Question One

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[a] *Financial Econometrics 2021*

Abstract

This document contains the detailed answers for question one of the Financial Econometric exam 2021.

Keywords: Question1, Finance, Financial Econometrics

JEL classification L250, L100

1. Question 1 Yeild Spread

Question 1 requires an analysis of South Africa's Yield Spreads and local mid to longer dated yields bonds. There have been claims that the bond yields are the highest they have been in decades. The plot below confirms this. As seen in the graph, the lowest spread between the local bond market was during the 2007/2008 financial crises, afterwhich it dramatically increases in 2010. The dramatic increase was short lived, with the yield spread increasing slowly between 2011 and 2019. In 2020, the yield spread between the 10 Year and 2 year, as well as the yield spread between the 10 year and 3 month local bonds increased dramatically. The yield spread between the 2 year and 3 month local bonds also experienced an increase, however, this increase reached levels similar to those experienced in 2000/2001.

In increase in the yield spread can be explained by the uncertainty in the markets during the still on-going COVID-19 pandemic. Investors rushed to raise liquidity amid the uncertainty and panic, particularly those regarded as having a hint of risk. South African government bonds did not escape the effect of the pandemic, with significant sales of the asset class by foreigners, causing yields to spike and prices to move lower.

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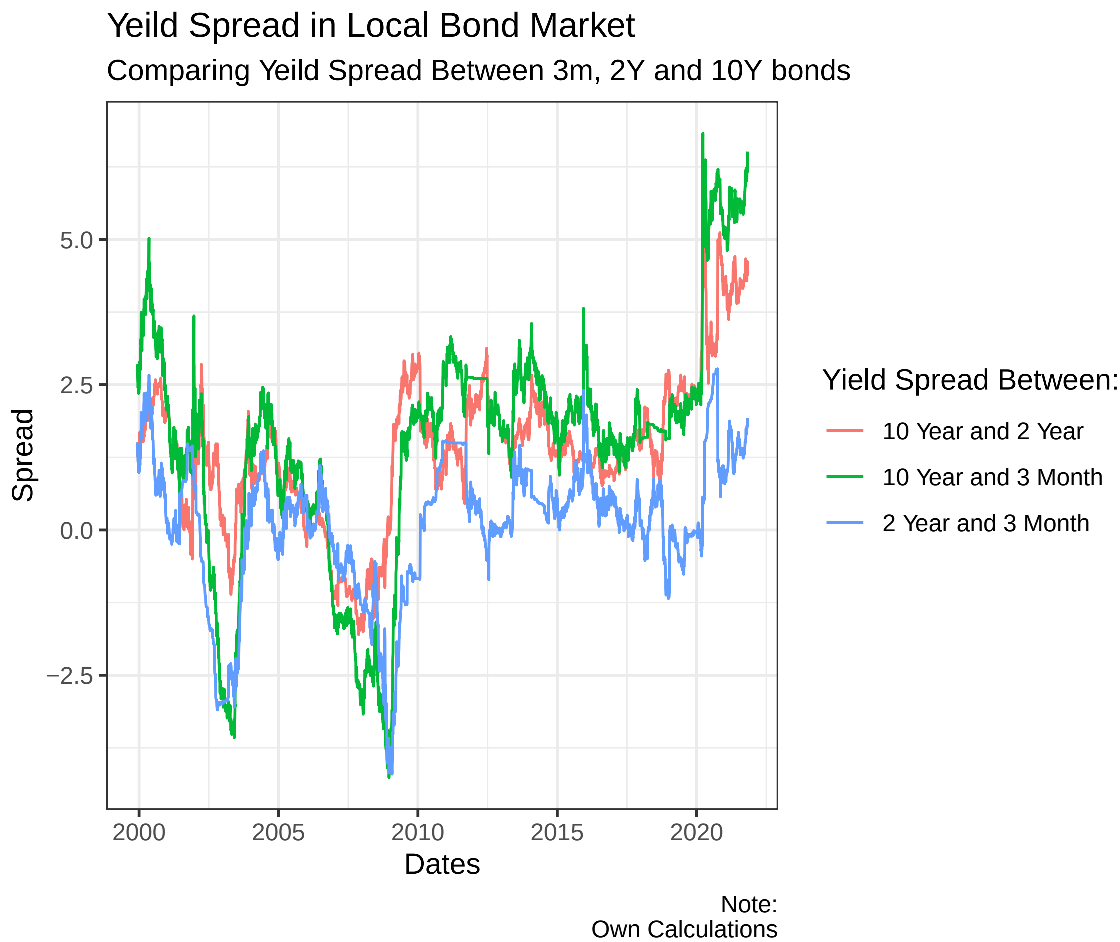
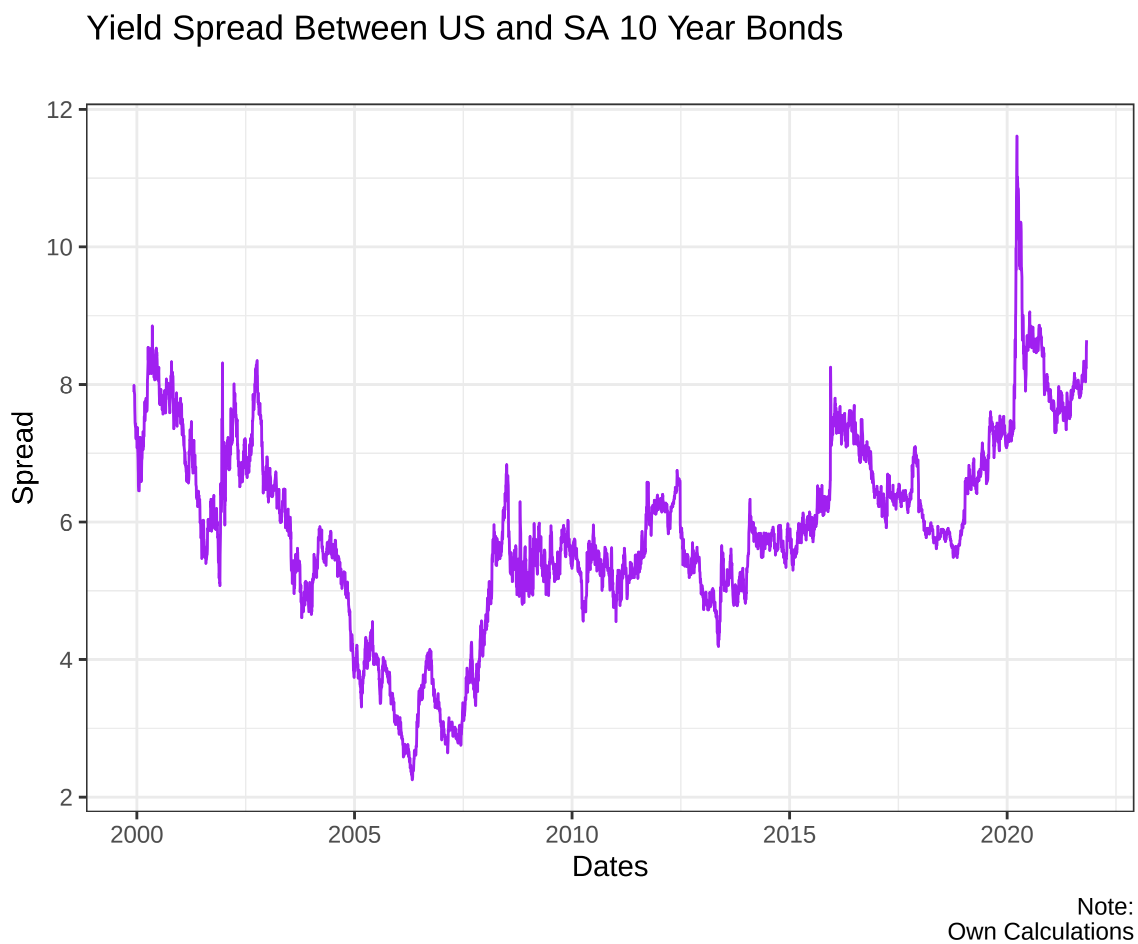


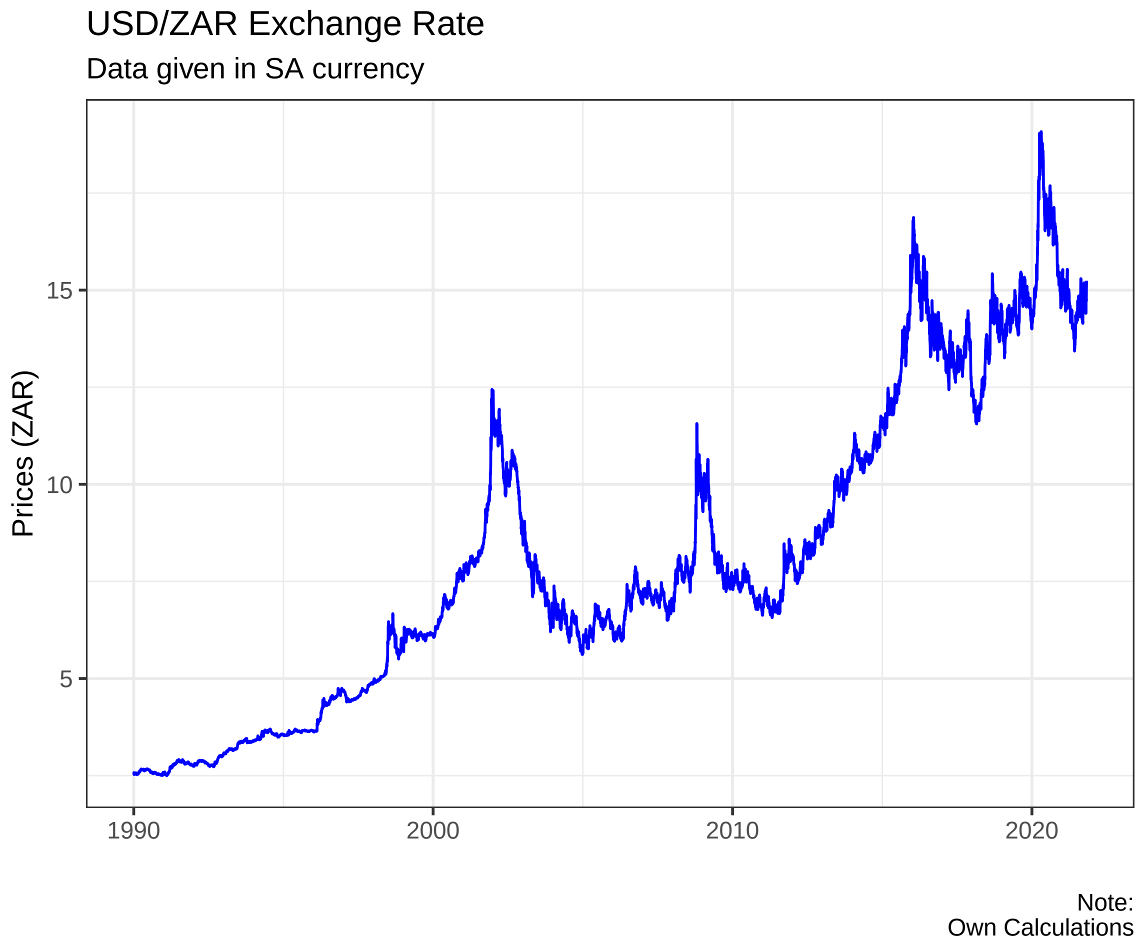
This effect felt are not isolated to the South African bond market, with all emerging market local currency debt selling off in unison, as will be shown in the graphs below. This graph follows a similar pattern ad the local bonds yeild spread.



1.1. USD/ZAR level

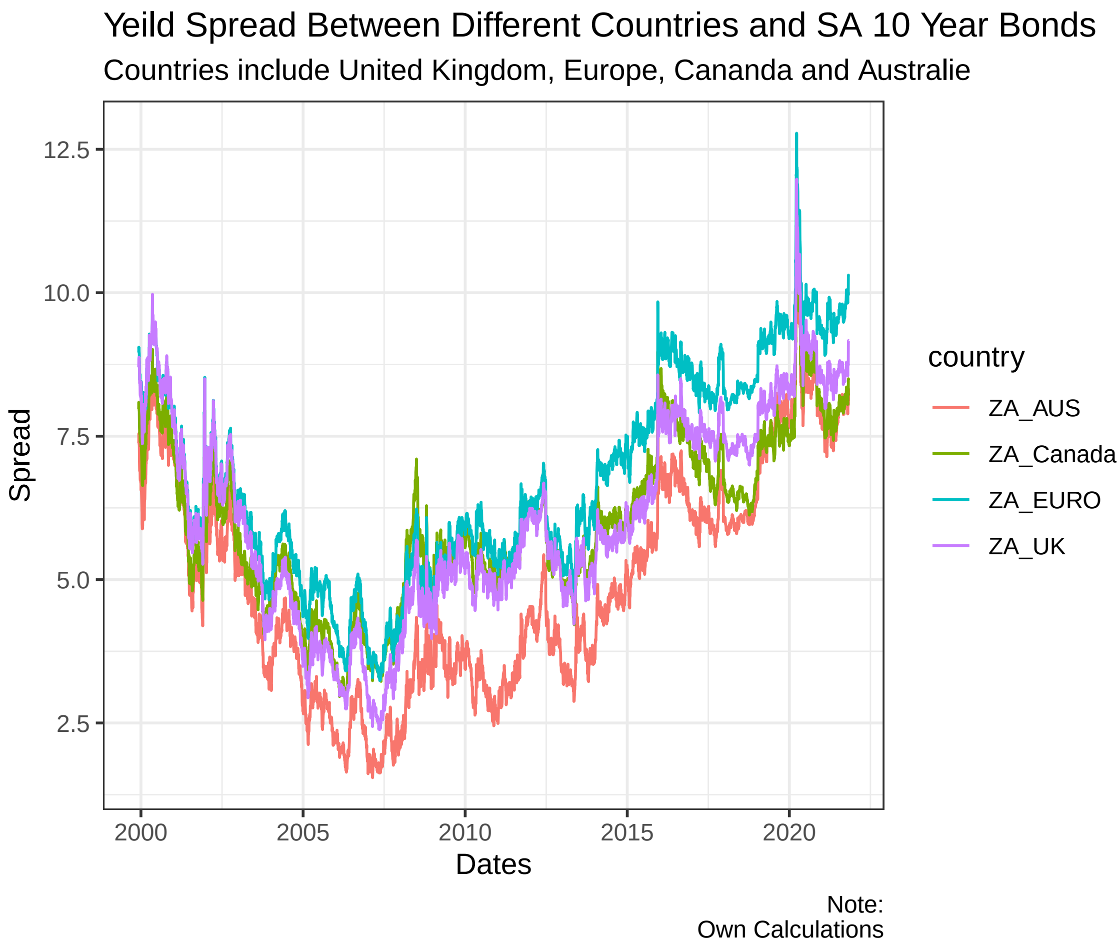
The spreads of the 10-year bond yields can be used to gauge currencies. The general rule is that when the yield spread widens in favor of a certain currency, that currency will appreciate against other currencies.

Yield spreads are often seen as driven by monetary policy. Differences in the exchange rate will drastically affect the expected yield. The graph below shows that this is true for longer term bonds, however, there is more volatility is shorter term bonds implying that the exchange rate is not that good of a predictor and that monetary policy changes will drastically affect the yield.

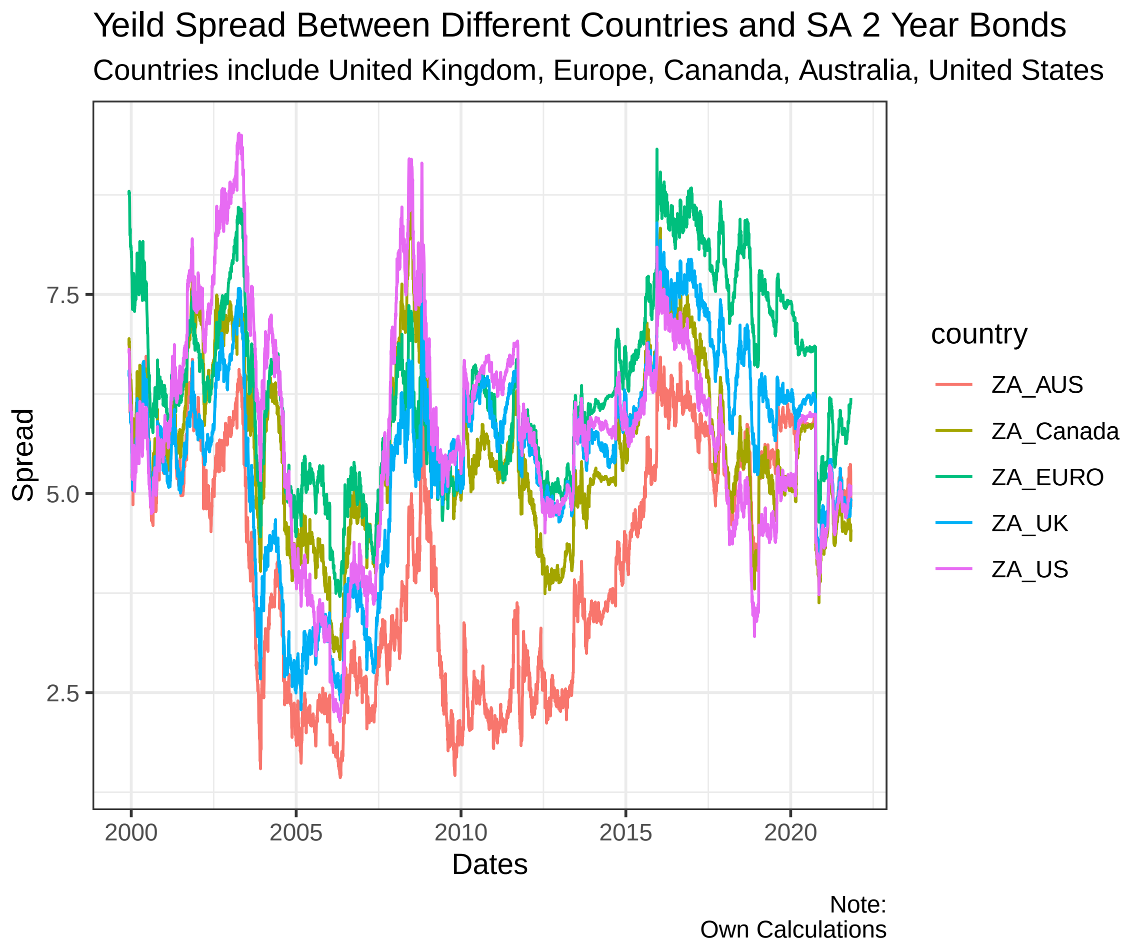


1.2. Different Yeild Spreads

Comparing the 10 year and 2 year bond is important, so that investor can determine whether a bond is fairly priced, cheap or expensive. It is a sign of the risk premium for investing in one investment over another.

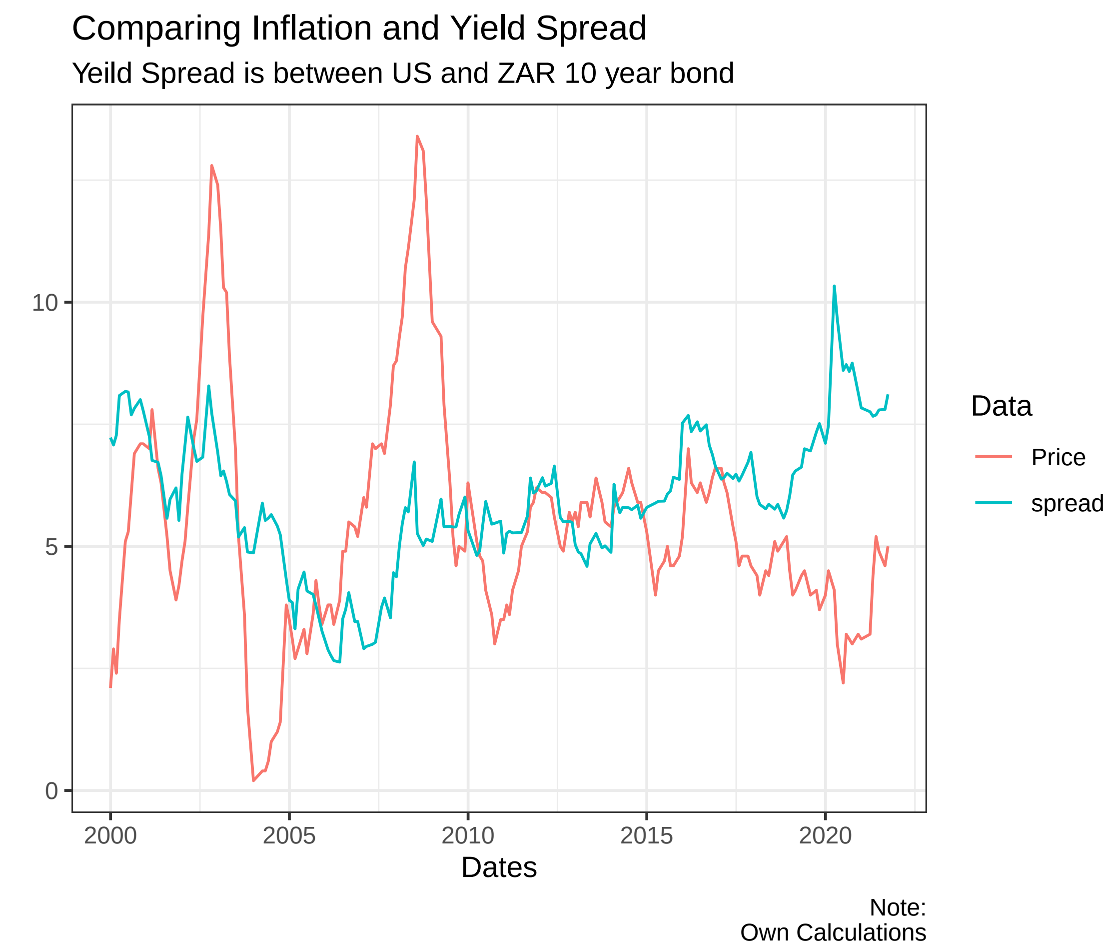


Yeild Spread Between Different Countries and SA 10 Year Bonds
Countries include United Kingdom, Europe, Cananda and Australie
12.5
10.0
7.5
5.0
2.5
Spread
2000
2005
2010
2015
2020
Dates
country
ZA_AUS
ZA_Canada
ZA_EURO
ZA_UK
Note:
Own Calculations



Inflation In principle, the yield spread contains information on expectations of future inflation that can be extracted as an estimate of them. Studies of US and other markets have demonstrated that the yield curve does contain information on expected and actual future levels of gross domestic product (GDP) growth, and can be a lead indicator of business cycle downturns.

Although many studies indicate the inflation-predicting power of the yield curve in developed countries' markets, little is known of the relationship in emerging economies. The graph below mostly supports the notion that the yield spread contains valuable information about expected inflation, where price refers to the inflation rate. However, it is important to notice that inflation has much higher volatility then yield spread. The graph below shows that the higher the current rate of inflation, the higher the yields will rise across the yield curve, as investors will demand this higher yield to compensate for inflation risk


Comparing Inflation and Yield Spread
Yeild Spread is between US and ZAR 10 year bond
10
5
0
2000
2005
2010
2015
2020
Dates
Data
Price
spread
Note:
Own Calculations