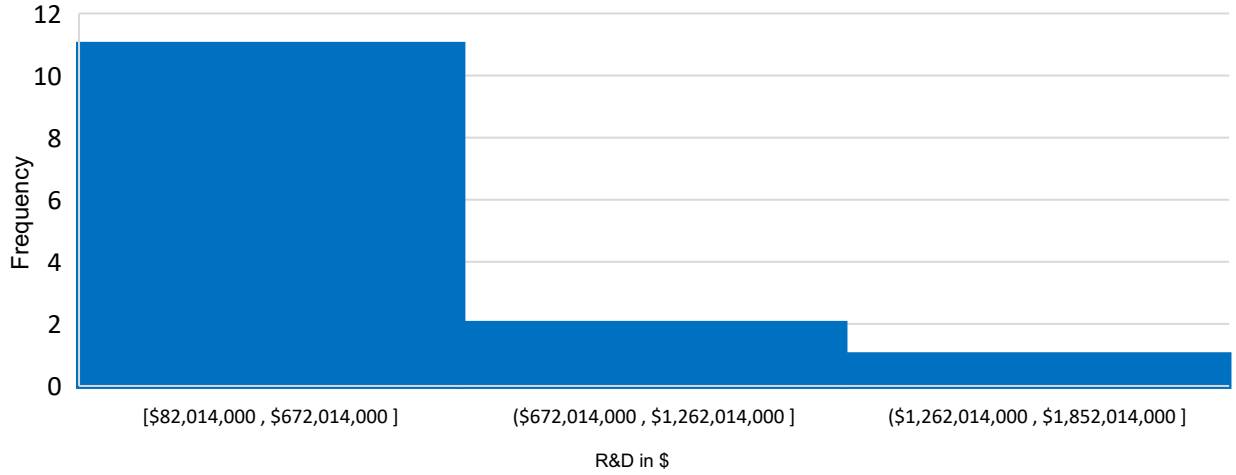
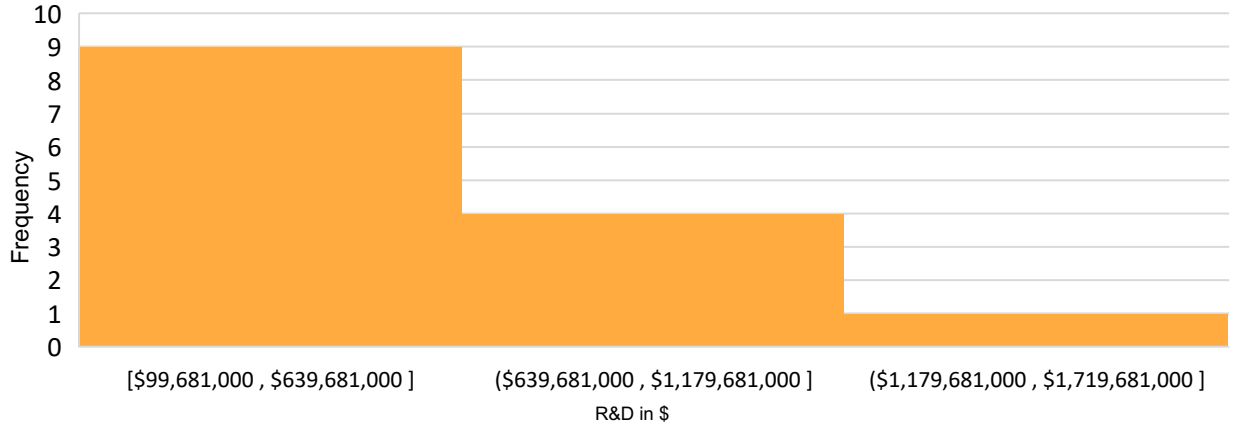
Question

Year 1 compared to Year 4 analyze the same 14 companies from the Health Care/ Health Care equipment category for Research & Development Cost.

Research & Development Year 1 Expenditure $6,434,357,000



Research & development Year 4 Expenditure $7,014,809,000



Histograms for the Year 1 and Year 4 for the same 14 companies for health care / health care equipment Research and Development total expenditure.

Both distributions are right-skewed or positively skewed which results from the mean being higher than the median.

Overall, there was an 8.63% increase from Year 1 to Year 4 in total research expenditure when comparing the data.

The mean for YEAR 1 is $459 million but YEAR 4 is $501 million.

Both the median and mode are the same for each year: YEAR 1 is $293 million. YEAR 4 is $337 million.

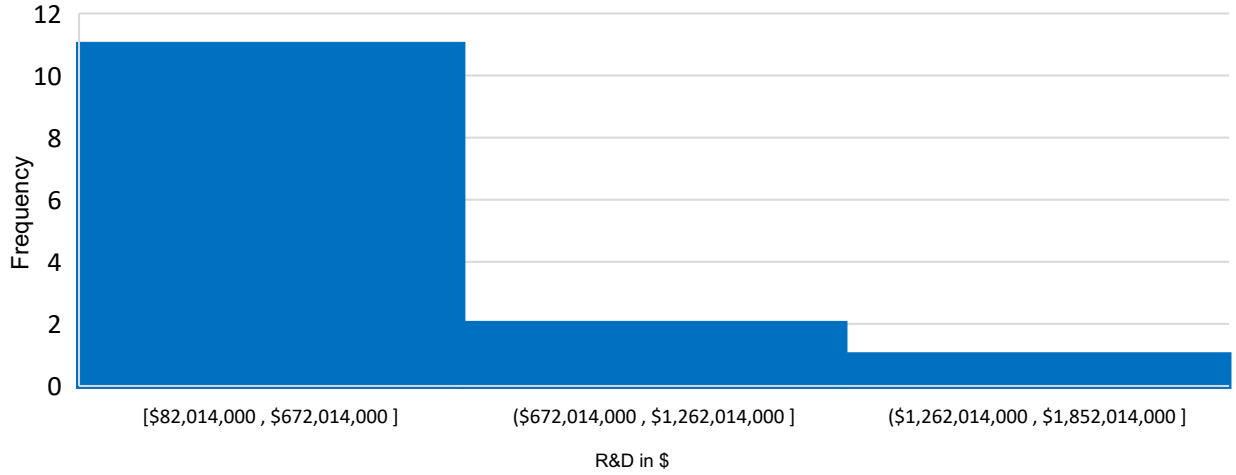
Most of the R&D expenditure for both YEAR 1 and YEAR 4 range from $82 – $672 million (70%).

The max expenditure from YEAR 1 and YEAR 4 is around $1.4 billion.

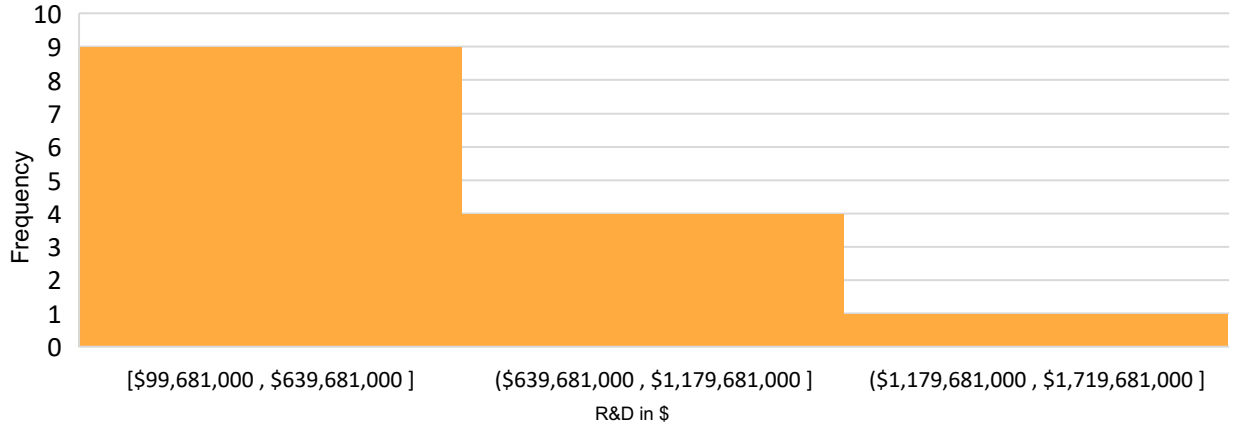
Question

Analyze the Standard Deviation of Year 1 compared to Year 4

Research & Development Year 1 Expenditure $6,434,357,000



Research & development Year 4 Expenditure $7,014,809,000



Year 1	
Mean	
$	459,596,928.57
Median	
$	293,500,000.00
Mode	
$	293,500,000.00
Standard Deviation	
$	407,779,368.15

Year 4	
Mean	
$	501,057,785.71
Median	
$	337,950,000.00
Mode	
$	337,950,000.00
Standard Deviation	
$	369,236,165.64

Analyzing the standard deviation, Year 1 had a lower total R&D expenditure but a higher standard deviation by 9.9% compared to Year 4.

When estimating future R&D expenditure we can analyze the budget through the standard deviation to help determine best course of investment into R&D. Like better risk/reward decisions when it comes to spending the budget and investing in R&D. Year 4 shows to be more reliable and less spread out / volatile than Year 1.