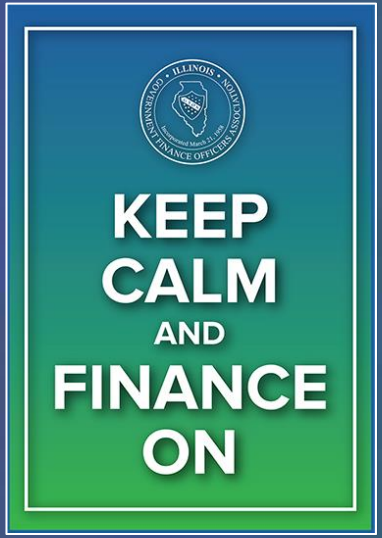

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Managing Inflation Risk in the Post-COVID World

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- Any parallels with history
- Base effects and supply disruptions
- What do the markets say
- Wage growth not a problem
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- Low inflation and low rates for years
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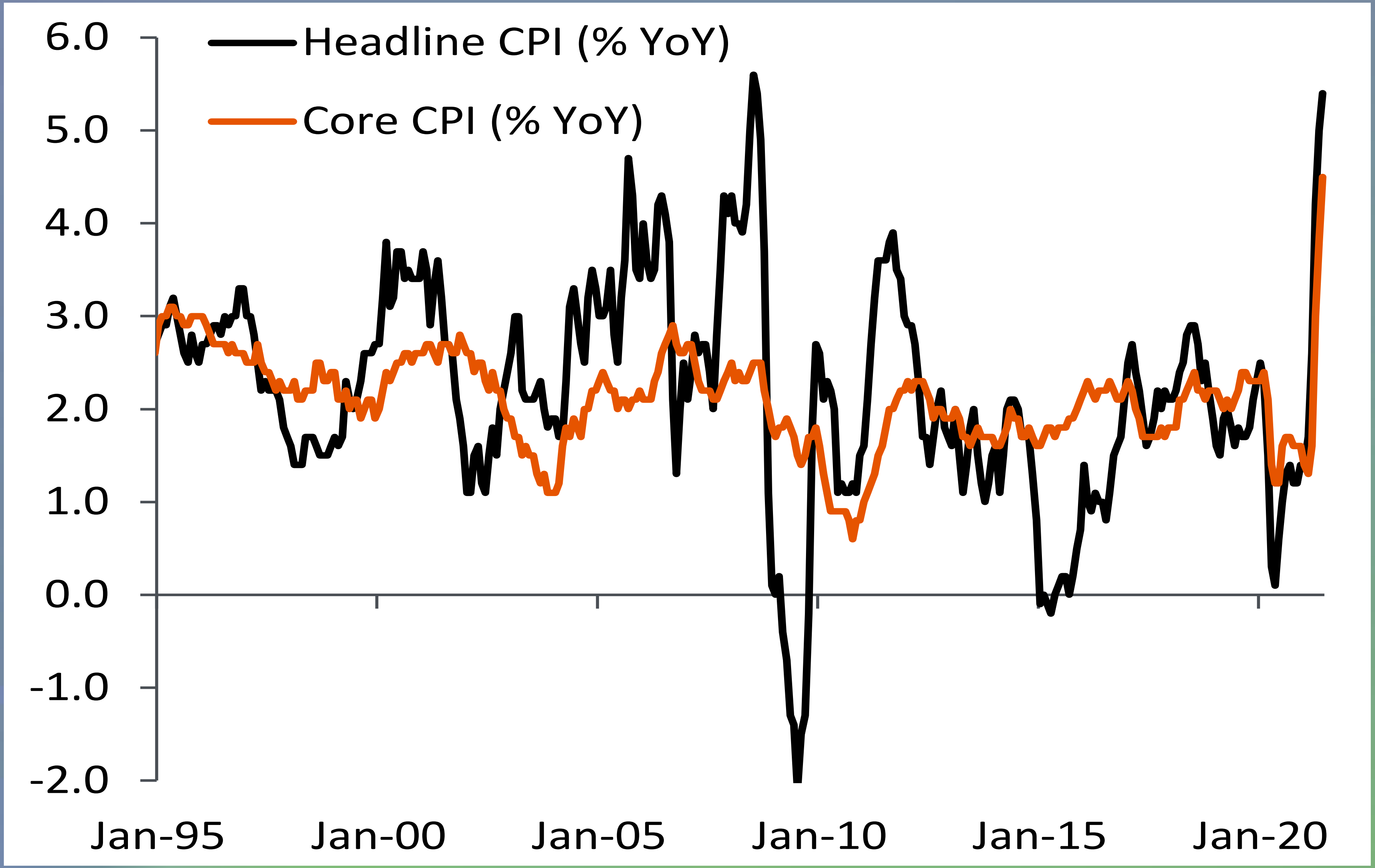
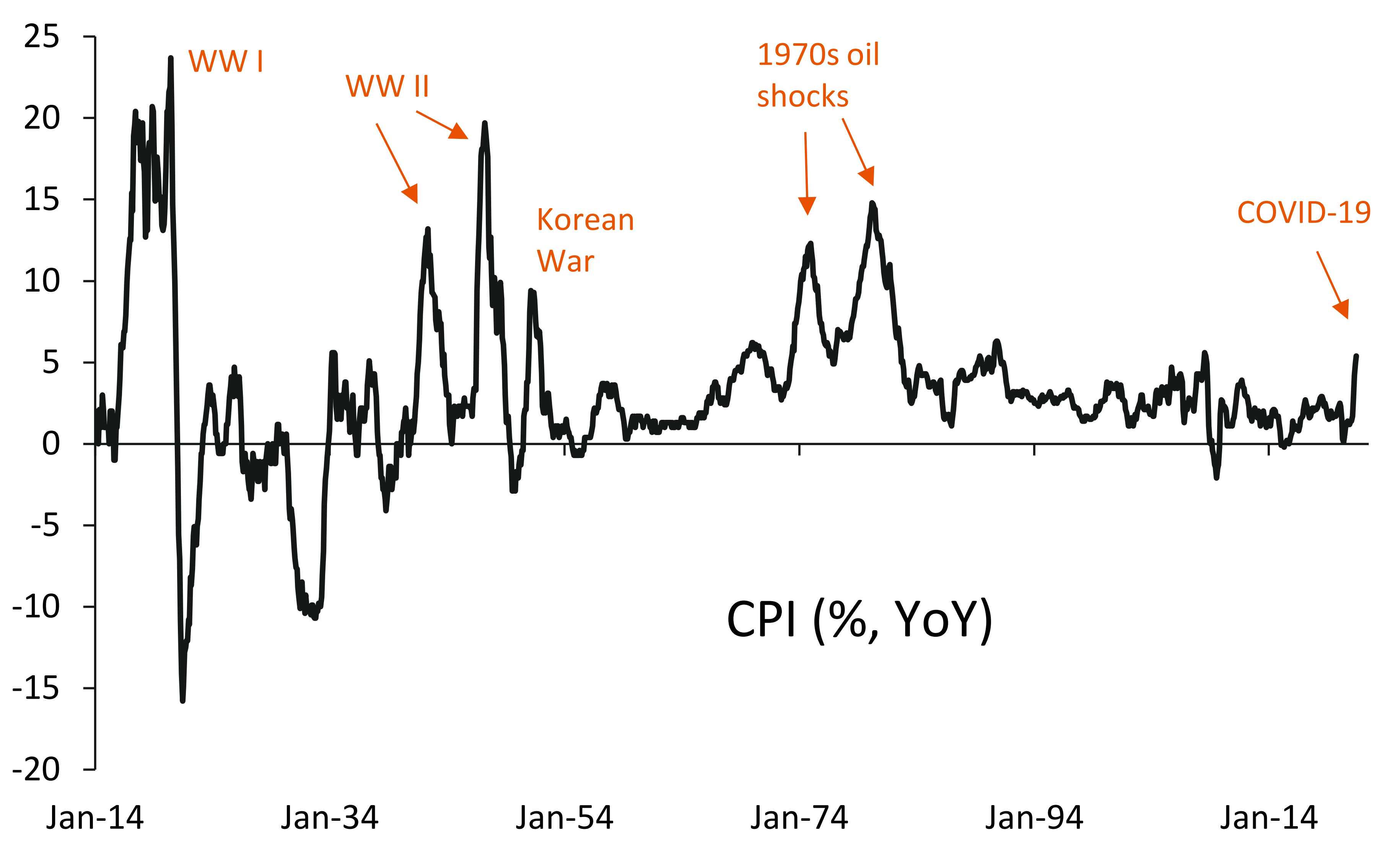
Inflation has jumped higher, but….



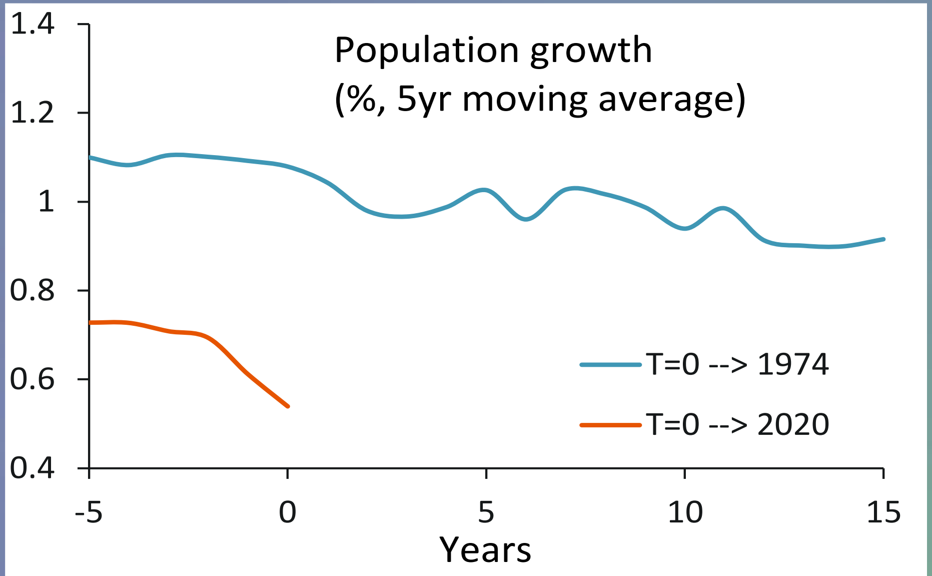
Source: BLS, Piper Sandler

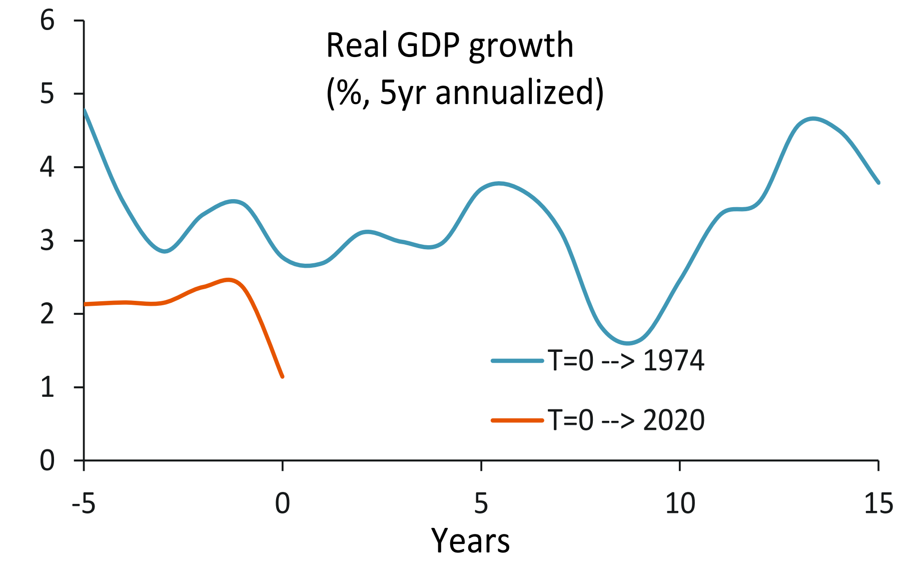
...remains low by historical standards

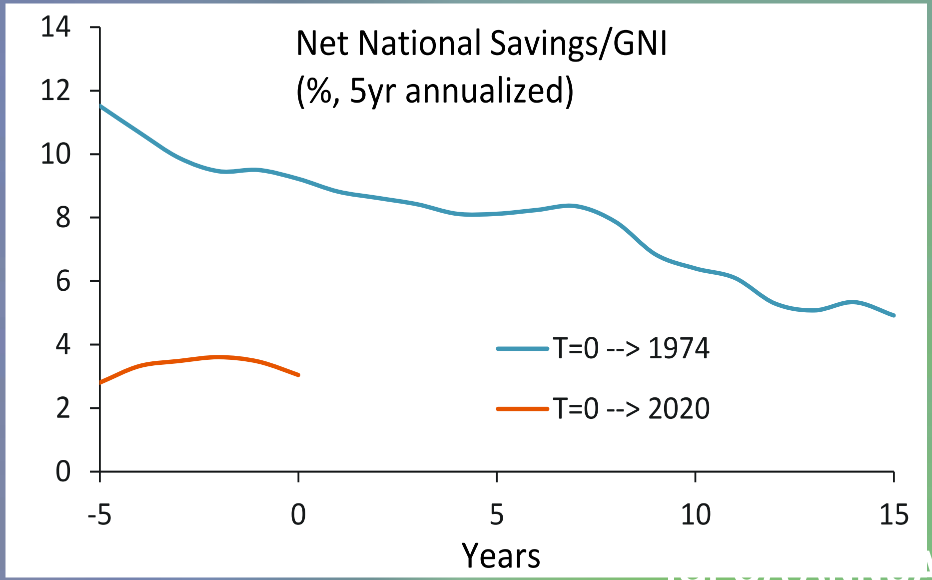


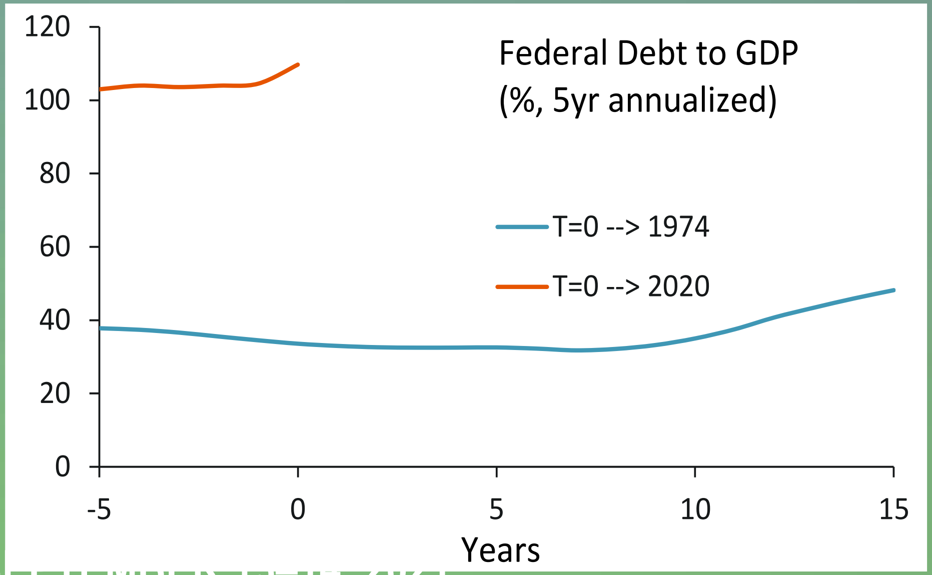
Source: BLS, Piper Sandler

Today's economic conditions do not support sustained inflation as readily as they did in the 1970s









Source: BLS, Piper Sandler

Take Away #1

A period of massive fiscal and monetary support has ushered the view that high levels of sustained inflation are inevitable similar to the past. However, historical comparisons show that economic conditions are very different today from prior sustained inflationary periods like the 1970-80s. With slower population growth, slower economic growth, less savings and more debt, sustained high inflation is unlikely to develop as it has in the past.

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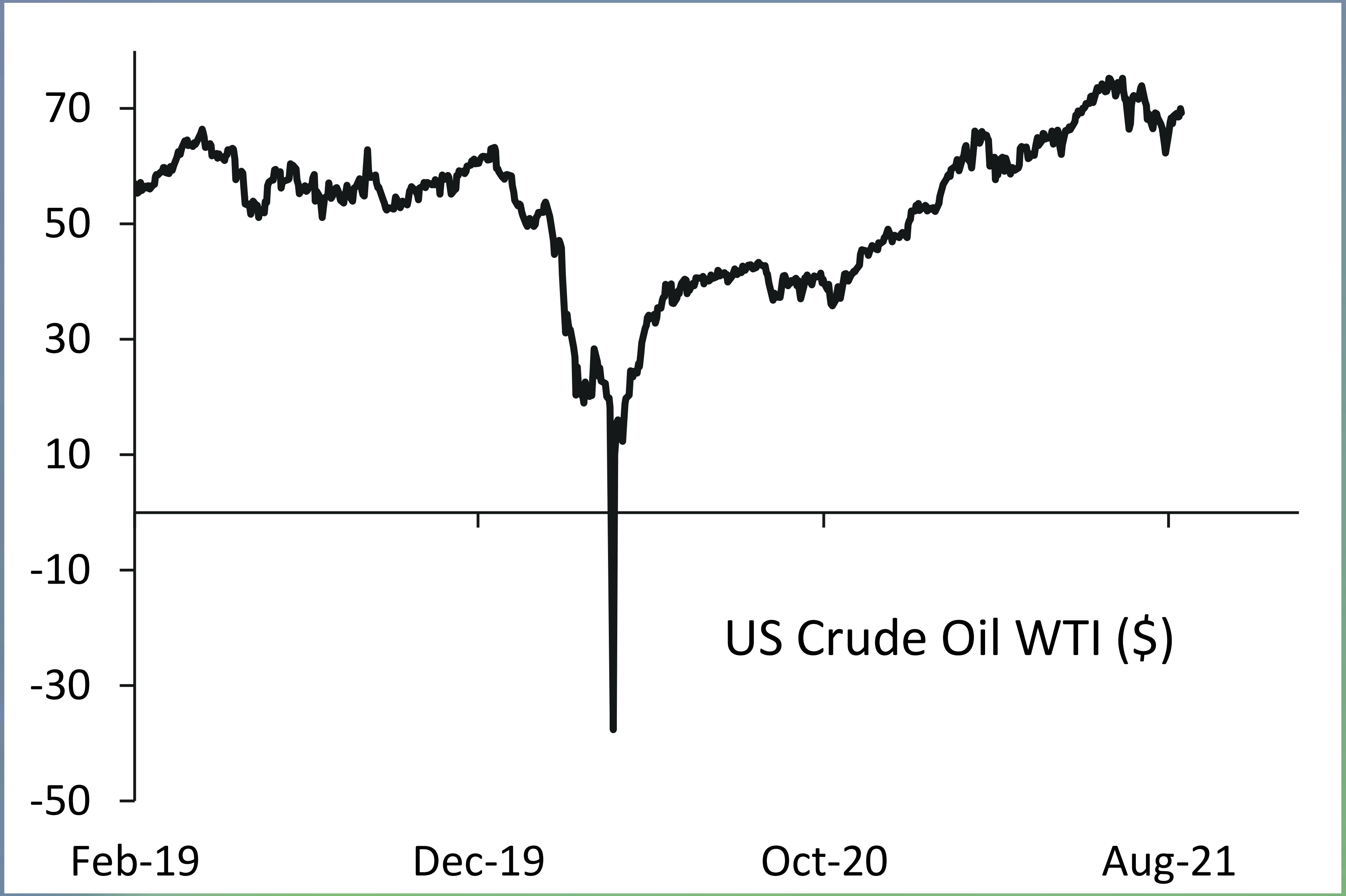
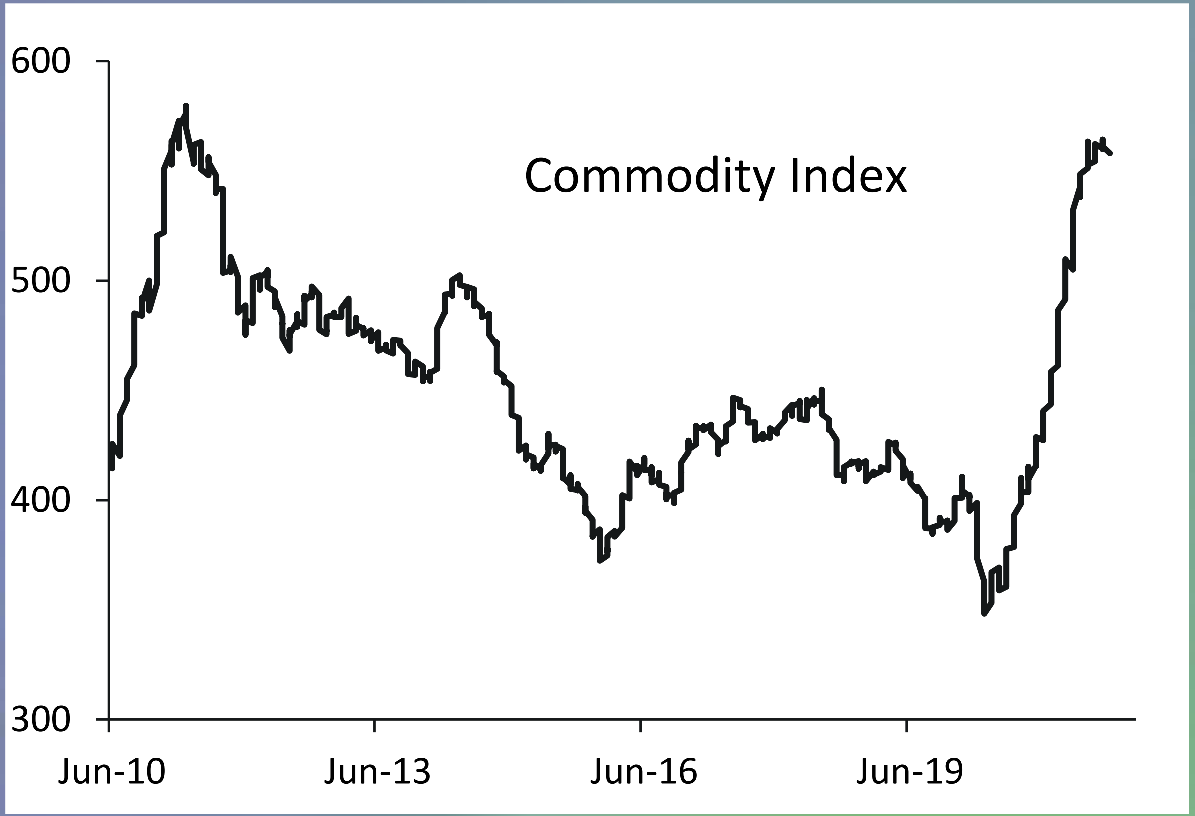
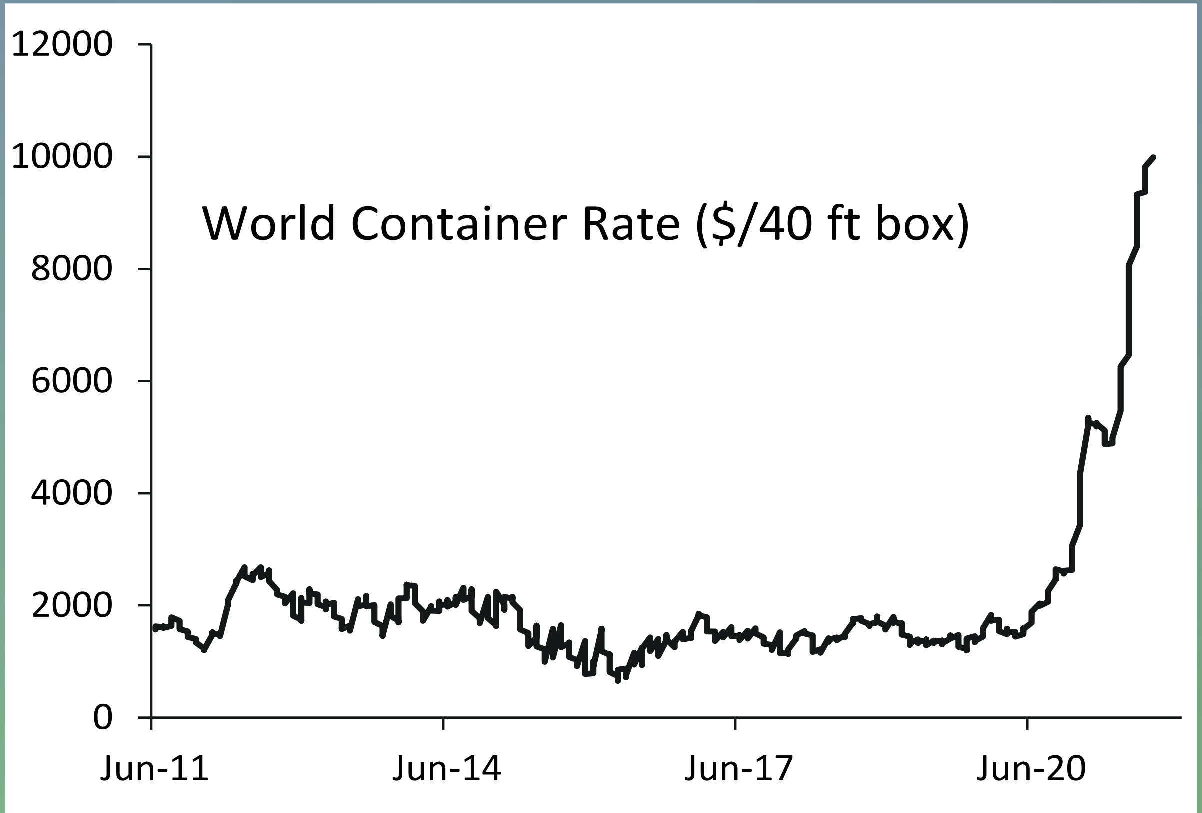
Beware of base effects



Source: Bloomberg, Piper Sandler

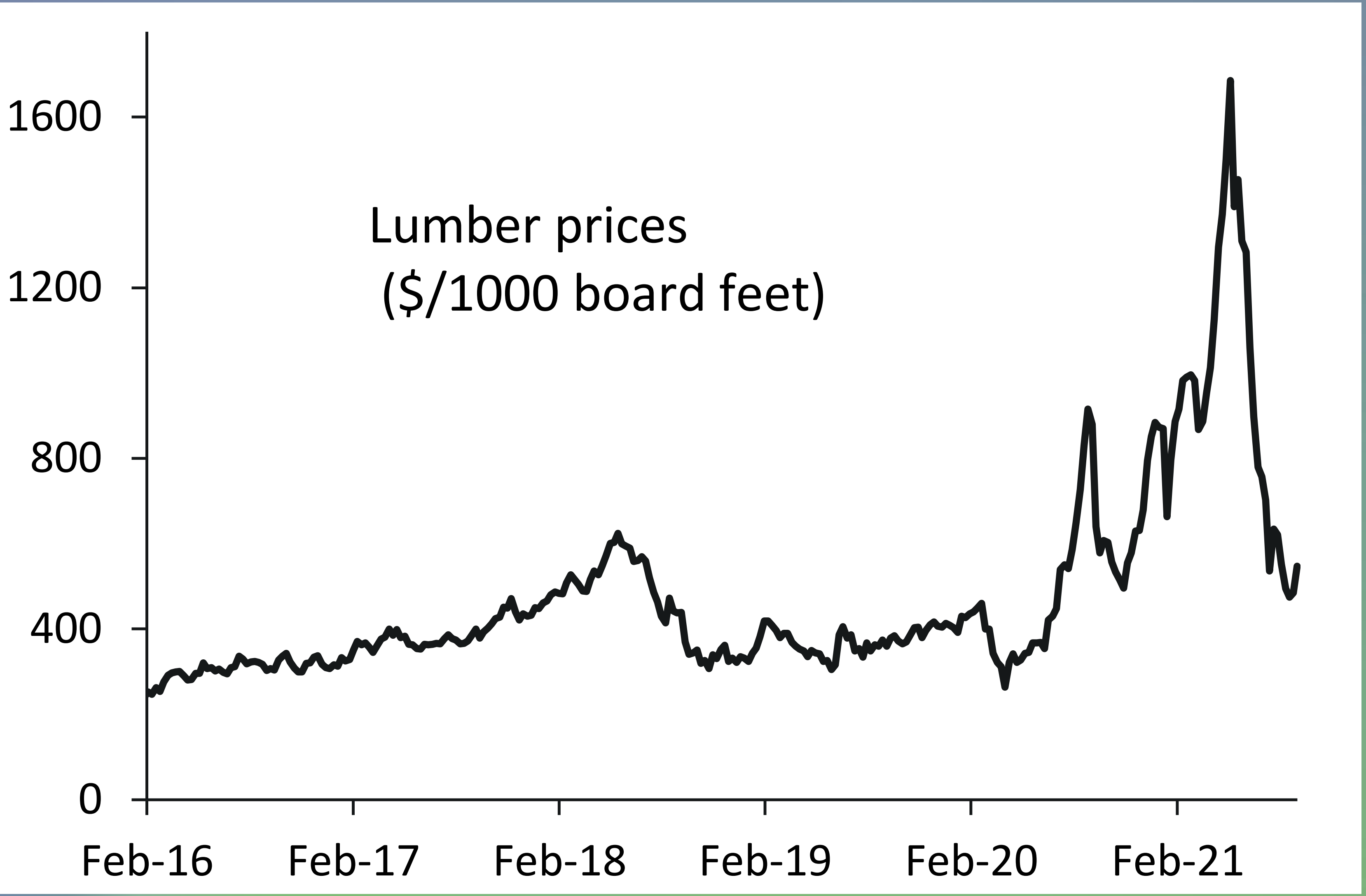
As supply chain disruptions worsened, commodity prices and transportation costs surged, but…





Source: Bloomberg, Piper Sandler

…the jump in lumber prices was transitory



Source: Bloomberg, Piper Sandler

What is driving inflation higher?

Categories	Weight(%)	Actual CPI (%, YoY)	Actual Core CPI (%, YoY)	Adjusted CPI (%, YoY)	Adjusted Core CPI (%, YoY)
All items	**100.0**	**5.4**	**4.3**	**2.5**	**2.6**
Shelter	32.6	2.8		2.8	
Food	13.8	3.4		3.4	
Transportation commodities	7.9	**19.8**		**2.0**	
Medical care services	7.1	0.8		0.8	
Energy	7.2	**23.8**		**2.0**	
Education and communication services	6.1	1.2		1.2	
Transportation services	5.3	6.4		6.4	
Household furnishings and supplies	3.7	3.0		3.0	
Recreation services	3.7	3.7		3.7	
Apparel	2.7	4.2		4.2	
Recreation commodities	2.0	3.2		3.2	
Other personal services	1.6	3.1		3.1	
Medical care commodities	1.5	-2.1		-2.1	
Other goods	1.5	2.7		2.7	
Water/sewer/trash collection services	1.1	3.7		3.7	
Alcoholic beverages	1.0	2.4		2.4	
Household operations	0.9	7.0		7.0	
Education/communication commodities	0.5	-0.2		-0.2	

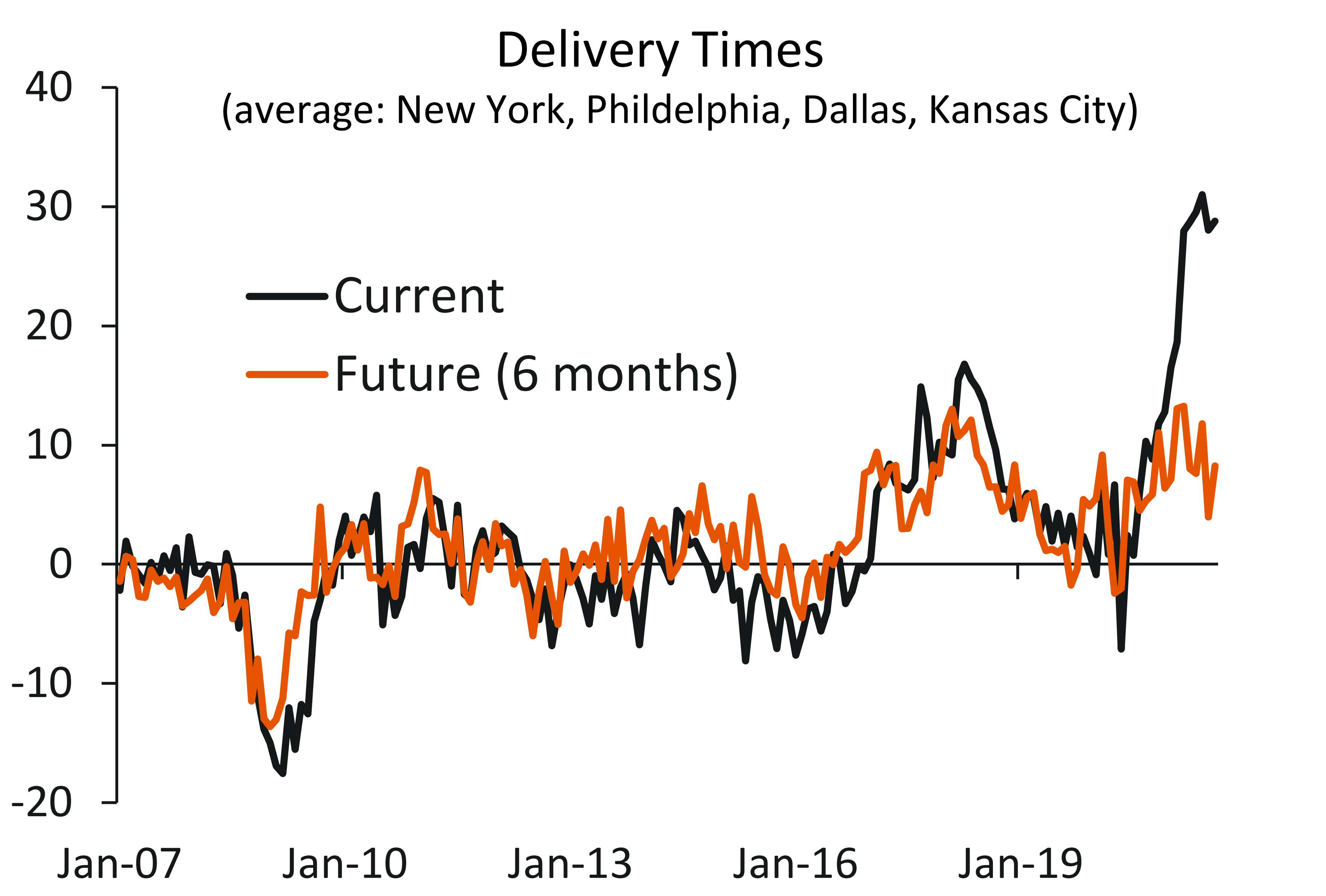
Used car and truck prices (up 42% YoY)

Gasoline prices (up 42% YoY)

Car and truck rental prices (up 74% YoY)

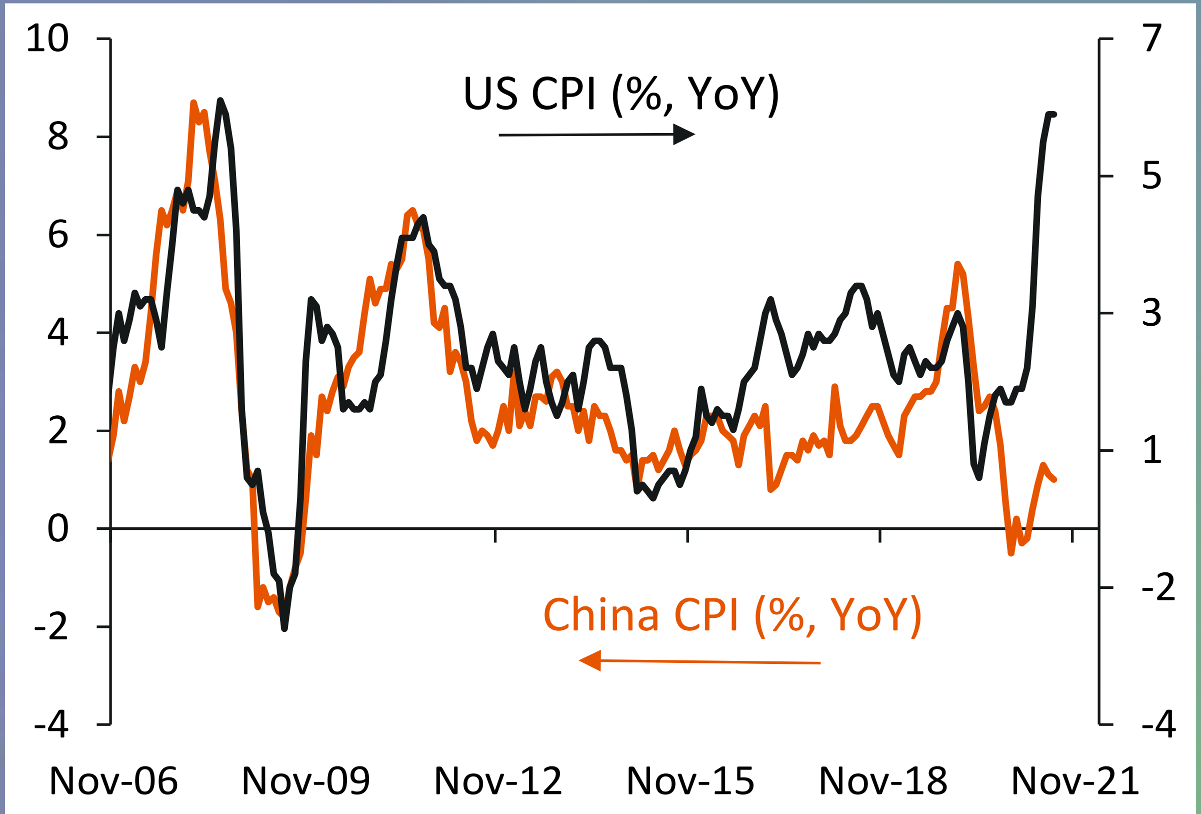
Source: BLS, Piper Sandler

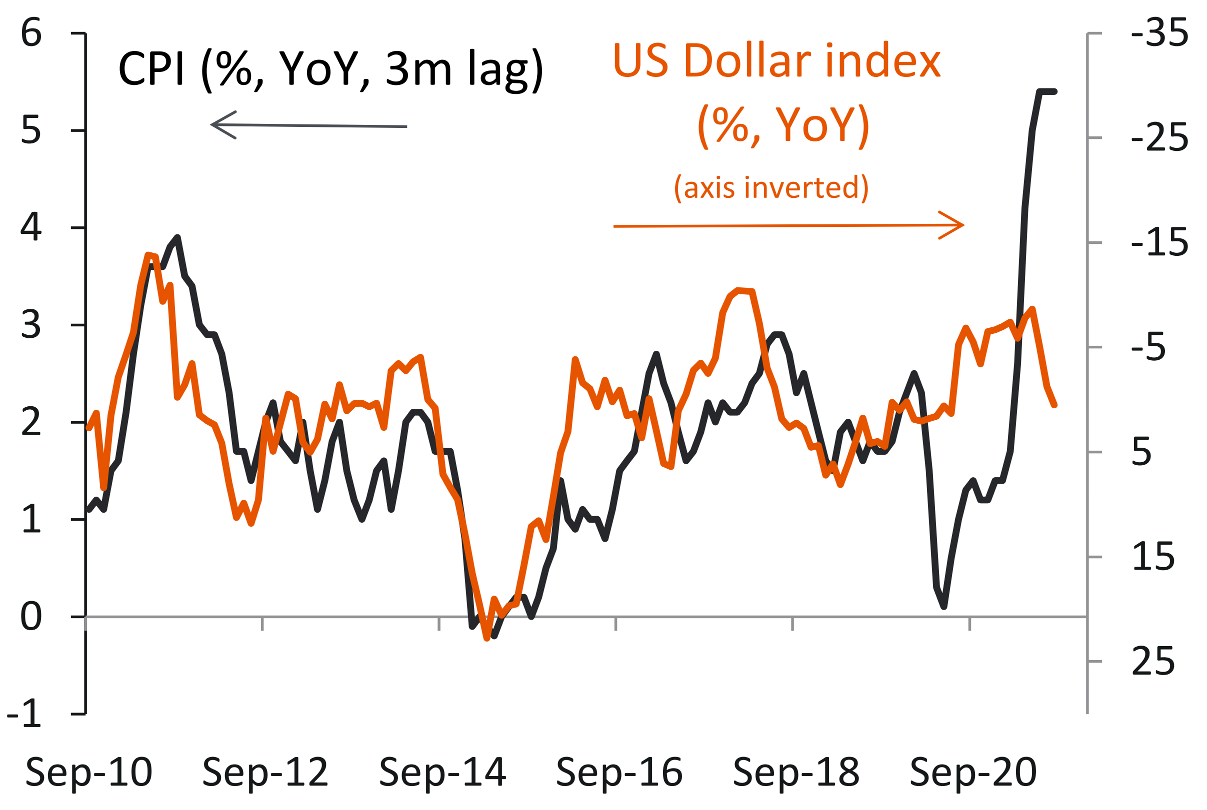
Disruptions to wane within six months



Source: Federal Reserve, Piper Sandler

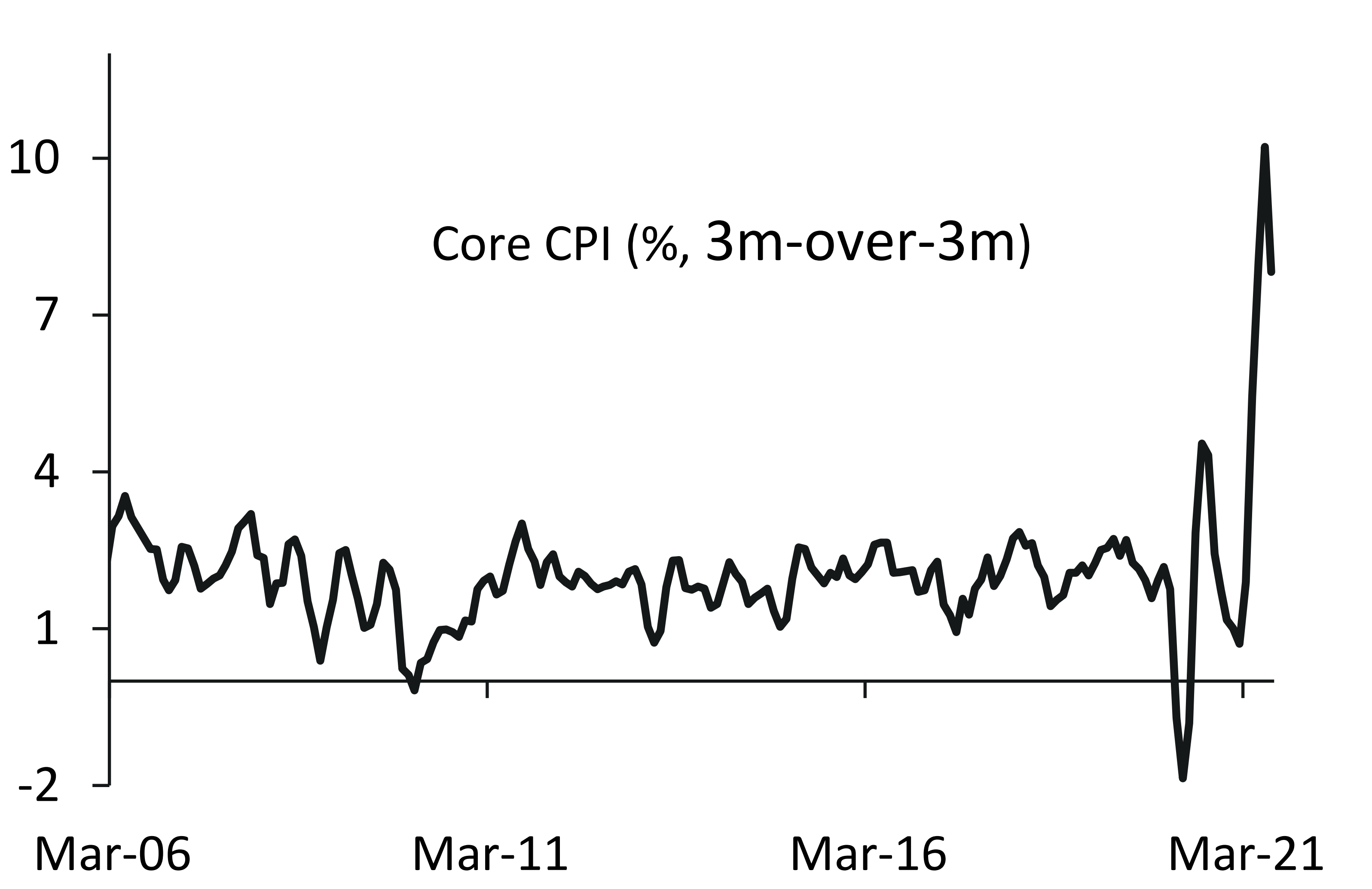
Inflation to move notably lower as global supply chains normalize





Source: BLS, Piper Sandler

Price pressures due to supply disruptions may have peaked



Source: BLS, Piper Sandler

Take Away #2

Unprecedented fiscal stimulus, base effects and supply chain disruptions will boost inflation. However, these factors should have a transitory impact on prices. As domestic/global supply chains gradually unclog and resume normal functioning (by Q2 2022), price pressures should abate, especially as consumers exhaust their fiscal stimulus checks. Also market forces should pressure US prices lower given that China’s core inflation rate is substantially below that in the US, and China’s economy plays a dominant role in the world’s supply chains.

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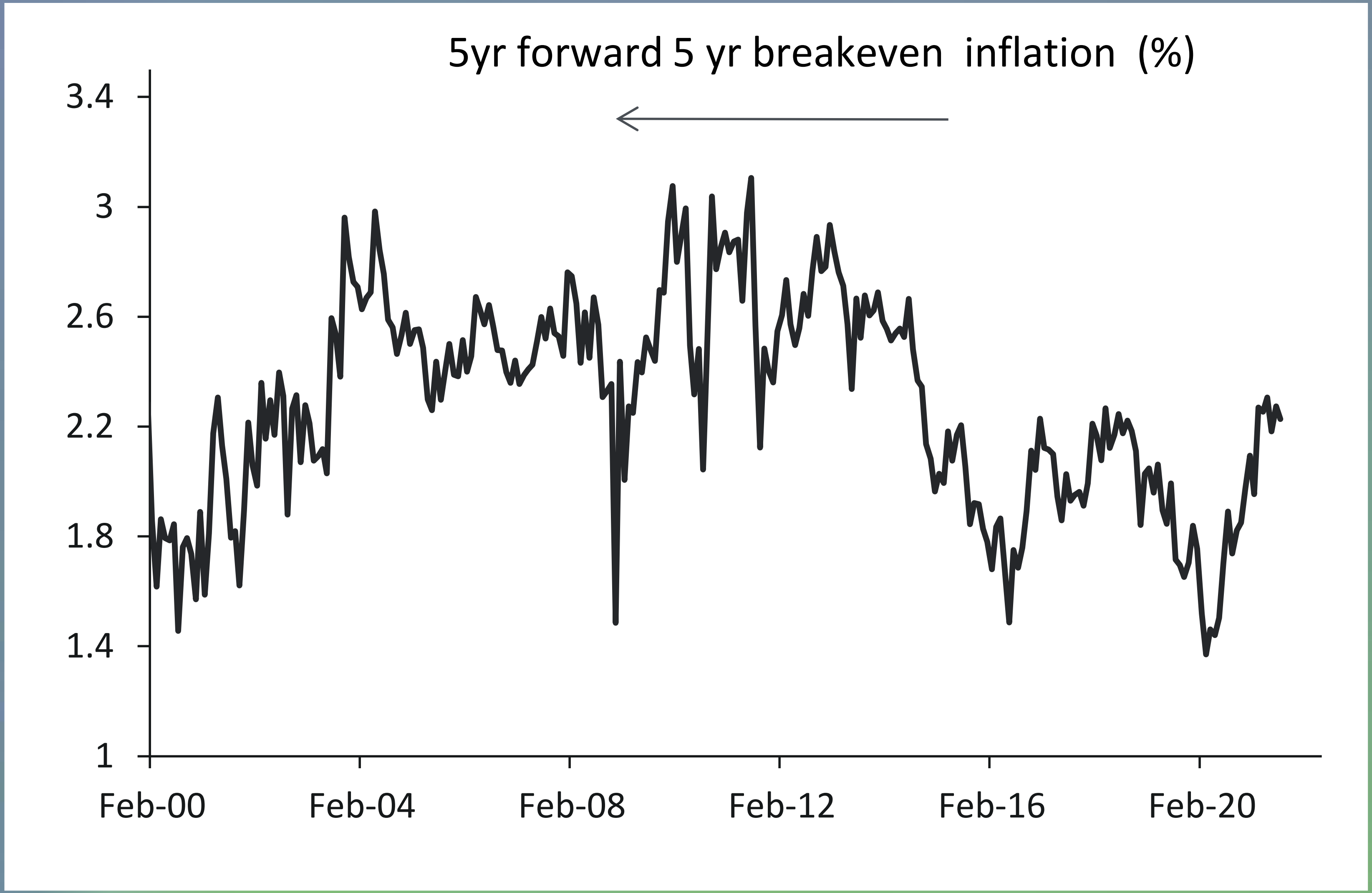
The inflation metrics that still matter remain benign

Inflation Indicators (%)	Jul/Aug 2020	Jul/Aug 2021	Change	
PCE Price Index (yoy, sa)	1.00	4.20	3.20	US government (BLS, BEA)
Core PCE Index (yoy, sa)	1.30	3.62	2.32	
Consumer Price Index (yoy)	1.00	5.40	4.40	
CPI ex-Food & Energy (yoy)	1.60	4.30	2.70	
5yr x 5yr Forward TIIPS Breakeven Inflation	1.89	2.19	0.30	Market
10yr TIIPS Breakeven Inflation	1.80	2.34	0.53	
U. of Michigan 1yr Expect.	3.10	4.60	1.50	Survey
U. of Michigan 5-10yr Expect.	2.70	2.90	0.20	

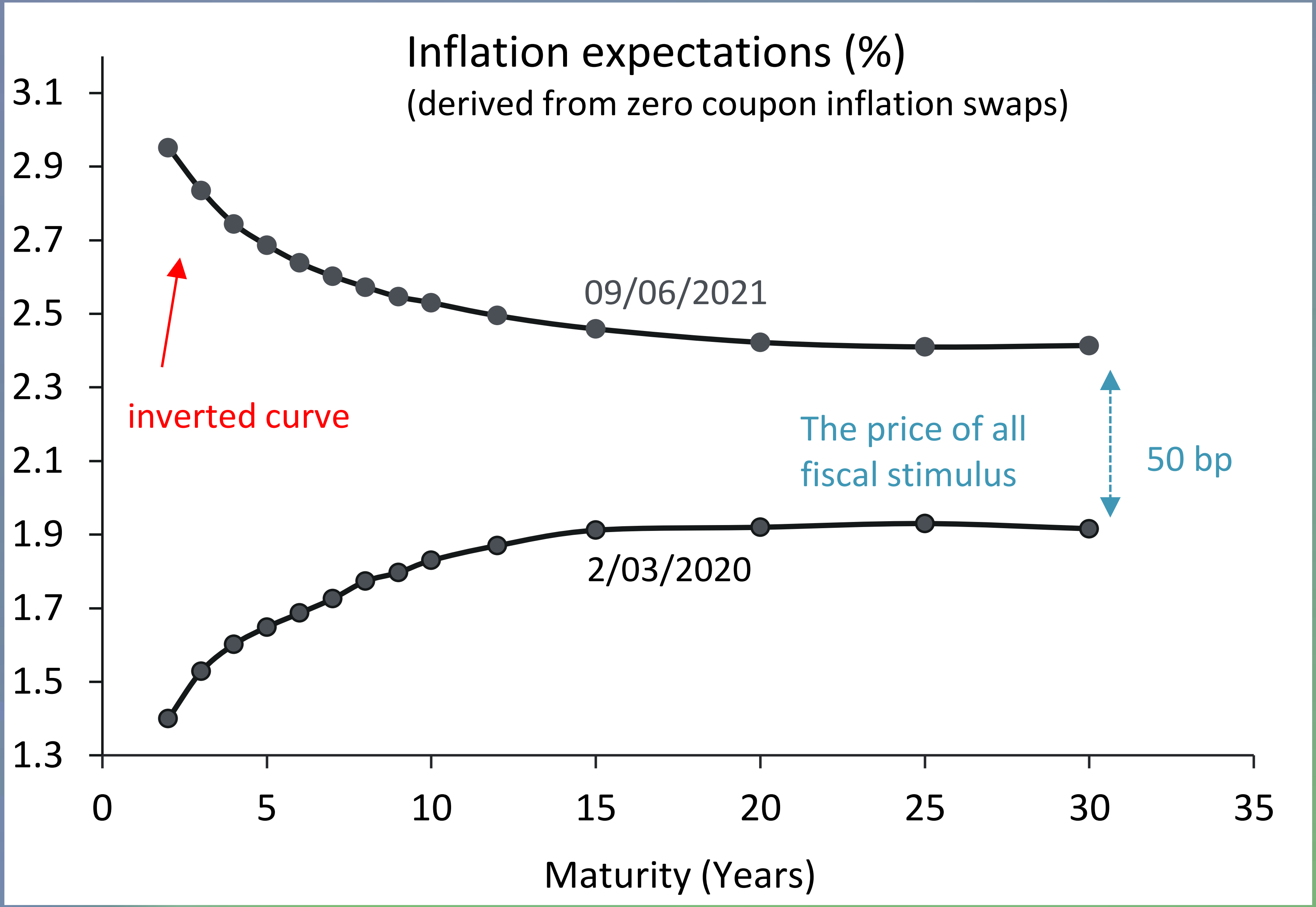
Source: BLS, Piper Sandler

Inflation expectations appear well anchored



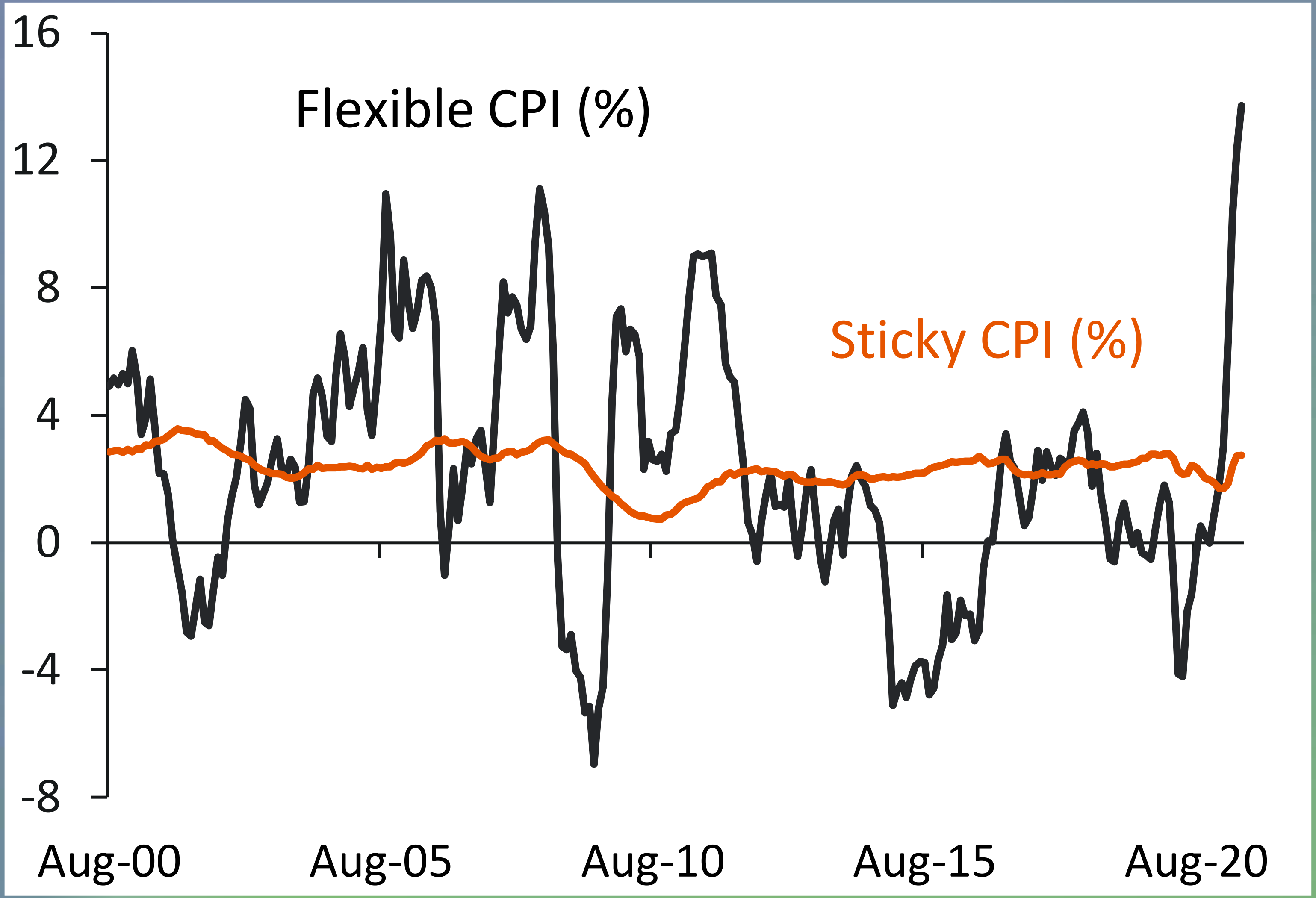
Source: Bloomberg, Piper Sandler

The price of all fiscal stimulus is worth less than 50bp



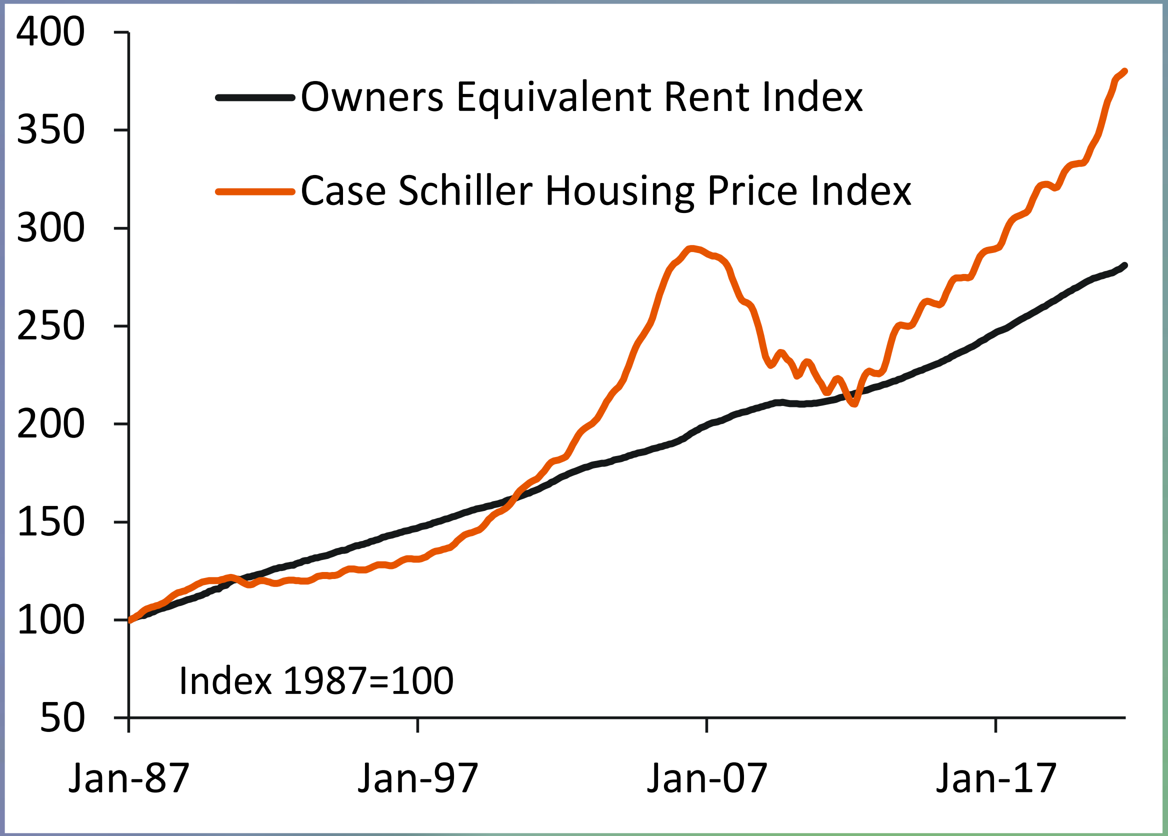
Source: Bloomberg, Piper Sandler

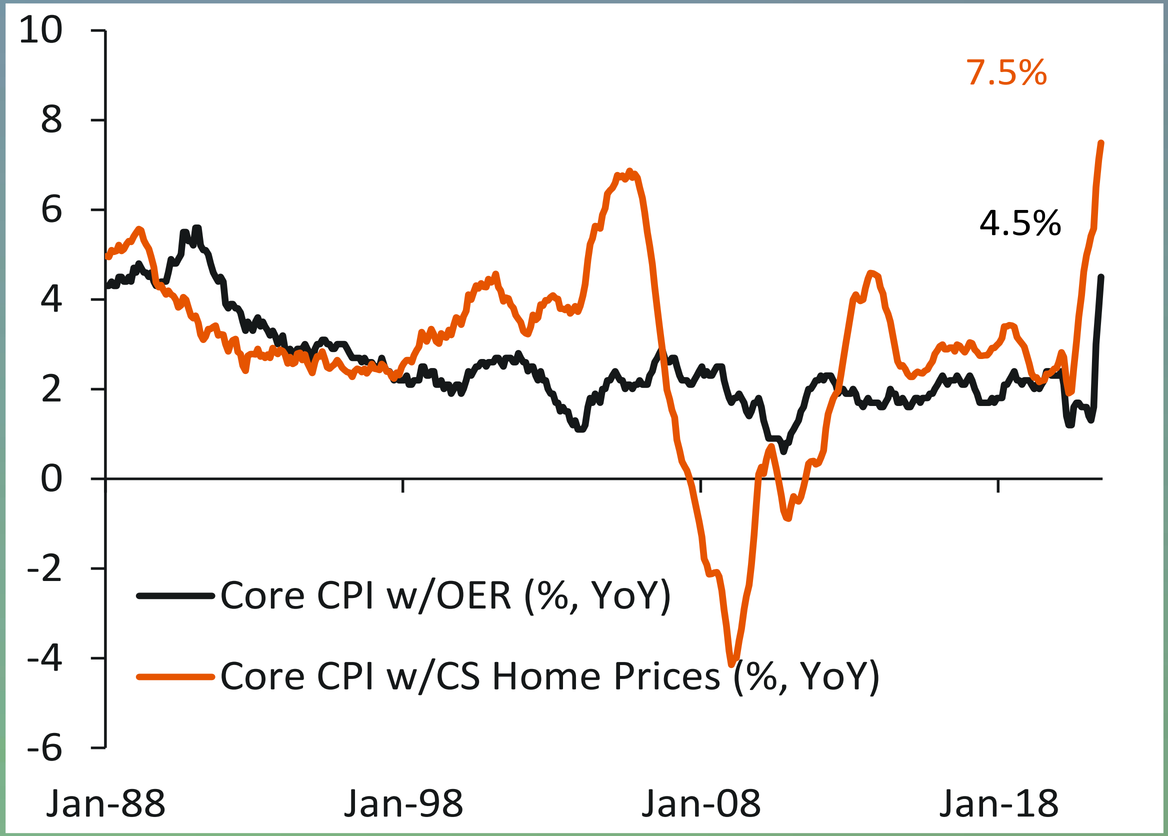
Sticky prices suggest inflation pressures may be transitory



Source: Federal Reserve, Piper Sandler

Inflation to stay low by design





Source: BLS, Piper Sandler

Take Away #3

Government based metrics like CPI and PCE show a large rise in inflation, but these measures are backward looking. Survey based and market based measures are forward looking and provide a more accurate outlook for the path of inflation. Market based inflation expectations remain well anchored, with 30-year breakevens rising barely above 2.40% despite massive fiscal and monetary policy. Also the sticky-price CPI component is currently forecasting a benign inflation environment. Studies show that this component reflects future inflation more accurately than prices that change on a frequent basis.

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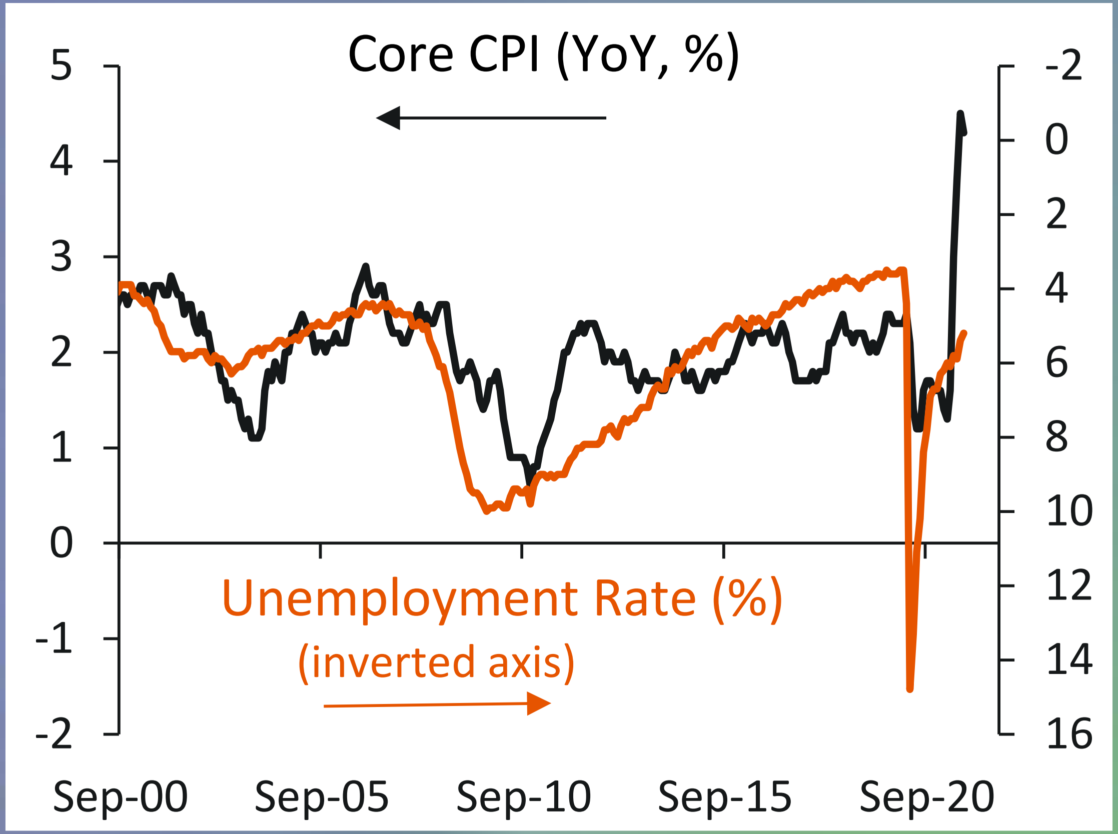
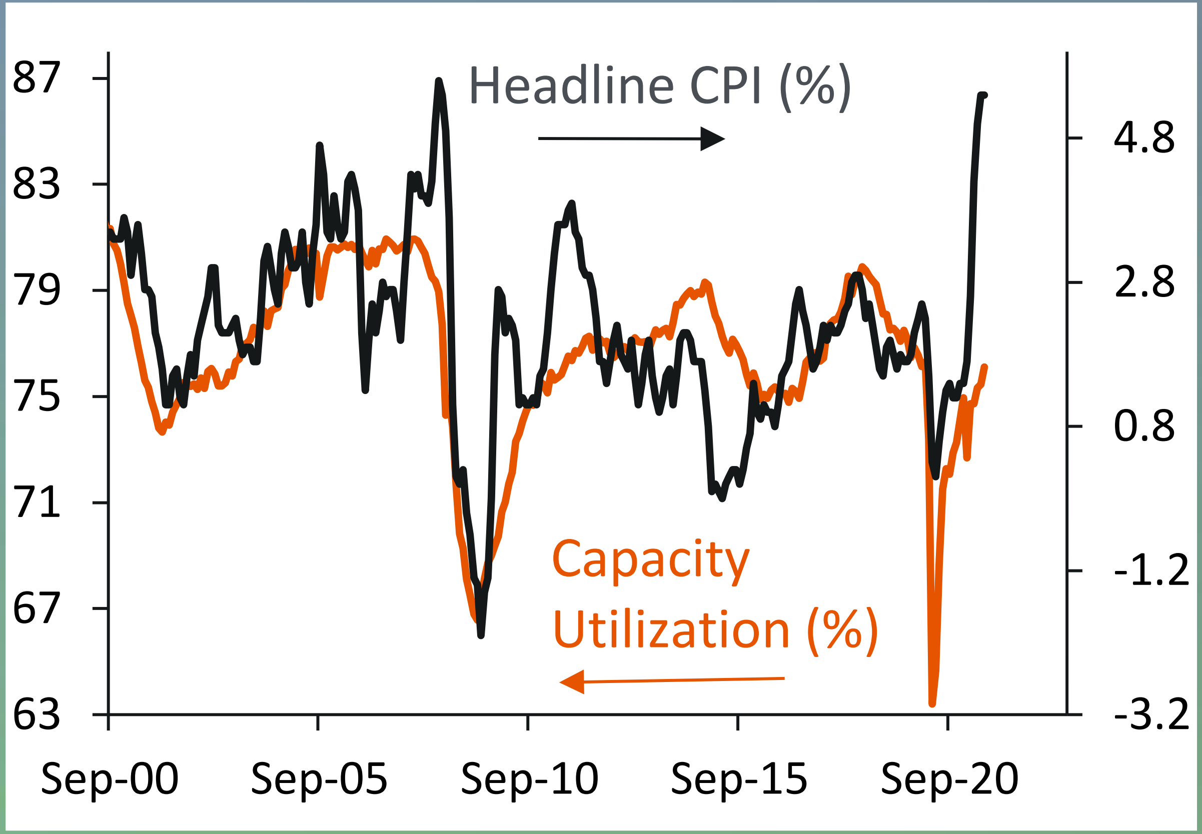
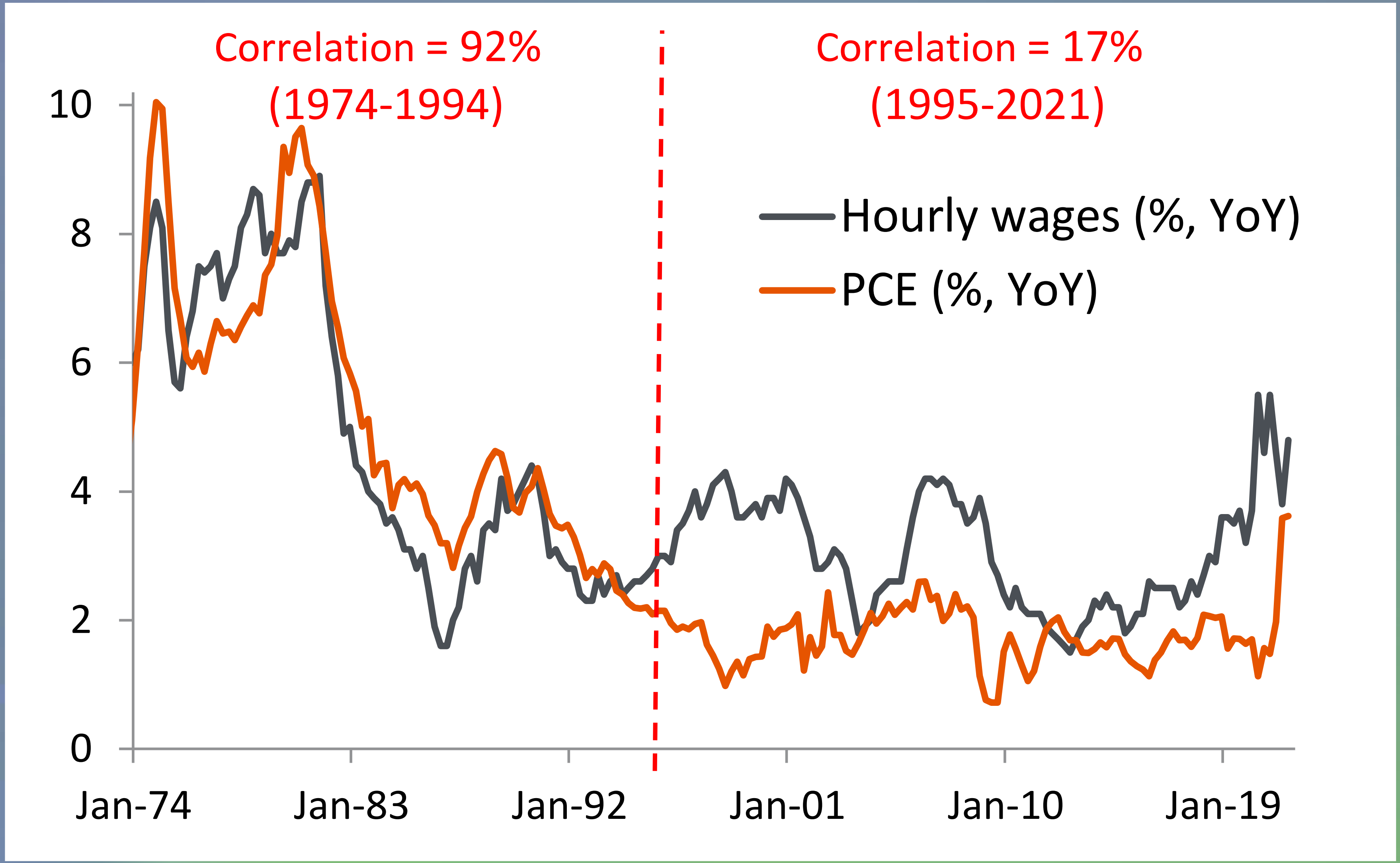
The bigger worry is slack in the economy, not inflation





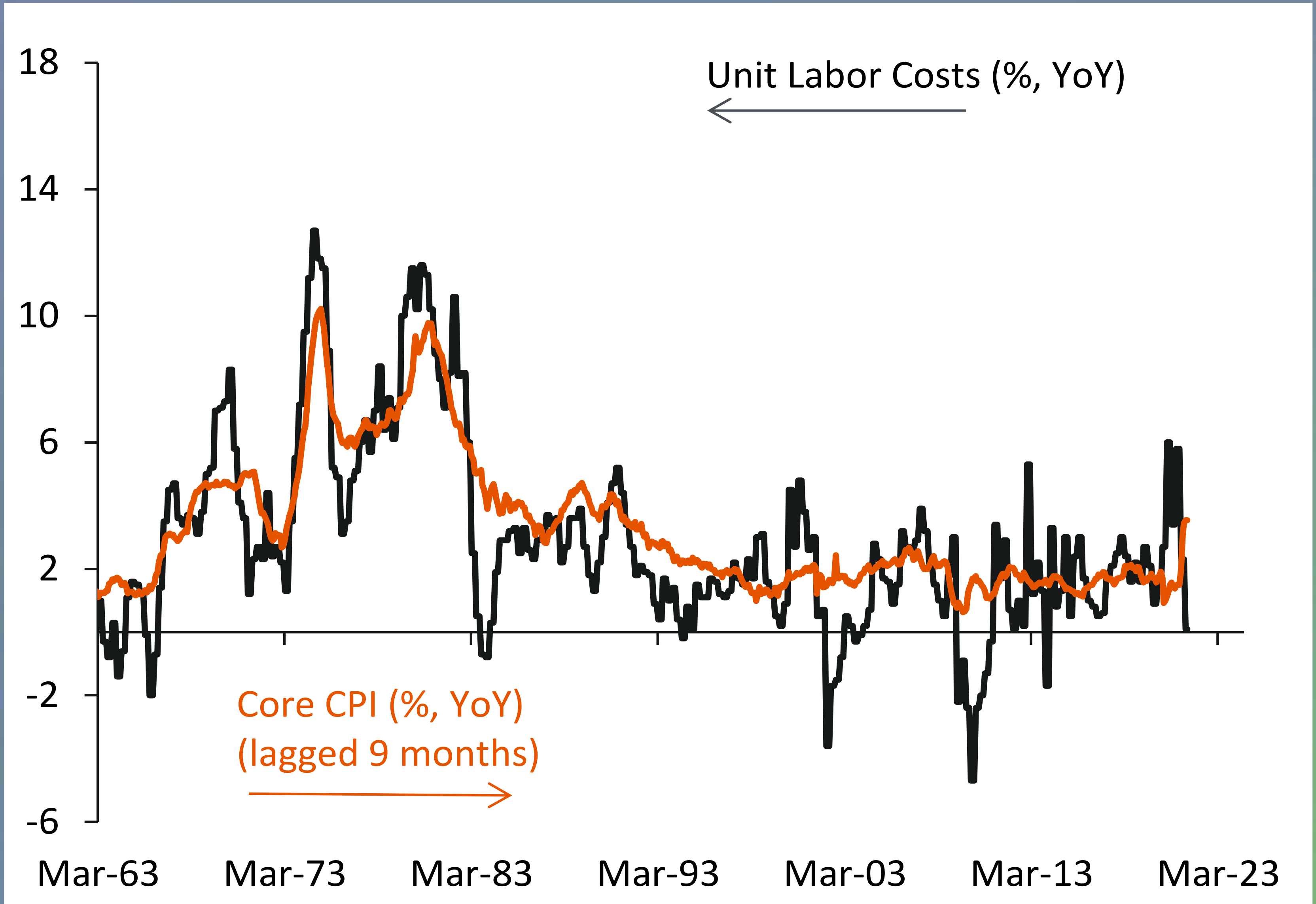
Source: BLS, Piper Sandler

High nominal wages can coexist with low inflation



Source: BLS, Piper Sandler

Productivity adjusted wages point to lower inflation



Source: BLS, Piper Sandler

Take Away #4

Slack in the economy, as measured by the unemployment rate and capacity utilization, points to disinflationary pressures. Tighter US labor markets will not lead to higher inflation. As globalization has weakened the relation between inflation and wages, with economic expansions generating less upward price pressures over the past 20 years. More importantly, productivity adjusted wages are consistent with annual inflation growth rates of less than 2%.

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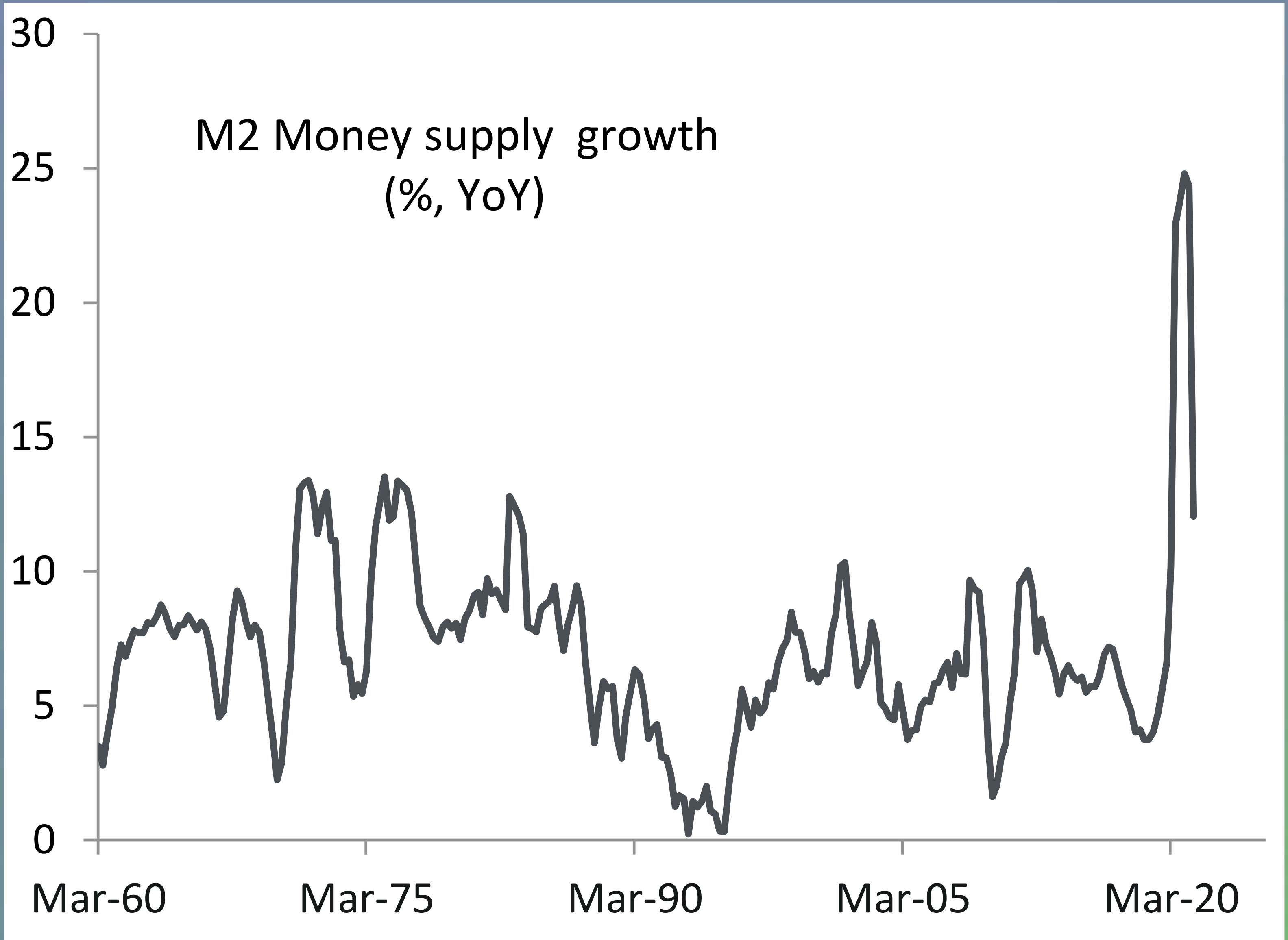
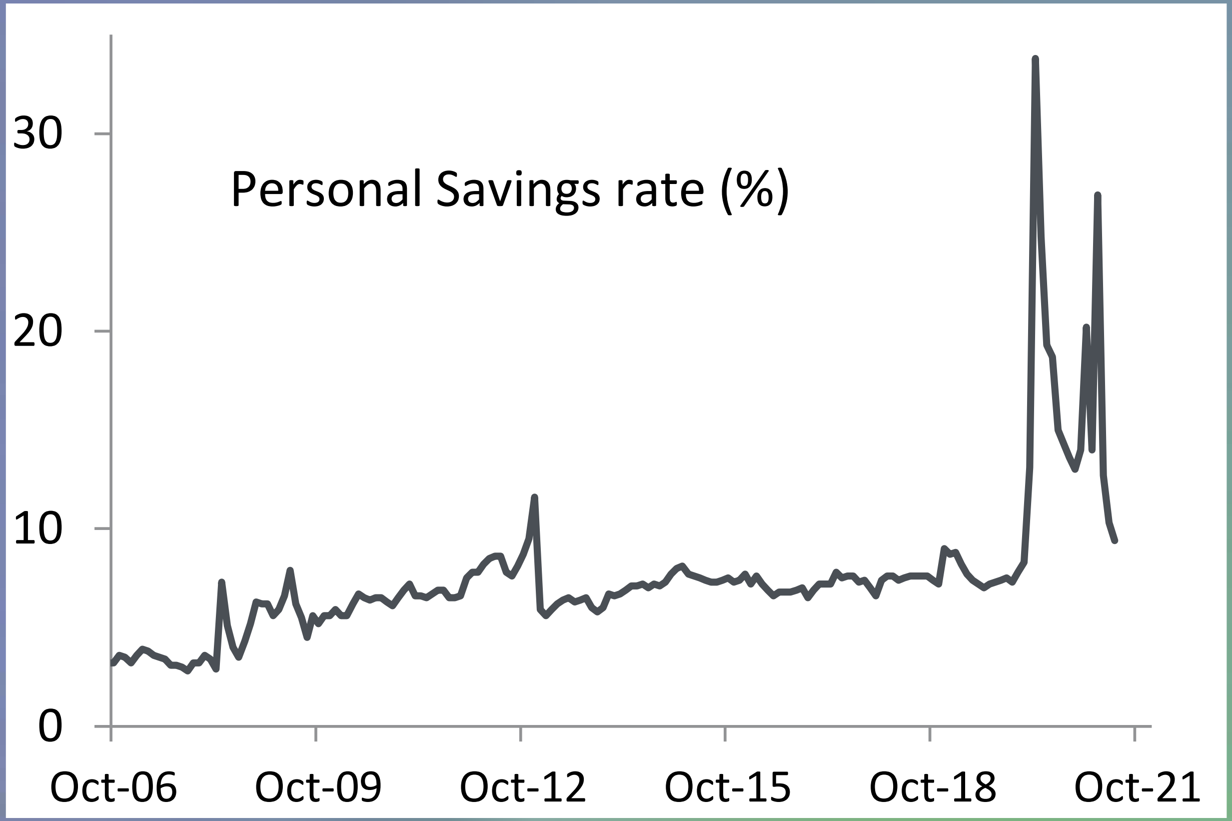
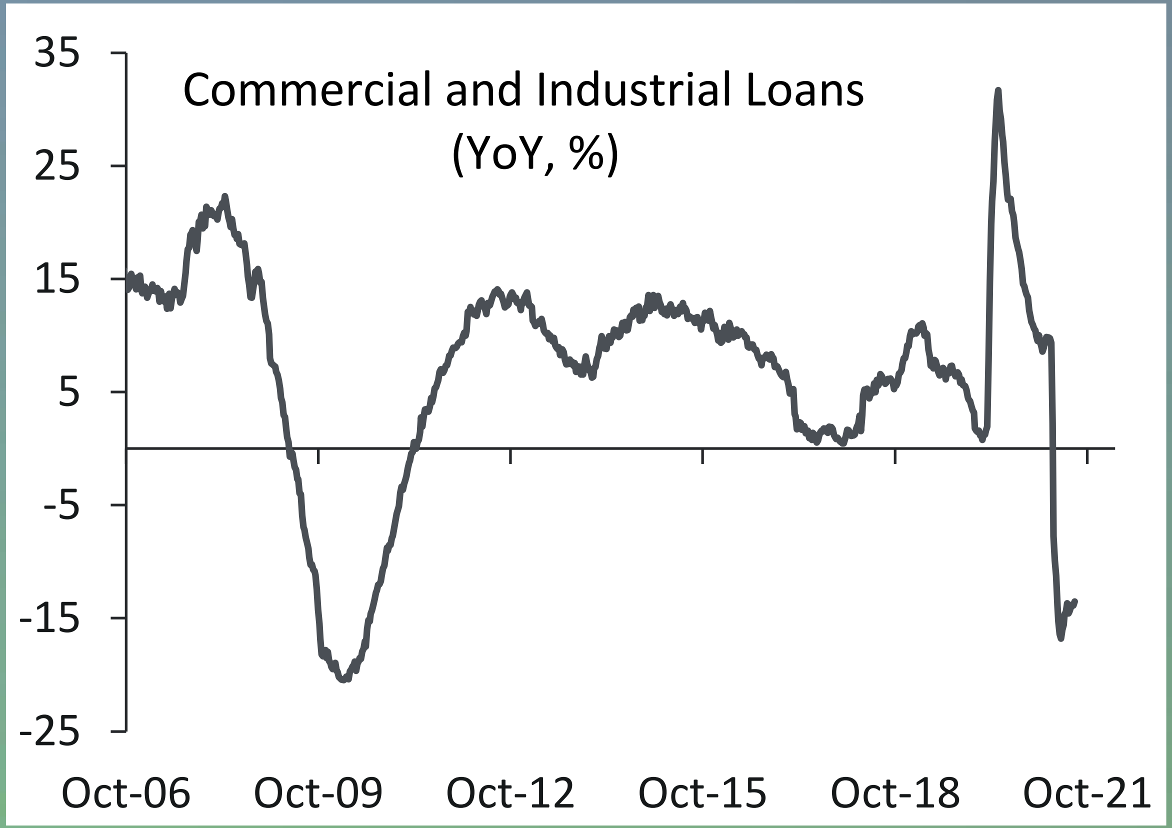
M2 money supply increased at an unprecedented pace



Source: Federal Reserve, Piper Sandler

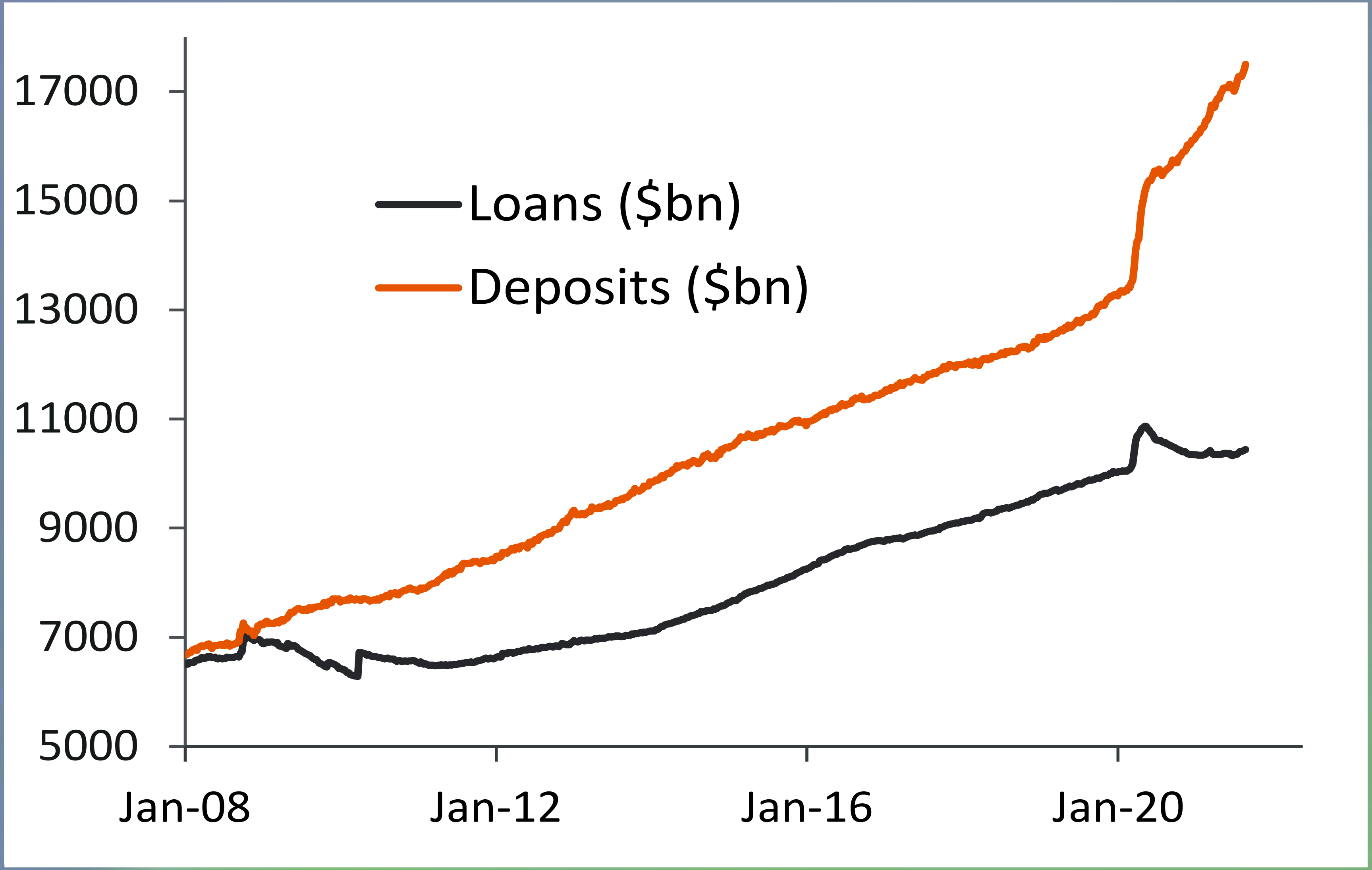
The personal savings rate and C&I loan growth are falling





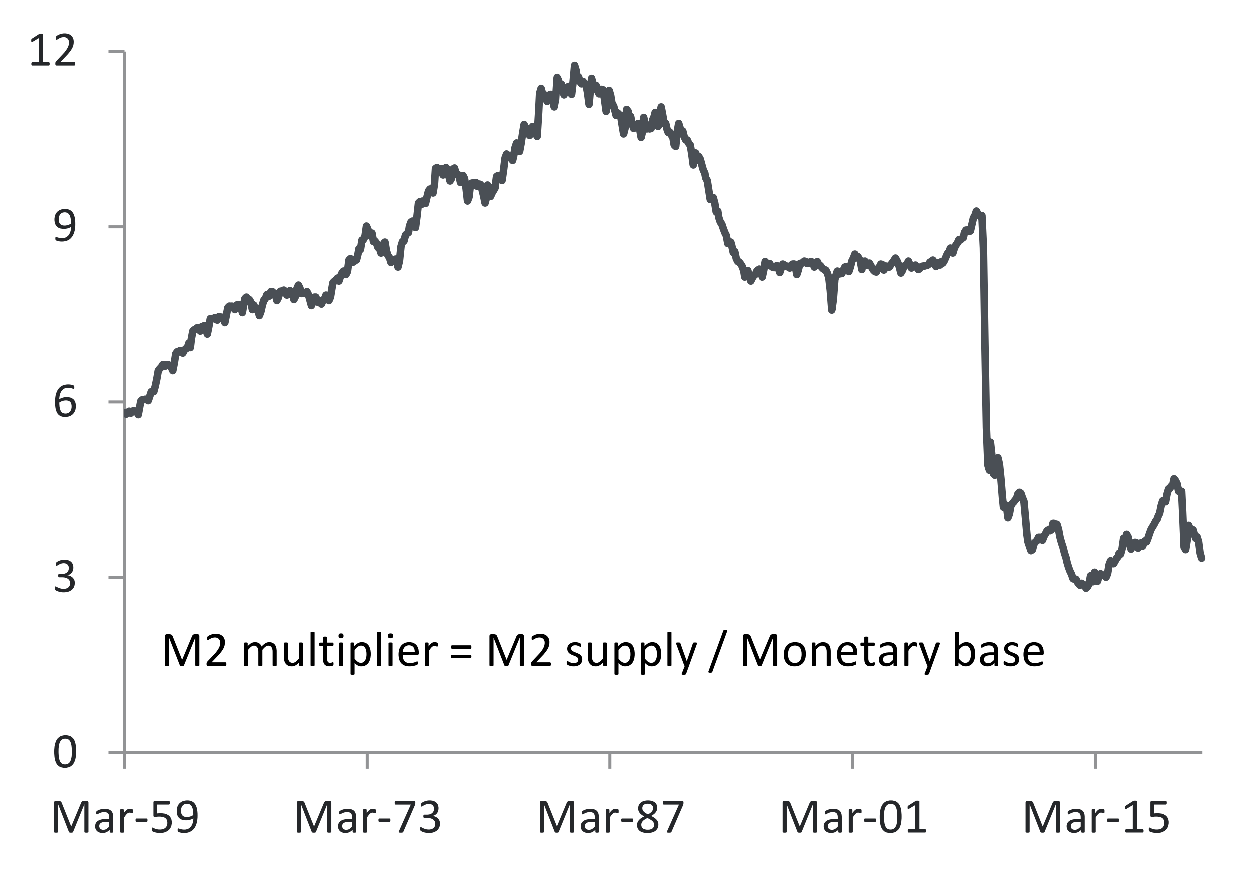
Source: Federal Reserve, Piper Sandler

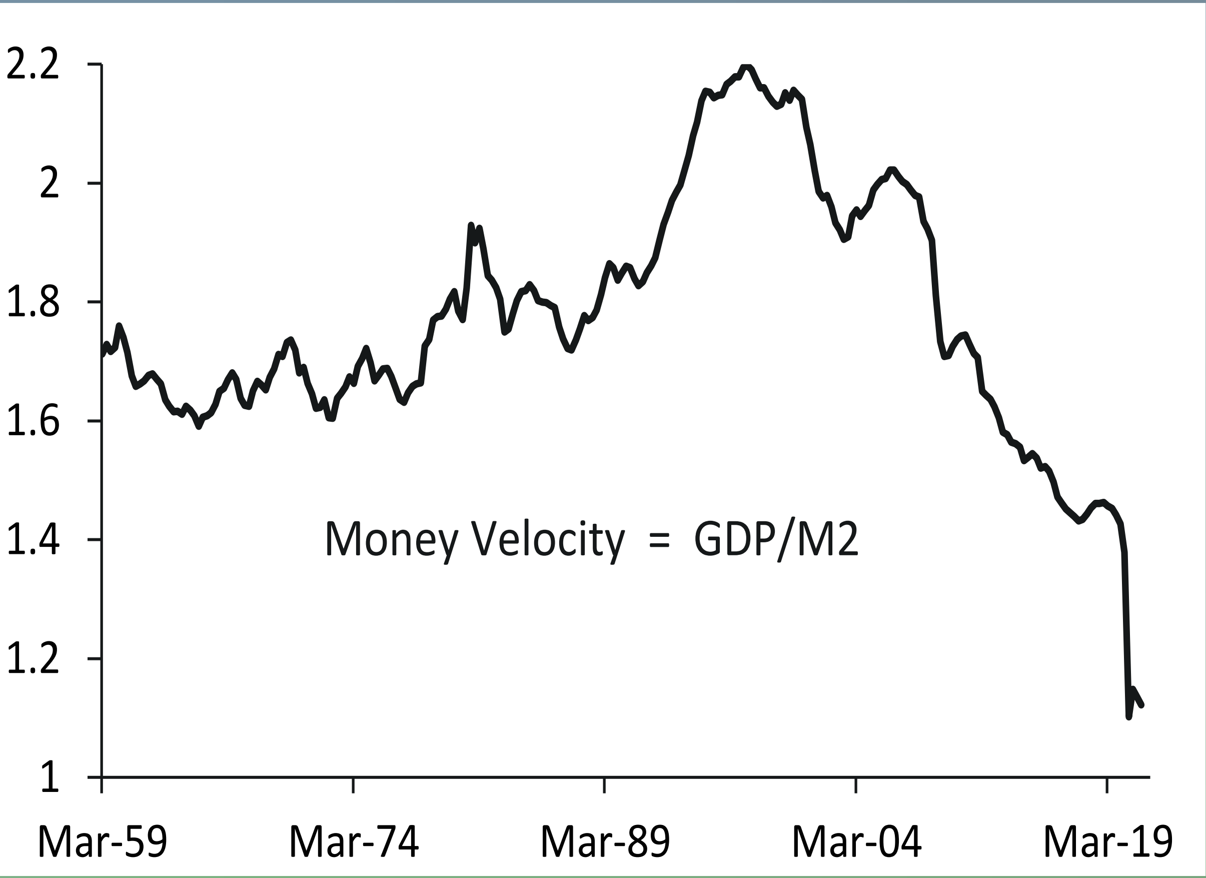
Deposit growth has significantly outpaced the rate of loan production



Source: Federal Reserve, Piper Sandler

Money creation and money circulation support a disinflationary view





Source: Federal Reserve, Piper Sandler

Take Away #5

High inflation will materialize only if money supply creates a sustained acceleration in economic activity that leads to rapid credit growth. A protracted fall in bank lending can contribute to the decline in the rate of growth of the money supply leading to deflationary pressures, especially as the Fed starts tapering it asset purchase program. With the money multiplier remaining depressed and the velocity of money dropping near historically low levels, the view of a sustained surge in inflation over the coming year is doubtful.

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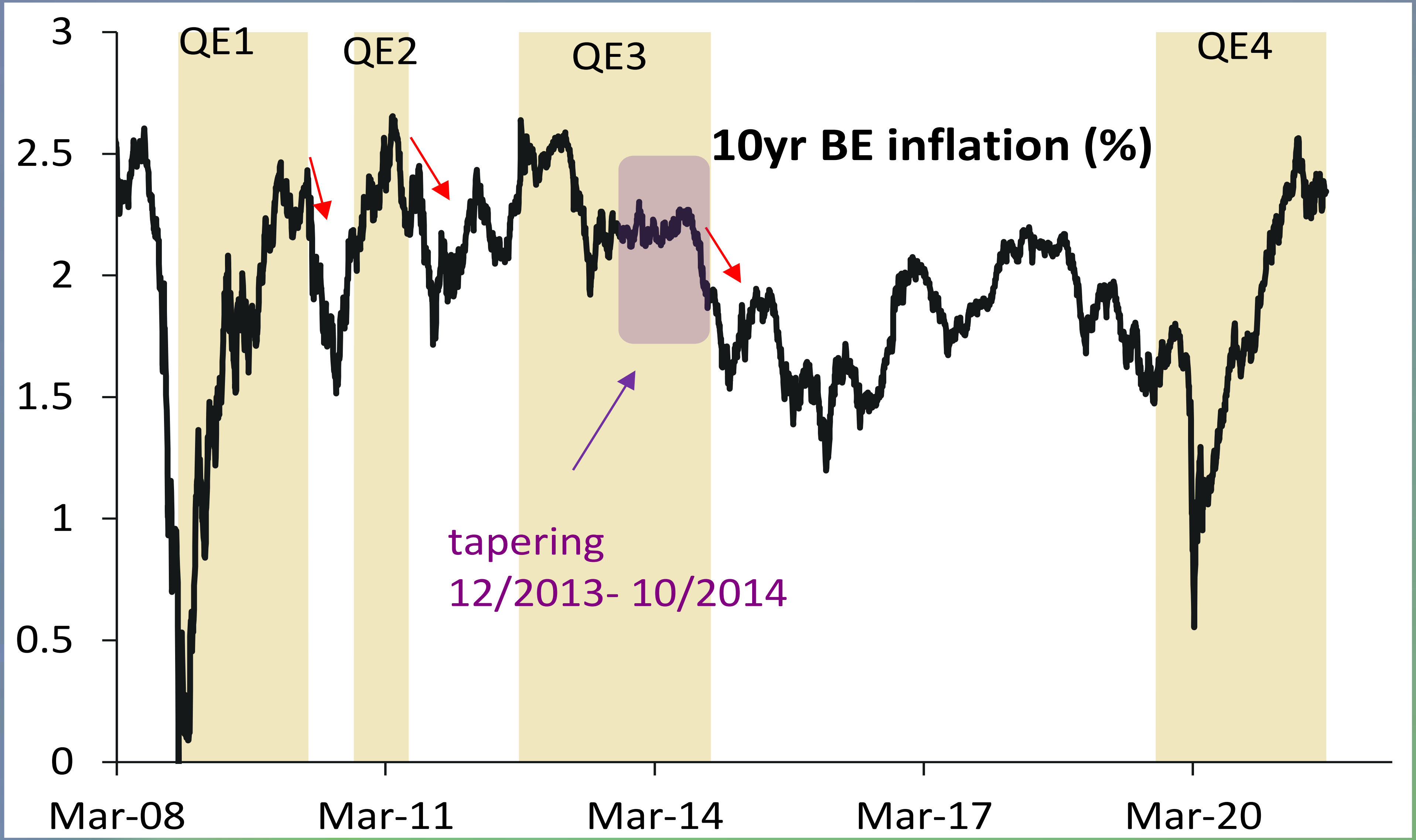
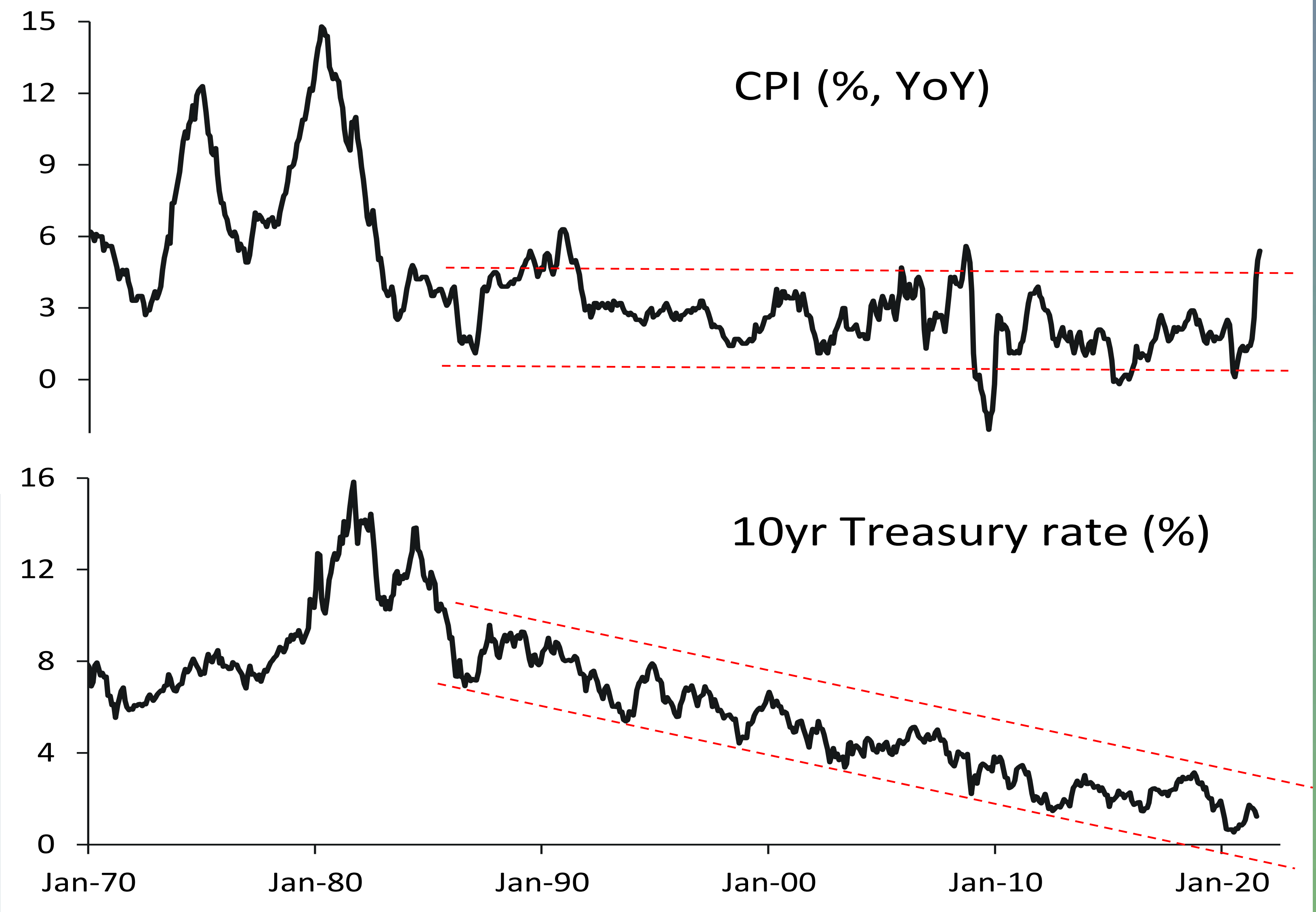
The end of QE may lead to lower inflation



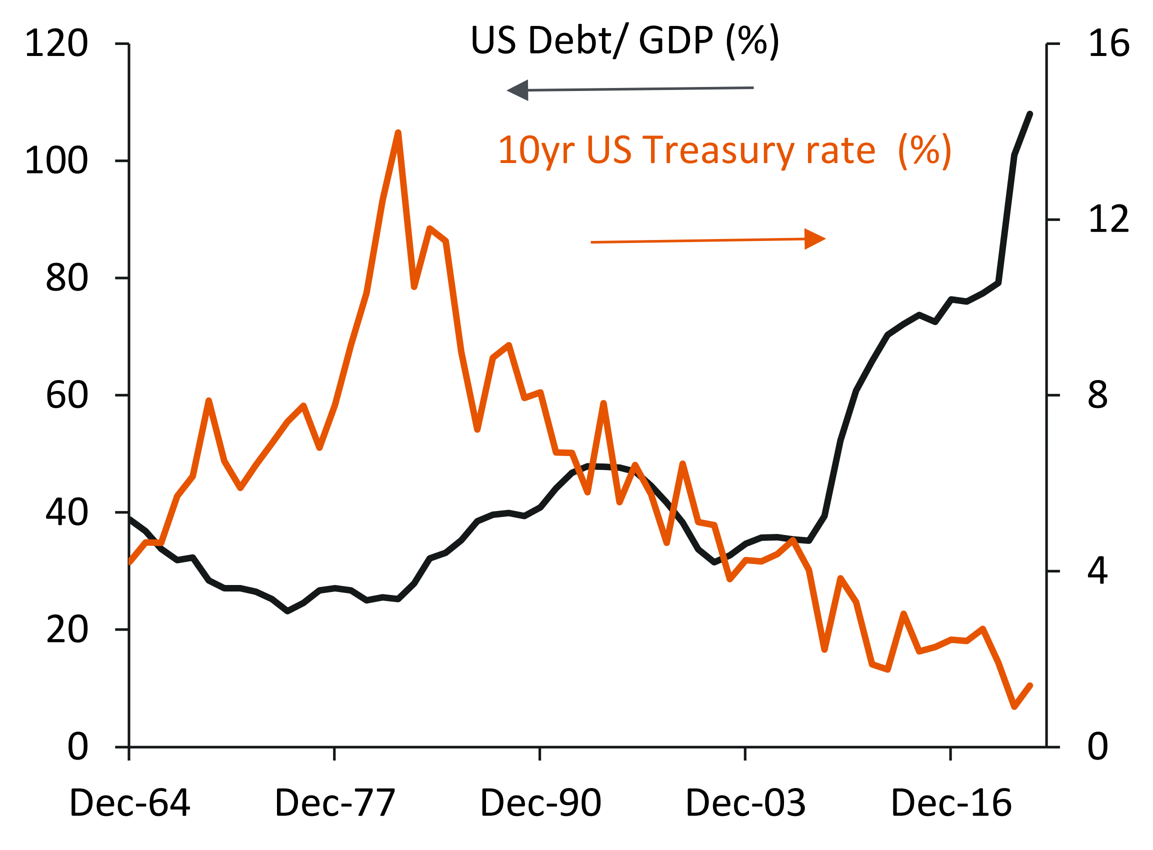
Source: Bloomberg, Piper Sandler

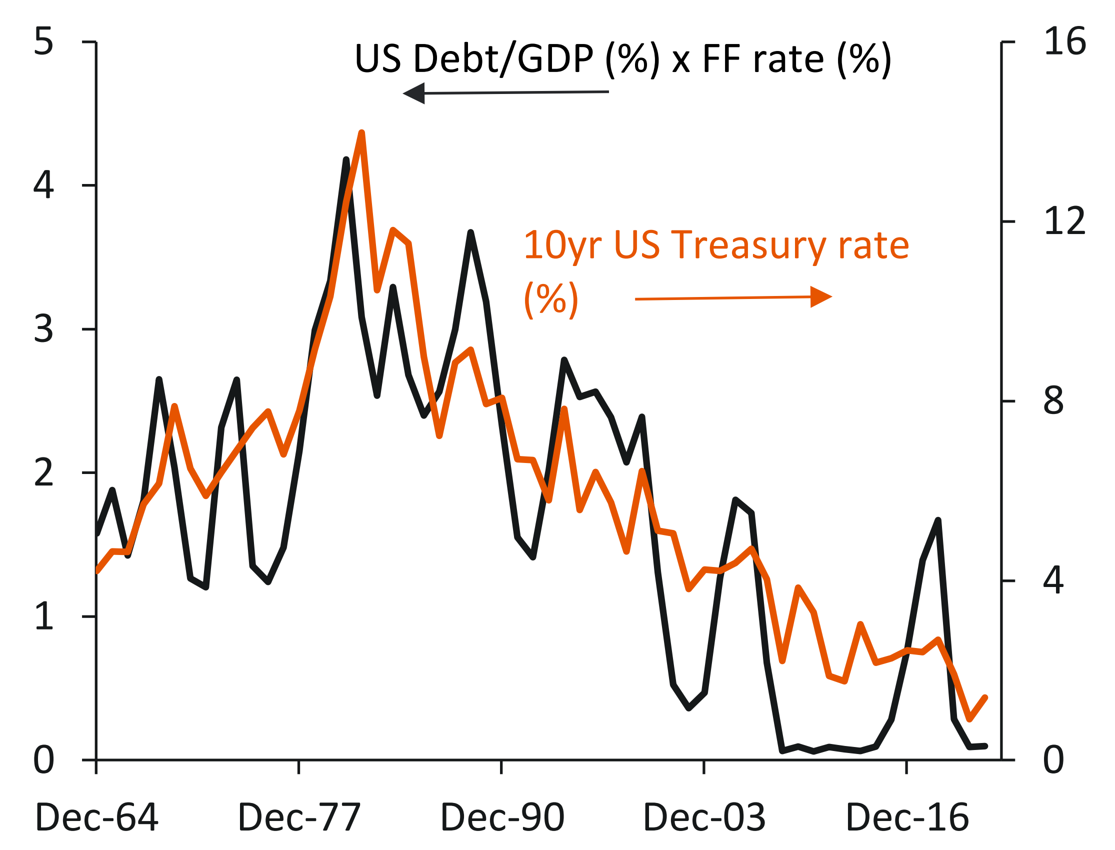
Long rates have been trending lower for decades as inflation remained flat



Source: Bloomberg, Piper Sandler

Does rising debt lead to higher inflation?





Source: Bloomberg, Piper Sandler

Take Away #6

Over the last decade the market has relied on catalysts to push inflation higher, but once the impact fades, prices start declining. Strong disinflationary forces (globalization, automation, aging demographics and high levels of debt) should keep price pressures muted, with inflation falling below its 30yr average growth rate of 2.3%. With Fed funds near zero, the cost of debt remains low and allows the issuance of more debt without pressuring rates higher.

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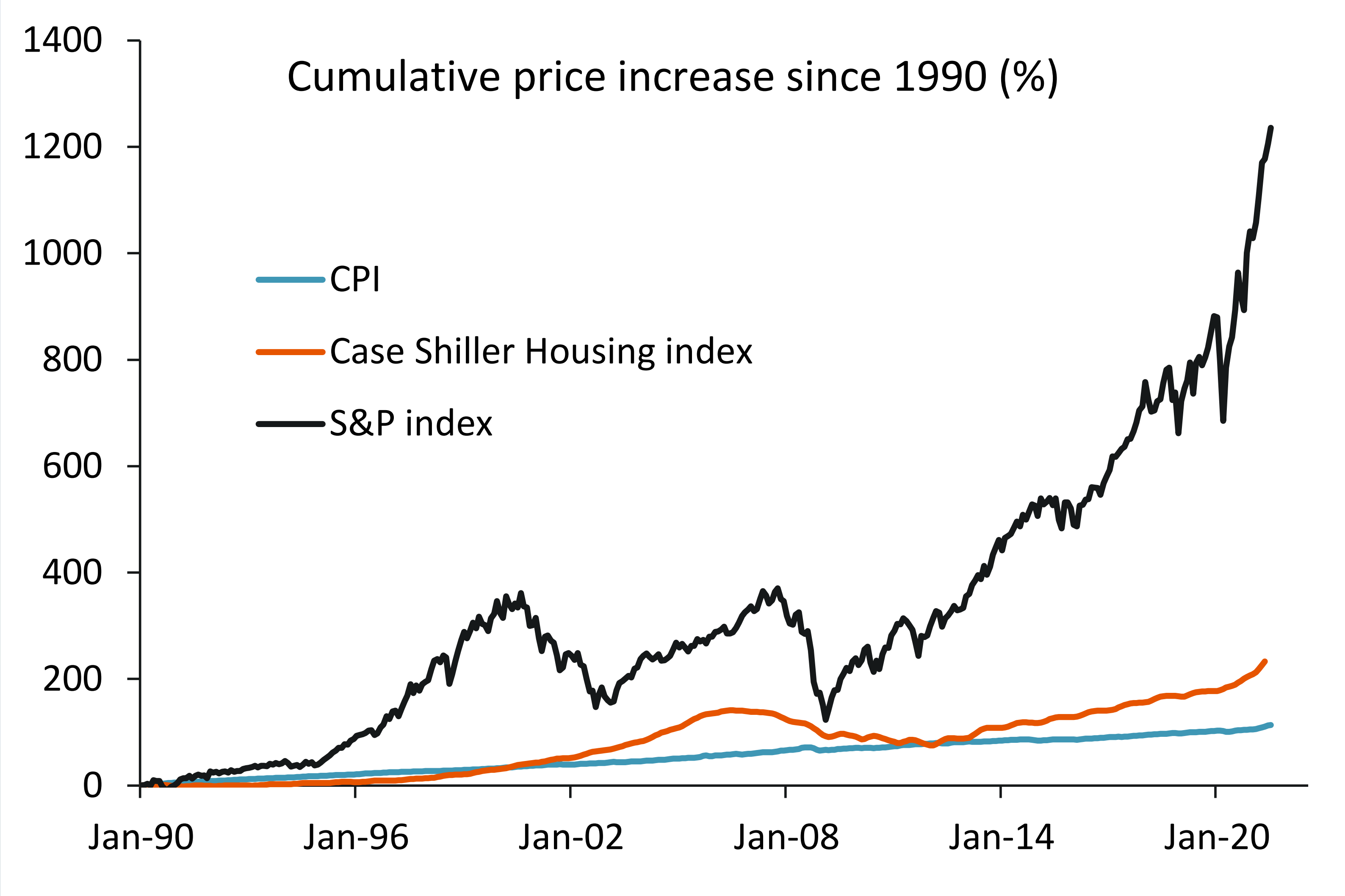
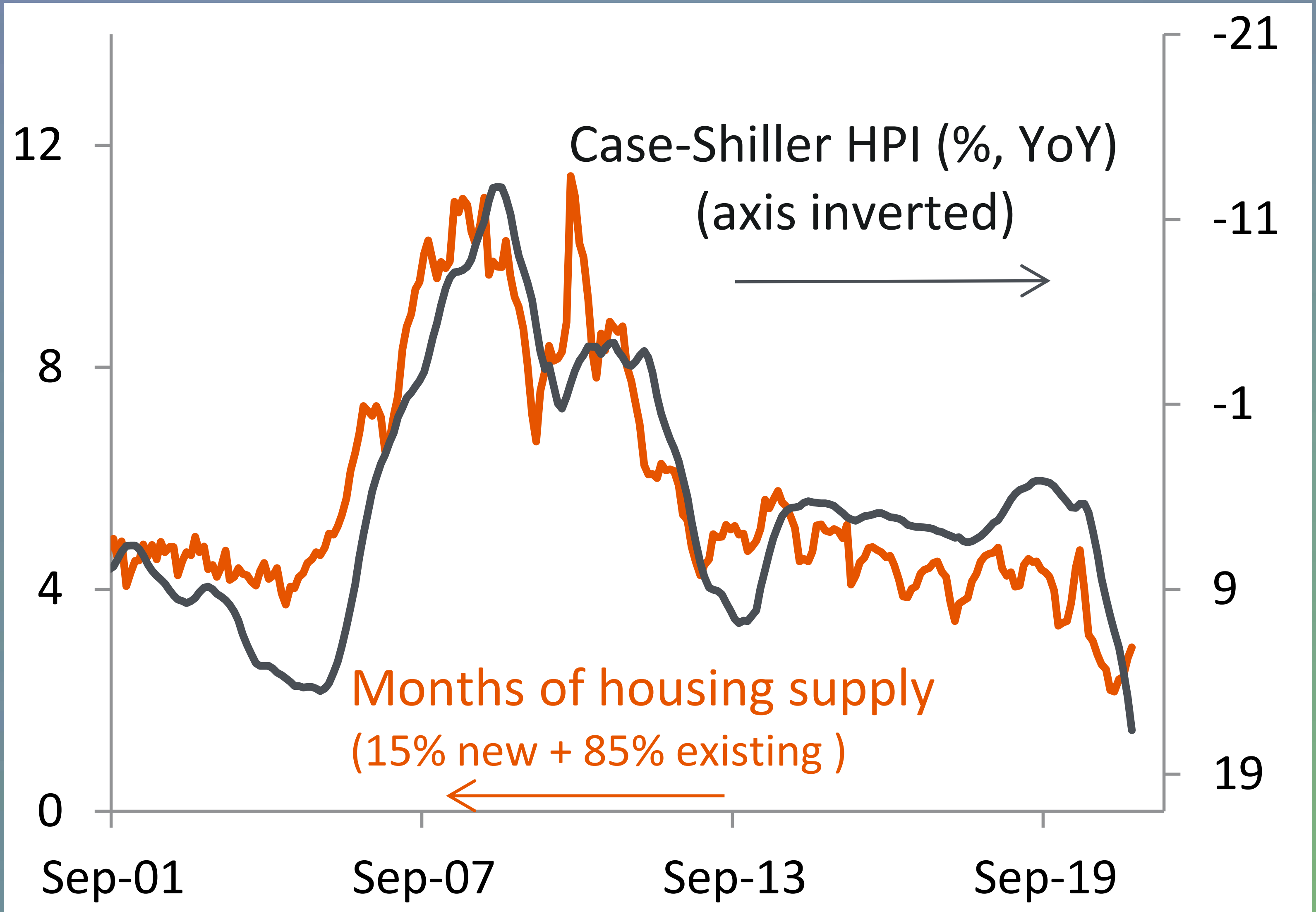
Spotting the asset bubble



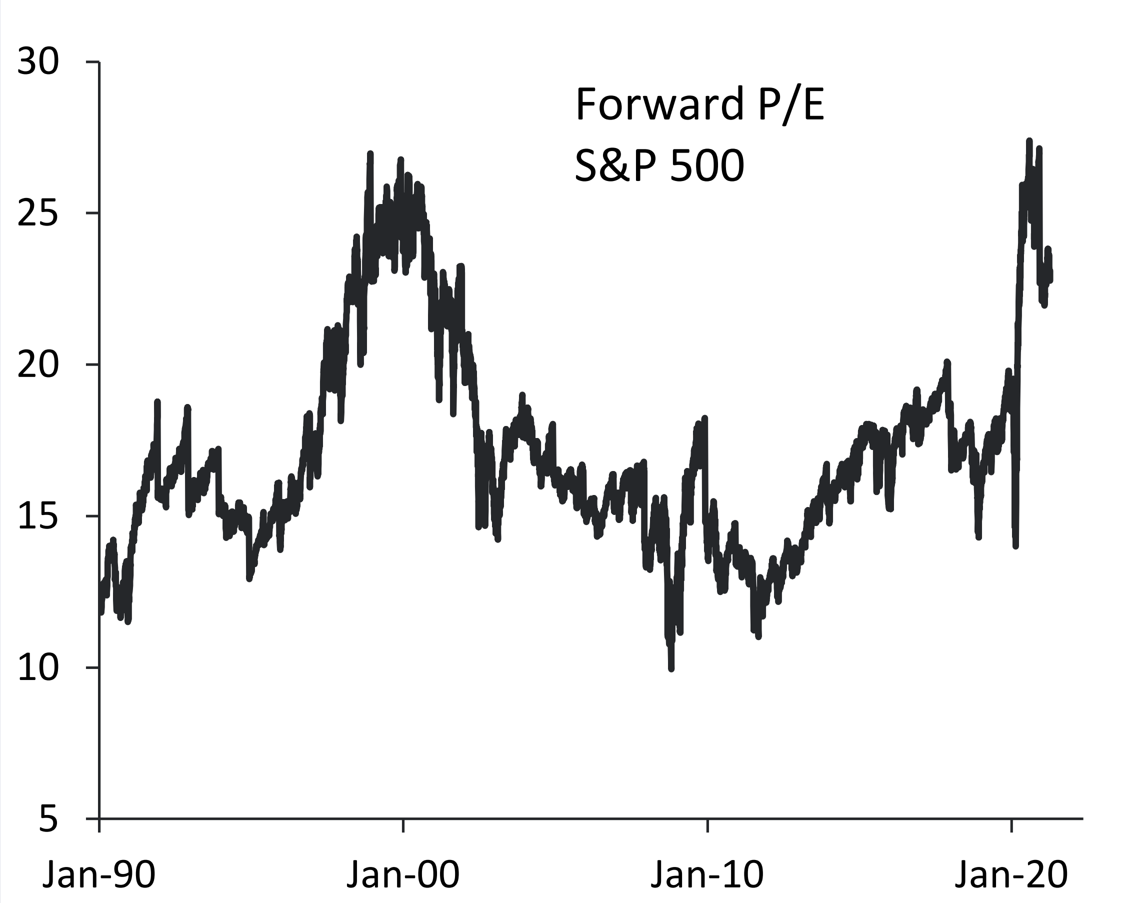
Source: Bloomberg, Piper Sandler

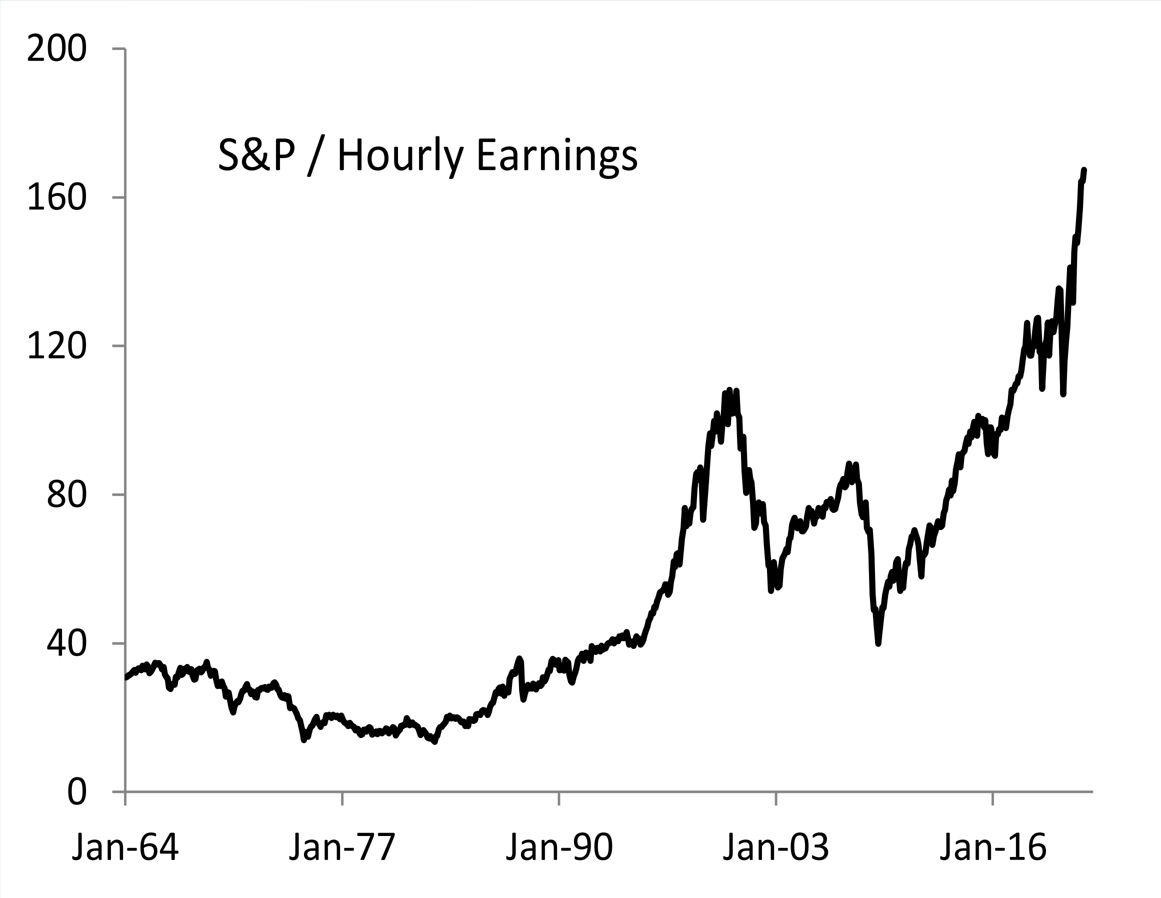
Low inventory levels support housing valuations



Source: Bloomberg, Piper Sandler

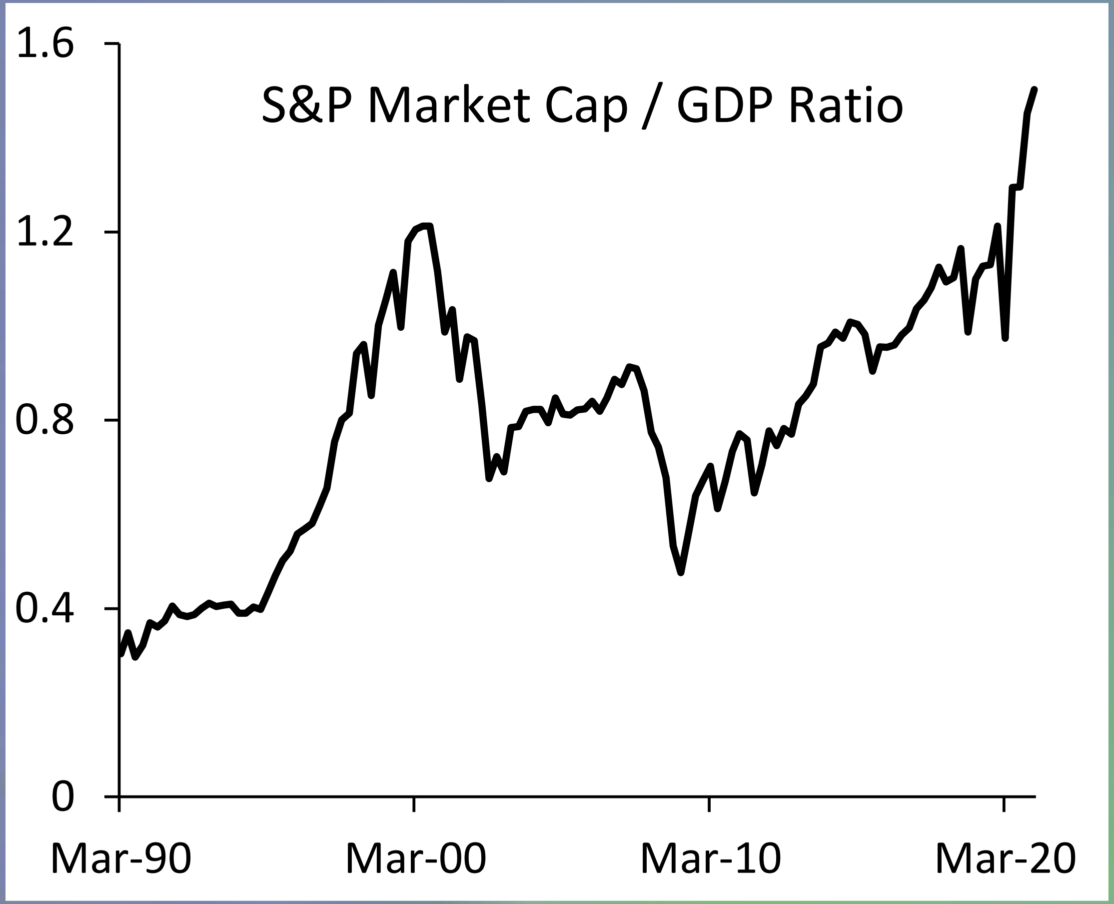
US equities seem expensive relative to almost everything

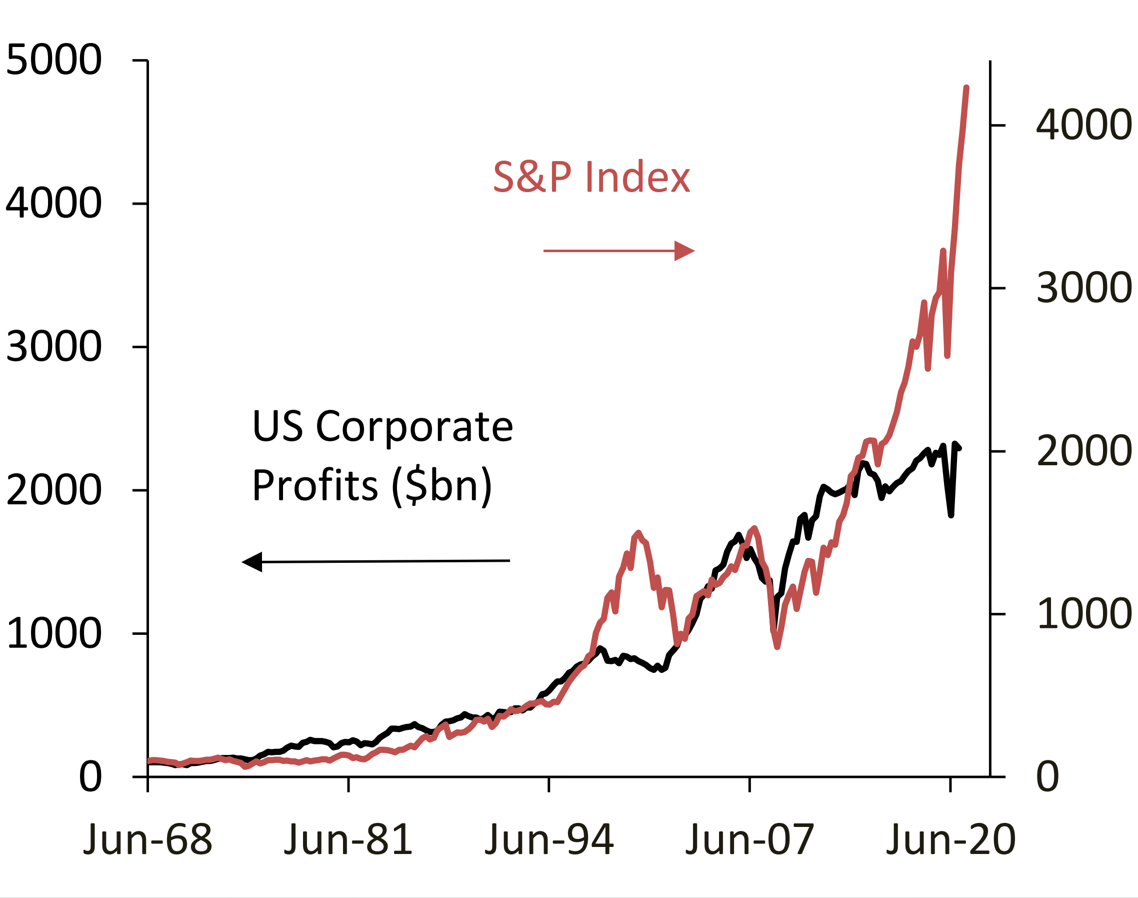




Source: Bloomberg, Piper Sandler

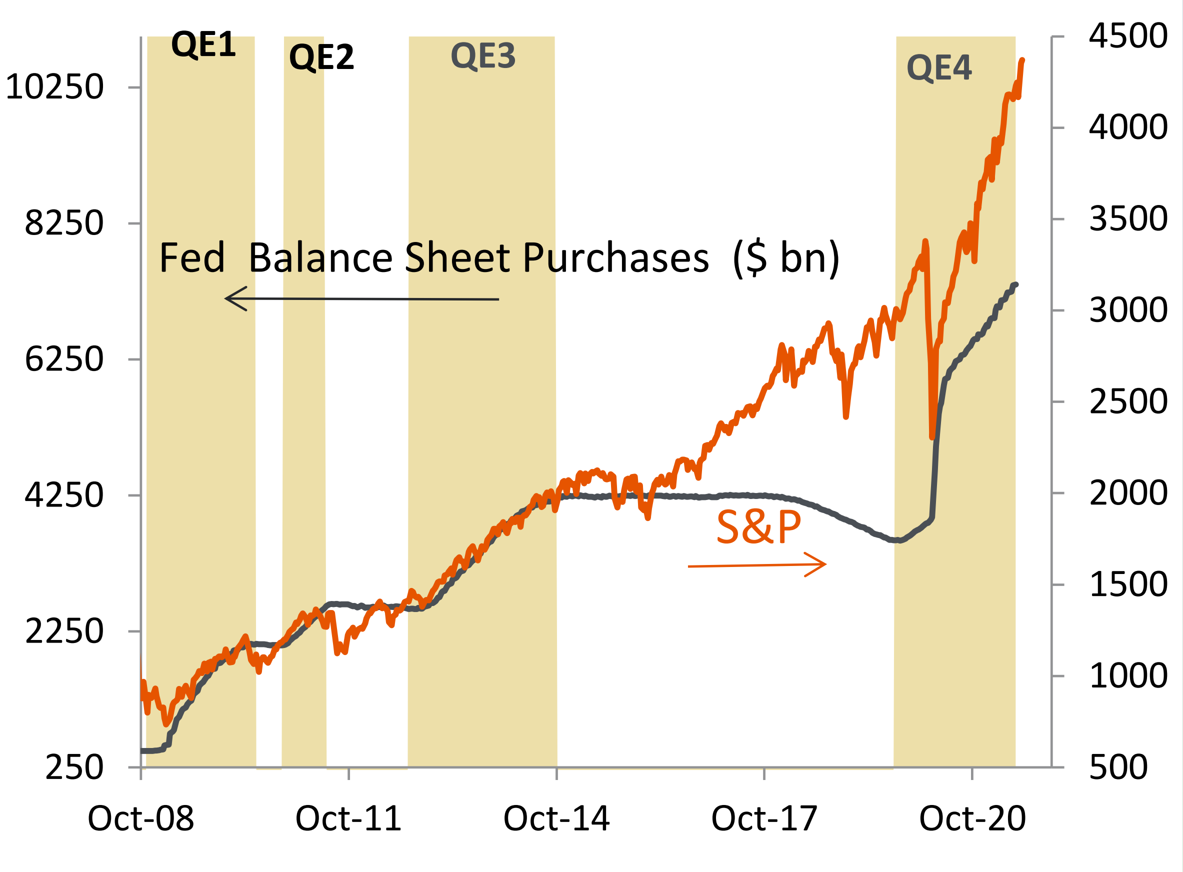
US equities seem expensive relative to almost everything (continued)

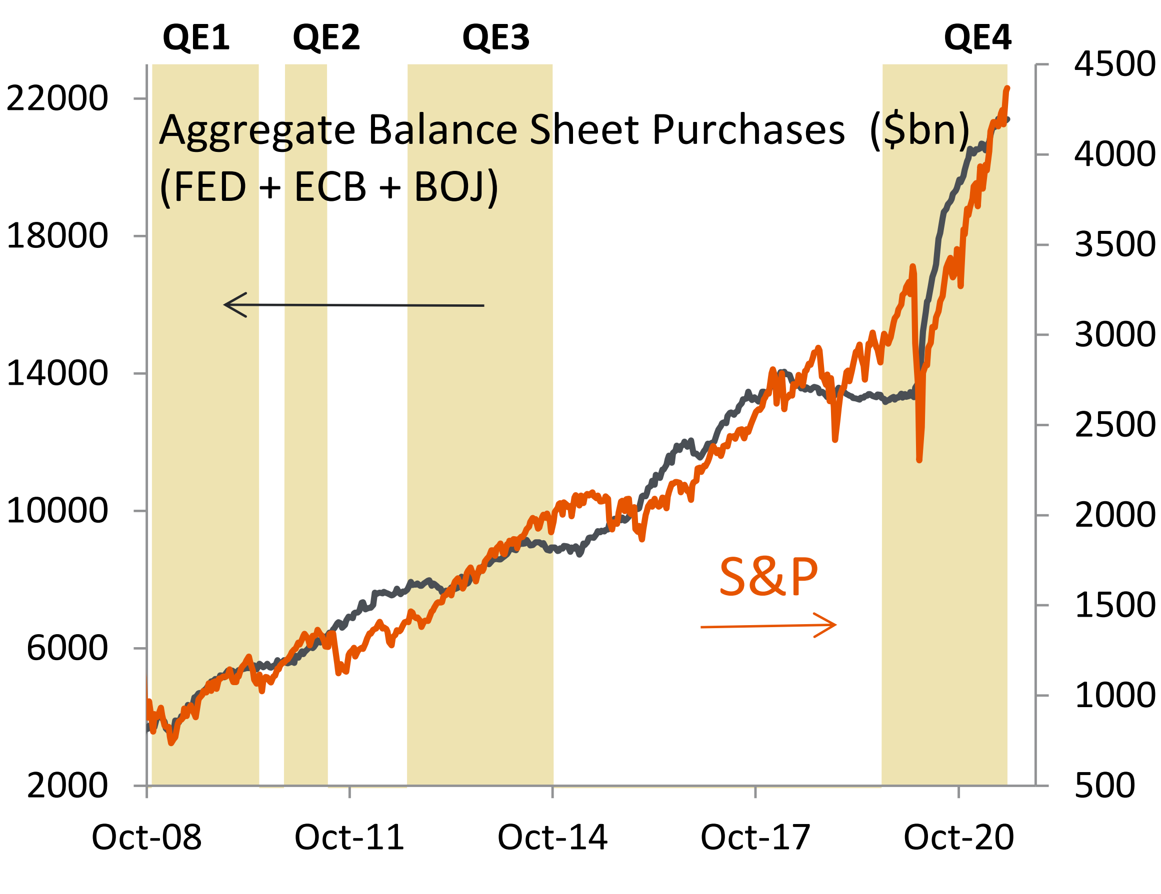




Source: Bloomberg, Piper Sandler

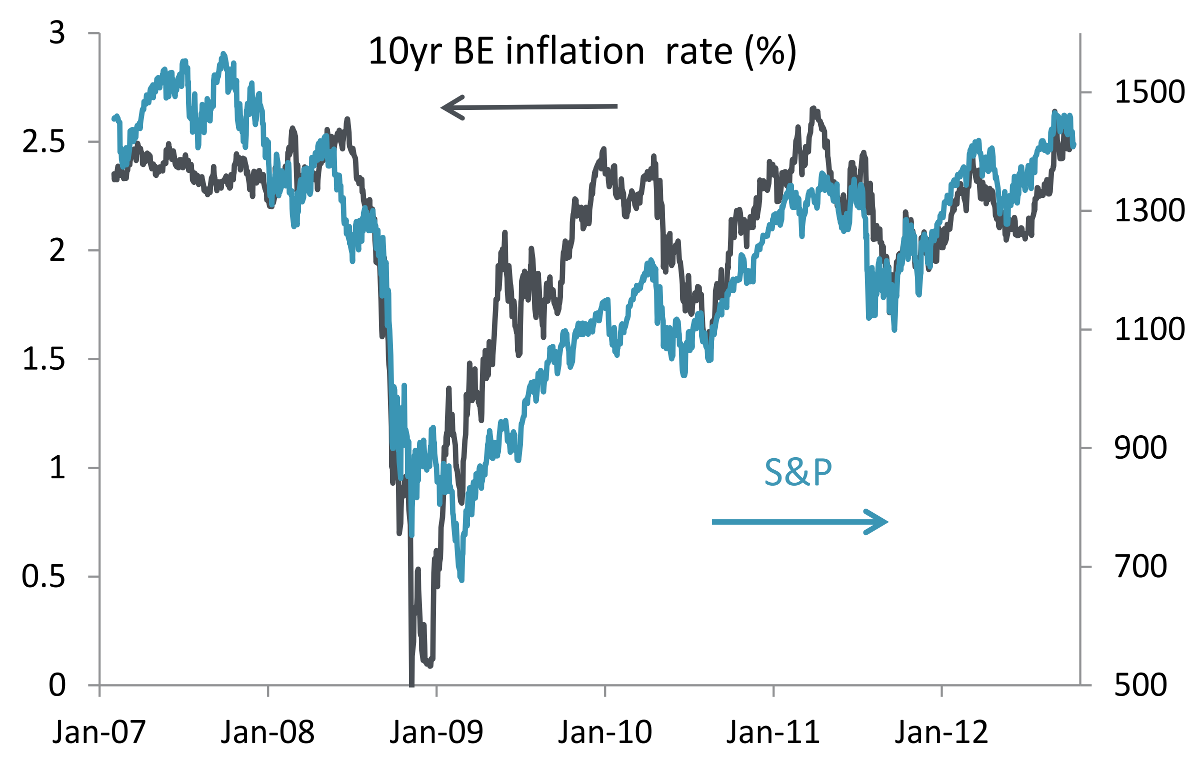
Quantitative easing is supporting equities

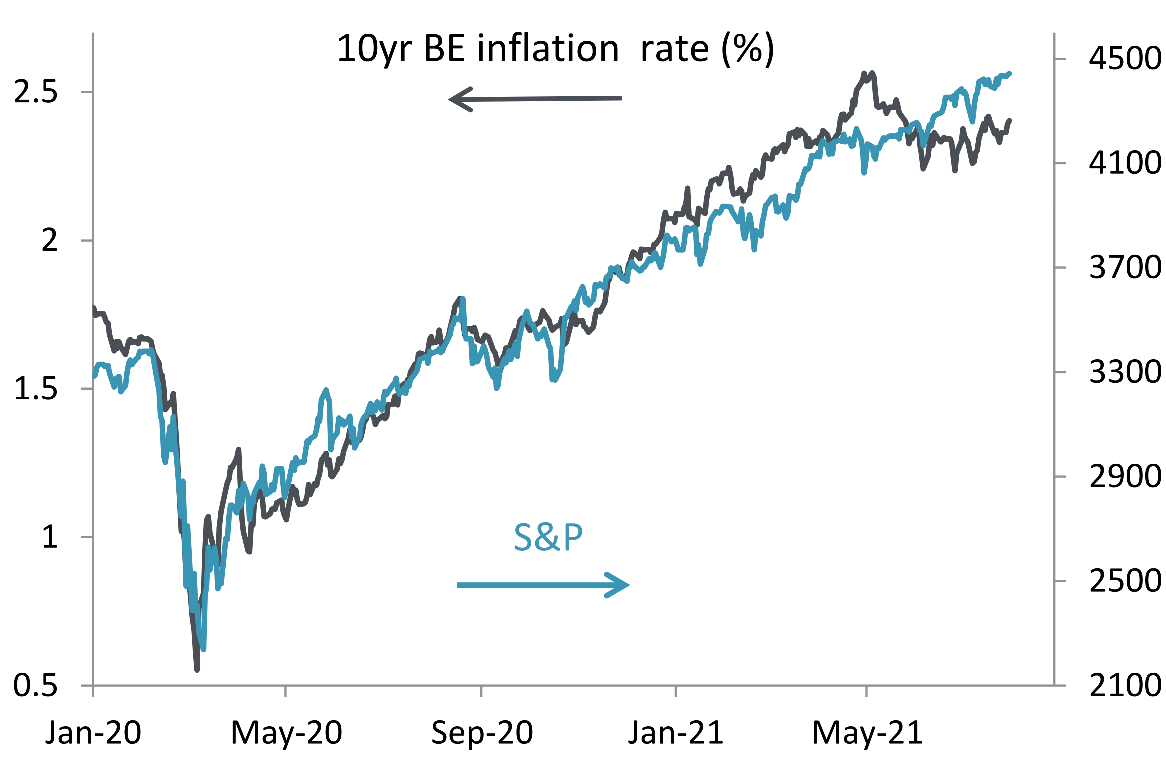




Source: Bloomberg, Piper Sandler

A bubble burst will drive inflation lower





Source: Bloomberg, Piper Sandler

Take Away #7

While housing valuations are hitting historically high levels, the growth in home prices can be justified through low housing inventories. Equity valuations are also trading near record highs, but are unjustifiably expensive across many traditional measures. A market correction is not necessarily imminent as central bank purchases continue to encourage greater risk-taking, but with the Fed beginning to taper, equities may start to move lower. The strong correlation between the stock market and inflation suggests a large drop in equity valuations would drive inflation substantially lower.

Q & A

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