In same sector using the return of GE, CAT, MMM, UTX, we can obtain the eigenvalue and proportion below:

|  |  |
| --- | --- |
| eigenvalues | proportion |
| 0.000340432 | 61.90% |
| 9.87968e-05 | 17.96% |
| 6.71063e-05 | 12.20% |
| 4.36891e-05 | 7.94% |

In different sectors using the return of MSFT, CAT, CO, XOM, we can obtain the eigenvalue and proportion below:

|  |  |
| --- | --- |
| eigenvalue | proportion |
| 0.000329484 | 55.64% |
| 0.000129458 | 21.86% |
| 7.97859e-05 | 13.48% |
| 5.34274e-05 | 9.02% |

According to the table above we can see the biggest eigenvalue from the same vector accounts for bigger proportion than different sectors. This is because the biggest eigenvalue from same sector can represent more data than different sectors. The correlation in same sector is higher than the correlation in different sectors. But we still need at least 3 components to explain the whole data set in same sector or different sectors.