The Analysis of the Return of the Stock of Apple, Inc.

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Contents

1 Introduction

The introduction section summarizes the basics of your report. The first paragraph introduces what are the time series data that you study, for example, which company's stock, or what macroeconomic variables. Then, tell readers what is/are the research questions that your report wants to resolve.

The second paragph gives a summary of your main findings. For example, you can tell readers that you find the return series of A company's stock is well modeled with a ARMA(2, 1) model, and its volatility is modeled with a GARCH(1, 1) model but the results are not supportive for a GARCH process.

2 Data Source and Data Description

2.1 Data source

Tell readers where you download the data, for example, Yahoo Finance, Google Finance, or the Federal Reserve Bank of St. Louis (FRED).

What is the company? What is the time span of your investigation?

How did you download the data? And show us the code.

```
library(quantmod, quietly = TRUE)
options("getSymbols.warning4.0"=FALSE)
getSymbols('AAPL', src = "yahoo", from="2005-01-02", to="2010-12-31")
```

2.2 Data description

Write a paragraph for descriptive statistics regarding the data.

Show us the code for doing such analysis.

```r
# some code for summary statistics here
summary(AAPL)
```

Display your results with tables and plots.

```r
library(stargazer)
stargazer(AAPL)
```

3 Model Specification

Write the mathematical models you are using, for example, ARMA(2, 1) for the r_t series, and GARCH(1, 1) for σ_t^2.

For example, the ARMA(2, 1) model is

$$r_t = \phi_0 + \phi_1 r_{t-1} + \phi_2 r_{t-2} + a_t - \theta_1 a_{t-1}, a_t \sim IID(0, \sigma^2) \tag{1}$$

4 Estimation and Result Analysis

Write down the procedures that you follow to do the analysis, including, but not limited to

- How do you determine the order of an ARMA model?
- What do you find with the ACF of r_t?
- What are the estimation results?
- How do you check the adequacy of the model(s)?

Display your results with tables and plots.

Show us the code to do all the analysis and make tables and graphs.

5 Conclusion

Write one or two paragraph to conclude your report.

Wrap up your project by compress all the files of the project into a zip file so that I can regenerate your report when I have the zip file.