Annual Newsletter Rough Draft

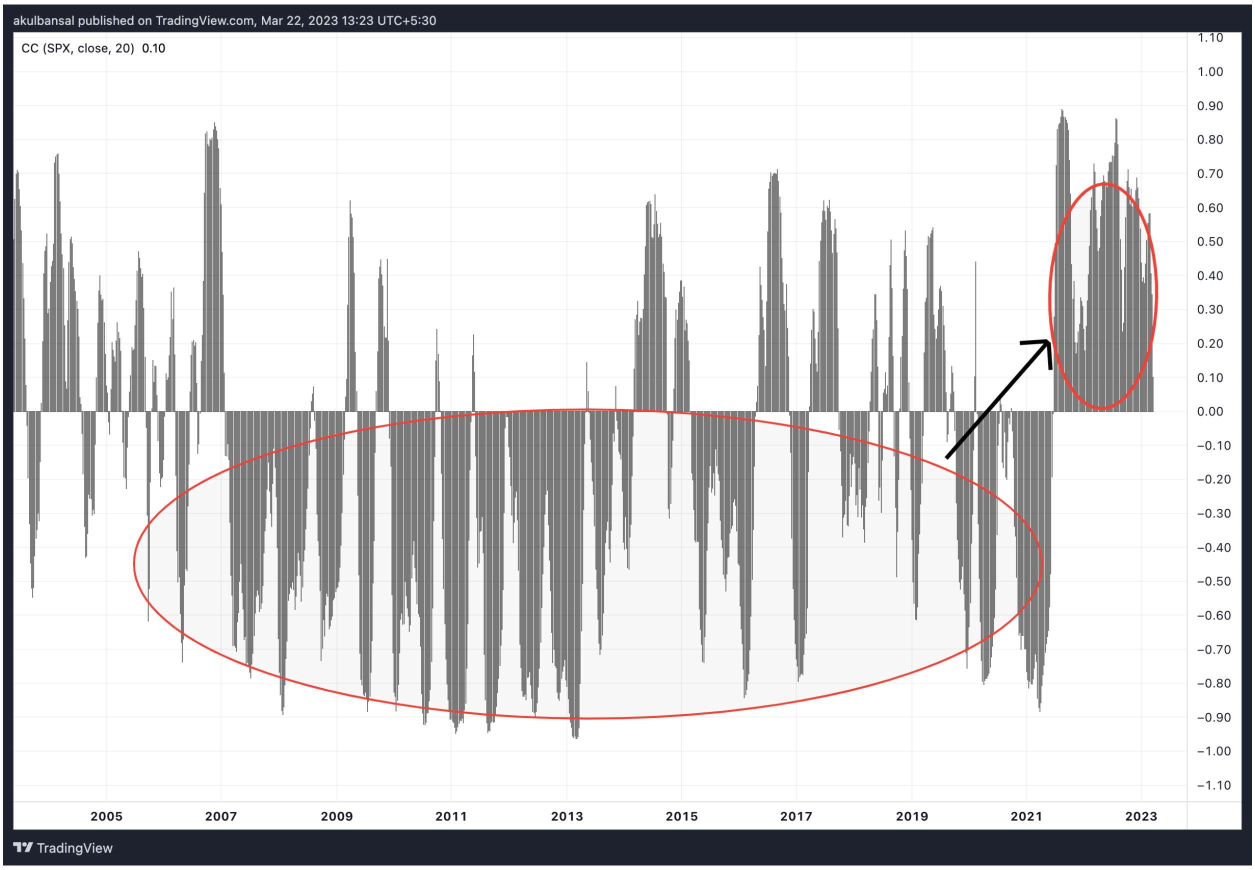
Macro development in the last 12 months?

- FY 22 started with a bang, literally. Russia had just invaded Ukraine when the western developed economies were dealing with inflation levels unseen for generations.
- Supply chain issues that started due to Covid-19 continued well into 2022 due to the Russia-Ukraine war, and as an extension, rising tensions between the West and China.
- Inflation gradually swept into the labor market.
- To react to rising inflation, US Federal Reserve Bank hiked rates aggressively.

How did the macro backdrop impact markets (regimes)?

- As inflation hit historical level in developed economies, one key feature of the markets broke down. Correlations between stocks and bonds became positive. Figure 1 shows the correlation between S&P500 and Long-Term US Treasury bonds.

Figure 1: Rolling 20-week correlation between U.S. Equities and Long-Term U.S. Treasury Bonds



- During all the major equity drawdowns in 2000s, there had been an ongoing bull market in at least one of the asset classes, i.e., both commodities and bonds had been doing fine during the tech bubble bust (2000-2003); US Treasury bonds had done really well during the Great Financial Crisis (2007-2008) and Covid Crash (2020) as the US was dealing with deflationary shocks by flushing the economy with liquidity and aggressively cutting rates to historical lows.

- 2022 witnessed an inflationary shock, after a very long while. This meant higher rates. Higher rates increases the long-term expectations of rates, which in turn increases the premium investors demand for holding assets that are expected to yield in a longer duration. This brings us to the implication of higher rates, i.e., duration assets doing poorly.
- In the last 20 years, having long duration assets worked phenomenally as growth slowed down and long-term expectations of inflation stabilized to historically low levels. All of that broke in 2022 when holding durations assets suddenly became the worst bet. Long-term U.S. Treasuries lost 25%+ in value. Tech stocks, which are expected to generate cash flows in the distant future, got hammered; and the likes of Cathie Wood realized drawdowns of 70%+. Banks that did not handle interest rate risk suffered liquidity issues due to the pace of rate hikes.
- All of this to say, nothing worked in 2022. Stocks are down, bonds are worse, and commodities closed where they began the year.
- Rising real rates in the U.S. attracted buying in the U.S. Dollar and so USD was the only asset that ended positive in FY 2022.
- From the yield curve point of view (Table 1), 2022 saw Bear Flattening as short-term rates rose faster than long-term rates while the entire yield curve moved higher.

Table 1: McGee, Applied Financial Macroeconomics and Investment Strategy (2015)

Business Cycle Phase	Fed-Policy Driving Analogy	Tactical Duration Position	Yield-Curve Move	Tactical Deviation From Benchmark
Early Recovery	Maximum Monetary Acceleration	Start to Reduce Duration to Neutral	From Bull to Bear Steepening (QE Bull Flattens the Curve)	Overweight to Neutral
Early to Mid-cycle Expansion	Easing Off Accelerator	Reduce Portfolio Duration to Underweight	Bear Flattening	Neutral to Underweight
Mid-cycle to Late-Stage Expansion	Tapping on Brakes	Increase to Neutral	Bear Flattening	Underweight to Neutral
Imminent Recession	Brakes On	Increase Portfolio Duration to Maximum	Inversion and Shift to Bull Steepening	Neutral to Overweight
Recession	Easing Off Brakes Tapping on Accelerator	Stay Overweight Duration	Rapid Bull Steepening	Overweight

How did the models cope with the market regime (or regime shifts) in the last 12 months?

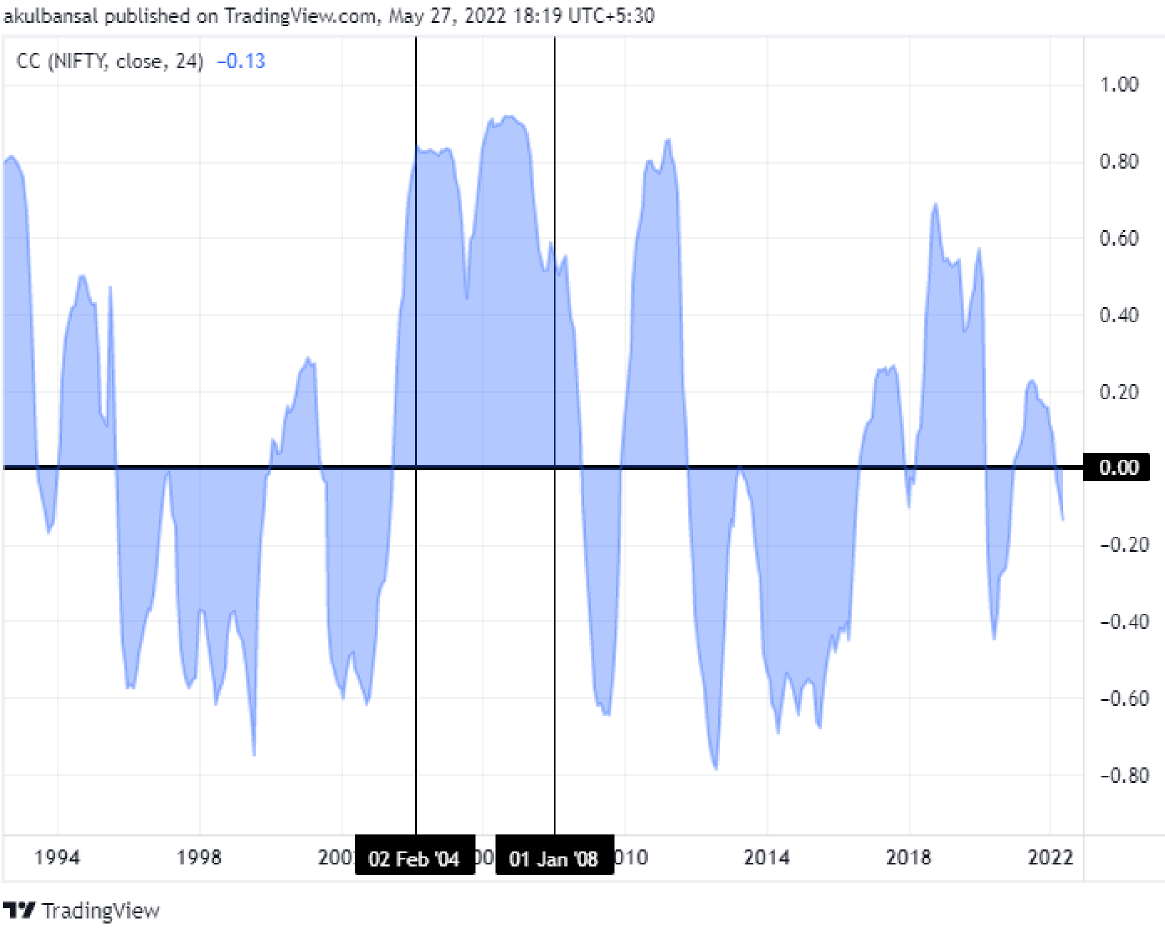
- 1st Quarter: uncertainty on all fronts, be it inflationary pressures, geopolitical tensions, or growth worries were at its peak. This brought its fair share of volatility and strong swings both, to the upside and to the downside. There were plenty of short-term directional moves in Indian equities and the model was able to latch on to some of the moves but since the models are primarily momentum-based, sharp reversions took back a lot of the gains.
- 2nd Quarter: as the markets digested all the uncertainty from the previous quarter. The strong upwards momentum in equities bode well for the short-term momentum model, closing slightly negative in August due to a technical pullback in the strong rally in equities.
- 3rd Quarter: the bear market rally that began in the previous quarter went on to make new all-time highs in Nifty, after going through a sideways choppy phase in October. The short-term momentum models got whipsawed in October and suffered significant losses.

- 4th Quarter: by this time, bond markets had started pricing in a Fed pivot in late CY 2023 but there was increasing evidence that inflation had swept into the labor market when February U.S. labor numbers came in (labor cost higher than expected, labor productivity lower than expected, and unemployment claims lower than expected). This called for a repricing of rate hikes lasting longer than expected, and so equities and bonds fell in tandem until banks started facing liquidity issues and the U.S. Fed had to step in (bonds turned around sharply). The models at this point were mostly underweight equities and overweight domestic Gold. Other than a slight pullback in Gold in February, the model coped well in this environment.

What changes/updates/interventions were made in the models?

- 1st Quarter: during this time, the portfolio consisted of 4 distinct (but similar) models that traded the Bank Nifty index directionally. The model took overnight positions based on the signal generated, long or short. The only source of diversification was from the marginal difference in the styles of the 4 models.
- 2nd Quarter: for added level of diversification, another model was added to the portfolio. This new model traded midcap stock futures directionally. The addition of this to the portfolio introduced an extra level of diversification to the existing models trading Bank Nifty index.
- 3rd Quarter:

Exhibit a: Rolling 24-month correlation between Nifty and Gold (INR)

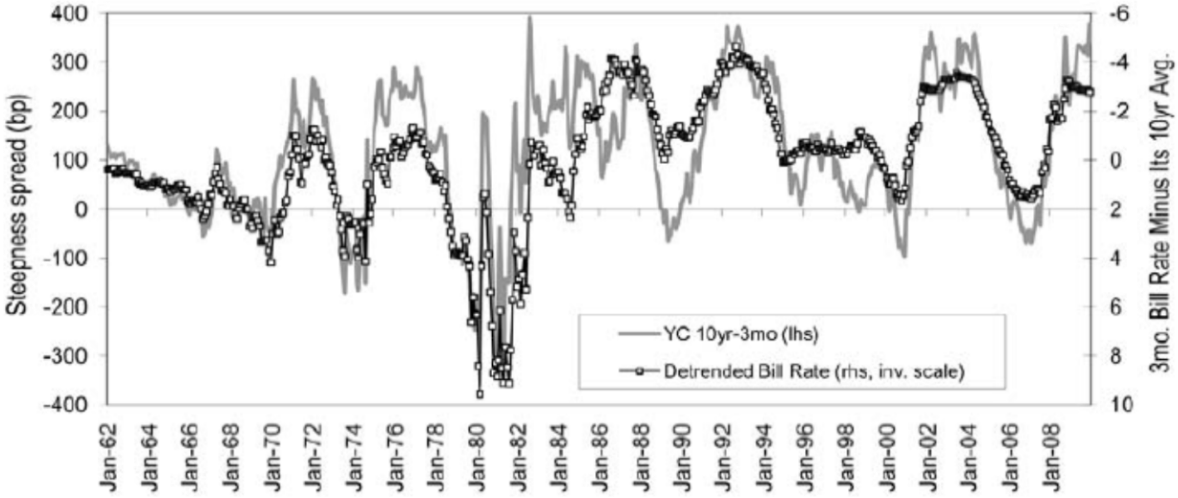


By now, the portfolio consists of 5 distinct trading directional trading models (trading the Bank Nifty index futures and midcap stock futures) and a long-only tactical asset allocation model that switches exposures between equities and gold.

- 4th Quarter: The older trading models that were trading Bank Nifty index futures were stripped down to simpler versions of themselves and also applied to Nifty index futures. A constant volatility targeting program was used to manage/allocate risk among all the different models. Today, the entire portfolio consists of a directional stock futures trading model, directional index futures trading model, and a long-only tactical asset allocation model. Since the correlation between any two models is lower than 0.2, the portfolio is a well-diversified collection of multiple strategies.

Macro expectations?

- Yield Curve (YC) steepening in late 2023. YC steepness says more about the expectations in changes in 3-month bill rate than about the future long-term yield changes.
    - *Figure 2: Inversely level-dependent curve steepness is related to mean-reverting short-rate expectations. (Ilmanen, Expected Returns, 2011)*

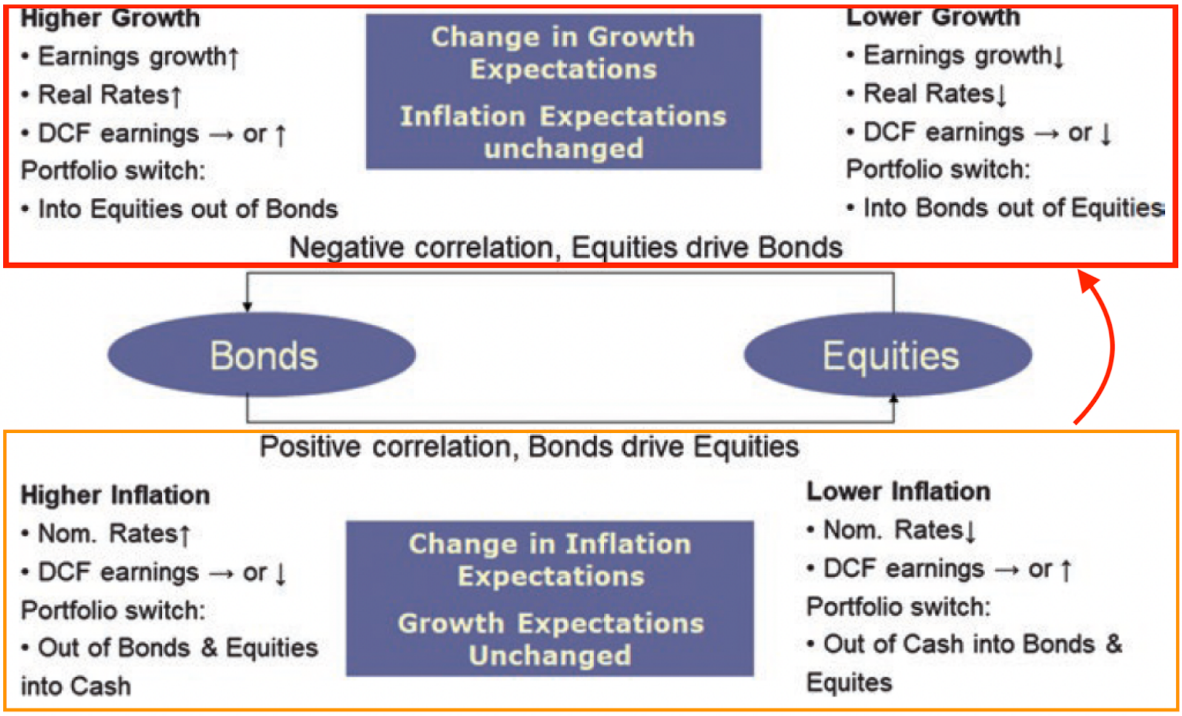


- 5-year excess bond returns has a predictive correlation of 0.69 for 10-year real yield (*Ilmanen, Expected Returns, 2011*). 10-year real yield is trading at 121 bps; expected excess bond returns haven't been this high in over a decade.
  - *Figure 3: 10-year Inflation Adjusted Yield*

How does the macro expectation relate to market regime in the coming 12 months?

- A slowdown in the pace of Fed's rate hikes due to lower inflation volatility and their actions pertaining to the banking liquidity issues in late March 2023 shows that the global economy is in "Mid-Cycle Expansion" and entering "Late-Stage Expansion". From Table 1, we can see that the "Bear Flattening", i.e. Fed "Easing Off Accelerator" is followed by more Bear Flattening while the Fed "Taps on Brakes".

- I expect the Bear Flattening phase to come to an end sometime in late 2023 and a shift to Bull Steepening to begin in early 2024. This would mark the end of the 3-years long bear market in bonds, which comes with it own perils: risk assets, namely equities, will go through a rough preiod as growth slowd down.
- With lower inflation volatility, markets' focus will shift from inflation being the primary concern to growth being the primary concern.
  - *Figure 4: Drivers of asset class correlations (Lumholdt, Strategic and Tactical Asset Allocation, 2018)*



How are the models going to react to the expected regime?

- Bull market in bonds is good for gold, which is good for TAA portfolio. lower correlation between bonds and equities is again good for TAA. Risk-Off will be handled by the portfolio because of its ability to overweight Gold (which has exposure to long USDINR).
- Short-term momentum trading in equities brings long-volatility like characteristics to the portfolio, benefitting from any bursts in volatility. ****to be completed...