26995	1.22247	1.19285
August	9	2019	256.10516	1.29035	1.26996	1.22248	1.19285
August	10	2019	256.10681	1.29036	1.26996	1.22249	1.19286
August	11	2019	256.10845	1.29037	1.26997	1.22250	1.19287
August	12	2019	256.11010	1.29037	1.26998	1.22250	1.19288
August	13	2019	256.11174	1.29038	1.26999	1.22251	1.19288
August	14	2019	256.11339	1.29039	1.27000	1.22252	1.19289
August	15	2019	256.11503	1.29040	1.27001	1.22253	1.19290
August	16	2019	256.11668	1.29041	1.27001	1.22253	1.19291
August	17	2019	256.11832	1.29042	1.27002	1.22254	1.19291
August	18	2019	256.11997	1.29042	1.27003	1.22255	1.19292
August	19	2019	256.12161	1.29043	1.27004	1.22256	1.19293
August	20	2019	256.12326	1.29044	1.27005	1.22257	1.19294
August	21	2019	256.12490	1.29045	1.27005	1.22257	1.19294
August	22	2019	256.12655	1.29046	1.27006	1.22258	1.19295
August	23	2019	256.12819	1.29047	1.27007	1.22259	1.19296
August	24	2019	256.12984	1.29047	1.27008	1.22260	1.19297
August	25	2019	256.13148	1.29048	1.27009	1.22261	1.19298
August	26	2019	256.13313	1.29049	1.27010	1.22261	1.19298
August	27	2019	256.13477	1.29050	1.27010	1.22262	1.19299
August	28	2019	256.13642	1.29051	1.27011	1.22263	1.19300
August	29	2019	256.13806	1.29051	1.27012	1.22264	1.19301
August	30	2019	256.13971	1.29052	1.27013	1.22264	1.19301
August	31	2019	256.14135	1.29053	1.27014	1.22265	1.19302
CPI-U (NSA) for:			April 2019 255.548	May 2019 256.092	June 2019 256.143		

TREASURY INFLATION-PROTECTED SECURITIES (TIPS)
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August 2019

Security: Description: CUSIP Number: Dated Date: Original Issue Date: Additional Issue Date(s):			1-3/8% 10-Year TIPS Series A-2020 912828MF4 January 15, 2010 January 15, 2010 April 15, 2010	2-1/8% 30-Year TIPS TIPS of February 2040 912810QF8 February 15, 2010 February 26, 2010 August 31, 2010	1-1/4% 10-Year TIPS Series D-2020 912828NM8 July 15, 2010 July 15, 2010 September 15, 2010 November 15, 2010	1-1/8% 10-Year TIPS Series A-2021 912828PP9 January 15, 2011 January 31, 2011 March 31, 2011 May 31, 2011
Maturity Date: Ref CPI on Dated Date:			January 15, 2020 216.24610	February 15, 2040 216.13950	July 15, 2020 218.08532	January 15, 2021 218.75255
Date	Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio	
August 1 2019	256.09200	1.18426	1.18485	1.17427	1.17069	
August 2 2019	256.09365	1.18427	1.18485	1.17428	1.17070	
August 3 2019	256.09529	1.18428	1.18486	1.17429	1.17071	
August 4 2019	256.09694	1.18428	1.18487	1.17430	1.17072	
August 5 2019	256.09858	1.18429	1.18488	1.17430	1.17072	
August 6 2019	256.10023	1.18430	1.18488	1.17431	1.17073	
August 7 2019	256.10187	1.18431	1.18489	1.17432	1.17074	
August 8 2019	256.10352	1.18432	1.18490	1.17433	1.17075	
August 9 2019	256.10516	1.18432	1.18491	1.17433	1.17075	
August 10 2019	256.10681	1.18433	1.18491	1.17434	1.17076	
August 11 2019	256.10845	1.18434	1.18492	1.17435	1.17077	
August 12 2019	256.11010	1.18435	1.18493	1.17436	1.17078	
August 13 2019	256.11174	1.18435	1.18494	1.17436	1.17078	
August 14 2019	256.11339	1.18436	1.18494	1.17437	1.17079	
August 15 2019	256.11503	1.18437	1.18495	1.17438	1.17080	
August 16 2019	256.11668	1.18438	1.18496	1.17439	1.17081	
August 17 2019	256.11832	1.18438	1.18497	1.17440	1.17081	
August 18 2019	256.11997	1.18439	1.18498	1.17440	1.17082	
August 19 2019	256.12161	1.18440	1.18498	1.17441	1.17083	
August 20 2019	256.12326	1.18441	1.18499	1.17442	1.17084	
August 21 2019	256.12490	1.18441	1.18500	1.17443	1.17084	
August 22 2019	256.12655	1.18442	1.18501	1.17443	1.17085	
August 23 2019	256.12819	1.18443	1.18501	1.17444	1.17086	
August 24 2019	256.12984	1.18444	1.18502	1.17445	1.17087	
August 25 2019	256.13148	1.18444	1.18503	1.17446	1.17087	
August 26 2019	256.13313	1.18445	1.18504	1.17446	1.17088	
August 27 2019	256.13477	1.18446	1.18504	1.17447	1.17089	
August 28 2019	256.13642	1.18447	1.18505	1.17448	1.17090	
August 29 2019	256.13806	1.18447	1.18506	1.17449	1.17090	
August 30 2019	256.13971	1.18448	1.18507	1.17449	1.17091	
August 31 2019	256.14135	1.18449	1.18507	1.17450	1.17092	
CPI-U (NSA) for:	April 2019	255.548	May 2019	256.092	June 2019	256.143

TREASURY INFLATION-PROTECTED SECURITIES (TIPS)
Ref CPI and Index Ratios for
August 2019

Security: Description: CUSIP Number: Dated Date: Original Issue Date: Additional Issue Date(s):			2-1/8% 30-Year TIPS TIPS of February 2041 912810QP6 February 15, 2011 February 28, 2011 June 30, 2011 October 31, 2011	0-5/8% 10-Year TIPS Series D-2021 912828QV5 July 15, 2011 July 29, 2011 September 30, 2011 November 30, 2011	0-1/8% 10-Year TIPS Series A-2022 912828SA9 January 15, 2012 January 31, 2012 March 30, 2012 May 31, 2012	0-3/4% 30-Year TIPS TIPS of February 2042 912810QV3 February 15, 2012 February 29, 2012 June 29, 2012 October 31, 2012
Maturity Date: Ref CPI on Dated Date:			February 15, 2041 218.99100	July 15, 2021 225.38381	January 15, 2022 226.33474	February 15, 2042 225.96062
Date	Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio	
August 1 2019	256.09200	1.16942	1.13625	1.13147	1.13335	
August 2 2019	256.09365	1.16943	1.13626	1.13148	1.13336	
August 3 2019	256.09529	1.16943	1.13626	1.13149	1.13336	
August 4 2019	256.09694	1.16944	1.13627	1.13150	1.13337	
August 5 2019	256.09858	1.16945	1.13628	1.13150	1.13338	
August 6 2019	256.10023	1.16946	1.13628	1.13151	1.13338	
August 7 2019	256.10187	1.16946	1.13629	1.13152	1.13339	
August 8 2019	256.10352	1.16947	1.13630	1.13153	1.13340	
August 9 2019	256.10516	1.16948	1.13631	1.13153	1.13341	
August 10 2019	256.10681	1.16949	1.13631	1.13154	1.13341	
August 11 2019	256.10845	1.16949	1.13632	1.13155	1.13342	
August 12 2019	256.11010	1.16950	1.13633	1.13155	1.13343	
August 13 2019	256.11174	1.16951	1.13634	1.13156	1.13344	
August 14 2019	256.11339	1.16952	1.13634	1.13157	1.13344	
August 15 2019	256.11503	1.16952	1.13635	1.13158	1.13345	
August 16 2019	256.11668	1.16953	1.13636	1.13158	1.13346	
August 17 2019	256.11832	1.16954	1.13637	1.13159	1.13346	
August 18 2019	256.11997	1.16955	1.13637	1.13160	1.13347	
August 19 2019	256.12161	1.16955	1.13638	1.13161	1.13348	
August 20 2019	256.12326	1.16956	1.13639	1.13161	1.13349	
August 21 2019	256.12490	1.16957	1.13639	1.13162	1.13349	
August 22 2019	256.12655	1.16958	1.13640	1.13163	1.13350	
August 23 2019	256.12819	1.16958	1.13641	1.13163	1.13351	
August 24 2019	256.12984	1.16959	1.13642	1.13164	1.13352	
August 25 2019	256.13148	1.16960	1.13642	1.13165	1.13352	
August 26 2019	256.13313	1.16961	1.13643	1.13166	1.13353	
August 27 2019	256.13477	1.16961	1.13644	1.13166	1.13354	
August 28 2019	256.13642	1.16962	1.13645	1.13167	1.13354	
August 29 2019	256.13806	1.16963	1.13645	1.13168	1.13355	
August 30 2019	256.13971	1.16964	1.13646	1.13169	1.13356	
August 31 2019	256.14135	1.16964	1.13647	1.13169	1.13357	
CPI-U (NSA) for:	April 2019	255.548	May 2019	256.092	June 2019	256.143

TREASURY INFLATION-PROTECTED SECURITIES (TIPS)
Ref CPI and Index Ratios for
August 2019

Security: Description: CUSIP Number: Dated Date: Original Issue Date: Additional Issue Date(s):			0-1/8% 10-Year TIPS Series D-2022 912828TE0 July 15, 2012 July 31, 2012 September 28, 2012 November 30, 2012	0-1/8% 10-Year TIPS Series A-2023 912828UH1 January 15, 2013 January 31, 2013 March 28, 2013 May 31, 2013	0-5/8% 30-Year TIPS TIPS of February 2043 912810RA8 February 15, 2013 February 28, 2013 June 28, 2013 October 31, 2013	0-3/8% 10-Year TIPS Series D-2023 912828VM9 July 15, 2013 July 31, 2013 September 30, 2013 November 29, 2013
Maturity Date: Ref CPI on Dated Date:			July 15, 2022 229.96306	January 15, 2023 230.82203	February 15, 2043 229.91100	July 15, 2023 232.71797
Date	Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio	
August 1 2019	256.09200	1.11362	1.10948	1.11387	1.10044	
August 2 2019	256.09365	1.11363	1.10949	1.11388	1.10045	
August 3 2019	256.09529	1.11364	1.10949	1.11389	1.10045	
August 4 2019	256.09694	1.11364	1.10950	1.11390	1.10046	
August 5 2019	256.09858	1.11365	1.10951	1.11390	1.10047	
August 6 2019	256.10023	1.11366	1.10951	1.11391	1.10047	
August 7 2019	256.10187	1.11367	1.10952	1.11392	1.10048	
August 8 2019	256.10352	1.11367	1.10953	1.11392	1.10049	
August 9 2019	256.10516	1.11368	1.10954	1.11393	1.10050	
August 10 2019	256.10681	1.11369	1.10954	1.11394	1.10050	
August 11 2019	256.10845	1.11369	1.10955	1.11395	1.10051	
August 12 2019	256.11010	1.11370	1.10956	1.11395	1.10052	
August 13 2019	256.11174	1.11371	1.10956	1.11396	1.10052	
August 14 2019	256.11339	1.11372	1.10957	1.11397	1.10053	
August 15 2019	256.11503	1.11372	1.10958	1.11397	1.10054	
August 16 2019	256.11668	1.11373	1.10959	1.11398	1.10055	
August 17 2019	256.11832	1.11374	1.10959	1.11399	1.10055	
August 18 2019	256.11997	1.11374	1.10960	1.11400	1.10056	
August 19 2019	256.12161	1.11375	1.10961	1.11400	1.10057	
August 20 2019	256.12326	1.11376	1.10961	1.11401	1.10057	
August 21 2019	256.12490	1.11377	1.10962	1.11402	1.10058	
August 22 2019	256.12655	1.11377	1.10963	1.11402	1.10059	
August 23 2019	256.12819	1.11378	1.10963	1.11403	1.10059	
August 24 2019	256.12984	1.11379	1.10964	1.11404	1.10060	
August 25 2019	256.13148	1.11379	1.10965	1.11405	1.10061	
August 26 2019	256.13313	1.11380	1.10966	1.11405	1.10062	
August 27 2019	256.13477	1.11381	1.10966	1.11406	1.10062	
August 28 2019	256.13642	1.11382	1.10967	1.11407	1.10063	
August 29 2019	256.13806	1.11382	1.10968	1.11407	1.10064	
August 30 2019	256.13971	1.11383	1.10968	1.11408	1.10064	
August 31 2019	256.14135	1.11384	1.10969	1.11409	1.10065	
CPI-U (NSA) for:	April 2019	255.548	May 2019	256.092	June 2019	256.143

TREASURY INFLATION-PROTECTED SECURITIES (TIPS)
Ref CPI and Index Ratios for
August 2019

Security: Description: CUSIP Number: Dated Date: Original Issue Date: Additional Issue Date(s):			0-5/8% 10-Year TIPS Series A-2024 912828B25 January 15, 2014 January 31, 2014 March 31, 2014 May 30, 2014	1-3/8% 30-Year TIPS TIPS of February 2044 912810RF7 February 15, 2014 February 28, 2014 June 30, 2014 October 31, 2014	0-1/8% 10-Year TIPS Series D-2024 912828WU0 July 15, 2014 July 31, 2014 September 30, 2014 November 28, 2014	0-1/4% 10-Year TIPS Series A-2025 912828H45 January 15, 2015 January 30, 2015 March 31, 2015 May 29, 2015
Maturity Date: Ref CPI on Dated Date:			January 15, 2024 233.33058	February 15, 2044 233.05900	July 15, 2024 237.44594	January 15, 2025 236.85403
Date	Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio	
August 1 2019	256.09200	1.09755	1.09883	1.07853	1.08122	
August 2 2019	256.09365	1.09756	1.09884	1.07853	1.08123	
August 3 2019	256.09529	1.09756	1.09884	1.07854	1.08124	
August 4 2019	256.09694	1.09757	1.09885	1.07855	1.08124	
August 5 2019	256.09858	1.09758	1.09886	1.07856	1.08125	
August 6 2019	256.10023	1.09759	1.09886	1.07856	1.08126	
August 7 2019	256.10187	1.09759	1.09887	1.07857	1.08126	
August 8 2019	256.10352	1.09760	1.09888	1.07858	1.08127	
August 9 2019	256.10516	1.09761	1.09889	1.07858	1.08128	
August 10 2019	256.10681	1.09761	1.09889	1.07859	1.08129	
August 11 2019	256.10845	1.09762	1.09890	1.07860	1.08129	
August 12 2019	256.11010	1.09763	1.09891	1.07860	1.08130	
August 13 2019	256.11174	1.09763	1.09891	1.07861	1.08131	
August 14 2019	256.11339	1.09764	1.09892	1.07862	1.08131	
August 15 2019	256.11503	1.09765	1.09893	1.07862	1.08132	
August 16 2019	256.11668	1.09766	1.09893	1.07863	1.08133	
August 17 2019	256.11832	1.09766	1.09894	1.07864	1.08133	
August 18 2019	256.11997	1.09767	1.09895	1.07865	1.08134	
August 19 2019	256.12161	1.09768	1.09896	1.07865	1.08135	
August 20 2019	256.12326	1.09768	1.09896	1.07866	1.08135	
August 21 2019	256.12490	1.09769	1.09897	1.07867	1.08136	
August 22 2019	256.12655	1.09770	1.09898	1.07867	1.08137	
August 23 2019	256.12819	1.09771	1.09898	1.07868	1.08138	
August 24 2019	256.12984	1.09771	1.09899	1.07869	1.08138	
August 25 2019	256.13148	1.09772	1.09900	1.07869	1.08139	
August 26 2019	256.13313	1.09773	1.09901	1.07870	1.08140	
August 27 2019	256.13477	1.09773	1.09901	1.07871	1.08140	
August 28 2019	256.13642	1.09774	1.09902	1.07871	1.08141	
August 29 2019	256.13806	1.09775	1.09903	1.07872	1.08142	
August 30 2019	256.13971	1.09775	1.09903	1.07873	1.08142	
August 31 2019	256.14135	1.09776	1.09904	1.07874	1.08143	
CPI-U (NSA) for:	April 2019	255.548	May 2019	256.092	June 2019	256.143

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Ref CPI and Index Ratios for
August 2019

Security: Description: CUSIP Number: Dated Date: Original Issue Date: Additional Issue Date(s):			0-3/4% 30-Year TIPS TIPS of February 2045 912810RL4 February 15, 2015 February 27, 2015 June 30, 2015 October 30, 2015	0-1/8% 5-Year TIPS Series X-2020 912828K33 April 15, 2015 April 30, 2015 August 31, 2015 December 31, 2015	0-3/8% 10-Year TIPS Series D-2025 912828XL9 July 15, 2015 July 31, 2015 September 30, 2015 November 30, 2015	0-5/8% 10-Year TIPS Series A-2026 912828N71 January 15, 2016 January 29, 2016 March 31, 2016 May 31, 2016
Maturity Date: Ref CPI on Dated Date:			February 15, 2045 235.48150	April 15, 2020 234.18067	July 15, 2025 237.14365	January 15, 2026 237.61129
Date	Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio	
August 1 2019	256.09200	1.08752	1.09357	1.07990	1.07778	
August 2 2019	256.09365	1.08753	1.09357	1.07991	1.07778	
August 3 2019	256.09529	1.08754	1.09358	1.07992	1.07779	
August 4 2019	256.09694	1.08755	1.09359	1.07992	1.07780	
August 5 2019	256.09858	1.08755	1.09359	1.07993	1.07780	
August 6 2019	256.10023	1.08756	1.09360	1.07994	1.07781	
August 7 2019	256.10187	1.08757	1.09361	1.07994	1.07782	
August 8 2019	256.10352	1.08757	1.09362	1.07995	1.07783	
August 9 2019	256.10516	1.08758	1.09362	1.07996	1.07783	
August 10 2019	256.10681	1.08759	1.09363	1.07996	1.07784	
August 11 2019	256.10845	1.08759	1.09364	1.07997	1.07785	
August 12 2019	256.11010	1.08760	1.09364	1.07998	1.07785	
August 13 2019	256.11174	1.08761	1.09365	1.07999	1.07786	
August 14 2019	256.11339	1.08762	1.09366	1.07999	1.07787	
August 15 2019	256.11503	1.08762	1.09366	1.08000	1.07787	
August 16 2019	256.11668	1.08763	1.09367	1.08001	1.07788	
August 17 2019	256.11832	1.08764	1.09368	1.08001	1.07789	
August 18 2019	256.11997	1.08764	1.09369	1.08002	1.07789	
August 19 2019	256.12161	1.08765	1.09369	1.08003	1.07790	
August 20 2019	256.12326	1.08766	1.09370	1.08003	1.07791	
August 21 2019	256.12490	1.08766	1.09371	1.08004	1.07792	
August 22 2019	256.12655	1.08767	1.09371	1.08005	1.07792	
August 23 2019	256.12819	1.08768	1.09372	1.08006	1.07793	
August 24 2019	256.12984	1.08769	1.09373	1.08006	1.07794	
August 25 2019	256.13148	1.08769	1.09373	1.08007	1.07794	
August 26 2019	256.13313	1.08770	1.09374	1.08008	1.07795	
August 27 2019	256.13477	1.08771	1.09375	1.08008	1.07796	
August 28 2019	256.13642	1.08771	1.09376	1.08009	1.07796	
August 29 2019	256.13806	1.08772	1.09376	1.08010	1.07797	
August 30 2019	256.13971	1.08773	1.09377	1.08010	1.07798	
August 31 2019	256.14135	1.08773	1.09378	1.08011	1.07798	
CPI-U (NSA) for:	April 2019	255.548	May 2019	256.092	June 2019	256.143

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Ref CPI and Index Ratios for
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Security: Description: CUSIP Number: Dated Date: Original Issue Date: Additional Issue Date(s):			1% 30-Year TIPS TIPS of February 2046 912810RR1 February 15, 2016 February 29, 2016 June 30, 2016 October 31, 2016	0-1/8% 5-Year TIPS Series X-2021 912828Q60 April 15, 2016 April 29, 2016 August 31, 2016 December 30, 2016	0-1/8% 10-Year TIPS Series D-2026 912828S50 July 15, 2016 July 29, 2016 September 30, 2016 November 30, 2016	0-3/8% 10-Year TIPS Series A-2027 912828V49 January 15, 2017 January 31, 2017 March 31, 2017 May 31, 2017
Maturity Date: Ref CPI on Dated Date:			February 15, 2046 236.94448	April 15, 2021 237.00700	July 15, 2026 239.70132	January 15, 2027 241.55919
Date	Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio	
August 1 2019	256.09200	1.08081	1.08053	1.06838	1.06016	
August 2 2019	256.09365	1.08082	1.08053	1.06839	1.06017	
August 3 2019	256.09529	1.08082	1.08054	1.06839	1.06018	
August 4 2019	256.09694	1.08083	1.08055	1.06840	1.06018	
August 5 2019	256.09858	1.08084	1.08055	1.06841	1.06019	
August 6 2019	256.10023	1.08084	1.08056	1.06841	1.06020	
August 7 2019	256.10187	1.08085	1.08057	1.06842	1.06020	
August 8 2019	256.10352	1.08086	1.08057	1.06843	1.06021	
August 9 2019	256.10516	1.08087	1.08058	1.06843	1.06022	
August 10 2019	256.10681	1.08087	1.08059	1.06844	1.06022	
August 11 2019	256.10845	1.08088	1.08059	1.06845	1.06023	
August 12 2019	256.11010	1.08089	1.08060	1.06846	1.06024	
August 13 2019	256.11174	1.08089	1.08061	1.06846	1.06024	
August 14 2019	256.11339	1.08090	1.08062	1.06847	1.06025	
August 15 2019	256.11503	1.08091	1.08062	1.06848	1.06026	
August 16 2019	256.11668	1.08091	1.08063	1.06848	1.06026	
August 17 2019	256.11832	1.08092	1.08064	1.06849	1.06027	
August 18 2019	256.11997	1.08093	1.08064	1.06850	1.06028	
August 19 2019	256.12161	1.08094	1.08065	1.06850	1.06029	
August 20 2019	256.12326	1.08094	1.08066	1.06851	1.06029	
August 21 2019	256.12490	1.08095	1.08066	1.06852	1.06030	
August 22 2019	256.12655	1.08096	1.08067	1.06852	1.06031	
August 23 2019	256.12819	1.08096	1.08068	1.06853	1.06031	
August 24 2019	256.12984	1.08097	1.08068	1.06854	1.06032	
August 25 2019	256.13148	1.08098	1.08069	1.06854	1.06033	
August 26 2019	256.13313	1.08098	1.08070	1.06855	1.06033	
August 27 2019	256.13477	1.08099	1.08071	1.06856	1.06034	
August 28 2019	256.13642	1.08100	1.08071	1.06856	1.06035	
August 29 2019	256.13806	1.08100	1.08072	1.06857	1.06035	
August 30 2019	256.13971	1.08101	1.08073	1.06858	1.06036	
August 31 2019	256.14135	1.08102	1.08073	1.06859	1.06037	
CPI-U (NSA) for:	April 2019	255.548	May 2019	256.092	June 2019	256.143

TREASURY INFLATION-PROTECTED SECURITIES (TIPS)
Ref CPI and Index Ratios for
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Security: Description: CUSIP Number: Dated Date: Original Issue Date: Additional Issue Date(s):			0-7/8% 30-Year TIPS TIPS of February 2047 912810RW0 February 15, 2017 February 28, 2017 June 30, 2017 October 31, 2017	0-1/8% 5-Year TIPS Series X-2022 912828X39 April 15, 2017 April 28, 2017 August 31, 2017 December 29, 2017	0-3/8% 10-Year TIPS Series D-2027 9128282L3 July 15, 2017 July 31, 2017 September 29, 2017 November 30, 2017	0-1/2% 10-Year TIPS Series A-2028 9128283R9 January 15, 2018 January 31, 2018 March 29, 2018 May 31, 2018
Maturity Date: Ref CPI on Dated Date:			February 15, 2047 241.39250	April 15, 2022 243.19553	July 15, 2027 244.61839	January 15, 2028 246.66571
Date	Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio	
August 1 2019	256.09200	1.06089	1.05303	1.04690	1.03821	
August 2 2019	256.09365	1.06090	1.05304	1.04691	1.03822	
August 3 2019	256.09529	1.06091	1.05304	1.04692	1.03823	
August 4 2019	256.09694	1.06092	1.05305	1.04692	1.03823	
August 5 2019	256.09858	1.06092	1.05306	1.04693	1.03824	
August 6 2019	256.10023	1.06093	1.05306	1.04694	1.03825	
August 7 2019	256.10187	1.06094	1.05307	1.04694	1.03825	
August 8 2019	256.10352	1.06094	1.05308	1.04695	1.03826	
August 9 2019	256.10516	1.06095	1.05308	1.04696	1.03827	
August 10 2019	256.10681	1.06096	1.05309	1.04696	1.03827	
August 11 2019	256.10845	1.06096	1.05310	1.04697	1.03828	
August 12 2019	256.11010	1.06097	1.05310	1.04698	1.03829	
August 13 2019	256.11174	1.06098	1.05311	1.04698	1.03829	
August 14 2019	256.11339	1.06098	1.05312	1.04699	1.03830	
August 15 2019	256.11503	1.06099	1.05312	1.04700	1.03831	
August 16 2019	256.11668	1.06100	1.05313	1.04701	1.03831	
August 17 2019	256.11832	1.06100	1.05314	1.04701	1.03832	
August 18 2019	256.11997	1.06101	1.05314	1.04702	1.03833	
August 19 2019	256.12161	1.06102	1.05315	1.04703	1.03833	
August 20 2019	256.12326	1.06102	1.05316	1.04703	1.03834	
August 21 2019	256.12490	1.06103	1.05316	1.04704	1.03835	
August 22 2019	256.12655	1.06104	1.05317	1.04705	1.03835	
August 23 2019	256.12819	1.06104	1.05318	1.04705	1.03836	
August 24 2019	256.12984	1.06105	1.05318	1.04706	1.03837	
August 25 2019	256.13148	1.06106	1.05319	1.04707	1.03837	
August 26 2019	256.13313	1.06106	1.05320	1.04707	1.03838	
August 27 2019	256.13477	1.06107	1.05321	1.04708	1.03839	
August 28 2019	256.13642	1.06108	1.05321	1.04709	1.03839	
August 29 2019	256.13806	1.06109	1.05322	1.04709	1.03840	
August 30 2019	256.13971	1.06109	1.05323	1.04710	1.03841	
August 31 2019	256.14135	1.06110	1.05323	1.04711	1.03841	
CPI-U (NSA) for:	April 2019	255.548	May 2019	256.092	June 2019	256.143

TREASURY INFLATION-PROTECTED SECURITIES (TIPS)
Ref CPI and Index Ratios for
August 2019

Security: Description: CUSIP Number: Dated Date: Original Issue Date: Additional Issue Date(s):			1% 30-Year TIPS TIPS of February 2048 912810SB5 February 15, 2018 February 28, 2018 June 29, 2018 October 31, 2018	0-5/8% 5-Year TIPS Series X-2023 9128284H0 April 15, 2018 April 30, 2018 August 31, 2018 December 31, 2018	0-3/4% 10-Year TIPS Series D-2028 912828Y38 July 15, 2018 July 31, 2018 September 28, 2018 November 30, 2018	0-7/8% 10-Year TIPS Series A-2029 9128285W6 January 15, 2019 January 31, 2019 March 29, 2019 May 31, 2019
Maturity Date: Ref CPI on Dated Date:			February 15, 2048 246.59650	April 15, 2023 248.39153	July 15, 2028 251.01658	January 15, 2029 252.50248
Date	Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio	
August 1 2019	256.09200	1.03851	1.03100	1.02022	1.01422	
August 2 2019	256.09365	1.03851	1.03101	1.02023	1.01422	
August 3 2019	256.09529	1.03852	1.03101	1.02023	1.01423	
August 4 2019	256.09694	1.03853	1.03102	1.02024	1.01424	
August 5 2019	256.09858	1.03853	1.03103	1.02025	1.01424	
August 6 2019	256.10023	1.03854	1.03103	1.02025	1.01425	
August 7 2019	256.10187	1.03855	1.03104	1.02026	1.01425	
August 8 2019	256.10352	1.03855	1.03105	1.02027	1.01426	
August 9 2019	256.10516	1.03856	1.03105	1.02027	1.01427	
August 10 2019	256.10681	1.03857	1.03106	1.02028	1.01427	
August 11 2019	256.10845	1.03857	1.03107	1.02028	1.01428	
August 12 2019	256.11010	1.03858	1.03107	1.02029	1.01429	
August 13 2019	256.11174	1.03859	1.03108	1.02030	1.01429	
August 14 2019	256.11339	1.03859	1.03109	1.02030	1.01430	
August 15 2019	256.11503	1.03860	1.03109	1.02031	1.01431	
August 16 2019	256.11668	1.03861	1.03110	1.02032	1.01431	
August 17 2019	256.11832	1.03861	1.03111	1.02032	1.01432	
August 18 2019	256.11997	1.03862	1.03111	1.02033	1.01433	
August 19 2019	256.12161	1.03863	1.03112	1.02034	1.01433	
August 20 2019	256.12326	1.03863	1.03113	1.02034	1.01434	
August 21 2019	256.12490	1.03864	1.03113	1.02035	1.01435	
August 22 2019	256.12655	1.03865	1.03114	1.02036	1.01435	
August 23 2019	256.12819	1.03865	1.03115	1.02036	1.01436	
August 24 2019	256.12984	1.03866	1.03115	1.02037	1.01437	
August 25 2019	256.13148	1.03867	1.03116	1.02038	1.01437	
August 26 2019	256.13313	1.03867	1.03117	1.02038	1.01438	
August 27 2019	256.13477	1.03868	1.03117	1.02039	1.01439	
August 28 2019	256.13642	1.03869	1.03118	1.02040	1.01439	
August 29 2019	256.13806	1.03869	1.03119	1.02040	1.01440	
August 30 2019	256.13971	1.03870	1.03119	1.02041	1.01440	
August 31 2019	256.14135	1.03871	1.03120	1.02042	1.01441	
CPI-U (NSA) for:	April 2019	255.548	May 2019	256.092	June 2019	256.143

TREASURY INFLATION-PROTECTED SECURITIES (TIPS)
Ref CPI and Index Ratios for
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Security: Description: CUSIP Number: Dated Date: Original Issue Date: Additional Issue Date(s):			1% 30-Year TIPS TIPS of February 2049 912810SG4 February 15, 2019 February 28, 2019	0-1/2% 5-Year TIPS Series X-2024 9128286N5 April 15, 2019 April 30, 2019 June 28, 2019				
Maturity Date: Ref CPI on Dated Date:			February 15, 2049 251.63550	April 15, 2024 252.20853				
Date			Ref CPI	Index Ratio	Index Ratio			
August	1	2019	256.09200	1.01771	1.01540			
August	2	2019	256.09365	1.01772	1.01540			
August	3	2019	256.09529	1.01772	1.01541			
August	4	2019	256.09694	1.01773	1.01542			
August	5	2019	256.09858	1.01774	1.01542			
August	6	2019	256.10023	1.01774	1.01543			
August	7	2019	256.10187	1.01775	1.01544			
August	8	2019	256.10352	1.01776	1.01544			
August	9	2019	256.10516	1.01776	1.01545			
August	10	2019	256.10681	1.01777	1.01546			
August	11	2019	256.10845	1.01778	1.01546			
August	12	2019	256.11010	1.01778	1.01547			
August	13	2019	256.11174	1.01779	1.01548			
August	14	2019	256.11339	1.01780	1.01548			
August	15	2019	256.11503	1.01780	1.01549			
August	16	2019	256.11668	1.01781	1.01550			
August	17	2019	256.11832	1.01781	1.01550			
August	18	2019	256.11997	1.01782	1.01551			
August	19	2019	256.12161	1.01783	1.01552			
August	20	2019	256.12326	1.01783	1.01552			
August	21	2019	256.12490	1.01784	1.01553			
August	22	2019	256.12655	1.01785	1.01553			
August	23	2019	256.12819	1.01785	1.01554			
August	24	2019	256.12984	1.01786	1.01555			
August	25	2019	256.13148	1.01787	1.01555			
August	26	2019	256.13313	1.01787	1.01556			
August	27	2019	256.13477	1.01788	1.01557			
August	28	2019	256.13642	1.01789	1.01557			
August	29	2019	256.13806	1.01789	1.01558			
August	30	2019	256.13971	1.01790	1.01559			
August	31	2019	256.14135	1.01791	1.01559			
CPI-U (NSA) for:			April 2019	255.548	May 2019	256.092	June 2019	256.143