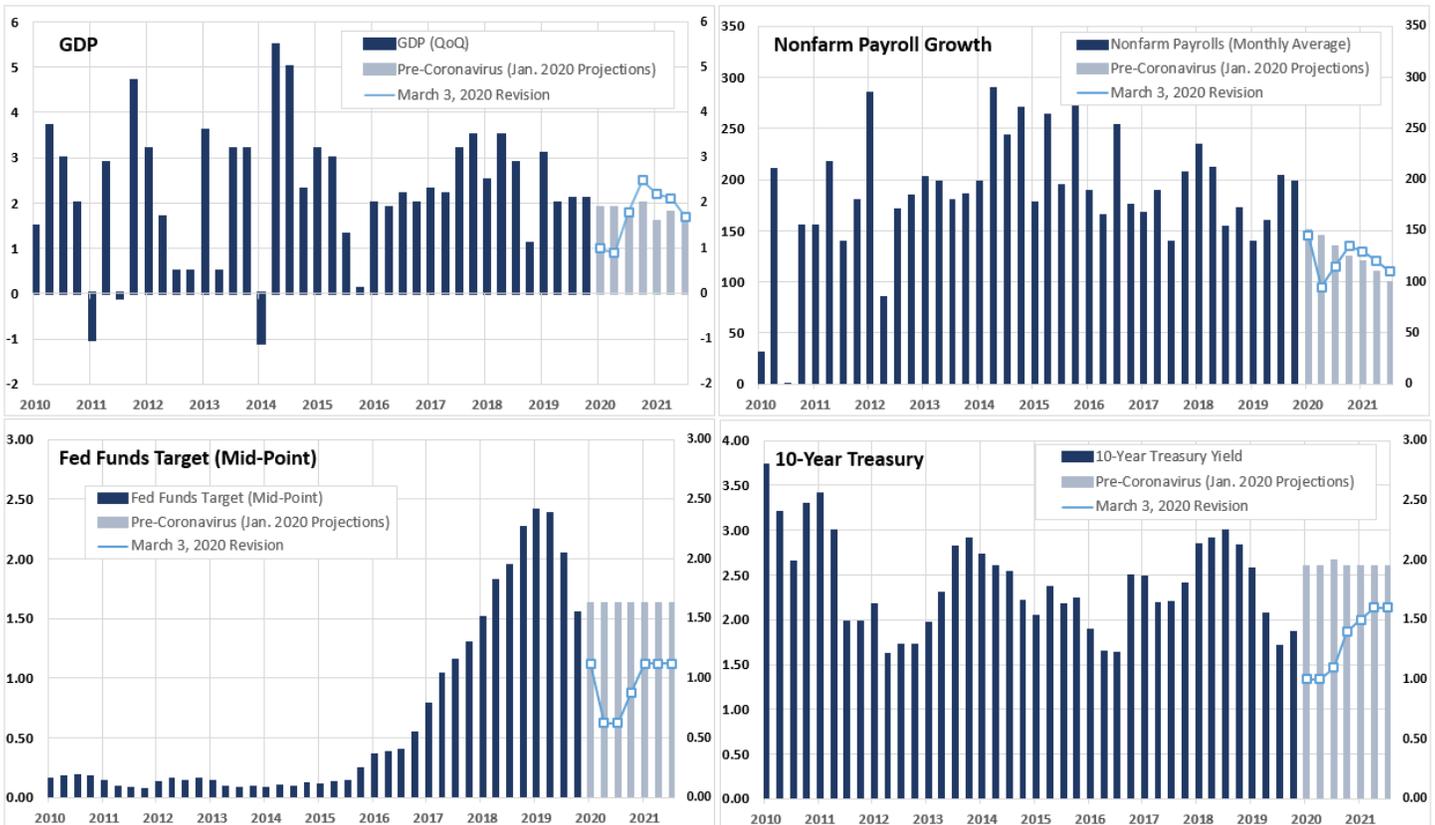


March 2020 Forecast Revision - Escalating COVID-19 Outbreak Alters Growth and Rate Projections

- COVID-19 has spread considerably faster than SARs and has not been contained to China
- COVID-19 has now spread to Europe and the U.S. where it is having meaningful, negative economic ramifications
- Fed has responded with a 50-basis-point cut in an emergency, intra-meeting policy decision (March 3, 2020)
- Eventual U.S. economic impact will be determined by the degree and duration of the uncertainty domestically
- We now expect U.S. growth to slow to 1.0% in 1Q20 and 0.9% in 2Q20 followed by a modest rebound in 2H20
- Any rebound in activity is likely to be delayed by the magnitude and persistence of the outbreak
- Based on the currently expected economic ramifications, we expect to see fiscal stimulus and further monetary easing
- We have very little certainty in how COVID-19 will progress going forward, clouding growth and rate projections
- Current projections continue to presume panic from outbreak is contained; if not, recession is probable with rates quickly falling to near-zero
- For link to full Coronavirus Chartbook, [please click here](#)

The COVID-19 outbreak has now crossed a second threshold sufficient to warrant further adjustments to our 2020 economic growth and interest rate projections. Developments over the past week include the rapid spread of the virus in South Korea and Italy along with a nascent increase in cases in the U.S. and other significant Eurozone economies. This, along with the counter-responses aimed at containing the virus, have increased the magnitude of the expected impact to U.S. and global growth. The transmission to the U.S. economy is likely to occur via four channels: 1) disruptions in the supply chain, 2) weak external demand as Asian and European growth falter, 3) disruptions in travel and tourism, and 4) deterioration in financial conditions. Going forward, significant uncertainty continues to attend our projections given our inability to project the future path of the outbreak. Despite that uncertainty, **we now expect the economic fallout to warrant fiscal policy stimulus and further policy easing from the Fed.**



Economic and Interest Rate Projections

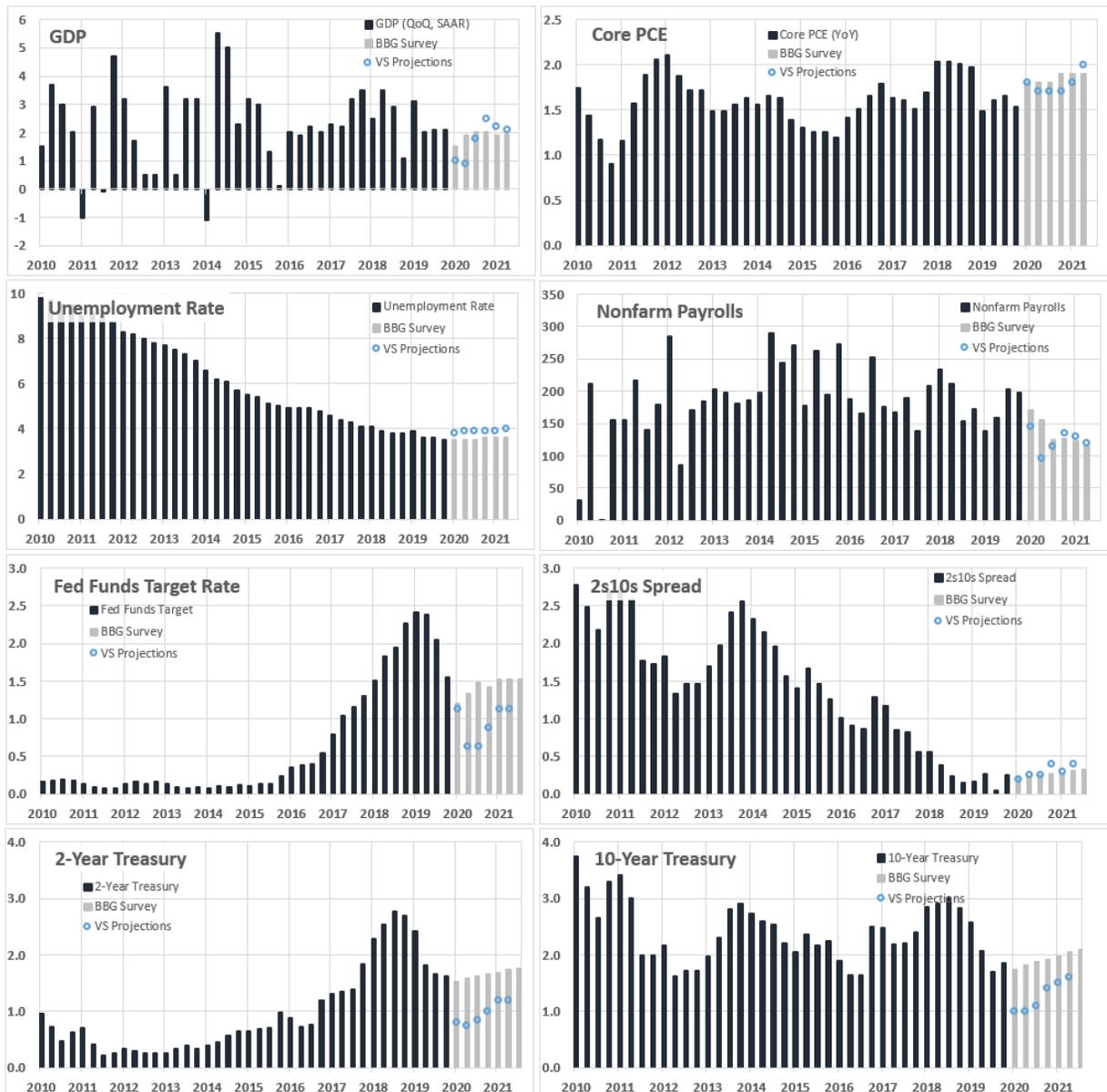
Vining Sparks Projections

March 2020

	Q120	Q220	Q320	Q420	Q121	Q221	2020	2021
GDP (QoQ, SAAR)	1.0	0.9	1.8	2.5	2.2	2.1	1.3	2.0
Headline CPI (YoY)	1.9	1.5	1.7	1.8	1.8	2.1	1.7	2.0
Core PCE (YoY)	1.8	1.7	1.7	1.7	1.8	2.0	1.7	1.8
Unemployment Rate	3.8	3.9	3.9	3.9	3.9	4.0	3.8	4.2
Nonfarm Payrolls (Monthly)	145	95	115	135	130	120	120	110

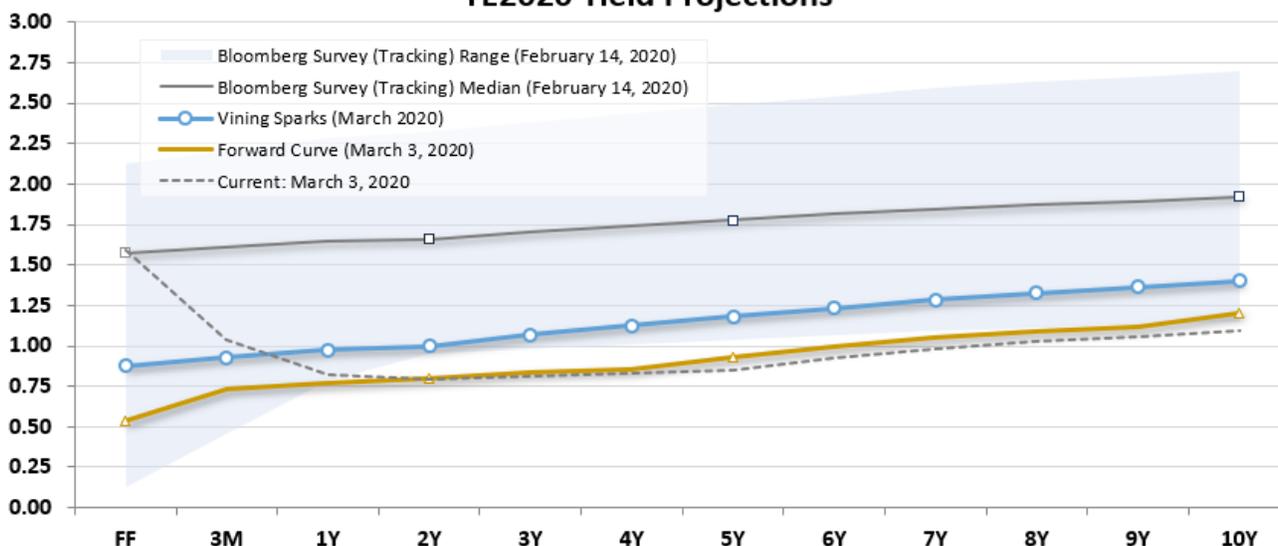
	Q120	Q220	Q320	Q420	Q121	Q221	Q321	Q421
Fed Funds Target	1.13	0.63	0.63	0.88	1.13	1.13	1.13	1.13
2-Year Treasury Yield	0.80	0.75	0.85	1.00	1.20	1.20	1.20	1.20
10-Year Treasury Yield	1.00	1.00	1.10	1.40	1.50	1.60	1.60	1.60
30-Year Treasury Yield	1.53	1.52	1.57	1.91	1.90	2.06	2.06	2.06
Prime Rate	4.25	3.75	3.75	4.00	4.25	4.25	4.25	4.25
30-Year Mortgage Rate	2.90	2.85	2.90	3.15	3.20	3.30	3.30	3.30

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



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

YE2020 Yield Projections



Maturities without published projections interpolated based on historical spread differentials

Bloomberg Survey Tracking Index and Vining Projections

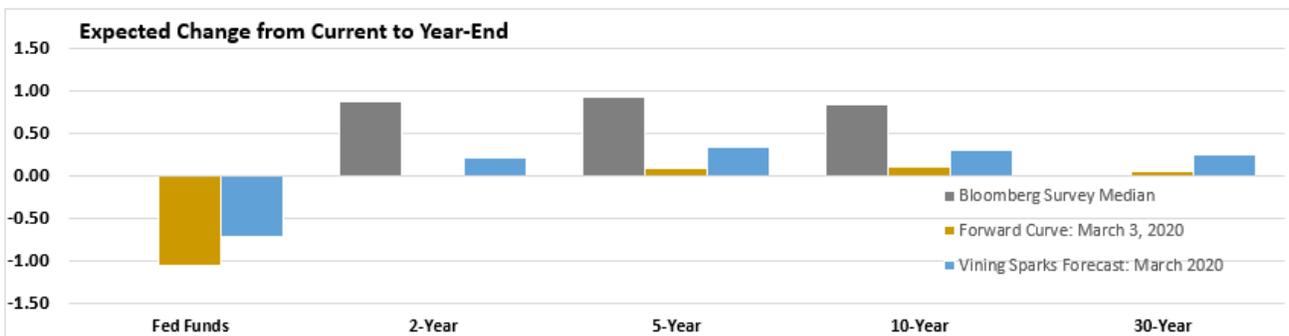
Interest Rate Projections

March 3, 2020

	Fed Funds	3M T-Bill	1-Year	2-Year	3-Year	5-Year	7-Year	10-Year	30-Year
Bloomberg Survey - Tracking: February 14, 2020									
Low Forecast	0.13			0.95		1.04		1.15	
Median Forecast	1.58			1.66		1.78		1.92	
High Forecast	2.13			2.32		2.49		2.70	
Forward Curve: March 3, 2020	0.54	0.73	0.77	0.80	0.83	0.93	1.05	1.20	1.72
Vining Sparks Forecast: March 2020	0.88	0.93	0.98	1.00	1.07	1.18	1.29	1.40	1.91
Current: March 3, 2020	1.59	1.04	0.82	0.80	0.81	0.85	0.99	1.09	1.68

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 14, 2020									
Low Forecast	-1.47			0.15		0.19		0.06	
Median Forecast	-0.01			0.86		0.93		0.83	
High Forecast	0.54			1.52		1.64		1.61	
Forward Curve: March 3, 2020	-1.05	-0.31	-0.05	0.00	0.02	0.08	0.06	0.10	0.05
Vining Sparks Forecast: March 2020	-0.72	-0.12	0.15	0.20	0.25	0.33	0.30	0.31	0.24



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

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