



Investment R_{mini} Quick User Guide

Bought to you by:
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Contents

- 1) System Requirements & Built
- 2) Deployment
- 3) Using Investment R_{mini}

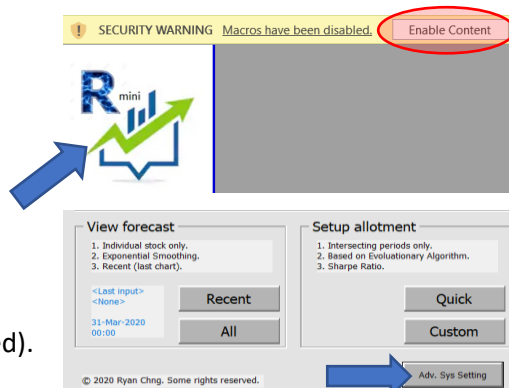
1) System Requirements & Built

- i. Application is built under Windows 10 OS
- ii. Microsoft Office Professional Plus 2016
- iii. Microsoft Excel Version 2004 (Build 12730.20236)
- iv. Microsoft Visual Basic for Applications
- v. R version 3.6.3
- vi. R packages: base R, forecast, ggplot2, ggpubr
- vii. Download Investment_Rmini.zip

```
platform x86_64-w64-mingw32
arch      x86_64
os        mingw32
system    x86_64, mingw32
status
major     3
minor     6.3
year      2020
month     02
day       29
svn rev   77875
language  R
version.string R version 3.6.3 (2020-02-29)
nickname  Holding the windsock
```

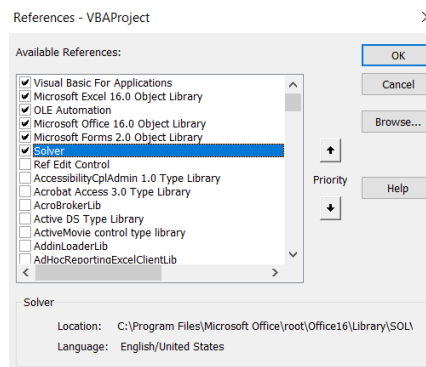
2) Deployment

- i. Unzip Investment_Rmini.zip
- ii. Click on Investment_Rmini.xlsm to start.
- iii. 'Enable Content' if required.
- iv. User form should pop up, else click on logo
- v. Link to R installation:
 - a. Click Adv. Sys Setting.
 - b. Set the Rscript.exe path (e.g. provided).




Description	Default value
Sample Website	https://sg.finance.yahoo.com/quote/D05.SI/history?p=D05.SI&.tsrc=fin-srch
Rscript.exe	C:\Program Files\R\R-3.6.3\bin\Rscript.exe
Risk free rate	0.64%

- vi. Set current risk free rate. (i.e 10-Treasury)
- vii. Enable solver in MS Excel
 - i.e. File -> Options -> Add-ins -> select Solver Add-in -> Go.. -> tick Solver Add-in -> OK
- viii. Enable solver reference
 - i.e. Under MSExcel environment: press Alt+F11, Tools -> References -> tick 'Solver' -> OK



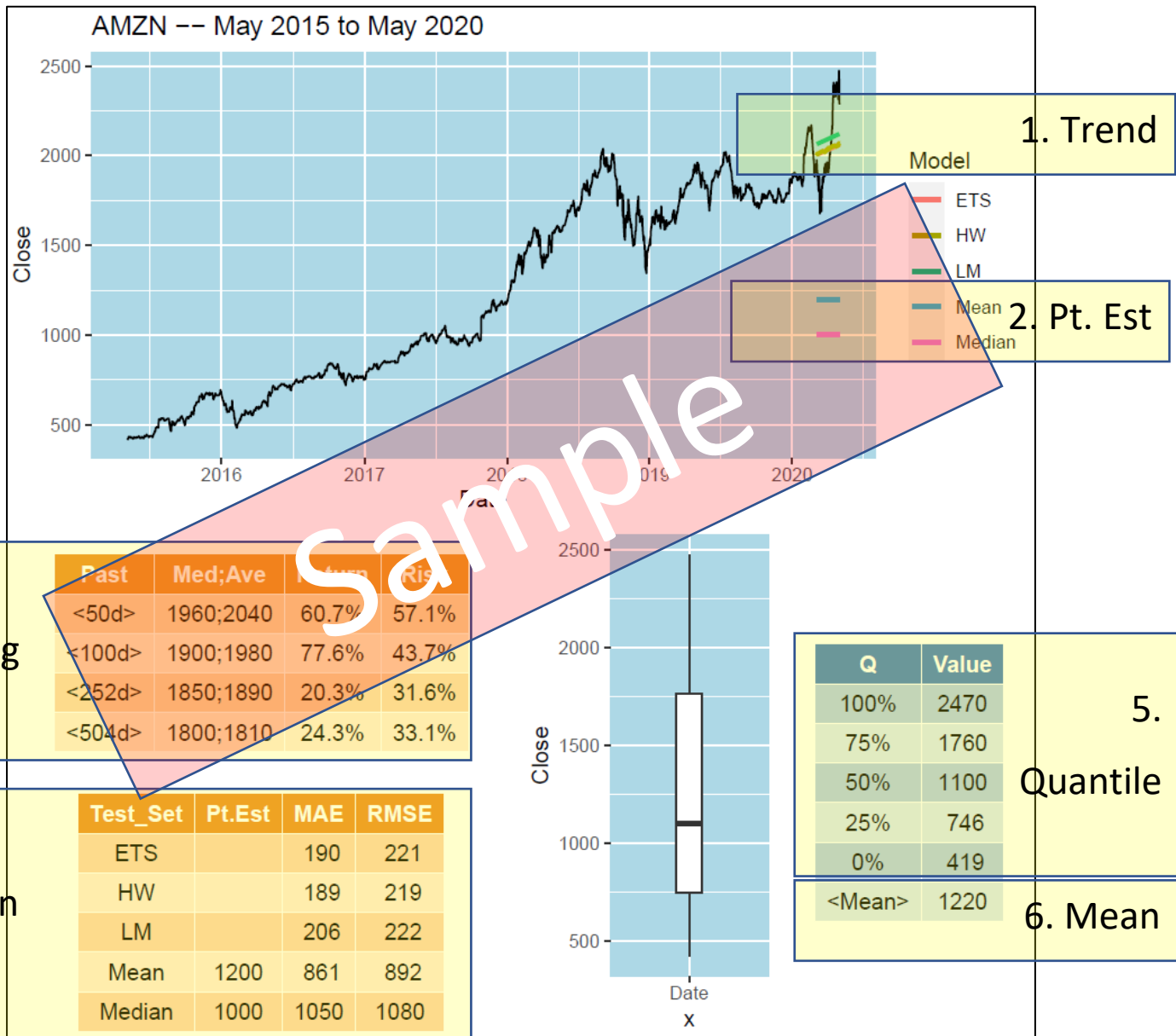
3) Using Investment R_{mini}

UI

Welcome to Investment_Rmini			
		General Instructions: Data: Visit website, download and deposit. Forecast: Open and view. Allotment: Set threshold risk, engine returns a suggestion. Takes all data from csv repository.	No. 0
		Readme	
Data Flexi Data 1. Choose you fav share data from your trusted site. (sample site provided below) 2. Data should contain "Date" and "Close" fields. 3. Download as <stock>.csv and save into folder path provided.			
No. 1	Look for download icon, visit sample site: https://sg.finance.yahoo.com/quote/D05.SI/history?p=D05.SI&tsrc=fin-srch		
No. 2	Add, edit & delete csv here: C:\Users\chngy\Desktop\csv	Update	No. 3
<div> <div> View forecast 1. Individual stock only. 2. Exponential Smoothing. 3. Recent (last chart). </div> <div> Setup allotment 1. Intersecting periods only. 2. Based on Evolutionary Algorithm. 3. Sharpe Ratio. </div> </div>			
No. 4	<Last input> <None>	Recent	No. 6
No. 5	31-Mar-2020 00:00	All	No. 7
© 2020 Ryan Chng. Some rights reserved.			Adv. Sys Setting No. 8

- No. 0, **Readme**: Opens up a Readme.txt, contains a simplified text version to setup.
- No. 1, **Link 1**: Link redirects to website. Favourite website can be changed in advance setting.
- No. 2, **Link 2**: Opens up the folder to the source.
- No. 3, **Update**: Takes the raw files and update.
- No. 4, **Recent**: Opens the most recent created tables & charts of a stock.
- No. 5, **All**: Opens the folder that stores all the tables & charts ever created.
- No. 6, **Quick**: Jumps into solver, ends with optimal portfolio suggestion.
- No. 7, **Custom**: Ask input user for threshold for risk, goes to solver and ends with optimal portfolio suggestion with risk <= user defined.
- No. 8, **Adv.Sys Setting**: Go into advance setting. No. 1, Rscript.exe path and risk free % of Sharpe ratio can be set.

View Forecast



- Trend**: Exponential Smoothing, Holt Winters & Linear Model, user infer trend from here.
- Pt. Est**: Point estimates generated from training onto test (last 42 days).
- Moving Ave**: Moving averages, 252 trading days used for 1 year.
- Error in model**: MAE = Mean Absolute Error, RMSE = Root Mean Square Error
- Quantile**: Taken from the full set of data (different from Pt. Est)
- Mean**: Taken from full set of data (different from Pt. Est)

Setup Allotment

1. Allotment	Stock	Annual_Return	Risk	Weight	8.4%	1.5%	14.9%	19.7%	10.1%	5.6%	14.74%	0.69%	1.2%	23.13%	
	AMZN	38.25%	29.87%	8.40%	6.29E-04	4.85E-05	6.27E-04	3.27E-04	4.99E-04	2.52E-04	6.73E-04	3.99E-05	5.62E-05	3.73E-04	
	BA	6.36%	39.56%	1.49%	4.85E-05	3.47E-05	1.02E-04	1.07E-04	7.28E-05	4.02E-05	1.18E-04	4.88E-06	1.18E-05	7.09E-05	
	BABA	22.90%	32.46%	14.88%	6.27E-04	1.02E-04	2.33E-03	5.28E-04	7.38E-04	3.91E-04	1.03E-03	6.00E-05	1.00E-04	4.70E-04	
	COKE	22.03%	38.35%	19.72%	3.27E-04	1.07E-04	5.28E-04	5.72E-04	4.80E-04	5E-04	8.00E-04	1.65E-05	7.01E-05	9.47E-04	
	FB	23.89%	31.49%	10.14%	4.99E-04	7.28E-05	7.38E-04	4.99E-04	1.02E-04	3.34E-04	8.08E-04	4.13E-05	6.83E-05	4.10E-04	
	GOOG	21.55%	27.15%	5.63%	2.52E-04	4.02E-05	3.91E-04	2.65E-04	4E-04	2.34E-04	4.63E-04	2.22E-05	3.43E-05	2.43E-04	
	MSFT	29.51%	27.35%	14.74%	6.73E-04	1.18E-04	1.02E-03	8.00E-04	8.08E-04	4.63E-04	1.62E-03	5.90E-05	9.87E-05	8.43E-04	
	NFLX	41.90%	41.86%	0.69%	3.99E-05	4.88E-05	6.00E-05	5.5E-05	4.13E-05	2.22E-05	5.90E-05	8.31E-06	5.78E-06	3.58E-05	
	TSLA	36.26%	52.91%	1.19%	5.62E-05	1.18E-05	1.00E-04	7.01E-05	6.83E-05	3.43E-05	9.87E-05	5.78E-06	3.98E-05	5.11E-05	
WMT	11.32%	22.45%	23.13%	3.73E-04	7.09E-05	4.70E-04	9.47E-04	4.10E-04	2.43E-04	8.43E-04	3.58E-05	5.11E-05	2.70E-03		
2. Measures															
	Est. Total Return	Est. Portfolio Risk	Total Weight												
	Overall Portfolio	22.38%	20.00%	100.00%											
3. Threshold	Threshold	0.00%	20.00%	100.00%											
	Sub Score	22.38%	20.00%	0.00%											
			Score:	1.09											
4. Sharpe Ratio															
5. Table															

- Allotment:** Suggested allotment in yellow.
- Measure:** Annual return; annual risk; total weight check on distribution.
- Threshold:** User is able to set risk threshold before the table is triggered.
Rest of the threshold are fixed
- Sharpe Ratio:** A measure used to maximise return and lower risk.
- Table:** $wt1 * wt2 * \text{covariance of the underlying stocks}$.

--- End of Guide ---