

Understanding Recession Indicators

April 26, 2022

- In my market outlook going into January 2022, I suspected the year in terms of financial markets would be characterized by a road trip in the sense there would be pits stops along the way, some expected, and some not so expected
 - Interest Rate Hikes - Expected
 - War in Ukraine - Unexpected
- While there is no shortage of news and internet headlines discussing the headwinds we have faced thus far such as interest rate hikes, soaring CPI, yield curves and the war in Ukraine, it is important to always get back to the fundamentals
- There's a reason why the windshield in your car is larger than the rear-view mirror. While it's important to know where you're coming from it is far more important to know where we are going
- The Fed has taken the first of many steps up the interest rate mountain, but like other credit tightening cycles - each climb is different
- The market has fully priced in a 50 basis points (bps) rate hike from the fed the next two meetings and is now expecting 8-9 hikes in 2022
- The Fed has been transparent throughout the process indicating that they need to increase rates to help tackle inflation and have rates that better reflect the strength of the overall economy. With each rate increase they have been consistent with the tone that they would re-evaluate the economy carefully to best avoid making a policy error.
- We remain in the camp that the Fed increases rates throughout the summer and markets expect 50 bps hikes the next two meetings. In saying that, I believe this will be enough to help cool down an overheating economy and see inflation start to moderate enough that the back half of the year we could see a less hawkish tone by the Fed which in turn could pave a positive path forward for equity markets.

Typical Signs of a US Recession

The economic and macro picture is a complicated puzzle to understand and we rely on a series of indicators to help us better determine where we are heading. The yield curve has been often thought of as the most important but understand it's not one singular indicator that sets the tone.

Signs of a Recession	Present Today
Inverted Yield Curve	Neutral
ISM Manufacturing PMI Below 45	No
Positive Inflationary Trends	Yes
Tighter Financial Conditions	Neutral
Housing Starts Declining	No
Labour Market Weakening	No
Leading Economic Indicators Negative	No

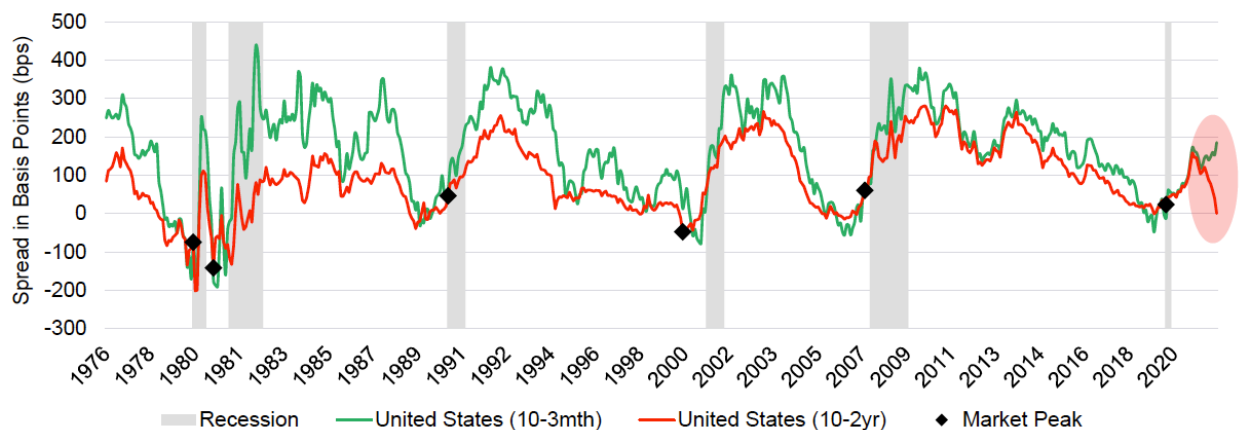
1) Inverted Yield Curve - Neutral

- 10 - 2 Year Treasury Yield Curve did invert for a very brief period at the end of March. It certainly spooked markets, gave the talking heads something new to discuss and was short lived before restoring itself
- There have been periods before where it inverts for a very short period but the length of time it needs to be inverted to point as a true recession indicator based on history is 3 months. Important to note that historically the market on average peaks 10 months after inversion
- While the 10-2 Year Yield Curve inverted for a very brief moment, the 10 - 3 Month Yield Curve increased during this same period and is a much stronger recession indicator

Shape of yield curve will be important to watch

It is likely that the entire yield curve shifts higher as inflation remains elevated and the market acknowledge a hawkish Fed. The yield curve is likely to remain flat with some areas inverted. While the 10 - 2 curve has inverted, the 10 yr - 3-month curve is not indicating an increased near-term risk of recession.

U.S. Yield Curve Spreads (10 yr - 3months) & (10yr - 2yr) (1976 – Current)



Previous 2-10 inversion and time to recession and market peak

	Inverted Prior to Recession	Inverted at Recession	# Months Inverted	Inverted vs. Recession	Inverted vs. Market Peak	Return - Initial Inversion to Market Peak	S&P 500 6 Months after Inversion	S&P 500 1 Year after Inversion	S&P 500 2 Year after Inversion
1980	Yes	Yes	21	17 Months Before	18.5 Months Before	13%	-6%	3%	20%
1981 / 1982	Yes	Yes	13	10 Months Before	3 Months Before	12%	3%	-3%	-4%
1990 / 1991	Yes	No	9	18 Months Before	17.5 Months Before	32%	15%	26%	15%
2001	Yes	No	10	13 Months Before	~ 1 Month Before	8%	2%	-4%	-20%
2008 / 2009	Yes	No	7	16 Months Before	14 Months Before	23%	15%	13%	2%
2019	Yes	No	1	7 months Before	6 months	16%	14%	16%	52%
Average			10	14	10	17%	7%	9%	11%
Median			10	15	10	14%	9%	8%	9%

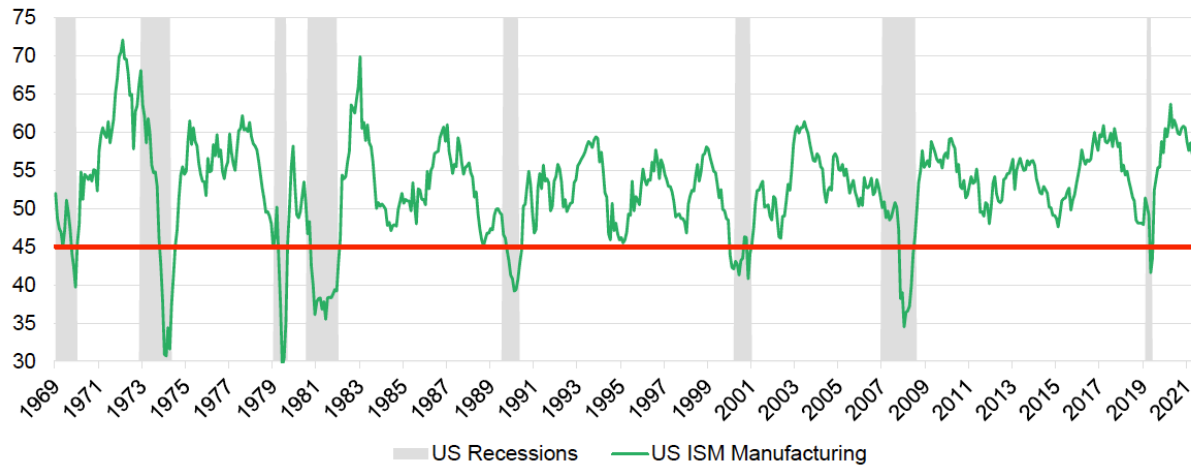
(2-10 Becomes Negative)	S&P 500 Peak
8/17/1978	2/13/1980
9/11/1980	11/28/1980
1/5/1989	7/16/1990
2/2/2000	3/24/2000
8/14/2006	10/9/2007
8/22/2019	2/19/2020

2) Purchasing Managers' Index (PMI) Below 45 - No

- Important to pay attention and a very good indicator of the trend or health of the overall economy. PMI is very strong and still at a level where the odds of a recession in the next year remain low.

PMI coming down but not signaling recession

U.S. ISM Manufacturing vs. Recessions



Global economic activity remains stable despite peaking last year

Economic activity likely peaked in the summer of 2021 and will face headwinds due to supply chain challenges over the coming months but overall, the global manufacturing environment remains in a resilient position.

	Mar20	Apr20	May20	Jun20	Jul20	Aug20	Sep20	Oct20	Nov20	Dec20	Jan21	Feb21	Mar21	Apr21	May21	Jun21	Jul21	Aug21	Sep21	Oct21	Nov21	Dec21	Jan22	Feb22	Mar22
JPMorgan Global PMI	47.3	39.6	42.4	48.0	50.6	51.8	52.4	53.1	53.8	53.8	53.6	54.0	55.0	55.8	56.0	55.5	55.4	54.1	54.1	54.2	54.2	54.3	53.2	53.7	53.0
United States	48.5	36.1	39.8	49.8	50.9	53.1	53.2	53.4	56.7	57.1	59.2	58.6	59.1	60.5	62.1	62.1	63.4	61.1	60.7	58.4	58.3	57.7	55.5	57.3	58.8
Canada	46.1	33.0	40.6	47.8	52.9	55.1	56.0	55.5	55.8	57.9	54.4	54.8	58.5	57.2	57.0	56.5	56.2	57.2	57.0	57.7	57.2	56.5	56.2	56.6	58.9
Mexico	47.9	35.0	38.3	38.6	40.4	41.3	42.1	43.6	43.7	42.4	43.0	44.2	45.6	48.4	47.6	48.8	49.6	47.1	48.6	49.3	49.4	49.4	46.1	48.0	49.2
U.K.	47.8	32.6	40.7	50.1	53.3	55.2	54.1	53.7	55.6	57.5	54.1	55.1	58.9	60.9	65.6	63.9	60.4	60.3	57.1	57.8	58.1	57.9	57.3	58.0	55.2
Eurozone	44.5	33.4	39.4	47.4	51.8	51.7	53.7	54.8	53.8	55.2	54.8	57.9	62.5	62.9	63.1	63.4	62.8	61.4	58.6	58.3	58.4	58.0	58.7	58.2	56.5
Germany	45.4	34.5	36.6	45.2	51.0	52.2	56.4	58.2	57.8	58.3	57.1	60.7	66.6	66.2	64.4	65.1	65.9	62.6	58.4	57.8	57.4	57.4	59.8	58.4	56.9
Holland	50.5	41.3	40.5	45.2	47.9	52.3	52.5	50.4	54.4	58.2	58.8	59.6	64.7	67.2	69.4	68.8	67.4	65.8	62.0	62.5	60.7	58.7	60.1	60.6	58.4
France	43.2	31.5	40.6	52.3	52.4	49.8	51.2	51.3	49.6	51.1	51.6	56.1	59.3	58.9	59.4	59.0	58.0	57.5	55.0	53.6	55.9	55.6	55.5	57.2	54.7
Italy	40.3	31.1	45.4	47.5	51.9	53.1	53.2	53.8	51.5	52.8	55.1	56.9	59.8	60.7	62.3	62.2	60.3	60.9	59.7	61.1	62.8	62.0	58.3	58.3	55.8
Spain	45.7	30.8	38.3	49.0	53.5	49.9	50.8	52.5	49.8	51.0	49.3	52.9	56.9	57.7	59.4	60.4	59.0	59.5	58.1	57.4	57.1	56.2	56.2	56.9	54.2
Ireland	45.1	36.0	39.2	51.0	57.3	52.3	50.0	50.3	52.2	57.2	51.8	52.0	57.1	60.8	64.1	64.0	63.3	62.8	60.3	62.1	59.9	58.3	59.4	57.8	59.4
Czech Republic	41.3	35.1	39.6	44.9	47.0	49.1	50.7	51.9	53.9	57.0	57.0	56.5	58.0	58.9	61.8	62.7	62.0	61.0	58.0	55.1	57.1	59.1	59.0	56.5	54.7
Poland	42.4	31.9	40.6	47.2	52.8	50.6	50.8	50.8	50.8	51.7	51.9	53.4	54.3	53.7	57.2	59.4	57.6	56.0	53.4	53.8	54.4	56.1	54.5	54.7	52.7
Greece	42.5	29.5	41.1	49.4	48.6	49.4	50.0	48.7	42.3	46.9	50.0	49.4	51.8	54.4	58.0	58.6	57.4	59.3	58.4	58.9	58.8	59.0	57.9	57.8	54.6
Australia	53.7	35.8	41.6	51.5	54.0	53.6	55.4	54.2	55.8	55.7	57.2	56.9	56.8	59.7	60.4	58.6	56.9	52.0	56.8	58.2	59.2	57.7	55.1	57.0	57.7
Japan	44.8	41.9	38.4	40.1	45.2	47.3	47.7	48.7	49.0	50.0	49.8	51.4	52.7	53.6	53.0	52.4	53.0	52.7	51.5	53.2	54.5	54.3	55.4	52.7	54.1
China (caixin)	50.1	49.4	50.7	51.2	52.8	53.1	53.0	53.6	54.9	53.0	51.5	50.9	50.6	51.9	52.0	51.3	50.3	49.2	50.0	50.6	49.9	50.9	49.1	50.4	48.1
South Korea	44.2	41.6	41.3	43.4	46.9	48.5	49.8	51.2	52.9	52.9	53.2	55.3	55.3	54.6	53.7	53.9	53.0	51.2	52.4	50.2	50.9	51.9	52.8	53.8	51.2
Taiwan	50.4	42.2	41.9	46.2	50.6	52.2	55.2	55.1	56.9	59.4	60.2	60.4	60.8	62.4	62.0	57.6	59.7	58.5	54.7	55.2	54.9	55.5	55.1	54.3	54.1
Vietnam	41.9	32.7	42.7	51.1	47.6	45.7	52.2	51.8	49.9	51.7	51.3	51.6	53.6	54.7	53.1	44.1	45.1	40.2	40.2	52.1	52.2	52.5	53.7	51.2	51.3
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Malaysia	48.4	31.3	45.6	51.0	50.0	49.3	49.0	48.5	48.4	49.1	48.9	47.7	49.9	53.9	51.3	39.9	40.1	43.4	48.1	52.2	52.3	52.8	50.5	50.9	49.6
Singapore	33.3	28.1	27.1	43.2	45.6	43.6	45.1	48.6	46.7	50.5	52.9	54.9	53.5	51.8	54.4	50.1	56.7	52.1	53.8	52.3	52.0	55.1	54.4	52.5	52.9
India	51.8	27.4	30.8	47.2	46.0	52.0	56.8	58.9	56.3	56.4	57.7	57.5	55.4	55.5	50.8	48.1	55.3	52.3	53.7	55.9	57.6	55.5	54.0	54.9	54.0
Brazil	48.4	36.0	38.3	51.6	58.2	64.7	64.9	66.7	64.0	61.5	56.5	58.4	52.8	52.3	53.7	56.4	56.7	53.6	54.4	51.7	49.8	49.8	47.8	49.6	52.3
Turkey	48.1	33.4	40.9	53.9	56.9	54.3	52.8	53.9	51.4	50.8	54.4	51.7	52.6	50.4	49.3	51.3	54.0	54.1	52.5	51.2	52.0	52.1	50.5	50.4	49.4
South Africa	44.5	35.1	32.5	42.5	44.9	45.3	49.4	51.0	50.3	50.2	50.8	50.2	50.3	53.7	53.2	51.0	46.1	49.9	50.7	48.6	51.7	48.4	50.9	50.9	51.4
Saudi Arabia	52.5	42.4	44.4	48.1	47.7	50.0	48.8	50.7	51.0	54.7	57.0	57.1	53.9	53.3	55.2	56.4	56.4	55.8	54.1	58.6	57.7	56.9	53.9	53.2	56.2
Russia	47.5	31.3	36.2	49.4	48.4	51.1	48.9	46.9	46.3	49.7	50.9	51.5	51.1	50.4	51.9	49.2	47.5	46.5	49.8	51.6	51.7	51.6	51.8	48.6	44.1

3) Positive Inflationary Trends - Yes

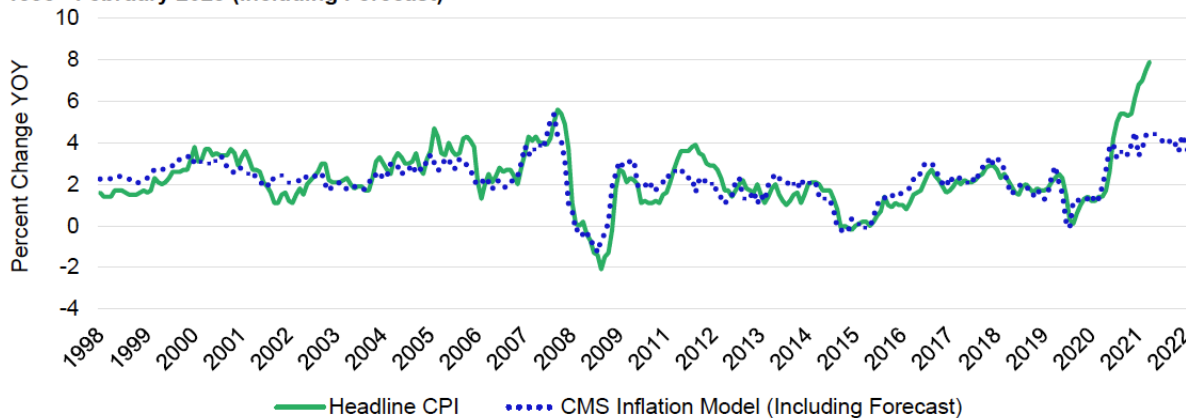
- Headline Consumer Price Index (CPI) reported an 8.5% increase for March.
- While headline CPI is widely reported the silver lining is that core inflation reading had its least month over month increase in close to a year.
- Core Inflation is when we strip out consumer sensitive and more volatile items such as food and energy.
- While we believe CPI will remain above pre-pandemic levels, this is encouraging to believe that it will trend lower from the current levels although likely stay above 4% through the end of the year.
- Inflation will continue to be a concern throughout 2022 but not receive near the level of attention it is receiving today.

Inflation will moderate but remain above pre-pandemic levels

Our inflation model suggests CPI will trend lower from current levels of 7.9 percent but will likely stay above 4 percent through the end of 2022. It is unlikely to fall to levels prior to the pandemic as wage and food inflation will likely remain persistent. Inflation will remain a concern throughout 2022 but is unlikely to receive anywhere near the level of attention it is receiving today.

CPI YOY vs CMS Inflation Model

1998 - February 2023 (Including Forecast)



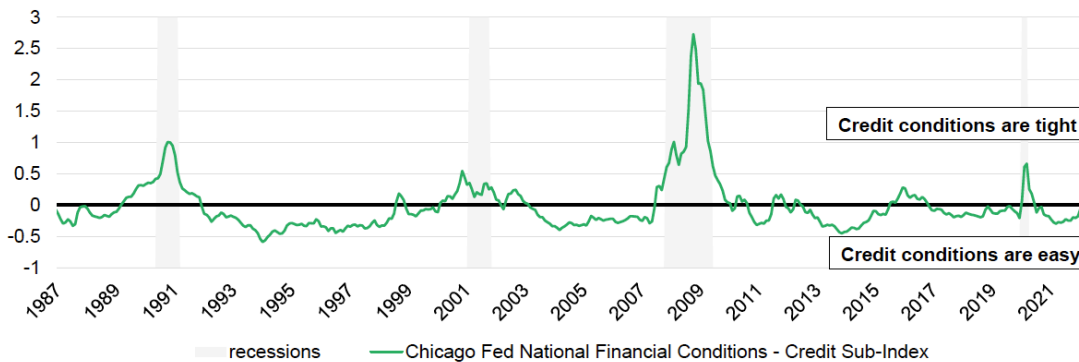
4) Tighter Financial Conditions - Neutral

- Recently this indicator went from green to yellow and is an aggregate index and typically shoots up if we are going into a recession. Currently it's at 0.
- While financial conditions have tightened, it's important to know we are coming off ultra-accommodative credit conditions.

Financial conditions have tightened as Fed has become more hawkish

Markets are pricing in a very hawkish Fed with a most 9 rate hikes priced in for 2022. Investors are getting concerned that tighter financial conditions may impact the economy. The Chicago Fed's provides a weekly measure on the U.S. financial conditions in money markets, debt, and equity markets within the traditional and shadow banking system. The credit sub-index measures household and non-financial business credit conditions. While financial conditions have tightened, they do not yet signal a recession.

Chicago Federal Reserve National Financial Conditions - Credit Sub-Index
1987 - Current

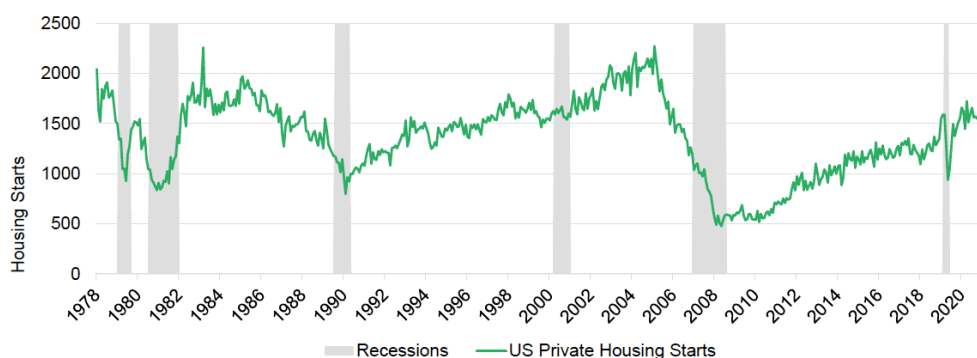


5) Housing Starts Declining - No

- If housing and new builds start to decline the idea is that demand is slowing, and weaker economic growth will follow. We believe it will slow but nowhere near recession bound as demand typically decreases as mortgage rates increase
- For every one house that is started it creates anywhere between 8-12 jobs for the broader economy
- These same people contribute to consumption as they now need to fill this house (beds, furniture, electronics, etc.)

U.S. housing remains strong

U.S. New Private Housing Starts vs. Recessions

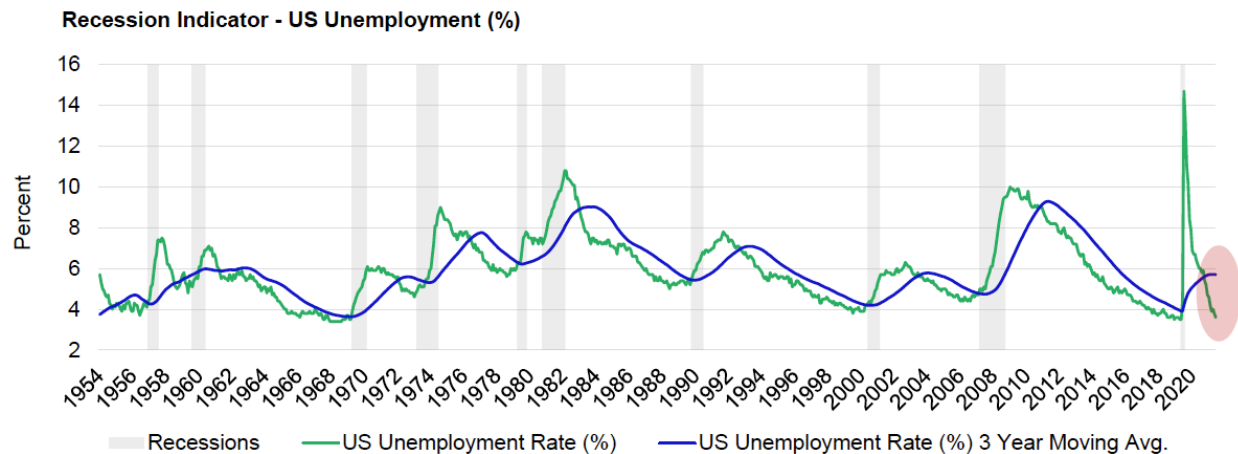


6) Labour Market Weakening - No

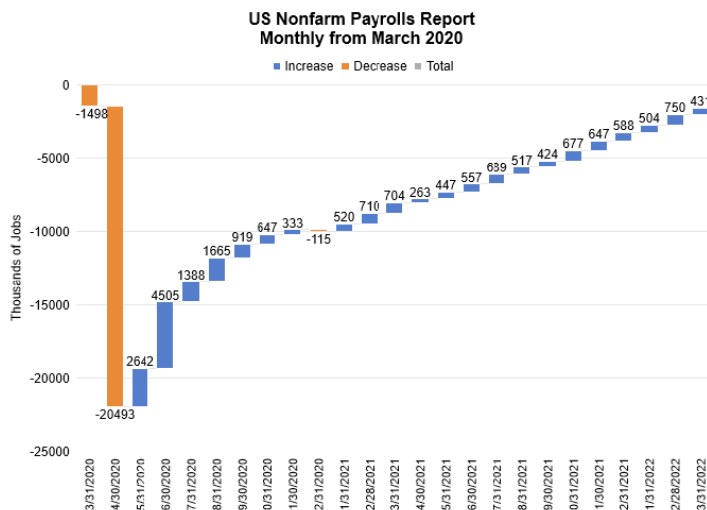
- We would need to see a material decline in this indicator to raise any flag.
- Labour market is incredibly strong/tight and it's difficult to envision a recession with a labour market this strong
- We believe the labour market remains stable throughout 2022

Employment would suggest that a recession is years away

After losing nearly 22 million jobs in March and April of 2020, the U.S. economy has added 20.4 million jobs between May '20 and March '22. After peaking at 14.7% in April 2020, the U.S. unemployment rate has dropped to 3.6% as of March. Looking ahead, we believe the labour market will remain stable throughout 2022.



We believe labour gains will remain positive in 2022



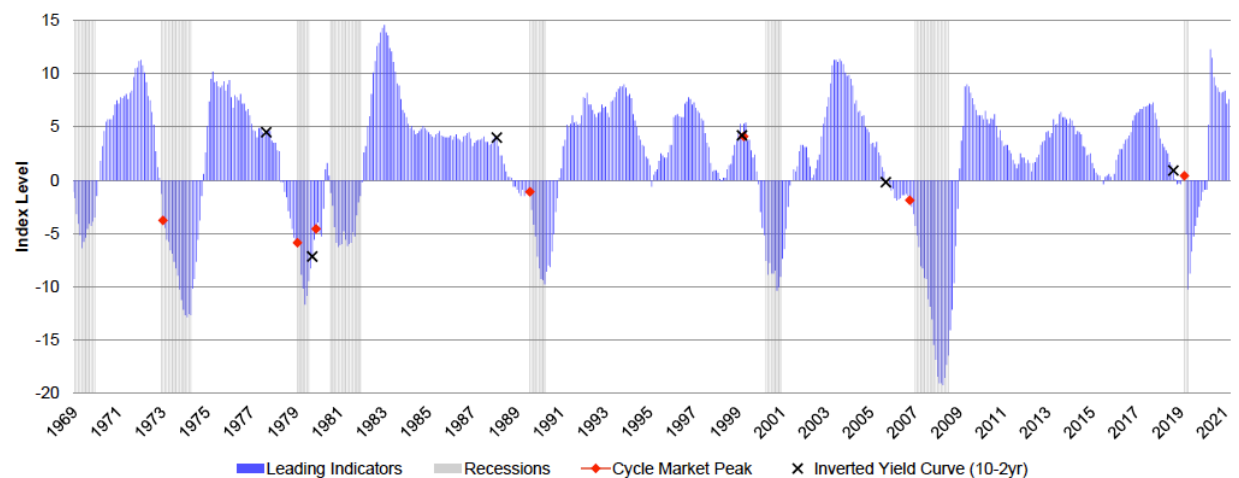
- Following the initial lockdown shock to the U.S. economy the labour market has added 20.4 million jobs since.
- Our expectation is that the U.S. labour market will continue to recover but structural challenges will limit the pace of job growth going forward.
- Unemployment rate has declined to 3.6% as of March, matching the 2019 low and the lowest level since the late 1960's.

7) Leading Economic Indicators Negative - No

- The Conference Board Leading Economic Indicators Index is a leading indicator intended to forecast future economic activity. It is calculated by The Conference Board, a non-governmental organization, which determines the value of the index from the values of ten key variables. These variables have historically turned downward before a recession and upward before an expansion. The percent change year over year of the Leading Economic Index is a lagging indicator of the market directions
- This number has stabilized (7 plus) and until you see this number go negative it is rare to see a recession

LEIs are telling a different story than the 2-10yr

Conference Board's Composite of Leading Economic Indicators (1960 – Current)



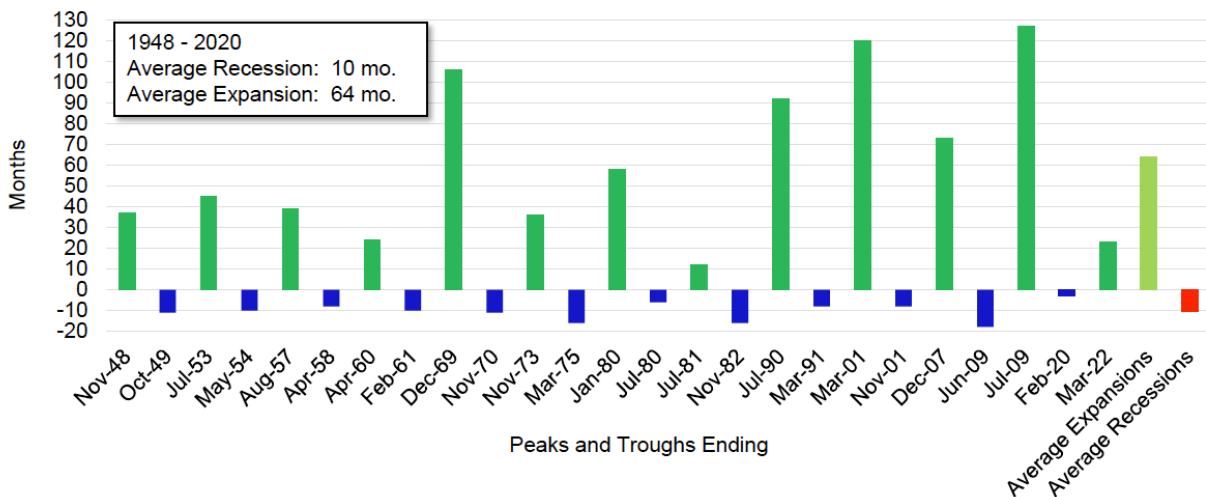
Final Thoughts

- We are not “market timers” rather we understand long term success involves “time in the market”. As thoughtful long-term investors it’s important in these moments we take a breath and put these issues into perspective.
- As a forward-looking mechanism, I believe equity markets have priced in the bulk of bad news when it comes to interest rate hikes. From a valuation standpoint, equities are trading at much more reasonable multiples (valuation) today than they were 12-18 months ago.
- In terms of monetary policy and interest rates - this transitory period where rates are moving up should be put into context that we are coming off the floor (essentially 0). We are moving from an ultra-accommodative monetary policy to a less accommodative monetary policy - still “Accommodative”.

- This too shall pass. We have been through periods of geopolitical issues, increasing interest rates, inflation, trade wars... Historically, markets have continued to advance higher in every single scenario. Good, quality businesses, although have periods of dislocations, will never go out of favour.

We are in the mid stages of this economic cycle

U.S. economic expansions and contractions (1948 – Current)



‘We’ll get to our destination but there will be pit stops along the way’

Market corrections are inevitable, economic cycles move in patterns; this we know. While uncertainty creates market volatility, we need to remain mindful to take these pit stops in stride and focus on the road ahead to make sure we arrive at our destination.

What we do know for certain is that markets are resilient, downturns don’t last forever and the longer we extend the time horizon out - the higher the probability a dollar invested today is worth more in the future. If we stay focused on our long-term goals, process, and fundamentals - together we will go far.

Thanks for the continued trust to help you navigate the complexity of financial markets.

Regards,

Aaron Pedlar