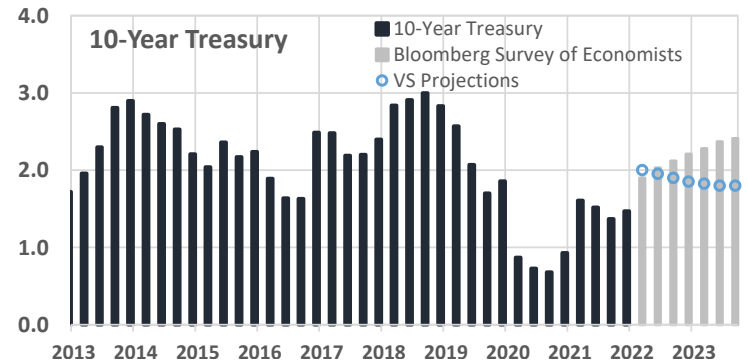
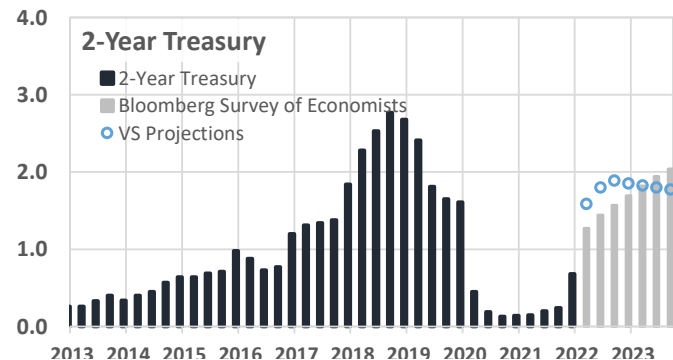
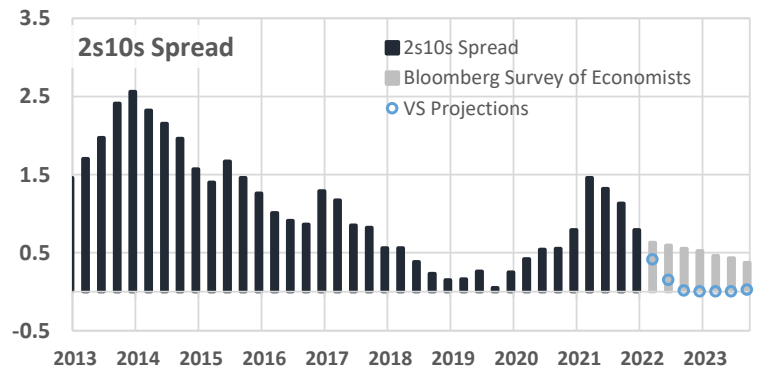
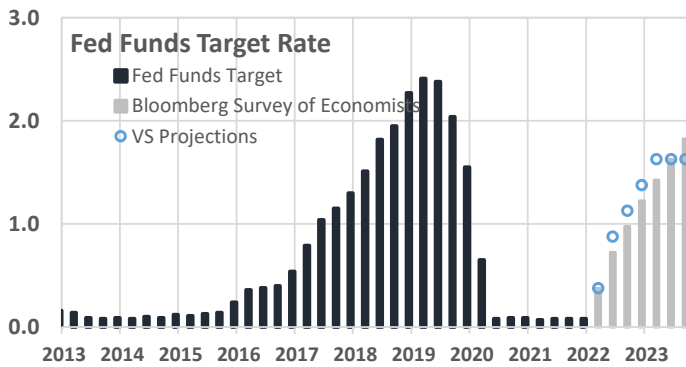
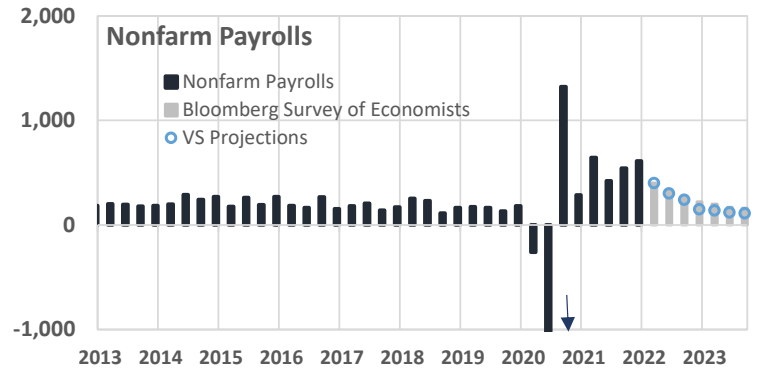
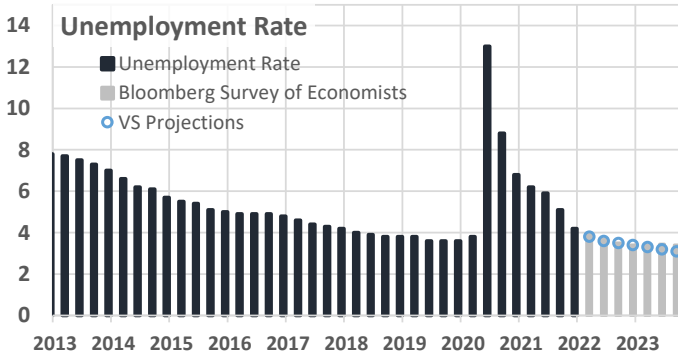
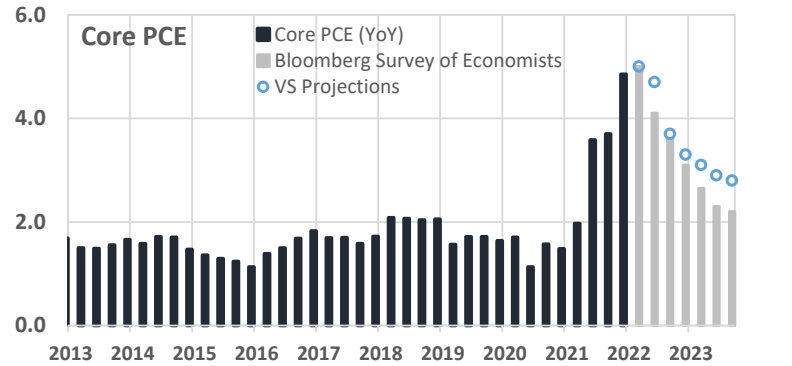
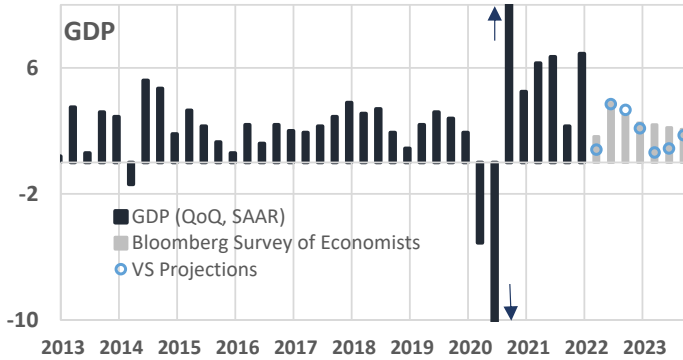


Vining Sparks Economic and Interest Rate Projections

February 2022

	Q122	Q222	Q322	Q422	Q123	Q223	2022	2023
GDP (QoQ, SAAR)	0.8	3.7	3.3	2.1	0.6	0.9	2.5	1.0
Headline CPI (YoY)	7.0	5.0	4.0	3.5	3.3	3.1	4.9	3.1
Core PCE (YoY)	5.0	4.7	3.7	3.3	3.1	2.9	4.2	2.9
Unemployment Rate	3.8	3.6	3.5	3.4	3.3	3.2	3.5	3.0
Nonfarm Payrolls (Monthly)	400	300	240	150	140	120	273	118

	Q122	Q222	Q322	Q422	Q123	Q223	Q323	Q423
Fed Funds Target	0.38	0.88	1.13	1.38	1.63	1.63	1.63	1.63
2-Year Treasury Yield	1.59	1.80	1.89	1.85	1.83	1.80	1.78	1.73
10-Year Treasury Yield	2.00	1.95	1.90	1.85	1.83	1.80	1.80	1.80
30-Year Treasury Yield	2.37	2.30	2.22	2.15	2.11	2.06	2.05	2.06
Prime Rate	3.50	4.00	4.25	4.50	4.75	4.75	4.75	4.75
30-Year Mortgage Rate	3.55	3.52	3.50	3.50	3.53	3.50	3.50	3.50



Bloomberg Survey of Economists

February BBG Survey

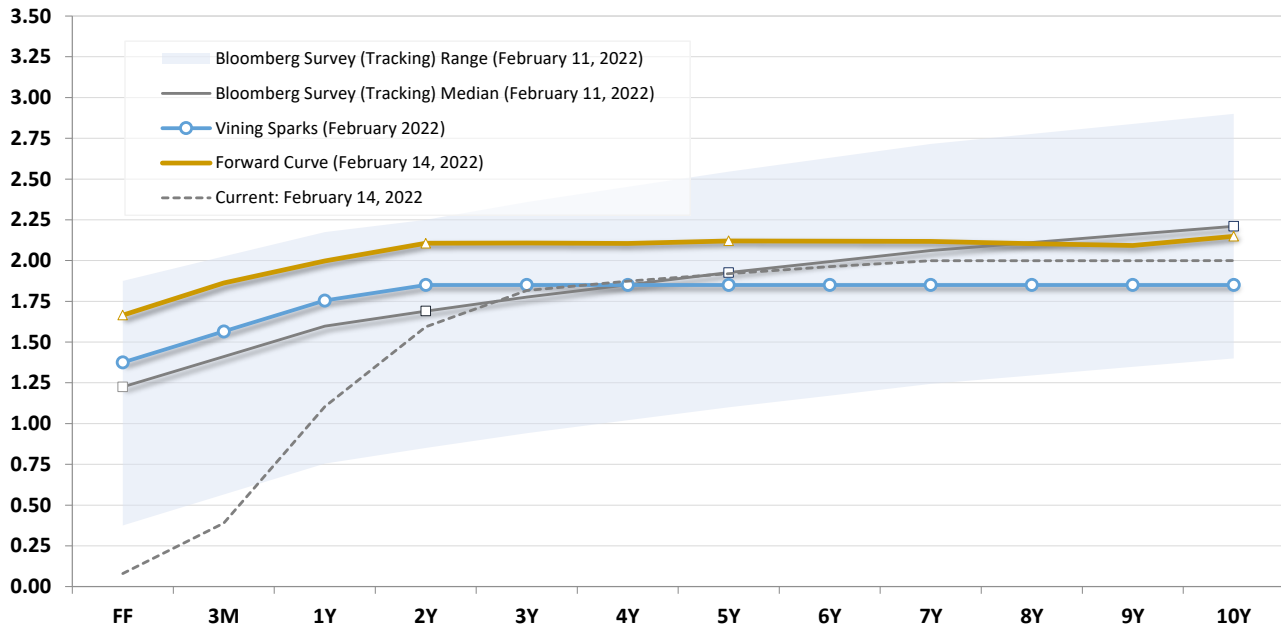
		Q122	Q222	Q322	Q422	Q123	Q223	2022	2023
GDP									
Vining Sparks Projections	2/14/2022	0.8	3.7	3.3	2.1	0.6	0.9	2.5	1.0
February BBG Survey	2/11/2022	1.5	3.9	3.0	2.5	2.3	2.2	3.7	2.5
January BBG Survey	1/14/2022	3.0	3.7	3.2	2.5	2.4	2.3	3.8	2.5
Personal Consumption									
February BBG Survey	2/11/2022	1.8	3.6	2.9	2.4	2.3	2.2	3.4	2.5
January BBG Survey	1/14/2022	2.5	3.0	2.8	2.3	2.3	2.1	3.6	2.5
Private Investment									
February BBG Survey	2/11/2022	3.6	5.7	5.0	4.5	3.2	3.5	6.6	3.9
January BBG Survey	1/14/2022	5.8	5.6	5.0	4.5	3.3	3.5	6.1	3.8
Government Expenditures									
February BBG Survey	2/11/2022	1.5	1.5	1.7	1.5	1.5	1.4	0.5	1.5
January BBG Survey	1/14/2022	1.6	1.8	1.9	1.9	1.2	1.1	1.2	1.5
Headline CPI									
Vining Sparks Projections	2/14/2022	7.0	5.0	4.0	3.5	3.3	3.1	4.9	3.1
February BBG Survey	2/11/2022	7.0	5.7	4.6	3.3	2.7	2.5	5.0	2.5
January BBG Survey	1/14/2022	6.7	5.2	4.1	3.1	2.6	2.4	4.6	2.4
Core PCE									
Vining Sparks Projections	2/14/2022	5.0	4.7	3.7	3.3	3.1	2.9	4.2	2.9
February BBG Survey	2/11/2022	5.0	4.1	3.7	3.0	2.6	2.3	3.9	2.3
January BBG Survey	1/14/2022	4.7	3.9	3.3	2.7	2.4	2.2	3.6	2.3
Unemployment Rate									
Vining Sparks Projections	2/14/2022	3.8	3.6	3.5	3.4	3.3	3.2	3.5	3.0
February BBG Survey	2/11/2022	3.9	3.7	3.5	3.4	3.4	3.4	3.6	3.4
January BBG Survey	1/14/2022	3.8	3.7	3.5	3.5	3.5	3.5	3.7	3.5
Nonfarm Payroll (Monthly)									
Vining Sparks Projections	2/14/2022	400	300	240	150	140	120	273	118
February BBG Survey	2/11/2022	400	328	260	219	200	168	307	170
January BBG Survey	1/14/2022	337	310	260	211	200	171	298	173
New Home Sales									
February BBG Survey	2/11/2022	796	803	799	809	816	803	802	842
January BBG Survey	1/14/2022	803	803	806	809	826	818	808	829
Existing Home Sales									
February BBG Survey	2/11/2022	6,200	6,200	6,100	6,000	6,000	6,000	6,100	6,000
January BBG Survey	1/14/2022	6,200	6,200	6,200	6,100	6,100	6,100	6,200	6,100
Fed Funds Target¹									
Vining Sparks Projections	2/14/2022	0.38	0.88	1.13	1.38	1.63	1.63	1.63	1.63
February BBG Survey	2/11/2022	0.38	0.73	0.98	1.23	1.43	1.63	1.83	1.98
January BBG Survey	1/14/2022	0.33	0.58	0.83	1.03	1.23	1.43	1.53	1.68
2-Year Treasury¹									
Vining Sparks Projections	2/14/2022	1.59	1.80	1.89	1.85	1.83	1.80	1.78	1.73
February BBG Survey	2/11/2022	1.27	1.44	1.57	1.69	1.82	1.94	2.04	2.12
January BBG Survey	1/14/2022	0.98	1.13	1.29	1.43	1.56	1.68	1.79	1.88
10-Year Treasury¹									
Vining Sparks Projections	2/14/2022	2.00	1.95	1.90	1.85	1.83	1.80	1.80	1.80
February BBG Survey	2/11/2022	1.90	2.03	2.12	2.21	2.28	2.37	2.41	2.47
January BBG Survey	1/14/2022	1.84	1.97	2.06	2.15	2.21	2.30	2.36	2.44

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

Year-End Rate Projections

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YE2022 Treasury Yield Projections



Maturities without published projections interpolated based on historical spread differentials

Bloomberg Survey Tracking Index and Vining Projections

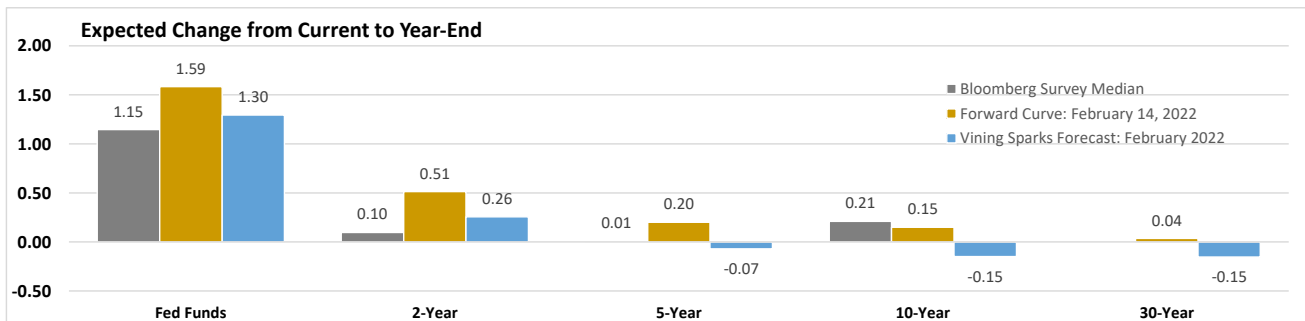
Interest Rate Projections

February 14, 2022

	Fed Funds	3M T-Bill	1-Year	2-Year	3-Year	5-Year	7-Year	10-Year	30-Year
Bloomberg Survey - Tracking: February 11, 2022									
Low Forecast	0.38			0.85		1.10		1.40	
Median Forecast	1.23			1.69		1.93		2.21	
High Forecast	1.88			2.25		2.54		2.90	
Forward Curve: February 14, 2022	1.67	1.86	2.00	2.11	2.11	2.12	2.12	2.15	2.34
Vining Sparks Forecast: February 2022	1.38	1.57	1.76	1.85	1.85	1.85	1.85	1.85	2.15
Current: February 14, 2022	0.08	0.39	1.10	1.59	1.82	1.92	2.00	2.00	2.30

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: February 11, 2022									
Low Forecast	0.30			-0.74		-0.82		-0.60	
Median Forecast	1.15			0.10		0.01		0.21	
High Forecast	1.80			0.66		0.63		0.90	
Forward Curve: February 14, 2022	1.59	1.47	0.89	0.51	0.29	0.20	0.12	0.15	0.04
Vining Sparks Forecast: February 2022	1.30	1.18	0.65	0.26	0.03	-0.07	-0.15	-0.15	-0.15

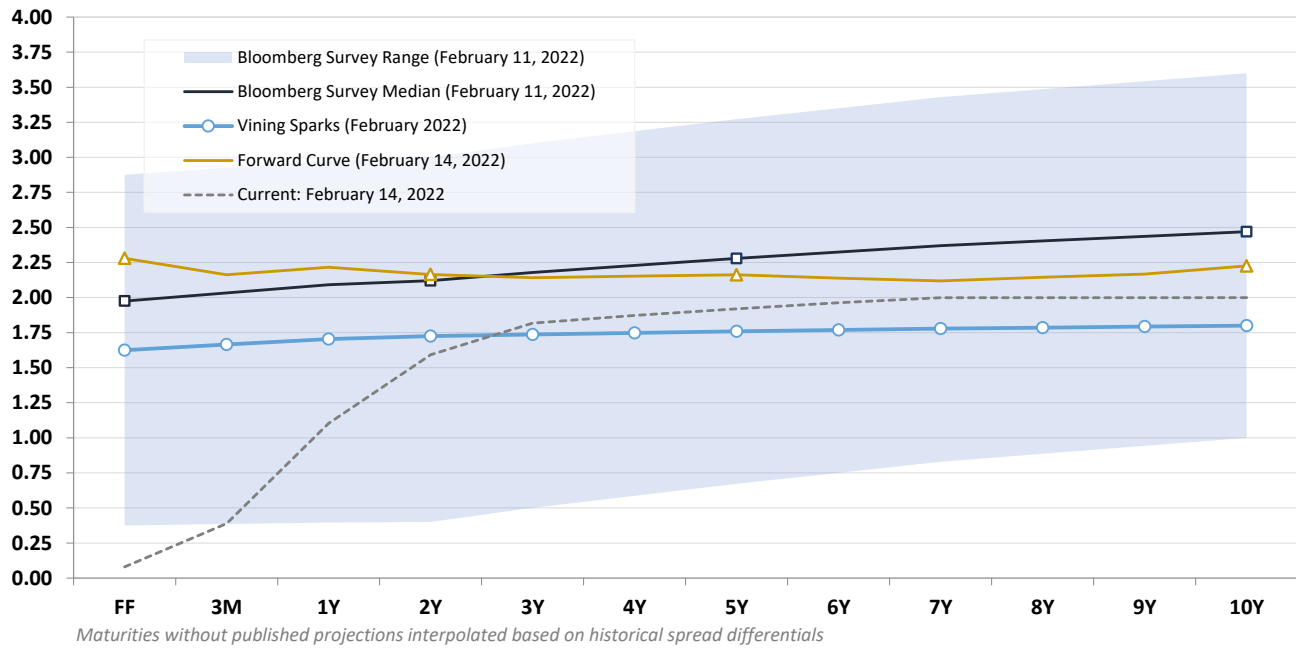


Sources: Bloomberg Survey of Economists Real-Time Tracking Index, Vining Sparks

Year-End Rate Projections

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YE2023 Treasury Yield Projections



Bloomberg Survey Tracking Index and Vining Projections

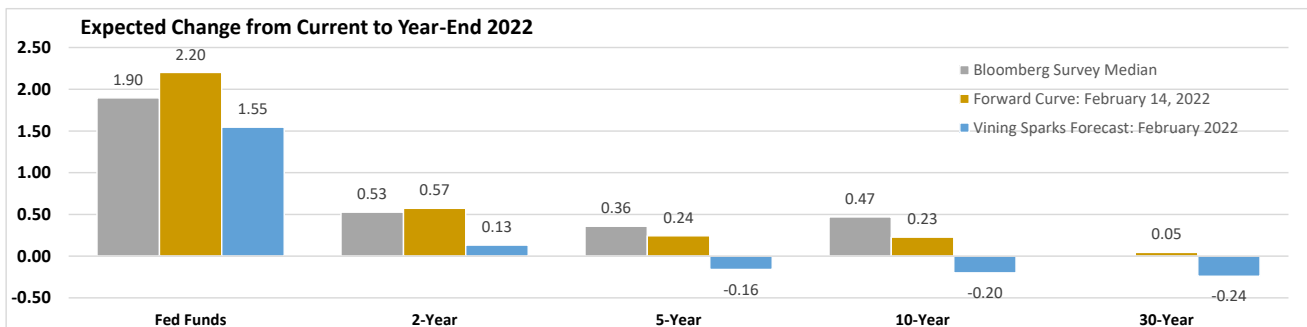
Interest Rate Projections

February 14, 2022

	Fed Funds	3M T-Bill	1-Year	2-Year	3-Year	5-Year	7-Year	10-Year	30-Year
Bloomberg Survey - Tracking: February 11, 2022									
Low Forecast	0.38			0.40		0.67		1.00	
Median Forecast	1.98			2.12		2.28		2.47	
High Forecast	2.88			3.00		3.27		3.60	
Forward Curve: February 14, 2022	2.28	2.16	2.22	2.16	2.14	2.16	2.12	2.23	2.35
Vining Sparks Forecast: February 2022	1.63	1.67	1.71	1.73	1.74	1.76	1.78	1.80	2.06
Current: February 14, 2022	0.08	0.39	1.10	1.59	1.82	1.92	2.00	2.00	2.30

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: February 11, 2022									
Low Forecast	0.30			-1.19		-1.25		-1.00	
Median Forecast	1.90			0.53		0.36		0.47	
High Forecast	2.80			1.41		1.35		1.60	
Forward Curve: February 14, 2022	2.20	1.77	1.11	0.57	0.32	0.24	0.12	0.23	0.05
Vining Sparks Forecast: February 2022	1.55	1.28	0.60	0.13	-0.08	-0.16	-0.22	-0.20	-0.24



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

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