Final Project
Digital Tools for Finance

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Contents

Introduction

This report is aimed on the estimation of the cost of capital of the main players of the oil industry.

The first part of the report gives a brief overview of main market characteristics of oil stocks.

The second part of the report is dedicated to the estimation of the cost of capital.

Overview of Market Data

Market

Figure 1: Dynamics of S&P Index

Cost of Capital

According to Damodaran (2001) and Plenborg and Pimentel (2016), one of the most prominents methods in calculating the cost of equity is the CAPM model, that is being implemented in the current research.

Returns Distribution

In this section we consider the type of the returns' distribution of several companies, as recommended by Fishman and Parker (2015).

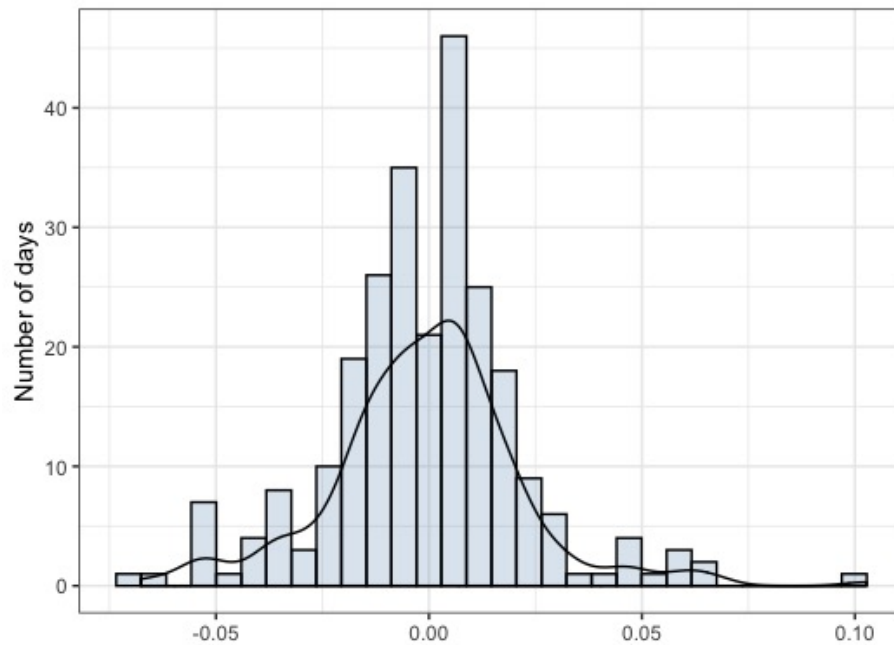Figure 2: Daily returns distribution of China Petroleum & Chemical

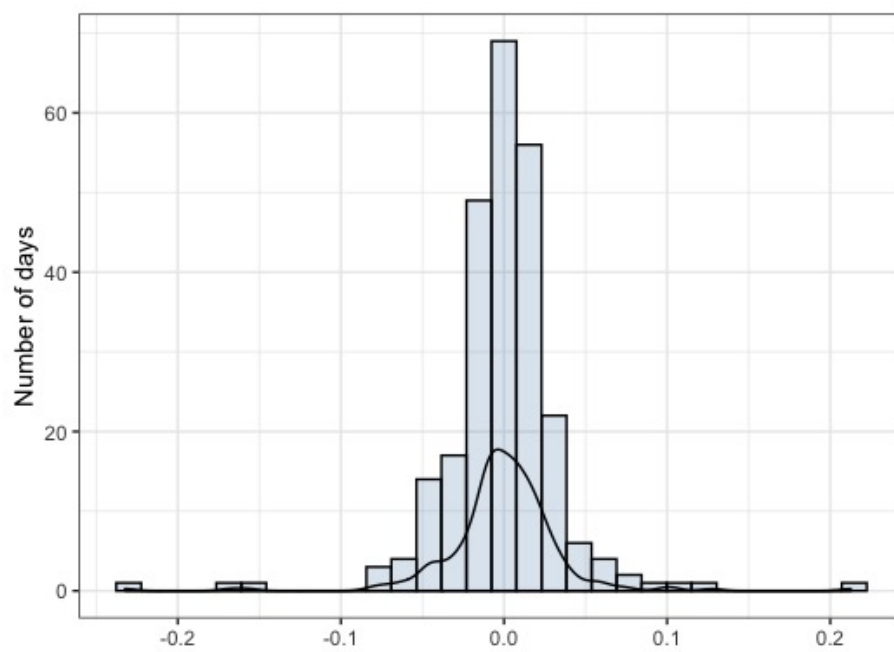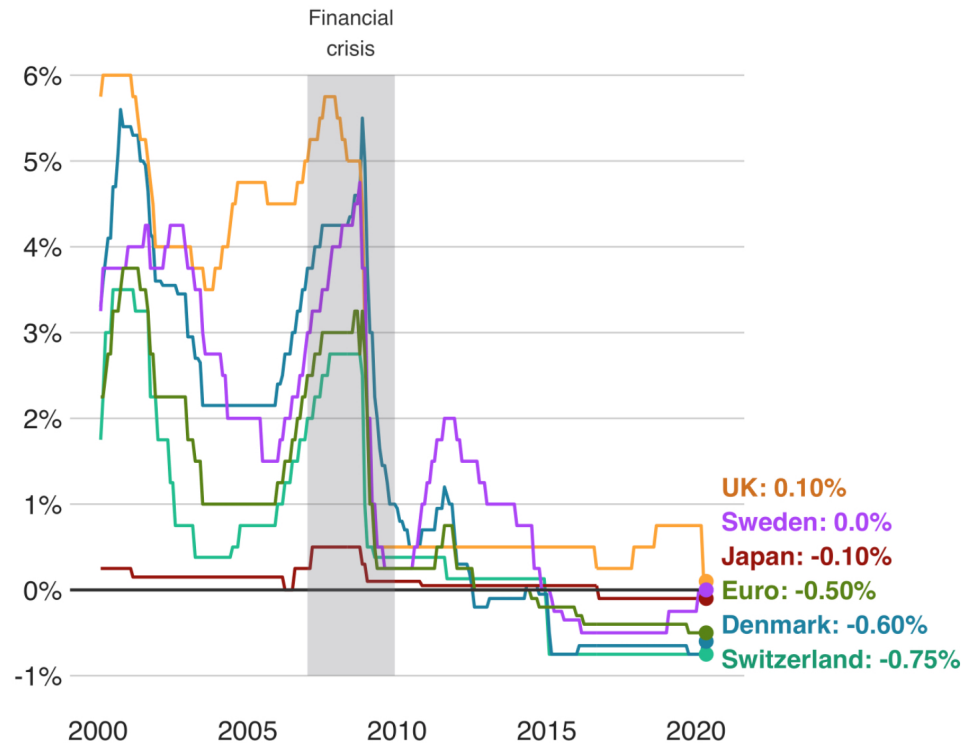Figure 3: Daily returns distribution of PJSC Lukoil

Figure 4: Global risk free rates

Financial crisis

UK: 0.10%	
Sweden: 0.0%	
Japan: -0.10%	
Euro: -0.50%	
Denmark: -0.60%	
Switzerland: -0.75%	

Source: Bank for International Settlements

BBC

Risk-free rate

According to Anderson (2012), for the estimation of risk-free rates we considered global risk-free rates (Figure 4)
The risk free rate for the current project was accepted to be 0.

Beta estimation

Companies' beta coefficients were calculated, using the methodology, described by Casey and Simon-Kerr (2015).

The 5 year time period was used for the estimation. The market index was represented by S&P 500.

The results are presented in Table 1.

Table 1: Beta coefficients

1	China Petroleum & Chemical	0.83
2	PetroChina	0.97
3	Royal Dutch Shell PLC	1.11
4	BP PLC	1.09
5	Exxon Mobil Corp.	1.02
6	Total SE	1.07
7	Chevron Corp.	1.20
8	Marathon Petroleum Corp.	1.54
9	PJSC Lukoil	0.97

Figure 5: Beta Coefficients
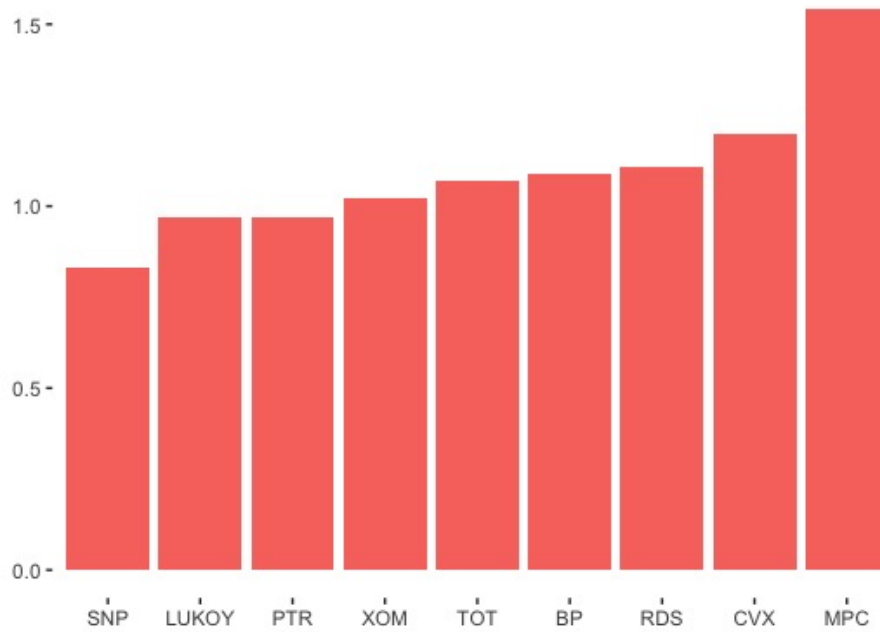
Cost of Equity

Cost of equity was calculated with the CAPM method, using the following formula:

$$r_e = r_f + \beta(r_m - r_f)$$

The results of calculations are provided in Table 2.

Table 2: Cost of Capital

1	China Petroleum & Chemical	0.15
2	PetroChina	0.17
3	Royal Dutch Shell PLC	0.20
4	BP PLC	0.19
5	Exxon Mobil Corp.	0.18
6	Total SE	0.19
7	Chevron Corp.	0.21
8	Marathon Petroleum Corp.	0.27
9	PJSC Lukoil	0.17

Findings and Conclusion

References

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