

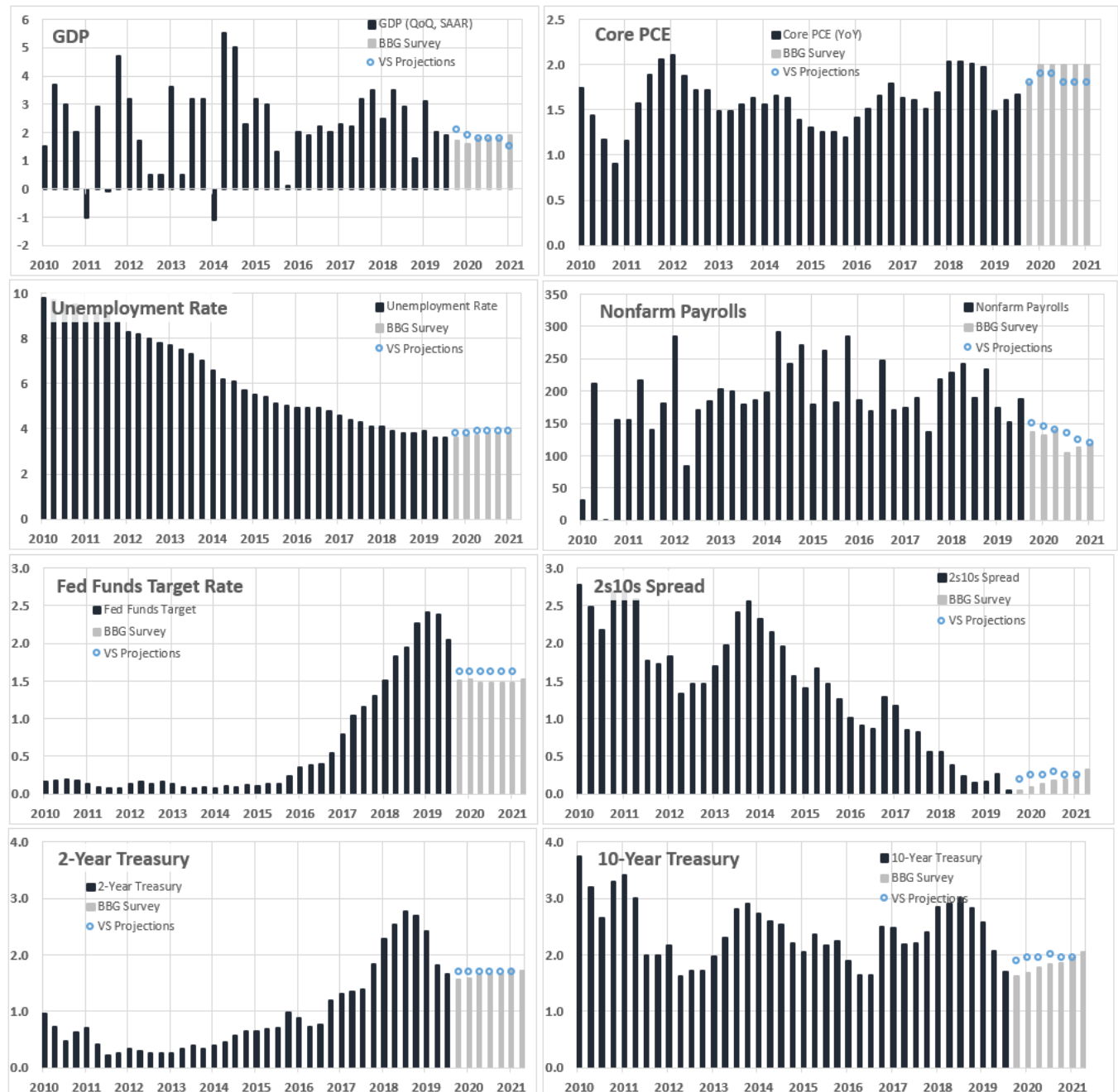
November 2019

Vining Sparks Projections

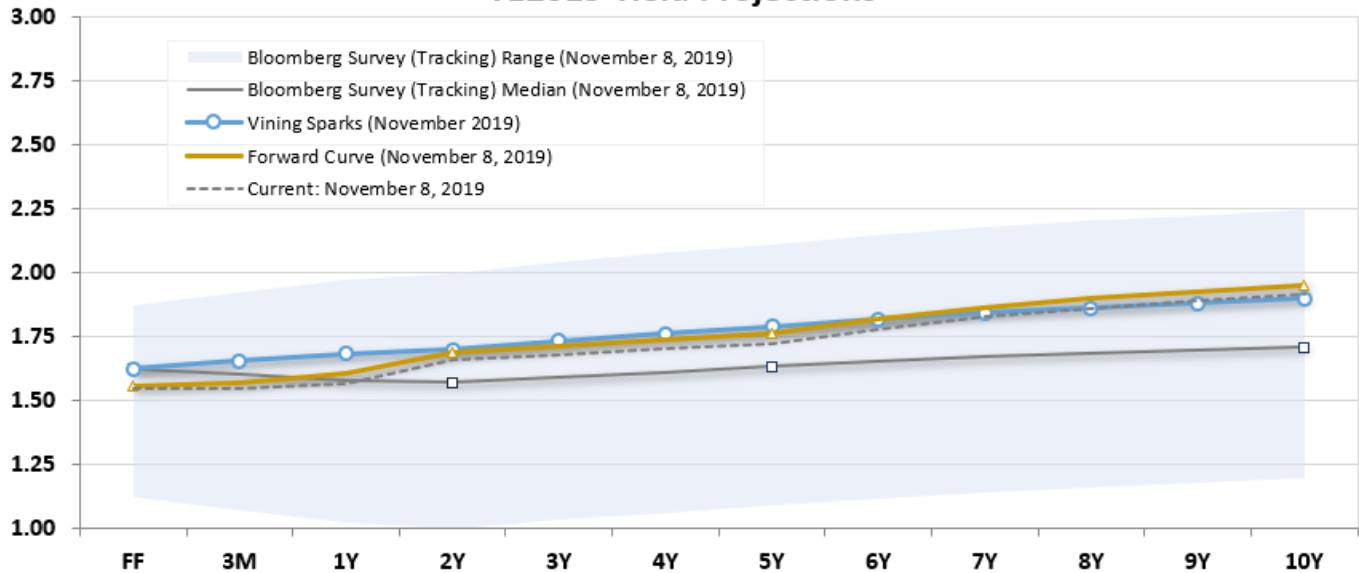
	Q419	Q120	Q220	Q320	Q420	Q121	2019	2020
GDP (QoQ, SAAR)	2.1	1.9	1.8	1.8	1.8	1.5	2.2	1.9
Headline CPI (YoY)	2.0	2.0	1.9	1.9	2.0	2.0	1.8	1.9
Core PCE (YoY)	1.8	1.9	1.9	1.8	1.8	1.8	1.8	1.8
Unemployment Rate	3.8	3.8	3.9	3.9	3.9	3.9	3.8	3.9
Nonfarm Payrolls (Monthly)	150	145	140	135	125	120	156	135

	Q419	Q120	Q220	Q320	Q420	Q121	Q221	Q321
Fed Funds Target	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63
2-Year Treasury Yield	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
10-Year Treasury Yield	1.90	1.95	1.95	2.00	1.95	1.95	1.95	1.95
30-Year Treasury Yield	2.43	2.47	2.42	2.45	2.32	2.32	2.32	2.32
Prime Rate	4.75	4.75	4.75	4.75	4.75	4.75	4.75	4.75
30-Year Mortgage Rate	3.80	3.80	3.75	3.75	3.65	3.65	3.65	3.65

Sources: ¹ Bloomberg Survey of Economists, ² Economists' Real-Time Tracking Updates, Vining Sparks



YE2019 Yield Projections



Maturities without published projections interpolated based on historical spread differentials

Bloomberg Survey Tracking Index and Vining Projections

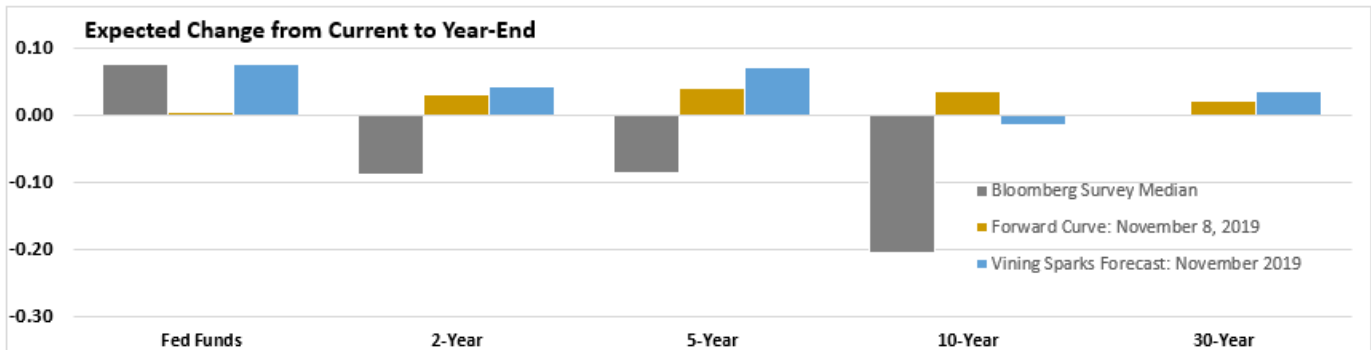
Interest Rate Projections

November 8, 2019

	Fed Funds	3M T-Bill	1-Year	2-Year	3-Year	5-Year	7-Year	10-Year	30-Year
Bloomberg Survey - Tracking: November 8, 2019									
Low Forecast	1.13			1.00		1.09		1.20	
Median Forecast	1.63			1.57		1.63		1.71	
High Forecast	1.88			2.00		2.11		2.25	
Forward Curve: November 8, 2019	1.56	1.57	1.61	1.69	1.71	1.76	1.87	1.95	2.42
Vining Sparks Forecast: November 2019	1.63	1.66	1.69	1.70	1.73	1.79	1.84	1.90	2.43
Current: November 8, 2019	1.55	1.55	1.56	1.66	1.68	1.72	1.83	1.92	2.40

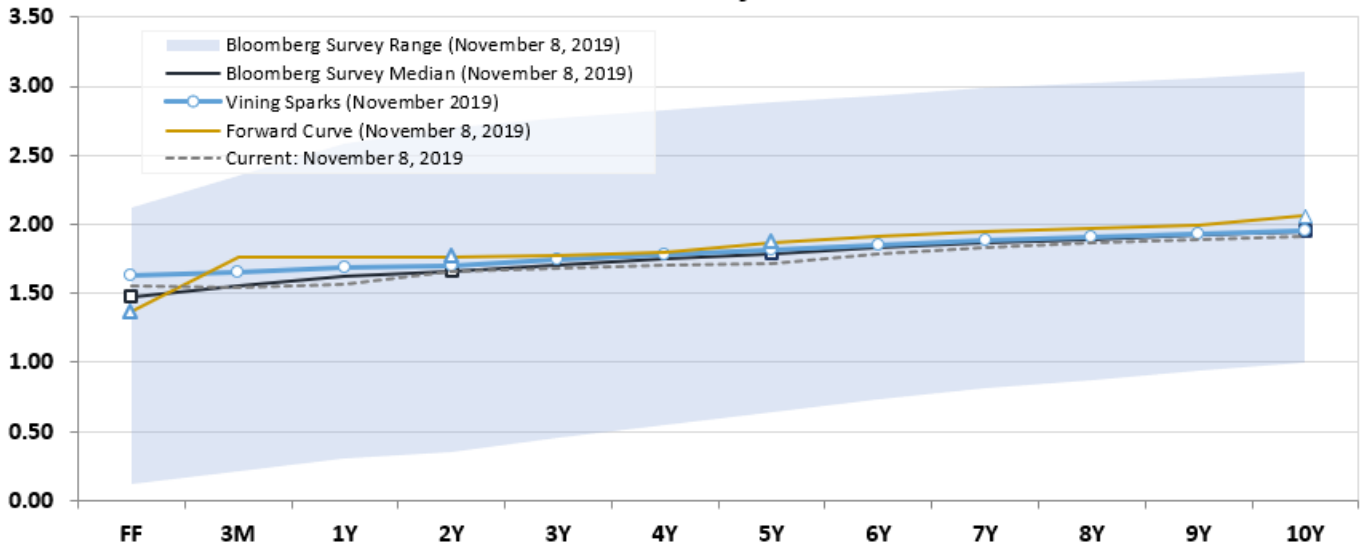
Projected Δ by Year-End

	Fed Funds	3M T-Bill	1-Year	2-Year	3-Year	5-Year	7-Year	10-Year	30-Year
Bloomberg Survey - Tracking: November 8, 2019									
Low Forecast	-0.43			-0.66		-0.63		-0.72	
Median Forecast	0.08			-0.09		-0.09		-0.21	
High Forecast	0.33			0.34		0.39		0.33	
Forward Curve: November 8, 2019	0.00	0.02	0.05	0.03	0.03	0.04	0.03	0.04	0.02
Vining Sparks Forecast: November 2019	0.08	0.11	0.12	0.04	0.05	0.07	0.01	-0.02	0.04



Sources: Bloomberg Survey of Economists Real-Time Tracking Index, Vining Sparks

YE2020 Yield Projections



Maturities without published projections interpolated based on historical spread differentials

Bloomberg Survey Tracking Index and Vining Projections

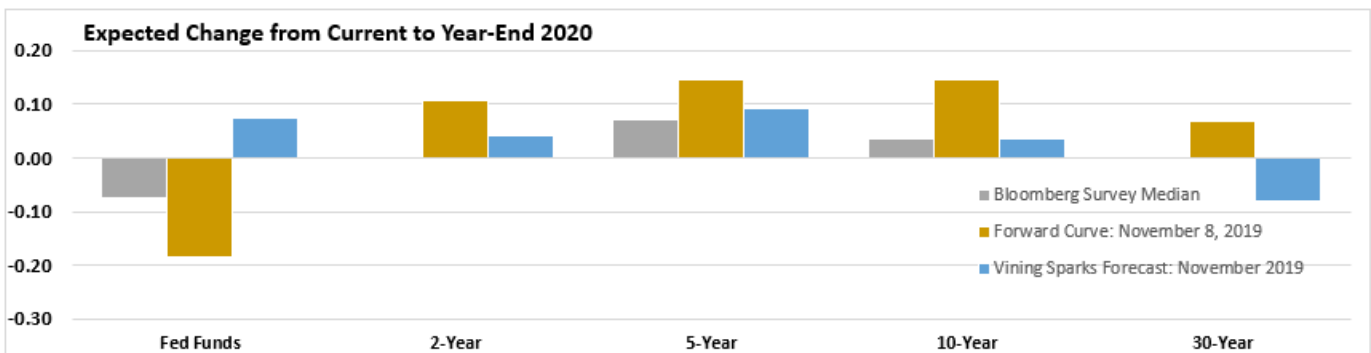
Interest Rate Projections

November 8, 2019

	Fed Funds	3M T-Bill	1-Year	2-Year	3-Year	5-Year	7-Year	10-Year	30-Year
Bloomberg Survey - Tracking: November 8, 2019									
Low Forecast	0.13			0.35		0.64		1.00	
Median Forecast	1.48			1.66		1.79		1.95	
High Forecast	2.13			2.70		2.88		3.10	
Forward Curve: November 8, 2019	1.37	1.76	1.77	1.77	1.78	1.87	1.94	2.06	2.46
Vining Sparks Forecast: November 2019	1.63	1.66	1.69	1.70	1.74	1.81	1.88	1.95	2.32
Current: November 8, 2019	1.55	1.55	1.56	1.66	1.68	1.72	1.83	1.92	2.40

Projected Δ by Year-End 2020

	Fed Funds	3M T-Bill	1-Year	2-Year	3-Year	5-Year	7-Year	10-Year	30-Year
Bloomberg Survey - Tracking: November 8, 2019									
Low Forecast	-1.43			-1.31		-1.08		-0.92	
Median Forecast	-0.08			0.00		0.07		0.03	
High Forecast	0.58			1.04		1.16		1.18	
Forward Curve: November 8, 2019	-0.19	0.22	0.20	0.11	0.10	0.15	0.11	0.15	0.07
Vining Sparks Forecast: November 2019	0.08	0.11	0.12	0.04	0.06	0.09	0.05	0.03	-0.08



Sources: Bloomberg Survey of Economists Real-Time Tracking Index, Vining Sparks

November Survey

		Q419	Q120	Q220	Q320	Q420	Q121	2019	2020
GDP									
Vining Sparks Projections	11/8/2019	2.1	1.9	1.8	1.8	1.8	1.5	2.2	1.9
November Survey	11/8/2019	1.7	1.7	1.9	1.8	1.8	2.0	2.3	1.8
October Survey	10/11/2019	1.7	1.6	1.8	1.8	1.8	1.9	2.3	1.7
Personal Consumption									
November Survey	11/8/2019	2.3	2.0	2.0	2.1	2.0	2.0	2.6	2.3
October Survey	10/11/2019	2.1	1.9	2.0	2.0	2.0	2.0	2.6	2.2
Private Investment									
November Survey	11/8/2019	0.6	1.4	1.7	2.3	2.3	3.0	2.2	0.4
October Survey	10/11/2019	0.9	1.6	1.6	2.3	2.6	3.0	2.3	0.7
Government Expenditures									
November Survey	11/8/2019	1.5	1.5	1.6	1.4	1.3	1.3	2.3	1.8
October Survey	10/11/2019	1.5	1.7	1.6	1.3	1.1	1.0	2.2	1.7
Headline CPI									
Vining Sparks Projections	11/8/2019	2.0	2.0	1.9	1.9	2.0	2.0	1.8	1.9
November Survey	11/8/2019	2.0	2.2	2.0	2.0	2.0	2.1	1.8	2.0
October Survey	10/11/2019	2.0	2.2	2.0	2.1	2.0	2.1	1.8	2.1
Core PCE									
Vining Sparks Projections	11/8/2019	1.8	1.9	1.9	1.8	1.8	1.8	1.8	1.8
November Survey	11/8/2019	1.8	2.0	2.0	2.0	2.0	2.0	1.7	2.0
October Survey	10/11/2019	1.8	2.1	2.1	2.0	2.0	2.0	1.7	2.1
Unemployment Rate									
Vining Sparks Projections	11/8/2019	3.8	3.8	3.9	3.9	3.9	3.9	3.8	3.9
November Survey	11/8/2019	3.6	3.6	3.7	3.8	3.7	3.8	3.7	3.7
October Survey	10/11/2019	3.6	3.7	3.7	3.8	3.8	3.8	3.7	3.7
Nonfarm Payroll (Monthly)									
Vining Sparks Projections	11/8/2019	150	145	140	135	125	120	156	135
November Survey	11/8/2019	150	140	140	118	120	110	164	126
October Survey	10/11/2019	137	130	140	107	115	121	157	121
New Home Sales									
November Survey	11/8/2019	680	682	680	674	670	685	675	677
October Survey	10/11/2019	655	658	660	662	659	663	664	663
Existing Home Sales									
November Survey	11/8/2019	5,400	5,400	5,400	5,400	5,400	5,400	5,300	5,400
October Survey	10/11/2019	5,400	5,400	5,400	5,400	5,400	5,400	5,300	5,400
Fed Funds Target¹									
Vining Sparks Projections	11/8/2019	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63
November Survey	11/8/2019	1.63	1.53	1.48	1.48	1.48	1.48	1.53	1.53
October Survey	10/11/2019	1.63	1.48	1.43	1.38	1.38	1.43	1.48	1.48
2-Year Treasury¹									
Vining Sparks Projections	11/8/2019	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
November Survey	11/8/2019	1.57	1.59	1.63	1.65	1.66	1.72	1.72	1.77
October Survey	10/11/2019	1.52	1.52	1.54	1.57	1.60	1.64	1.72	1.78
10-Year Treasury¹									
Vining Sparks Projections	11/8/2019	1.90	1.95	1.95	2.00	1.95	1.95	1.95	1.95
November Survey	11/8/2019	1.71	1.78	1.86	1.92	1.95	2.03	2.07	2.11
October Survey	10/11/2019	1.62	1.68	1.77	1.83	1.86	1.95	2.04	2.12

*Sources: Bloomberg Survey of Economists, ¹ Economists' Real-Time Updates, Vining Sparks

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