Historical SP500 statistics:

Historical SP500 $100 becomes $15033.86

|  |  |
| --- | --- |
| size | 3601 |
| min | -0.1820 |
| average | 0.0016 |
| median | 0.0029 |
| Standard Deviation | 0.0206 |
| max | 0.1412 |

Normal SP500 statistics:

|  |  |
| --- | --- |
| size | 10000 |
| min | 149.2832 |
| average | 31713.9003 |
| median | 14426.2714 |
| Standard Deviation | 57807.4918 |
| max | 1098906.4859 |

Sampled SP500 statistics:

|  |  |
| --- | --- |
| size | 10000 |
| min | 119.5529 |
| average | 31755.0344 |
| median | 15243.5231 |
| Standard Deviation | 57611.2421 |
| max | 2015683.9781 |

The results of the simulations show that its possible to predict the outcome of the stock market. But it’s not guaranteed to get the exact result so for example in the normal sp500 simulation the median was $14426.2714 which is close to the actual but its off by $607.5886 while on the other hand the median that came out for the simulation that used samples from the historical data was $15243.5231 which is more than what we actually had in historical sp500 but its only off by $209.6631 which is closer than what normal sp500 predicted. This shows that using the historical data can produces more accurate results but that’s only if we expect the market to remain the same so although simulating using sampling from the data will simulate if the market drops and goes up again, but it will never go higher or lower than the highest or lowest that happened in the past so if there is a sharp increase or decrease in the stock the simulation might not be able to simulate the gain or lost of that case but the other simulation its possible to have more variation in the percentage which make its representation although in this case off by more but I think its more reliable to go off it specially because its less so if we follow it and get more then no harm is done and also I think that if we increase the number of simulation runs we might be able to get even more accurate results. Overall, I think the best way to look at the stock in trying to predict if it’s a good investment or not is to use both simulation and even then take the results with a cautious because they still might not be the actual result that you will get in reality.