UK interest rate assumption

This note presents the possible options for the interest rate assumptions for the project.

We need long-term interest rate data for a long period of time so that we can calculate annuity values. In addition we need the term structure of interest rates to be able to illustra non-parallel changes in interst rates.

Long term interest rates

For the long term interest rates we can follow Willis Tower UK long-term statistics. Watson[1]. According to this we can use the yields of UK Consols[2] which are available from 1753 till 2015. From 2015 onwards we can use the yield of 20 year UK gilt. These data are available from the Bank of England[3] in the so-called "A millennium of macroeconomic data".

```
lngRate <- read_csv("UKlongtermrate.csv")
```

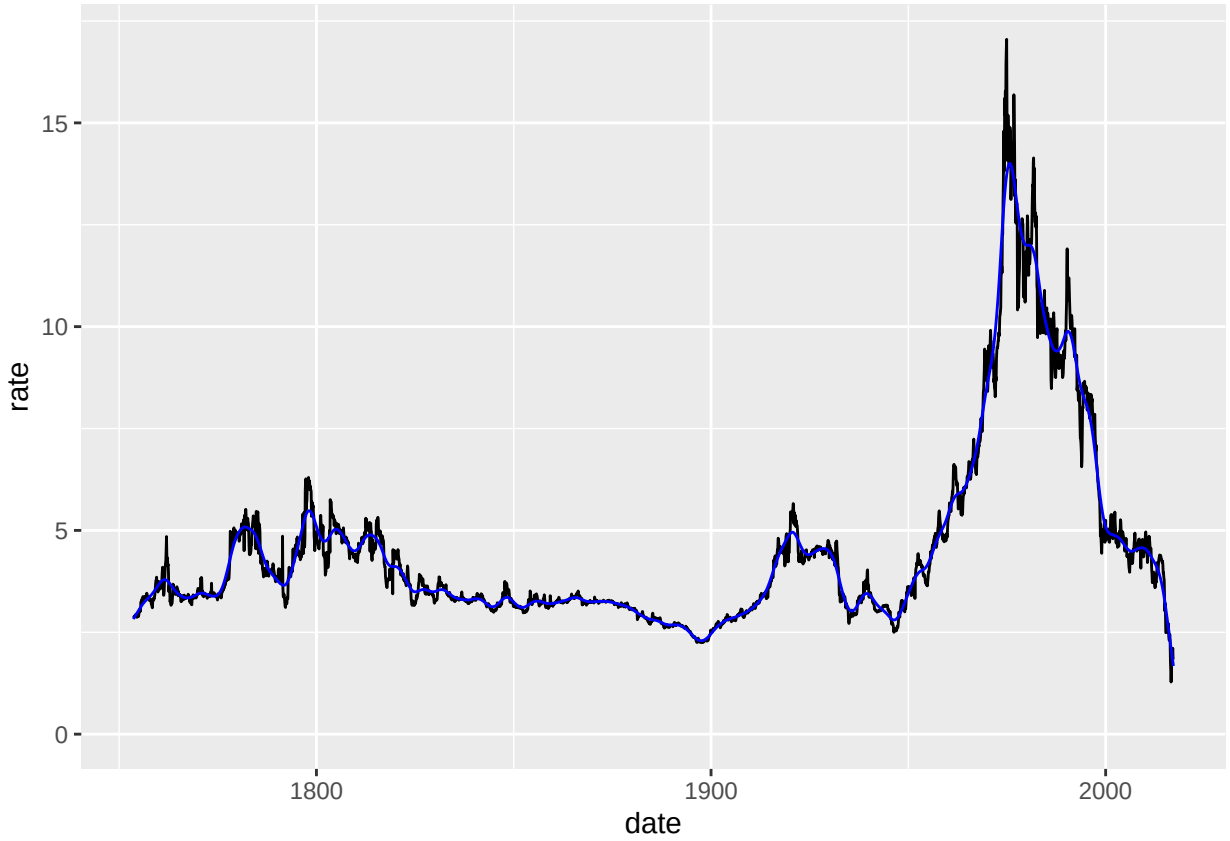
```
## Parsed with column specification:
## cols(
##   Year = col_double(),
##   Month = col_character(),
##   rate = col_double()
## )
```

```
lngRate <- lngRate %>%
  mutate(date = dmy(paste("1", lngRate$Month, lngRate$Year, sep = "-")))
```

This data is ploted below

```
ggplot(lngRate) + geom_line(aes(x = date, y = rate)) + ylim(0,NA) +
  geom_line(aes(x = date, y = smooth.spline(lngRate$rate, spar = 0.4)$y), colour = "blue")
```

[1] https://www.willistowerswatson.com/-/media/WTW/Insights/2019/08/uk-long-term-statistics-2019.pdf
[2] https://en.wikipedia.org/wiki/Consol_(bond)
[3] https://www.bankofengland.co.uk/statistics/research-datasets



Term structure

The data on the term structure of the interes rate can be obtained from https://www.bankofengland.co.uk/statistics/yield-curves. and is available from 1985