FinanceLab project

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Constant dividend d

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We get $d = \dfrac{S_0 - G_T e^{-r_T T}}{e^{-r_t t}}$.

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We get $\alpha = \dfrac{S_0}{G_T} e^{r_T T} - 1$.

Summary

The constant dividend is given by

$$d = \frac{S_0 - G_T e^{-r_T T}}{e^{-r_t t}}.$$

The proportional dividend is given by αS_t where

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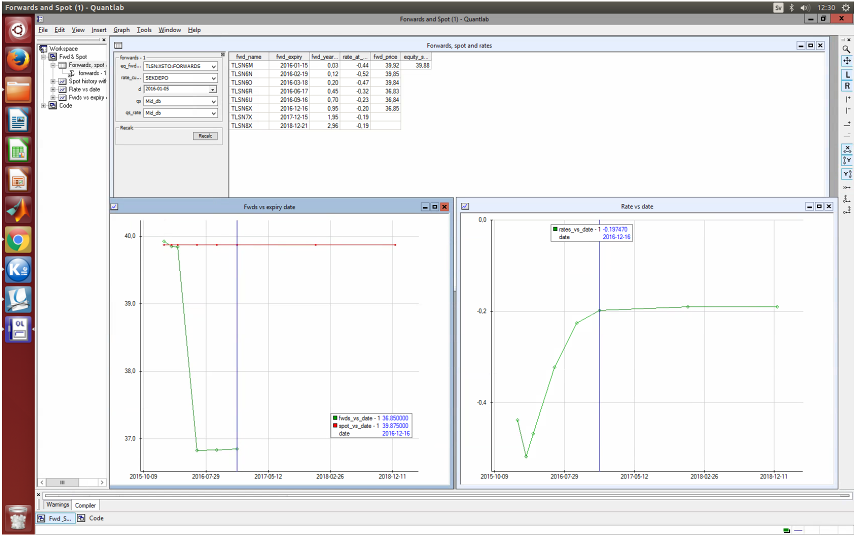
We need the following market data to compute the dividend:

$$S_0, G_T, t, r_t, T, r_T$$

Solution 1a)

Extract the market data.



Solution 1a)

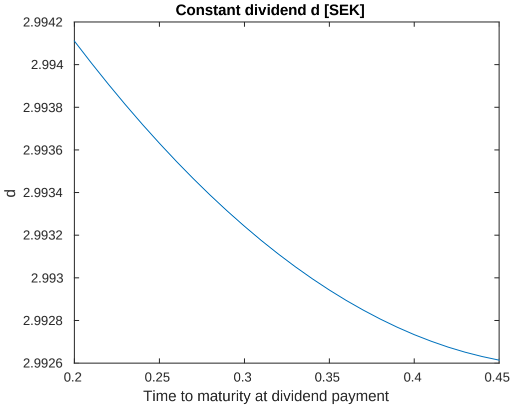
We read from Quantlab:

$$T = 0.45 \qquad r_T = -0.0032$$
$$S_0 = 39.88 \qquad G_T = 36.83$$

It is given in the exercise that we should assume that the dividend is payed at 2016-04-15. What if we dont know this? The market indicates that the dividend is to be payed somewhere between 2016-03-18 and 2016-06-17. How to choose t? Lets make a linear interpolation between the two forward contracts...

Solution 1a)

Result:



Since the interest rate is approximately zero, we get $d \approx S_0 - G_T \approx 2.993$.

Solution 1b)

Result:

$$\alpha \approx 0.0813$$

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Lets look up the dividend online...

Solution 3)

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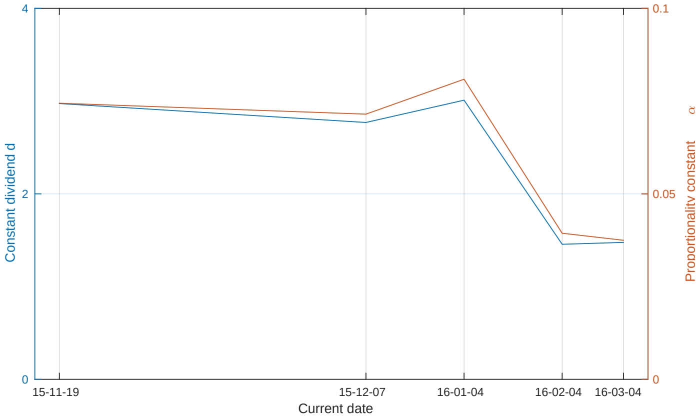

Discussion: errors

Do we have any sources of error in the analysis?

- Interpolation of interest rate
- Existence of small dividends?