

Duke University

Project Week05

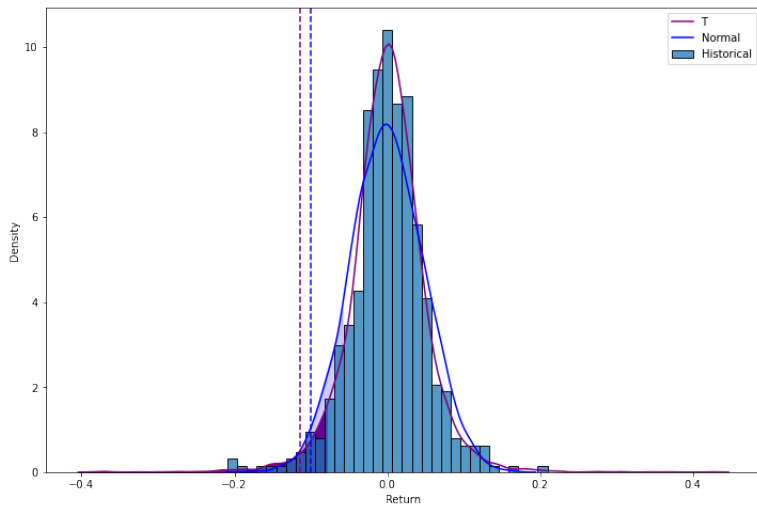
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Hongren Jiang

Answer 1

$VaR - Normal$	8.04%
$VaR - T$	7.70%
$ES - Normal$	10.04%
$ES - T$	11.45%

Answer 1



I created a python package named 'riskmgmt' contains all of the above functions. If this package has been installed to the correct path, the user can import and use its functions, just like other famous open source packages, such as pandas and numpy. By the way, I am also planning to submit it on pypi.org, so that everyone in the world can use the package by 'pip install'.

I have written problem2.ipynb, which includes the content of previous projects. I implemented the functions of the package I wrote in the file.

Answer 3

I use the same financial theory with project 4. But in this project, I use generalized T distribution rather than historical method. The following is the answer:

$$\text{VaR} - A = \$5957.81$$

$$\text{VaR} - B = \$4549.88$$

$$\text{VaR} - C = \$3088.05$$

$$\text{VaR} - \text{Total} = \$12807.44$$

$$\text{ES} - A = \$7411.69$$

$$\text{ES} - B = \$6574.63$$

$$\text{ES} - C = \$4241.02$$

$$\text{ES} - \text{Total} = \$17764.04$$

Because the answer is gotten by simulations, each calculation yields a slightly different answer. The absolute value of VaR is smaller than that of project 4.