

Question 2: Yield Spread

Andrew Hyde^a

^aStellenbosch University, South Africa

Abstract

This analysis of the current yield spreads in the local bond market places the current high spreads into historical context.

1. Introduction

Economists have recently pointed out that the current yield spreads in local mid to longer dated bond yields have since 2020 been the highest in decades.

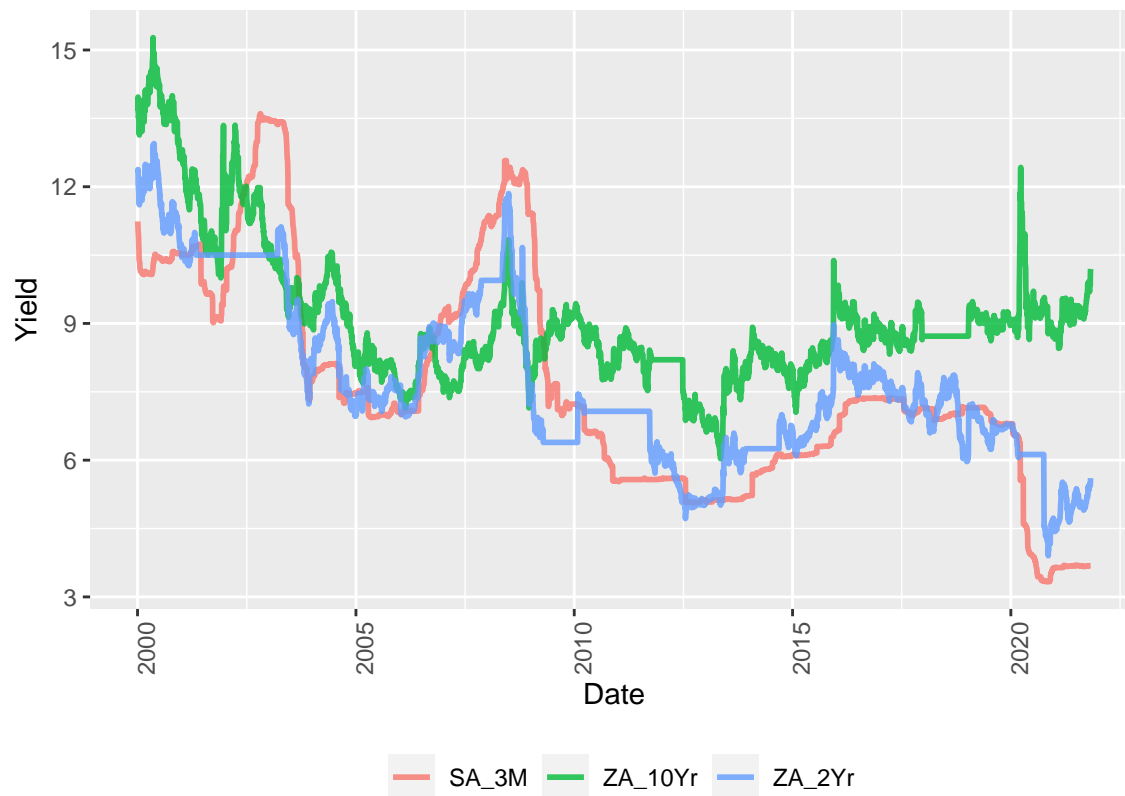
2. South African Bond Yields

I begin by viewing the data and determine if there are any missing values. I then plot the yields for bonds of differing maturities to visualize the spread between the 3 Month, 2 year and 10 Year South African bonds.

From the graph below, it does appear that the yield spreads in local mid to longer dated bond yields have have increased since 2020 when compare to historical spreads. The yield on the 3 year bond has decreased since 2015, this may be a reflection of anticipated interest rate cuts in the near future. An increase in interest rates would imply an increase in bond prices and thus yields would decrease.

South African Bond Yields

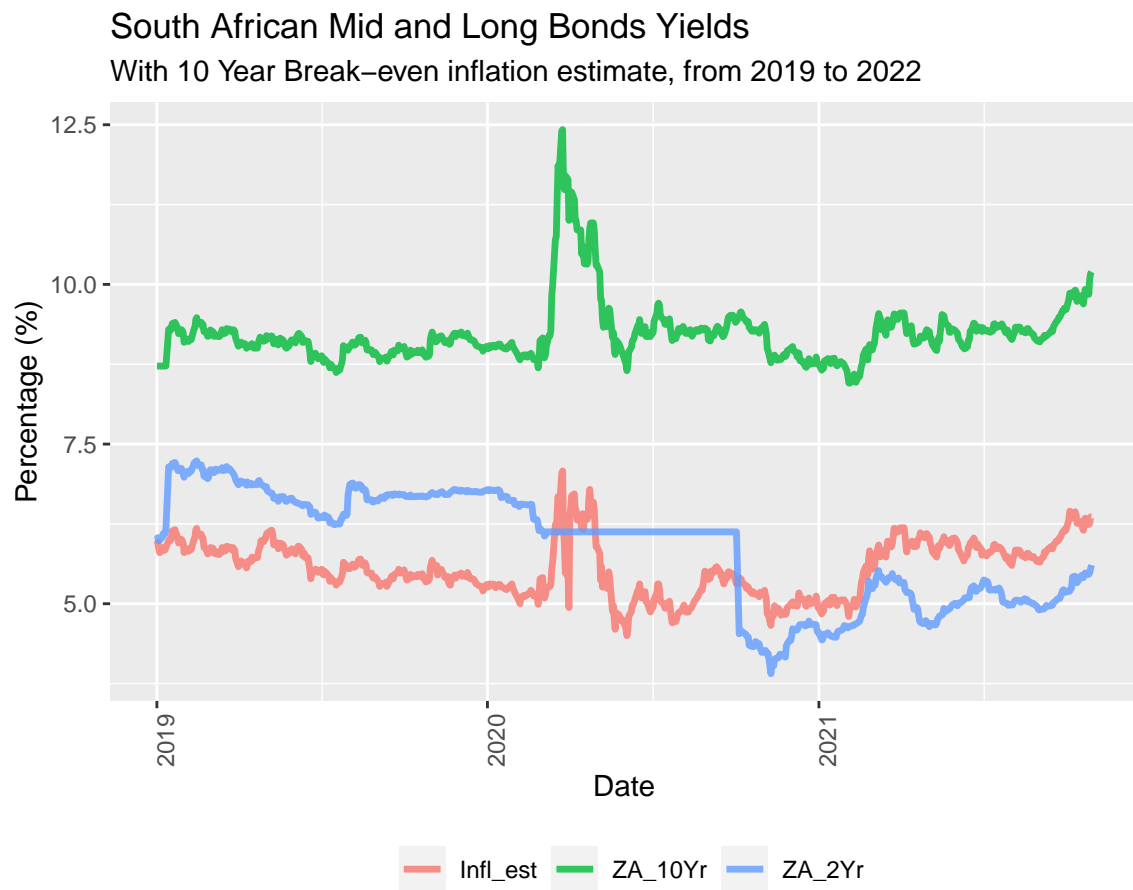
From 2000 to 2022



To further investigate this topic I combine the available data for this question using 'left_join'. I make use of this combined data set to perform the rest analysis.

Using the combined data set, I plot out the the yields on mid and long term South African Bonds from 2019 to 2022 to get an idea how the spreads have changed since the pandemic.

The graph below illustrates how bond how mid and long term bond yields have adjusted after the COVID-19 pandemic. It is not surprising that 2 year bond yields are down considerably since the pandemic first hit, this may be the result of investors anticipating monetary easing through lowered interest rates to combat the economic downturn of the pandemic. This can be seen with sharp dive on the 2 year bond late in 2020. Since then, the monetary authorities have been concerned with rising inflation and so interest rate hikes have been taking place, which explains the increases in the 2 year yields since late 2020.



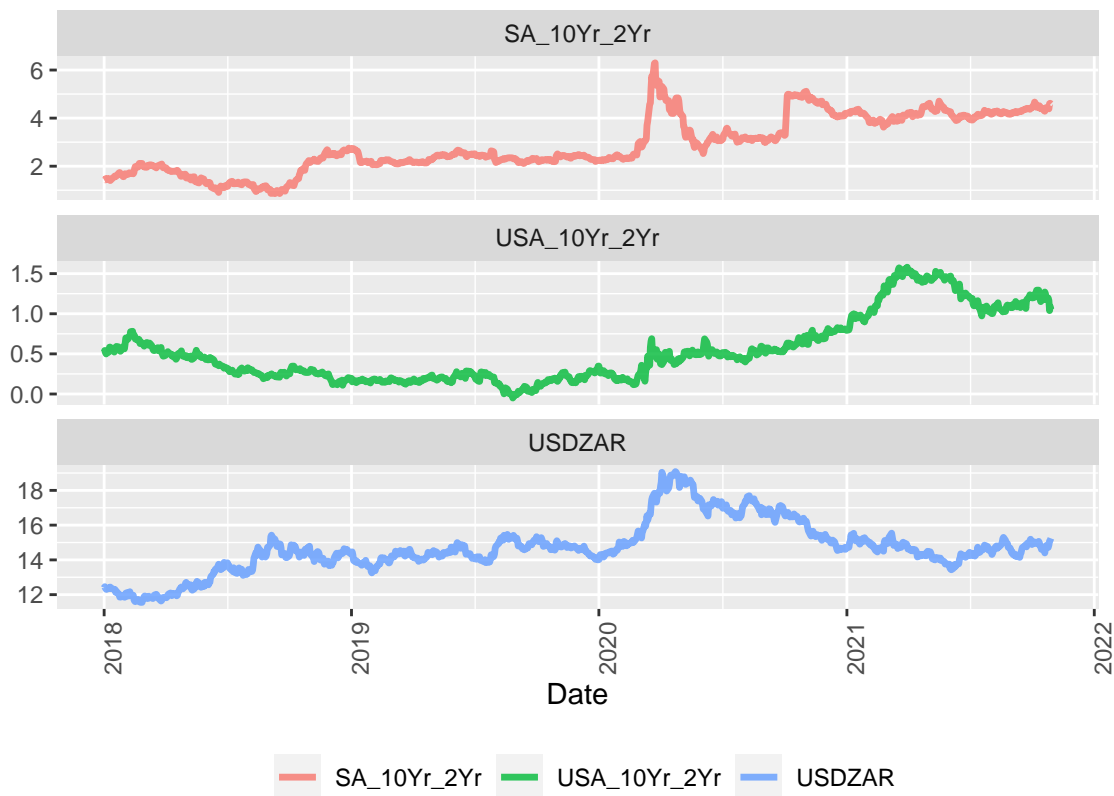
3. Domestic and Foreign Yields

I construct line graph and use 'facet_wrap' to display each variable on its own axis. The graph shows the the mid to long term yield spread for both South Africa and the United States over time, as well as the prevailing interest rate at the time.

Over the past 5 years in both the local South African Bonds market and the US Bonds Market, the mid to long term yield spread has widen for both countries. However, as the RSA bond spread is larger it appears that capital is flowing into South Africa to invest

US and ZAR Bond Yield Spreads

10 Year (Long) and 2 year (Mid) spreads, from 2018 to 2022



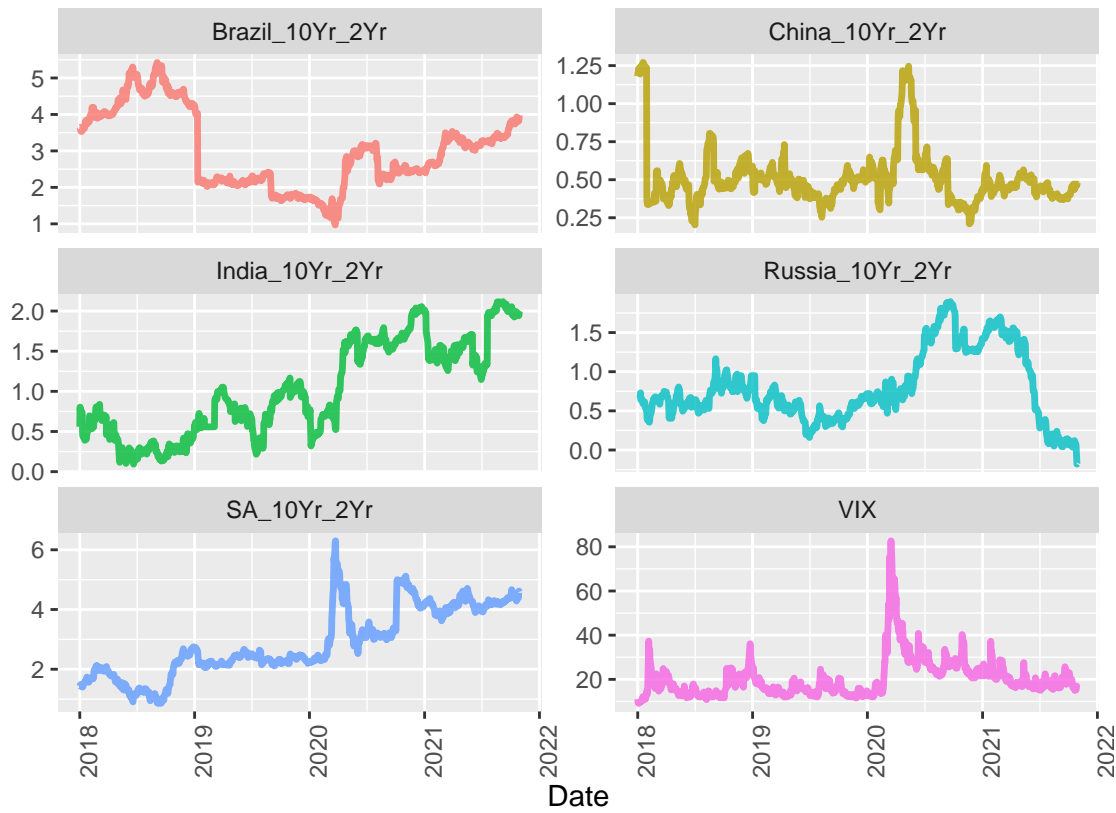
The US Dollar RSA Rand exchange rate is plotted alongside yield spreads.

I then plot the the 10 and 2 year yield spread of BRICS Countries along with the VIX. I do this by calculating spreads for each country and then select for these spread for the combined data set. The CBOE Volatility Index has been added to the plot to provide of how yield spreads between mid and long term bonds for the BRICS countries are increasing as volatility expectations increase.

From the graph it appears that that there is a positive relationship between volatility in the equities market implied by the VIX (when looking at the VIX spike in early 2020) and the bond yield spreads. Additionally, it appears that the yield spread between the more developing BRICS countries (Brazil, India, South Africa) experiences a widening of the yield spread since the beginning of the pandemic.

BRICS Bond Yield Spreads

10 Year (Long) and 2 year (Mid) spreads, from 2018 to 2022



The CBOE Volatility Index (VIX) is plotted alongside yield spreads.