

TREASURY INFLATION-PROTECTED SECURITIES (TIPS)
Ref CPI and Index Ratios for
November 2018

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		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	
November 1 2018	252.14600	1.55896	1.53380	1.42054	1.33767	
November 2 2018	252.15577	1.55902	1.53386	1.42060	1.33772	
November 3 2018	252.16553	1.55908	1.53392	1.42065	1.33777	
November 4 2018	252.17530	1.55914	1.53398	1.42071	1.33782	
November 5 2018	252.18507	1.55920	1.53403	1.42076	1.33787	
November 6 2018	252.19483	1.55926	1.53409	1.42082	1.33793	
November 7 2018	252.20460	1.55932	1.53415	1.42087	1.33798	
November 8 2018	252.21437	1.55938	1.53421	1.42093	1.33803	
November 9 2018	252.22413	1.55944	1.53427	1.42098	1.33808	
November 10 2018	252.23390	1.55950	1.53433	1.42104	1.33813	
November 11 2018	252.24367	1.55956	1.53439	1.42109	1.33819	
November 12 2018	252.25343	1.55962	1.53445	1.42115	1.33824	
November 13 2018	252.26320	1.55968	1.53451	1.42120	1.33829	
November 14 2018	252.27297	1.55974	1.53457	1.42126	1.33834	
November 15 2018	252.28273	1.55980	1.53463	1.42131	1.33839	
November 16 2018	252.29250	1.55986	1.53469	1.42137	1.33844	
November 17 2018	252.30227	1.55993	1.53475	1.42142	1.33850	
November 18 2018	252.31203	1.55999	1.53481	1.42148	1.33855	
November 19 2018	252.32180	1.56005	1.53487	1.42153	1.33860	
November 20 2018	252.33157	1.56011	1.53493	1.42159	1.33865	
November 21 2018	252.34133	1.56017	1.53499	1.42164	1.33870	
November 22 2018	252.35110	1.56023	1.53504	1.42170	1.33876	
November 23 2018	252.36087	1.56029	1.53510	1.42175	1.33881	
November 24 2018	252.37063	1.56035	1.53516	1.42181	1.33886	
November 25 2018	252.38040	1.56041	1.53522	1.42186	1.33891	
November 26 2018	252.39017	1.56047	1.53528	1.42192	1.33896	
November 27 2018	252.39993	1.56053	1.53534	1.42197	1.33901	
November 28 2018	252.40970	1.56059	1.53540	1.42203	1.33907	
November 29 2018	252.41947	1.56065	1.53546	1.42208	1.33912	
November 30 2018	252.42923	1.56071	1.53552	1.42214	1.33917	
CPI-U (NSA) for:			July 2018 252.006	August 2018 252.146	September 2018 252.439	

TREASURY INFLATION-PROTECTED SECURITIES (TIPS)
Ref CPI and Index Ratios for
November 2018

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	2-1/8% 10-Year TIPS Series A-2019 912828JX9 January 15, 2009 January 15, 2009 April 15, 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, 2019 214.69971
Date	Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio	
November 1 2018	252.14600	1.27040	1.25032	1.20358	1.17441	
November 2 2018	252.15577	1.27045	1.25037	1.20363	1.17446	
November 3 2018	252.16553	1.27050	1.25042	1.20367	1.17450	
November 4 2018	252.17530	1.27055	1.25047	1.20372	1.17455	
November 5 2018	252.18507	1.27060	1.25052	1.20377	1.17459	
November 6 2018	252.19483	1.27065	1.25057	1.20381	1.17464	
November 7 2018	252.20460	1.27070	1.25061	1.20386	1.17469	
November 8 2018	252.21437	1.27075	1.25066	1.20391	1.17473	
November 9 2018	252.22413	1.27080	1.25071	1.20395	1.17478	
November 10 2018	252.23390	1.27084	1.25076	1.20400	1.17482	
November 11 2018	252.24367	1.27089	1.25081	1.20405	1.17487	
November 12 2018	252.25343	1.27094	1.25086	1.20409	1.17491	
November 13 2018	252.26320	1.27099	1.25091	1.20414	1.17496	
November 14 2018	252.27297	1.27104	1.25095	1.20419	1.17500	
November 15 2018	252.28273	1.27109	1.25100	1.20423	1.17505	
November 16 2018	252.29250	1.27114	1.25105	1.20428	1.17509	
November 17 2018	252.30227	1.27119	1.25110	1.20433	1.17514	
November 18 2018	252.31203	1.27124	1.25115	1.20437	1.17519	
November 19 2018	252.32180	1.27129	1.25120	1.20442	1.17523	
November 20 2018	252.33157	1.27134	1.25124	1.20447	1.17528	
November 21 2018	252.34133	1.27139	1.25129	1.20451	1.17532	
November 22 2018	252.35110	1.27143	1.25134	1.20456	1.17537	
November 23 2018	252.36087	1.27148	1.25139	1.20461	1.17541	
November 24 2018	252.37063	1.27153	1.25144	1.20465	1.17546	
November 25 2018	252.38040	1.27158	1.25149	1.20470	1.17550	
November 26 2018	252.39017	1.27163	1.25153	1.20475	1.17555	
November 27 2018	252.39993	1.27168	1.25158	1.20479	1.17560	
November 28 2018	252.40970	1.27173	1.25163	1.20484	1.17564	
November 29 2018	252.41947	1.27178	1.25168	1.20489	1.17569	
November 30 2018	252.42923	1.27183	1.25173	1.20493	1.17573	
CPI-U (NSA) for:	July 2018	252.006	August 2018	252.146	September 2018	252.439

TREASURY INFLATION-PROTECTED SECURITIES (TIPS)
Ref CPI and Index Ratios for
November 2018

Security: Description: CUSIP Number: Dated Date: Original Issue Date: Additional Issue Date(s):			2-1/2% 20-Year TIPS TIPS of January 2029 912810PZ5 January 15, 2009 January 30, 2009 July 31, 2009	1-7/8% 10-Year TIPS Series D-2019 912828LA6 July 15, 2009 July 15, 2009 October 15, 2009	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	
Maturity Date: Ref CPI on Dated Date:			January 15, 2029 214.69971	July 15, 2019 213.51819	January 15, 2020 216.24610	February 15, 2040 216.13950	
Date			Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio
November	1	2018	252.14600	1.17441	1.18091	1.16601	1.16659
November	2	2018	252.15577	1.17446	1.18096	1.16606	1.16663
November	3	2018	252.16553	1.17450	1.18100	1.16610	1.16668
November	4	2018	252.17530	1.17455	1.18105	1.16615	1.16672
November	5	2018	252.18507	1.17459	1.18109	1.16619	1.16677
November	6	2018	252.19483	1.17464	1.18114	1.16624	1.16682
November	7	2018	252.20460	1.17469	1.18119	1.16629	1.16686
November	8	2018	252.21437	1.17473	1.18123	1.16633	1.16691
November	9	2018	252.22413	1.17478	1.18128	1.16638	1.16695
November	10	2018	252.23390	1.17482	1.18132	1.16642	1.16700
November	11	2018	252.24367	1.17487	1.18137	1.16647	1.16704
November	12	2018	252.25343	1.17491	1.18141	1.16651	1.16709
November	13	2018	252.26320	1.17496	1.18146	1.16656	1.16713
November	14	2018	252.27297	1.17500	1.18151	1.16660	1.16718
November	15	2018	252.28273	1.17505	1.18155	1.16665	1.16722
November	16	2018	252.29250	1.17509	1.18160	1.16669	1.16727
November	17	2018	252.30227	1.17514	1.18164	1.16674	1.16731
November	18	2018	252.31203	1.17519	1.18169	1.16678	1.16736
November	19	2018	252.32180	1.17523	1.18173	1.16683	1.16740
November	20	2018	252.33157	1.17528	1.18178	1.16687	1.16745
November	21	2018	252.34133	1.17532	1.18183	1.16692	1.16749
November	22	2018	252.35110	1.17537	1.18187	1.16696	1.16754
November	23	2018	252.36087	1.17541	1.18192	1.16701	1.16758
November	24	2018	252.37063	1.17546	1.18196	1.16705	1.16763
November	25	2018	252.38040	1.17550	1.18201	1.16710	1.16767
November	26	2018	252.39017	1.17555	1.18205	1.16714	1.16772
November	27	2018	252.39993	1.17560	1.18210	1.16719	1.16776
November	28	2018	252.40970	1.17564	1.18215	1.16723	1.16781
November	29	2018	252.41947	1.17569	1.18219	1.16728	1.16785
November	30	2018	252.42923	1.17573	1.18224	1.16732	1.16790
CPI-U (NSA) for:			July 2018 252.006	August 2018 252.146	September 2018 252.439		

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):			1-1/4% 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	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
Maturity Date: Ref CPI on Dated Date:			July 15, 2020 218.08532	January 15, 2021 218.75255	February 15, 2041 218.99100	July 15, 2021 225.38381
Date	Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio	
November 1 2018	252.14600	1.15618	1.15265	1.15140	1.11874	
November 2 2018	252.15577	1.15623	1.15270	1.15144	1.11878	
November 3 2018	252.16553	1.15627	1.15274	1.15149	1.11883	
November 4 2018	252.17530	1.15631	1.15279	1.15153	1.11887	
November 5 2018	252.18507	1.15636	1.15283	1.15158	1.11891	
November 6 2018	252.19483	1.15640	1.15288	1.15162	1.11896	
November 7 2018	252.20460	1.15645	1.15292	1.15167	1.11900	
November 8 2018	252.21437	1.15649	1.15297	1.15171	1.11904	
November 9 2018	252.22413	1.15654	1.15301	1.15176	1.11909	
November 10 2018	252.23390	1.15658	1.15306	1.15180	1.11913	
November 11 2018	252.24367	1.15663	1.15310	1.15184	1.11917	
November 12 2018	252.25343	1.15667	1.15315	1.15189	1.11922	
November 13 2018	252.26320	1.15672	1.15319	1.15193	1.11926	
November 14 2018	252.27297	1.15676	1.15323	1.15198	1.11930	
November 15 2018	252.28273	1.15681	1.15328	1.15202	1.11935	
November 16 2018	252.29250	1.15685	1.15332	1.15207	1.11939	
November 17 2018	252.30227	1.15690	1.15337	1.15211	1.11943	
November 18 2018	252.31203	1.15694	1.15341	1.15216	1.11948	
November 19 2018	252.32180	1.15699	1.15346	1.15220	1.11952	
November 20 2018	252.33157	1.15703	1.15350	1.15225	1.11956	
November 21 2018	252.34133	1.15708	1.15355	1.15229	1.11961	
November 22 2018	252.35110	1.15712	1.15359	1.15234	1.11965	
November 23 2018	252.36087	1.15717	1.15364	1.15238	1.11969	
November 24 2018	252.37063	1.15721	1.15368	1.15242	1.11974	
November 25 2018	252.38040	1.15726	1.15373	1.15247	1.11978	
November 26 2018	252.39017	1.15730	1.15377	1.15251	1.11982	
November 27 2018	252.39993	1.15734	1.15381	1.15256	1.11987	
November 28 2018	252.40970	1.15739	1.15386	1.15260	1.11991	
November 29 2018	252.41947	1.15743	1.15390	1.15265	1.11995	
November 30 2018	252.42923	1.15748	1.15395	1.15269	1.12000	
CPI-U (NSA) for:	July 2018	252.006	August 2018	252.146	September 2018	252.439

TREASURY INFLATION-PROTECTED SECURITIES (TIPS)
Ref CPI and Index Ratios for
November 2018

Security: Description: CUSIP Number: Dated Date: Original Issue Date: Additional Issue Date(s):			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	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
Maturity Date: Ref CPI on Dated Date:			January 15, 2022 226.33474	February 15, 2042 225.96062	July 15, 2022 229.96306	January 15, 2023 230.82203
Date	Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio	
November 1 2018	252.14600	1.11404	1.11588	1.09646	1.09238	
November 2 2018	252.15577	1.11408	1.11593	1.09651	1.09243	
November 3 2018	252.16553	1.11413	1.11597	1.09655	1.09247	
November 4 2018	252.17530	1.11417	1.11601	1.09659	1.09251	
November 5 2018	252.18507	1.11421	1.11606	1.09663	1.09255	
November 6 2018	252.19483	1.11426	1.11610	1.09668	1.09259	
November 7 2018	252.20460	1.11430	1.11614	1.09672	1.09264	
November 8 2018	252.21437	1.11434	1.11619	1.09676	1.09268	
November 9 2018	252.22413	1.11439	1.11623	1.09680	1.09272	
November 10 2018	252.23390	1.11443	1.11627	1.09685	1.09276	
November 11 2018	252.24367	1.11447	1.11632	1.09689	1.09281	
November 12 2018	252.25343	1.11451	1.11636	1.09693	1.09285	
November 13 2018	252.26320	1.11456	1.11640	1.09697	1.09289	
November 14 2018	252.27297	1.11460	1.11645	1.09702	1.09293	
November 15 2018	252.28273	1.11464	1.11649	1.09706	1.09298	
November 16 2018	252.29250	1.11469	1.11653	1.09710	1.09302	
November 17 2018	252.30227	1.11473	1.11658	1.09714	1.09306	
November 18 2018	252.31203	1.11477	1.11662	1.09719	1.09310	
November 19 2018	252.32180	1.11482	1.11666	1.09723	1.09314	
November 20 2018	252.33157	1.11486	1.11671	1.09727	1.09319	
November 21 2018	252.34133	1.11490	1.11675	1.09731	1.09323	
November 22 2018	252.35110	1.11495	1.11679	1.09735	1.09327	
November 23 2018	252.36087	1.11499	1.11684	1.09740	1.09331	
November 24 2018	252.37063	1.11503	1.11688	1.09744	1.09336	
November 25 2018	252.38040	1.11508	1.11692	1.09748	1.09340	
November 26 2018	252.39017	1.11512	1.11697	1.09752	1.09344	
November 27 2018	252.39993	1.11516	1.11701	1.09757	1.09348	
November 28 2018	252.40970	1.11521	1.11705	1.09761	1.09353	
November 29 2018	252.41947	1.11525	1.11709	1.09765	1.09357	
November 30 2018	252.42923	1.11529	1.11714	1.09769	1.09361	
CPI-U (NSA) for:	July 2018	252.006	August 2018	252.146	September 2018	252.439

TREASURY INFLATION-PROTECTED SECURITIES (TIPS)
Ref CPI and Index Ratios for
November 2018

Security: Description: CUSIP Number: Dated Date: Original Issue Date: Additional Issue Date(s):			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	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
Maturity Date: Ref CPI on Dated Date:			February 15, 2043 229.91100	July 15, 2023 232.71797	January 15, 2024 233.33058	February 15, 2044 233.05900
Date	Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio	
November 1 2018	252.14600	1.09671	1.08348	1.08064	1.08190	
November 2 2018	252.15577	1.09675	1.08353	1.08068	1.08194	
November 3 2018	252.16553	1.09680	1.08357	1.08072	1.08198	
November 4 2018	252.17530	1.09684	1.08361	1.08076	1.08202	
November 5 2018	252.18507	1.09688	1.08365	1.08081	1.08207	
November 6 2018	252.19483	1.09692	1.08369	1.08085	1.08211	
November 7 2018	252.20460	1.09697	1.08373	1.08089	1.08215	
November 8 2018	252.21437	1.09701	1.08378	1.08093	1.08219	
November 9 2018	252.22413	1.09705	1.08382	1.08097	1.08223	
November 10 2018	252.23390	1.09709	1.08386	1.08102	1.08227	
November 11 2018	252.24367	1.09714	1.08390	1.08106	1.08232	
November 12 2018	252.25343	1.09718	1.08394	1.08110	1.08236	
November 13 2018	252.26320	1.09722	1.08399	1.08114	1.08240	
November 14 2018	252.27297	1.09726	1.08403	1.08118	1.08244	
November 15 2018	252.28273	1.09731	1.08407	1.08122	1.08248	
November 16 2018	252.29250	1.09735	1.08411	1.08127	1.08253	
November 17 2018	252.30227	1.09739	1.08415	1.08131	1.08257	
November 18 2018	252.31203	1.09743	1.08420	1.08135	1.08261	
November 19 2018	252.32180	1.09748	1.08424	1.08139	1.08265	
November 20 2018	252.33157	1.09752	1.08428	1.08143	1.08269	
November 21 2018	252.34133	1.09756	1.08432	1.08148	1.08274	
November 22 2018	252.35110	1.09760	1.08436	1.08152	1.08278	
November 23 2018	252.36087	1.09765	1.08441	1.08156	1.08282	
November 24 2018	252.37063	1.09769	1.08445	1.08160	1.08286	
November 25 2018	252.38040	1.09773	1.08449	1.08164	1.08290	
November 26 2018	252.39017	1.09777	1.08453	1.08168	1.08295	
November 27 2018	252.39993	1.09782	1.08457	1.08173	1.08299	
November 28 2018	252.40970	1.09786	1.08462	1.08177	1.08303	
November 29 2018	252.41947	1.09790	1.08466	1.08181	1.08307	
November 30 2018	252.42923	1.09794	1.08470	1.08185	1.08311	
CPI-U (NSA) for:	July 2018	252.006	August 2018	252.146	September 2018	252.439

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Ref CPI and Index Ratios for
November 2018

Security: Description: CUSIP Number: Dated Date: Original Issue Date: Additional Issue Date(s):			0-1/8% 5-Year TIPS Series X-2019 912828C99 April 15, 2014 April 30, 2014 August 29, 2014 December 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	0-3/4% 30-Year TIPS TIPS of February 2045 912810RL4 February 15, 2015 February 27, 2015 June 30, 2015 October 30, 2015
Maturity Date: Ref CPI on Dated Date:			April 15, 2019 234.31967	July 15, 2024 237.44594	January 15, 2025 236.85403	February 15, 2045 235.48150
Date	Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio	
November 1 2018	252.14600	1.07608	1.06191	1.06456	1.07077	
November 2 2018	252.15577	1.07612	1.06195	1.06460	1.07081	
November 3 2018	252.16553	1.07616	1.06199	1.06465	1.07085	
November 4 2018	252.17530	1.07620	1.06203	1.06469	1.07089	
November 5 2018	252.18507	1.07624	1.06207	1.06473	1.07093	
November 6 2018	252.19483	1.07629	1.06211	1.06477	1.07098	
November 7 2018	252.20460	1.07633	1.06216	1.06481	1.07102	
November 8 2018	252.21437	1.07637	1.06220	1.06485	1.07106	
November 9 2018	252.22413	1.07641	1.06224	1.06489	1.07110	
November 10 2018	252.23390	1.07645	1.06228	1.06493	1.07114	
November 11 2018	252.24367	1.07649	1.06232	1.06498	1.07118	
November 12 2018	252.25343	1.07654	1.06236	1.06502	1.07122	
November 13 2018	252.26320	1.07658	1.06240	1.06506	1.07127	
November 14 2018	252.27297	1.07662	1.06244	1.06510	1.07131	
November 15 2018	252.28273	1.07666	1.06248	1.06514	1.07135	
November 16 2018	252.29250	1.07670	1.06253	1.06518	1.07139	
November 17 2018	252.30227	1.07674	1.06257	1.06522	1.07143	
November 18 2018	252.31203	1.07679	1.06261	1.06526	1.07147	
November 19 2018	252.32180	1.07683	1.06265	1.06531	1.07151	
November 20 2018	252.33157	1.07687	1.06269	1.06535	1.07156	
November 21 2018	252.34133	1.07691	1.06273	1.06539	1.07160	
November 22 2018	252.35110	1.07695	1.06277	1.06543	1.07164	
November 23 2018	252.36087	1.07699	1.06281	1.06547	1.07168	
November 24 2018	252.37063	1.07704	1.06286	1.06551	1.07172	
November 25 2018	252.38040	1.07708	1.06290	1.06555	1.07176	
November 26 2018	252.39017	1.07712	1.06294	1.06559	1.07180	
November 27 2018	252.39993	1.07716	1.06298	1.06563	1.07185	
November 28 2018	252.40970	1.07720	1.06302	1.06568	1.07189	
November 29 2018	252.41947	1.07724	1.06306	1.06572	1.07193	
November 30 2018	252.42923	1.07729	1.06310	1.06576	1.07197	
CPI-U (NSA) for:	July 2018	252.006	August 2018	252.146	September 2018	252.439

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):			0-1/8% 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	1% 30-Year TIPS TIPS of February 2046 912810RR1 February 15, 2016 February 29, 2016 June 30, 2016 October 31, 2016
Maturity Date: Ref CPI on Dated Date:			April 15, 2020 234.18067	July 15, 2025 237.14365	January 15, 2026 237.61129	February 15, 2046 236.94448
Date	Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio	
November 1 2018	252.14600	1.07672	1.06326	1.06117	1.06416	
November 2 2018	252.15577	1.07676	1.06330	1.06121	1.06420	
November 3 2018	252.16553	1.07680	1.06335	1.06125	1.06424	
November 4 2018	252.17530	1.07684	1.06339	1.06129	1.06428	
November 5 2018	252.18507	1.07688	1.06343	1.06133	1.06432	
November 6 2018	252.19483	1.07692	1.06347	1.06138	1.06436	
November 7 2018	252.20460	1.07697	1.06351	1.06142	1.06440	
November 8 2018	252.21437	1.07701	1.06355	1.06146	1.06445	
November 9 2018	252.22413	1.07705	1.06359	1.06150	1.06449	
November 10 2018	252.23390	1.07709	1.06363	1.06154	1.06453	
November 11 2018	252.24367	1.07713	1.06367	1.06158	1.06457	
November 12 2018	252.25343	1.07717	1.06372	1.06162	1.06461	
November 13 2018	252.26320	1.07722	1.06376	1.06166	1.06465	
November 14 2018	252.27297	1.07726	1.06380	1.06170	1.06469	
November 15 2018	252.28273	1.07730	1.06384	1.06175	1.06473	
November 16 2018	252.29250	1.07734	1.06388	1.06179	1.06477	
November 17 2018	252.30227	1.07738	1.06392	1.06183	1.06482	
November 18 2018	252.31203	1.07742	1.06396	1.06187	1.06486	
November 19 2018	252.32180	1.07747	1.06400	1.06191	1.06490	
November 20 2018	252.33157	1.07751	1.06405	1.06195	1.06494	
November 21 2018	252.34133	1.07755	1.06409	1.06199	1.06498	
November 22 2018	252.35110	1.07759	1.06413	1.06203	1.06502	
November 23 2018	252.36087	1.07763	1.06417	1.06207	1.06506	
November 24 2018	252.37063	1.07767	1.06421	1.06212	1.06510	
November 25 2018	252.38040	1.07772	1.06425	1.06216	1.06515	
November 26 2018	252.39017	1.07776	1.06429	1.06220	1.06519	
November 27 2018	252.39993	1.07780	1.06433	1.06224	1.06523	
November 28 2018	252.40970	1.07784	1.06437	1.06228	1.06527	
November 29 2018	252.41947	1.07788	1.06442	1.06232	1.06531	
November 30 2018	252.42923	1.07793	1.06446	1.06236	1.06535	
CPI-U (NSA) for:	July 2018	252.006	August 2018	252.146	September 2018	252.439

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):			0-1/8% 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	0-7/8% 30-Year TIPS TIPS of February 2047 912810RW0 February 15, 2017 February 28, 2017 June 30, 2017 October 31, 2017
Maturity Date: Ref CPI on Dated Date:			April 15, 2021 237.00700	July 15, 2026 239.70132	January 15, 2027 241.55919	February 15, 2047 241.39250
Date	Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio	
November 1 2018	252.14600	1.06388	1.05192	1.04383	1.04455	
November 2 2018	252.15577	1.06392	1.05196	1.04387	1.04459	
November 3 2018	252.16553	1.06396	1.05200	1.04391	1.04463	
November 4 2018	252.17530	1.06400	1.05204	1.04395	1.04467	
November 5 2018	252.18507	1.06404	1.05208	1.04399	1.04471	
November 6 2018	252.19483	1.06408	1.05212	1.04403	1.04475	
November 7 2018	252.20460	1.06412	1.05216	1.04407	1.04479	
November 8 2018	252.21437	1.06416	1.05220	1.04411	1.04483	
November 9 2018	252.22413	1.06421	1.05224	1.04415	1.04487	
November 10 2018	252.23390	1.06425	1.05228	1.04419	1.04491	
November 11 2018	252.24367	1.06429	1.05232	1.04423	1.04495	
November 12 2018	252.25343	1.06433	1.05237	1.04427	1.04499	
November 13 2018	252.26320	1.06437	1.05241	1.04431	1.04503	
November 14 2018	252.27297	1.06441	1.05245	1.04435	1.04507	
November 15 2018	252.28273	1.06445	1.05249	1.04439	1.04511	
November 16 2018	252.29250	1.06449	1.05253	1.04443	1.04515	
November 17 2018	252.30227	1.06454	1.05257	1.04447	1.04520	
November 18 2018	252.31203	1.06458	1.05261	1.04451	1.04524	
November 19 2018	252.32180	1.06462	1.05265	1.04455	1.04528	
November 20 2018	252.33157	1.06466	1.05269	1.04460	1.04532	
November 21 2018	252.34133	1.06470	1.05273	1.04464	1.04536	
November 22 2018	252.35110	1.06474	1.05277	1.04468	1.04540	
November 23 2018	252.36087	1.06478	1.05281	1.04472	1.04544	
November 24 2018	252.37063	1.06482	1.05285	1.04476	1.04548	
November 25 2018	252.38040	1.06486	1.05290	1.04480	1.04552	
November 26 2018	252.39017	1.06491	1.05294	1.04484	1.04556	
November 27 2018	252.39993	1.06495	1.05298	1.04488	1.04560	
November 28 2018	252.40970	1.06499	1.05302	1.04492	1.04564	
November 29 2018	252.41947	1.06503	1.05306	1.04496	1.04568	
November 30 2018	252.42923	1.06507	1.05310	1.04500	1.04572	
CPI-U (NSA) for:	July 2018	252.006	August 2018	252.146	September 2018	252.439

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):			0-1/8% 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	1% 30-Year TIPS TIPS of February 2048 912810SB5 February 15, 2018 February 28, 2018 June 29, 2018
Maturity Date: Ref CPI on Dated Date:			April 15, 2022 243.19553	July 15, 2027 244.61839	January 15, 2028 246.66571	February 15, 2048 246.59650
Date	Ref CPI	Index Ratio	Index Ratio	Index Ratio	Index Ratio	
November 1 2018	252.14600	1.03680	1.03077	1.02222	1.02250	
November 2 2018	252.15577	1.03684	1.03081	1.02226	1.02254	
November 3 2018	252.16553	1.03688	1.03085	1.02230	1.02258	
November 4 2018	252.17530	1.03692	1.03089	1.02234	1.02262	
November 5 2018	252.18507	1.03696	1.03093	1.02238	1.02266	
November 6 2018	252.19483	1.03700	1.03097	1.02242	1.02270	
November 7 2018	252.20460	1.03704	1.03101	1.02246	1.02274	
November 8 2018	252.21437	1.03708	1.03105	1.02249	1.02278	
November 9 2018	252.22413	1.03712	1.03109	1.02253	1.02282	
November 10 2018	252.23390	1.03717	1.03113	1.02257	1.02286	
November 11 2018	252.24367	1.03721	1.03117	1.02261	1.02290	
November 12 2018	252.25343	1.03725	1.03121	1.02265	1.02294	
November 13 2018	252.26320	1.03729	1.03125	1.02269	1.02298	
November 14 2018	252.27297	1.03733	1.03129	1.02273	1.02302	
November 15 2018	252.28273	1.03737	1.03133	1.02277	1.02306	
November 16 2018	252.29250	1.03741	1.03137	1.02281	1.02310	
November 17 2018	252.30227	1.03745	1.03141	1.02285	1.02314	
November 18 2018	252.31203	1.03749	1.03145	1.02289	1.02318	
November 19 2018	252.32180	1.03753	1.03149	1.02293	1.02322	
November 20 2018	252.33157	1.03757	1.03153	1.02297	1.02326	
November 21 2018	252.34133	1.03761	1.03157	1.02301	1.02330	
November 22 2018	252.35110	1.03765	1.03161	1.02305	1.02334	
November 23 2018	252.36087	1.03769	1.03165	1.02309	1.02338	
November 24 2018	252.37063	1.03773	1.03169	1.02313	1.02342	
November 25 2018	252.38040	1.03777	1.03173	1.02317	1.02345	
November 26 2018	252.39017	1.03781	1.03177	1.02321	1.02349	
November 27 2018	252.39993	1.03785	1.03181	1.02325	1.02353	
November 28 2018	252.40970	1.03789	1.03185	1.02329	1.02357	
November 29 2018	252.41947	1.03793	1.03189	1.02333	1.02361	
November 30 2018	252.42923	1.03797	1.03193	1.02337	1.02365	
CPI-U (NSA) for:	July 2018	252.006	August 2018	252.146	September 2018	252.439

TREASURY INFLATION-PROTECTED SECURITIES (TIPS)
Ref CPI and Index Ratios for
November 2018

Security: Description: CUSIP Number: Dated Date: Original Issue Date: Additional Issue Date(s): Maturity Date: Ref CPI on Dated Date:			0-5/8% 5-Year TIPS Series X-2023 9128284H0 April 15, 2018 April 30, 2018 August 31, 2018 April 15, 2023 248.39153	0-3/4% 10-Year TIPS Series D-2028 912828Y38 July 15, 2018 July 31, 2018 September 28, 2018 July 15, 2028 251.01658		
Date	Ref CPI	Index Ratio	Index Ratio			
November 1 2018	252.14600	1.01512	1.00450			
November 2 2018	252.15577	1.01515	1.00454			
November 3 2018	252.16553	1.01519	1.00458			
November 4 2018	252.17530	1.01523	1.00462			
November 5 2018	252.18507	1.01527	1.00466			
November 6 2018	252.19483	1.01531	1.00469			
November 7 2018	252.20460	1.01535	1.00473			
November 8 2018	252.21437	1.01539	1.00477			
November 9 2018	252.22413	1.01543	1.00481			
November 10 2018	252.23390	1.01547	1.00485			
November 11 2018	252.24367	1.01551	1.00489			
November 12 2018	252.25343	1.01555	1.00493			
November 13 2018	252.26320	1.01559	1.00497			
November 14 2018	252.27297	1.01563	1.00501			
November 15 2018	252.28273	1.01567	1.00504			
November 16 2018	252.29250	1.01570	1.00508			
November 17 2018	252.30227	1.01574	1.00512			
November 18 2018	252.31203	1.01578	1.00516			
November 19 2018	252.32180	1.01582	1.00520			
November 20 2018	252.33157	1.01586	1.00524			
November 21 2018	252.34133	1.01590	1.00528			
November 22 2018	252.35110	1.01594	1.00532			
November 23 2018	252.36087	1.01598	1.00536			
November 24 2018	252.37063	1.01602	1.00539			
November 25 2018	252.38040	1.01606	1.00543			
November 26 2018	252.39017	1.01610	1.00547			
November 27 2018	252.39993	1.01614	1.00551			
November 28 2018	252.40970	1.01618	1.00555			
November 29 2018	252.41947	1.01622	1.00559			
November 30 2018	252.42923	1.01626	1.00563			
CPI-U (NSA) for:	July 2018	252.006	August 2018	252.146	September 2018	252.439