Marinus_Tutorial

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Abstract

Abstract to be written here. The abstract should not be too long and should provide the reader with a good understanding what you are writing about. Academic papers are not like novels where you keep the reader in suspense. To be effective in getting others to read your paper, be as open and concise about your findings here as possible. Ideally, upon reading your abstract, the reader should feel he / she must read your paper in entirety.

Keywords: GARCH

JEL classification L250, L100

1. Introduction

References are to be made as follows: Fama and French (1997, 33) and Grinold and Kahn (2000). Source the reference code from scholar.google.com by clicking on "cite" below article name. Then select BibTeX at the bottom of the Cite window, and proceed to copy and paste this code into your ref.bib file, located in the directory's Tex folder. Open this file in Rstudio for ease of management, else open it in your preferred Tex environment. Add and manage your article details here for simplicity - once saved, it will self-adjust in your paper.

To reference a section, you have to set a label using "\label" in R, and then reference it in-text as e.g.: section 2.

Writing in Rmarkdown is surprizingly easy - see this website cheatsheet for a summary on writing Rmd writing tips.

2. Data

Discussion of data should be thorough with a table of statistics and ideally a figure.

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In your tempalte folder, you will find a Data and a Code folder. In order to keep your data files neat, store all of them in your Data folder. Also, I strongly suggest keeping this Rmd file for writing and executing commands, not writing out long pieces of data-wrangling. In the example below, I simply create a ggplot template for scatter plot consistency. I suggest keeping all your data in a data folder.

To reference the plot above, add a "\label" after the caption in the chunk heading, as done above. Then reference the plot as such: As can be seen, figure **??** is excellent. The nice thing now is that it correctly numbers all your figures (and sections or tables) and will update if it moves. The links are also dynamic.

I very strongly suggest using ggplot2 (ideally in combination with dplyr) using the ggtheme package to change the themes of your figures.

Also note the information that I have placed above the chunks in the code chunks for the figures. You can edit any of these easily - visit the Rmarkdown webpage for more information.

3. Methodology

3.1. Subsection

Ideally do not overuse subsections. It equates to bad writing.[1]

3.2. Math section

Equations should be written as such:

$$
\begin{aligned}
y_t &= c + B(L)y_{t-1} + e_t \\
e_t &= H_t^{1/2} z_t; \quad z_t \sim N(0, I_N) \quad \& \quad H_t = D_t R_t D_t \\
D_t^2 &= \sigma_{1,t}, \ldots, \sigma_{N,t} \\
\sigma_{i,t}^2 &= \gamma_i + \kappa_{i,t} v_{i,t-1}^2 + \eta_i \sigma_{i,t-1}^2, \quad \forall i \\
R_{t,i,j} &= diag(Q_{t,i,j}{}^{-1}).Q_{t,i,j}.diag(Q_{t,i,j}^{-1}) \\
Q_{t,i,j} &= (1 - \alpha - \beta)\bar{Q} + \alpha z_t z_t' + \beta Q_{t,i,j}
\end{aligned}
\tag{3.1}
$$

[1] This is an example of a footnote by the way. Something that should also not be overused.

If you would like to see the equations as you type in Rmarkdown, use $ symbols instead (see this for yourself by adjusted the equation):

$$\beta = \sum_{i=1}^{\infty} \frac{\alpha^2}{\sigma_{t-1}^2} \int_{x=1}^{\infty} x_i = 1$$

4. Results

Tables can be included as follows. Use the *xtable* (or kable) package for tables. Table placement = H implies Latex tries to place the table Here, and not on a new page (there are, however, very many ways to skin this cat. Luckily there are many forums online!).

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
Return	1	4585.00	-0.01	2.11	0.00	-0.02	1.44	-12.58	12.64	25.22	0.05	3.31	0.03
Return_Sqd	2	4585.00	4.47	10.30	0.94	2.18	1.38	0.00	159.77	159.77	6.18	58.96	0.15

Table 4.1: 1st and 2nd Moments (2006-2008)

	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
Return	1	7000.00	0.04	1.43	0.00	0.06	1.03	-36.42	6.87	43.29	-2.46	61.35	0.02
Return_Sqd	2	7000.00	2.06	16.33	0.48	1.00	0.70	0.00	1326.58	1326.58	76.38	6184.91	0.20

Table 4.2: 1st and 2nd Moments (2010-2013)

	ABSP	BVT	FSR	NBKP	RMH	SBK	SLM
ABSP	1.00	0.02	0.01	0.18	0.05	0.04	0.04
BVT	0.02	1.00	0.50	0.04	0.48	0.50	0.49
FSR	0.01	0.50	1.00	0.01	0.76	0.71	0.51
NBKP	0.18	0.04	0.01	1.00	-0.00	0.02	0.04
RMH	0.05	0.48	0.76	-0.00	1.00	0.65	0.50
SBK	0.04	0.50	0.71	0.02	0.65	1.00	0.52
SLM	0.04	0.49	0.51	0.04	0.50	0.52	1.00

Table 4.3: Unconditional Correlations

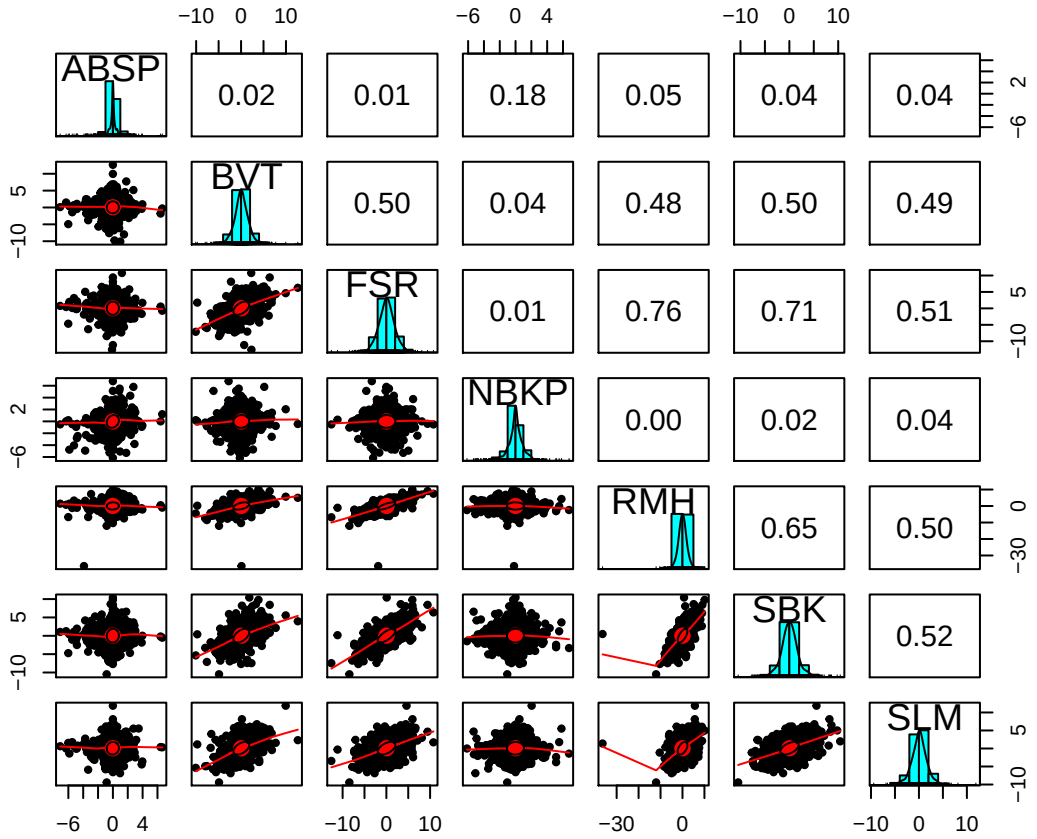

Figure 4.1: Pairs Panel

	Estimate	Std. Error	t value	Pr(>|t|)
mu	0.01	0.01	0.84	0.40
ar1	-0.08	0.03	-2.88	0.00
omega	0.06	0.01	5.36	0.00
alpha1	0.19	0.03	6.22	0.00
beta1	0.78	0.03	24.58	0.00
gamma1	-0.14	0.03	-4.79	0.00

Table 4.4: GARCH11

	Estimate	Std. Error	t value	Pr(>|t|)
mu	0.01	0.01	0.85	0.39
ar1	-0.08	0.03	-2.91	0.00
omega	0.05	0.01	5.12	0.00
alpha1	0.20	0.03	6.53	0.00
beta1	0.76	0.03	24.98	0.00
gamma1	-0.15	0.03	-4.96	0.00
vxreg1	0.01	0.00	2.91	0.00

Table 4.5: GARCH11 with SLM external regressor

“‘ To reference calculations in text, do this: From table 4.5 we see the average value of mpg is 20.98.

According to the work of Tsay (1989), blah blah !

5. Conclusion

References

Fama, Eugene F, and Kenneth R French. 1997. “Industry Costs of Equity.” *Journal of Financial Economics* 43 (2). Elsevier: 153–93.

Grinold, Richard C, and Ronald N Kahn. 2000. “Active Portfolio Management.” McGraw Hill New York, NY.

Tsay, Ruey S. 1989. “Testing and Modeling Threshold Autoregressive Processes.” *Journal of the American Statistical Association* 84 (405). Taylor & Francis Group: 231–40.