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Riding the yield curve rodeo

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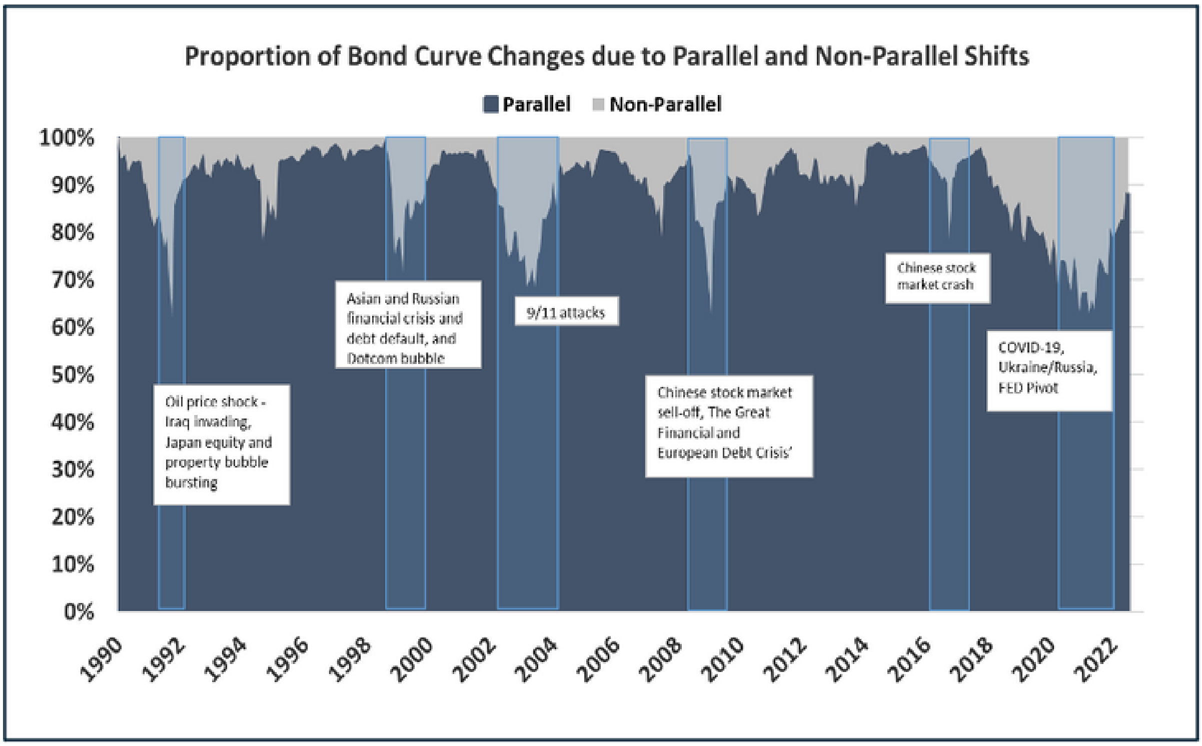
ANALYSING YIELD CURVE BEHAVIOUR IN VOLATILE MARKET CONDITIONS

When investors mention a rise (fall) in interest rates, it implies that interest rates across all maturities have also risen (fallen). In simpler terms, this indicates a general or overall increase (decrease) in interest rates and is referred to as parallel yield curve shifts. By observing the frequency of parallel yield curve shifts, we see that it is the most prevalent yield curve scenario, which occurs on average 90% of the time. However, we will discuss the remaining 10% of the time.

Non-parallel yield curve shifts arise during the remaining 10% of occurrences and consist of higher-order yield curve movements such as slope and curvature shifts. These slope and curvature shifts imply that short-, medium- and long-dated bond yields change by different amounts. Instead of the usual parallel up/down curve scenarios, we observe bull/bear steepening, bull/bear flattening, steep/flat twists, and positive/negative twists.

This begs the question, why should we focus on non-parallel yield curve shifts if they are not as prevalent as parallel yield curve shifts? The reason is predicated on the below chart, which uses principal component analysis (PCA) to identify what proportion of monthly yield curve shifts over a rolling 1-year period is attributable to parallel curve shifts (e.g., if 80% is attributable to parallel shifts, then the remaining 20% is attributable to non-parallel shifts).



The proportion of monthly yield curve shifts over rolling 1-year periods due to parallel yield curve shifts using a PCA decomposition of the South African government yield curve since 1990. The chart illustrates that fewer parallel yield curve shifts occur during risk-off events (grey-shaded areas).

What we notice is that during high-risk macro events (e.g., Oil price shocks, the Asian financial crisis, the Dotcom bubble, 9/11 and the COVID-19 pandemic), the proportion of non-parallel yield curve shifts is much greater than the long-term average of 10%, in some cases 30-40% of the time. During these risk-off periods, there is lots of investor uncertainty about future inflation and economic growth. A wide divergence in investment views will translate into varying degrees of bond demand/supply dynamics and an increased frequency of non-parallel yield curve shifts.

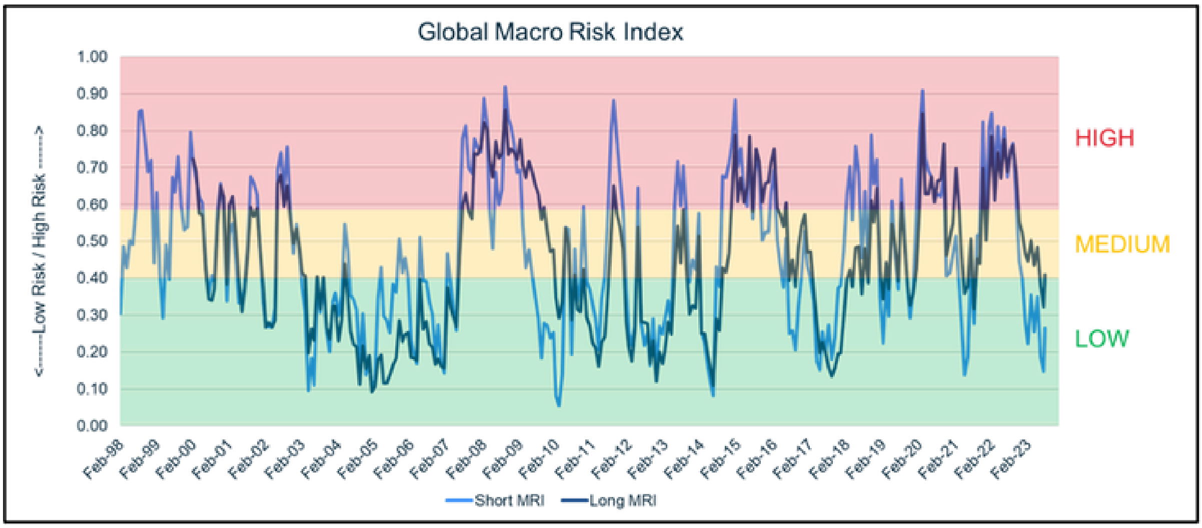
During volatile or high-risk macro events, frequent non-parallel yield curve shifts (especially steepening and negative twists) occur. Thus, slope and curvature risk increase in importance, not just duration risk (which is synonymous with parallel yield curve shifts and assumes all yields across the yield curve shift by the same amount). Therefore, curve positioning with duration exposure during risk-off periods becomes vital for successful portfolio management.

According to history and our analysis, a defensive stance is required during risk-off periods with an underweight duration position, exposure to short-dated bonds, money market instruments, and US treasury bonds or USD cash for diversification and downside protection.

Predicating these high-risk macro events is extremely difficult, but at Sentio, we do know that the global landscape has shifted and increased the likelihood of non-parallel yield curve shifts due to the following regime changes:

- Modern Monetary Theory (MMT) has become the standard amongst developed market governments. Due to their reserve currency status, these governments print money as needed without concern for revenue or existing debt levels. As such, they can expand their balance sheet multiple times and increase liquidity in the financial system, resulting in exaggerated monetary and fiscal policies and greater yield curve distortions.
- Geopolitical risk is rising with increasing tensions between the East and West concerning trade wars on technological intellectual property, onshoring agendas, widening inequality gaps and the formation of new trade blocs reducing US dollar dependence.
- The South African Sovereigns sub-investment grade credit rating due to below potential growth and continued fiscal slippage will increase the presence of fast money investors over real money investors. Fast money investors look for tactical opportunities, whilst real money investors prefer to invest for longer terms, equating to steady domestic inflows in anticipation of strong growth and appreciating local currencies. Tactical investors look to realise short-term profit before exiting and waiting for the next opportunity, which increases volatility and higher-order yield curve changes.

The above regime changes are why we believe non-parallel yield curve shifts will continue to occur and increase in frequency. Knowing that these non-parallel yield curve shifts are more likely is a step in the right direction, but we also need to provide some timeframes to extract the full benefit. One way that we do this is by utilising a global macro risk index (MRI) that combines various asset class volatilities over rolling 1-year (Short MRI) and 3-year (Long MRI) periods, as shown below. The MRI ranges between 0 and 1 (lowest to highest risk) and indicates the degree of macro risk priced into the market. Low to medium risk is currently priced into the market, resulting in a lower likelihood for non-parallel yield curve shifts. However, the MRI is mean-reverting, and we need to be cautious that macro risk and non-parallel yield curve shifts may increase over the next few months.



The Sentio Global Macro Risk Index (MRI) tracks asset class volatilities over short (1-year) and long (3-year) periods to recognise the level of macro risk priced into markets. Doing so will assist in identifying the likelihood of non-parallel yield curve shifts and appropriate portfolio positioning.

At Sentio, we conduct thorough analyses and research on non-parallel yield curve shifts to harness extra returns from these yield curve changes. The South African government bond market has undergone significant transformations in recent years, and our investment approach acknowledges these crucial shifts in market dynamics. We remain committed to vigilantly observing yield curve patterns and adjusting our strategies to meet our risk and return objectives.

*Sanveer's paper on extracting risk premia from non-parallel yield curve shifts was published in the **Investment Analyst Journal.** To read the full paper, click here.*

SANVEER HARIPARSAD

Sanveer has been in the investment industry for 16 years, managing fixed-income funds at several asset managers. He is Head of Fixed Income at Sentio and a CFA and CAIA charter holder. Sanveer completed his BSc undergraduate and honours degrees at the University of Kwa-Zulu Natal in Actuarial Science and Financial Mathematics. He also holds an MSc in Financial Engineering from the University of Pretoria and is completing his PhD in fixed income factor investing at the same institution.

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Fundamentally based, quantitatively robust investing.

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