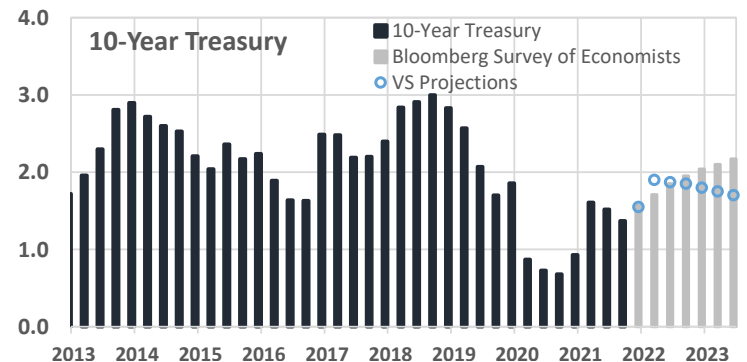
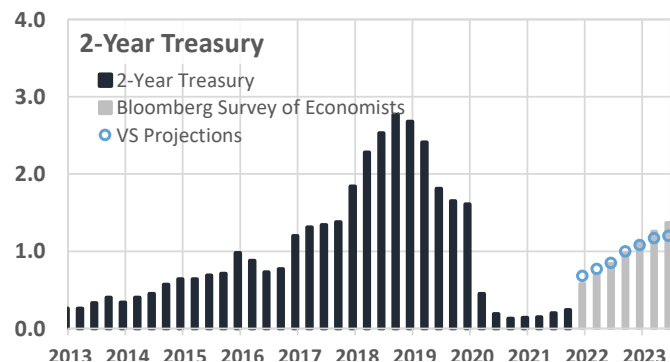
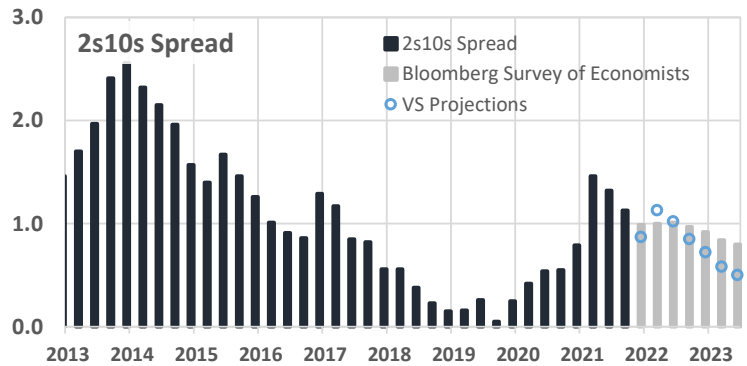
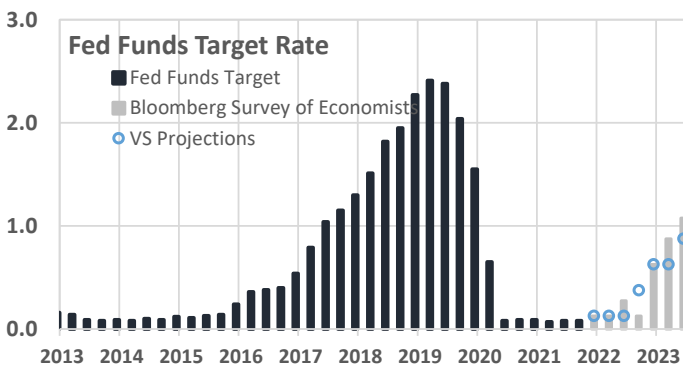
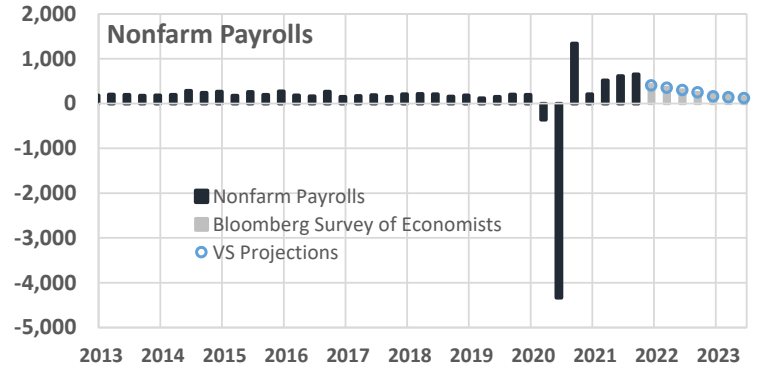
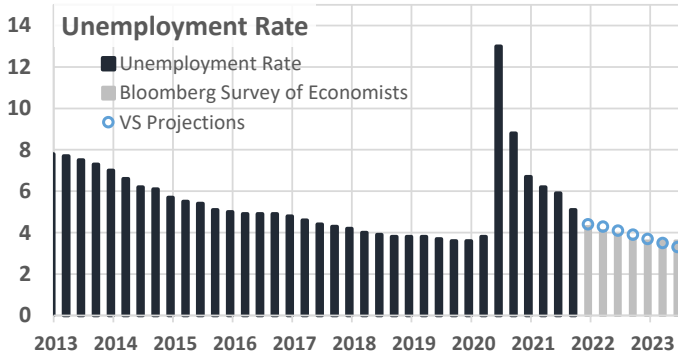
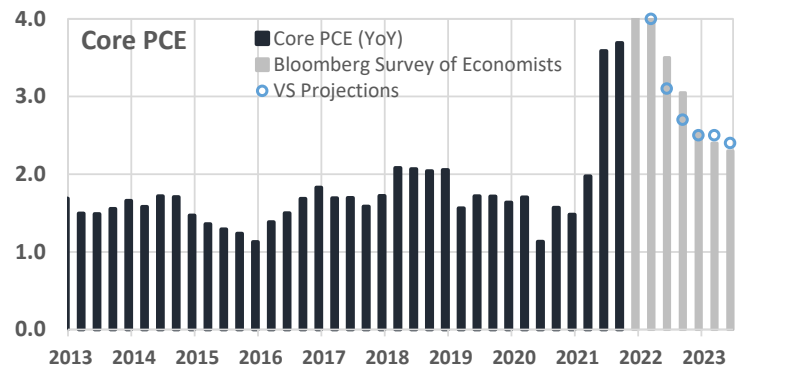
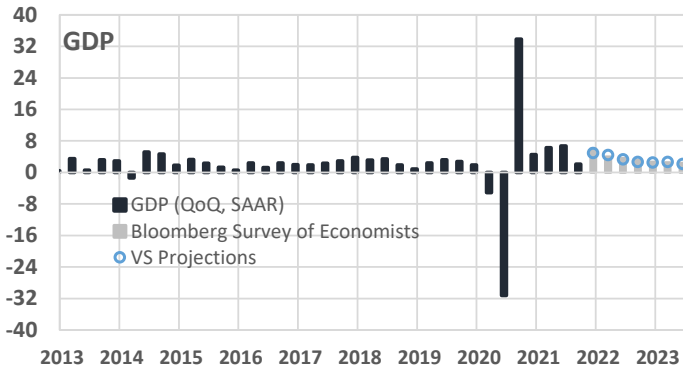


Vining Sparks Economic and Interest Rate Projections

December 2021

	Q421	Q122	Q222	Q322	Q422	Q123	2021	2022
GDP (QoQ, SAAR)	4.9	4.4	3.3	2.6	2.4	2.6	5.7	3.7
Headline CPI (YoY)	5.6	5.0	3.9	3.1	2.7	2.4	4.6	3.6
Core PCE (YoY)	4.3	4.0	3.1	2.7	2.5	2.5	3.4	3.0
Unemployment Rate	4.4	4.3	4.1	3.9	3.7	3.5	5.4	4.2
Nonfarm Payrolls (Monthly)	400	350	300	250	160	140	530	265

	Q421	Q122	Q222	Q322	Q422	Q123	Q223	Q323
Fed Funds Target	0.13	0.13	0.13	0.38	0.63	0.63	0.88	0.88
2-Year Treasury Yield	0.68	0.77	0.85	1.00	1.08	1.17	1.20	1.25
10-Year Treasury Yield	1.55	1.90	1.87	1.85	1.80	1.75	1.70	1.65
30-Year Treasury Yield	2.04	2.48	2.41	2.34	2.24	2.15	2.07	1.98
Prime Rate	3.25	3.25	3.25	3.50	3.75	3.75	4.00	4.00
30-Year Mortgage Rate	3.30	3.70	3.77	3.80	3.80	3.75	3.70	3.65



Bloomberg Survey of Economists

December BBG Survey

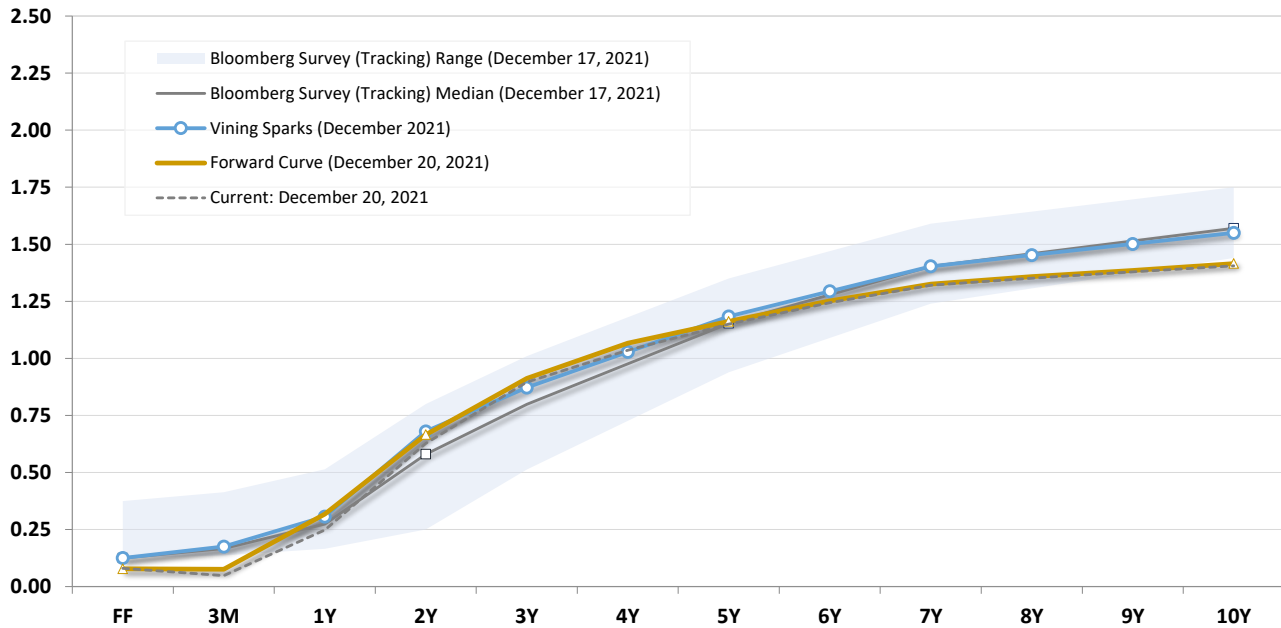
		Q421	Q122	Q222	Q322	Q422	Q123	2021	2022
GDP									
Vining Sparks Projections	12/20/2021	4.9	4.4	3.3	2.6	2.4	2.6	5.7	3.7
December BBG Survey	12/17/2021	6.0	3.9	3.6	3.1	2.6	2.5	5.6	3.9
November BBG Survey	11/12/2021	4.8	4.3	4.0	3.2	2.6	2.4	5.5	3.9
Personal Consumption									
December BBG Survey	12/17/2021	5.5	3.0	3.0	2.5	2.3	2.2	8.0	3.8
November BBG Survey	11/12/2021	4.0	3.3	3.0	2.7	2.4	2.3	7.9	3.6
Private Investment									
December BBG Survey	12/17/2021	7.5	7.3	6.0	5.0	4.0	3.5	7.9	6.7
November BBG Survey	11/12/2021	7.0	8.7	6.2	5.4	3.9	3.2	7.9	7.3
Government Expenditures									
December BBG Survey	12/17/2021	1.1	2.0	1.6	1.7	1.7	1.4	0.7	1.2
November BBG Survey	11/12/2021	1.3	2.5	2.0	1.8	1.6	1.4	0.7	1.4
Headline CPI									
Vining Sparks Projections	12/20/2021	5.6	5.0	3.9	3.1	2.7	2.4	4.6	3.6
December BBG Survey	12/17/2021	6.6	6.3	4.8	3.8	2.8	2.5	4.7	4.3
November BBG Survey	11/12/2021	5.8	5.5	4.0	3.1	2.6	2.4	4.5	3.6
Core PCE									
Vining Sparks Projections	12/20/2021	4.3	4.0	3.1	2.7	2.5	2.5	3.4	3.0
December BBG Survey	12/17/2021	4.4	4.4	3.6	3.1	2.6	2.4	3.3	3.3
November BBG Survey	11/12/2021	4.0	4.0	3.1	2.6	2.5	2.4	3.2	3.0
Unemployment Rate									
Vining Sparks Projections	12/20/2021	4.4	4.3	4.1	3.9	3.7	3.5	5.4	4.2
December BBG Survey	12/17/2021	4.3	4.1	3.9	3.7	3.6	3.6	5.4	3.9
November BBG Survey	11/12/2021	4.5	4.2	4.0	3.9	3.8	3.7	5.4	4.0
Nonfarm Payroll (Monthly)									
Vining Sparks Projections	12/20/2021	400	350	300	250	160	140	530	265
December BBG Survey	12/17/2021	419	371	333	250	225	198	550	323
November BBG Survey	11/12/2021	500	387	333	268	249	205	552	321
New Home Sales									
December BBG Survey	12/17/2021	776	820	840	846	860	865	782	842
November BBG Survey	11/12/2021	808	823	836	843	848	851	796	835
Existing Home Sales									
December BBG Survey	12/17/2021	6,200	6,100	6,200	6,200	6,100	6,000	6,100	6,200
November BBG Survey	11/12/2021	6,000	6,100	6,100	6,100	6,000	6,000	6,100	6,100
Fed Funds Target¹									
Vining Sparks Projections	12/20/2021	0.13	0.13	0.13	0.38	0.63	0.63	0.88	0.88
December BBG Survey	12/17/2021	0.13	0.13	0.28	0.48	0.63	0.88	1.08	1.23
November BBG Survey	11/12/2021	0.13	0.13	0.13	0.28	0.43	0.63	0.78	0.98
2-Year Treasury¹									
Vining Sparks Projections	12/20/2021	0.68	0.77	0.85	1.00	1.08	1.17	1.20	1.25
December BBG Survey	12/17/2021	0.58	0.71	0.84	0.98	1.12	1.26	1.37	1.51
November BBG Survey	11/12/2021	0.44	0.54	0.65	0.77	0.91	1.07	1.18	1.32
10-Year Treasury¹									
Vining Sparks Projections	12/20/2021	1.55	1.90	1.87	1.85	1.80	1.75	1.70	1.65
December BBG Survey	12/17/2021	1.57	1.71	1.85	1.95	2.04	2.10	2.17	2.26
November BBG Survey	11/12/2021	1.64	1.78	1.87	1.94	2.03	2.13	2.20	2.30

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

Year-End Rate Projections

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YE2021 Treasury Yield Projections



Maturities without published projections interpolated based on historical spread differentials

Bloomberg Survey Tracking Index and Vining Projections

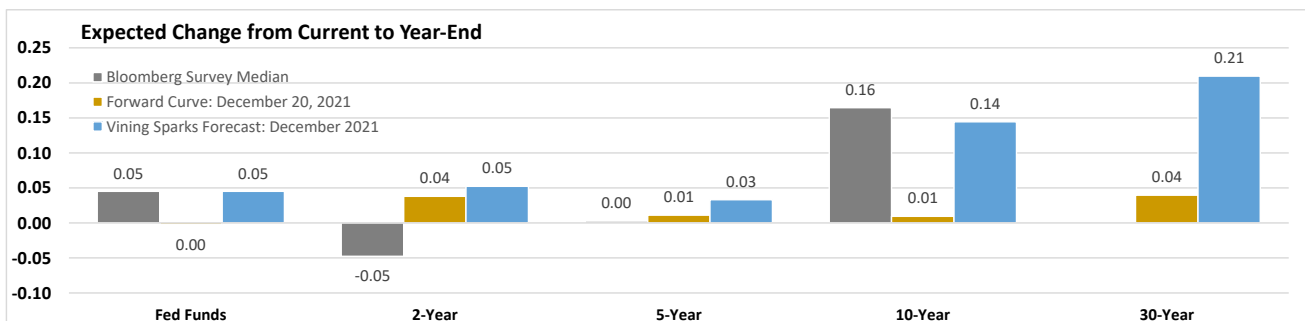
Interest Rate Projections

December 20, 2021

	Fed Funds	3M T-Bill	1-Year	2-Year	3-Year	5-Year	7-Year	10-Year	30-Year
Bloomberg Survey - Tracking: December 17, 2021									
Low Forecast	0.13			0.25		0.94		1.44	
Median Forecast	0.13			0.58		1.15		1.57	
High Forecast	0.38			0.80		1.35		1.75	
Forward Curve: December 20, 2021	0.08	0.08	0.32	0.67	0.91	1.16	1.32	1.42	1.87
Vining Sparks Forecast: December 2021	0.13	0.18	0.31	0.68	0.87	1.18	1.40	1.55	2.04
Current: December 20, 2021	0.08	0.05	0.25	0.63	0.90	1.15	1.32	1.41	1.83

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: December 17, 2021									
Low Forecast	0.05			-0.38		-0.21		0.03	
Median Forecast	0.05			-0.05		0.00		0.16	
High Forecast	0.30			0.17		0.20		0.34	
Forward Curve: December 20, 2021	0.00	0.03	0.07	0.04	0.02	0.01	0.00	0.01	0.04
Vining Sparks Forecast: December 2021	0.05	0.13	0.06	0.05	-0.02	0.03	0.08	0.14	0.21

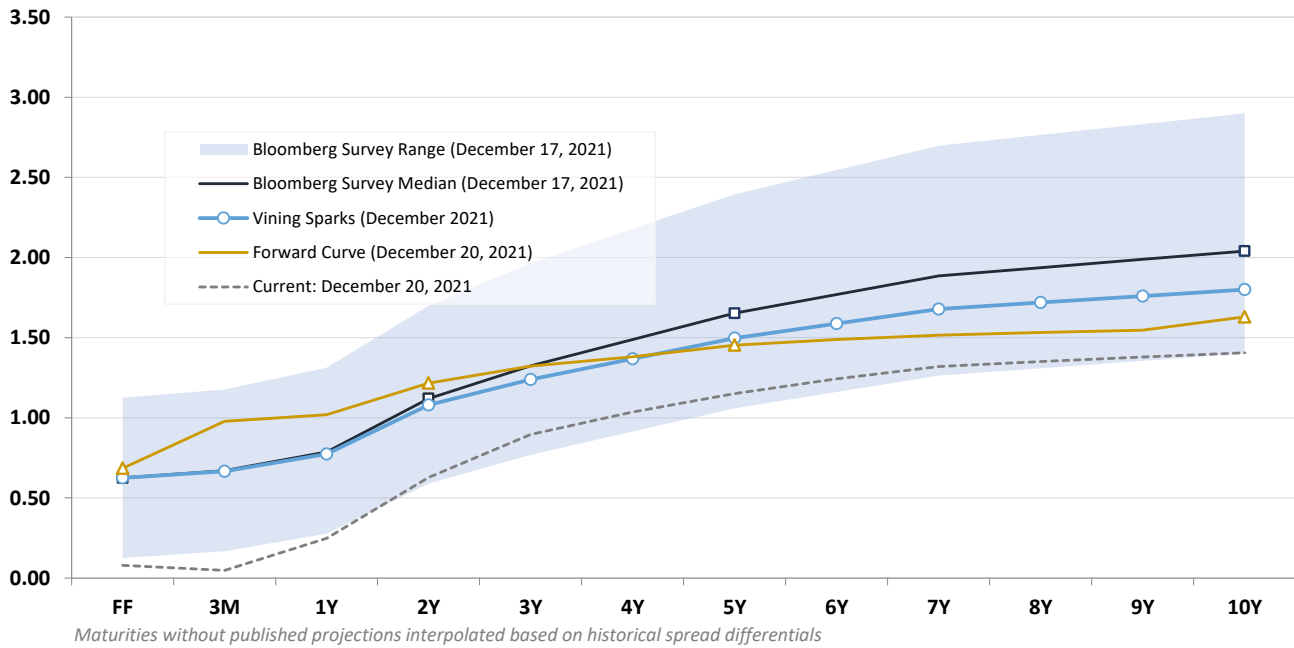


Sources: Bloomberg Survey of Economists Real-Time Tracking Index, Vining Sparks

Year-End Rate Projections

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YE2022 Treasury Yield Projections



Bloomberg Survey Tracking Index and Vining Projections

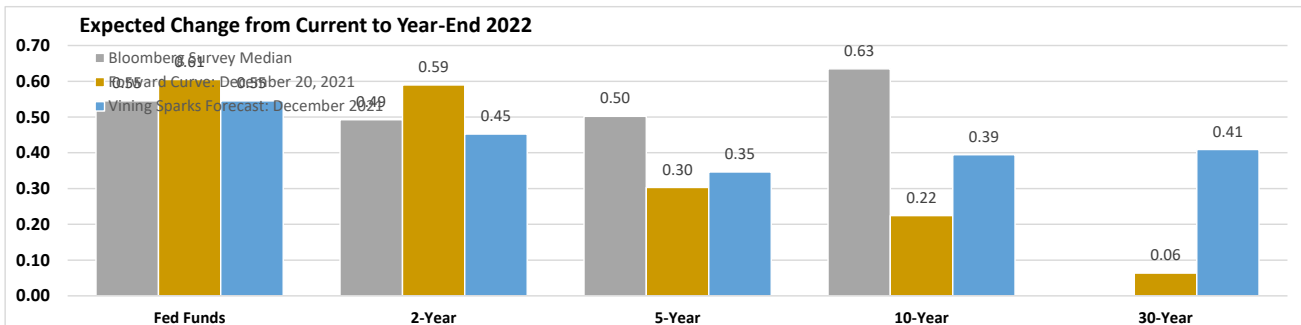
Interest Rate Projections

December 20, 2021

	Fed Funds	3M T-Bill	1-Year	2-Year	3-Year	5-Year	7-Year	10-Year	30-Year
Bloomberg Survey - Tracking: December 17, 2021									
Low Forecast	0.13			0.59		1.06		1.40	
Median Forecast	0.63			1.12		1.65		2.04	
High Forecast	1.13			1.70		2.39		2.90	
Forward Curve: December 20, 2021	0.69	0.98	1.02	1.22	1.32	1.45	1.52	1.63	1.90
Vining Sparks Forecast: December 2021	0.63	0.67	0.77	1.08	1.24	1.50	1.68	1.80	2.24
Current: December 20, 2021	0.08	0.05	0.25	0.63	0.90	1.15	1.32	1.41	1.83

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: December 17, 2021									
Low Forecast	0.05			-0.04		-0.09		-0.01	
Median Forecast	0.55			0.49		0.50		0.63	
High Forecast	1.05			1.07		1.24		1.49	
Forward Curve: December 20, 2021	0.61	0.93	0.77	0.59	0.43	0.30	0.20	0.22	0.06
Vining Sparks Forecast: December 2021	0.55	0.62	0.53	0.45	0.34	0.35	0.36	0.39	0.41



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

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