

# Visualizing Data

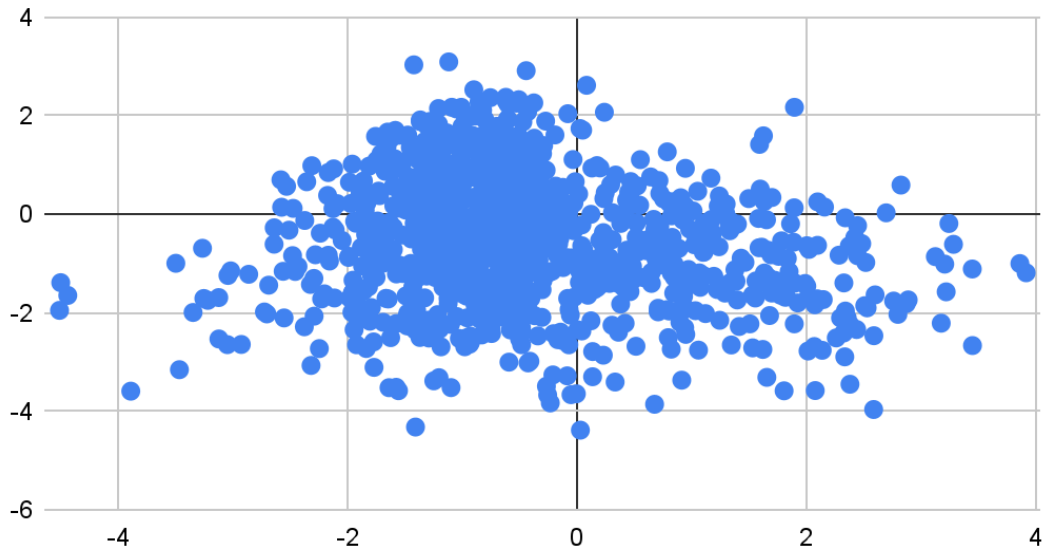
The following dataset has been used to carry out the experiment:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	CurrentRatio	QuickRatio	CashRatio	P/E	Earnings Yield	ROCE	CASA	Sector P/E	Status	Level	Rating				
2	0.3310960922	0.370957488	-1.454801411	1.357958653	-0.6968541581	0.3138135511	-1.115697961	-2.213527285	Accepted	High	B				
3	0.3279533474	0.07588734314	-0.5321936281	0.4711975047	-0.6530427821	-0.4789921757	-1.354571151	-1.23911462	Accepted	Low	B				
4	0.6237925491	0.5039861621	-0.6470112657	-0.2072638376	-0.6111276864	0.2993723699	-0.2813271544	-0.2353826381	Rejected	Low	A				
5	0.003123346235	-0.00563652715	-0.8159352718	1.204640776	-0.3837182201	-0.1537744268	-1.129106197	-1.833995635	Accepted	Medium	A				
6	-0.9110284267	-0.3580497755	0.4647539984	0.4110860394	1.162236039	0.6977399496	1.667793908	0.6564908518	Rejected	Low	A				
7	-0.6917999572	-0.6906286382	-0.2733163979	1.891949545	0.0563428858	-0.9114464648	-1.674560679	-2.417437522	Accepted	High	A				
8	0.4053228017	0.1170156936	-0.5758336055	0.4254924984	-0.739794018	-0.5045574724	-1.447927043	-1.265035959	Accepted	Low	C				
9	0.8170937054	0.6464840068	-0.8833802638	-0.1972602606	-0.8345130583	0.3426145053	-0.4851858438	-0.4377753508	Accepted	Low	A				
10	-1.347498151	-1.852123965	3.210917398	-1.009143933	1.159570532	-2.80487669	-0.8029428904	1.74823434	Rejected	Medium	C				
11	0.6449954223	0.4349251052	-0.951617085	0.3364741125	-0.8719680952	-0.01154276297	-1.101795475	-1.184621976	Accepted	Medium	C				
12	1.655253984	-0.2780090792	2.080282997	-3.574521233	-1.97942074	-3.778432855	-3.784262713	1.910860505	Rejected	Medium	D				
13	-1.96231875	-1.394329283	2.101410726	0.25355427	2.199467672	-0.3189048137	1.933376741	1.5837031	Rejected	Low	D				
14	-0.450375723	-0.1951935701	-1.092776025	2.173017781	-0.0512402217	0.07652153744	-1.035318802	-2.675969638	Accepted	Medium	B				
15	1.114170455	1.587671227	-2.534850435	0.5694127631	-0.8314176683	2.518530495	1.10707681	-0.974029189	Rejected	High	D				
16	2.532214681	1.690450403	-1.647938458	-1.716803469	-2.494376806	0.2318433582	-1.619129334	-0.08026479158	Accepted	High	B				
17	-0.4417612451	0.05917764686	-0.5122923887	0.9147102871	0.5284104875	0.9670961545	0.9918776924	-0.4695466187	Rejected	Low	D				
18	2.000644894	0.7239551671	0.04279939532	-2.365198155	-2.148542421	-1.563030507	-2.553715278	0.6904009575	Rejected	Low	C				
19	0.9623534017	0.1989999293	0.3632782234	-1.405226196	-1.070245943	-1.175612513	-1.51989656	0.5483317854	Rejected	Medium	D				
20	0.422613533	0.3063135227	-1.154033636	0.9654371858	-0.7853619314	-0.02346705647	-1.324083998	-1.875397838	Accepted	High	A				
21	-0.3805546105	-1.317441587	2.764831874	-1.758733242	0.1473129708	-3.042368931	-1.73303461	1.719979079	Rejected	High	D				
22	0.7963203807	0.09708883799	0.4881950414	-1.331497573	-0.8874773673	-1.159523435	-1.346326233	0.6235616706	Rejected	Low	B				
23	0.2370489077	0.352701604	-0.6396342635	0.24486785	-0.203314301	0.5676795411	0.1763023516	-0.375452228	Rejected	High	D				
24	0.3585842898	-0.06042160012	0.4506357371	-0.7740189234	-0.4290733271	-0.8191669471	-0.8208139905	0.4131911767	Rejected	Medium	A				
25	1.034225908	0.1825195783	0.4633580865	-1.567792239	-1.15744915	-1.352253547	-1.693321678	0.6368660147	Rejected	Medium	C				
26	0.5328319133	-0.2585410741	1.0759107	-1.480211377	-0.6705781308	-1.693431939	-1.52419363	0.9001606762	Rejected	Low	D				
27	2.788999939	2.418250889	-2.294428842	-2.065121591	-2.246795235	1.96200701	0.3707763072	0.8763861476	Rejected	Medium	B				

2) The data is transferred to Google Sheet and can be accessed from the following link : [dataset5](#)

To perform the activity, Cash Ratio, P/E, Earnings Yield, and SBI are chosen as the numerical variables  $X_1$ ,  $X_2$  and  $X_3$ , respectively from the dataset.

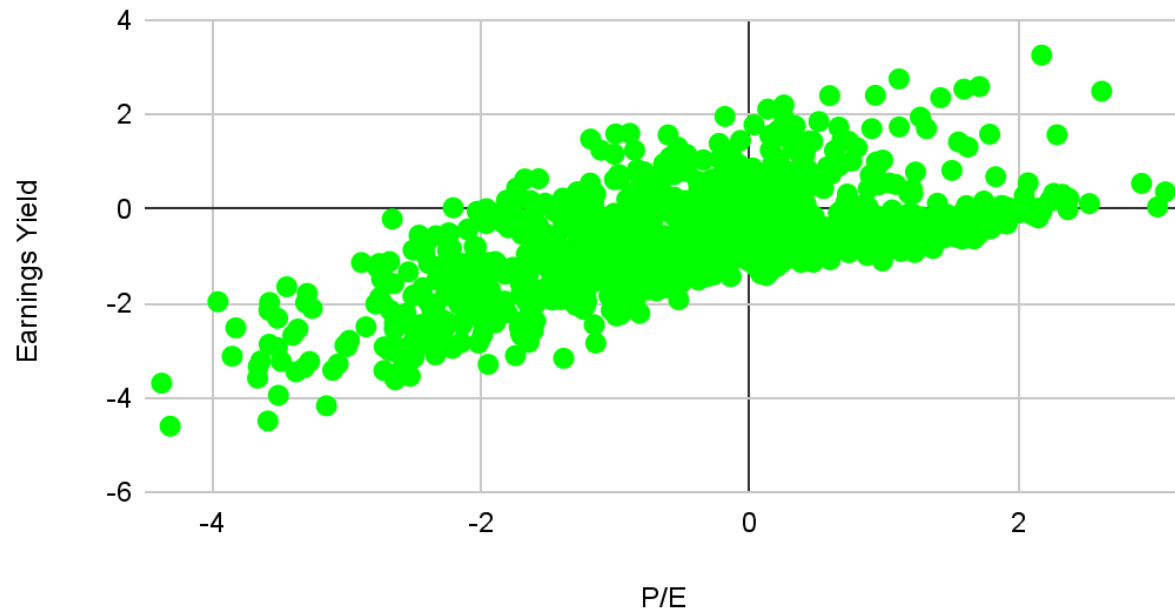
P/E vs Cash Ratio



**Interpretation:**

From the above scatter plot, it is evident that there exists a weak positive association between P/E and Cash Ratio. This indicates that there is no significant effect with modification of these two data column.

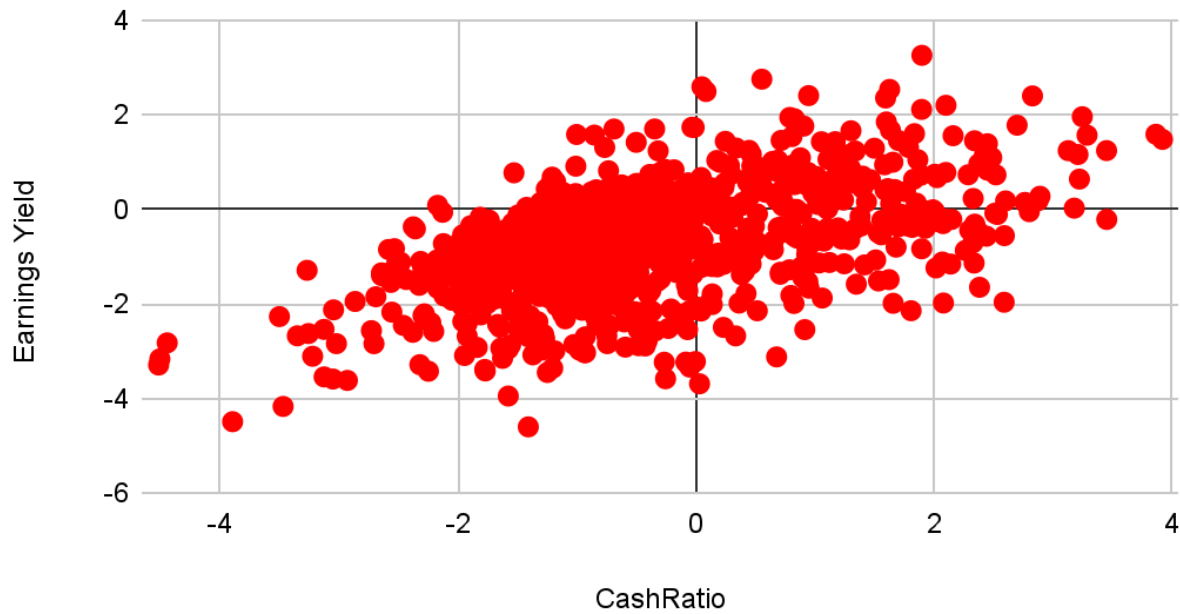
## Earnings Yield vs. P/E



### **Interpretation:**

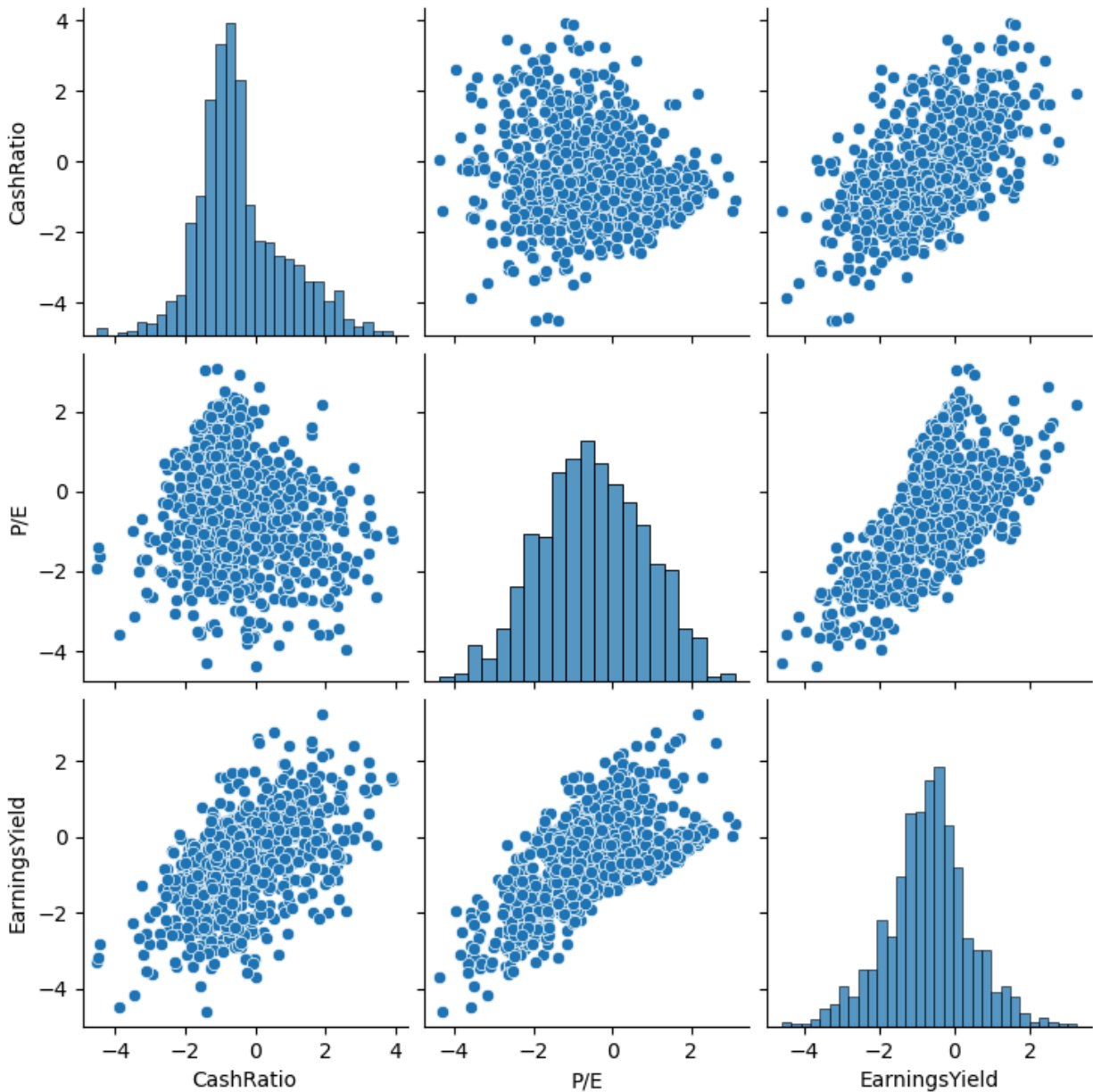
From the above scatter plot, it is evident that there exists a strong positive association between Earning Yield and P/E. This indicates a close relationship between the variables.

## Earnings Yield vs. CashRatio



### **Interpretation:**

From the above scatter plot, it is evident that there exists a strong positive association between Earning Yield and CashRatio. This indicates a close relationship between the variables.



### Calculation of Covariance between pair of variables:

We can determine the covariance between the pair of variables using the covariance matrix, as illustrated below:

	CashRatio	P/E	EarningsYield
CashRatio	1.000000	-0.161169	0.520896
P/E	-0.161169	1.000000	0.627041
EarningsYield	0.520896	0.627041	1.000000

### Calculation of mean and standard deviations:

Mean and standard deviations for the variables  $X_1$ ,  $X_2$ , and  $X_3$  have been calculated as below:

```
Mean Values:  
CashRatio      -0.429002  
P/E            -0.504235  
EarningsYield  -0.708805  
dtype: float64
```

```
Standard Deviations:  
CashRatio      1.262749  
P/E            1.327434  
EarningsYield  1.115273  
dtype: float64
```