

UNIVERSIDADE ABERTA



UNIVERSIDADE  
AbERTA  
[www.uab.pt](http://www.uab.pt)

## IMPACTO DA VOLATILIDADE NA OTIMIZAÇÃO DE PORTFOLIOS FINANCEIROS

Leonel da Silva Baptista

Mestrado em Estatística, Matemática e Computação  
Ramo Estatística Computacional

2020

UNIVERSIDADE ABERTA



IMPACTO DA VOLATILIDADE NA OTIMIZAÇÃO DE  
PORTFOLIOS FINANCEIROS

Leonel da Silva Baptista

Mestrado em Estatística, Matemática e Computação  
Ramo Estatística Computacional

Dissertação orientada pelo  
Professor Doutor Amílcar Manuel do Rosário Oliveira

2020

# Resumo

# Abstract

*Dedicado a minha esposa*

# **Agradecimentos**

# Índice

<b>Introdução</b>	<b>1</b>
<b>1 Modelação Estatística na Otimização de Portfólios</b>	<b>4</b>
<b>2 Pacotes do R para análise</b>	<b>5</b>
<b>3 Aplicação a dados do modelo</b>	<b>6</b>
3.1 Example one . . . . .	6
3.2 Example two . . . . .	6
<b>Conclusão</b>	<b>7</b>

# Lista de Tabelas

1	Here is a nice table! . . . . .	2
---	---------------------------------	---



# Lista de Figuras

1	Here is a nice figure! . . . . .	3
---	----------------------------------	---

# **Simbologia e notações**



# Introdução

You can label chapter and section titles using `{#label}` after them, e.g., we can reference Chapter . If you do not manually label them, there will be automatic labels anyway, e.g., Chapter ??.

Figures and tables(Cryer & Chan, 2008) with captions will be placed in `figure` and `table` environments, respectively(Rankovic et al., 2016)

```
par(mar = c(4, 4, .1, .1))  
plot(pressure, type = 'b', pch = 19)
```

Reference a figure by its code chunk(Bertsimasa et al., 1965) label with the `fig:` prefix, e.g., see Figure 1. Similarly, you can reference tables(Salgado, 2011) generated from `knitr::kable()`, e.g., see Table 1.

```
knitr::kable(  
  head(iris, 20), caption = 'Here is a nice table!',  
  booktabs = TRUE  
)
```

You can write citations,(Engle & Patton, 2001) too. For example, we are using the **bookdown** package (Xie, 2020) in this sample book,(Markowitz, 1952) which was built on top of R Markdown and **knitr** (Rockafellar & Uryasev, 2000).

Tabela 1: Here is a nice table!

Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
5.1	3.5	1.4	0.2	setosa
4.9	3.0	1.4	0.2	setosa
4.7	3.2	1.3	0.2	setosa
4.6	3.1	1.5	0.2	setosa
5.0	3.6	1.4	0.2	setosa
5.4	3.9	1.7	0.4	setosa
4.6	3.4	1.4	0.3	setosa
5.0	3.4	1.5	0.2	setosa
4.4	2.9	1.4	0.2	setosa
4.9	3.1	1.5	0.1	setosa
5.4	3.7	1.5	0.2	setosa
4.8	3.4	1.6	0.2	setosa
4.8	3.0	1.4	0.1	setosa
4.3	3.0	1.1	0.1	setosa
5.8	4.0	1.2	0.2	setosa
5.7	4.4	1.5	0.4	setosa
5.4	3.9	1.3	0.4	setosa
5.1	3.5	1.4	0.3	setosa
5.7	3.8	1.7	0.3	setosa
5.1	3.8	1.5	0.3	setosa

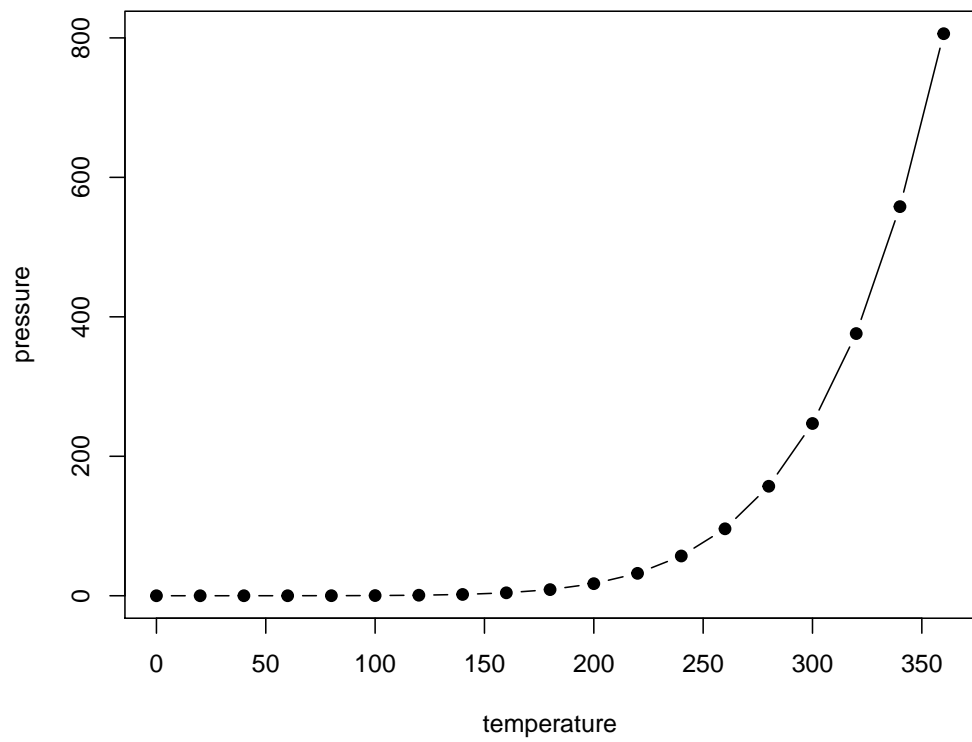


Figura 1: Here is a nice figure!

# **Capítulo 1**

## **Modelação Estatística na Otimização de Portfólios**

Here is a review of existing methods.

## **Capítulo 2**

# **Pacotes do R para análise**

We describe our methods in this chapter.



# Capítulo 3

## Aplicação a dados do modelo

Some *significant* applications are demonstrated in this chapter.

### 3.1 Example one

### 3.2 Example two

# Conclusão

We have finished a nice book.

# Bibliografia

- Bertsimasa, D., Lauprete, G. J. & Samarovc, A. (1965). Shortfall as a risk measure: properties, optimization and applications. *Journal of Economic Dynamics & Control*, 28(7), 1353–1381. DOI:10.1016/S0165-1889(03)00109-X
- Cryer, J. D. & Chan, K. S. (2008). *Time Series Analysis With Applications in R* (2nd). Springer.
- Engle, R. F. & Patton, A. J. (2001). What good is a volatility model? *Quantitative Finance*, 1(2), 237–245. DOI:10.1088/1469-7688/1/2/305
- Markowitz, H. (1952). Portfolio Selection. *The Journal of Finance*, 7(1), 77–91. DOI: 10.2307/2975974
- Rankovic, V., Drenovak, M., Urosevic, B. & Jelic, R. (2016). Mean-univariate GARCH VaR portfolio optimization: Actual portfolio approach. *Computer and Optimization Research*, 72, 83–92. 10.1016/j.cor.2016.01.014
- Rockafellar, R. T. & Uryasev, S. (2000). Optimization of conditional value-at-risk. *Journal of Risk*, 2(3), 21–41. DOI:10.21314/JOR.2000.038
- Salgado, J. (2011). *What best predicts realized and implied volatility: GARCH, GJR or FCGARCH?* (Master's thesis, ISCTE-IUL). Retrieved from [https://repositorio.iscte-iul.pt/bitstream/10071/4070/1/Tese\\_JoseSalgado.pdf](https://repositorio.iscte-iul.pt/bitstream/10071/4070/1/Tese_JoseSalgado.pdf).
- Xie, Y. (2020). *bookdown: Authoring Books and Technical Documents with R Markdown* [R package version 0.19]. <https://CRAN.R-project.org/package=bookdown>