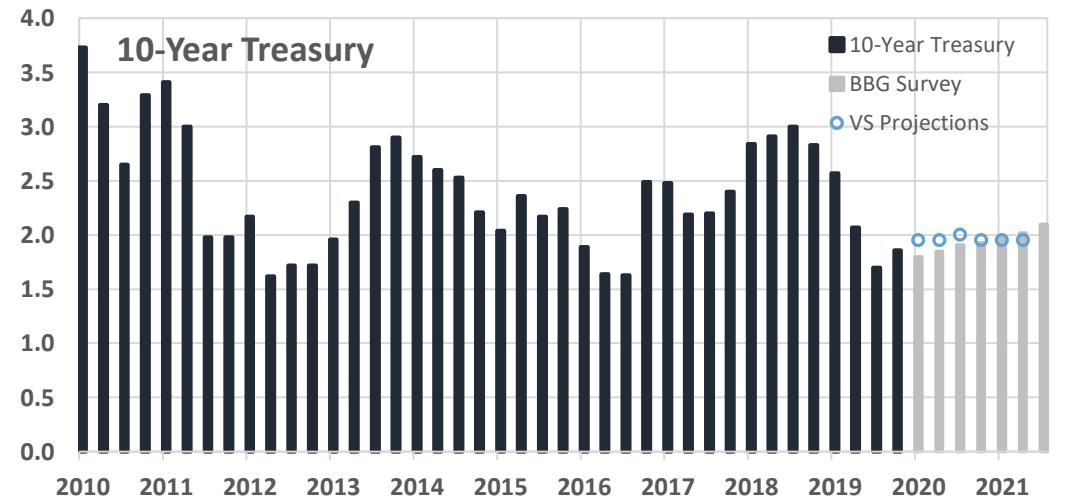
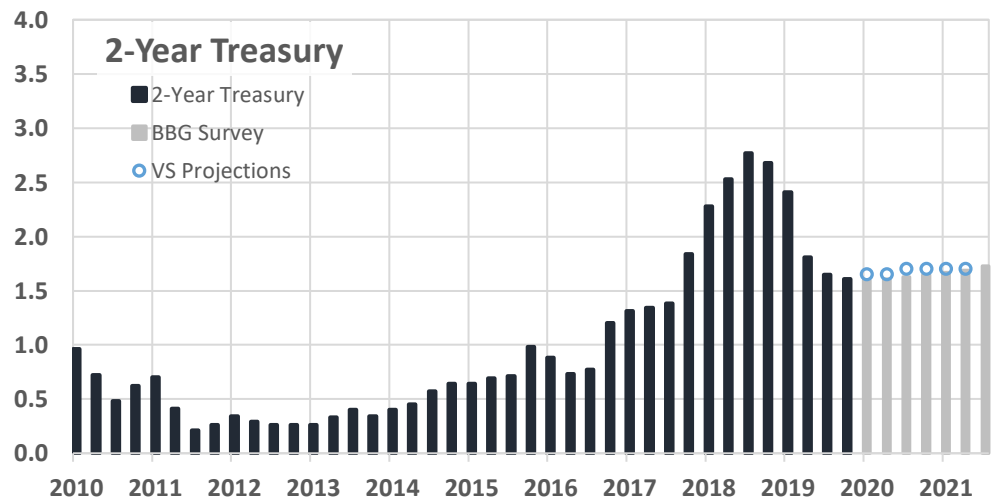
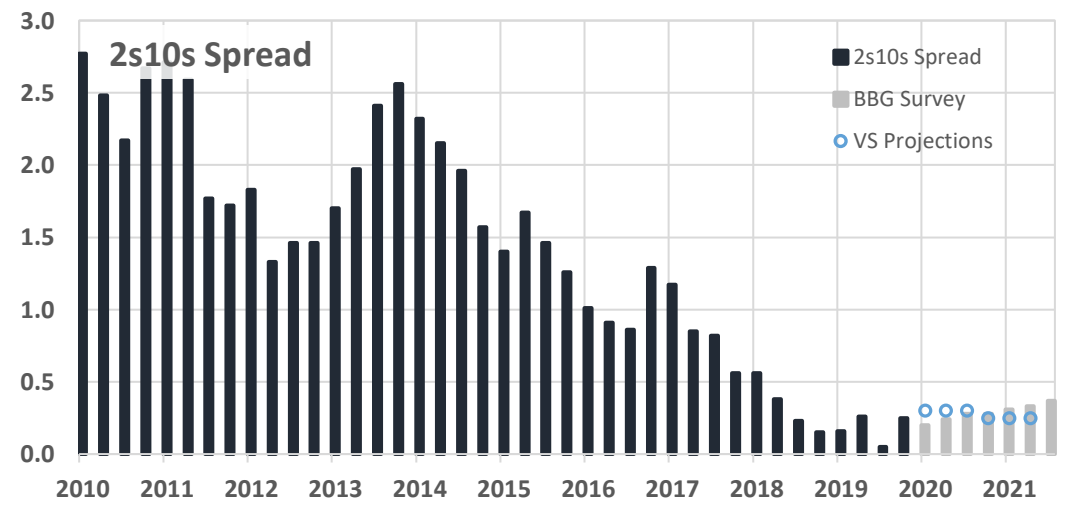
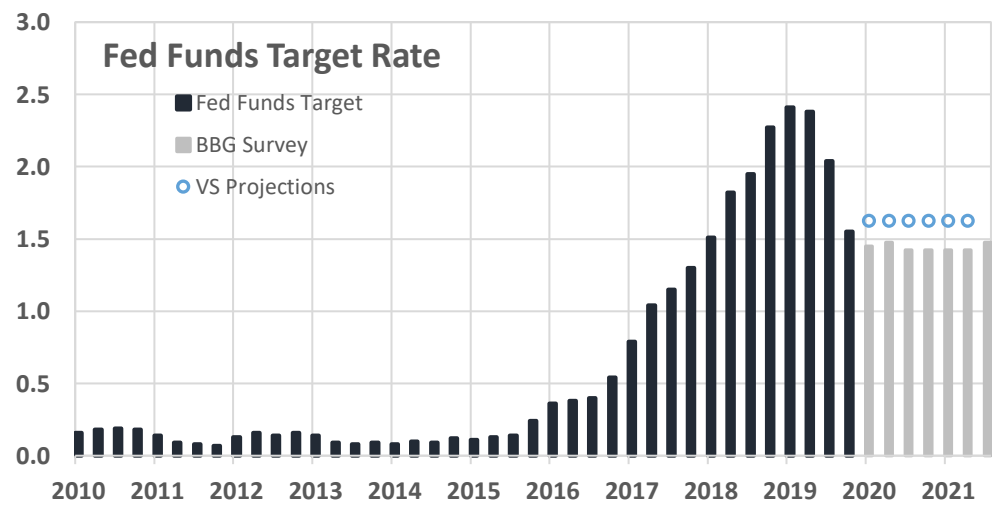
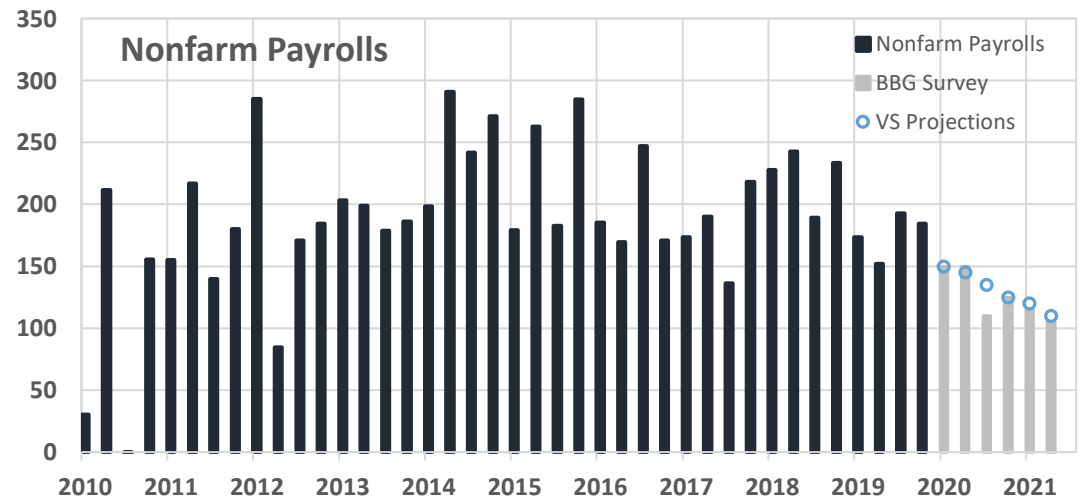
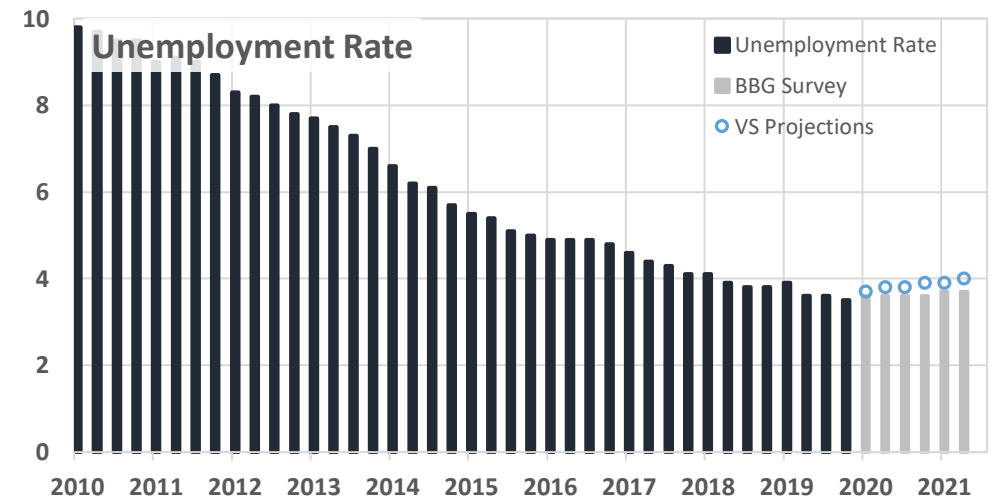
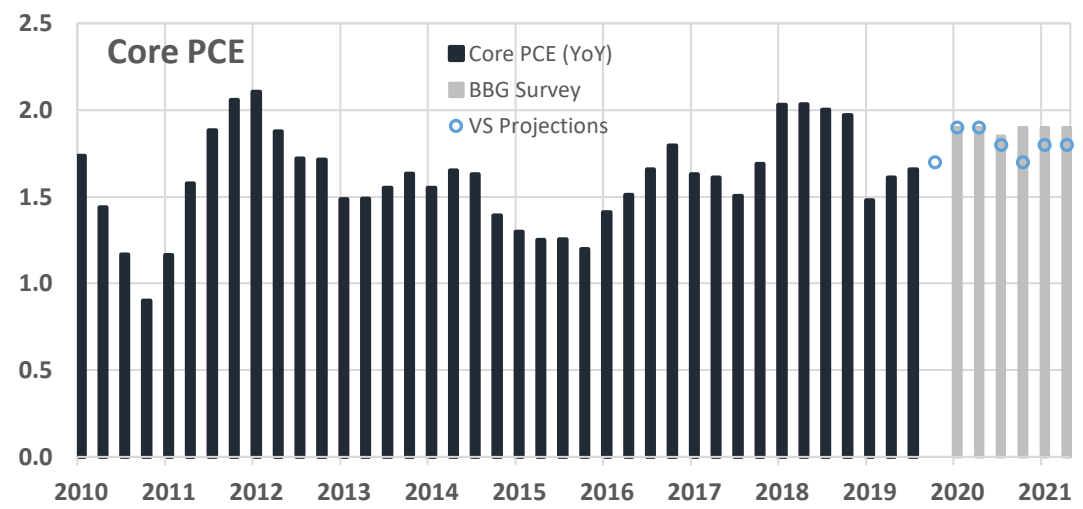
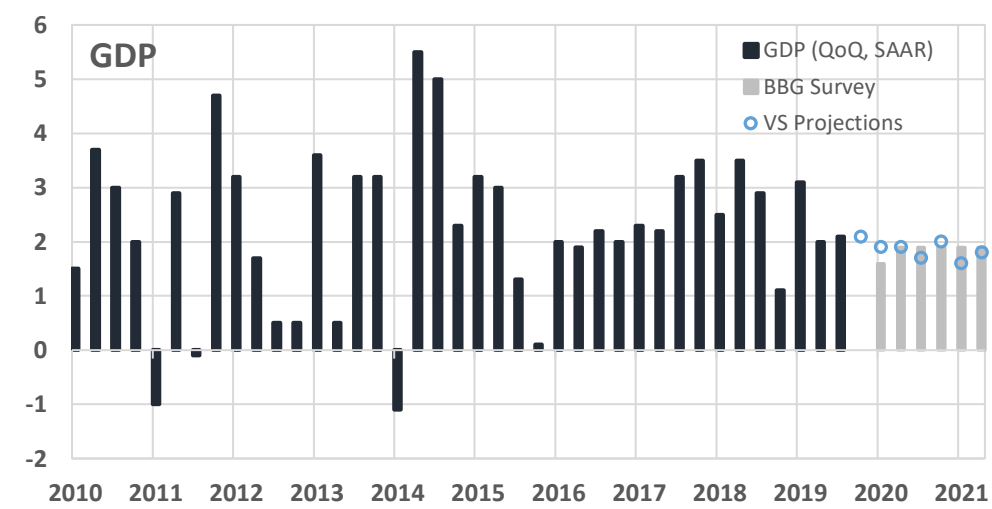


Vining Sparks Economic and Interest Rate Projections

January 2020

	Q120	Q220	Q320	Q420	Q121	Q221	2020	2021
GDP (QoQ, SAAR)	1.9	1.9	1.7	2.0	1.6	1.8	1.9	1.7
Headline CPI (YoY)	2.0	1.9	1.9	2.0	2.0	1.9	2.0	1.8
Core PCE (YoY)	1.9	1.9	1.8	1.7	1.8	1.8	1.7	1.7
Unemployment Rate	3.7	3.8	3.8	3.9	3.9	4.0	3.8	4.2
Nonfarm Payrolls (Monthly)	150	145	135	125	120	110	140	102

	Q120	Q220	Q320	Q420	Q121	Q221	Q321	Q421
Fed Funds Target	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63
2-Year Treasury Yield	1.65	1.65	1.70	1.70	1.70	1.70	1.70	1.70
10-Year Treasury Yield	1.95	1.95	2.00	1.95	1.95	1.95	1.95	1.95
30-Year Treasury Yield	2.55	2.50	2.50	2.37	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	3.85	3.80	3.80	3.70	3.65	3.65	3.65	3.65



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

Bloomberg Survey of Economists

January Survey

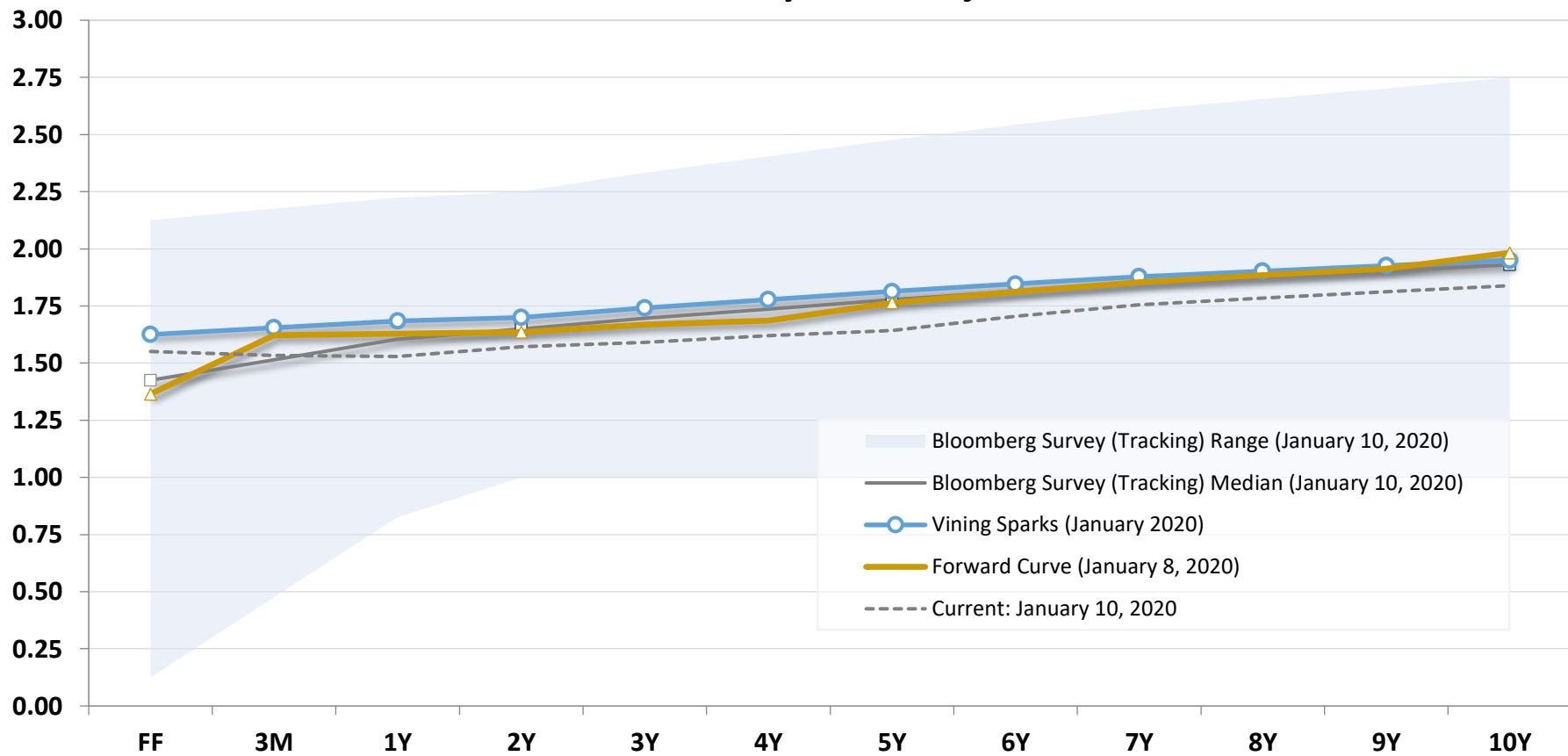
		Q120	Q220	Q320	Q420	Q121	Q221	2020	2021
GDP									
Vining Sparks Projections	1/10/2020	1.9	1.9	1.7	2.0	1.6	1.8	1.9	1.7
January Survey	1/10/2020	1.6	2.0	1.9	1.9	1.9	1.9	1.8	1.9
December Survey	12/13/2019	1.7	1.9	1.8	1.8	1.9	1.9	1.8	1.8
Personal Consumption									
January Survey	1/10/2020	2.0	2.2	2.0	2.0	2.0	2.0	2.4	2.0
December Survey	12/13/2019	2.0	2.0	2.0	2.0	2.0	2.0	2.3	2.0
Private Investment									
January Survey	1/10/2020	1.1	1.8	2.3	2.5	2.7	2.7	0.5	2.4
December Survey	12/13/2019	1.2	1.5	2.1	2.4	2.7	2.6	0.6	2.3
Government Expenditures									
January Survey	1/10/2020	1.6	1.6	1.3	1.2	1.2	1.2	1.7	1.2
December Survey	12/13/2019	1.6	1.5	1.3	1.1	1.1	1.0	1.7	1.1
Headline CPI									
Vining Sparks Projections	1/10/2020	2.0	1.9	1.9	2.0	2.0	1.9	2.0	1.8
January Survey	1/10/2020	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.0
December Survey	12/13/2019	2.2	2.1	2.1	2.0	2.1	2.1	2.1	2.1
Core PCE									
Vining Sparks Projections	1/10/2020	1.9	1.9	1.8	1.7	1.8	1.8	1.7	1.7
January Survey	1/10/2020	1.9	1.9	1.8	1.9	1.9	1.9	1.9	1.9
December Survey	12/13/2019	1.9	1.9	1.9	2.0	1.9	2.0	1.9	2.0
Unemployment Rate									
Vining Sparks Projections	1/10/2020	3.7	3.8	3.8	3.9	3.9	4.0	3.8	4.2
January Survey	1/10/2020	3.6	3.6	3.6	3.6	3.7	3.7	3.6	3.7
December Survey	12/13/2019	3.6	3.6	3.6	3.7	3.7	3.7	3.6	3.7
Nonfarm Payroll (Monthly)									
Vining Sparks Projections	1/10/2020	150	145	135	125	120	110	140	102
January Survey	1/10/2020	152	153	113	127	115	105	135	108
December Survey	12/13/2019	150	152	118	125	113	110	132	114
New Home Sales									
January Survey	1/10/2020	711	710	708	710	708	707	712	707
December Survey	12/13/2019	705	705	704	701	703	694	704	702
Existing Home Sales									
January Survey	1/10/2020	5,400	5,400	5,400	5,400	5,400	5,400	5,400	5,400
December Survey	12/13/2019	5,400	5,400	5,400	5,400	5,400	5,400	5,400	5,400
Fed Funds Target¹									
Vining Sparks Projections	1/10/2020	1.63	1.63	1.63	1.63	1.63	1.63	1.63	1.63
January Survey	1/10/2020	1.58	1.48	1.43	1.43	1.43	1.43	1.48	1.53
December Survey	12/13/2019	1.53	1.48	1.43	1.43	1.43	1.43	1.48	1.53
2-Year Treasury¹									
Vining Sparks Projections	1/10/2020	1.65	1.65	1.70	1.70	1.70	1.70	1.70	1.70
January Survey	1/10/2020	1.60	1.61	1.63	1.65	1.67	1.69	1.73	1.79
December Survey	12/13/2019	1.60	1.61	1.62	1.64	1.66	1.68	1.72	1.78
10-Year Treasury¹									
Vining Sparks Projections	1/10/2020	1.95	1.95	2.00	1.95	1.95	1.95	1.95	1.95
January Survey	1/10/2020	1.80	1.85	1.91	1.93	1.98	2.02	2.10	2.15
December Survey	12/13/2019	1.82	1.86	1.91	1.93	1.97	2.01	2.09	2.15

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

Year-End Rate Projections

January Survey

YE2020 Treasury Yield Projections



Maturities without published projections interpolated based on historical spread differentials

Bloomberg Survey Tracking Index and Vining Projections

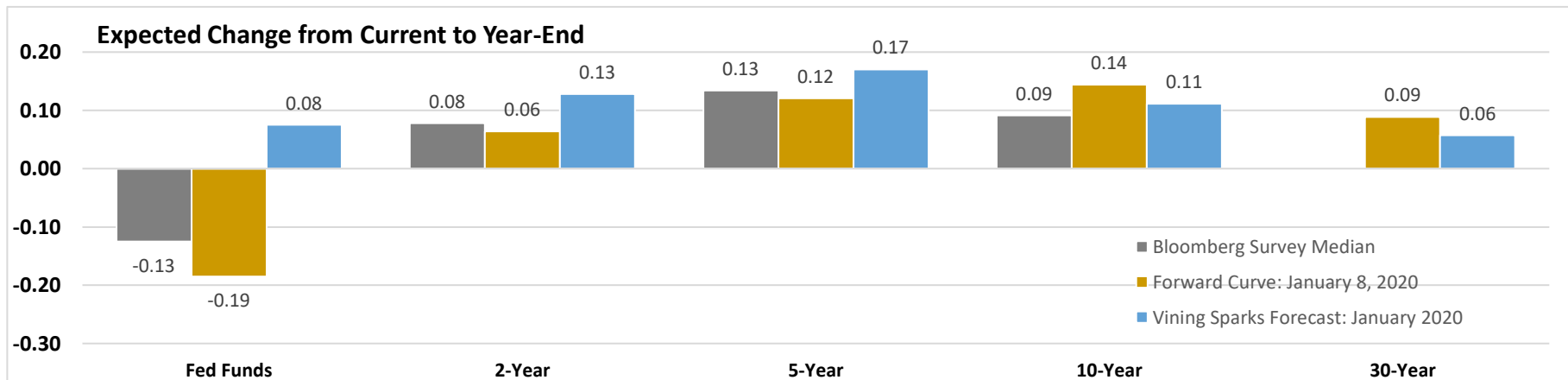
Interest Rate Projections

January 8, 2020

	Fed Funds	3M T-Bill	1-Year	2-Year	3-Year	5-Year	7-Year	10-Year	30-Year
Bloomberg Survey - Tracking: January 10, 2020									
Low Forecast	0.13			1.00		1.00		1.00	
Median Forecast	1.43			1.65		1.78		1.93	
High Forecast	2.13			2.25		2.48		2.75	
Forward Curve: January 8, 2020	1.37	1.62	1.63	1.64	1.67	1.76	1.85	1.98	2.40
Vining Sparks Forecast: January 2020	1.63	1.66	1.69	1.70	1.74	1.81	1.88	1.95	2.37
Current: January 10, 2020	1.55	1.53	1.53	1.57	1.59	1.64	1.75	1.84	2.31

Projected Δ by Year-End

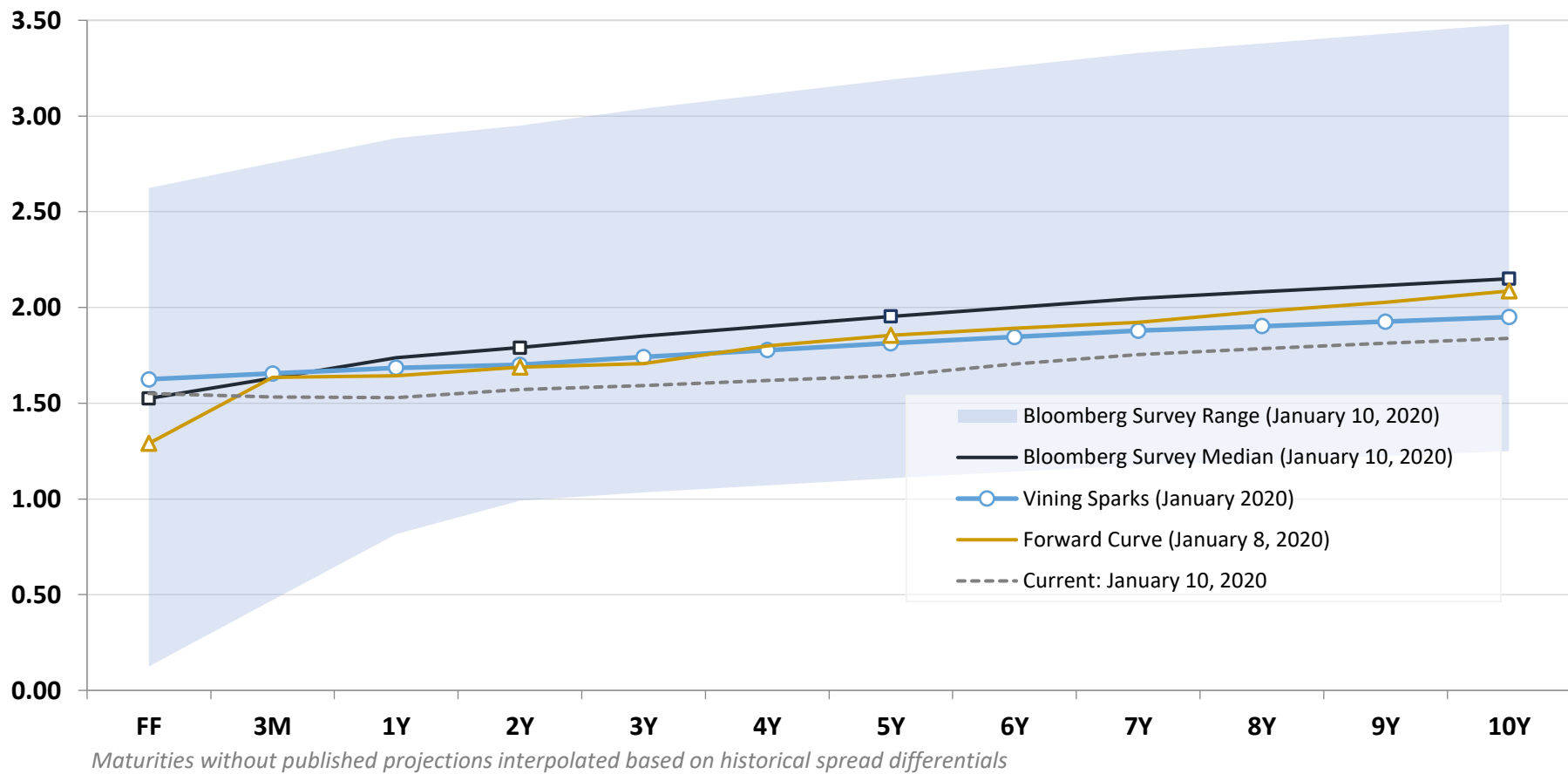
	Fed Funds	3M T-Bill	1-Year	2-Year	3-Year	5-Year	7-Year	10-Year	30-Year
Bloomberg Survey - Tracking: January 10, 2020									
Low Forecast	-1.43			-0.57		-0.64		-0.84	
Median Forecast	-0.13			0.08		0.13		0.09	
High Forecast	0.58			0.68		0.83		0.91	
Forward Curve: January 8, 2020	-0.19	0.09	0.10	0.06	0.08	0.12	0.10	0.14	0.09
Vining Sparks Forecast: January 2020	0.08	0.12	0.16	0.13	0.15	0.17	0.12	0.11	0.06



Year-End Rate Projections

January Survey

YE2021 Treasury Yield Projections



Bloomberg Survey Tracking Index and Vining Projections

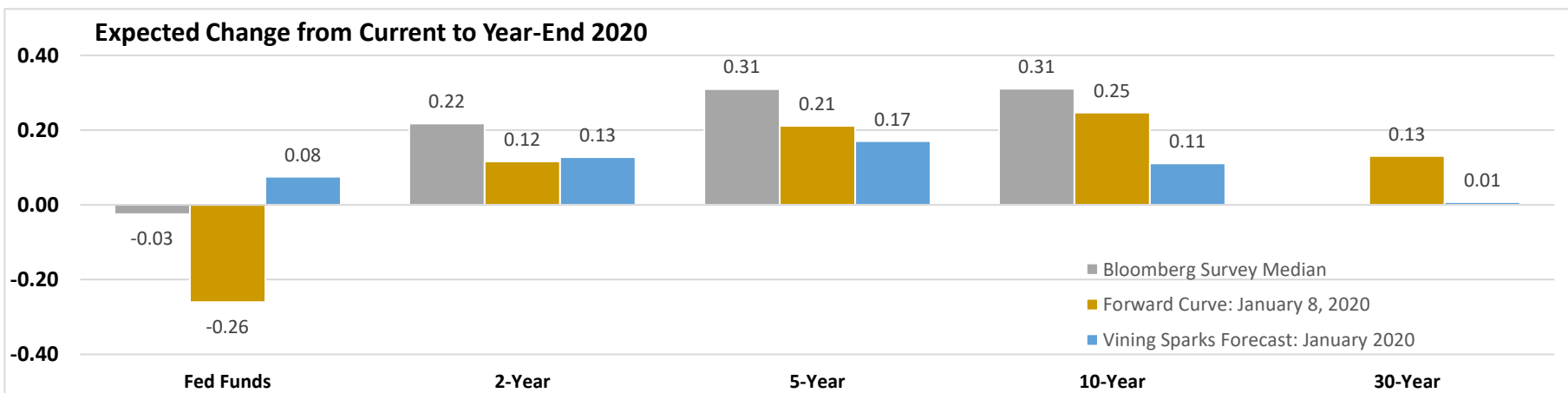
Interest Rate Projections

January 8, 2020

	Fed Funds	3M T-Bill	1-Year	2-Year	3-Year	5-Year	7-Year	10-Year	30-Year
Bloomberg Survey - Tracking: January 10, 2020									
Low Forecast	0.13			0.99		1.11		1.25	
Median Forecast	1.53			1.79		1.95		2.15	
High Forecast	2.63			2.95		3.19		3.48	
Forward Curve: January 8, 2020	1.29	1.64	1.64	1.69	1.71	1.85	1.92	2.09	2.44
Vining Sparks Forecast: January 2020	1.63	1.66	1.69	1.70	1.74	1.81	1.88	1.95	2.32
Current: January 10, 2020	1.55	1.53	1.53	1.57	1.59	1.64	1.75	1.84	2.31

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: January 10, 2020									
Low Forecast	-1.43			-0.58		-0.54		-0.59	
Median Forecast	-0.03			0.22		0.31		0.31	
High Forecast	1.08			1.38		1.55		1.64	
Forward Curve: January 8, 2020	-0.26	0.10	0.11	0.12	0.12	0.21	0.17	0.25	0.13
Vining Sparks Forecast: January 2020	0.08	0.12	0.16	0.13	0.15	0.17	0.12	0.11	0.01



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

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